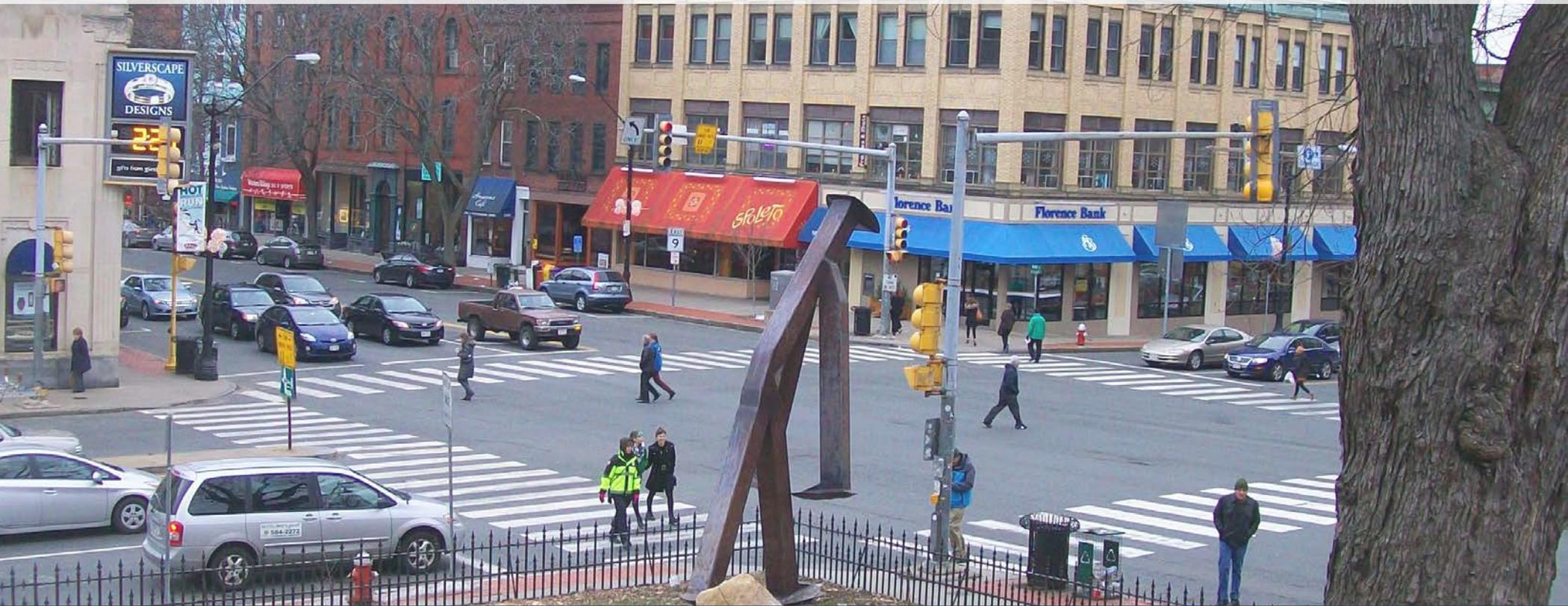


DRAFT

WALK

NORTHAMPTON

BIKE



PEDESTRIAN & BICYCLE COMPREHENSIVE PLAN



SEPTEMBER 2016

PREPARED FOR THE CITY OF NORTHAMPTON BY
ALTA PLANNING + DESIGN WITH WATSON ACTIVE



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CHAPTER ONE

EXISTING CONDITIONS

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1. EXISTING CONDITIONS

Introduction

This chapter includes summaries of pertinent existing studies, reports and policies that will inform the plan's future infrastructure, program and policy recommendations. In addition, it provides an assessment of current walking and bicycling conditions, including gaps in the walking and bicycling network. Other maps show transit routes in Northampton, as well as traffic volumes on key streets. A combination of GIS-based data, field work, and input from the City's Project Advisory Committee was used to develop the analysis. The map analysis was used to create recommendations for an integrated network of sidewalks, crosswalks, enhanced intersections, rail trail improvements and on-street bicycle facilities presented in Chapter 2.

Plans, Reports & Policies

The following section contains a synopsis of six reports that rely on common themes of creating a safer and more pleasant streetscape environment for the citizens and visitors of Northampton. The

reports include a Wayfinding Pilot Program, Walk/Bike Assessment, Parking Management Study, Feasibility Study for Regional Bike Share, Open Space and Recreation / Multi-Use Trail Plan, and the Sustainable Northampton Comprehensive Plan. In each of the reports, common themes of adding appropriate signage for pedestrians, motorists, and cyclists, reducing motor vehicle congestion downtown, increasing the ability, safety, and comfort of cyclists and pedestrians on sidewalks, roads, and crosswalks, providing safe access to rail trail corridors. The Bike Share Feasibility Study recommends introducing a regional Bike Share system in key locations through-out the city and extending into the Pioneer Valley. The Open Space plan has been adopted by 10 municipal boards and provides a blueprint for the long term development and infrastructural upgrades in the future, including providing sidewalks within a mile of all schools and creating a detailed map available to the public of the City's existing and planned bicycle network.



2. ADOPTED PLANS, REPORTS & POLICIES

2.1 Policy Review

Wayfinding Pilot Program for Enhanced Walking Connections (Winter-Spring, 2016)

Prepared For: City of Northampton

Plan Overview: Boston-based Pedestrian advocacy and consulting group WalkBoston worked with City’s Office of Planning and Sustainability on a pilot pedestrian wayfinding program designed to encourage utilitarian walking and to show how quickly one can reach a destination on foot. Signs will be placed at specific locations along the Northampton’s rail trails to indicate the amount of time (in minutes) it takes to walk or to bike to key destinations in the downtown area, and to other locations along the rail trails (schools, commercial centers, housing, etc.). The signs will be metal and affixed to existing kiosks or posts.

The project is funded by the MA Department of Public Health through 1422 – which is related to the Mass in Motion program.

Due to the funding parameters, the signage pilot program is to be completed by March 29, 2016.

Key Findings and Recommendations: Ongoing

Northampton Walk / Bike Assessment: Main Street, Northampton, MA (January 2016)

Prepared for: Massachusetts Department of Transportation Bicycle and Pedestrian Safety Awareness and Enforcement Program

Prepared by: Toole Design Group, WalkBoston, MassBike

Plan Overview: Northampton is one of 18 communities participating in MassDOT multi-disciplined program to improve bicycle and pedestrian safety in Massachusetts. A component of the program is to conduct walk and bike assessments, identify challenges, and make short and long-term recommendations. For this effort, WalkBoston, MassBike and Toole Design Group conducted the assessment of pedestrian and bicycle



Walk/Bike Assessment
Main Street
Northampton, MA
January 18, 2016

Prepared for the Massachusetts Department of Transportation Bicycle and Pedestrian Safety Awareness and Enforcement Program

infrastructure along Main Street (Route 9) in October 2015. Overall, the team found that pedestrian and bicycle movement along Main Street is compromised by the width of the roadway, multiple undefined travel lanes, poor sight lines adjacent to parked cars, long crosswalks, complex intersections and head-in angled parking (for bicyclists). Of note is that there have been several crashes involving pedestrians and bicyclists along the corridor, including one fatality.

Key Findings and Recommendations:

General Improvements:

- Reroute truck traffic on a different route to bypass Main Street through downtown
- Reconfigure the roadway width and, in places, geometry of travel lanes to provide a safer and more-coherent environment for pedestrians and bicyclists

Pedestrian Improvements:

- Narrow Main Street to shorten crossing distances by installing curb extensions and refuge islands, install bike lanes
- Remove parking within 20 ft. of crosswalks
- Evaluate signal timing for consistency and accessibility (including count-down timers)
- Enforce ordinances to keep sidewalks clear of intrusions into the pedestrian thru-zone
- Upgrade curb ramps and install detectable warning strips

Bicycle Improvements:

- Install bike facilities along Main Street (with both short and longer term options), ideally separated from motor vehicle traffic
- Install bike parking and way-finding signage

More detailed recommendations were provided at the following intersections:

- Elm/West/State/New South intersection
- Cracker Barrel Alley/Crafts Ave intersection
- Old South Street to Gothic Street segment
- King/Pleasant Street intersections
- Main/Crackerbarrel Alley: converting the latter to 'pedestrian only' would have little impact on access to the parking lot but reduce one significant conflict point

Parking Management Study, Downtown

Northampton, MA (April 2015)

Prepared for: City of Northampton.

Plan Overview: Although downtown is pedestrian oriented, the combination of newly planned developments and the ongoing presence of motor vehicles and the ability to meet parking demand is important to the success of downtown businesses. The three elements of this plan are: (1) to determine how parking is being utilized now and whether there is capacity to accommodate current needs. (2) To project the impact of future development on the parking system. (3) To review the City's parking management approach and offer recommendations for improvements.

Key Findings and Recommendations:

- Slowly increase price of parking on Main Street over time, from \$0.75/hr today to \$1.50/hr over the next few years
- Allow two-hour parking on Main Street, install signage prohibiting "re-parking" or exceeding the maximum
- Delay meter enforcement start times until 9:00am, allow three-hour parking in Armory Lot
- As single-space meters require replacement, consider upgrading to accept credit cards or pay-by-plate
- Retain a signage and graphics consultant to improve wayfinding to better facilitate access to the parking lots by car and on foot



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Regional Bike Share in the Pioneer Valley



- Explore feasibility of a parking app, a valet service for downtown businesses, and an inexpensive permit in peripheral lots for students of downtown trade schools
- To encourage turnover, step-up enforcement of meter violations

Feasibility Study for Regional Bike Share in the Pioneer Valley (March, 2015)

Prepared For: Pioneer Valley Planning Commission in collaboration with the Bike Share Feasibility Study Advisory Committee and municipalities of Northampton, Amherst, Holyoke and Springfield.

Plan Overview: From the report: “The Pioneer Valley region and its member communities are committed to creating more livable communities and downtowns, as well as reducing single occupancy vehicle trips and the resulting air pollution and GHG emissions. The region is working to increase alternative modes of transportation, including expanding infrastructure for biking, walking, bus and rail service. The region is also seeking to establish commuter rail service along the north-south Amtrak rail line serving Springfield, Holyoke and Northampton, and a bike share program could provide a complementary ‘last mile’ component to this service.” The Feasibility Study has been supplemented by a follow-up report in 2015-16 by Alta Planning + Design. The report includes more-detailed recommendations for a business model, recommended equipment, cost estimates over a 5-year period, a phasing plan for deployment and preliminary site plans for four bike share stations in each of the four municipalities that are part of PVPC’s study.

Key Findings and Recommendations:

- Systems should serve as an extension of public transit, and station phasing is important
- Casual riders are important; daily, weekly, and monthly users comprise a significant factor of overall ridership. Locate stations near major tourism destinations.

- Operating 3 seasons / year minimizes snow-removal issues.
- Implement a pricing structure that allows for multi-hour rentals. This allows built-in flexibility for recreational trips where a user would want to rent a bike for more than one hour without paying additional fees.
- Smart-lock or non-kiosk based systems greatly reduce the upfront and maintenance costs of system operation. Continue to monitor the success of the Phoenix, AZ bike share program to evaluate whether a public non-kiosk system would be practical for the Pioneer Valley.
- Provide discounted student memberships. Targeting the large student population for use of the bike share system will help increase its overall use, and many students who do not reside in Northampton during the summer months will have trouble justifying the membership fee for a 3-season system.
- Explore alternatives to credit card requirements. Credit-card requirements are common in order to prevent theft or vandalism to the bicycles, but present a major barrier to participation among low-income residents or those who do not have a credit card.
- Partner with other organizations to expand service to low-income individuals and locate stations in areas that have affordable housing and disproportionately low rates of bicycling. Financial assistance should be offered to low-income individuals seeking a membership.
- Explore feasibility of integrating fare payment with PVTA payment system to increase convenience of using both systems.

Open Space, Recreation & Multi-Use Trail Plan (2011)

Prepared For: City of Northampton.



Plan Overview: From the report: “The plan provides guidance on how the City of Northampton can best use limited resources to meet the City’s open space, agriculture, conservation, multi-use trail, and recreation needs.” The City engaged public participation and has received the endorsement of 10 municipal boards to adopt this plan in an effort to meet the needs of citizens and become one the most sustainable cities in Massachusetts.

Key Findings and Recommendations (within 13 broad categories of open space, recreation, and multi-use trail actions):

- Reclaim pavement for parks as appropriate. Report acknowledges that while “few sites are appropriate”, the effect on those sites can be dramatic. Potential sites include: Historic Mill River mixed-use development and park at Pleasant Street / Hockanum Rd, an urban park along Main St / Crafts Ave in front of City Hall, and at historically filled wetland sites in the Montview neighborhood and the Industrial Dr traffic circle area.
- Maintain well-managed conservation areas to preserve natural systems and make areas available for visitors, including those with disabilities
- Identify places for fishing, hunting, snowmobiling, off-road vehicles, horseback riding, and mountain biking
- Acquire conservation areas to enhance neighborhoods and urban areas
- Acquire land for recreation and improve existing recreation areas
- Develop a Connecticut River Boathouse
- **Connect the MassCentral / Norwottuck Rail Trail gap between Woodmont Road and King Street (funded)**
- **Extend the Connecticut River Greenway Trail 1.3 miles to Hatfield**
- **Utilize Village Hill development to extend a trail around the north edge of the campus**

- **A staircase ramp from the MassCentral / Norwottuck Rail Trail to Look Restaurant**
- **A ramp from the MassCentral / Norwottuck Rail Trail to the VA Hospital signal (develop a VA Park & Ride lot)**
- **A spur from JFK Middle School to Morningside Drive**
- **An access ramp in Haydenville to provide a northerly terminus of the MassCentral / Norwottuck Rail Trail**
- Develop a park at the triangle formed between Wright Avenue, Hockanum Road, and Pleasant St.
- **Develop a very small park in front of City Hall by reclaiming some land from Main Street and Crafts Avenue (which are unsafe for pedestrians as they are too wide)**
- Handicap Accessibility along the Nagel Walkway downtown
- The development of a handicap accessible ramp near the Jackson Street School to connect with existing rail trail (complete)
- Primary Objective / Action: “Plan for expansion of current recreation areas. Acquire western portion of City’s surplus Oak Street property, to create buffer along bike path and serve other future recreation needs. Acquire undeveloped land abutting Sheldon Field to allow for additional recreation opportunities.”
- Future projects should take environmental and cultural uniqueness into account, providing locations for specific activity within open spaces. For example, Northampton has a significant Hispanic population, so park designs should allocate space for traditional Mexican, South American, and Puerto Rican recreation.

Sustainable Northampton Comprehensive Plan (January, 2008)

Prepared For: City of Northampton

“Develop more multi-use trails, bike paths, bike lanes, bike routes and bike linkages to provide access to active and passive recreation and to create a healthy lifestyle and provide an alternative to single-occupancy vehicles.”

- From part 7, Analysis of Needs: Resource Protection, Community, and Management Needs, # 16



SUSTAINABLE NORTHAMPTON
Comprehensive Plan, January 2008

Plan Overview: A comprehensive planning effort intended to “ensure the city can continue to meet its current and ongoing environmental, social and economic needs without compromising the future for succeeding generations.” It is also intended to provide a blueprint for long-term infrastructure and development projects within the city. Ultimately, this Walk/Bike Northampton report will become a new chapter within the Sustainable Northampton Comprehensive Plan.

Key Findings and Recommendations:

- Ensure the safe and efficient transportation of goods and people by motor vehicles, bicycle, foot, and any other means
- Maintain an efficient transportation system that reduces air pollution and minimizes congestion
- Reduce use of single occupancy vehicles
- Ensure that safety is a primary goal in transportation improvements, to reduce crashes and ensure that all modes of traffic are safe and attractive to all users on all roads
- Ensure that the needs of transit services, bicycle, pedestrian, and wheelchairs are considered in every project affecting the transportation system
- When designing for truck movements, utilize mountable curbs, pedestrian islands, raised pedestrian crossings, and alternate truck routes where feasible
- Ensure that all new traffic signals incorporate audible pedestrian signals, and create a prioritized list of existing traffic signals where pedestrian signals are desired
- Examine all unsafe intersections, areas of excessive speeds, and areas where neighborhoods perceive a loss of quality of life to consider traffic calming efforts, ensure that the design of all new and reconstructed streets considers incorporating appropriate traffic calming measures
- Provide sidewalks on all roads within one mile of all schools
- Improve circulation system to accommodate development and encourage bicycle and pedestrian transit
- Ensure pedestrian, bicycle, non-motorized travel, and transit are addressed in every development project
- Replace all catch basin covers that are not bicycle-friendly

- Develop a citywide bicycle system including existing and planned off-road bicycle paths, on road-bike lanes, and safe on-road bike routes. On-road bike routes and lanes that provide direct access to the growing rail-trail network and to urban core areas should receive a high priority. The system should include supporting services, such as signage, bicycle storage, and bicycle system maps and information.
- Provide appropriate bicycle and vehicle parking to support local businesses

Main Street and King Street Transportation Charrette (March 2011)

Prepared For: City of Northampton

Prepared By: Nelson / Nygaard

Plan Overview: In 2011, a 3-day design charrette worked to identify issues and opportunities along the Main St and King St corridors in Northampton. The impetus for this study was Northampton’s desire to enhance the bicycle and pedestrian environments without decreasing the vehicle throughput, as well as preserve or improve access to downtown businesses.

Key Findings and Recommendations:

- Critical issues identified: 1) over-designed 4-lane cross sections, 2) large intersections, 3) inhospitable bicycling environment. An over-designed street is defined as one that is “over-scaled as compared to the needs of traffic volumes and adjacent land uses. The cross-section of these roads is too wide, allowing cars to travel at excessive speeds and creating unsafe conditions for bicyclists and pedestrians.”
- Lowering speeds through a road-diet identified as critical solution during charrette
- Studies referenced that show a direct correlation between street width and rate of injury in collisions. “with a very steep upward curve for streets wider than 44 feet.”

- Shrinking the intersection size and width with compact design treatments have a number of benefits: “reducing vehicle speeds, particularly at the end of signal phases; less wasted space, especially where right-turn lanes are poorly utilized today; stretching of vehicle queues away from multiple approach lanes linearly towards mid-block areas, with no additional vehicle delay; far more frequent pedestrian crossing phases, which are also longer in duration; significantly shorter crossing distances that reduce the barrier of intersections like MAin & King; and more predictable driver and bicyclists expectations through clearly channelized movements.”
- Long street widths and large intersections create “very long crossing distances for pedestrians, putting them in the path of cars for a long period of time.”
- Large intersections result in additional time required for each car to pass through, reducing the number of cars that can pass through in each signal cycle.
- Pull-in angled parking spaces on Main St. limit drivers’ field of view when backing out
- Additional connections are needed in places where bicycle facilities do exist but are lost at street crossings and intersections
- There is a general lack of quality bicycle parking in Northampton
- Solutions offered include road diets of four lanes to two lanes, shared bicycle boulevard style treatments, reverse angled parking on Main St, raised crossings on slip lanes, a textured crossing plaza in front of City Hall, curb extensions, new sidewalks under rail trail crossing, and widened sidewalks elsewhere

Main St / State St / Elm St / West St / New South St Preliminary Intersection Design (July 2010)

Prepared For: City of Northampton

Prepared By: Nelson / Nygaard

Plan Overview:

In 2011, the city of Northampton brought in Nelson Nygaard to analyze the State / Main / New South intersection and to develop recommendations for redesigning the intersection to better accommodate traffic flow and pedestrian and bicycle safety. Their work resulted in three alternative options, including:

Alternative A:

- Right turn “boulder style” slip lanes
- New NB left-turn lane
- Single EB through lane
- Lengthened storage
- New on-street parking

Alternative B:

- Right turn “Boulder style” slip lanes
- New NB left-turn lane
- Single EB through lane
- Lengthened storage
- New on-street parking
- Two EB receiving lanes retained
- No northwest curb extension on Main St

Alternative C:

- Right turn “Boulder style” slip lanes
- New NB left-turn lane
- Two EB through lanes
- Lengthened storage
- Two EB receiving lanes retained
- No northwest curb extension on Main

After the completion of the three design options the city of Northampton then decided to hold back on moving forward with final design due to issues related to truck turning movements

“Develop more multi-use trails, bike paths, bike lanes, bike routes and bike linkages to provide access to active and passive recreation and to create a healthy lifestyle and provide an alternative to single-occupancy vehicles.”

- From part 7, Analysis of Needs: Resource Protection, Community, and Management Needs, # 16



Policy Review

Zoning Ordinances (includes site plan review)

Prepared by: City of Northampton

Policy/Program Overview: Chapter 350 of the Code of Ordinances of the City of Northampton governs zoning in the City. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

Defines short- and long-term bicycle parking (§350-2.1 General).

Defines “cycle track”, a physically separated bicycle facility (§350-2.1 General).

Important note: Definition of “motor vehicle” could potentially apply to and limit use of electric-assist bicycles (“e-bikes”) (§350-2.1 General).

Prohibits obstruction of sightlines at intersections and driveways (§350-6.8 Other general dimensional and density provisions).

Sets minimum vehicle parking space requirements for different types of structures and uses, based primarily on square footage, with residential caps but no caps for businesses or institutions (§350-8.1 Off-Street parking requirements).

- Businesses can reduce parking up to 20% with an employee trip-reduction plan (§350-8.6 Shared parking)
- In the Central Business District, can meet parking requirement by paying \$2,000 per parking space into Downtown Parking Reserve Account (§350-8.10 Special provisions in Central Business District for meeting off-street parking requirements). This only applies to very few uses (places of assembly). For the majority of the

Central Business District there are no parking requirements.

Bicycle parking required for “any new building, addition or enlargement of existing building, or, except for in the Central Business District, for any change in the use of a building” (§350-8.11 Bicycle parking).

- Based on number of units for dwellings, square footage for businesses, number of classrooms for schools.
- 50% long-term bicycle parking required for residential, hotel, motel, B&B
- Refers to Northampton Bicycle Parking Guide for graphics and examples.
- Important note: There are inconsistencies in the requirements and specifications between the bike parking ordinance and the bike parking guide. (Bike parking guide is not regulatory.)
- Questions: Look at alternative formulations for bike parking requirements, and provision of end-of-trip facilities (showers and lockers).

Specifies site plan requirements (§350-11.5 Procedures)

- Requires estimated vehicle (but not bicycle or pedestrian) trip data.
- Traffic patterns for vehicle and pedestrian access.
- Traffic safety plan, which, for new commercial, office, and industrial buildings, must “evaluate alternative mitigation methods to reduce traffic by 35%”, including “Encouraging pedestrian and bicycle access to the site”.
- Assessment of traffic safety impacts on adjacent roadways.
- “An interior traffic and pedestrian circulation plan designed to minimize conflicts and safety problems.”

Sets up site plan approval criteria (§350-11.6 Approval criteria)

“Safe and adequate pedestrian access, including provisions for sidewalks and/or bike paths to provide access to adjacent properties and adjacent residential neighborhoods, as applicable, and between individual businesses within a development.”

- From §350-11.5 Procedures

- Important quote: “The requested use will promote the convenience and safety of vehicular and pedestrian movement within the site and on adjacent streets, cycle tracks and bike paths, minimize traffic impacts on the streets and roads in the area.”
- Important quote: “The project, including any concurrent road improvements, will not decrease the level of service (LOS) of all area City and state roads or intersections affected by the project below the existing conditions when the project is proposed and shall consider the incremental nature of development and cumulative impacts on the LOS. The project proponent must demonstrate that all cumulative and incremental traffic impacts have been mitigated.”
- Mitigation can include payments to fund improvements for off-site traffic impacts, public transit, and pedestrian or bicycle paths. It is expected that developers mitigation even incremental impacts of their projects with improvements or payment in lieu of improvements. Mitigation payments are an important and major source of funding for Northampton projects. This system includes incentives for development in the most walkable and bikeable places. \$1,000 to \$3,000 per peak afternoon trip.
- Specific mitigation payments are set based on type of location and estimated peak trips.
- Important quote: “Rear and/or side wall facades within 50 feet of a completed or planned section of a cycle track or bike path shall have features that invite pedestrian access from that side of the building”.
- Important quote: “Pedestrian, bicycle and vehicular traffic movement on site must be separated, to the extent possible, and sidewalks must be provided between businesses within a development and from public sidewalks, cycle tracks and bike paths. All projects shall include sidewalks and tree belts abutting the street,

except where site topography or other limitations make them infeasible. In such cases where the sidewalk is infeasible, the developer shall install an equal number of feet of sidewalk and/or tree belt in another area of the community as deemed by the Planning Board or Office of Planning and Sustainability.”

- Establishes technical specifications for sidewalk design:
 - » Concrete.
 - » Minimum six feet in commercial and industrial districts.
 - » Minimum five feet in residential district.
 - » Specs for ramps, cross-slope, etc.
 - » Allows, but does not require, curb extensions.
 - » Curb extensions must not impede bicycle traffic.

Provisions for vehicles and pedestrians must be at or near grade if at or below the 100-year floodplain in the SC or Floodplain District (§350-13.6 and §350-14.6 Development conditions).

Special permit approval for business park requires both open space and pedestrian access to the open space (§350-16.3 Criteria for special permit approval).

Establishes Sustainable Growth Overlay District to encourage smart growth developments, including “a variety of transportation options” (§350-20 Sustainable Growth Overlay District (SG))

- Parking requirements are the same as for other development (§350-20.9 Parking requirements).
- Plan approval criteria with respect to transportation (including bicycle and pedestrian) are similar to regular site plan criteria.

Highway Business District:

Bike parking: “1 bike rack per 10 parking spaces up to 15 required (indoor or outdoor). Storage must allow locking of

“Access by non-motorized means must be accommodated with facilities such as bike racks, sidewalk connections from the building to the street, cycle tracks, and bike paths that are clearly delineated through materials and/or markings to distinguish the vehicular route from the non-vehicular route.”

- From §350-11.6

bicycles to racks or inside storage containers.” (Chapter 350 Attachment 12)

Sidewalks: (Highway Business District Design Standards attachment)

- “At least one 6’ wide principal sidewalk leading either from the street or public bike path to the principal structure on site”
- “Continuous internal pedestrian walkways, no less than six feet (6’) in width, shall be provided from the principal sidewalk to the main customer entrance of all other buildings on the site.”
- “Walkways shall connect focal points of pedestrian activity, such as but not limited to transit stops, street crossings, building and store entry points.”
- “Sidewalks, no less than eight feet in width, shall be provided along the full length of the building along any facade featuring a customer entrance, and along any facade abutting public parking areas.”

Entranceway Business District:

Bike parking: “1 bike rack per 10 parking spaces up to 15 required (indoor or outdoor). Storage must allow locking of bicycles to racks or inside storage containers.” (Chapter 350 Attachment 10)

Sub-Division Regulations

Prepared by: City of Northampton

Policy/Program Overview: Chapter 290 of the Code of Ordinances of the City of Northampton governs subdivision of land in the City. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

In addition to governing the subdivision of land, these are the technical specifications that apply for site plan approvals.

Purpose does not expressly include pedestrian or bicyclist access or safety (§290-2 Purpose): It reads, in part (emphasis added), “The powers of the Planning Board and the Board of Appeals under these rules and regulations shall be exercised with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion on such ways and in the adjacent public ways; **for reducing danger to life and limb in the operation of motor vehicles....**”

Definitions include subdivision street types (§290-4 Terms defined):

- Private Alley: private, narrow, one-way vehicular and pedestrian route with green infrastructure for stormwater runoff, no curbing or sidewalks.
- Residential Shared Street: private, narrow, low-speed, two-way street where vehicles and pedestrians share the same space, no sidewalks or curbing, green infrastructure, parking pockets and street furniture for traffic calming, not appropriate for main through streets.
- Residential Yield Street: low-speed, two-way street with sidewalks, alternating parking pockets to slow speeds and require oncoming traffic to yield, intersections have crosswalks with curb extensions.
- Mixed Use/Commercial Street: low-speed, two-way street with sidewalks, on-street parking to slow traffic, curb extensions shorten crossing distance and reduce vehicle turning speed.

Traffic study submittal requirements include pedestrian and bicycle modes (§290-23 Additional subdivision submittal requirements):

- Estimated daily and peak-hour trips for vehicles and pedestrians; does not specifically include bicycles.
- Traffic safety plan, including alternatives to single-occupancy motor vehicles, and evaluation of methods to

reduce traffic by 35%, including “Encouraging pedestrian and bicycle access to the site”.

- Network analysis showing how project enhances flow of existing network.
- Pedestrian components: interior circulation plan to minimize conflicts and safety problems, and adequate pedestrian access including sidewalks connecting to adjacent properties and businesses within the development.
- School bus and public transit stops, as appropriate.
- A focus is on maintaining LOS: Demonstrate that project will not decrease LOS below existing conditions at time of proposal and considering future development and impacts.
- Proponent must mitigate off-site traffic impacts, or may request to pay to fund necessary off-site improvements, including public transit and pedestrian or bicycle paths.

Adopts Massachusetts Department of Transportation (MassDOT) Standard Specifications for Highways and Bridges and its supplements (§290-28 Controlling standards).

Design specifications for the four street types, as relevant to pedestrian and bicycle use (§290-29 Streets and ways):

- Right-of-way
 - » Private Alley: NA
 - » Residential Shared Street: NA
 - » Residential Yield Street: 60'
 - » Mixed Use/Commercial Street: 70'
- Pavement width
 - » Private Alley: 14'
 - » Residential Shared Street: 20'
 - » Residential Yield Street: 20' within 30' of intersection; 24' elsewhere
- » Mixed Use/Commercial Street: 22' within 30' of intersection; otherwise 30' when street serves <25% commercial by sq. ft.; 38' all other
- Limit of dead-end streets, measured along the center line, from the nearest public (non-alley) street that is not itself a dead-end street: 500'
- Length of block between 3+ way intersections
- Length of block if broken up at least every 500' by a walking or bicycling trail and connects permanently to protected open space
- Pavement Type: Hot mix asphalt, with textural changes for Private Alley or Residential Shared Street.
- Vehicle flow: Two-way, except Private Alley may be one-way.
- Sidewalk (cement concrete only, including where it crosses driveway)
 - » Private Alley: none
 - » Residential Shared Street: none
 - » Residential Yield Street: 5' wide, both sides, except that LID street with no curbs on one side may eliminate sidewalks on the curbless side with additional crosswalks at least every 200 feet.
 - » Mixed Use/Commercial Street: 6' wide both sides
- Crosswalks (to be located at all street and trail intersections and no other locations): Raised to elevation of sidewalk (or pedestrian path for Alley or Residential Shared Street).
- Shoulders
 - » Private Alley: not allowed
 - » Residential Shared Street: not allowed
 - » Residential Yield Street: bike facilities as necessary for arterials

“...the design shall make every effort to reasonably calm the traffic within the subdivision and on surrounding streets to ensure pedestrian- and bicycle-friendly design and to prevent a decrease in traffic safety as a result of the additional traffic the project will generate. Bicycle and pedestrian pathways are encouraged within large developments and should be linked to adjacent properties, pathways, sidewalks, and transit stops wherever feasible..”

- From §209-29

- » Mixed Use/Commercial Street: bike facilities as necessary depending on functional type
- Curbs: 30’ from each intersection and on sides whenever there are no rain gardens, bioretention areas, or curb cuts.
- Stopping sight distance (considering vertical alignment, slopes, and obstructions)
 - » Private Alley: 80’
 - » Residential Shared Street: 80’
 - » Residential Yield Street: 115’
 - » Mixed Use/Commercial Street: 155’
- Design speed:
 - » Private Alley: 15mph
 - » Residential Shared Street: 15mph
 - » Residential Yield Street: 20mph
 - » Mixed Use/Commercial Street: 25mph
- Streetlighting (must be LED): Intersections and crosswalks.

Location (§290-29.A):

- **“All streets and ways shall be designed so that, in the opinion of the Planning Board, they will provide safe vehicular travel”.**
- “The proposed streets shall be consistent with the goals of Sustainable Northampton”.
- Requires provision “for the proper projection of streets, or for access to adjoining property that is not yet subdivided or developed”.
- Dead-end/cul-de-sac: “A right-of-way from the end of all culs-de-sac and dead-end roads to adjoining property must be part of the street layout and must be shown on street acceptance plans and deeds unless there is

compelling evidence that the adjoining property will never be developed.”

- Requires bicycle and pedestrian access to adjoining undeveloped property: “If the adjoining property shall never be developed, there shall be a pedestrian and bicycle trail up to the property line, unless wetlands and grade make that impossible.”

Cul-de-sac or dead-end streets (§290-29.B):

- “It is the Board’s policy not to approve streets that do not connect to existing neighborhoods or do not provide for connections in the future. The applicant must show a scenario of how a street connection can be made. Further, the developer shall make every effort to avoid the creation of dead-end streets and must connect its subdivision to existing dead-end streets whenever reasonably possible. Dead-end streets are more expensive to maintain, limit emergency access, and reduce the sense of connection and equality that comes from interconnecting street grids.”
- Bicycle and pedestrian connectivity required when dead-end allowed (emphasis added): “Dead-end streets are only appropriate when the surrounding property will never need a street connection, because of extremely sensitive and permanently protected natural resources, and the project provides a viable alternative pedestrian and bicycle connection to the surrounding property, and the street connection will not aid the transportation network that serves the subdivision, and the dead-end street will not serve more than 20 housing units.”
- Less than 500 feet from a connected street: “Every street in the proposed subdivision shall be laid out in such a manner that every portion of every street is less than 500 feet, as measured along the center line of construction of the street from the nearest connected existing public street which is not itself a dead-end street. Culs-de-sac

or dead-end streets shall be allowed only on residential streets.”

Street cross sections (§290-29.C): representative cross sections are shown for the four street types.

Traffic calming and pedestrian and bicycle access (§290-29.E):

- Traffic calming may utilize methods detailed in ITE’s Traditional Neighborhood Development or Traffic Calming: State of the Practice, and “complete streets” principles from the National Complete Streets Coalition, but must utilize methods that will not make snow plowing or road maintenance especially burdensome for the City.”
- Unclear what “especially burdensome” means with respect to snow clearance and maintenance of physically separated bicycle facilities.

Shared streets (§290-29.F):

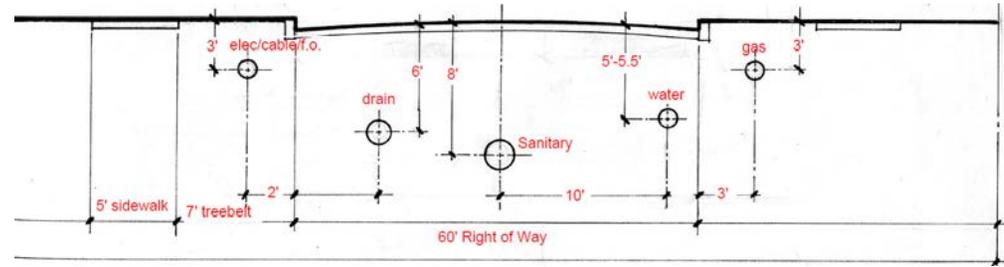
- Traffic calming to reduce vehicle speeds to 15mph.
- Use chicanes to reduce speeds.
- Narrow to one travel lane at entryways, using excess space for at-grade sidewalks.

Sidewalk standard (§290-35 Sidewalk standards and school bus stops):

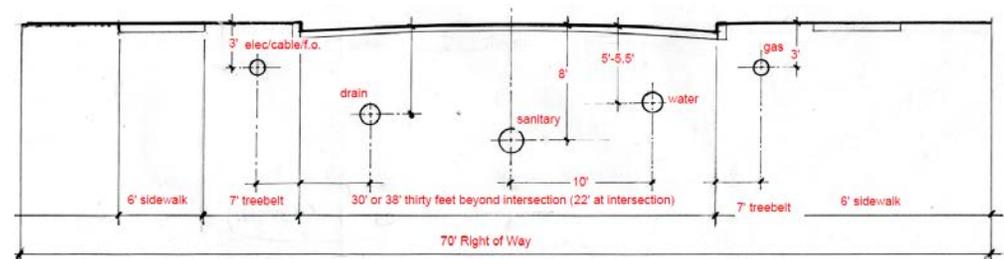
- HOA covenants must require that HOA clear snow from all sidewalks.
- With approval, sidewalks may be built in common areas rather than right-of-way, but HOA must still do snow clearance.
- Shared streets should have paved pedestrian area on both sides, from 3-12 feet, but a pedestrian area on only one side is permissible with approval.
- Paving as indicated in §290-29, with textured pervious paving and flush granite curbing on shared streets. Bollards may be required to separate pedestrian areas

Four Subdivision Street Types

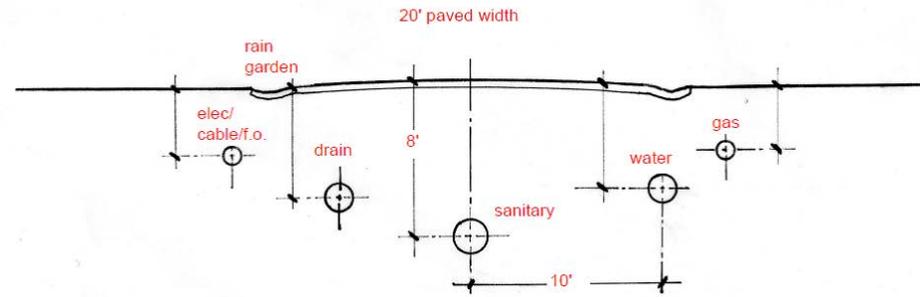
Residential Yield Street



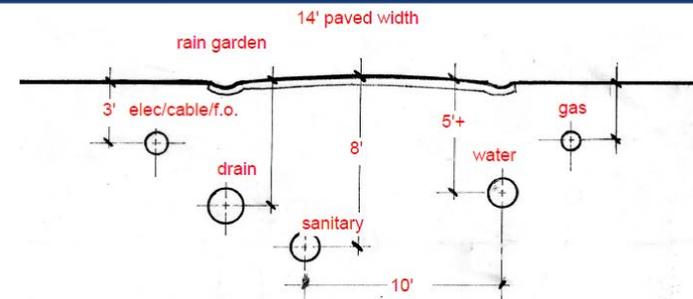
Mixed Use Street



Shared Street



Green Alley



Various Walk / Bike Related Policies

Policy/Program Overview: Chapter 312 of the Code of Ordinances of the City of Northampton governs vehicles and traffic in the City. Section 312-78 establishes rules specifically for “the bikeway”. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- Unclear from context which “bikeway” is referred to, as there are currently multiple bikeways serving Northampton.
- No motorized vehicles allowed; could limit use of e-bikes.
- Bikeway is closed from dusk to dawn; inconsistent with using the bikeway as a transportation corridor.
- Bikeway users required to:
 - » Stop at all street crossings.
 - » Yield to vehicles in the road.
 - » Keep to the right.

Policy/Program: Bike Lane Ordinance

Policy/Program Overview: Chapter 312 of the Code of Ordinances of the City of Northampton governs vehicles and traffic in the City. Section 312-80 defines and regulates use of bike lanes in the City. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- Bike lanes are for preferential, but not exclusive, non-motorized bicycle use.
- Bike lanes to be designated by “painted lines, pavement coloring or other appropriate markings.”
- Vehicle parking in bike lanes is prohibited, subject to a \$25 fine.
- Motor vehicles must use “due caution and care” before entering or crossing a bike lane.

- City Council designates bike lanes based on recommendation of Transportation and Parking Commission, with concurrence of Department of Public Works (all three bodies must agree).
- The bike lanes specifically designated in the ordinance can be found in the Appendix.

Policy/Program: “No Skitching” Ordinance

Policy/Program Overview: Chapter 312 of the Code of Ordinances of the City of Northampton governs vehicles and traffic in the City. Section 312-61 prohibits clinging to motor vehicles. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

“It shall be unlawful for any person traveling upon a bicycle, motorcycle, coaster, sled, roller skates, or any toy vehicle to cling to, or attach himself or his vehicle to any moving vehicle or street car upon any roadway.”

Policy/Program: Bicycling Prohibited at Schools and Recreational Facilities

Policy/Program Overview: Chapter 233 of the Code of Ordinances of the City of Northampton governs parks and recreation in the City. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- “No person shall operate a motor vehicle, including, but not limited to a skimobile, minibike, trailbike, automobile, or other powered vehicle, or a bicycle, on any school grounds or in any park, playground, or recreation field operated by the Recreation Department, except on driveways and in parking lots.” (§233-1 Operation of Vehicles, emphasis added)

Enforcement of Ordinances

Policy/Program Overview: Chapter 40 of the Code of Ordinances of the City of Northampton governs enforcement of City ordinances by criminal complaint, civil action, and noncriminal disposition (fine). Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- Covers all violations of city ordinances, including zoning.
- Fines are not specified for every ordinance:
 - » Where a fine is not specified for a criminal complaint, the default fine is up to \$300 (§1-17 General penalty).
 - » Where a fine is not specified for a noncriminal disposition, the default fine is \$20 for the first offense and \$50 for subsequent offenses.
 - » Each day a violation continues is considered a separate offense.
- Fine for zoning violation (Chapter 350) is \$100.
- Fine for snow/ice removal violation (§285-17) is \$50.
- Fine for obstructing a street or sidewalk (§285-29) is \$50.

Important Note: It is unclear to what the following section references at the end of the table in §40-5 refer: “VIII-B, 1”; “IX-E”; “III, V, VI, or IX”.

Policy/Program: Complete Streets Policy

Policy/Program Overview: Section 285-51 of the Code of Ordinances of the City of Northampton contains the City’s new Complete Streets Policy, passed by the City Council on December 3, 2015, and approved by the Mayor on December 7, 2015. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- The City’s Complete Streets Policy ensures that pedestrian, bicycle and transit facilities are fully integrated into a safe and efficient transportation system.
- If the Complete Streets Policy is approved by MassDOT, the City can submit a Complete Streets Prioritization Plan and request funding for up to five Complete Streets projects for a maximum total of \$400,000. Program details can be found at: <http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/LocalAidPrograms/CompleteStreets/FundingProgram.aspx>.
- Details of the Complete Streets Policy’s text can be found in the Appendix.

Policy/Program: Street and Sidewalk Ordinances

Policy/Program Overview: Chapter 285 of the Code of Ordinances of the City of Northampton governs various aspects of construction, maintenance, and use of streets, sidewalks, and public property in the City. Analysis based on code version linked from City website at <http://ecode360.com/NO2226>.

Key Provisions:

- Sidewalk snow clearance (§285-17 Removal of snow and ice from sidewalks):
 - » Owner of any building, structure, or lot with a sidewalk must clear snow within 24 hours after snowfall ceased.
 - » Owner must remove or cover with sand or other suitable substance any ice within 24 hours of its appearance.
 - » Full width of sidewalk must be cleared.
 - » Sidewalk must be rendered safe and convenient for travel.
 - » Special timing for Central Business District: within 24 hours or 9:00am the next business day, whichever is sooner.
 - » Violation to move ice or snow onto paved street or gravel shoulder.

- » \$50 fine for violation, new fine each 24-hour period of violation.
- » DPW may clear violator's sidewalk, at owner's expense.
- Preventing tire damage (§285-8 Placing items liable to damage tires on streets prohibited): illegal to place anything on a street that can damage the tires or wheels of bicycles, automobiles, or other vehicles with rubber or pneumatic tires.
- Prohibited activities (§285-12 Certain activities on streets and sidewalks prohibited):
 - » No sidewalk surfboards, skateboards, roller skates, or in-line skates on certain public area, public ways, and sidewalks (§285-12.A)
 - » Use of bicycles (§285-12.B Provisions for bicycles):
 - Bicycles allowed on all streets.
 - Bicycles allowed on all sidewalks except specific sidewalks in the Downtown Business District and the Florence Business District:
 - Bicycles not allowed to be "driven" in Pulaski Park.
 - Important Note: Bicycling further prohibited from "any school grounds or in any park, playground, or recreation field operated by the Recreation Department, except on driveways and in parking lots" by §233-1 Operation of Vehicles (in Chapter 233: Parks and Recreation).
- Sidewalk sweeping (§285-18 Sweeping of sidewalks abutting business premises): owners of business premises must sweep sidewalk "at the opening of each business day", and must pick up the sweepings, not sweep them into the street.
- Gratings (§285-24 Gratings in streets): specifies certain dimensions of grates – no more than 2 inches between

bars, and no more than 18 inches from a building; does not meet requirements for bicycle-safe grate, and does not otherwise limit size or shape of grate.

- Obstructing sidewalks (§285-29 Obstructions to sidewalks): No obstructions allowed to sidewalks, or the pavement edge or shoulder where there is no sidewalk, including protruding vegetation. Owner must remove obstruction within 14 days of notice, or City will remove at owner's expense.

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2.2 Walk Bike Programs Review

As a community that has strived to achieve its status as a very walkable and bikable city, Northampton has initiated a number of Active Transportation Programs. The mix of Education, Encouragement, Enforcement and Evaluation programs give residents important tools to better integrate walking and bicycling into their lives, and increase the number of both modes. This is especially critical with children as Safe Routes to School efforts will instill lessons and habits that can be used for a lifetime. The sections below give a summary of the various programs, which in aggregate have helped the City achieve designation as a walk-friendly and bicycle-friendly community.

Program: Safe Routes to School (Education and Encouragement)

Source: Erin Reed, Statewide Coordinator, Massachusetts Safe Routes to School Program

SRTS Overview: Safe Routes to School (SRTS) is a federally-funded, MassDOT-managed program that “promotes healthy alternatives for children and parents in their travel to and from school.” SRTS has education, encouragement, and infrastructure components.

Key Activities:

- All four Northampton elementary schools and the middle school are SRTS partner schools.
- According to SRTS: “Northampton Schools have various walking clubs/activities within their gyms and/or on school grounds. During 2014 and 2015, SRTS met with the head nurse of K-12, twice with the transportation director, and once with the Superintendent. A handful of meetings were held with Northampton’s Mass in Motion organizer about plans to increase walking and walking/bicycling safety. There was a big concern expressed regarding walking school bus creation and walking promotion in general: the number of local child offenders/predators in the community.”

- Northampton schools have not participated in SRTS bicycle or pedestrian safety trainings.
- The Jackson Street Elementary School received a SRTS infrastructure project completed in 2010. Leading up to the project, the school conducted student travel tallies and parent surveys annually.
- Northampton Public Schools added travel safety information to the school district website (<http://www.northampton-k12.us/traveling-to-school-safely>):

Northampton Public Schools has employed crossing guards at the following intersections:

- Jackson Street & Barrett Street
- Florence Street and Leeds
- Prospect Street & Massasoit Street
- Florence Street & Arch Street
- Bridge Street & Hawley Street
- Parson Street & Union Street
- Bridge Street near Pomeroy Terrace
- Brookside Circle & Deerfield Drive
- JFK Middle School
- Mulberry Street & Main Street
- Ryan Road & Matthew Drive

Program: Encouragement

Sources: Wayne Feiden, Northampton Director of Planning and Sustainability; Sean Condon, President, MassBike Pioneer Valley Chapter; Craig Della Penna, Co-President, Friends of Northampton Trails and Greenways; MB/PV website (<http://massbikepv.org/>); Bay State Bike Week website (<http://baystatebikeweek.org/>); Friends of Northampton Trails and Greenways website (<http://fntg.net/>); Northampton Cycling Club website (<http://www.nohobikeclub.org/nccwp/>)

Encouragement Overview: Activities to encourage bicycling and walking in Northampton are ongoing and multi-faceted, relying on various nonprofit organizations, with very limited government funding.

Key Activities:

- Trail and bike maps: Produced by the Friends of Northampton Trails and Greenways, available for download on the FNTG website, hardcopy at local businesses.
- Wayfinding/Signage:
 - » City installed approximately 12 bike paths kiosks 12-13 with signage, funded by a Recreational Trails Grant obtained by MassBike and the City.
 - » City installed a large graphic art sign on the bike path bridge over Main Street (helps define downtown and draw people to path).
 - » City is working with WalkBoston to install wayfinding signs with distances to key destinations, 100 total, 20-30 on bike path.
 - » City plans to install mileage markers on bike paths, starting with salvaged granite marker at Union Station, with flush granite markers on bike paths.
- Trail information is available on City website at: <http://www.northamptonma.gov/1346/BikeWalk-Trails>.
- Bay State Bike Week: annual statewide celebration of bicycling, coordinated by MassDOT, MassBike, and MassRIDES. The Pioneer Valley is host to many Bike Week events each year. Bay State Bike Week traces its roots to Pioneer Valley Bike Commute Week, which started in 1999 and is now in its 17th year, coordinated by the Pioneer Valley Planning Commission and the MassBike Pioneer Valley Chapter.
- Northampton Cycling Club (NCC) BikeFest: annual bike tour and festival.

- MassBike/Pioneer Valley chapter is interested in holding Open Streets events in Northampton, but has not identified funding.
- National recognition for Northampton's programs (and infrastructure): recognized as a Bronze-Level "Bicycle Friendly Community" by the League of American Bicyclists and a Bronze-Level "Walk Friendly Community" by the Pedestrian and Bicycle Information Center.

Program: Education

Sources: Anne-Marie Moggio, Director, Northampton Parks & Recreation Department; Sean Condon, President, MassBike Pioneer Valley Chapter; Ruthy Woodring, Co-founder, Pedal People Cooperative; MB/PV website (<http://massbikepv.org/>); Bay State Bike Week website (<http://baystatebikeweek.org/>)

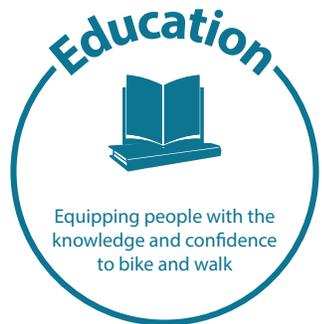
Education Overview: A variety of local programs provide education on bicycling and walking safety, and related topics, led by the City, nonprofits, Smith College, and other organizations.

Key Activities:

- Safety Village: The Parks & Recreation Department runs a summer program for 4-6 year olds that teaches various safety topics, including bicycle, pedestrian, and traffic safety, in a replica of Northampton with storefronts, streets, sidewalks, and signs. The program consists of three, two-week sessions per year, reaching up to 120 children. It has been in operation for approximately 25 years. Representatives from the police, fire department, hospitals, and other agencies participate. The children ride bicycles with training wheels and walk the sidewalks to learn traffic safety. See details at <http://www.northamptonma.gov/905/Safety-Village>.
- Teen Camp: The Parks & Recreation Department also offers occasional bike safety training, bike rides, and bike maintenance training at its teen camps, but less regularly than the Safety Village program.



Kids participate in the Safety Village summer program



- City distributes “Watch for Bikes” stickers for car mirrors, but not in an organized program.
- Road Cycling 101: bicycling skills class offered jointly by MassBike Pioneer Valley Chapter and Northampton Cycling Club, 14 participants in 2015
- Smith Bike Kitchen: Smith College has an on-campus bicycle repair, education, and rental organization.
- Pedal People education programs: Pedal People is a cooperative whose primary activity is delivery and cargo hauling by bicycle, and they provide training to their employees covering bike safety and maintenance, and operation of cargo trailers. Pedal People also provides educational programs to the public. The Saturday Bike Lab consists of regular workshops and classes in bicycling skills and bicycle maintenance. Since December 2014, Pedal People has partnered with Berkshire Driving School in Easthampton to offer a monthly, one-hour training to student drivers (mostly teenagers) including sharing the roads as drivers and cyclists, safe interactions between drivers and cyclists, common cyclist concerns, and cyclist behavior.
- As noted in the Safe Routes to School section, Northampton schools have not participated in bicycle and pedestrian safety trainings offered by SRTS.

Program: Enforcement

Sources: Bonnie Polin, Chief Safety Analyst, Traffic and Safety Engineering Section, MassDOT Highway Division; Gary Roux, Principal Planner/Traffic Manager, Transportation, Pioneer Valley Planning Commission; Wayne Feiden, Northampton Director of Planning and Sustainability

Enforcement Overview: A collection of target enforcement activities intended to enhance pedestrian and bicycle planning.

Key Activities:

- Northampton is currently participating in the MassDOT bicycle and pedestrian safety program, which includes an enforcement component funded through the Pioneer Valley Planning Commission. This funding has included occasional helmet giveaways by Northampton Police Department.

Program: Evaluation

Sources: Friends of Northampton Trails and Greenways, Pioneer Valley Planning Commission (PVPC), Central Transportation Planning Staff (CTPS)

Evaluation Overview: Involved a series of trail counts between 2005 and 2011 on the three rail trails within the City of Northampton. A summary of the data collected can be found on the following page.

Bicycle and Pedestrian Counts

WHO:	Friends of the Northampton Trails & Greenways	Pioneer Valley Planning Commission		Central Transportation Planning Staff - Boston Region MPO		
	2010	2005	2008	September 8, 2007	September 8th, 2007	2005 + 2007
WHERE:	New Haven & Northampton Canal Line	MassCentral Rail Trail	New Haven & Northampton Canal Line	MassCentral Rail Trail at Chestnut Street	MassCentral / Norwottuck Rail Trail - Bridge at Damon Road	MassCentral Rail Trail - West of Chestnut St. Norwottuck Rail Trail - East of Damon Road
SUMMARY:	This count included five individual counts in May, July, and September, 2010. The counts were conducted on Saturdays (7:00a - 7:00p) and Tuesdays (7:30a - 9:30a, 11:30a - 1:30p, 4:30p - 6:30p.) The Saturday average was 650 total and the Tuesday average was 286 total.	This count by PVPC was performed between April and November in 2005. The average off-season weekday volume in April is 301 trail users and the average off-season weekday volume in November was 280 trail users. In July and August, the mid-week average was 417 trail users while the average weekend / holiday count was 470 trail users.	This count is comprised of daily automated counts performed between April and September 2008. The counts included variations for temperature and precipitation. The number of users along the New Haven & Northampton Canal Line in Easthampton peaked in summer and early fall, and reached approximately 450 users per day for all trail users. During counts when some rain was observed, user totals dropped to as low as 170 per day. It is important to note that this data was collected before the connection to Northampton was completed.	This count performed by the Regional Metropolitan Planning Organization recorded the number of trail users between 7:00am and 7:00pm on September 8th, 2007. The peak hour for cyclists was 3:00p - 4:00p recording 35 cyclists while the peak hour for all trail users was 9:00a - 10:00a measuring 68 trail users	This count performed by the Regional MPO recorded the number of trail users on the MassCentral / Norwottuck Rail Trail at the bridge near Damon Road. The count took place on Septmber 8th, 2007 -- a clear day with a temperature of 81 degrees. The peak hour recorded for cyclists was 1:15p - 2:15p measuring 109 cyclists. The peak hour for all trail users was 12:45p - 1:45p, recording 139 trail users.	This count utilized an Automatic Traffic Recorder and measured an average of 514 bicyclists on the MassCentral Rail Trail in 2005 and an average of 341 bicyclists in 2007.

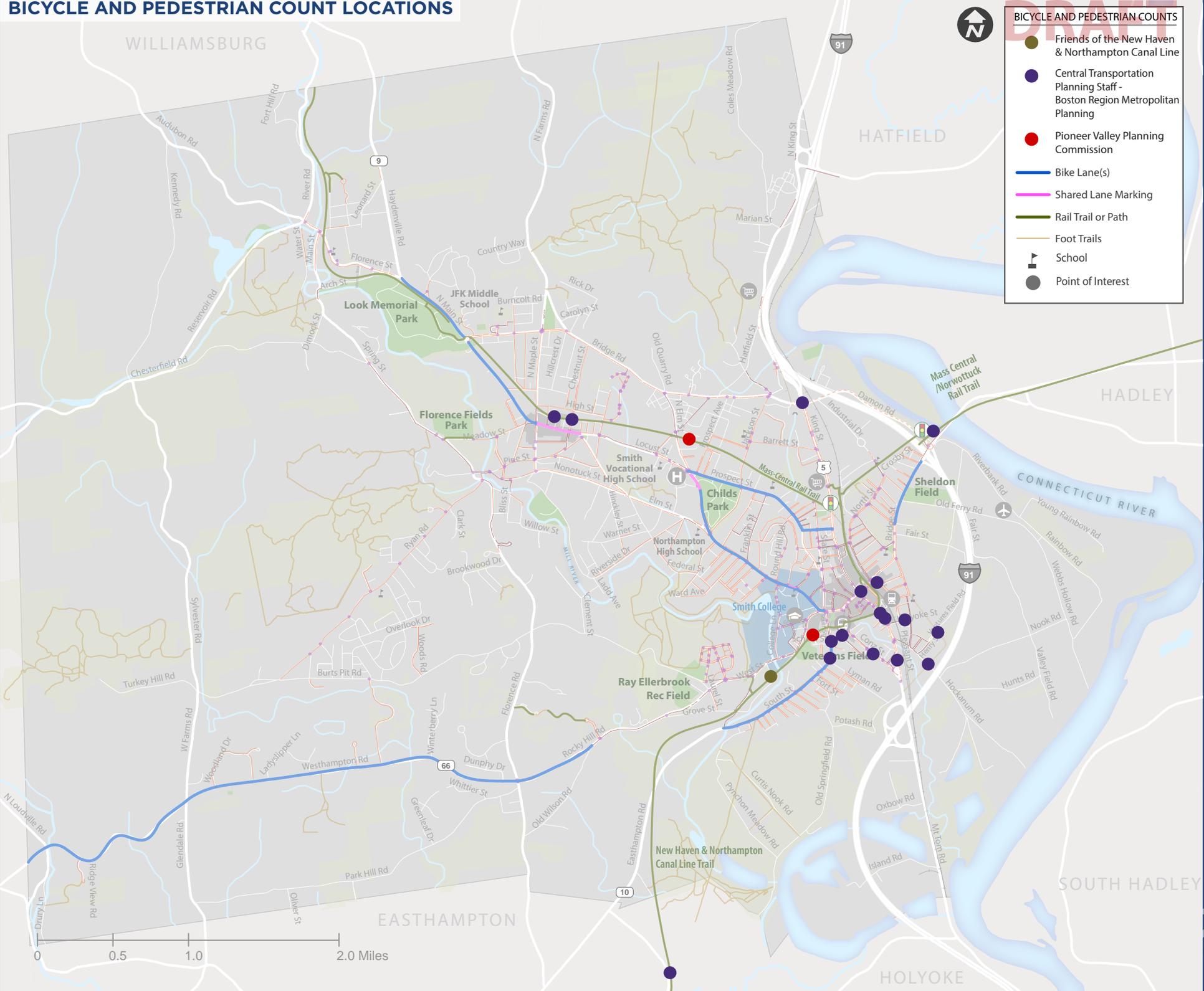
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DRAFT

WHO:	Pioneer Valley Planning Commission						
WHEN:	2016						
WHERE:	Old South St (30 ft NE of Fruit St)	Conz St (at SE corner of Conz with Old South St, just SE of crosswalk)	Pleasant St (Between Fulton and Conz)	Venture's Field Road (Intersection with dike footpath)	Dike Footpath (Intersection with venture's Field Road)	Holyoke St (30 ft east of Hawley St towards Williams St)	Pleasant St (by crosswalk just north of Holyoke St)
SUMMARY:	This count took place over two hours on a Thursday afternoon in February under cloudy skies. This count recorded: 2 cyclists riding in the street, 2 cyclists riding on the sidewalk, and 87 pedestrians.	This count took place over two hours on a Tuesday afternoon in February under cloudy skies. This count recorded: 2 cyclists riding in the street, 2 cyclists riding on the sidewalk, and 110 pedestrians.	This count took place over two hours on a Tuesday morning in March under sunny skies. This count recorded: 6 pedestrians.	This count took place over two hours on a Thursday morning in March under sunny skies. This count recorded: 2 pedestrians.	This count took place over two hours on a Thursday morning in March under sunny skies. This count recorded: 6 pedestrians.	This count took place over two hours on a Thursday afternoon in March under sunny skies. This count recorded: 1 cyclist riding in the street, 1 cyclist riding on the sidewalk, and 17 pedestrians.	This count took place over two hours on a Thursday afternoon in February under cloudy/rainy conditions. This count recorded: 8 cyclists riding in the street, 14 cyclists riding on the sidewalk, and 134 pedestrians.

[CONTINUED]							
WHERE:	Pleasant St (15' south of bike trail crossing Pleasant)	Pleasant St (10' north of crosswalk at Holyoke St)	Flood control dike (entrance to dike trail northeast of Hockanum Rd)	South St (15' north of Lyman Rd)	Main St (15' east of Center St)	Conz St (Just south of Fruit St)	Hawley St (from Spoleto parking lot just south of Bridge St)
SUMMARY:	This count took place over two hours on a Wednesday morning in March under cloudy skies. This count recorded: 8 cyclists riding in the street, 2 cyclists riding on the sidewalk, and 76 pedestrians.	This count took place over two hours on a Thursday morning in March under sunny skies. This count recorded: 5 cyclists riding in the street, 1 cyclists riding on the sidewalk, and 92 pedestrians.	This count took place over two hours on a Thursday afternoon in March under sunny skies. This count recorded: 10 pedestrians.	This count took place over two hours on a Wednesday afternoon in March under sunny skies. This count recorded: 29 cyclists riding in the street, 4 cyclists riding on the sidewalk, 112 pedestrians and 1 skater.	This count took place over two hours on a Tuesday afternoon in March under sunny skies. This count recorded: 31 cyclists riding in the street, 11 cyclists riding on the sidewalk, 1,958 pedestrians and 3 skaters.	This count took place over two hours on a Thursday afternoon in March under rainy skies. This count recorded: 1 cyclist riding in the street, 2 cyclists riding on the sidewalk, and 40 pedestrians.	This count took place over two hours on a Thursday afternoon in March under cloudy skies. This count recorded: 23 cyclists riding in the street, and 245 pedestrians.

BICYCLE AND PEDESTRIAN COUNT LOCATIONS





3. EXISTING CONDITIONS ANALYSIS

The analysis of existing conditions has been divided into two sections: Current Conditions and System Gap Analysis. Current Conditions includes a graphic description of existing bicycle facilities, transit routes and the sidewalk/crosswalk network, while the System Gap Analysis inventories gaps in the bicycle and pedestrian network and/or missing facilities for bicyclists and walkers.

3.1 Current Conditions

Alta conducted an analysis of current conditions based on field work, comments from City staff and the Project Advisory Committee, online resources, and through the examination of multiple sets of data.

Northampton's bicycle facilities include an extensive rail trail system comprised of three legs:

- The MassCentral / Norwottuck Rail Trail from downtown out to Hadley and extends to Willaismburg and Belchertown. This trail will eventually reach Boston
- The Mass Central Rail Trail from downtown to the city limits

- The New Haven & Northampton Canal Line from downtown Northampton extends to Southampton and will eventually reach New Haven

Most rail-trails are 10 feet wide and paved. Many have a broken yellow divider line. In most instances, the trail crosses the various intersecting streets at grade, with connecting ramps where the trail passes above or below road grade at Jackson Street, Easthampton Road and over Main Street. In addition to the rail trail network, Northampton has a modest network of on-street bicycle facilities, which include:

- **Main Street/Elm Street/North Elm Street** bike lanes are between State Street and Prospect Avenue
- **Elm St** bike lanes between South Street and Prospect Avenue with shared lane markings for a short stretch between Bedford Terrance and Prospect Street
- **Prospect Street** bike lanes from Finn Street to the intersection with North Elm
- Shared lane markings along Main Street in Florence, transitioning to striped bike lanes on North Main Street

from Cosmian Avenue to Hayward Road and the Norwottuck Rail Trail to Haydenville Road

- **Bridge St** bike lanes from the on-ramp access to I-91 southbound to Parsons Street
- **South Street** bike lanes from Old South St to the Earle St intersection, with most of the segment including a green striped buffer area for additional width and a rumble strip for vehicular separation
- **West/Chapel/Rocky Hill Road (Route 66)** striped shoulder from Belmont Avenue to the Westhampton City line. (No bike lane markings along this corridor)

From a pedestrian infrastructure point of view, Northampton's sidewalk network is quite complete downtown, in the adjacent historic neighborhoods and along the radial road network extending away from downtown. Most sidewalks on residential streets are buffered from the adjacent roads by grassy strips, with sidewalks along narrow corridors and downtown separated from the roadway only by a curb. A number of streets in these areas lack a sidewalk on one side, with a handful lacking sidewalks entirely. Downtown, the retail environment and generous sidewalks along Main Street and the adjacent side streets create a strong sense of place that draws shoppers, diners and music lovers from throughout the region.

Inventory of Ped. / Bike Infrastructure

ON-STREET BIKE FACILITY DISTANCES*	
Bike Lanes	8.5 miles
Shared Lane Markings	0.4 miles
ARTERIALS & COLLECTORS*	
Total Length of Northampton Arterials & Collectors	32.4 miles
Bike Lanes on Arterials & Collectors	5.1 miles
Percentage of Bike Lanes on Arterials and Collectors	16%
Bike Lanes on Other Streets	3.4 miles
RAIL TRAILS*	
MassCentral / Norwottuck	1.7 miles
MassCentral Rail Trail	5.1 miles
New Haven & Northampton Canal Line	2.7 miles
Total	9.5 miles
SIDEWALKS	
Total sidewalks	77.8 miles

**Per City of Northampton GIS data*



With additional space available, the City striped green buffered bike lanes along South Street to provide a more comfortable environment for bicyclists



Most sidewalks outside of downtown are five feet wide with grass strips between them and the adjacent roadway



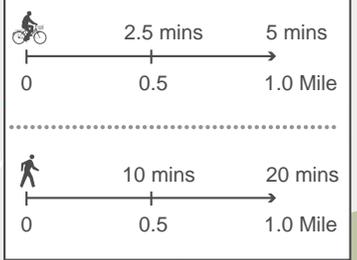
Wide sidewalks in the heart of downtown help to create a strong sense of place

EXITING RAIL TRAIL NETWORK

DRAFT
WILLIAMSBURG

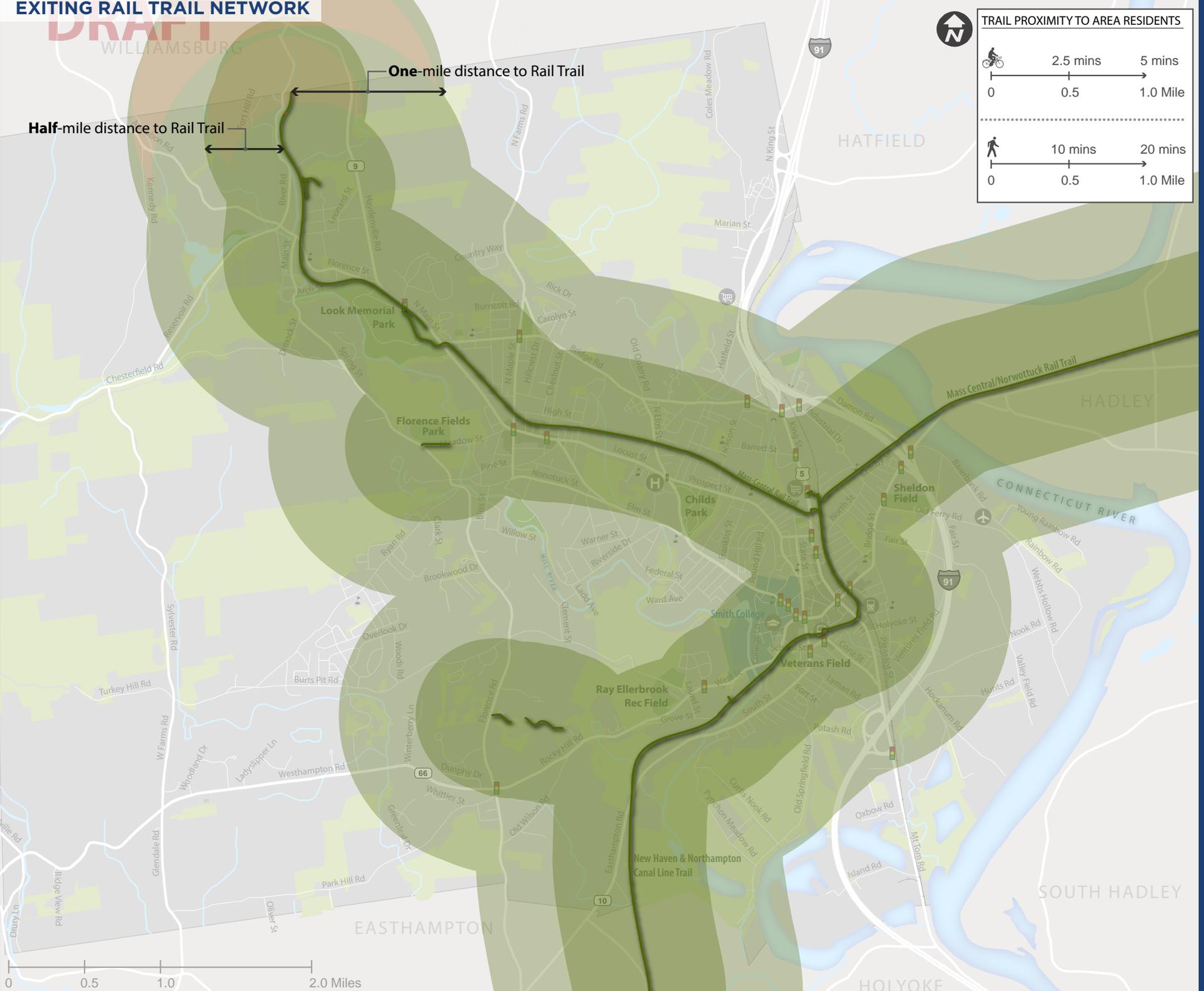


TRAIL PROXIMITY TO AREA RESIDENTS



Half-mile distance to Rail Trail

One-mile distance to Rail Trail



Proximity to Rail Trail Network

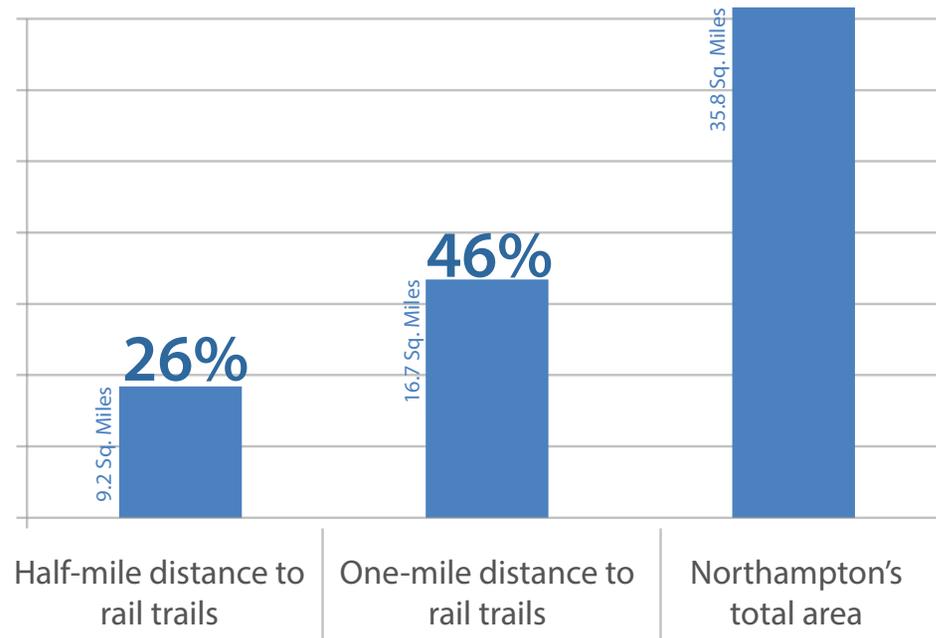
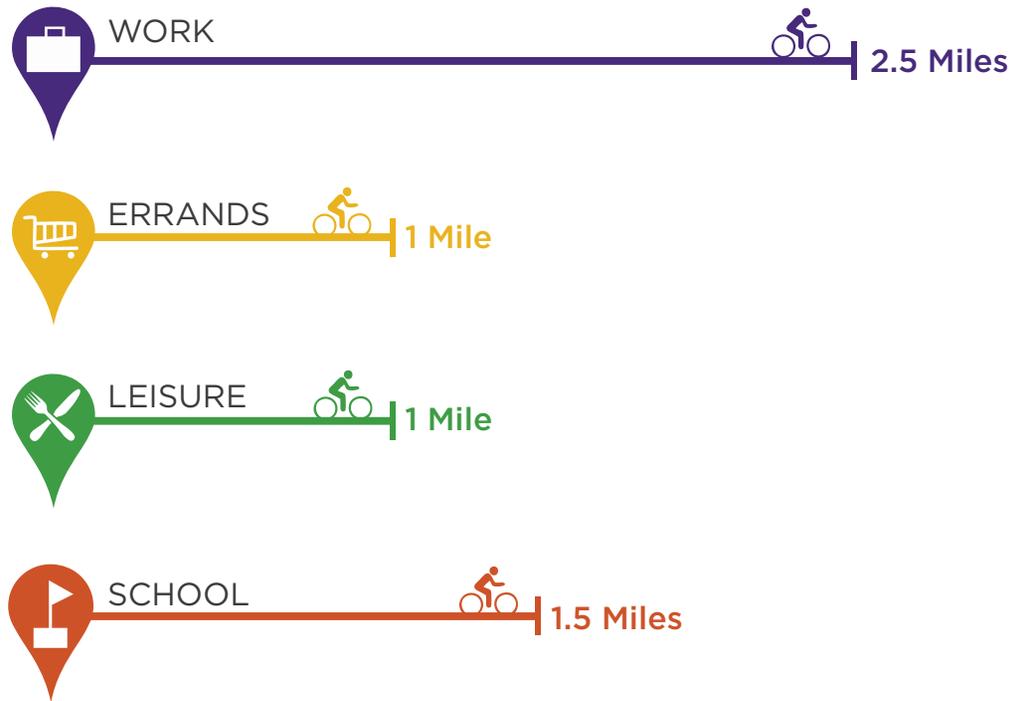
Approximately 26% of Northampton's total area lies within a half mile of a rail trail.

Approximately 46% of Northampton's total area lies within one mile of a rail trail.

Based on national statistics from NHTS (National Household Travel Survey) data, survey respondents are willing to travel the following distances by bicycle:

- 2.5 miles to get to work
- 1 mile to run errands
- 1 mile for leisure activities
- 1.5 miles to get to school

This bodes well for Northampton where a large percentage of the population lives within a half-mile of a rail trail, and nearly the entire cities population resident within one mile of a rail trail.



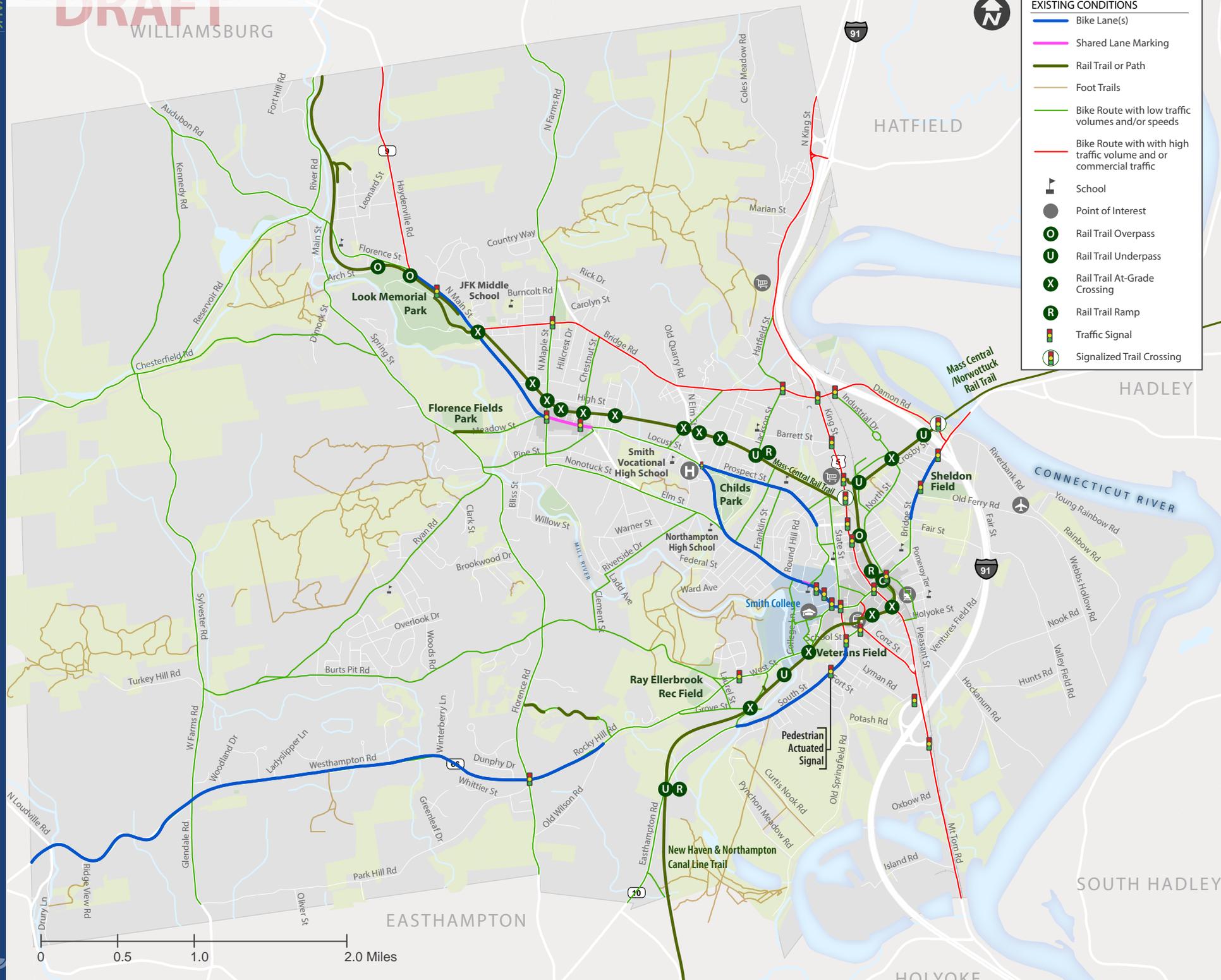
EXISTING BICYCLE NETWORK

DRAFT
WILLIAMSBURG



EXISTING CONDITIONS

- Bike Lane(s)
- Shared Lane Marking
- Rail Trail or Path
- Foot Trails
- Bike Route with low traffic volumes and/or speeds
- Bike Route with with high traffic volume and/or commercial traffic
- School
- Point of Interest
- Rail Trail Overpass
- Rail Trail Underpass
- Rail Trail At-Grade Crossing
- Rail Trail Ramp
- Traffic Signal
- Signalized Trail Crossing



EASTHAMPTON

HOLYOKE

SOUTH HADLEY

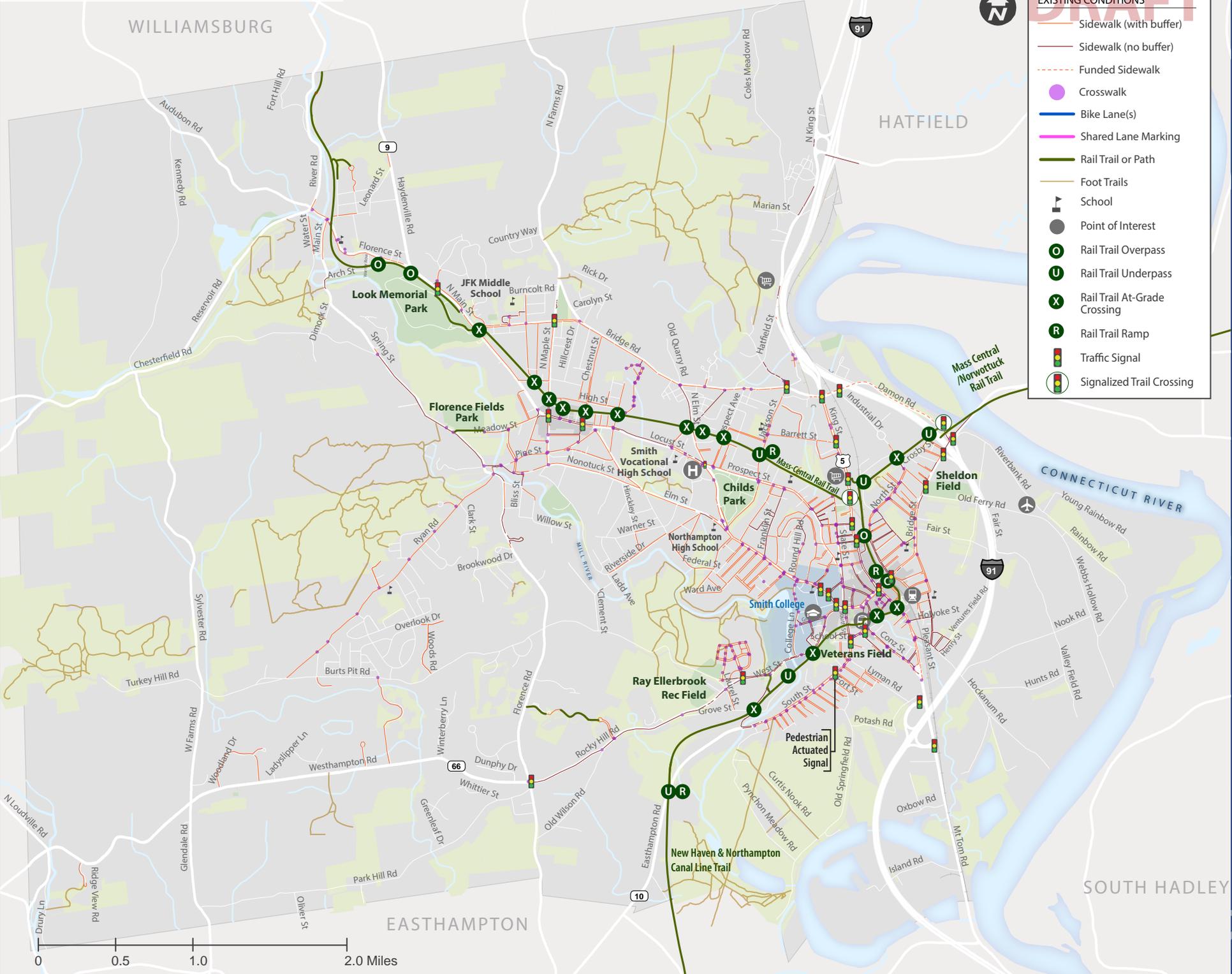
HADLEY

HATFIELD

EXISTING PEDESTRIAN NETWORK



- EXISTING CONDITIONS**
- Sidewalk (with buffer)
 - Sidewalk (no buffer)
 - Funded Sidewalk
 - Crosswalk
 - Bike Lane(s)
 - Shared Lane Marking
 - Rail Trail or Path
 - Foot Trails
 - School
 - Point of Interest
 - Rail Trail Overpass
 - Rail Trail Underpass
 - Rail Trail At-Grade Crossing
 - Rail Trail Ramp
 - Traffic Signal
 - Signalized Trail Crossing



EXISTING PVTA BUS NETWORK

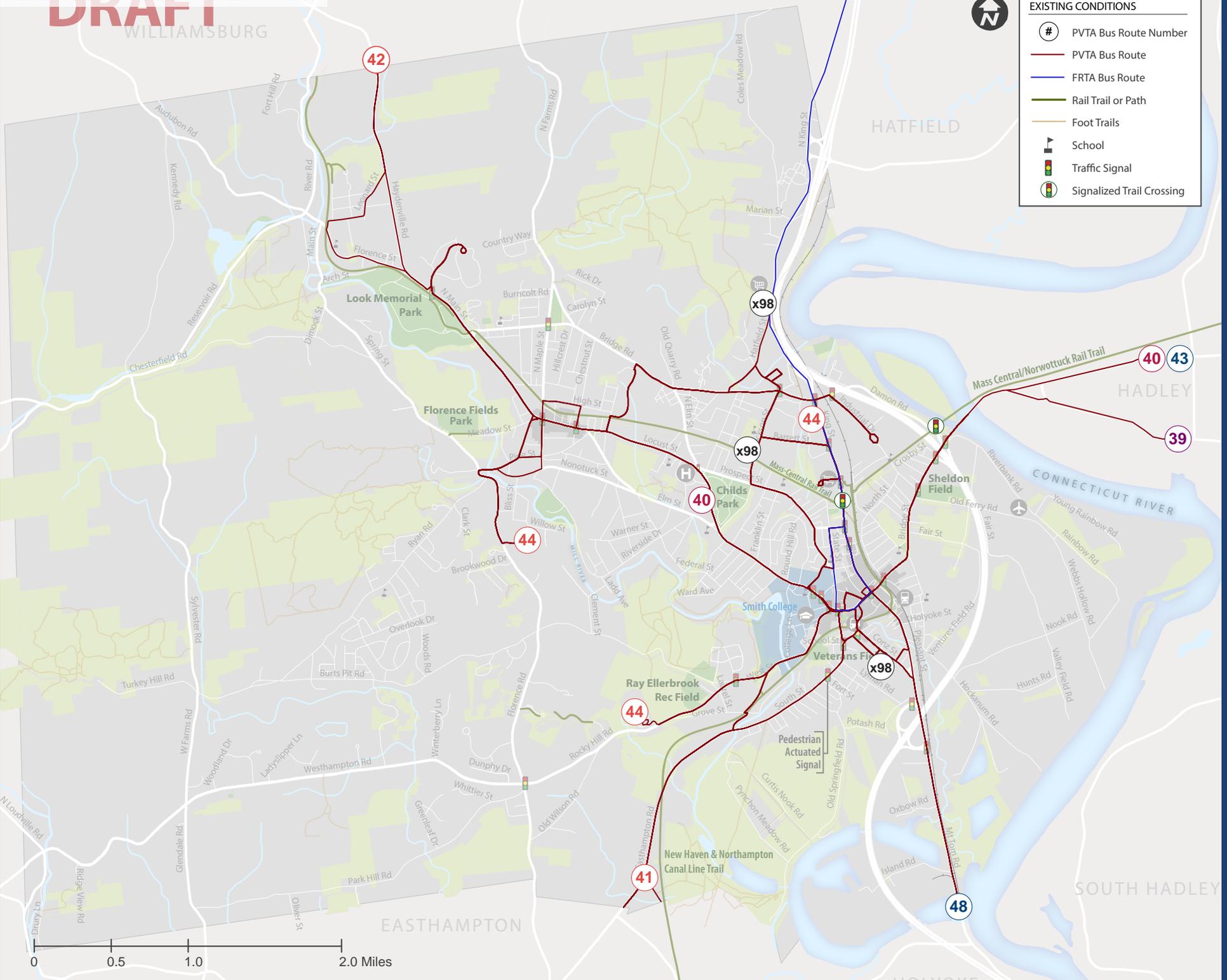
DRAFT

WILLIAMSBURG

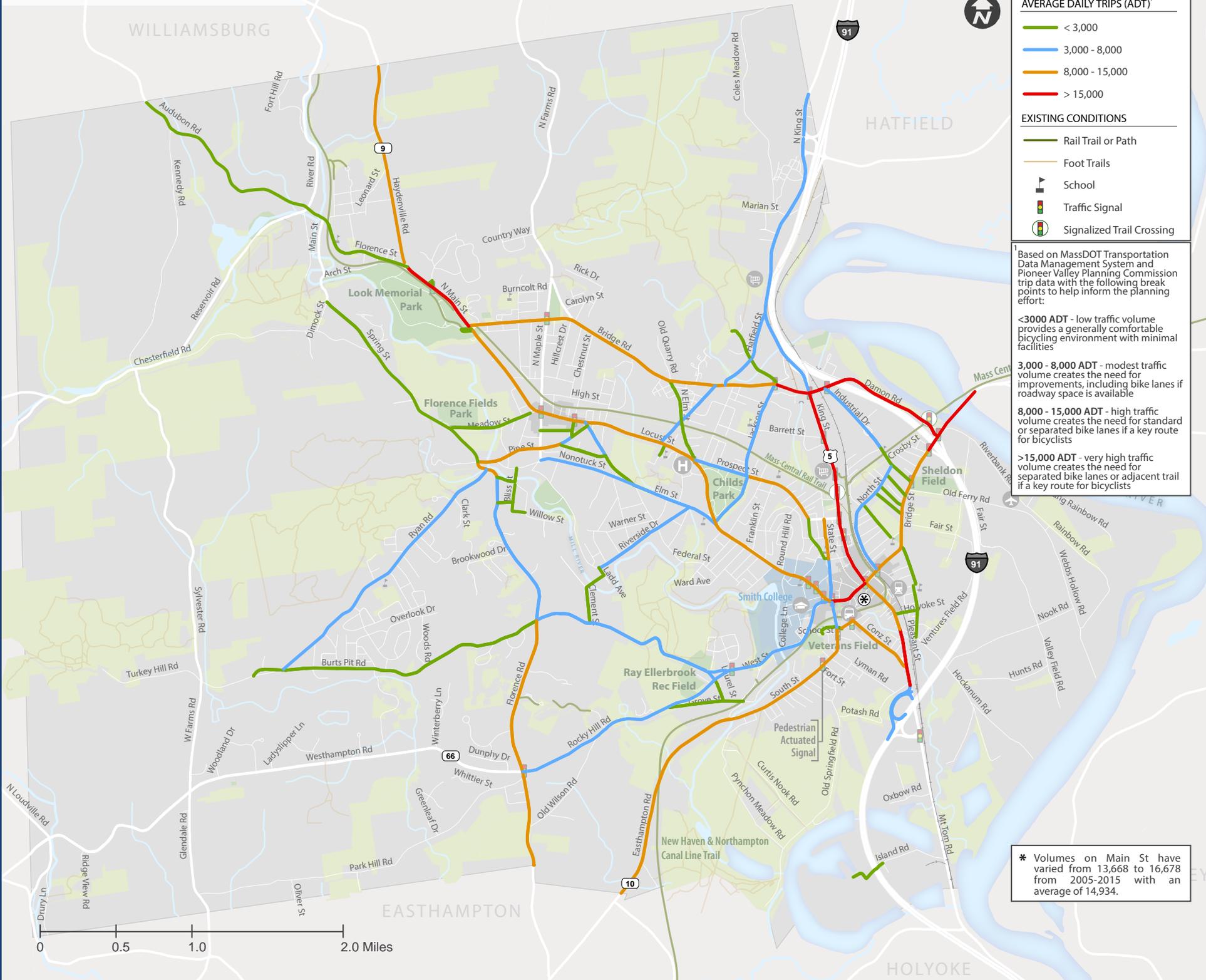


EXISTING CONDITIONS

- # PVTA Bus Route Number
- PVTA Bus Route
- FRTA Bus Route
- Rail Trail or Path
- Foot Trails
- School
- Traffic Signal
- Signalized Trail Crossing



EXISTING ROADWAY VOLUMES



AVERAGE DAILY TRIPS (ADT)¹

- < 3,000
- 3,000 - 8,000
- 8,000 - 15,000
- > 15,000

EXISTING CONDITIONS

- Rail Trail or Path
- Foot Trails
- School
- Traffic Signal
- Signalized Trail Crossing

¹ Based on MassDOT Transportation Data Management System and Pioneer Valley Planning Commission trip data with the following break points to help inform the planning effort:

<3000 ADT - low traffic volume provides a generally comfortable bicycling environment with minimal facilities

3,000 - 8,000 ADT - modest traffic volume creates the need for improvements, including bike lanes if roadway space is available

8,000 - 15,000 ADT - high traffic volume creates the need for standard or separated bike lanes if a key route for bicyclists

>15,000 ADT - very high traffic volume creates the need for separated bike lanes or adjacent trail if a key route for bicyclists

* Volumes on Main St have varied from 13,668 to 16,678 from 2005-2015 with an average of 14,934.

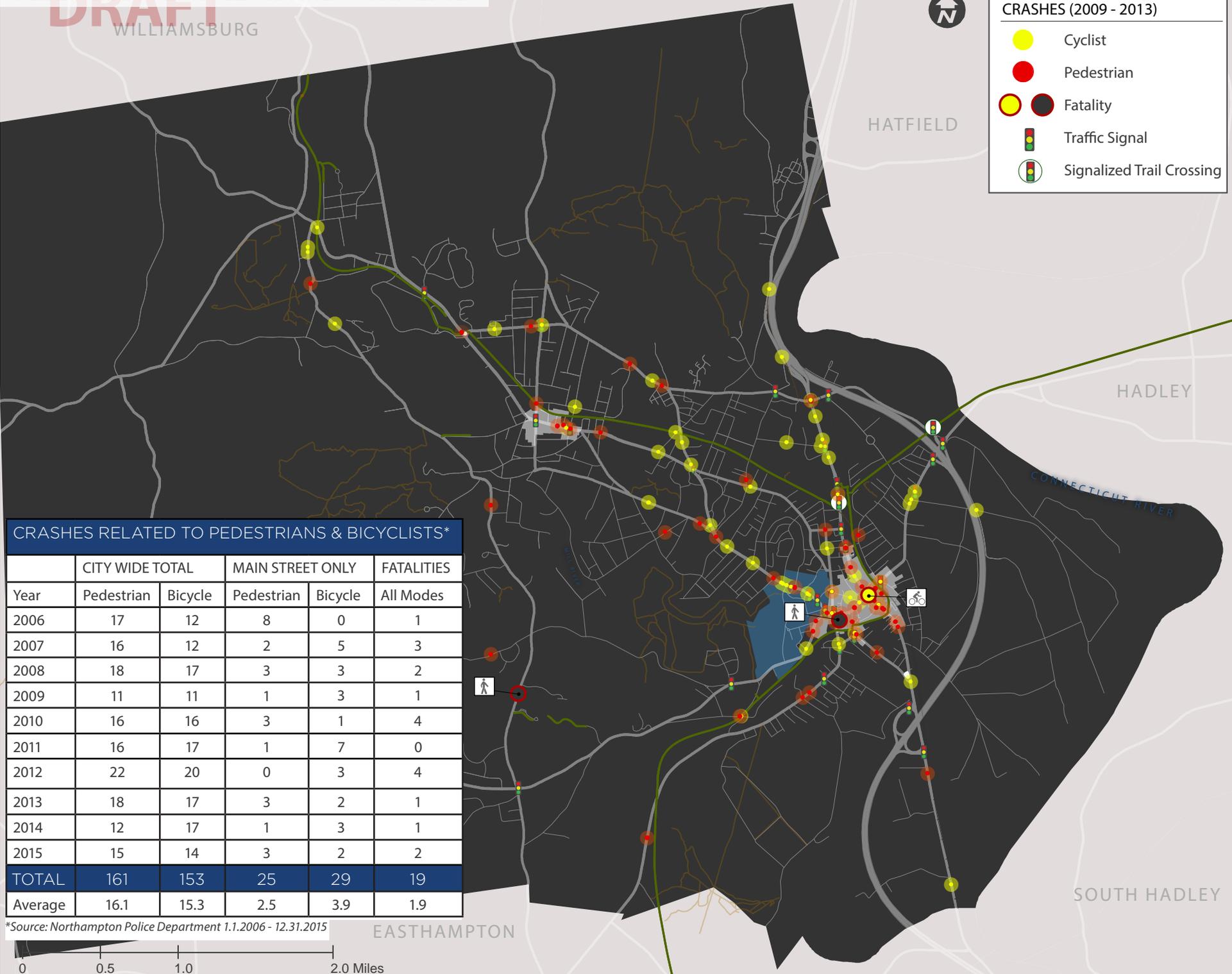
PEDESTRIAN + BICYCLE CRASHES & FATALITIES

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WILLIAMSBURG



CRASHES (2009 - 2013)

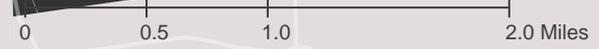
- Cyclist
- Pedestrian
- ● Fatality
- Traffic Signal
- Signalized Trail Crossing



CRASHES RELATED TO PEDESTRIANS & BICYCLISTS*

Year	CITY WIDE TOTAL		MAIN STREET ONLY		FATALITIES
	Pedestrian	Bicycle	Pedestrian	Bicycle	All Modes
2006	17	12	8	0	1
2007	16	12	2	5	3
2008	18	17	3	3	2
2009	11	11	1	3	1
2010	16	16	3	1	4
2011	16	17	1	7	0
2012	22	20	0	3	4
2013	18	17	3	2	1
2014	12	17	1	3	1
2015	15	14	3	2	2
TOTAL	161	153	25	29	19
Average	16.1	15.3	2.5	3.9	1.9

*Source: Northampton Police Department 1.1.2006 - 12.31.2015



3.2 Gap Analysis

As part of the existing conditions analysis, Alta conducted a qualitative system gap analysis based on field observations, existing planning documents and through the examination of GIS data, aerial imagery, and on-line mapping websites. The analysis includes existing rail trail and on-street networks and features Corridor Gaps, Linear Gaps, Spot Gaps, and intersections that are particularly challenging for bicyclists and pedestrians. This analysis provides an understanding of which areas have the greatest need for improvements, which areas can benefit most from strategic investment, and which areas pose the greatest challenges to further developing a bicycling and walking network.

Corridor Gaps – These gaps are missing links of significant length, typically a half mile or more, where bicycle/pedestrian facilities are desired but do not exist, or are not adequate based on existing or future demand. They may correspond to a street corridor or a desirable route connecting neighborhoods, popular destinations, or to adjacent communities.

Linear Gaps – These gaps are missing segments in an otherwise connected facility, typically ¼ mile or less. Linear gaps may also be barriers between destinations and routes. Significant linear gaps occur in the sidewalk network in many parts of Northampton, especially the more suburban/rural areas where homes were developed in the 1960's through the first decade of the 21st century. (More-recent housing development is required to have sidewalks, as part of current sub-division regulations.) A key linear gap in the bicycle network include the gap between the bike lanes and shared lane markings in central Florence and the bike lanes along Elm St and Prospect St. For the sidewalk network, one critical linear gap runs along the west side of State Street from Main Street to Trumbull Road.

Spot Gaps – These gaps are point-specific locations lacking facilities or other treatments to accommodate safe and comfortable travel for walkers and bicyclists. This could range from a lack of crosswalk at a key location to a missing spur connection

from a rail trail to an adjacent street of open space. There are various spot gaps within the pedestrian network throughout Northampton: a block lacking a sidewalk, a missing crosswalk at the end of a sidewalk stub, a worn path between a rail trail and adjacent street, and a wide roadway with an unnecessarily long crosswalk. Many streets that dead-end at a rail trail lack proper ADA curb ramps and comfortable connections to the rail trails.

Challenging Intersections – These are intersections that are particularly difficult or unsafe for pedestrians and/or bicyclists. This may be due to wide intersecting roadways, free right turns, large turning radii, confusing geometry, long crossing distances, lack of crosswalks, or inadequate traffic controls. There are challenging intersections sprinkled throughout the city, with some of the most prominent being the West Street/ Elm Street intersection, King Street/Damon Road, Elm Street/North Elm Street and Park Street/Meadow Street/North Main Street.

In aggregate, the various gaps form a key challenge to improving bicycling and walking conditions in Northampton. The following series of maps represent gaps, opportunities and challenges, citywide and within Florence and downtown Northampton.



The lack of bicycle facilities and continuous sidewalks along N Maple St creates a corridor gap between the Mass Central Rail Trail, Arcanum Field and the trails at the Fitzgerald Lake Conservation Area



The west side of State St is a linear gap in pedestrian connectivity downtown



*Along the MassCentral Rail Trail, there are desire lines in spots indicating the need of easement rights across National Grid's utility corridor**

**NOTE: This trail access is designed and planned for 2016 or 2017 construction*

BICYCLE GAP ANALYSIS

WILLIAMSBURG



BIKE GAP ANALYSIS

- Extended Corridor Gap
- Linear Gap

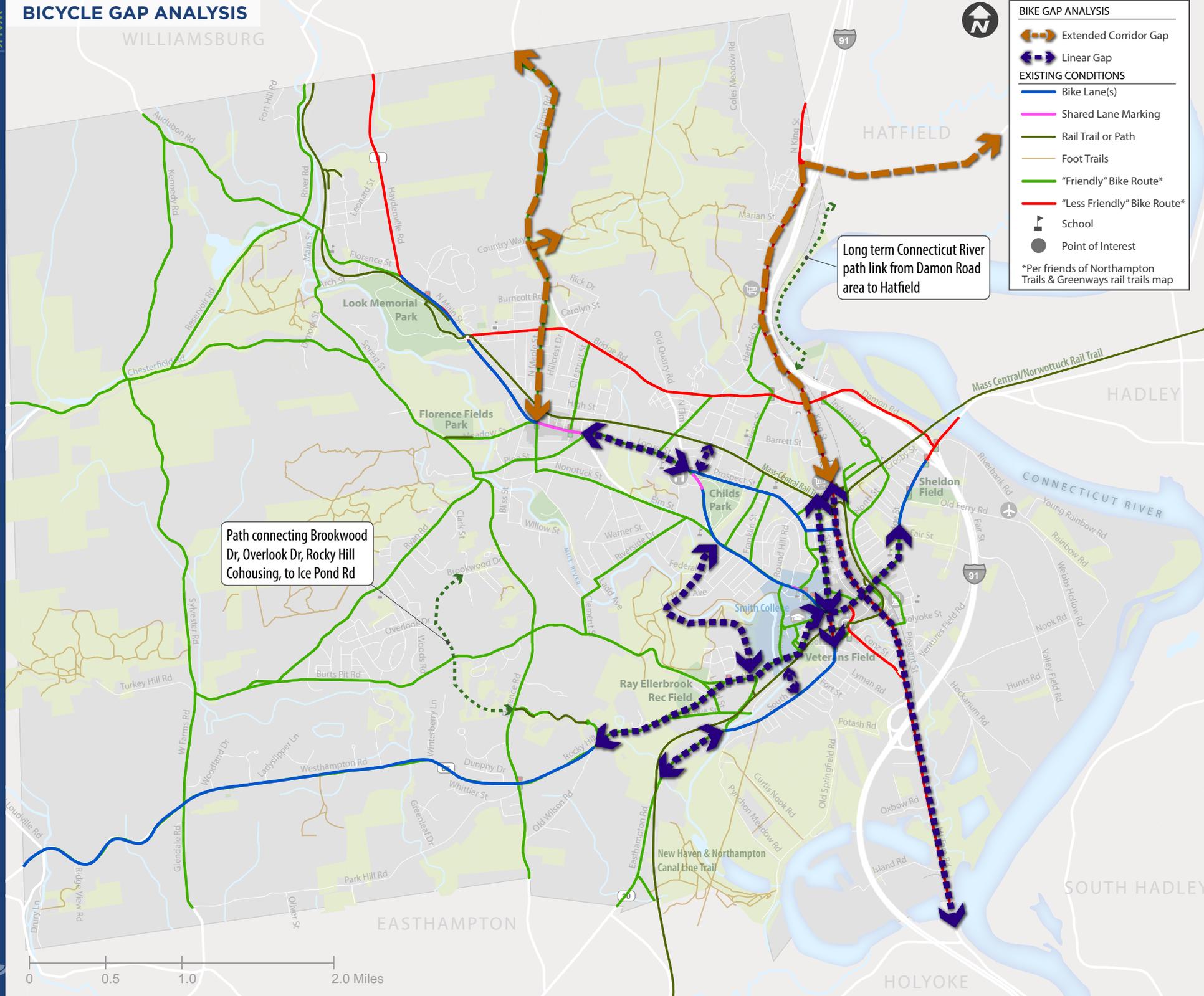
EXISTING CONDITIONS

- Bike Lane(s)
- Shared Lane Marking
- Rail Trail or Path
- Foot Trails
- "Friendly" Bike Route*
- "Less Friendly" Bike Route*
- School
- Point of Interest

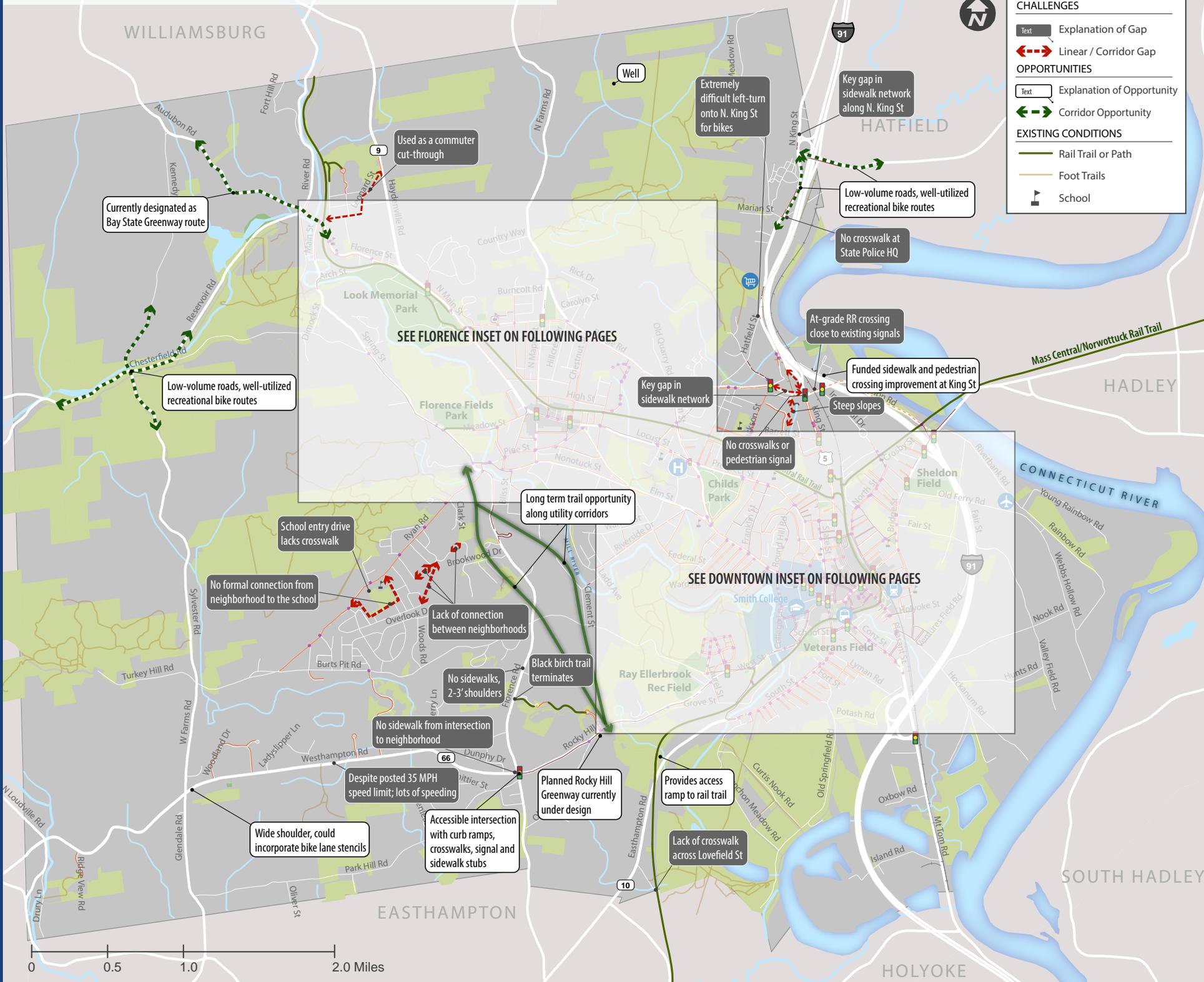
*Per friends of Northampton Trails & Greenways rail trails map

Long term Connecticut River path link from Damon Road area to Hatfield

Path connecting Brookwood Dr, Overlook Dr, Rocky Hill Cohousing, to Ice Pond Rd



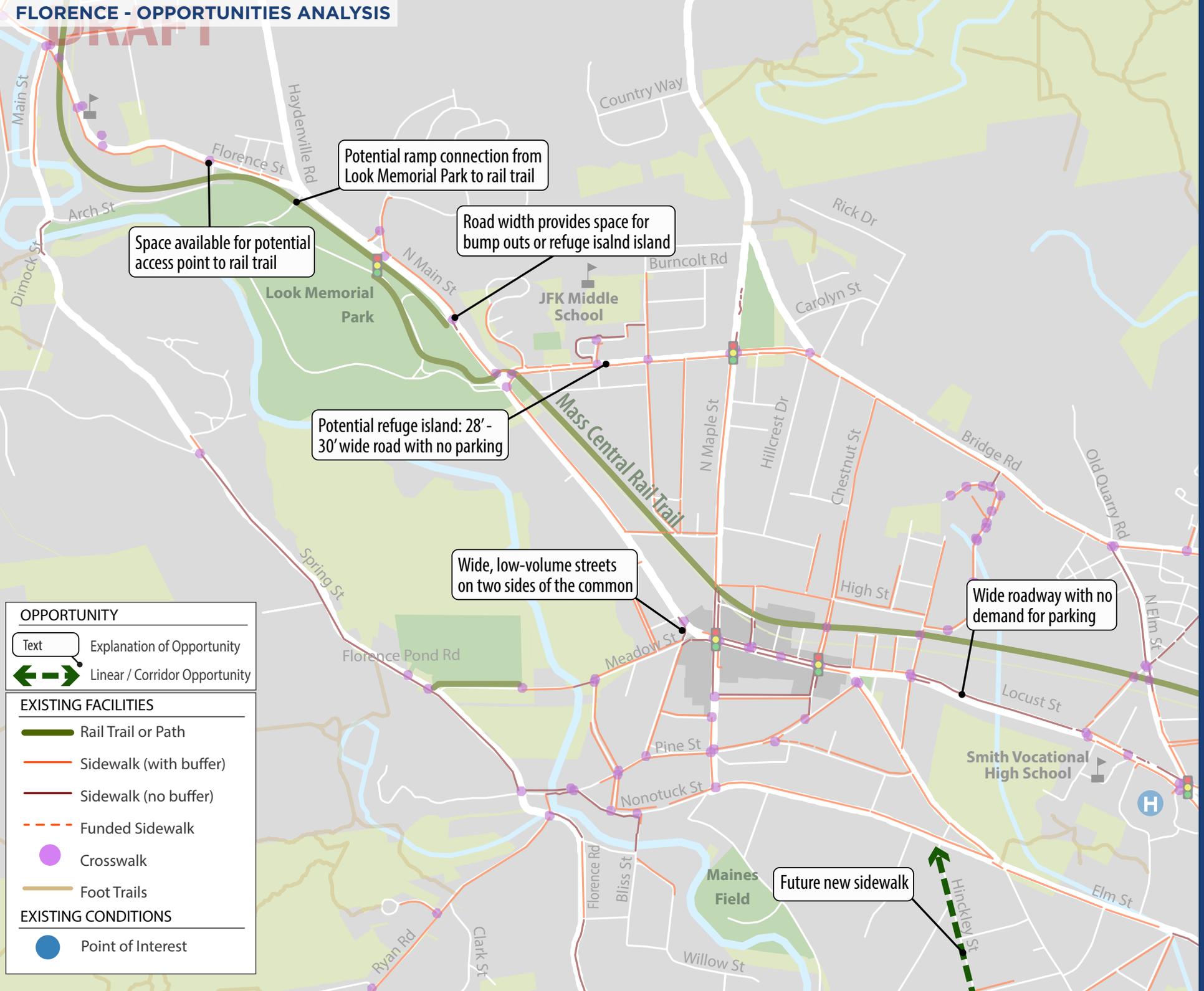
PEDESTRIAN & BICYCLE OPPORTUNITIES & CHALLENGES



FLORENCE - OPPORTUNITIES ANALYSIS

NORTHAMPTON
WALK
BIKE

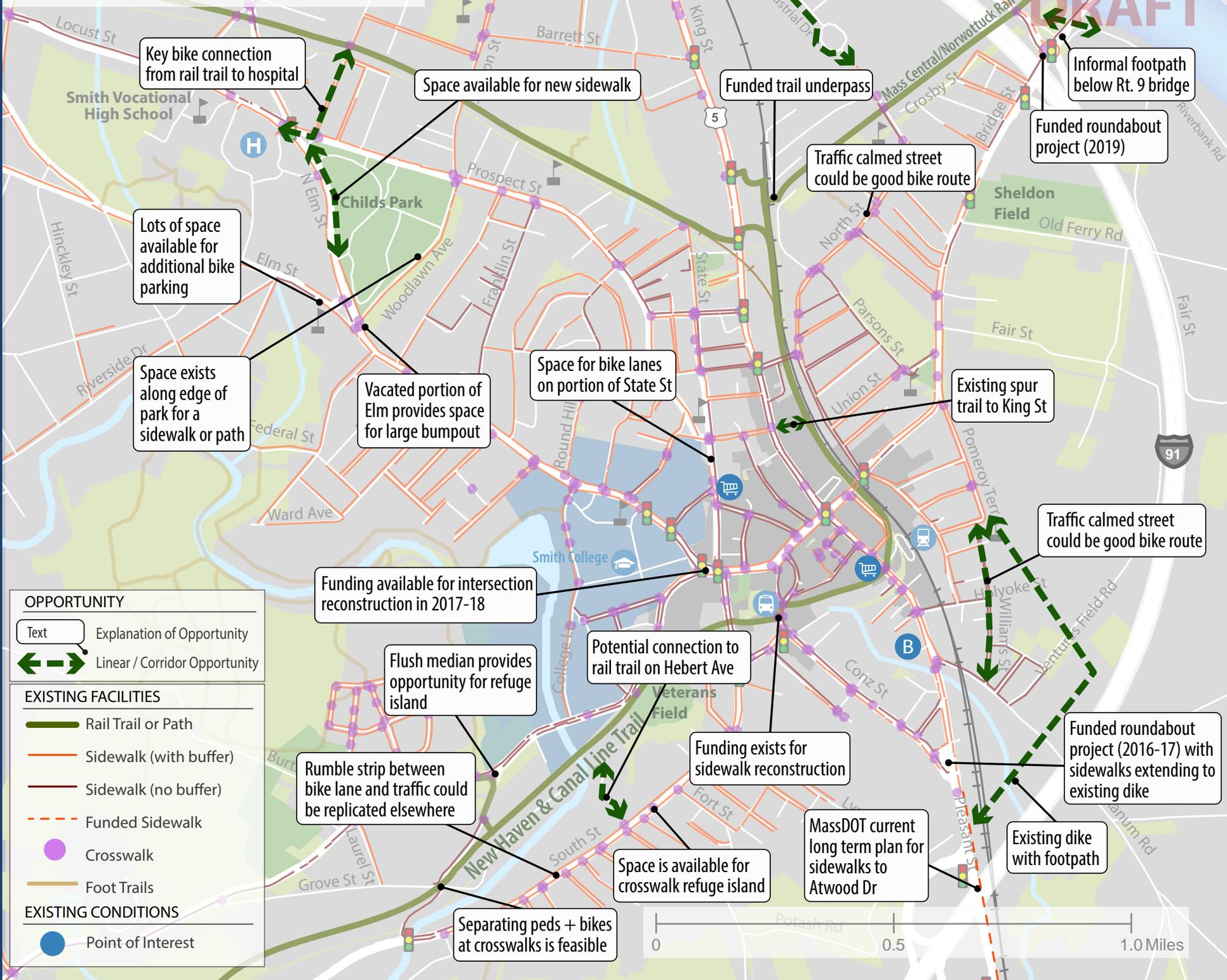
OPPORTUNITIES ANALYSIS: FLORENCE



OPPORTUNITY	
Text	Explanation of Opportunity
←-→	Linear / Corridor Opportunity
EXISTING FACILITIES	
	Rail Trail or Path
	Sidewalk (with buffer)
	Sidewalk (no buffer)
	Funded Sidewalk
	Crosswalk
	Foot Trails
EXISTING CONDITIONS	
	Point of Interest

DOWNTOWN - OPPORTUNITIES ANALYSIS

DRAFT



Key bike connection from rail trail to hospital

Space available for new sidewalk

Funded trail underpass

Informal footpath below Rt. 9 bridge

Funded roundabout project (2019)

Traffic calmed street could be good bike route

Lots of space available for additional bike parking

Space exists along edge of park for a sidewalk or path

Vacated portion of Elm provides space for large bumpout

Space for bike lanes on portion of State St

Existing spur trail to King St

Funding available for intersection reconstruction in 2017-18

Traffic calmed street could be good bike route

Flush median provides opportunity for refuge island

Potential connection to rail trail on Hebert Ave

Funding exists for sidewalk reconstruction

Funded roundabout project (2016-17) with sidewalks extending to existing dike

Rumble strip between bike lane and traffic could be replicated elsewhere

Space is available for crosswalk refuge island

MassDOT current long term plan for sidewalks to Atwood Dr

Existing dike with footpath

Separating peds + bikes at crosswalks is feasible

OPPORTUNITY

- Text Explanation of Opportunity
- Linear / Corridor Opportunity

EXISTING FACILITIES

- Rail Trail or Path
- Sidewalk (with buffer)
- Sidewalk (no buffer)
- Funded Sidewalk
- Crosswalk
- Foot Trails

EXISTING CONDITIONS

- Point of Interest

Challenges that exist in the pedestrian and bicycle network in Florence. (See map on previous page.)



Challenges that exist in the pedestrian and bicycle network in downtown Northampton. (See map on previous page.)



DOWNTOWN - BICYCLE NETWORK CHALLENGES ANALYSIS

GAP ANALYSIS: BIKE NETWORK, DOWNTOWN



GAP ANALYSIS

- Text Explanation of Issue
- ↔ Linear / Corridor Gap
- Spot / Area Gap
- ↔ Traffic Cut Through

EXISTING FACILITIES

- Rail Trail or Path
- Sidewalk (with buffer)
- Sidewalk (no buffer)
- Funded Sidewalk
- Crosswalk
- Foot Trails

EXISTING CONDITIONS

- Point of Interest
- 🚦 Traffic Signal
- 🚦 Signalized Trail Crossing

Only six bike racks that meet standards with a much higher level of demand present

No crosswalk

No curb cut at crosswalk

Long stretch with no crosswalks

Wide intersection with no crosswalk

Underlit crosswalk

Uncontrolled crosswalk to a school

Limited sight lines

Cut-through traffic issues

Key gaps in pedestrian and bicycle connectivity + urban tree canopy along Pleasant & King Streets

Complex intersection with long crosswalk and blind spots

Narrow street without sidewalks

Signal lacks bicycle detector loop

Path gap between park path and crosswalk

Lack of plowing creates a gap in winter

Lack of signage to Main St from rail trail

Desire line from rail trail to North St

Crosswalk needed at Allen Pl intersection

Right turns create conflict with pedestrians

Large curb cuts compromise sidewalk

Poor sight lines for cyclists at trail crossing

South St suffers from speeding traffic





VISION

The Vision for the Walk/Bike Northampton Plan is to make Northampton one of the top leaders in walk and bike friendly streets of any small city in New England. Pedestrians and bicyclists will be integrated into the City's projects, policies and programs. Planning, design and implementation of roadway, public works and transit projects will accommodate pedestrians and bicyclists of all abilities. The non-motorized transportation system in the city will encourage mode shift and improve safety, the environment, health, and quality of life for residents, visitors and businesses. A bicycle and pedestrian-friendly Northampton will be a more green, affordable and sustainable city with improved mobility and economic vitality.

4. VISION, GOALS, & OBJECTIVES

Introduction

The City of Northampton aims to increase walking and bicycling by residents and visitors of all ages and abilities. The goals, objectives, and policies of the Walk/Bike Northampton Plan will guide the development and implementation of the City's sidewalk, trail and bicycle network and programming for years to come. Collectively, they support the City's vision, and are consistent with and support the Sustainable Northampton Comprehensive Plan.

A **Vision** is a broad inspirational statement for the desired future state of the city.

Goals are general statements of what the City and residents hope to achieve over time.

Objectives are more specific statements that mark progress towards the goal.

Performance Measures are quantitative data points that help the City understand progress and success.

Goals, Objectives And Performance Measures

Goal 1: Engineering - The Walk/Bike Northampton Plan will emphasize the use of current best practices to implement pedestrian and bicycle infrastructure that is accessible for people of all ages and abilities, helping to shift transportation mode share towards walking and bicycling.

ON GOING

Objective 1.1: Close gaps in the pedestrian network and address barriers to walking with new sidewalks, crosswalks and other safety enhancements.

Objective 1.2: Close gaps in the bicycling network and address barriers to cycling with new bike lanes, cycle tracks and improved shared street environments on low volume/speed roadways.

Objective 1.3: Increase the number of spur connections to/from Northampton's rail trail network to adjacent neighborhoods, commercial districts and schools.

Objective 1.4: Improve the design of key intersections with tighter turning radii, well-designed crosswalks, bike connectivity, audible signals with countdowns. Where space is available, plan to convert appropriate intersections to roundabouts in the long term.

Objective 1.5: Target walking and bicycling infrastructure treatments for all ages and abilities, as well as the context of the street and surrounding area.

Objective 1.6: Emphasize walking and bicycling infrastructure enhancements in areas that improve connectivity to schools, commercial districts and bus stops.

Objective 1.7: Ensure plentiful bike parking in all commercial districts of the city, at schools, public buildings and key destinations

Performance Measures:

1a: Number of identified sidewalk/crosswalk gaps eliminated

1b: Miles of new bicycle facilities implemented

1c: Number of new spur connections made between rail trails and adjacent neighborhoods, commercial districts and schools

1d: Number of bike racks installed, city-wide

Goal 2: Education & Encouragement - The City of Northampton will increase the number of walking and bicycling trips through programs that enhance safety for users, teach adults and children appropriate walking and bicycling skills, and promote friendly competitions that encourage walking and biking.

Objective 2.1: Support the establishment of a walk/bike safety education curriculum in schools, as well as through recreation and commuter programs for adults that focuses on bicycle safety.

Objective 2.2: Work with advocates and business interests to promote walking and bicycling through events (e.g. walk/bike to work day, community bike rides), friendly competitions (e.g. walk/bike commute challenge) and awards (e.g. Mayoral recognition to bike friendly businesses)

Objective 2.3: Conduct **annual trainings with public safety staff, planners, engineers, parks and recreation and other staff** on policies and programs related to walking and bicycling.

Objective 2.4: Establish a city-wide bike share program in coordination with other regional jurisdictions, and with a focus on equitable distribution of stations.

Performance Measures:

2a: Number of school-age children participating in Safe Routes to School programs or other programs designed for adults

2b: Number of participants in walk and bike related events and competitions designed to promote walking and bicycling

2c: Number of locally-designated bike friendly businesses

Goal 3: Evaluation - The City of Northampton will establish and monitor specific performance targets related to walking

and bicycling by implementing permanent count stations in key locations to document results of the implementation of the Walk/Bike Northampton Plan.

Objective 3.1: The City will designate a part-time Pedestrian and Bicycle Coordinator position to focus on the implementation of policy, program and project recommendations found in this plan and to take the lead on preparation of future Walk Friendly and Bicycle Friendly Community applications.

Objective 3.2: The City of Northampton will **achieve a higher walk and bike friendly community designation** with each succeeding application **every four years starting in 2018.**

Objective 3.3: Working with advocacy groups and volunteers as needed, the City should initiate its own pedestrian and bicycle count program beginning in 2017 to provide count information the City for reporting and tracking.

Objective 3.4: The part-time Pedestrian and Bicycle Coordinator will provide an annual report of progress to the City Council related to implementation progress of the Walk/Bike Plan.

Performance Measures:

3a: Achieve Silver level Walk and Bike Friendly Community designations by 2018, Gold level by 2022 and Platinum level by 2026.

3b: Using ACS data and the data obtained during the pedestrian and bicycle count efforts, **increase 2016 pedestrian and bicycle mode share of work trips by 10% and 50% respectively in 5 years**, 20% and 150% in 10 years and 50% and 500% in 20 years.

Goal 4: Enforcement - The City of Northampton will foster an environment of responsibility and mutual respect among people walking, bicycling and driving in order to

support safe travel for all. Combined with infrastructure improvements, achieve zero pedestrian or bicyclist related fatalities by enforcing traffic laws that enhance safety for those walking and bicycling.

Objective 4.1: All law enforcement officers will receive training for the enforcement of laws regarding bicycling a walking by 2018, and refresher courses offered bi-annually.

Objective 4.2: The City of Northampton will establish law enforcement training, as well as implementation of traffic laws that enhance the safety of walking and biking through education, printed materials, public information and social media outlets focused on all travel modes, ages and abilities.

Performance Measures:

4a: number and severity of police-reported crashes involving pedestrians

4b: number and severity of police-reported crashes involving bicyclists

Goal 5: Equity - The City of Northampton will establish a walking and bicycling network and programs that not only focus on all people of all ages and abilities, but will reach a variety of neighborhoods regardless of social status or demographics.

Objective 5.1: Project implementation criteria will consider the City's ability to implement projects within underserved areas with the ultimate goal of providing high-quality walking and bicycling infrastructure and programs throughout Northampton.

Objective 5.2: Programming will provide education and encouragement throughout Northampton, with a particular focus on areas of the city that have not traditionally been involved with such programs (including bike share).

Objective 5.3: With assistance from PVPC, public outreach for the Walk/Bike plan will strategize ways to involve residents in traditionally-underserved areas; outreach efforts will meaningfully include residents who live in these areas.

Performance Measures:

5a: Change in the estimated % of minority bicycle riders tallied during the annual or semi-annual pedestrian/bicycle counts (an option could also include a tally of women riders, since the ratio of men to women is currently out of balance throughout most cities and town in the U.S.)

5b: Participation by minority and low-income residents in walking and bicycling encouragement and education programs.

Goal 6: Facilitate Development - The City of Northampton will ensure pedestrian and bicycle oriented development patterns with building code and subdivision regulations that ensure an appropriate level of infrastructure to mitigate dependence on the automobile.

Objective 6.1: Create public realm design guidelines that maximize opportunities for social interaction within generous sidewalk space in front of buildings with flexibility to allow for sidewalk cafes, landscaping or street furniture.

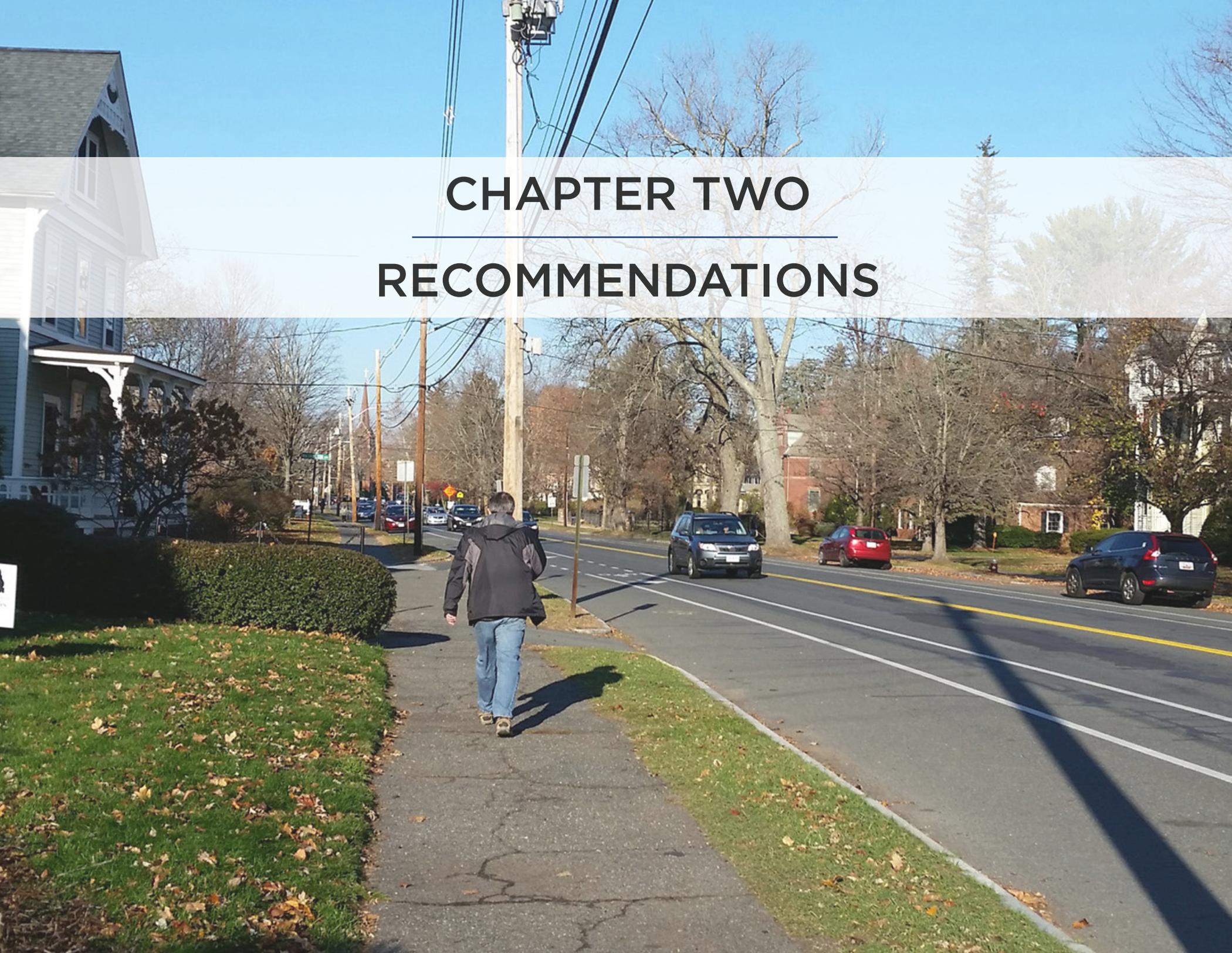
Objective 6.2: Require generous bike parking for all development projects, both on and off site; bike racks in the public right of way should include a significant portion under cover.

Objective 6.3: Promote green streetscapes with incentives to developers and property owners for following best practices for stormwater mitigation and other sustainable treatments

Performance Measures:

6a: Number of new sidewalk use permits for outdoor seating

Performance Measure 6b: Number of publicly-accessible bike racks installed as part of new development projects and significant renovation projects

A photograph of a person walking away from the camera on a paved sidewalk. To the left is a grassy area with fallen leaves. To the right is a two-lane road with a yellow center line and white edge lines. Several cars are visible on the road. In the background, there are trees with bare branches and a clear blue sky. A white semi-transparent banner is overlaid on the top half of the image, containing the text.

CHAPTER TWO

RECOMMENDATIONS

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5. PUBLIC OUTREACH

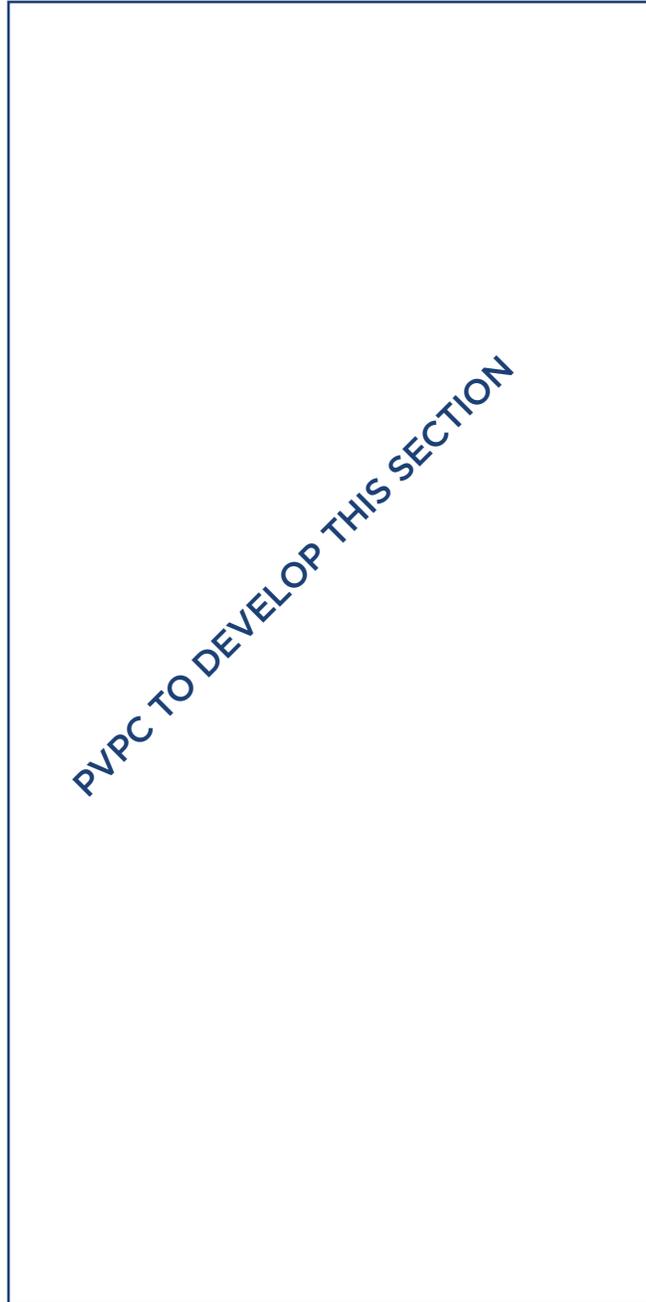
Introduction

The Walk/Bike Northampton Comprehensive Plan is a reflection of the community's desire for a more walkable, bikable and accessible city. Through communication with residents, business owners, advocates, stakeholders and other interested groups, the planning team created a long list of projects to support this desire. The public engagement process included a pair of well-attended public forums, two outreach events related to the redesign of Main Street, monthly meetings with the City's Pedestrian and Bicycle Committee and a project website that was able to process public comments. To supplement the Alta team's effort, the Pioneer Valley Planning Commission conducted additional outreach to communities who are less likely to attend evening meetings downtown to ensure input was gathered from a wide variety of sources. In aggregate, the comments and ideas from all facets of the engagement helped to inform many of the project and policy recommendations found throughout this report.



Northampton Mayor David Narkewicz addressing the crowd at the beginning of Public Forum #1.

Pioneer Valley Planning Commission Outreach



Public Forum #1

On March 7th the consultant team led the first public forum at the Senior Center on Conz Street to introduce our general approach to conducting Northampton's Walk Bike plan and present our existing conditions analysis mapping exercise. The presentation included photos and explanations of pedestrian and bicycle facility-related tools that can be used to create a comfortable cycling and walking environment for everyone. Pieces of the toolkit included rail trails, sidewalks/crosswalks, intersections, and green streets principles. The forum had a strong turnout, with over 120 in attendance. Base maps of the city that showed existing sidewalk locations and conditions, rail trail locations, and on-street bicycle facility locations were utilized to solicit input and feedback from the public. Comments were recorded and digitized in the appendix of this report.

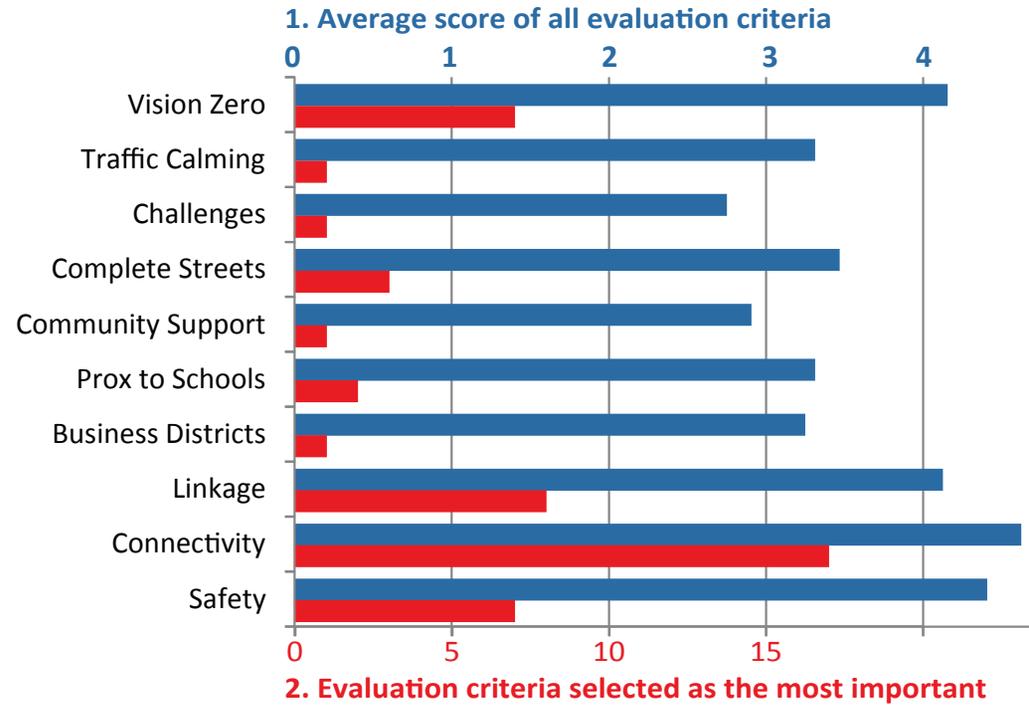


One of the many outreach meetings hosted "on-site" by PVPC included one in April at CasaLatina in Florence.

Public Forum #2

On May 18th the consultant team led the second of two public forums at First Churches Sanctuary on Main Street to go over the proposed recommendations to enhance Northampton's bicycle and pedestrian network. Project ideas were displayed on large printed maps and digitally during a presentation. The public was encouraged to comment on specific projects and recommend changes to project maps. In an effort to develop a fair and equitable project priority list, a common set of evaluation criteria was circulated and attendees were encouraged to list the criteria on a scale of Very Important to Not Important (right top). 32 surveys were completed. The survey results (right bottom) indicate that improved connectivity to existing networks, improved links to popular destinations, and improved safety were the highest-rated choices. Question 1 answers are displayed in Blue, and Question 2 answers are displayed in red.

Project Priority Evaluation Criteria Survey Responses



The breakout groups invited the public to provide valuable input regarding specific project they'd like to have included in the plan.



Public Forum #1

The Main St workshop engaged attendees with large section print-outs of the Main St corridor.



Main St Workshop

The crowd at the First Churches Sanctuary just before Public Forum 2 began.



Public Forum #2

The Main St Demonstration Project showcased how excess space within Main Streets right of way could be utilized for safer bicycle facilities and parklets.



Main St Demonstration Project





6. RECOMMENDED NETWORK

Introduction

The nearly 200 project recommendations for the City of Northampton include new crosswalks, sidewalks, bike lanes, traffic calming elements, short connections to rail trails, and entirely new trails. All are conceptual in nature and most will need to be followed up with additional analysis, engineering study and public outreach. The projects derived from previous city and regional planning studies and reports, consultant team field work and analysis, the public outreach described above, input from City staff and comments from the Pedestrian and Bike Committee. All are consistent with Northampton's current complete streets ordinance and intended to be eligible for potential funding from the state. In aggregate, the intent of the dozens of miles of network recommendations is to improve safety, connectivity and mobility for people on foot, riding bicycles and for those with disabilities.

With the future implementation of the pedestrian, bicycle and trail projects, Northampton's network of sidewalks will increase from nearly 78 miles today to 88 miles in the future. The City's designated bicycle facilities will grow from today's 8.9 miles to 23.4 miles in the future and the trail network will expand from nearly 9.5 miles today to 14.3 miles. The expansion of active transportation infrastructure will help the City achieve its mode share goals, mitigate increases in traffic congestion and air pollution and reduce its carbon footprint. The new sidewalks, trails and bike lanes will also improve the quality of life for Northampton's residents and help businesses draw customers from a more-diverse range of transportation modes, not just drivers. They will enhance the City's progressive and sustainable "brand" and help attract new residents, businesses and institutions.

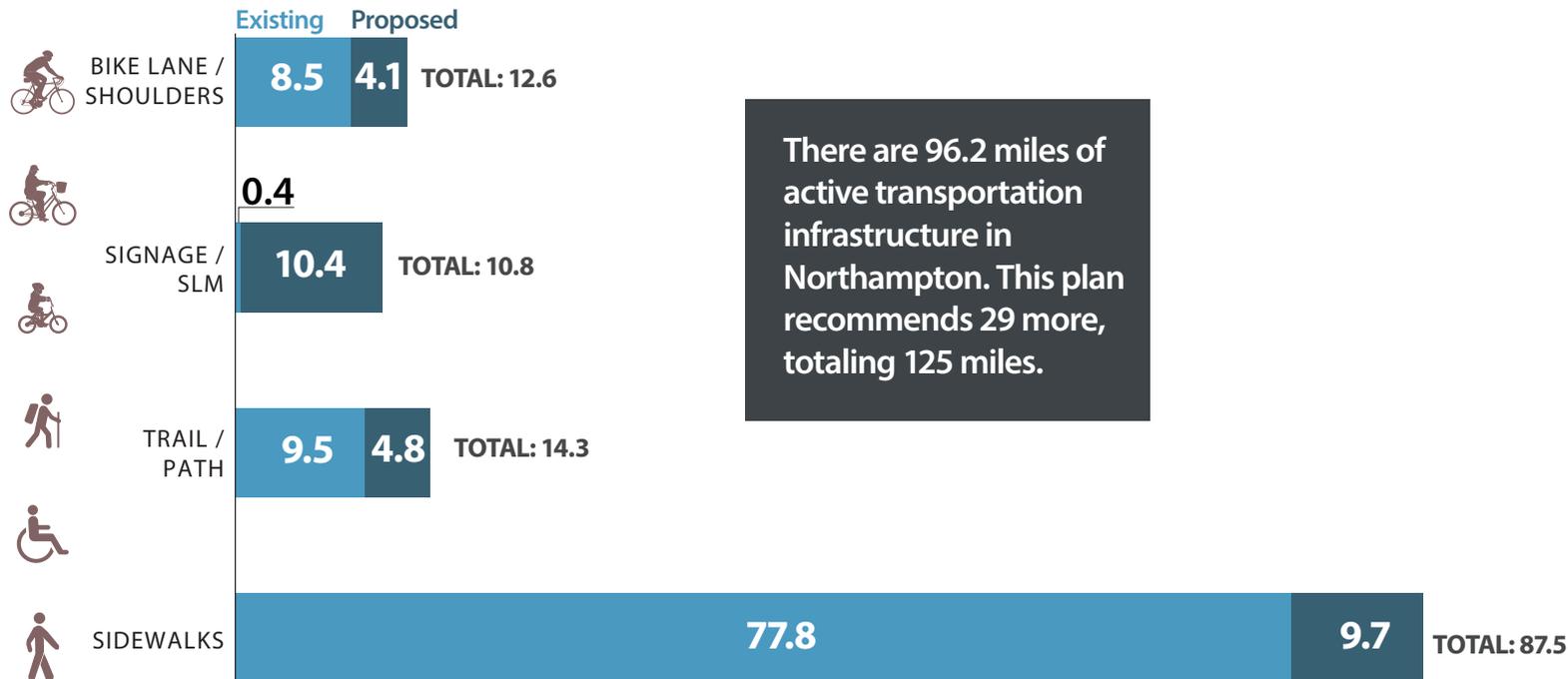
Prioritization

In order to help the City of Northampton prioritize the over 100 project recommendations, the plan used 9 criteria to evaluate each project. The scoring was qualitative in nature and should not be interpreted as being inflexible. The final scores should instead be used to inform funding decisions and grant requests in the future.

It should be noted that because safety and connectivity were considered the most critical criteria, both were weighted with a multiplier of 2X when determining the final scores for each recommendation.

Goal	Explanation
G1: Safety	Project provides a significant safety improvement for all users
G2: Connectivity	Project improves connections to existing sidewalks, rail trails and bike lanes
G3: Linkage	Project provides direct links to key civic, open space and cultural destinations
G4: Proximity to Business District	Project lies within 1 mile of Downtown Northampton or Florence
G5: Proximity to Schools	Project lies within one mile radius of a school
G6: Community Support	Project is supported by >1 person at a public forum or on web site
G7: Complete Streets	Project is consistent with the City's Complete Streets policy and eligible for MassDOT C.S. funding
G8: DPW Traffic Calming List	Project lies along a roadway currently on the DPW's list of traffic calming projects
G9: Vision Zero	Project is intended to help the city achieve the goal of zero pedestrian and bicyclist deaths

The consultant team collected important data regarding how residents of Northampton want bicycle and pedestrian network projects prioritized in the plan utilizing the above information in a survey presented to attendees of Public Forum #2



DRAFT

Design Features Toolkit - Bicycle

Infrastructure that enables the safety of cyclists is a key feature of the recommendations section of this report. The cost and implementation timeline of these upgrades ranges from low to high. Low-cost, context-sensitive retrofits can enable safety improvements to an area pending a more robust or significant future redesign, and can encourage would-be cyclists to try out the new facility. The following design features make up a significant portion of the infrastructure improvement recommendations table in the appendix.



Shared Lane Marking

Shared lane markings are used to mark a designated bike route. They are placed in the travel lane, encouraging cyclists to travel away from the door-zone or parked vehicles. These symbols highlight the fact that the roadway is a shared space. The dotted white lines provide extra awareness to motorists that they are sharing the lane with bicycles.



Enhanced



Greenbacked Sharrow

The addition of green paint on the roadway typically signifies a potential conflict point. Bicycles conflict with motor vehicles at intersections and driveways where a turning movement forces a motor vehicle to cross the path of a bicycle. Although MUTCD allows up to 250 foot (maximum) spacing between sharrows, 150 - 200 feet is ideal.



Contra-Flow Bike Lane

Contra-flow bike lanes are designed to allow bicycles to ride the opposite direction of motor vehicle traffic. This treatment converts a one-way street into a two-way street for bike traffic - connecting neighborhoods and establishing an important link in an overall bike network.



Bike Lane

Bike lanes designate an exclusive space for bicycles through the use of pavement markings and signage. Bike lanes are typically located adjacent to motor vehicle traffic and travel in the same direction as motor vehicles.



Separated Bike Lane - Sidewalk

Raised separated bicycle lanes are vertically separated from motor vehicle traffic. A furnishing zone between the bicycle lane and curb or motor vehicle traffic is a common feature. At intersections, the raised bicycle lane can be dropped down to the street level.



Separated Bike Lane - Street

These bikeways are at street-level and use a variety of methods for physical protection from passing traffic. A parking lane, flexible delineator posts, or flower boxes may provide the physical separation from motor vehicle traffic.



Photo Credit: www.thedartmouth.com

Advisory Bike Lane

Advisory bike lanes are bicycle priority areas delineated by broken white lines, separate from a center one-lane two-way travel area. Motorists may only enter the bicycle zone when no bicycles are present. Motorists must overtake bicyclists with caution due to potential oncoming traffic.

Design Features Toolkit - Pedestrian

Pedestrian crossing facilities are higher cost improvements, but generally have higher compliance rates and create a more comfortable environment for pedestrians. They should be installed at locations where there have been crashes involving pedestrians, or where heavy levels of traffic calming is needed. In order to absorb the costs, these improvements can be included in larger capital projects or redevelopment plans. Many of these elements are featured in the crosswalk design standards found in the appendix.



Commercial Zone Sidewalk

A sidewalk is a dedicated space for pedestrians adjacent to a street or connecting cul-de-sac neighborhoods. A 5-foot sidewalk is the minimum preferred standard in commercial areas.



Residential Zone Sidewalk

Residential zone sidewalks are important in providing pedestrians access to schools, businesses, and recreation areas. 4 feet is the minimum preferred standard, and a 5-foot sidewalk is common.



Signalized Road Crossing

Signalized road crossings

Traffic Calming Measures



Neck Down

Neck downs are typically aligned at the beginning or entrance to a residential side street. Neck downs may be appropriate along typically low-volume streets that experience a high amount of commuter cut-throughs at peak times.



Raised Crosswalk

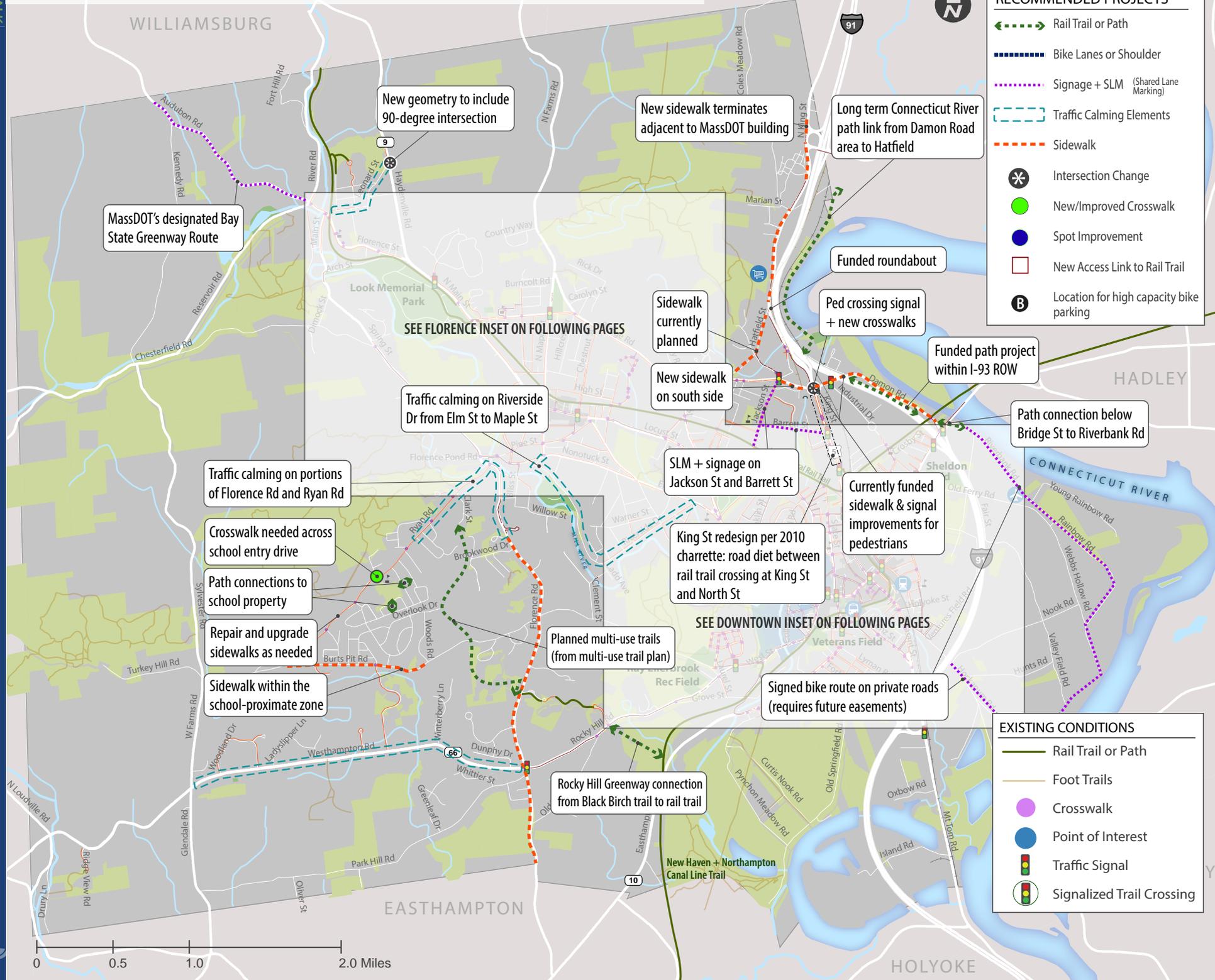
A steeper crosswalk is ideal for some college campus or downtown core locations where significant pedestrian crossings occur regularly or frequently. One result of a steeper crossing is motor vehicle traffic slowed to approximately 10 MPH or less. Mobility-impaired individuals have an easier time crossing as they do not have change in grade.



Chicane

Chicanes deflect vehicles and reduce mid-block speeds by discouraging rapid acceleration

SUMMARY OF PEDESTRIAN + BICYCLE NETWORK RECOMMENDATIONS



0 0.5 1.0 2.0 Miles

PROJECT DESCRIPTION - CITYWIDE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
1	Sidewalk	Corridor	Bridge Rd	Between King St and Jackson St	Install sidewalks	Key gap in sidewalk network	32	X	\$\$\$
2	Traffic Signal	Spot	King St	at Bridge Rd	Install pedestrian crossing signal, countdown timers, and crosswalks	High pedestrian demand to access nearby grocers	27		\$\$\$
3	Traffic Calming	Corridor	Jackson St	Entire length	Traffic calming	Narrow roadway provides uncomfortable feeling for cyclists	27		\$\$
4	Sidewalk	Corridor	King St	between River Valley Coop and Barrett St	Install sidewalks	Key gap in sidewalk network	24		\$\$
5	Traffic Calming	Corridor	Hatfield St	from Bridge Rd to N King St	Utilize traffic calming	Volume and speed of motor vehicles create uncomfortable pedestrian / bicycling environment	22		\$\$
6	Sidewalk	Corridor	Hatfield St		Install ADA compliant sidewalks and curb cuts	There are currently no sidewalks along Hatfield St and this is a key route for cyclists and pedestrians to access the River Valley Coop and other retailers	25		\$\$\$
7	Intersection	Spot	Hatfield St	at N King St	Install crosswalk across Hatfield and consider "T-ing" intersection long term	Wide intersection geometry creates challenging turn movement for cyclists and challenging crossing for pedestrians	23		\$\$
8	Sidewalk	Corridor	N King St	From Asbury St to the Northampton / Hatfield line	Install sidewalks	This is key gap in the sidewalk network	22		\$\$\$
9	Trail Connection	Trail	Damon Road area	along Connecticut River north to Hatfield town line	Explore feasibility of building off-road trail link along the Connecticut River from Damon Road at Bridge Rd intersection area towards Hatfield	Long term regional trail connection from Northampton to communities along the river	27		\$\$

PROJECT DESCRIPTION - CITYWIDE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
10	Trail Connection	Spot	Bridge St	Below Bridge St to Riverbank Rd.	Create path connection below Bridge St	To avoid the congestion of the Damon Rd / Bridge St intersection	24		\$\$
11	On-Street Facility	Corridor	Florence Rd		Stripe bikeable shoulder and 11' travel lanes	Florence Rd is uncomfortable for cycling	31	X	\$\$ - \$\$\$
12	Sidewalk	Corridor	Florence Rd		Upgrade / repair / widen sidewalks	Florence Rd is uncomfortable for pedestrians	27		\$\$\$
13	Sidewalk	Corridor	Ryan Rd	Burts Pit Rd to Florence Rd	Upgrade / repair / widen sidewalks	Ryan Rd is uncomfortable for pedestrians: existing sidewalks non ADA compliant	28		\$\$\$
14	Intersection	Spot	Ryan Rd	at RK Finn Ryan Road School	Install crosswalk	Students would benefit from a crosswalk at the school entrance / driveway	24		\$
15	Trail Connection		Austin Cir / Overlook Dr / Woods Rd / Burts Pit Rd neighborhood	at rear of RK Finn Ryan Road school	Establish trail connection between neighborhood and school on Birchwood Dr on Austin Cir	There is currently no way for students walking and biking to school from this neighborhood to reach school grounds safely and comfortably without utilizing Ryan Rd	24		\$\$\$
16	Sidewalk	Corridor	Florence Rd	Between Rocky Hill Rd and Blackbirch Trail	Install sidewalk along Florence Rd	Large gap in sidewalk network	27		\$\$\$
17	Traffic Calming	Corridor	Westhampton Rd	from Glendale Rd / West Farms Rd to Florence Rd	Utilize traffic calming elements	Despite posted 35 MPH signage, many motorists speed here regularly	19		\$\$

PROJECT DESCRIPTION - CITYWIDE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
18	Trail Connection	Trail	Florence Rd	at Black Birch Trail	Extend Black Birch Trail	The existing trail provides a significant and convenient shortcut for pedestrians traveling from residential neighborhoods towards downtown. Expanding this trail would enable more people to choose walking and biking over short motor vehicle trips by expanding connectivity to the New Haven & Northampton Canal Line Trail	20		\$\$
19	Sidewalk	Area	Burts Pit Rd	From Woods Rd to Ryan Rd	Install sidewalk in school-proximate zone		25		\$\$\$
20	Traffic Calming	Area	Ryan Rd	from Florence Rd to Pioneer Knolls	Utilize traffic calming elements on this portion of road, ranked #3 on DPW's Top 5 list of roadways in need of traffic calming		25		\$\$
21	Traffic Calming	Area	Florence Rd	from Ryan Rd to Brookwood Dr	Utilize traffic calming elements on this portion of road, ranked #3 on DPW's Top 5 list of roadways in need of traffic calming		25		\$\$
22	Traffic Calming	Area	Riverside Dr	from Lexington Ave to Nonotuck	Utilize traffic calming elements on this portion of road, ranked #5 on DPW's Top 5 list of roadways in need of traffic calming		25		\$\$
								High Scoring Projects:	
								2	

FLORENCE INSET - SUMMARY OF PEDESTRIAN & BICYCLE NETWORK RECOMMENDATIONS

EXISTING CONDITIONS

- Rail Trail or Path
- Bike Lane
- Sidewalk (with buffer)
- Sidewalk (no buffer)
- - - Funded Sidewalk
- Crosswalk
- Foot Trails
- Traffic Signal
- Signalized Trail Crossing

RECOMMENDED PROJECTS

- - - Sidewalk
- - - Rail Trail or Path
- - - Bike Lanes or Shoulder
- - - Signage + SLM (Shared Lane Marking)
- - - Traffic Calming Elements
- Intersection Change
- New/Improved Crosswalk
- Spot Improvement
- New Access Link to Rail Trail
- B Location for High Capacity Bike Parking



PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
1	On-Street Facility	Spot	Scanlon Ave	Florence Ave	Install "except bicycles" plaque to Do Not Enter sign	One way street inconvenient for cyclists	25		\$
2	Sidewalk	Corridor	Bliss St	between Willow St and Mill River bridge	New sidewalk and crosswalk	Gap in pedestrian network	25		\$\$
3	Sidewalk	Corridor	Willow St		New sidewalk and crosswalk	Gap in pedestrian network	25		\$\$\$
4	Sidewalk	Corridor	Sheffield Ln		Update / repair sidewalks	Pedestrian demand	25		\$\$
5	Intersection	Spot	Nonotuck St	at Hinckley St	Tighten turning radius in southwest corner	Wide geometry creates intersection with high conflicts	31	X	\$
6	On-Street Facility	Corridor	Locust St	from N Main St to N Elm St	Stripe travel lanes / bike lanes, include painted buffer and delineator posts	No striping or lane designation causes discomfort among cyclists and pedestrians	31	X	\$\$\$
7	Trail Connection	Area	Dimock St	at Arch St	Provide mountain bike and hiker access to conservation land just west of intersection	Pedestrian demand	24		\$\$
8	Crosswalk	Spot	Florence St	between Warner Row and Leeds Elementary School	Re-orient crosswalk and add warning signage	Limited sight lines at curve in road and motorists speeding makes crosswalk uncomfortable for school children	27		\$
9	Sidewalk	Spot	Florence St	at Warner Row	Install curb-cuts to sidewalk	Current sidewalks non ADA-compliant	25		\$\$
10	Trail Connection	Corridor	Florence St	at N Main St	Connect Florence St to bike path with sidepath and ramp up embankment	Pedestrian / bike demand	31	X	\$\$\$
11	Sidewalk	Spot	Florence St	at Haydenville Rd	Connect sidewalk to Look Park	Pedestrian safety	27		\$

PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
12	Intersection	Spot	Florence Rd	at Spring St / Pine St	Consider small roundabout for safety of all users	Challenging intersection would benefit from a roundabout	17		\$\$
13	Crosswalk	Spot	Beacon St	at Pine St	Reorient crosswalk	Awkward geometry	25		\$
14	Trail Connection	Corridor	Prospect Ave	From rail trail intersection with Prospect Ave along N Elm St to Elm St / Northampton High School	Install on-street bicycle facility and refuge island	This is a key connection for Northampton High School students and faculty to use the MassCentral Rail Trail to travel from neighborhoods East, North, and West of this area	29	X	\$\$\$
15	Traffic Calming	Area	Multiple	At all rail trail crossing	Include standard signage on approach to all rail trail crossings	Current roadway crossings lack Trail Crossing / Yield to Peds signage	29	X	\$
16	Intersection	Spot	Meadow St	at Park St	Long term plan to redesign needed	Wide intersection creates unnecessarily long crossing distances for pedestrians and encourages motorist speeding	28		\$\$
17	Sidewalk	Corridor	Meadow St	From N. Main St to Spring St	Install sidewalk to close this important gap in the sidewalk network	No pedestrian facility currently along Meadow St	29	X	
18	Crosswalk	Spot	Meadow St	near N Main	Install raised crosswalk to park in Florence Center	This is an ideal location for a raised crosswalk as motor vehicle traffic approaches a yield sign	28		\$\$

PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
19	Intersection	Spot	Park St	at N Main St	Reduce turning radius dramatically to slow traffic and provide opportunity to add a crosswalk	Tightening the turning radius of this intersection will reduce an unnecessarily long crossing distance for pedestrians and discourage speeding	28		\$\$
20	Sidewalk	Corridor	Cooley Dickinson Property	At north end of Hospital Rd	Work with Cooley Dickinson to provide better pedestrian access from Hospital Rd to the main hospital entrance	Lack of sidewalks prohibits pedestrian access the south	27		\$\$
21	Intersection	Spot	Nonotuck St	at S Main St	Install two crosswalks at this location	Crosswalks and sidewalks are inadequate at this location	27		\$
22	Intersection	Spot	Locust St	at Hatfield St	Install refuge island in median area	This is currently an unnecessarily wide roadway with no shoulder or bike lane striping resulting in long pedestrian crossing distances	28		\$\$
23	Crosswalk	Spot	S Main St	at Pine St	Add curb extension and typical Pedestrian Crossing signage	This is a key crosswalk that has low visibility for approaching motorists	25		\$\$
24	Trail Connection	Spot	S Main St	at Pine St	Make path through triangle park ADA accessible (minimum five feet)		30	X	\$\$
25	Crosswalk	Corridor	S Main St	from Trinity Row to Berkshire	Install sidewalk along south side of South Main St		27		\$\$
26	Traffic Calming	Corridor	Front / Leonard St	Between Florence St and Rt 9	Utilize traffic calming infrastructure	Leonard St is used as a commuter cut through from Florence Rd to Haydenville Rd / Route 9	21		\$\$

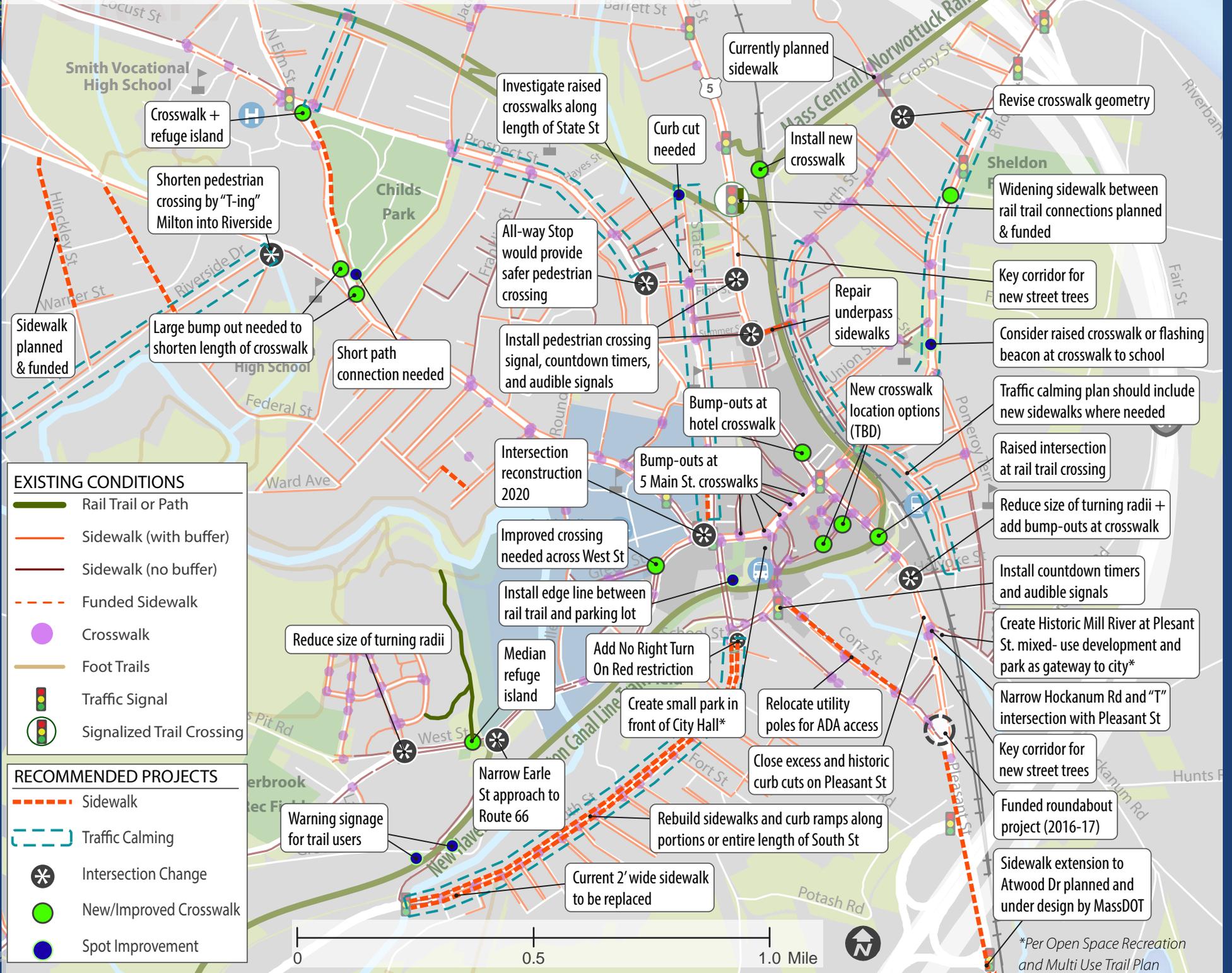
PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
27	Trail Connection	Trail	Florence St	at Haydenville Rd	Install ramp connection to link Look Memorial Park with MassCentral Rail Trail		26		\$\$
28	Sidewalk	Corridor	Pine St	Between Nonotuck and Corticelli St	Install sidewalk on south side and crosswalk at Nonotuck intersection	There is currently a wide, unmarked crossing	26		\$\$
29	Sidewalk	Corridor	Landy Ave	from Nonotuck St to Maines Field	Install sidewalks on Landy Ave	Proximity to park	27		\$\$\$
30	Sidewalk	Corridor	Riverside Dr	Along edge of Maines Field	Install sidewalk or path along edge of park	Proximity to park	32	X	\$\$
31	Intersection	Spot	Nonotuck St	at Bliss St	Reduce large turning radius and add crosswalk across Bliss St	Large turning radii encourages high speed traffic and creates unnecessarily long crossings for pedestrians	24		\$\$
32	Bike Parking	Corridor	N Main St	from N Maple St to Chestnut St	Install bike parking	A lack of bike parking in the Florence commercial district may cause fewer bicycle trips to town and increase the number of single-occupant motor vehicle trips	19		\$
33	On-Street Facility	Corridor	N Main St	from N Maple St to Chestnut St	Install Shared Lane Markings or bike lanes	A lack of bike lanes in the Florence commercial district results in less confident riders cycling on the sidewalk, causing potential conflicts between pedestrians and cyclists	31	X	\$

PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
34	Bike Parking	Spot	JFK Middle School		Install APBP-approved bicycle racks	APBP approved racks are more secure and organize bikes in an aesthetically pleasing fashion	21		\$
35	Sidewalk	Corridor	N Maple St	at Arcanum Field	Install sidewalk adjacent to Arcanum field (utility pole relocation may be required for sidewalks to meet ADA standards)	Major gap in sidewalk network to and from Arcanum jeopardizes pedestrian safety	29	X	\$\$
36	On-Street Facility	Corridor	N Elm St	From Denniston Pl to Prospect / Locust intersection	Reduce width of travel lanes and flush median to provide space for bike lanes		25		\$\$
37	Crosswalk	Spot	N Main St	Between Look Memorial Park and JFK Middle School	Install median refuge island and boardwalk / sidewalk (due to presence of wetlands) on east side of N Main St to Bridge Rd	Proximity to JFK Middle School	26		\$\$\$
38	Sidewalk	Area	Fern St	Entire length	Install sidewalk along Fern St	Proximity to JFK Middle School	28		\$\$\$
39	Sidewalk	Area	Bridge Rd	from N Maple to JFK Middle School	Install sidewalk along Bridge Rd	Proximity to JFK Middle School	28		\$\$\$
40	On-Street Facility	Corridor	Meadow St	From N Main to existing crushed stone side path on Meadow St	Stripe Shared Lane Markings		22		\$

PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
41	On-Street Facility	Corridor	Bridge Rd	From Mass Central Rail Trail to N Maple St	Stripe 4' bike lanes	Important on-street connection for trail users seeking to ride/walk into Florence	28		\$\$
42	On-Street Facility	Corridor	N Maple St	From Bridge Rd to Meadow / Park	Stripe Shared Lane Markings OR advisory bike lane markings	Potential location for advisory bike lane pilot	22		\$
43	On-Street Facility	Corridor	Locust St	From Berkshire Terrace to N Elm St	Stripe 4' bike lanes	To create more comfortable road conditions for cyclists	26		\$\$
44	On-Street Facility	Corridor	Jackson St	From Prospect St to Bridge Rd (entire length of Jackson St)	Stripe Shared Lane Markings	To create more comfortable road conditions for cyclists	22		\$\$
45	Trail Connection	Corridor	Childs Park	From Prospect St to Elm St / Northampton High School	Create path inside Childs Park adjacent to Woodlawn Ave		25		\$\$\$
46	Sidewalk	Area	Hospital Rd	From Elm St to Cooley Dickinson Hospital	Stripe flush painted walkway zone along edge of roadway	Currently there is no pedestrian access to the Hospital from Elm St	27		\$\$
47	Trail Connection	Spot	City Cemetery	Along N Maple	Install pedestrian gates at north and south end of existing cemetery fence		18		\$\$
48	Sidewalk	Area	Meadow St	from Park St/N Main to Spring St	Replace broken / damaged sidewalks	Gap in pedestrian network	26		\$\$
49	Traffic Calming	Area	Elm St/Nonotuck St	from the southern tip of Childs Park to Pine St	Utilize traffic calming elements on this portion of road, ranked #4 on DPW's Top 5 list of roadways in need of traffic calming		24		\$\$

PROJECT DESCRIPTION - FLORENCE							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
50	Traffic Calming	Area	Bridge Rd	from N Maple to N Main	Utilize traffic calming elements on this portion of road, ranked #5 on DPW's Top 5 list of roadways in need of traffic calming		25		\$\$
51	Sidewalk	Spot	Maple St	from W Center St to Middle St	Install sidewalk to close this sidewalk gap along the west side of Maple St		23		\$\$
52	Intersection	Spot	Leonard St	At Route 9 / Haydenville Rd	Rebuild intersection with new geometry to include a 90 degree intersection	Oblique angle of current intersection encourages high speed turns	29	X	\$\$
								High Scoring Projects:	
								11	

DOWNTOWN INSET - SUMMARY OF PEDESTRIAN NETWORK RECOMMENDATIONS

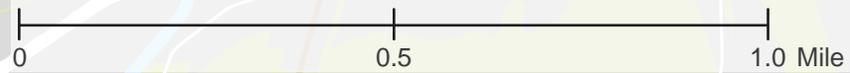


EXISTING CONDITIONS

- Rail Trail or Path
- Sidewalk (with buffer)
- Sidewalk (no buffer)
- Funded Sidewalk
- Crosswalk
- Foot Trails
- Traffic Signal
- Signalized Trail Crossing

RECOMMENDED PROJECTS

- Sidewalk
- Traffic Calming
- Intersection Change
- New/Improved Crosswalk
- Spot Improvement

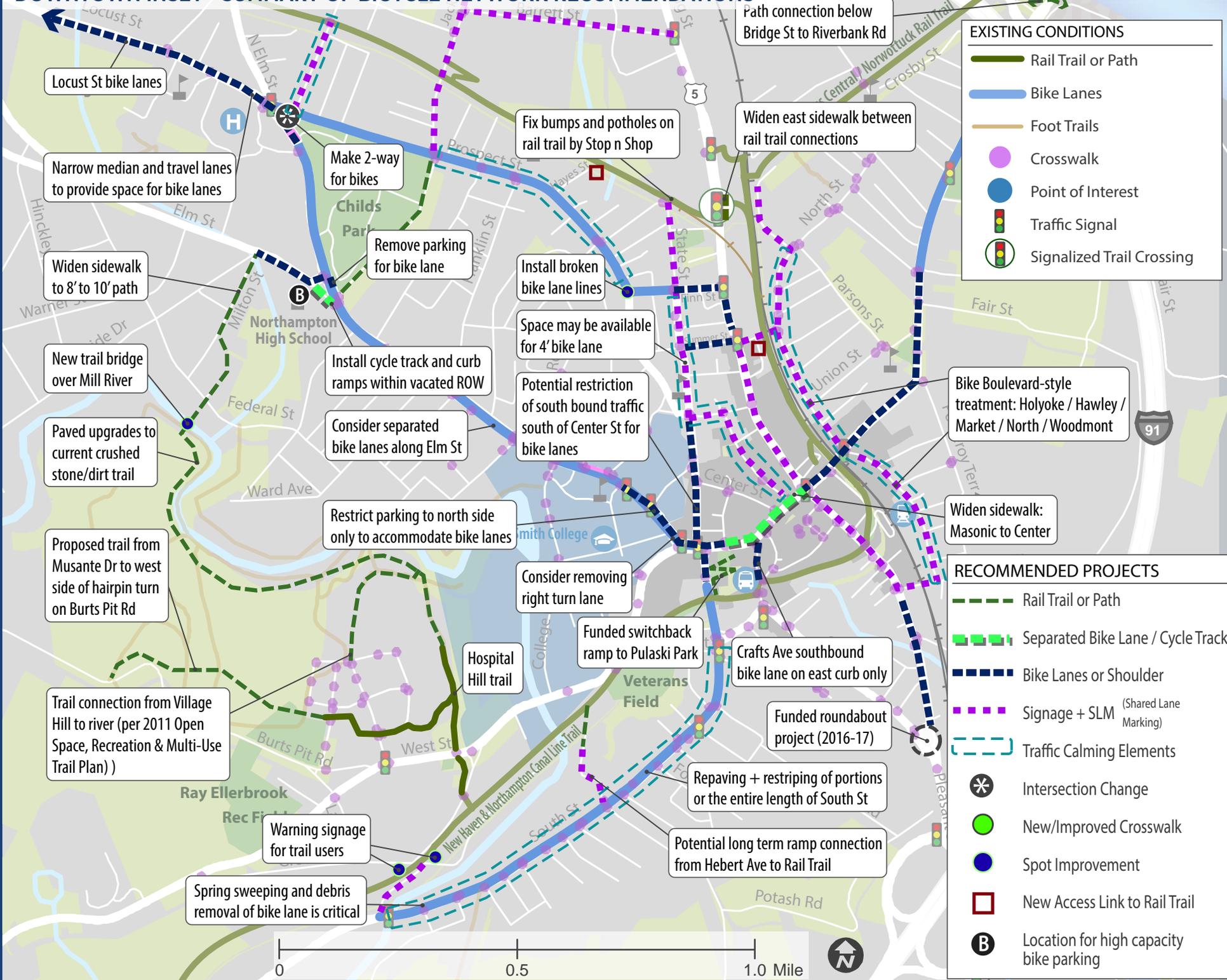


*Per Open Space Recreation and Multi Use Trail Plan

Callout Boxes:

- Crosswalk + refuge island
- Shorten pedestrian crossing by "T-ing" Milton into Riverside
- Sidewalk planned & funded
- Large bump out needed to shorten length of crosswalk
- Short path connection needed
- Investigate raised crosswalks along length of State St
- All-way Stop would provide safer pedestrian crossing
- Install pedestrian crossing signal, countdown timers, and audible signals
- Intersection reconstruction 2020
- Improved crossing needed across West St
- Install edge line between rail trail and parking lot
- Median refuge island
- Narrow Earle St approach to Route 66
- Warning signage for trail users
- Reduce size of turning radii
- Currently planned sidewalk
- Curb cut needed
- Install new crosswalk
- Bump-outs at hotel crosswalk
- Bump-outs at 5 Main St. crosswalks
- Create small park in front of City Hall*
- Relocate utility poles for ADA access
- Close excess and historic curb cuts on Pleasant St
- Rebuild sidewalks and curb ramps along portions or entire length of South St
- Current 2' wide sidewalk to be replaced
- Revise crosswalk geometry
- Widening sidewalk between rail trail connections planned & funded
- Key corridor for new street trees
- Repair underpass sidewalks
- New crosswalk location options (TBD)
- Consider raised crosswalk or flashing beacon at crosswalk to school
- Traffic calming plan should include new sidewalks where needed
- Raised intersection at rail trail crossing
- Reduce size of turning radii + add bump-outs at crosswalk
- Install countdown timers and audible signals
- Create Historic Mill River at Pleasant St. mixed-use development and park as gateway to city*
- Narrow Hockanum Rd and "T" intersection with Pleasant St
- Key corridor for new street trees
- Funded roundabout project (2016-17)
- Sidewalk extension to Atwood Dr planned and under design by MassDOT

DOWNTOWN INSET - SUMMARY OF BICYCLE NETWORK RECOMMENDATIONS



EXISTING CONDITIONS

- Rail Trail or Path
- Bike Lanes
- Foot Trails
- Crosswalk
- Point of Interest
- Traffic Signal
- Signalized Trail Crossing

RECOMMENDED PROJECTS

- Rail Trail or Path
- Separated Bike Lane / Cycle Track
- Bike Lanes or Shoulder
- Signage + SLM (Shared Lane Marking)
- Traffic Calming Elements
- Intersection Change
- New/Improved Crosswalk
- Spot Improvement
- New Access Link to Rail Trail
- Location for high capacity bike parking

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
1	Intersection	Spot	Prospect St	at Finn St	All way stop signs needed	Motorists don't always stop for people crossing Finn St on foot	20		\$
2	Intersection	Spot	West St	at Green St	Utilize traffic calming: refuge island / curb extensions / raised-table crossing	Crosswalk is too long, telephone pole restricts sight lines	31	X	\$\$\$
3	Traffic Calming	Corridor	South St	Between Cedar St and Fort St	Utilize traffic calming: refuge island / curb extensions / raised-table crossing	High speeding traffic and tractor trailers, many motorists do not yield to pedestrians waiting in crosswalks	26		\$\$\$
4	Sidewalk	Corridor	State St	Between Finn St and MassCentral Rail Trail	Repair and widen sidewalks	High pedestrian demand area, sidewalks are narrow and in disrepair	29	X	\$\$
5	Traffic Signal	Spot	King St	at Summer St and North St	Install pedestrian crossing signal, countdown timers and audible signals	No pedestrian signal exists	28		\$\$\$
6	Traffic Calming	Spot	Pleasant St	New Haven & Northampton Canal Line Trail crossing	Utilize traffic calming: refuge island / curb extensions / raised-table crossing	Cars frequently don't stop for crossing cyclists or pedestrians	29	X	\$\$\$
7	Traffic Calming	Corridor	Bridge St	between Orchard St and Lampron Park	Utilize traffic calming: refuge island / curb extensions / raised-table crossing	Speeding traffic does not stop at crosswalks	30	X	\$\$\$
8	Crosswalk	Spot	North St	where North St meets Day Ave / Bates Ave	Update crosswalk geometry	Crosswalk is poorly aligned	30	X	\$\$
9	Traffic Calming	Corridor	Prospect St	between Childs Park and Finn St	Utilize traffic calming: narrow roadway width	Road is too wide, causes speeding	25		\$\$
10	Trail Connection	Trail	Mill River Walk Trail		New paved trail from current terminus near Olander Dr to high school	Need to connect New Haven + Canal Line Trail to High School + Elm St	27		\$\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
11	Traffic Calming	Corridor	Bridge St	between Fair St and Old Ferry Rd	Enforce no parking on sidewalk	Pedestrian demand and safety	24		\$
12	On-Street Facility	Corridor	Pleasant St	between Conz St and Main St	Install bike lanes from Conz to Holyoke and Shared Lane Markings to Main St	Bicycle safety and access	31	X	\$\$
13	Intersection	Spot	South St	at west entrance to Pulaski Park	Curb extension at crosswalk	Site of pedestrian fatality	26		\$
14	On-Street Facility	Corridor	King St	From Finn to North St	Stripe bike lanes	To provide bike facility between Finn St bike lanes and North St connection to rail trail	28		\$
15	On-Street Facility	Corridor	Holyoke / Hawley / Market / North / Woodmont	From Pleasant St to Norwottuck Rail Trail	Bike boulevard style treatments from end to end, using enhanced Shared Lane Markings and signage	Alternative bike route to Pleasant and Main St	31	X	\$\$
16	On-Street Facility	Corridor	North St	From King St to Market St	Mix of 4' bike lanes and Shared Lane Markings	Cyclist safety in roadway	28		\$
17	Sidewalk	Corridor	Franklin St	between Bancroft St and Elm St	Install curb cuts	Pedestrian demand / current sidewalks non ADA compliant	24		\$\$
18	Crosswalk	Spot	Roundhill Rd	at Crescent St	Install curb cuts	Current sidewalks non ADA-compliant	23		\$\$
19	On-Street Facility	Corridor	State St	between Main St and Trumbull Rd	Enhanced Shared Lane Markings and signage	Narrow roadway, high volume of users and conflicts	31	X	\$\$
20	Intersection	Spot	Elm St	at West St	Examine intersection for long term redesign including potential removal of right turn lane from Elm St to West St	Intersection prone to conflicts due to awkward geometry and traffic signal phasing	27		\$\$ - \$\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
21	Traffic Signal	Spot	South St	at Old South St	Add No Right Turn on Red signage	Long crosswalk geometry	19		\$
22	Intersection	Spot	North St	at Rail trail bridge at North St (between Market and King)	Upgrade underpass	Sidewalks below underpass are in poor condition	25		\$\$
23	Intersection	Spot	Cracker Barrel Alley	at Main St	Convert Cracker Barrel Alley to pedestrian / bicycle access only, utilize curb extensions on Main Street to signify change	Low visibility, high crash / conflict area	29	X	\$\$
24	On-Street Facility	Corridor	Barrett St		Add Shared Lane Markings and signage	This is a key bicycle route through the city and offers direct connections from neighborhoods west to the Jackson Street School	28		\$
25	On-Street Facility	Corridor	Main St	between Straw Ave and North Maple	Enhanced Shared Lane Markings and additional signage	Kids bike on the sidewalk here because of dangers in the roadway	29	X	\$\$
26	On-Street Facility	Corridor	Summer St	Between King St and State St	Relocate parking to south side and install west-bound contraflow bike lane	Bicycle desire line	29	X	\$\$
27	On-Street Facility	Corridor	North St	North St between the intersection of North and Market and the intersection of North and Lincoln	Install on-street bicycle facility and utilize traffic calming elements	Currently bikes come up the wrong side of North St causing uncomfortable situations for pedestrians and motorists	25		\$\$
28	Trees	Corridor	North St	North St between the intersection of North and Market and the intersection of North and Lincoln	Install street trees	Newly widened roadway has many fewer street trees	20		\$\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
29	On-Street Facility	Corridor	State St	Between Main St and Trumbull	Stripe bike lanes (requires potential restriction of southbound traffic south of Center St) for bike lanes	Currently bikes come up the wrong side of North St causing uncomfortable situations for pedestrians and motorists	32	X	\$
30	Traffic Calming	Corridor	State St	between Trumbull and Finn	Utilize traffic calming devies	Currently bikes ride on the sidewalk along this portion of State St causing uncomfortable situations for pedestrians	29	X	\$\$
31	Crosswalk	Spot	Hampton Ave	At Kirkland Ave OR in front of Hampton Court Apartments	Install new crosswalk at either location	A crosswalk is needed to improve pedestrian access across Hampton Ave, either at Kirkland ve or further east towards Pleasant St at the primary entry to a parking lot which is similar to being located at a cross street.	21		\$
32	Traffic Calming	Spot	Holyoke St	at Pleasant St	Utilize traffic calming devies		26		\$\$
33	Trees	Corridor	Pleasant St	from Exit 18 off-ramp to Pearl St	Install street trees	Street trees will provide a more pleasant gateway to the city	23		\$\$
34	Trail Connection	Spot	Pleasant St	Intersection of rail trail and Pleasant St	Install signage or road delineations that show the trail connections as they cross streets	Not clear how to safely cross these busy streets on the established trail network	31	X	\$\$
35	Trail Connection	Corridor	Hebert Ave	From intersection of South St and Hebert Ave (opposite Olive St) to New Haven and Northampton Canal Line Trail at end of Hebert St	Establish formal connection by installation of ramp at end of Hebert St and signage along Hebert St and South St directing cyclists and pedestrians towards rail trail	Important connection opportunity on busy roadway to divert cyclists and pedestrians onto separated trail facility	28		\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
36	Sidewalk	Spot	Conz St	Between Service center Rd and Wilson Ave	Relocate utility poles for sidewalk ADA compliance	Utility pole placement makes sidewalks non ADA compliant	21		\$\$ - \$\$\$
37	Crosswalk	Spot	Cracker Barrel Alley	Behind businesses	Install crosswalk in rear of buildings		25		\$
38	Crosswalk	Spot	Cracker Barrel Alley	at Main St	Re-align crosswalk extending across Main St from Cracker Barrel Alley to reflect change in Cracker Barrel Alley access	Current awkward crosswalk geometry will be out of date when Cracker Barrel Alley access changes take place	26		\$
39	On-Street Facility	Corridor	Crafts Ave		Install bike lanes on left side of Craft St	This will relocate bicycles further away from angled parking which may create a potential conflict	26		\$
40	Trail Connection	Corridor	Hospital Hill Trail	From Village Hill development to Northampton High School	Extend and pave existing Hospital Hill path	This path is currently neglected and in disrepair	24		\$\$\$
41	Intersection	Spot	Village Hill Rd	at West St	Reduce size of all corner radii for slower traffic speeds	Overly wide intersection invites speeding and creates uncomfortable crossing distance for pedestrians	23		\$
42	Traffic Calming	Spot	West St	at Earle St	Install refuge island in median area	A refuge island will aid crossing pedestrians at this wide roadway	22		\$
43	Intersection	Spot	New Haven & Northampton Canal Line	at Earle St	Install signage instructing cyclists to approach intersection slowly	This intersection is at the bottom of a hill and the rail trail approach is on a diagonal path with significant blind spots	18		\$
44	Street Furniture	Spot	The parking lot west of Roundhouse Plaza	Between Roundhouse Pl and the New South overpass	Install edge lines at the south end of the parking lot	This will discourage motorists from parking with their bumpers extending into the rail-trail zone	23		\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
45	On-Street Facility	Corridor	South St	1,000 feet from Main St intersection	Install bike lane (continue existing bike lane)	The existing bike lane peters out in a high-traffic volume area along South St	30	X	\$
46	Sidewalk	Corridor	State St	at Center St	Install sidewalk along west side of State St	This is a high demand pedestrian area with inadequate sidewalks	33	X	\$\$\$
47	On-Street Facility	Corridor	State St	near Trumbull St	Install bike lane	Roadway does not meet the needs of all cyclists	32	X	\$
48	On-Street Facility	Corridor	State St	at Summer St	Install 4 foot bike lane	The narrow width of this roadway may not allow for the traditional 5-foot bike lanes	29	X	\$
49	On-Street Facility	Corridor	Finn St	Between State and King St	Narrow (and stripe) travel lanes to 10'	Provides space for 4' bike lane	26		\$
50	On-Street Facility	Corridor	Finn St	Between State St and Prospect	Install bike lane stencils in existing shoulder	This defacto bike lane area would benefit from a formal designation as a bike lane by adding traditional bike lane stencils	26		\$
51	On-Street Facility	Spot	Propsect St	at Finn St	Install bike guide lines (dashed lines)	White dashed lines will help to continue and define the bike lane as it travels through the intersection	25		\$
52	Sidewalk	Spot	State St	at Stoddard St	Install curb cuts	Existing sidewalks do not have curb cuts and therefore are not ADA compliant	26		\$\$
53	On-Street Facility	Corridor	State St	near Stoddard St	Stripe enhanced Shared Lane Markings		31	X	\$
54	Sidewalk	Corridor	King St	at rail trail crossing	Install wider sidewalk	Existing sidewalk is too narrow	27		\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
55	Trail Connection	Spot	Hayes Ave	at rail trail crossing	Install spur connection/ramp from Hayes to rail trail	Clear desire line shows existing path through woods that should be formalized with a paved ramp	26		\$\$\$
56	Intersection	Spot	Riverside Dr	at Elm St / Milton St	Improve crosswalk by "T-ing" Milton into Riverside Dr via the existing parking lot or installing a mini-roundabout	This intersection has an unnecessarily long pedestrian crossing	30	X	\$
57	Bike Parking	Spot	Northampton High School	Front entrance	Replace wheel bender bicycle racks with APBP approved racks	"Wheel bender" bicycle racks are less secure than APBP approved racks	18		\$
58	Intersection	Spot	Elm St	N. Elm and Woodlawn Ave	Build new curb extensions (may require relocation of fire hydrant)	Long crosswalks used by High School students	30	X	\$\$
59	On-Street Facility	Corridor	South St	Between Earle St and Old South St	Repave South St, continue rumble strip between bike lane and travel lane	Multiple instances of debris in the bike lane results from deteriorated pavement and sidewalks	22		\$\$\$
60	Sidewalk	Corridor	South St	Between Earle St and Dewey Ct	Update some or all sidewalks and curb cuts along South St corridor	Existing sidewalks and curb cuts in disrepair, non ADA compliant	26		\$\$
61	Crosswalk	Spot	Bridge St	at Parsons St	Install Rectangular Rapid Flash Beacon or other device to control crosswalk across from school	Uncontrolled crosswalk across from elementary school is inadequate for young school children who want to bike or walk to school	30	X	\$\$
62	Intersection	Spot	King St	at Main St / Pleasant St	Install pedestrian countdown timers on traffic signals downtown		30	X	\$\$
63	Crosswalk	Spot	Main St	at Cracker Barrel Alley	Re-align crosswalk geometry		27		\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
64	Intersection	Spot	Pleasant St	at Holyoke St	Reduce size of turning radius to slow turning traffic	This is a tough crossing for pedestrians due to intersection geometry	29	X	\$\$
65	Traffic Signal	Spot	West St	at Village Hill Rd	Install pedestrian signal phase at existing traffic signal		24		\$
66	Sidewalk	Area	South St	between S Park Terrace and Earle St	Install sidewalk	This area represents a gap in the existing sidewalk network	23		\$\$
67	Crosswalk	Spot	Allen Pl	at Gothic St	Install crosswalk	This is a difficult place for pedestrians to cross	29	X	\$
68	Sidewalk	Spot	Elm	at N Elm crosswalk	Path connection from Elm St sidewalk to path within Childs Park		26		\$
69	Sidewalk	Corridor	Atwood Dr	Entire length	Roundabout project on Pleasant Street (under construction) will extend sidewalks to Dike Road and MassDOT has begun the planning for extending sidewalks from there to Atwood Drive.	This is a difficult place for pedestrians to cross	22		\$\$
70	Traffic Calming	Spot	King St	at Hotel Northampton	Install curb extensions at this unsignalized crosswalk		28		\$\$
71	Traffic Calming	Spot	King St	at Trumbull Rd	Install curb extensions		23		\$\$
72	Traffic Signal	Spot	King St	at Finn St	Install pedestrian signal heads, count-down timers and audible signals (for both crosswalks)		29	X	\$\$
73	Sidewalk	Corridor	Federal St	between Riverside and Elm	Install sidewalks east side of street	This is a narrow street currently without sidewalks, and has close proximity to schools and parks	29	X	\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
74	Trail Connection	Spot	Main St	behind Fitzwilly's	Install signage to Main St at ramp behind Fitzwilly's	Lack of signage may confuse trail users	26		\$
75	Trees	Corridor	Pleasant St / King St	from Holyoke St to Finn St	Install additional street trees	This area represents a gap in the established urban tree canopy	22		\$\$
76	Sidewalk	Corridor	Hawley St	from Holyoke St to Bridge St	Add 5' sidewalks and ADA curb ramps, make bike boulevard improvements	Bumpy, deteriorated sidewalks along Hawley St	31	X	\$\$\$
77	On-Street Facility	Corridor	Elm St	From Child's Park to Prospect St (at John M Greene Hall)	Swap parking with bike lane to create a protected facility	Create comfortable riding conditions for a broad range of cyclists	30	X	\$
78	On-Street Facility	Corridor	Elm St	From Prospect St to Bedford Terrace	Remove parking on the south side of street to accommodate bike lane (loss of 10 spaces)	Create comfortable riding conditions for a broad range of cyclists	26		\$
79	On-Street Facility	Corridor	Barrett St	From King St to Jackson St	Stripe Shared Lane Markings	To create more comfortable road conditions for cyclists	22		\$
80	On-Street Facility	Corridor	Bridge St	From Market St to Orchard St	Stripe 4' bike lanes	To create more comfortable road conditions for cyclists	29	X	\$
81	On-Street Facility	Corridor	Earle St	From South St to Grove St	Stripe Shared Lane Markings	To create more comfortable road conditions for cyclists	21		\$
82	On-Street Facility	Corridor	South St / Pleasant St / Rt 9		Install LED crosswalk lighting		24		\$\$
83	Intersection	Spot	N Elm St	at Locust St	Install bicycle loop detector or video		21		\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
84	Intersection	Spot	Locust St	At N Elm / Prospect St	Make intersection two-way for bikes	Bicyclists traveling from Cooley Dicknson to points north from Propsect Ave are currently forced to make difficult left against traffic on Prospect St	23		\$\$
85	On-Street Facility	Spot	N Elm St	Just north of Elm St intersection / just west of the southern tip of Child's Park	Remove six parking spots for continual bike lane	Removal of the parking establishes a more complete connection along Elm St's established bike facility in front of the high school	30	X	\$
86	On-Street Facility	Corridor	Gothic and Trumbull St	Gothic: Entire Length. Trumbull: From Gothic intersection to State St.	Utilize bike-boulevard style treatments: Install Shared Lane Markings / utilize traffic calming elements		24		\$\$
87	On-Street Facility	Corridor	South St		Spring sweeping and debris removal of bike lane is critical		25		\$
88	Traffic Calming	Corridor	King St	From rail trail crossing at King St to North St	Implement road diet (per 2010 charrette)		22		\$
89	Intersection	Spot	Hockanum Rd	at intersection with Pleasant St	Make intersection a "T" right angle, narrow Hockanum Road at intersection approach	Wide turn radii creates unnecessarily long crossing for pedestrians and encourages motorist speeding	26		\$\$
90	Intersection	Spot	Earle St	at West St	Earle St should be narrowed on the approach to West St, consider dopping the turn lane		19		\$\$\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
91	Trail Connection	Corridor	Musante Dr	to Burts Pit Rd (north side of road)	Install trail from Musante Dr to the west side of the hairpin turn on Burts Pit Road, on the north side of the road partially to avoid both the steep grade of the hairpin turn		23		\$\$\$
92	Sidewalk	Corridor	Pleasant St		Close excess and historic curb cuts on Pleasant St	These redundant curb cuts create unnecessary hazards for pedestrians	29	X	\$\$
93	Traffic Calming	Area	Riverside Dr	from Elm to Maple	Utilize traffic calming elements on this portion of road, ranked #2 on DPW's Top 5 list of roadways in need of traffic calming		23		\$\$
94	Traffic Calming	Area	State St	Entire length	Utilize traffic calming elements on this road, ranked #1 on DPW's Top 5 list of roadways in need of traffic calming	**Investigate raised crosswalks along the length of State St	30	X	\$\$
95	Intersection	Spot	Conz St	at Old South St	Install countdown timers and audible signals	Pedestrian safety and comfort.	28		\$\$
96	Trail Connection	Spot	Rail trail at Stop n Shop	near State St	Address bumpy conditions and potholes on rail trail at this location	Bicyclist and skater safety and comfort while using trail.	20		\$
97	On-Street Facility	Corridor	Gothic and Trumbull St	from State St to Main St	Utilize traffic calming elements in addition to Shared Lane Markings	High cyclist presence accessing downtown from rail trail via State St	31	X	\$\$
98	Trail Connection	Spot	Elm St	In front of Northampton High School, where Elm turns to N Elm back to Elm	Install cycle track along vacated ROW	Encouraging cycling to and from school by providing new facilities will encourage bicycle use over single occupancy motor vehicle trips	29	X	\$ - \$\$
99	Crosswalk	Spot	Woodmont Rd	At Norwottuck rail trail crossing	Install new crosswalk	Existing crosswalk is faded. High cyclist and pedestrian presence.	28		\$

PROJECT DESCRIPTION - DOWNTOWN							EVALUATION & SCORE		COST
Project #	Project Type	Location Type	Street Name	Extents	Project Description	Reasoning	Evaluation Score: (Max. 33)	High Scoring Projects: (Score above 28)	Range of Cost: (\$ = < 20k, \$\$ = 20k - 50k, \$\$\$ = > 50k)
100	On-Street Facility	Corridor	Main St	From State at South to Hawley at Market	Install bike lane / separated bike lane	Plenty of space exists within existing right of way to create separated bicycle facility.	30	X	\$\$\$
101	Sidewalk	Corridor	Main St	North side, from Cracker Barrel Alley to Center	Widen sidewalk	High pedestrian demand with numerous adjacent eating establishments	21		
102	Traffic Calming	Corridor	Main St	5 Main St Crosswalks	Install curb extensions and median islands at 5 Main St crosswalks	Main streets width creates unnecessary long crossings for pedestrians	29	X	\$\$
103	Trees	Corridor	Main St	Main / State / South to Main / Hawley / Market	Install new street trees and landscaping	Bolstering the already established urban tree canopy in this core downtown streetscape will provide a comfortable pedestrian experience on hot summer days.	23		\$\$
104	On-Street Facility	Corridor	Rainbow Rd / Hockanum Rd		Install Shared Lane Markings and/or signage	To designate this as a bicycle-friendly route around downtown	19		\$\$
105	Trail Connection	Spot	North St	At Edwards Square	Ramp to rail trail from the east end of the parking lot at corner of North and Edwards Sq	Important desire line currently used by many walkers and bicyclists	29	X	\$\$
								High Scoring Projects: 38	

MAP OF ALL CURRENT AND FUTURE FUNDED PROJECTS

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LEGEND

- Text (in red box) Project is funded
- Text (in white box) Project is in planning stage

Roundabout planned for Hatfield St at N King St (at 25% design stage)

Project Need Form / Project Initiation Form to rehabilitate Mass-Central Rail Trail from State St to Bridge Rd has been submitted

Funded sidewalk, multiuse path, and crosswalk at intersection

I-91 interchange (Exit 19) project to include reconstruction of Damon Rd from Bridge St to King/North King (at 25% design)

Funded sidewalk and street reconstruction on Hinckley St

Funded trail underpass

King St corridor upgrades will likely include a new signal at Finn and State St

Intersection improvements at Main / Elm / West / State / New South is in the list of Transportation Improvement Projects for 2019

Pleasant St corridor between Hampton Ave and Hockanum Rd improvements include raised pedestrian crossings, bump outs, a section of cycle track, sections of sidewalk replacement (pending MassWorks grant funding approval)

Funded roundabout project to begin in 2021

Funded sidewalk project on Atwood Dr

Planned Rocky Hill Greenway (at 25% design)





7. CROSSWALK PLANNING + DESIGN

Crosswalk Recommendations

This section describes crosswalk design guidelines, inventories the existing types of crosswalks and their locations in Northampton, and provides detailed design standards to be used in future crosswalk design and construction. The general guidelines below and the detailed design standards in the appendix are based on the AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities, the MassDOT Project Development & Design Guide (2006), the NACTO Urban Streets Design Guide and Manual of Uniform Traffic Control Devices (MUTCD), including the MA MUTCD Amendments, section 3B.18, Crosswalk Markings.

7.1 General Guidelines

Installation of any new crosswalks should be preceded by an engineering study that will need to consider the number of traffic lanes, the presence of, or potential for, a median, the distance from signalized intersections, pedestrian volumes, roadway geometry, availability of street lighting, traffic volumes and posted and/or 85th percentile speed.

- Crosswalks are not required at all intersections, especially two-lane streets with volumes <3,000 vehicles per day, and 85th percentile speeds of < 25 MPH.

- Crosswalks should be considered at street intersections where the primary roadway has volumes of >3,000 vehicles per day, speeds typically exceed 25 MPH or where schools, parks and senior centers are present.
- Land use, crash history, and present and future demand to be expected can impact crosswalk design and location.
- Crosswalks shall be supplemented with wheelchair ramps, stop bars, and signage to improve access, pedestrian convenience, and safety. In addition, crosswalks may be supplemented with curb extensions, refuge islands, raised crossings, advanced yield lines, pedestrian crossing bollard signs, and pedestrian signals with countdown timers in locations where pedestrian traffic is heavy, or near schools, parks, and senior centers.
- Compelling reasons should be found to not include crosswalks on all legs of an intersection, e.g. missing sidewalk(s), high turning volume and/or low motor vehicle volume.
- The minimum crosswalk width at side streets with a 5' sidewalk is 8', with 12' preferred. Across busier streets and downtown, the minimum crosswalk width is 12' or the width of the adjacent sidewalk, whichever is greater.
- While there is no specific guidance from MUTCD on material use, epoxy, thermoplastic or similar durable materials should be used; brick or unit paver crosswalks are allowed but not recommended, except at signalized intersections in specific districts.

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Mid-Block Crossings

Because mid-block crosswalks can create a safer and more direct route for pedestrians hoping to avoid significant out-of-direction travel to the nearest signalized intersection, they are recommended. All sites will require an engineering study approval by the City Engineer and t follow the following guidelines:

- On low-colume roadways with 85th percentile speeds up to 30 MPH, the City's standard crosswalk design will suffice (see Appendix)
- On 4-lane roads or where 85th percentile speeds exceed 35 MPH, medians, flashing beacons or a pedestrian signage and overhead lighting.
- Any mid-block crossing requires appropriate signage and overhead lighting.
- Per MUTCD, Section 4D.01, midblock crosswalks should not be signalized if within 300' of the nearest traffic signal, or within 100' of a side street controlled by a stop or yield sign, unless a study indicates the new signal will not restrict progressive movement of traffic

7.2 Existing Crosswalk Typologies

There are a variety of crosswalk typologies within the City of Northampton. Five distinct types of crosswalk are displayed in the photos to the right, along with a synopsis of those that are preferred versus those in need of improvement.

Existing Crosswalks

Crosswalk Type	Quantity
Ladder / Continental Crosswalks	340
Parallel Crosswalks	8
Street Print	23
Zebra-style Crosswalks	1
Total Number of Crosswalks	373



Continental

Main St at Cracker Barrel Alley: The most dominant style of crosswalk in Northampton, continental style crosswalks are highly visible to motor vehicle traffic. These and ladder crosswalks are the preferred standard.



Ladder

Damon Rd at Rail Trail Crossing: There are relatively few ladder crosswalks in Northampton. Ladder and Continental-style are the most preferred due to their high visibility and are recommended as the standard for new crosswalk striping in the future.



Street Print

Musant Dr at Moser St: Throughout the Village Hill Development, more decorative street print duratherm crosswalks are used.



Zebra

Bridge St at Day St: There is only one instance of Zebra-style crosswalk in Northampton. This style is out-of-date and should be updated to the preferred standard above.



Parallel

Crafts Ave at Old South St: There are only 8 instances of parallel-line style crosswalks in Northampton. These are the least preferred style of crosswalk due to their lower levels of visibility. Due to the inherent design of striping perpendicular to the flow of traffic, these crosswalks wear down faster due to motor vehicle tires. Parallel-style crosswalks should be updated to the preferred standard, except at locations with decorative pavers or brick, in which parallel style will be needed at the edges.

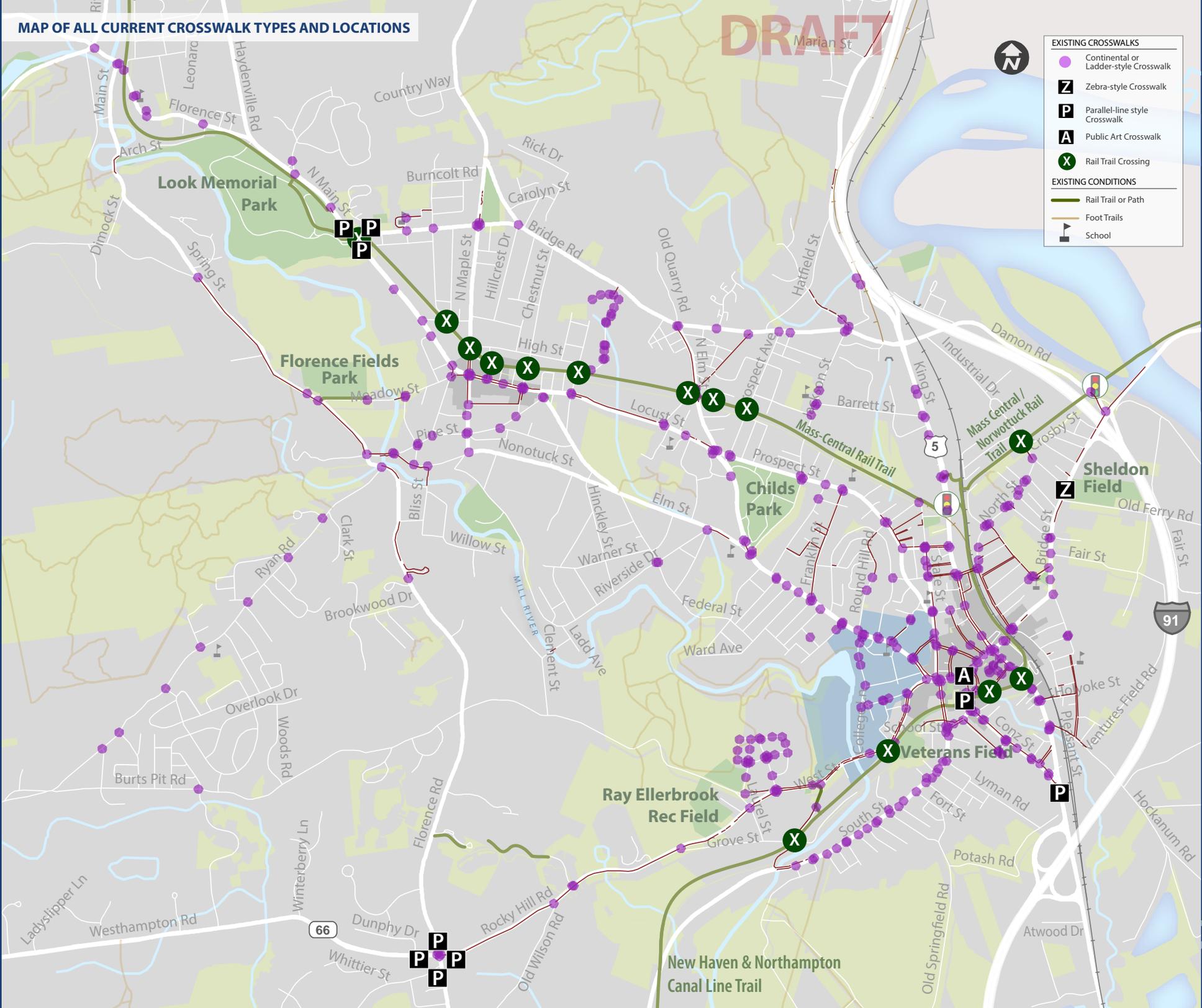


Parallel

Pleasant St at Conz St

MAP OF ALL CURRENT CROSSWALK TYPES AND LOCATIONS

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EXISTING CROSSWALKS

- Continental or Ladder-style Crosswalk
- Zebra-style Crosswalk
- Parallel-line style Crosswalk
- Public Art Crosswalk
- Rail Trail Crossing

EXISTING CONDITIONS

- Rail Trail or Path
- Foot Trails
- School

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7.3 Recommended Crosswalk Design Features Toolkit

Lower Cost Elements

Infrastructure that enables the safety of pedestrians may not be old enough to require full replacement, and in some locations funding for safety retrofits is limited. Low cost fixes to calm traffic and enhance safety for all users of the road and sidewalk are likely to be adopted and completed sooner than more expensive projects, and can serve as catalysts for long-term change. Additionally, low-cost, context-sensitive retrofits can enable safety improvements to an area pending a more robust or significant future redesign. These are some of the design features illustrated in the crosswalk design standards found in the appendix.



Continental Style Crosswalk

Continental style crosswalks are highly visible to motorists. They are cost-effective by placing gaps in established tire tracks, reducing the level of wear over time. Continental crosswalks are the preferred crosswalk design standard.



Stop Line (Signalized Crossing Only)

Stop lines should be located a minimum of 4 feet (10' preferred) in advance of the crosswalk to reinforce yielding to pedestrians. Stop bars should be perpendicular to the travel lane, not parallel to the adjacent street or crosswalk.



Advanced Yield Line

(Uncontrolled crossing only) Advanced yield lines placed 20 to 50 feet prior to a crosswalk can reduce likelihood of crashes at unsignalized mid-block crossings. The line encourages drivers to yield far enough away so a pedestrian can see if a second motor vehicle is not stopping a multi-lane roadway.



Crosswalk Signage

Crosswalk signage at unsignalized crossings can alert motorists to the presence of pedestrians at these locations.



ADA Wheelchair Ramps

ADA compliant wheelchair ramps contain Pedestrian Warning Strips (truncated domes) to alert mobility impaired individuals utilizing walking canes to the presence of a road crossing.



In-Street Yield to Pedestrian

The in-street yield to pedestrian crosswalk sign provides a reminder to alert motorists at un-signalized intersections to laws concerning yielding or stopping for pedestrians in crosswalks. These signs are also more visible to motorists than signage posted to sign poles.

Higher Cost Elements

Pedestrian crossing facilities are higher cost improvements, but generally have higher compliance rates and create a more comfortable environment for pedestrians. They should be installed at locations where there have been crashes involving pedestrians, or where heavy levels of traffic calming is needed. In order to absorb the costs, these improvements can be included in larger capital projects or redevelopment plans. Many of these elements are featured in the crosswalk design standards found in the appendix.



Curb Extension

Curb extensions include both midblock extensions (known as pinchpoints or chokers) that may include cut-throughs for bicyclists, and intersection curb extensions that align well on streets with parallel parking. Curb extensions shorten crossing distance for pedestrians and increase sight lines for motorists by reducing parked car obstacles near crosswalks.



Refuge Island - Raised

Pedestrian refuge islands limit pedestrian exposure in the intersection. They are recommended where a pedestrian must cross more than two lanes of traffic in one direction or locations with high pedestrian-collision rates. Medians or safety islands create a 2-stage crossing for pedestrians, which is easier and safer.



Raised Crosswalk - Shallow

Raised crossings increase visibility, yielding behavior, and create a safer pedestrian crossing environment, especially for mobility-impaired individuals.



Raised Crosswalk - Steep

A steeper crosswalk is ideal for some college campus or downtown core locations where significant pedestrian crossings occur regularly or frequently. One result of a steeper crossing is motor vehicle traffic slowed to approximately 10 MPH or less. Mobility-impaired individuals have an easier time crossing as they do not have change in grade.



Pedestrian Signal With Countdown Timer

The countdown timer shows how many seconds remain for the clearing phase. The MUTCD requires countdown signals be used at all signalized intersections with pedestrian clearance intervals longer than 7 seconds.



8. BIKE SHARE

Introduction

Dozens of cities in North America have recognized the the health, environmental, and economic benefits of bike sharing. Northampton is well positioned as a bike friendly city in the Pioneer Valley to develop a successful bike share program with its regional partners in Amherst, Holyoke, Springfield and South Hadley. This regional partnership stems for the Pioneer Valley Regional Bike Share System Pilot report published in April 2016 by the Pioneer Valley Planning Commission (PVPC).

PVPC's report recommends a 26 station, 234 bicycle system in four communities (South Hadley became part of the plan subsequently), in two phases. Northampton was included as part of the first phase launch of the system with 7 stations and 63 bicycles. Based on the City's previously-stated commitment, it has been designated as the Lead Party and Program Administrator and will likely oversee the future operator for the entire regional system.

The program is designed for short trips within the city, though intrepid bicyclists would be allowed to ride between any of the participating cities and towns in the network. Tentatively called "ValleyBike", the PVPC report recommends "smart lock" equipment which is lower in cost than dock based systems (such as Boston's Hubway) and flexible enough for riders to lock their shared bikes anywhere in the designated service area, not just at designated stations.

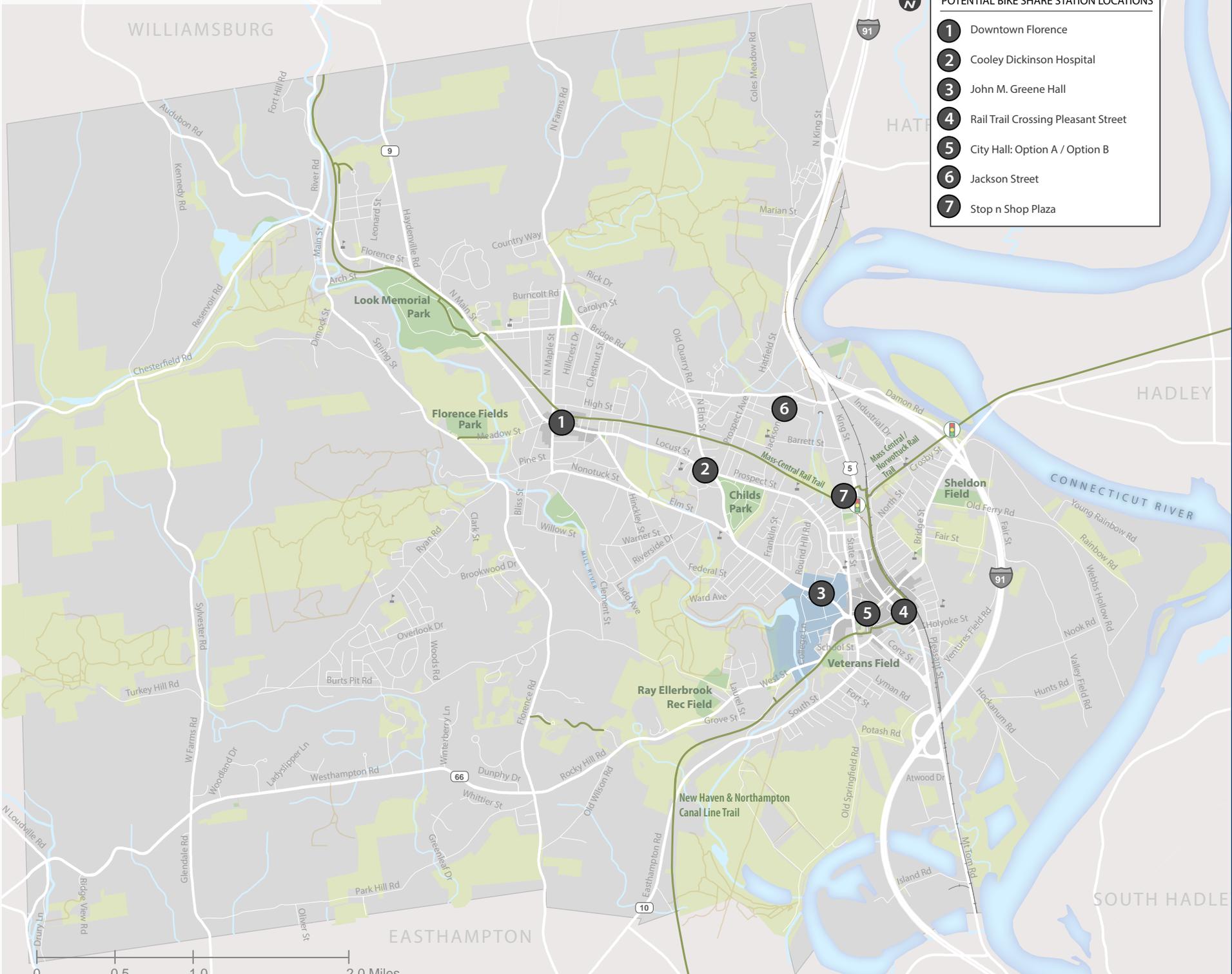
General Guidelines

In Northampton, bike share stations are planned for installation on city streets, sidewalks, plaza spaces and the private property of a potential station or system sponsor. The smart lock stations--equipment vendor TBD--require a footprint of roughly 2' in length by 6' in width. This size will accommodate 15-18 bike racks, a transaction kiosk, solar panel and detachable panel to house a system map, access information, a PSA and/or an advertisement. On sidewalks with modest or high foot traffic, a minimum 6 foot clearance will be required for pedestrian access.

The following pages illustrate the recommended locations for bike share stations in Northampton. The 7 sites provide coverage in Downtown Northampton and Florence, Smith College, Cooley Dickinson Hospital, Kingsgate Shopping Plaza and the Jackson Street neighborhood. Significant use is expected to come from:

- Local residents without access to a car or bike wanting to ride into downtown, to the hospital or to shop at Kingsgate
- Cooley Dickinson employees wanted to ride downtown for lunch or for errands
- Amtrak or bus riders looking to access parts of the city beyond walking distance
- visitors wanting a quick tour of the city or to ride along the rail trail system
- Smith College students wanting to get from campus to other parts of the city

BIKE SHARE POTENTIAL LOCATIONS



- POTENTIAL BIKE SHARE STATION LOCATIONS
- 1 Downtown Florence
 - 2 Cooley Dickinson Hospital
 - 3 John M. Greene Hall
 - 4 Rail Trail Crossing Pleasant Street
 - 5 City Hall: Option A / Option B
 - 6 Jackson Street
 - 7 Stop n Shop Plaza

0 0.5 1.0 2.0 Miles

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Potential Bike Share Station Sites

1. Downtown Florence

Location:

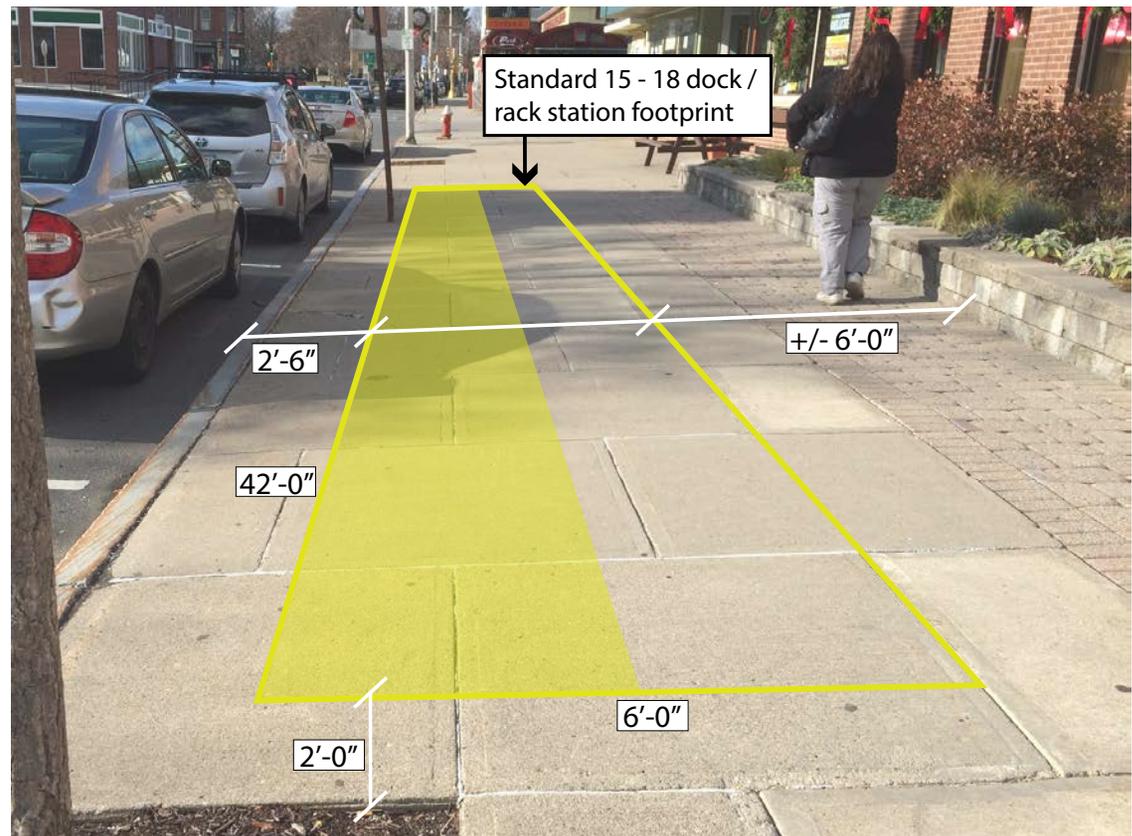
At the intersection of Main St and Keys St in downtown Florence.

Property Owner:

City of Northampton

Station Footprint:

42 ft X 6 ft



Potential station site looking west on Main Street

2. Cooley Dickinson Hospital

Location:

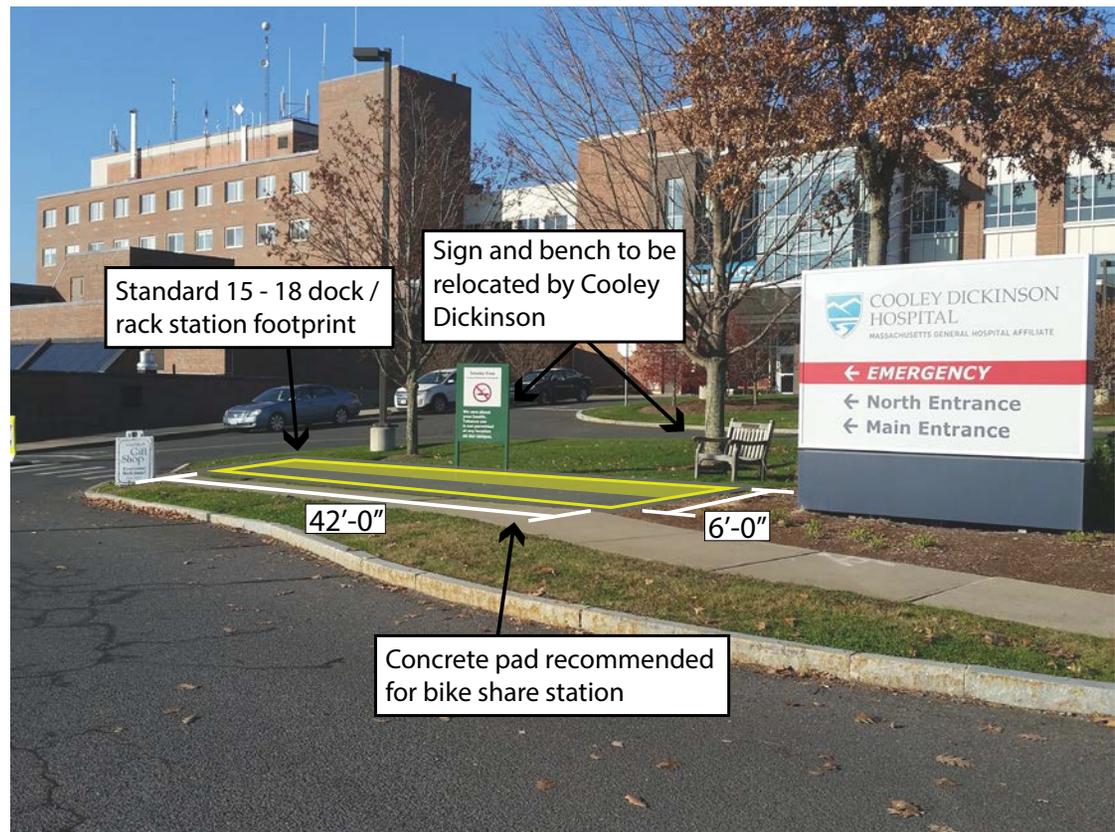
Locust St at N. Elm St entrance to Cooley Dickinson Hospital, Northampton.

Property Owner:

Cooley Dickinson Hospital

Station Footprint:

42 ft X 6 ft



Potential station site looking west on Locust Street

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3. John M Greene Hall Entrance on Elm Street

Location:

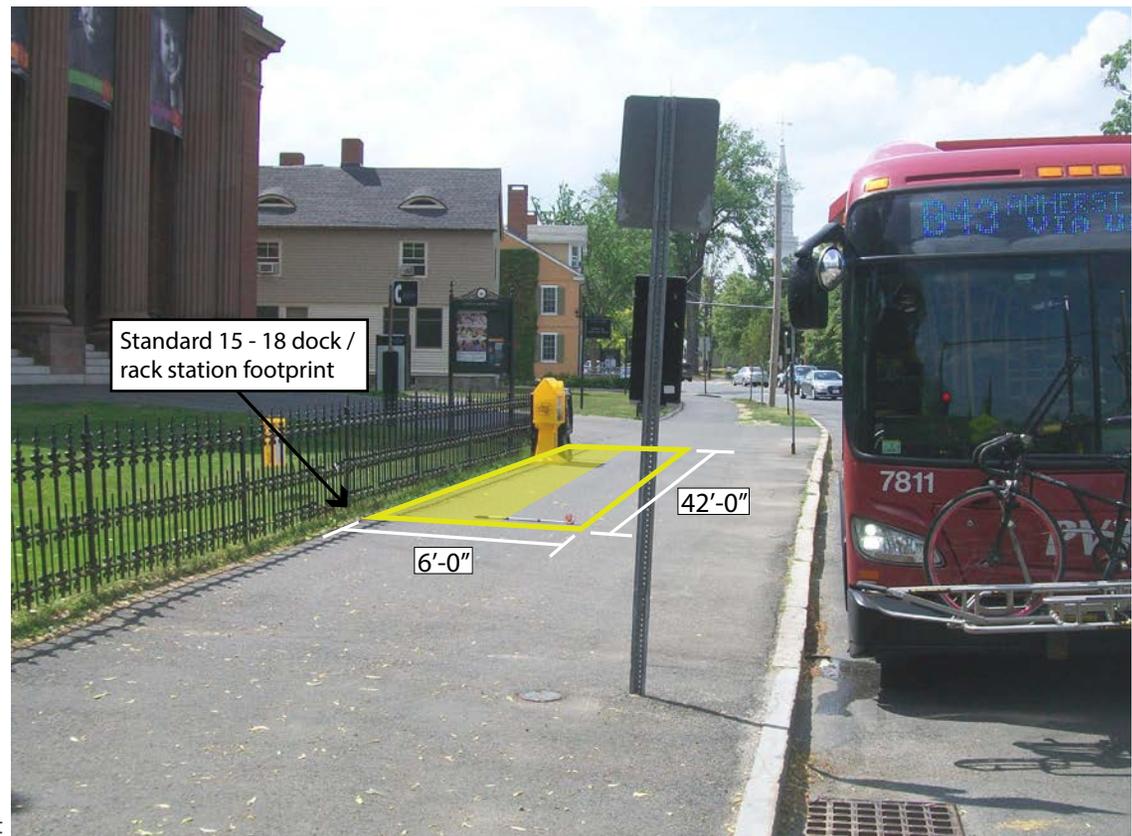
Near the intersection of Prospect St and Elm St, in front of John M Greene Hall.

Property Owner:

Town of Northampton, adjacent to Smith College

Station Footprint:

42 ft X 6 ft



Potential station site looking northwest on Elm Street

4. Rail Trail Crossing Pleasant Street

Location:

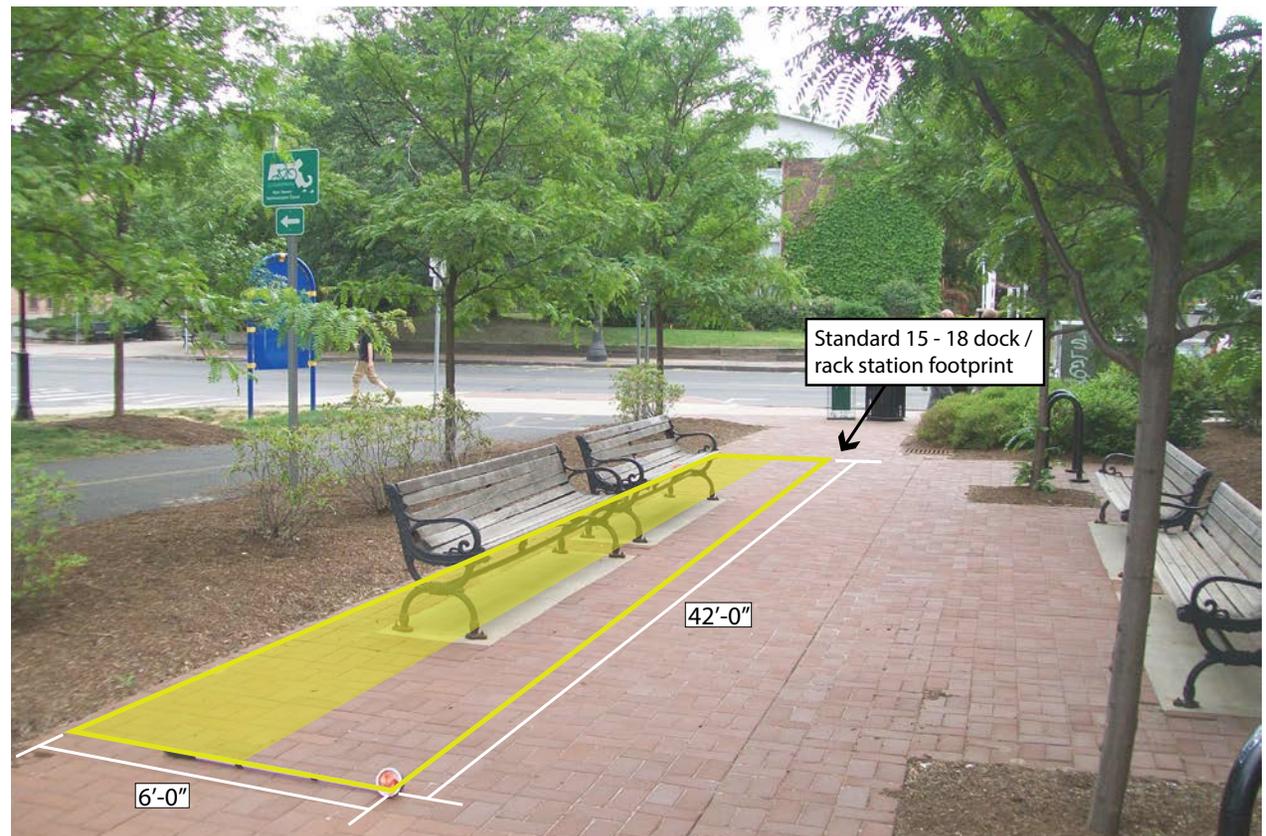
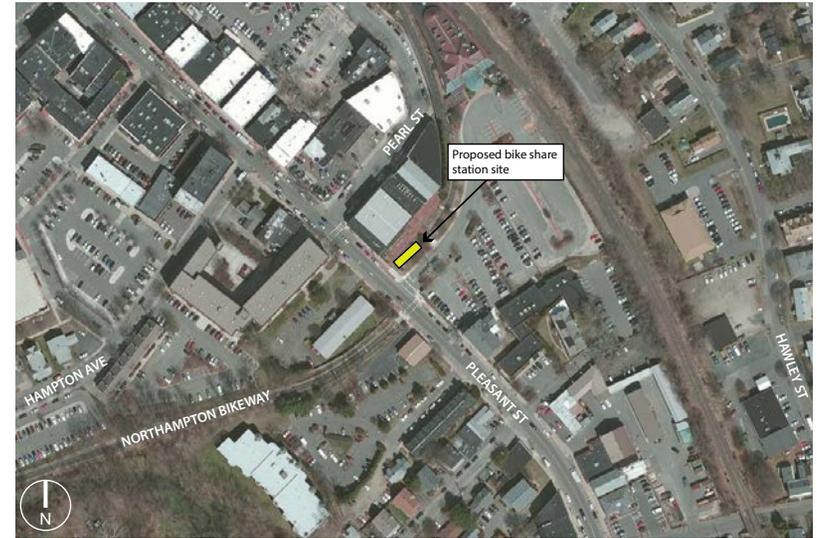
Adjacent to existing rail trail as it crosses Pleasant St.

Property Owner:

Town of Northampton

Station Footprint:

42 ft X 6 ft



Potential station site looking sothwest towards Pleasant Street

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5. Northampton City Hall - Option A

Location:

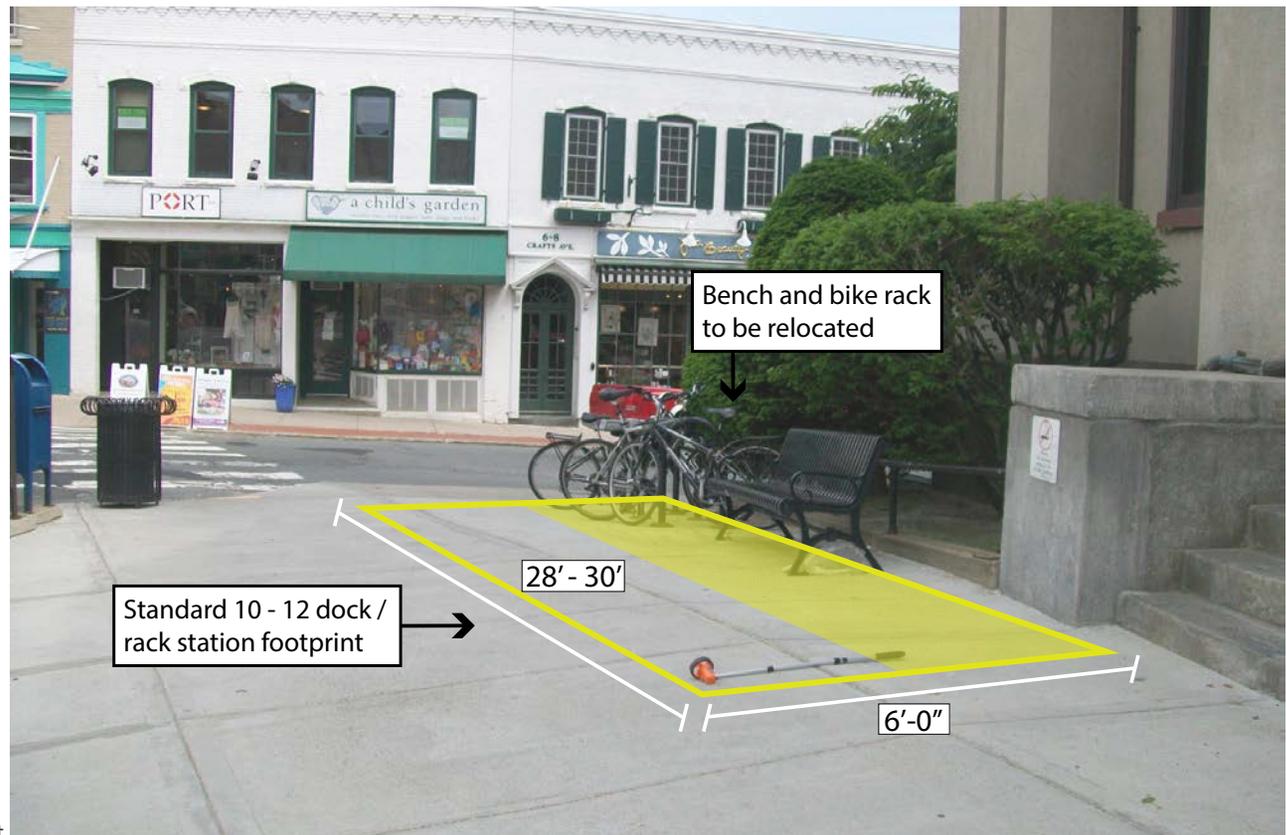
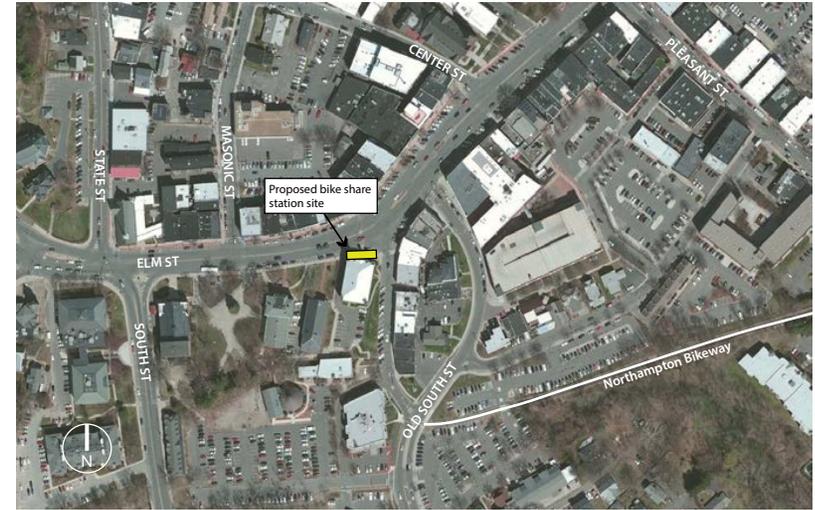
On the sidewalk, at the intersection of Main St and Crafts Ave.

Property Owner:

Town of Northampton

Station Footprint:

30 ft X 6 ft



Potential station site looking west on Main Street

5. Northampton City Hall - Option B

Location:

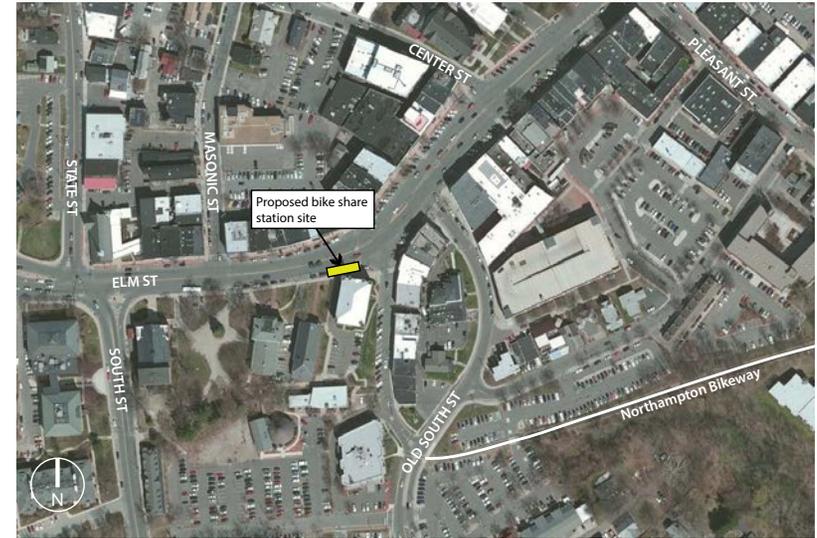
In the street, at the intersection of Main St and Crafts Ave.

Property Owner:

Town of Northampton

Station Footprint:

42 ft X 6 ft



Potential station site looking southwest towards Pleasant Street

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6. Jackson Street

Location:

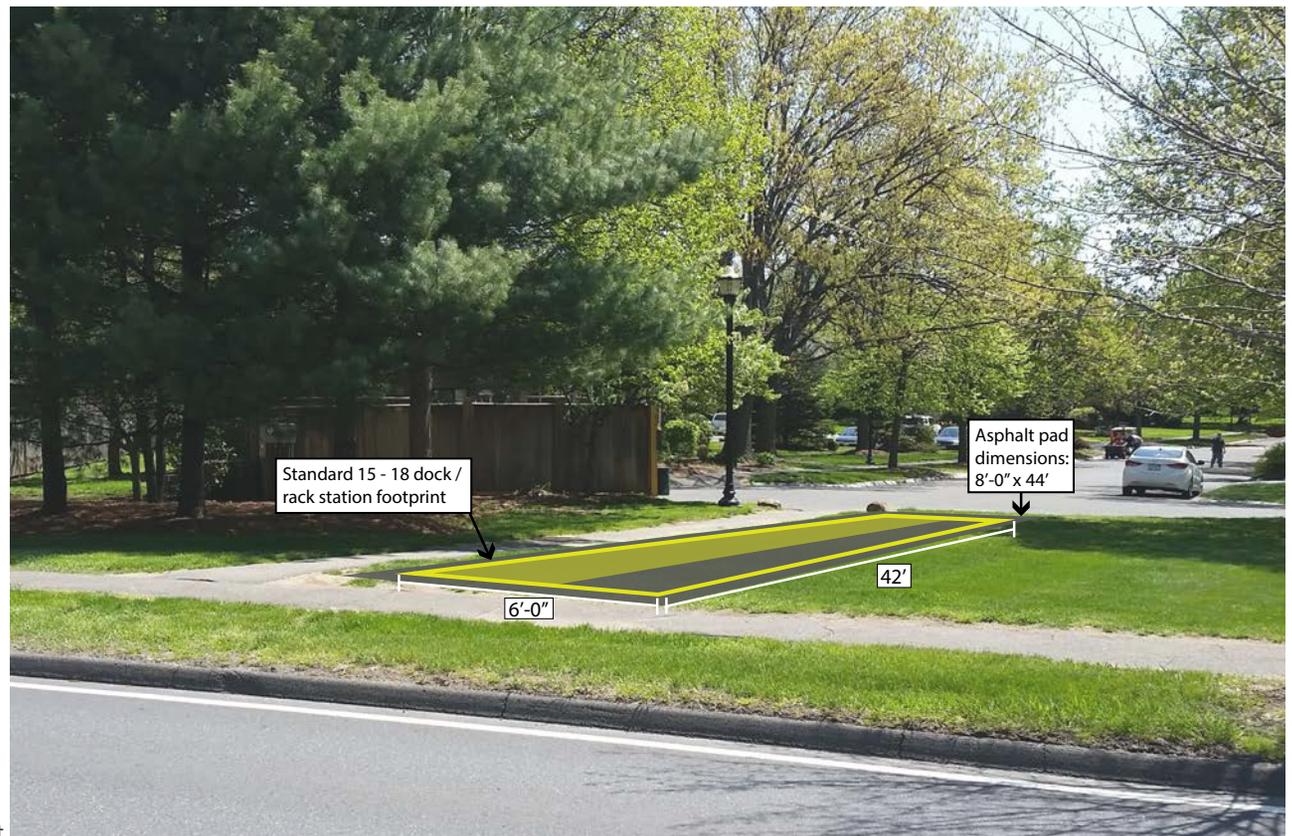
On Jackson St, at the path to Hampton Gardens Drive.

Property Owner:

Town of Northampton

Station Footprint:

42 ft X 6 ft



Potential station site looking east on Jackson Street

7. Stop 'n Shop Plaza

Location:

Adjacent to Moe's Southwest Grill, in the Stop 'n Shop plaza, on the sidewalk.

Property Owner:

Private.

Station Footprint:

42 ft X 6 ft



Potential station site looking southwest towards Pleasant Street

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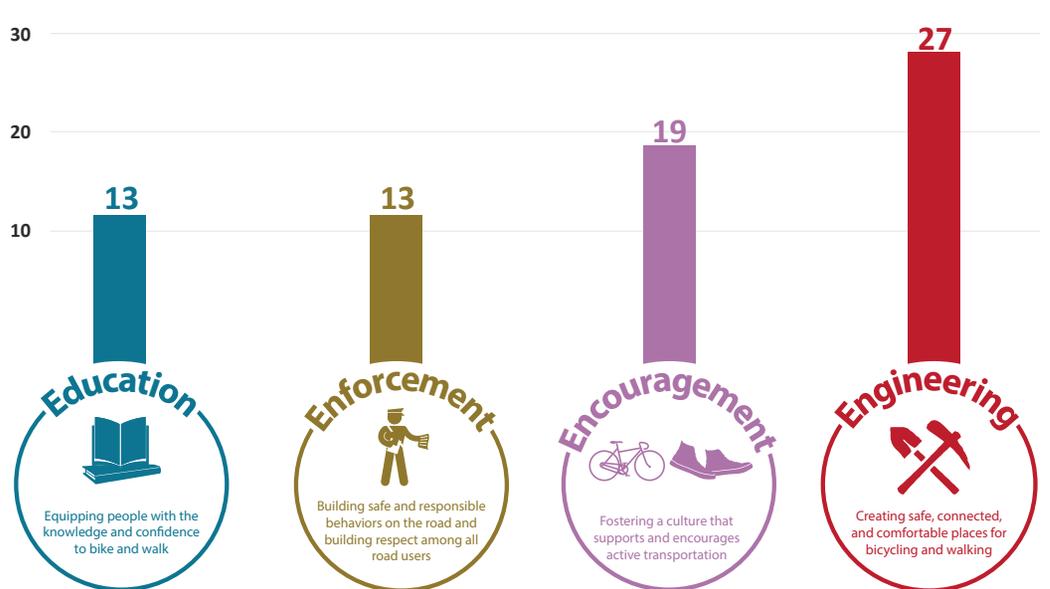


9. POLICY RECOMMENDATIONS

Introduction

Northampton's commitment to improving bicycling and walking in the community is clearly expressed through existing policies and programs that, on the whole, strongly support access and safety for bicyclists and pedestrians. As part of the process for developing this plan, the project team reviewed and analyzed the existing policies and programs in the areas of Education, Encouragement, Enforcement, Engineering, and Evaluation, including local ordinances regulating bicycling and walking, zoning and site plan review ordinances, subdivision regulations, driver behavior, Safe Routes to School, and more. Input was gathered from the public via meetings and email, from local officials and published information, and from research into best practices. Gaps in existing policies and programs, and potential additions or improvements, were identified. The following tables contain the policy and program recommendations resulting from this process.

Number of Policy Recommendations by Type



Policy Recommendations: Education & Encouragement

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Education	Bicyclist Behavior	Some bicyclists exhibit unsafe or illegal behavior.	Laws specific to bicyclist behavior are in MGL Chapter 85, Section 11B.	Provide education and public outreach resources on (1) the state laws and local ordinances related to bicycling, and (2) safe bicycling practices. Resources include MassBike, League of American Bicyclists Smart Cycling Program, and CyclingSavvy.	Planning & Sustainability Parks & Recreation Police Schools
Education	Bike/Transit Integration	Integration between bicycling and transit could be better, and could extend range of potential trips.	PVTA has web-based information and video on using bus bike racks.	Promote existing PVTA information resources, and coordinate demonstration events where people can try our bus bike racks.	Planning & Sustainability PVTA
Education	Children's Education	MA Safe Routes to School offers bike and pedestrian safety training free-of-charge to partner schools.	All elementary and middle schools are Safe Routes to School partners, but do not participate in SRTS educational components.	Fully participate in MA Safe Routes to School program each year.	Schools
Education	Children's Education	Many children do not receive adequate education and practical experience about traffic safety, especially interactions among motorists, bicyclists, and pedestrians.	Summer-only Safety Village program.	Create in-school "transportation literacy" program that teaches and repeatedly reinforces traffic safety and safe interactions; extend time period for the Safety Village program.	Parks & Recreation
Education	Driver Behavior	Many motorists, bicyclists, and pedestrians lack basic information about safely interacting as the mix of roadway users evolves; also motorists often fail to yield to pedestrians in crosswalks.	None.	Public outreach, such as mailings and PSAs, to educate all roadway users about safe interactions with each other, but particularly motorist interactions with vulnerable users.	Planning & Sustainability Bicycle & Pedestrian Subcommittee Police
Education	Driver Behavior	Vulnerable road users, particularly bicyclists, are at risk from drivers of buses, large trucks, and other commercial vehicle who do not know how to safely interact with vulnerable road users.	None.	Require training on safe interactions with vulnerable road users, and for all city employees or contractors who operate trucks or other motor vehicles on the job; work with PVTA to enhance training for bus drivers.	Planning & Sustainability Public Works/PVTA Transportation & Parking Committee

Education	Equity	Residents in public housing often lack access to traffic safety information and other information on vulnerable users as described above.	None.	Distribute traffic safety information through Northampton Housing Authority.	Planning & Sustainability Northampton Housing Authority Bicycle and Pedestrian Subcommittee
Education	Infrastructure	Some bicyclists and motorists are confused about what new roadway markings and signage mean, and how to use new types of facilities.	None.	Pictorial and video resources to demonstrate how new bicycle and pedestrian facilities are intended to be used, and pop-up installations for people to try out.	Planning & Sustainability Bicycle & Pedestrian Subcommittee
Education & Encouragement	Nighttime visibility	Many bicyclists do not use lights or reflective gear at night.	Bicycle lights and reflectors required at night (MGL Chapter 85, Section 11B).	Education campaign on using lights and reflective gear at night; possible bicycle light giveaways.	Planning & Sustainability Police MassBike PV Bicycle & Pedestrian Subcommittee



A fireman teaching students safety tips and tricks at Safety Village.



An elementary school student learns proper stopping techniques at a bike rodeo at her school.

Policy Recommendations: Education & Encouragement

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Education & Encouragement	Nighttime Visibility	Difficult to see pedestrians at night on paths and in crosswalks.	None.	Education campaign on using lights and reflective gear at night; possible reflective vest giveaways.	Planning & Sustainability Bicycle & Pedestrian Subcommittee Police
Education	Signage	Rail trail users lack information about rules and etiquette, leading to unsafe conditions and user conflict.	City Ordinances: Bikeway regulations (§312-78) include several usage rules, but nothing related to user interactions or etiquette; and bikeway users must keep right (§312-78).	Signage at trail entrances and along trails, emphasizing rules and courtesy.	Planning & Sustainability Parks & Recreation Public Works Bicycle & Pedestrian Subcommittee
Education	Snow removal	Sidewalk snow clearance not done consistently, particularly issue with crosswalks in Central Business District formerly cleared by BID.	Sidewalk snow clearance ordinance (§285-17).	Outreach to residential and commercial building owners to ensure they understand their snow clearance responsibilities.	Planning & Sustainability Public Works Bicycle & Pedestrian Subcommittee
Education	User conflicts	Bicyclists and skateboarders ride on the sidewalk, conflict with pedestrians.	Sidewalk bicycling is legal except on specifically designated streets in the Downtown Business District and the Florence Business District (§285-12.B). Bicyclists legally riding on sidewalks must yield to pedestrians and warn them before passing (MGL Chapter 85, Section 11B).	Outreach and signage to discourage sidewalk bicycling where prohibited and to encourage courteous interactions on sidewalks. (Note that sidewalk bicycling can be an indicator of inadequate bicycle infrastructure.) Consider enforcement in high conflict areas, ideally with education stops and warnings, except where behavior is egregious.	Planning & Sustainability Bicycle & Pedestrian Subcommittee

Education & Encouragement	Bike Parking	More bike parking needed throughout city, particularly popular destinations and nearby trailheads.	City Ordinance: Zoning ordinance requires bike parking for new construction, additions and enlargements (§350-8.11), but no general bike parking requirement.	Add bike parking at key destinations, crowdsource bike parking locations, encourage business sponsorship of bike racks.	Planning & Sustainability Parks & Recreation Public Works Bicycle & Pedestrian Subcommittee
Encouragement	Bike Parking	Improve bike storage in multi-family housing	Zoning ordinance requires bike parking for new construction, additions and enlargements (§350-8.11), but not existing structures.	Provide information about acceptable bike parking (such as Northampton bike parking guide) to multi-unit residential owners. Consider incentives for improving bicycle parking in existing buildings.	Planning & Sustainability Planning Board Bicycle & Pedestrian Subcommittee



A courtesy reminder on the belt line trail around Atlanta, GA. Trail sign design can be geared towards cyclists and/or pedestrian users.



The bicycle parking racks at Northampton High School are sub-standard and should be replaced with more secure 'Inverted-U' style racks.

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Encouragement	Bikeway Ordinance	Nighttime bikeway closure is inconsistent with transportation needs.	Bikeway is officially closed from dusk to dawn (§312-78).	Consider repealing nighttime bikeway closure, or extend hours to mid-evening, eg. 9:00 or 10:00 pm	Planning & Sustainability Planning Board Police Bicycle & Pedestrian Subcommittee
Encouragement	Children's Education	Northampton schools do not take advantage of Safe Routes to School educational or encouragement services.	Northampton schools are SRTS partners, but do not actively participate.	Work with MassRIDES to bring bicycling and walking safety training and activities to schools.	Schools Bicycle & Pedestrian Subcommittee
Encouragement	Children's Education	Encouraging children and youth to bike and walk has proven benefits for public health.	Northampton schools are SRTS partners, but do not actively participate.	Use school-based encouragement programs to engage children and youth in biking and walking. Examples: walking schoolbuses and bike trains; targeted encouragement/incentives for high school students; adapt/expand Safety Village bike/ped safety components to in-school curriculum.	Planning & Sustainability Schools Bicycle & Pedestrian Subcommittee
Encouragement	Facilities	People who cannot afford repairs at traditional bike shops or who do not know people to ride with have no place to go.	Smith Bike Kitchen serves this purpose for the Smith College community.	Create a community bike hub (similar to Smith Bike Kitchen) that can provide low-cost or self-service bike repair facilities and a location for organizing rides.	MassBike PV Bicycle & Pedestrian Subcommittee
Encouragement	Facilities	Convenient bike maintenance stands on rail trails and elsewhere.	MassBike PV purchased one bike maintenance station, which was installed.	Install (and maintain) additional publicly-accessible bike maintenance stations and water sources at key trail locations.	Public Works Bicycle & Pedestrian Subcommittee
Encouragement	Facilities	Bicycle use on school grounds and recreational facilities is broadly prohibited and treated the same as motor vehicles.	City Ordinance: Operation of vehicles (§233-1).	Amend §233-1 to allow use on school grounds and recreational facilities to the extent needed for transportation and bike parking.	Planning & Sustainability Parks & Recreation Schools

Encouragement	Open Streets	Open Streets (aka: "ciclovía") or tactical urbanism events engage more people in biking, walking, and other outdoor activities in a safe, social, car-free space, and emphasize that the streets are for everyone by closing busy streets to motorized vehicles.	None.	Pilot an Open Streets event or continue the demonstration project on Main Street on regular intervals, such as monthly from April to October.	<ul style="list-style-type: none"> Planning & Sustainability Parks & Recreation Bicycle & Pedestrian Subcommittee MassBike PV
Encouragement	Recognition	Goal: Silver (or higher) Bicycle Friendly Community	Bronze Bicycle Friendly Community	Adopt this plan and Implement "Key Steps" in Bicycle Friendly Community Report Card.	<ul style="list-style-type: none"> Planning & Sustainability Bicycle & Pedestrian Subcommittee PVPC
Encouragement	Recognition	Goal: Silver (or higher) Walk Friendly Community	Bronze Walk Friendly Community	Adopt this plan and use WFC assessment tool feedback to improve the City's standing.	<ul style="list-style-type: none"> Planning & Sustainability Bicycle & Pedestrian Subcommittee



Publicly accessible bicycle repair stands reduce barriers to riding by providing convenient and free access to tools necessary to keep a bicycle working properly.



Walking School Bus program encourages students to walk to school by banding together in groups similar to a school bus. A parent or teacher volunteer often leads the effort.



This Ciclovía in Bogota in 2009 is an example of a successful Open Streets policy. Each Sunday and public holiday from 7:00am to 2:00pm certain main thoroughfares are closed to motor vehicles and opened for any form of non-motorized active transportation.

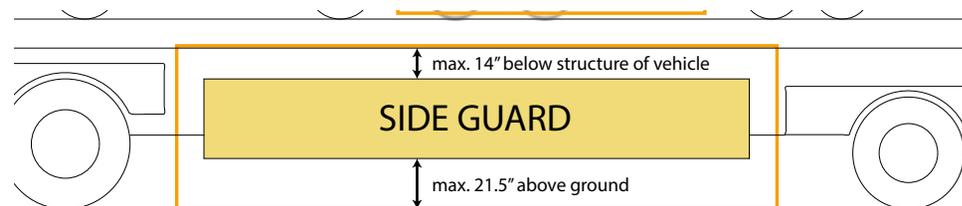
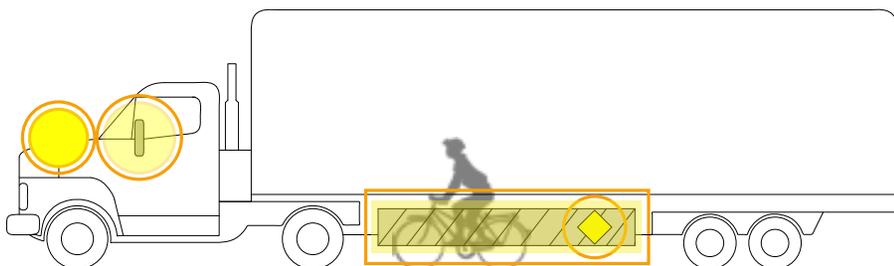
E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Encouragement	Seniors	Bicycling is a viable but under-utilized transportation and recreation option for seniors, with Northampton's compact downtown and trail network.	None.	Provide education and training resources to encourage seniors to bike (or tricycle) for transportation or recreation.	Senior services Bicycle & Pedestrian Subcommittee
Encouragement	Snow Removal	Path network is essential transportation infrastructure, and lack of clarity and consistency with snow removal impacts bicycle and pedestrian transportation in the winter. Snow removal policy for paths is not included in DPW's Snow Removal Procedures document.	The city's objective is to plow the trails from West Street to Florence/Mulberry Streets because these are areas with the highest volumes and serve the village centers, downtown, dense neighborhoods, and schools. The former Business Improvement District used to plow the section from Main Street to State Street.	Restore plowing on rail trail from Main Street to State Street. Formalize and publicize path snow removal policy to inform public and set expectations.	Planning & Sustainability Public Works Bicycle & Pedestrian Subcommittee
Encouragement	Wayfinding	Wayfinding signage assists people to find key destinations, and encourages them to bike or walk.	Bike path kiosks, graphic art sign on rail trail bridge, WalkBoston signage, path mileage markers (planned).	Continue existing wayfinding efforts, and evaluate effectiveness. Consider need for bilingual or multi-lingual signage.	Planning & Sustainability Bicycle & Pedestrian Subcommittee Public Works
Encouragement	Zoning Ordinances	Lack of end-of-trip facilities (e.g., showers, lockers, changing rooms) in office/commercial buildings is an obstacle to bike commuting.	City Ordinance: Bicycle parking (§350-8.11)	Require end-of-trip facilities for commercial buildings.	Planning & Sustainability Planning Board Bicycle & Pedestrian Subcommittee
Encouragement	Snow Removal	Seniors may be unable to comply with snow removal ordinance due to physical or financial limitations.	City Ordinance: Removal of snow and ice from sidewalks (§285-17)	Provide financial and/or manpower to assist seniors with residential snow removal.	Public Works Senior Services

Policy Recommendations: Enforcement

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Enforcement	Bikeway Ordinance	Unclear which bikeways or paths the bikeway ordinance applies to, as it refers to a singular bikeway.	City Ordinance: Bikeway (§312-78)	Clarify which bikeways and paths this ordinance applies to.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee
Enforcement	Bikeway Ordinance / E-Bikes	Ban on use of "motorized vehicles" on bikeway prohibits use of electric-assist bicycles (e-bikes).	City Ordinance: Bikeway (§312-78)	Consider whether use of e-bikes should be permitted on bikeways, and how such use would be regulated.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Police
Enforcement	Bikeway Ordinance / Motorist Behavior	Bikeway ordinance currently requires all users to yield to vehicles in the road at crossings. This may be inconsistent with MGL Chapter 89, Section 11 that requires vehicles in road to yield to pedestrians at all marked crosswalks.	City Ordinance: Bikeway (§312-78)	Consider amending ordinance to require vehicles on roadway to yield to all bikeway (or trail) users at marked crossings (and all path crossings should be marked).	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Police
Enforcement	Driver Behavior	Motorists often fail to yield to pedestrians in crosswalks.	Motorists required to yield to pedestrians in crosswalks (MGL Chapter 89, Section 11).	Additional enforcement, educational stops, and decoy operations.	Police
Enforcement	Driver Behavior	Motorists sometimes park in bike lanes, which is prohibited by city ordinance.	City Ordinance: Bike lanes (§312-80)	Additional enforcement, motorist education and outreach.	Police
Enforcement	E-Bikes	Current definition of "motor vehicle" in zoning ordinance could potentially apply to and limit use of electric-assist bicycles (e-bikes).	City Ordinance: Zoning, General (§350-2.1)	Amend zoning ordinance to differentiate e-bike from motor vehicle, consistent with any other policy changes related to e-bikes.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Planning Board
Enforcement	Personal Safety	Concerns over personal safety and crime on rail trails, particularly at night.	None.	Consider additional patrols on rail trails.	Police

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Enforcement	Police Education	Law enforcement officers may not have the latest information on laws and safety issues relating to bicyclists and pedestrians.	None.	Use available training resources, such as MassBike and WalkBoston training videos, supplemented with information on local ordinances.	Police Bicycle & Pedestrian Subcommittee
Enforcement	Snow Removal	Property owners do not consistently clear snow from the sidewalks in front of their properties, in violation of city ordinance. Crosswalks in Central Business District formerly cleared by BID no longer cleared.	City Ordinance: Removal of snow and ice from sidewalks (§285-17)	Issue citations to non-complying building owners and/or DPW does work and bills owner. DPW should clear crosswalks in CBD.	Police Public Works
Enforcement	Speeding	Speeding by motorists endangers bicyclists and pedestrians, particularly downtown.	City Ordinances: Speed regulation (§312-79) Speed limits (MGL Chapter 90, Section 17)	Identify areas where speeding is most dangerous to bicyclists and pedestrians, and target enforcement.	Police
Enforcement	Truck Safety	Large trucks present a particular hazard for bicyclists and pedestrians, and most trucks lack safety measures designed to protect vulnerable users.	None.	Adopt an ordinance requiring sideguards, convex mirrors, and cross-over mirrors on all large trucks operated by the city or city contractors.	Transportation & Parking Committee Police
Enforcement	Truck Safety	Operation of trucks can be unsafe in areas of high bicycle and pedestrian activity.	None.	Consider limiting operation of large trucks downtown, particularly on Main Street, perhaps with street- or time-based restrictions.	Transportation & Parking Committee Police



Truck side guard graphic provided by http://www.cityofboston.gov/isd/pdfs/TruckSideGuard_handout_VF2.pdf

Policy Recommendations: Enforcement

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Enforcement	Bikeway Ordinance	Unclear which bikeways or paths the bikeway ordinance applies to, as it refers to a singular bikeway.	City Ordinance: Bikeway (§312-78)	Clarify which bikeways and paths this ordinance applies to.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee
Enforcement	Bikeway Ordinance / E-Bikes	Ban on use of "motorized vehicles" on bikeway prohibits use of electric-assist bicycles (e-bikes).	City Ordinance: Bikeway (§312-78)	Consider whether use of e-bikes should be permitted on bikeways, and how such use would be regulated.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Police
Enforcement	Bikeway Ordinance / Motorist Behavior	Bikeway ordinance currently requires all users to yield to vehicles in the road at crossings. This may be inconsistent with MGL Chapter 89, Section 11 that requires vehicles in road to yield to pedestrians at all marked crosswalks.	City Ordinance: Bikeway (§312-78)	Consider amending ordinance to require vehicles on roadway to yield to all bikeway (or trail) users at marked crossings (and all path crossings should be marked).	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Police
Enforcement	Driver Behavior	Motorists often fail to yield to pedestrians in crosswalks.	Motorists required to yield to pedestrians in crosswalks (MGL Chapter 89, Section 11).	Additional enforcement, educational stops, and decoy operations.	Police
Enforcement	Driver Behavior	Motorists sometimes park in bike lanes, which is prohibited by city ordinance.	City Ordinance: Bike lanes (§312-80)	Additional enforcement, motorist education and outreach.	Police
Enforcement	E-Bikes	Current definition of "motor vehicle" in zoning ordinance could potentially apply to and limit use of electric-assist bicycles (e-bikes).	City Ordinance: Zoning, General (§350-2.1)	Amend zoning ordinance to differentiate e-bike from motor vehicle, consistent with any other policy changes related to e-bikes.	Transportation & Parking Committee Bicycle & Pedestrian Subcommittee Planning Board
Enforcement	Personal Safety	Concerns over personal safety and crime on rail trails, particularly at night.	None.	Consider additional patrols on rail trails.	Police

Policy Recommendations: Engineering

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Engineering	Bike Lane Ordinance	Existing ordinance does not contemplate a wider range of possible bicycle facilities than striped bike lanes, and specifically does not allow separated bike lanes for exclusive non-motorized use.	City Ordinance: Bike lanes (§312-80)	Amend ordinance to allow the full range of bicycle facilities, including separated bike lanes that are intended for the exclusive use of non-motorized users.	<ul style="list-style-type: none"> Planning & Sustainability Transportation & Parking Committee Bicycle & Pedestrian Subcommittee
Engineering	Bike Lane Ordinance	Streets with bike lanes are specifically listed in the ordinance, which is unnecessary for designating a bike lane, burdensome to keep up-to-date, and unclear what the legal consequences are if a bike lane is or is not listed.	City Ordinance: Bike lanes (§312-80)	Consider removing specific list of bike lanes from the ordinance.	<ul style="list-style-type: none"> Planning & Sustainability Transportation & Parking Committee Bicycle & Pedestrian Subcommittee
Engineering	Bike/Transit Integration	Integration between bicycling and transit could be better, and could extend range of potential trips by enabling bike use at beginning and/or end of transit trip.	None	Ensure adequate bike parking exists in proximity to key transit stops, and communicate the locations of integrated bus/bike stops to the public.	<ul style="list-style-type: none"> Planning & Sustainability Public Works Bicycle & Pedestrian Subcommittee PVTA
Engineering	Funding	The city does not currently designate any Chapter 90 funds specifically for bicycle or pedestrian projects, nor does the state expressly require that Chapter 90 projects comply with Complete Streets standards.	None	Consider allocating a specific percentage of Chapter 90 funds for bicycle and pedestrian projects, in proportion to mode share or another metric. Apply the city's Complete Streets Policy to all Chapter 90 projects.	<ul style="list-style-type: none"> Planning & Sustainability Public Works Transportation & Parking Committee Bicycle & Pedestrian Subcommittee
Engineering	Funding	MassDOT offers funding for Complete Streets projects.	Complete Streets Policy adopted.	Continue MassDOT Complete Streets funding process, with the goal of receiving up to \$400,000 in project implementation funds.	<ul style="list-style-type: none"> Planning & Sustainability Public Works Transportation & Parking Committee Bicycle & Pedestrian Subcommittee

Engineering	Grates	Grates are not consistently bicycle-safe in either design or orientation. Ordinance does not include bicycle safety requirements.	City Ordinance: Gratings in streets (§285-24)	Amend ordinance to specify bicycle-safe design and orientation of grates on all streets and sidewalks.	Public Works Bicycle & Pedestrian Subcommittee
Engineering	Maintenance	Some crosswalks and bike lanes are faded and hard to see, reducing their safety effectiveness.	Crosswalks repainted annually over the summer by Public Works with bike lanes painted by a contractor	Crosswalk inventory is part of this plan. Bike lanes are listed in the bike lane ordinance, but bicycle facilities should be tracked independent of the ordinance. Ensure maintenance status is tracked as part of inventory.	Public Works
Engineering	Maintenance	Trail cleanup (brush cutting and trash cleanup) is not done consistently throughout the network.	DPW cuts brush twice a year on the Northampton Bikeway, once a year on other paths.	Expand twice-a-year brush cutting beyond the core Northampton Bikeway to other trails. Consider options for regular trash cleanup.	Public Works
Engineering	Maintenance	Street maintenance or construction operations can create hazardous conditions or block access for bicyclists, pedestrians, and people with disabilities.	City follows MassDOT guidelines for construction zone management.	Consider adopting a city policy detailing requirements for maintaining safe access through construction zones for bicyclists, pedestrians, and people with disabilities.	Public Works Bicycle & Pedestrian Subcommittee



Covered bicycle parking racks near key destinations and adjacent to transit stations increase the likelihood of users completing a multi-modal transit journey.



A bicycle-unfriendly sewer grate design in Nashville, TN.



A bicycle-friendly sewer grate in Cambridge, MA. Note the direction of travel and the small opening size.

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Engineering	Snow Removal	Rail trail network is essential transportation infrastructure, and lack of clarity and consistency with snow removal impacts bicycle and pedestrian transportation in the winter. Snow removal policy for paths is not included in DPW's Snow Removal Procedures document.	DPW plows the Northampton Bikeway from Stoddard Street to Florence Street in Leeds. The section of the bikeway from King Street to Earle and Grove Streets (Manhan Rail Trail) used to be plowed by the former BID, by is now plowed by the Parking Maintenance Division. Plowing starts after a storm has ended, not during.	Formalize and publicize path snow removal policy to inform public and set expectations. Consider plowing during storms of sustained duration.	<ul style="list-style-type: none"> Planning & Sustainability Public Works Bicycle & Pedestrian Subcommittee
Engineering	Snow Removal	Previously the work of the downtown BID, snow clearance at crosswalks in Central Business District is inconsistent.	None.	City should include crosswalks and curb ramps in snow removal operations, particularly in the Central Business District.	<ul style="list-style-type: none"> Public Works
Engineering	Subdivision Regulations	Any point along a street (measured at the centerline) must be less than 500 feet away from the nearest connected street; this applies to cul-de-sac or dead-end streets as well.	City Ordinance: Cul-de-sac or dead-end streets (§290-29.B)	Amend regulation to require that in the case of a cul-de-sac or dead-end street, if a non-connected public street that is not a dead-end is within 250 feet, and an alternative bicycle and pedestrian connection to that street is feasible, such connection is required.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Subdivision Regulations	Bicyclist and pedestrian access and safety not expressly part of Purpose, while motor vehicle safety is emphasized.	City Ordinance: Purpose (§290-2)	Add bicyclist and pedestrian access and safety to Purpose section of subdivision regulations.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee

Engineering	Subdivision Regulations	Bicycle peak-hour and daily trips not included in traffic analysis.	City Ordinance: Additional subdivision submittal requirements (§290-23)	Include bicycle trips in traffic analysis.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Subdivision Regulations	No existing requirement of interior circulation plan for bicycles.	City Ordinance: Additional subdivision submittal requirements (§290-23)	Require interior bicycle circulation plan.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Subdivision Regulations	Does not permit any decrease in roadway Level of Service, limiting potential for biking and walking improvements.	City Ordinance: Additional subdivision submittal requirements (§290-23)	Adopt more flexible and context-sensitive Level of Service analysis, and require that project reduce (or at least not increase) Bicycling Level of Traffic Stress.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board Transportation & Parking Commission
Engineering	Subdivision Regulations	Street design is expressly focused on "safe vehicular travel".	City Ordinance: Location (§290-29.A)	Amend site plan procedures and approval criteria to require new buildings to be oriented to street frontage.	<ul style="list-style-type: none"> Planning & Sustainability Planning Board



Specialized snow removal equipment in Sweden are designed for operation in separated and protected bike lanes.

E	Policy Area	Need	Current Policy	Recommendation	Potential Leadership
Engineering	Zoning Ordinances	No requirement to orient new buildings to street frontage, limiting access for non-vehicular users.	City Ordinance: Procedures (§350-11.5), Approval criteria (§350-11.6)	Amend site plan procedures and approval criteria to require new buildings to be oriented to street frontage.	Planning & Sustainability Planning Board
Engineering	Zoning Ordinances	Fixed minimum off-street vehicle parking currently required for all structures, based primarily on square footage (seats for restaurants), with no limit on commercial parking, and reductions only possible through shared parking or payment-in-lieu (for CBD).	City Ordinances: Off-Street parking requirements (§350-8.1), Shared parking (§350-8.6), Special provisions in Central Business District for meeting off-street parking requirements (§350-8.10)	Dynamically set off-street vehicle parking requirements by requiring Transportation Demand Management Plan that maximizes bicycle, pedestrian, and transit trips, and then calculates minimum off-street parking needed (not to exceed statutory minimum). Allow reduction of off-street vehicle parking for exceeding bicycle parking requirements.	Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Zoning Ordinances	Crosswalks not expressly required, even when sidewalks are required.	City Ordinances: Procedures (§350-11.5), Approval criteria (§350-11.6), Highway Business District Design Standards attachment	Expressly require crosswalks at intersections, transit stops, building entrances, and other key locations within and adjacent to site, subject to engineering review.	Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Zoning Ordinances	Bicycles and pedestrians not included in trip estimates, only vehicles.	City Ordinance: Procedures (§350-11.5)	Require bicycle and pedestrian trip estimates, based on anticipated demand assumption and/or nearby ped/bike counts.	Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Zoning Ordinances	Bicycles not included in traffic pattern analysis.	City Ordinance: Procedures (§350-11.5)	Expressly add bicycles to traffic pattern analysis.	Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee

Engineering	Zoning Ordinances	Site plan review criteria do not permit any decrease in roadway Level of Service, limiting potential for biking and walking improvements.	City Ordinance: Approval criteria (§350-11.6)	Adopt more flexible and context-sensitive Level of Service analysis, and require that project reduce (or at least not increase) Bicycling Level of Traffic Stress.	Planning & Sustainability Planning Board Transportation & Parking Commission Bicycle & Pedestrian Subcommittee
Engineering	Zoning Ordinances	Insufficient bike parking at commercial and residential buildings.	City Ordinances: Bicycle parking (§350-8.11), Chapter 350 Attachment 10, Chapter 350 Attachment 12	Increase bike parking requirements relative to current measures, and require bike parking even when no additional car parking is required. Require bike parking demand analysis.	Planning & Sustainability Planning Board Bicycle & Pedestrian Subcommittee
Engineering	Zoning Ordinances	Lack of end-of-trip facilities (e.g., showers, lockers, changing rooms) in office/commercial buildings is an obstacle to bike commuting.	City Ordinance: Bicycle parking (§350-8.11)	Require end-of-trip facilities for commercial buildings.	Planning & Sustainability Planning Board Bicycle & Pedestrian Subcommittee



There is a general lack of bicycle parking in downtown Northampton.



10. MAIN STREET DESIGN

Previous Planning

Past plans undertaken to redesign Main St. in Northampton include the Main Street and King Street Transportation Charrette (March 2011) and the Main Street / State Street / Elm Street / West Street / New South Street Preliminary Intersection Design (July 2010.) Both of these plans by Nelson/Nygaard involved working to identify issues and opportunities along the Main St and King St corridors in Northampton and to analyze the State / Main / New South intersection to develop recommendations for redesigning the intersection to better accommodate traffic flow and pedestrian and bicycle safety. The impetus for these studies was Northampton's desire to enhance the bicycle and pedestrian environments without decreasing the vehicle throughput, as well as preserve or improve access to downtown businesses.

Some of the key findings and recommendations are summarized below:

- Critical issues identified: 1) over-designed 4-lane cross sections, 2) large intersections, 3) inhospitable bicycling environment. An over-designed street is defined as one that is "over-scaled as compared to the needs of traffic volumes and adjacent land uses. The cross-section of these roads is too wide, allowing cars to travel at excessive speeds and creating unsafe conditions for bicyclists and pedestrians."
- Lowering speeds through a road-diet identified as critical solution during charrette
- Studies referenced that show a direct correlation between street width and rate of injury in collisions. "with a very steep upward curve for streets wider than 44 feet."
- Shrinking the intersection size and width with compact design treatments have a number of benefits: "reducing vehicle speeds, particularly at the end of signal phases;

less wasted space, especially where right-turn lanes are poorly utilized today; stretching of vehicle queues away from multiple approach lanes linearly towards mid-block areas, with no additional vehicle delay; far more frequent pedestrian crossing phases, which are also longer in duration; significantly shorter crossing distances that reduce the barrier of intersections like Main & King; and more predictable driver and bicyclists expectations through clearly channelized movements.”

- Long street widths and large intersections create “very long crossing distances for pedestrians, putting them in the path of cars for a long period of time.”
- Large intersections result in additional time required for each car to pass through, reducing the number of cars that can pass through in each signal cycle.
- Pull-in angled parking spaces on Main St. limit drivers’ field of view when backing out
- Additional connections are needed in places where bicycle facilities do exist but are lost at street crossings and intersections
- There is a general lack of quality bicycle parking in Northampton
- Solutions offered include road diets of four lanes to two lanes, shared bicycle boulevard style treatments, reverse angled parking on Main St, raised crossings on slip lanes, a textured crossing plaza in front of City Hall, curb extensions, new sidewalks under rail trail crossing, and widened sidewalks elsewhere

Alternative A:

- Right turn “boulder style” slip lanes
- New NB left-turn lane
- Single EB through lane

- Lengthened storage
- New on-street parking

Alternative B:

- Right turn “Boulder style” slip lanes
- New NB left-turn lane
- Single EB through lane
- Lengthened storage
- New on-street parking
- Two EB receiving lanes retained
- No northwest curb extension on Main St

Alternative C:

- Right turn “Boulder style” slip lanes
- New NB left-turn lane
- Two EB through lanes
- Lengthened storage
- Two EB receiving lanes retained
- No northwest curb extension on Main

After the completion of the three design options the City of Northampton then decided to hold back on moving forward with final design due to issues related to truck turning movements and to await the recommendations on the redesign of Main St developed during this Walk Bike Northampton effort.

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2016 Public Involvement

On May 10th the consultant team hosted a Main Street Design Workshop that solicited public input regarding design ideas for Northampton's Main Street. Over 40 attendees turn up to engage with cross sections of Main Street at three locations of varying width to inspire more than one option among the participants. The consultant team recognized that Northampton's Main Street redesign will likely not be solved by a one-size-fits-all approach, resulting in the development of an exercise where forum attendees could layout main street in a manner that they thought best suited every one's needs. A range of graphics were created including sidewalk extensions, furniture zones, pedestrian through zones, travel lanes for vehicles, transit-only travel lanes, protected bicycle lanes, traditional bicycle lanes, among others. Each section completed by a forum attendee was photographed and recorded in the appendix of this report. Additionally, a brief synopsis of the results are listed below. This exercise will aid in the analysis of the consultant's final Main Street design recommendation.

Specific items the community wanted to see in a Main Street redesign include:

Travel Lanes:

- One travel lane in each direction
- Left turn lane pocket within median

Parking:

- 8' parallel parking
- 18' angled parking

Bicycle Facilities:

- Separated bike lanes (located between curb and parking)

Sidewalks:

- Planting zone

- Sidewalk cafes

Demonstration Project

The consultant team led a demonstration project on Main Street in front of City Hall that involved temporarily striping a separated bicycle lane between the angled parking and the curb. Curb extensions were also temporarily placed in front of city hall and at Crackerbarrel Alley to reduce the crossing distance. Tables and seating were utilized to activate the new spaces.

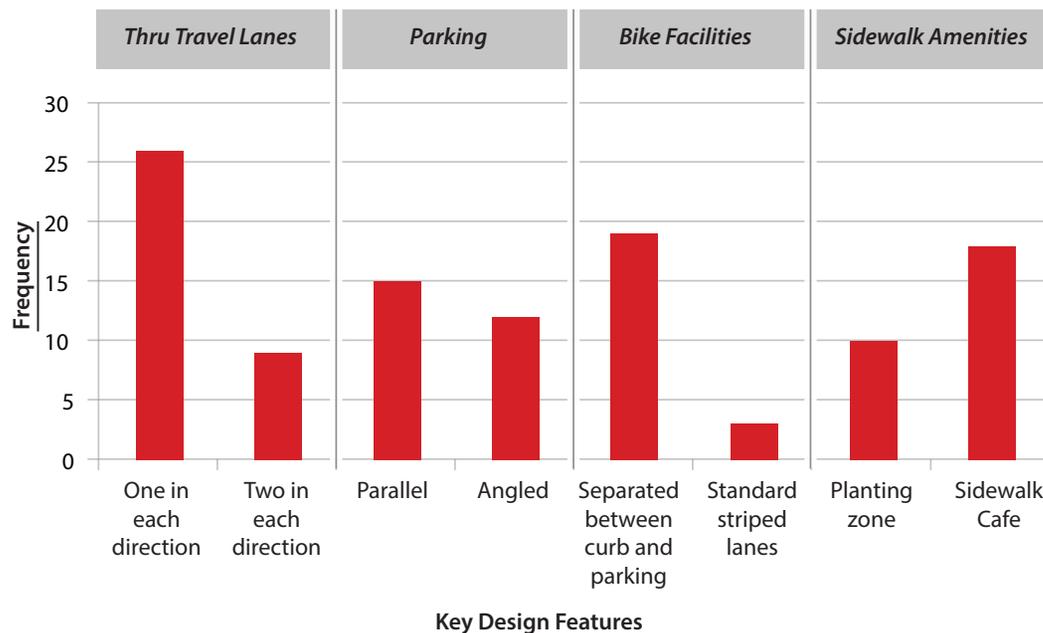


An example cross-section exercise completed by a Main Street Design Workshop attendee



Workshop attendees discuss what they'd like to see built on Northampton's Main Street

Main Street Redesign Workshop - Community Preferences



10.1 Design Options

As part of the public involvement and demonstration project effort, the design team created four design options for community evaluation. The four options were each based on key design themes that included wider sidewalks, separated bike lanes, transit priority lanes, medians of various widths and a two-way cycle track within the median. Highlights of the design and the Pros and Cons of each option are presented on the following pages



Traffic flowed smoothly for the vast majority of the demonstration event.



The Main Street demonstration project included large printed maps for the public to view and comment upon



A cyclist takes a video of the temporary separated bicycle lane on Main Street.



People seeking a shady place to have lunch enjoyed the provided outdoor seating as part of the pop-up parklet.



Main Street Design Option 1

Wide Sidewalks with Separated Bike Lanes

Option 1 involved:

- **Parking protected bike lanes on south side of Main from Strong Ave to Pleasant King.**
- **Sidewalk expansion, curb extensions, and raised crosswalk from Gothic to New South.**
- **Addition of median refuge islands and turn pockets.**

Following community comment and consultant analysis, Option 1 evolved into the concept plan.

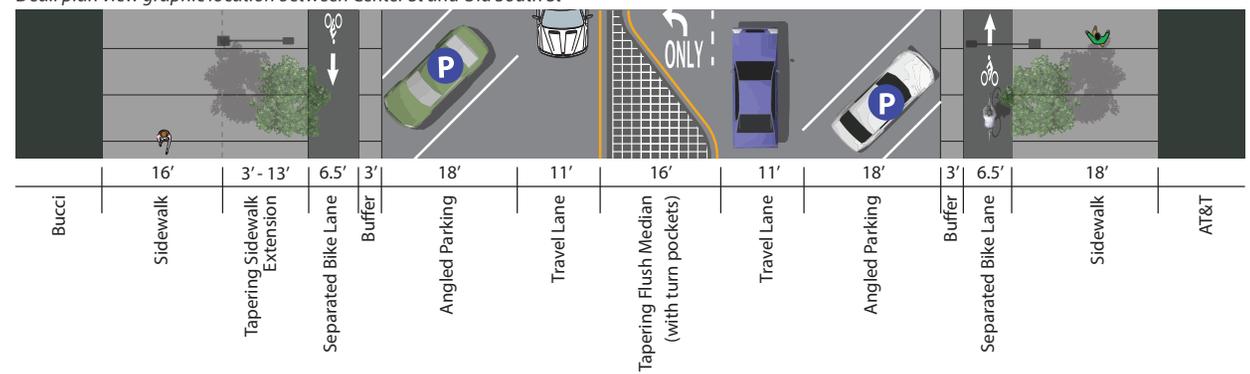
PROS

- Narrower roadway makes cars less dominant, provides a more welcoming environment for walkers and less pavement that needs plowing
- Provides a space for bicyclists separated from moving traffic and parked cars
- Textured, flush median provides additional space for cars to pass others who are waiting to park and for enhanced emergency vehicle access

CONS

- Separated bike lane takes up more space than standard bike lanes which could otherwise go into wider sidewalks or landscaping
- In order to provide appropriate visibility for cyclists on the approach to intersections, some parking spaces may need to be removed
- Limited opportunities to add significant landscaping or sustainability features within the median

Detail plan view graphic location between Center St and Old South St





Main Street Design Option 2

Transit Priority Lanes

Option 2 involved:

- **Median refuge islands in front of City Hall, between Center and Gothic, and between King and Gothic**
- **Narrow width of Main St to one traffic lane in each direction between Center and Gothic**
- **Curb extensions at 9 locations**
- **Traditional striped bike lanes outside of transit priority lane area**

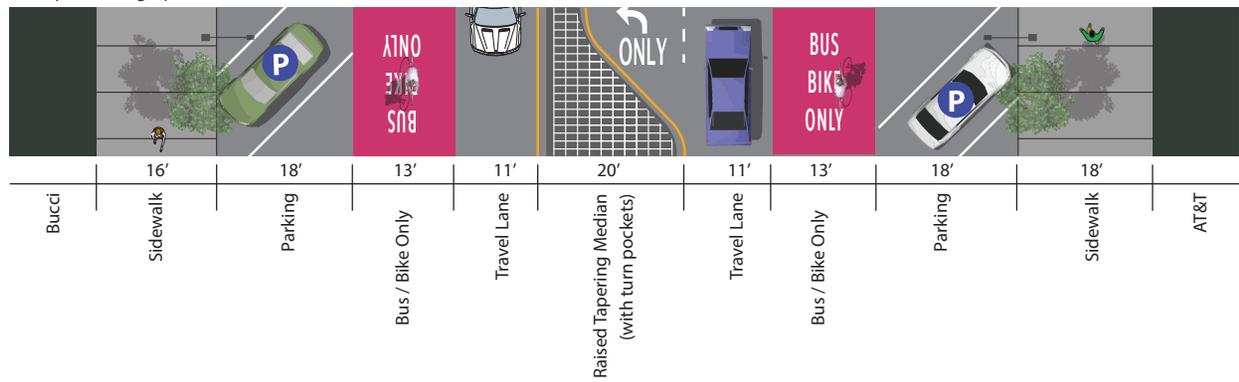
PROS

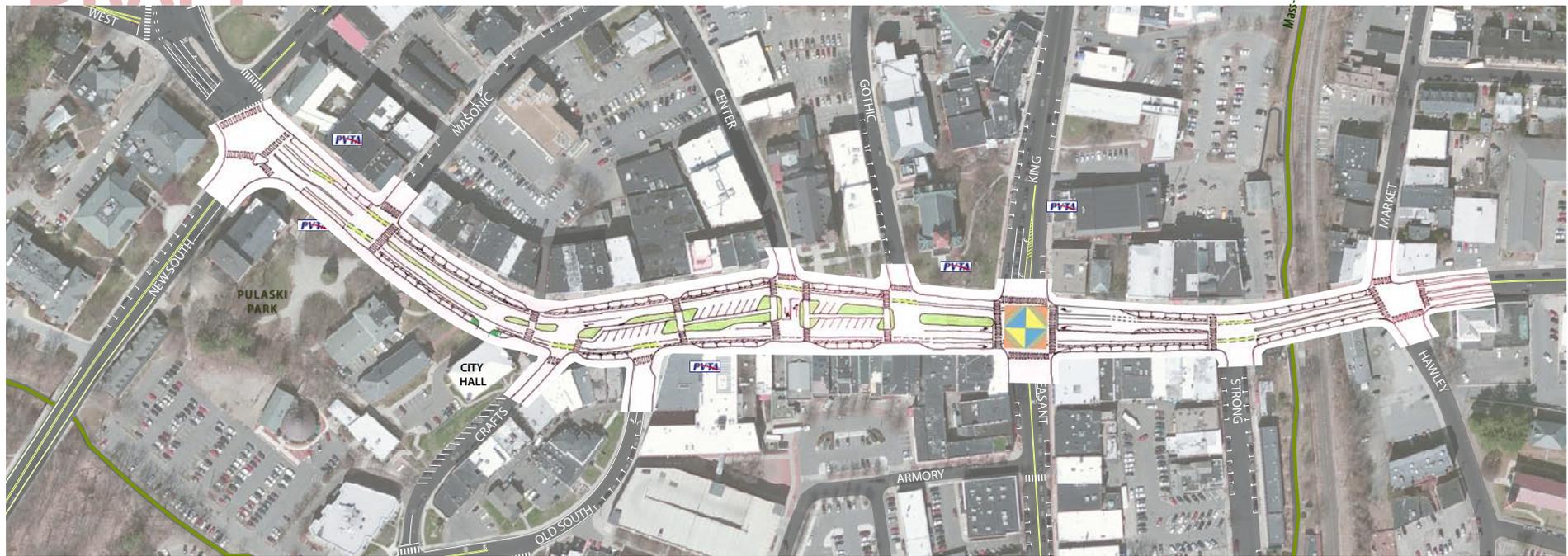
- Provides dedicated space for buses to avoid traffic back ups along Main Street, saving transit riders time
- Lack of space to maintain bus lanes through signalized intersections minimizes their utility
- The shared bus/bike lane provides a lot of dedicated space for bicyclists during off-peak hours when bus traffic is light
- During peak hours especially, many novice bicyclists and/or families riding with children will not feel comfortable sharing space with buses
- Curb to curb width is generally maintained, along with the current number of parking spaces (approximately)

CONS

- Lack of space to maintain bus lanes through signalized intersections minimizes their utility
- During peak hours especially, many novice bicyclists and/or families riding with children will not feel comfortable sharing space with buses
- Traffic and transit movement continues to be the dominant theme along Main Street

Detail plan view graphic location between Center St and Old South St





Main Street Design Option 3

Wide Median with Parking

Option 3 took early cues from Keene, NH as they redesigned their wide Main St. into a beautiful downtown pedestrian streetscape. Option 3 included:

- **Traditional striped bike lanes**
- **Raised median area with landscaping, crosswalks, anflred parking, and a central sidewalk**
- **Existing angled parking on side of street transitions into a mixture of parallel parking and surb extensions**

PROS

Wide median provides much flexibility to provide public space and greenery that not simply associated with the adjacent businesses

Trees within the median will, in time, break down the scale of the widest blocks of Main Street

Parallel parking is a more "urban" aesthetic than angled parking and provides consistent treatment along the edges from end to end

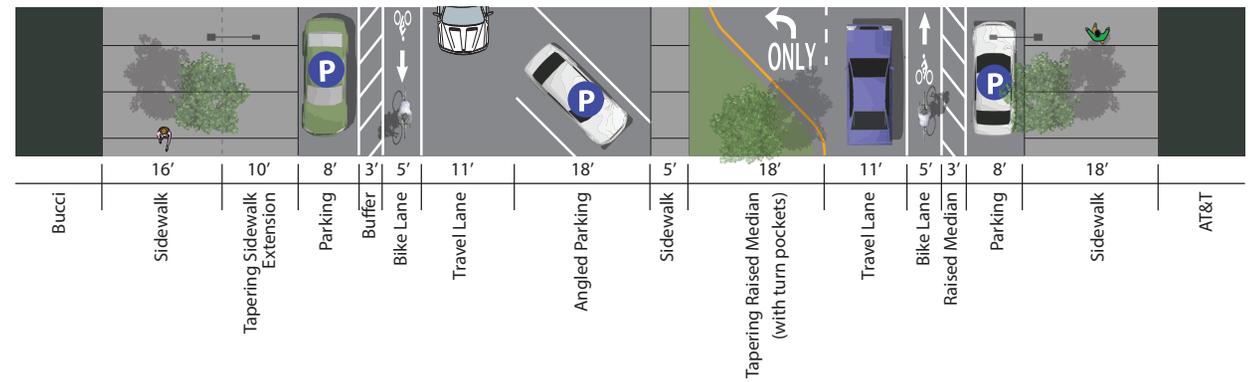
CONS

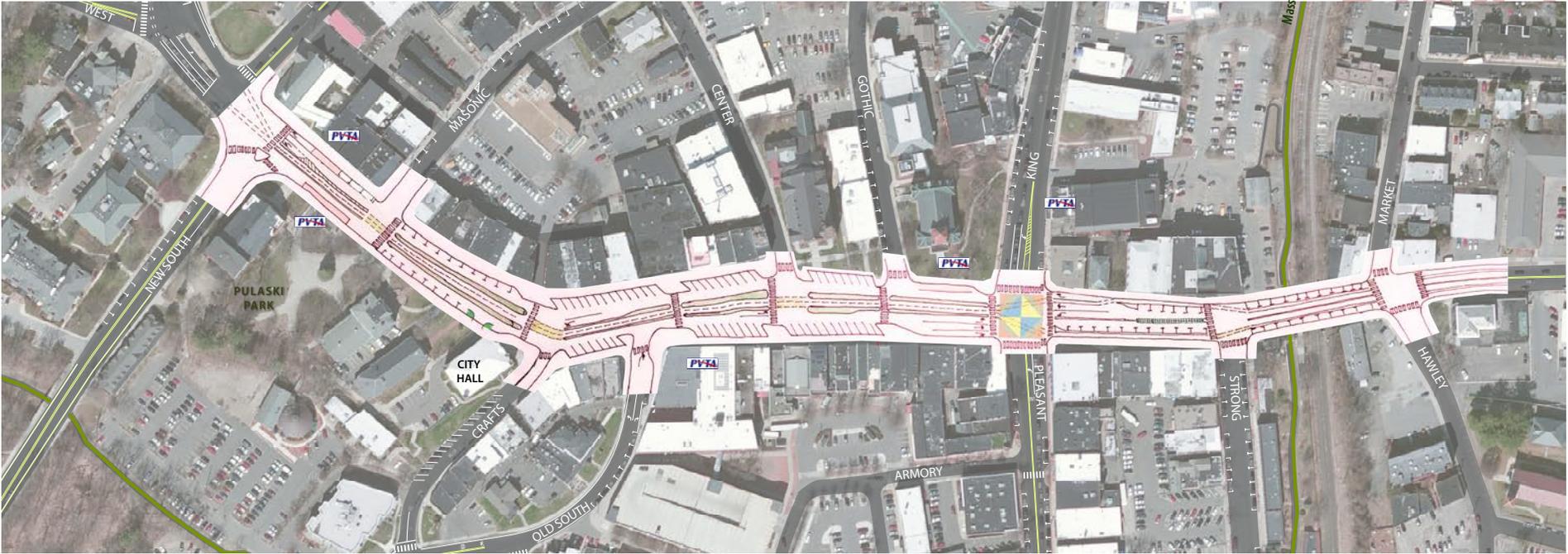
Wide median creates a less flexible street space for parades and large-scale community events

Trees within the median make for a less-conductive space for winter snow storage

The additional angled parking in the median does not make up for the curb-side parallel parking, equating to a 15-20% loss in on-street parking

Detail plan view graphic location between Center St and Old South St





Main Street Design Option 4

Median Bikeway

Option 4 includes

- **Two-way raised cycle track in center of Main Street, protected by landscaping areas and curb in narrower portions**
- **Curb extensions at approximately 12 locations**
- **The addition of turn pockets at two locations**

PROS

Bicycles within the central median avoid conflicts with parked cars and minimizing cuts in the median reduces intersection conflicts

A median bikeway flanked by landscaping on each side would provide a unique and interesting experience for people riding bicycles

The potential landscaping and bikeway within the median would break down the scale of the overly-wide portions of Main Street

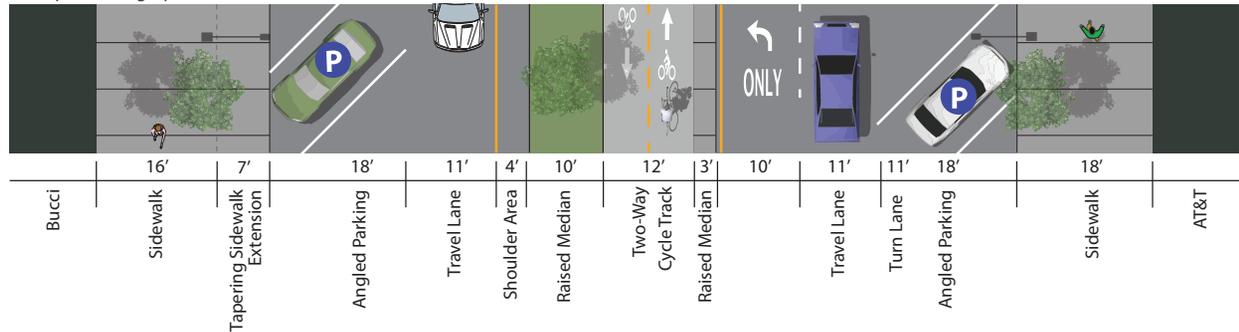
CONS

The transition from the existing bike lanes on Elm and the median bikeway will be awkward and require an exclusive bike crossing phase at the Main/Elm/State and Main/King intersections

There are few precedents for such a configuration, which would make success hard to predict

People bicycling within the median may find it less convenient to access adjacent businesses and side streets

Detail plan view graphic location between Center St and Old South St



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10.2 Concept Plan

After receiving feedback from the community and city staff, a recommended concept plan was created. The concept plan was used to develop the design in more detail. The following synopsis explains each design feature, beginning at Market / Hawley and ending at West / Elm.

Key features of the design include:

From Market / Hawley:

- White intersection crossing markings with solid green paint in the middle will be used to highlight to cross traffic on Hawley and Market that bicyclsts are crossing the roadway along Main Street.
- Traditional bike lanes carry the cyclists up to the intserction of Strong Avenue.

From Strong:

- A curb extension on both sides of Main Street will reduce crossing distnaces for pedestrians and reduce motor vehicle speeds. The protected bicycle facility begins here on the south side of Main Street, while on the north side of Main Street a traditional bike lane carries cyclists up to the intersection of Pleasant and King. At this intersection the bicycle lane will be between the right turn ane and the through lane, reducing the likelihood of 'right hook' style accidents once implemented.

From King / Pleasant:

- The separated bike lane begins on the north side of Main Street and continues to Masonic Street. White intersection crossing markings with solid green paint in the middle (or intersection street art) will be used to highlight to cross traffic on King and Pleasant that bicyclsts are crossing the roadway along Main Street.

- The bus station on the north side of Main Street between King and Gothic will remain. Crosswalk style markings shall be used to remind cyclists to yield to transit users entering or exiting the bus, the markings will be located approximately where the bus front and rear entry doors are located when the bus is at the bus stop.
- A curb extension on the west side of Gothic St on both the north and south sides of Main Street will reduce the crossing distance for pedestrians. The curb extension on the south side of Main Street opposite Gothic Street will allow cyclists to safely travel into a short stretch of standard bike lane to enable motorists taking a right turn from Main onto Pleasnt to do so with minor conflicts. The short stretch of standard bike lane bike lane will be between the right turn lane and the though lane.

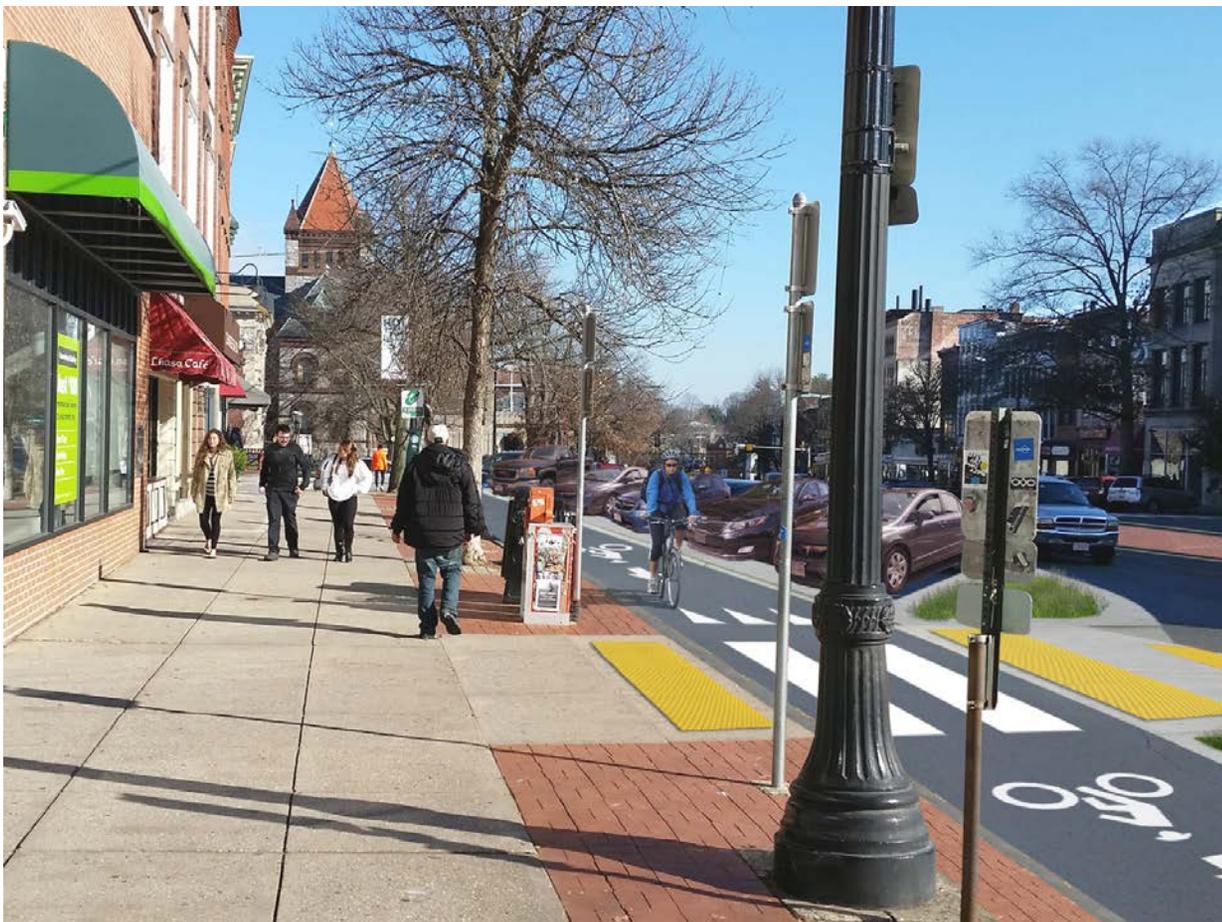


Photo-simulation of sidewalk-level protected bicycle facility . Looking east on Main Street in front of Faces and TD Bank.

- A small additional median curb extension will act as a traffic calming measure for motorists queueing to make a left from Main onto King Street.
- Raised crossings with shared lane markings will replace at-grade crossings at both Gothic and Center Streets.

From Center:

- The crosswalk across Main Street just west of Center Street will be relocated to just east of Center Street.
- A parallel parking space will be lost on the north side of Main Street at Center Street to accommodate a curb extension.
- Northampton's most colorful crosswalk will be shorted by curb-extensions on both sides of the street, resulting in a loss of two diagonal spaces on the north side of the street. The curb extension on the south side will be elongated towards the west to accommodate transit passengers waiting for the bus. The larger area will allow pedestrian, transit riders, and cyclists to share space without mixing.

From Old South:

- The diagonal parking spaces at the corner of Crafts Street and Main Street will be realigned so the spaces are on Main Street. A curb extension placed here will allow for bicyclists to travel in a straight forward motion without weaving. Approximately 3 diagonal parking spaces will be lost here.
- The existing crossing at Crafts Avenue will be replaced by a raised crossing with shared lane markings.
- Space in front of City Hall will be reclaimed to make room for a small urban park (per Open Space, Recreation & Multi-Use Trail Plan (2011)) and reduce crossing distances from City Hall to Crackerbarrel Alley.

- A curb extension on the north side of the street will compliment the urban park in front of City Hall as well as reduce crossing distances.
- Parallel parking and a small buffer will separate the protected bicycle facility west from City Hall to Masonic.
- A small curb extension to the west of the City Hall driveway entrance will increase sight lines for motorists, pedestrians, and cyclists traversing this area.
- The existing bus stop on the south side of Main Street between Masoinc and New South will remain.

From New South:

- Refuge island at New South and Main Street will be reconfigured in shape and relocated slightly to the east. An additional complimentary pedestrian refuge island with raised crossings and shared lane markings will be constructed just to the west of the existing island, allows for motorists and cyclists traveling south on New South to safely avoid pedestrians crossing at that intersection.
- An additional new refuge island will be constructed at the northwestern corner of State and Main Street to facilitate right-turn movements for vehicles and cyclists traveling south on State Street.
- The existing crosswalk locations will be realigned at State / New South / Main Street.

General:

- The general existing mix of angled and parallel parking types will remain. A small number of parking spaces will be lost to accommodate curb extensions and crosswalks. The few parking spots that will be lost are currently too close to the pedestrian crossings, creating uncomfortably short sight lines.
- Reverse-angled parking should be considered for the corridor. However, the separated bike lane design will

mitigate the concerns that typical angled parking create from a bicycle safety point of view.





GOthic

KING

Mass-Central Rail Trail

MARKET

HAWLEY

STRONG

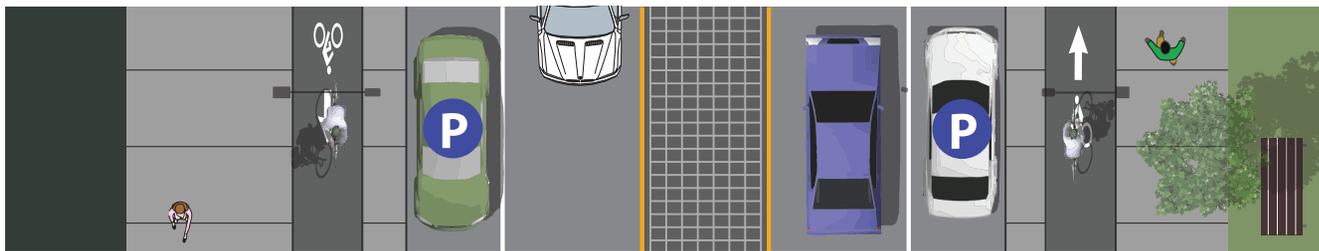
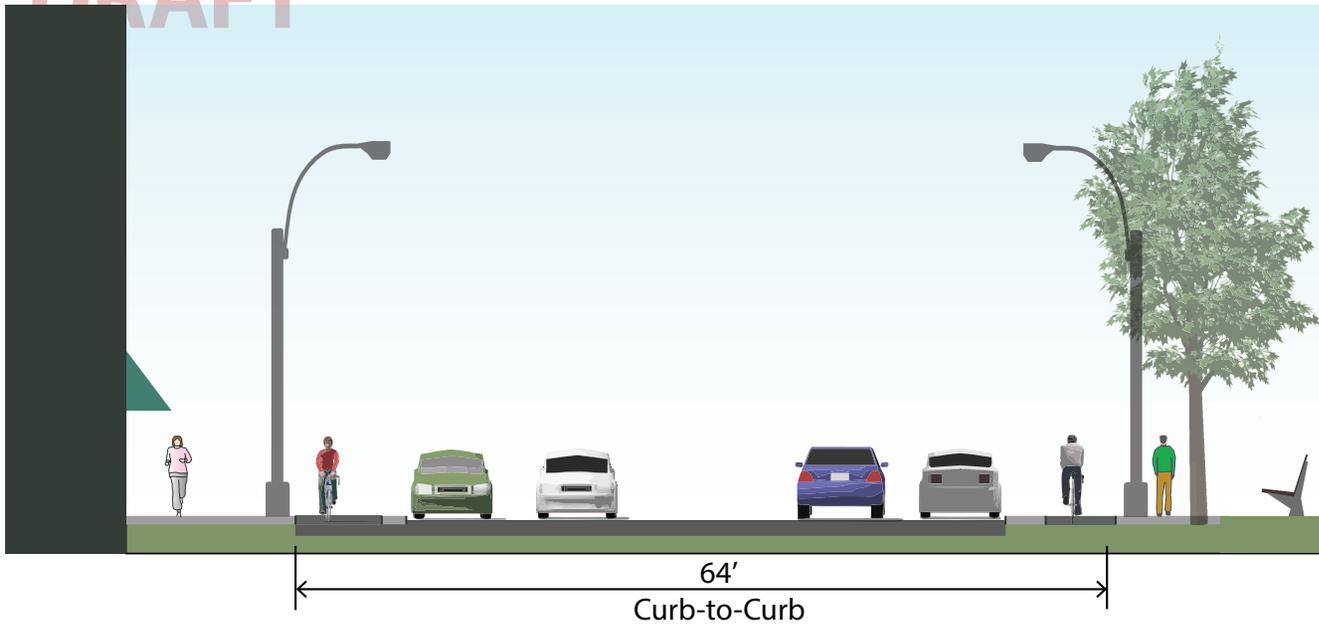
PLEASANT

ARMORY

PVTA

BUS

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	14'	5'	3'	8'	11'	10'	11'	8'	3'	5'		
Viva Fresh Pasta	Sidewalk	Separated Bike Lane	Buffer	Parking	Travel Lane	Flush Median	Travel Lane	Parking	Buffer	Separated Bike Lane	Sidewalk	Pulaski Park

Section 01
Main Street at Masonic Street

Separated bike lanes provide comfortable facilities for cyclists of all ages and abilities. A 3' buffer / furniture zone area between the separated bike lane and curb allows space for motor vehicle doors and other potential obstacles entering the bicycle lane to be avoided. The median area remains flush for emergency vehicle passage and potentially for short term delivery vehicle parking.

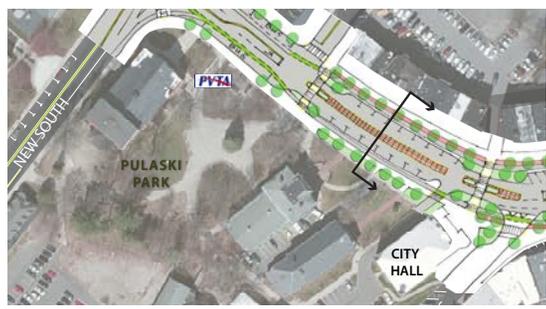


Existing conditions, looking east



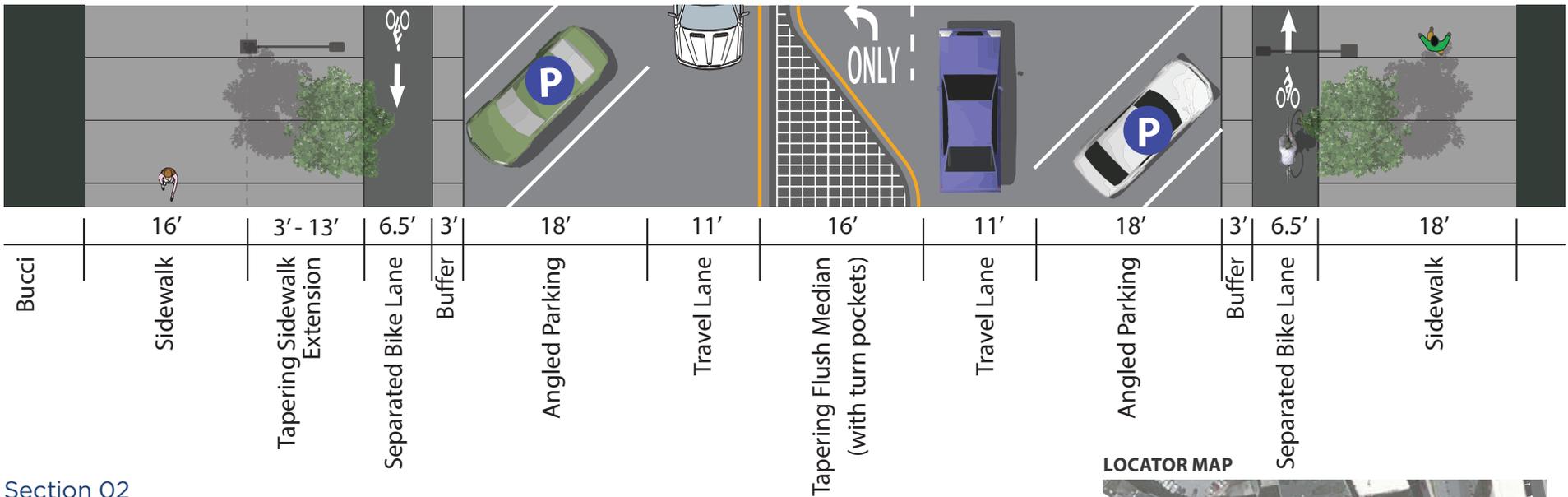
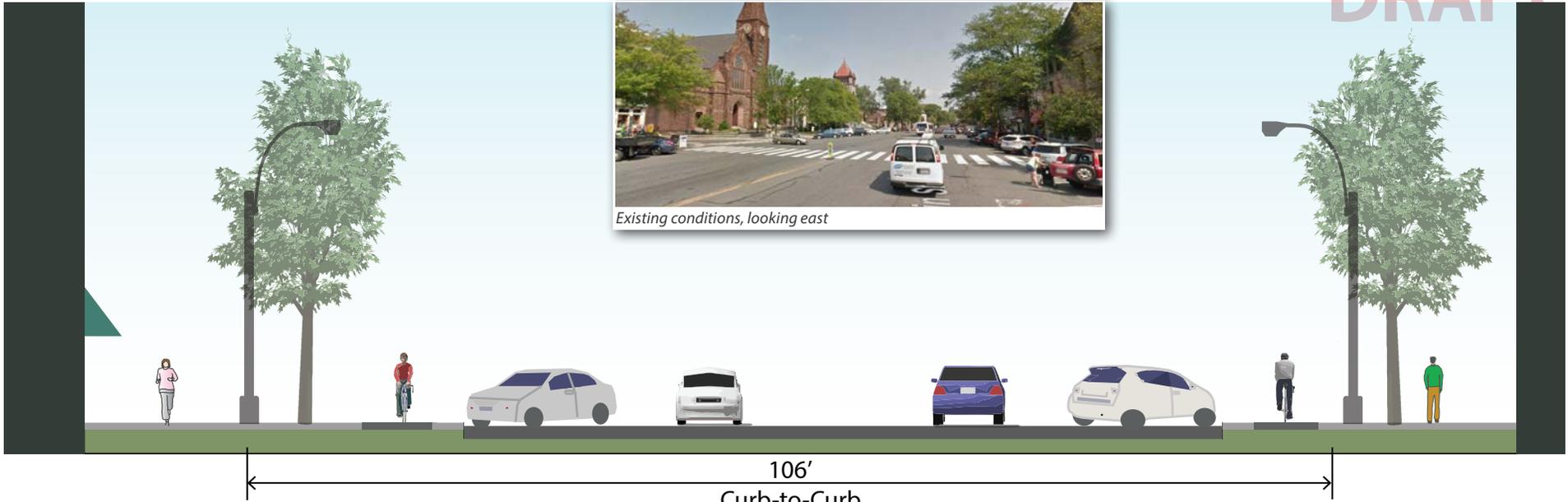
Existing conditions, looking west

LOCATOR MAP





Existing conditions, looking east



Section 02

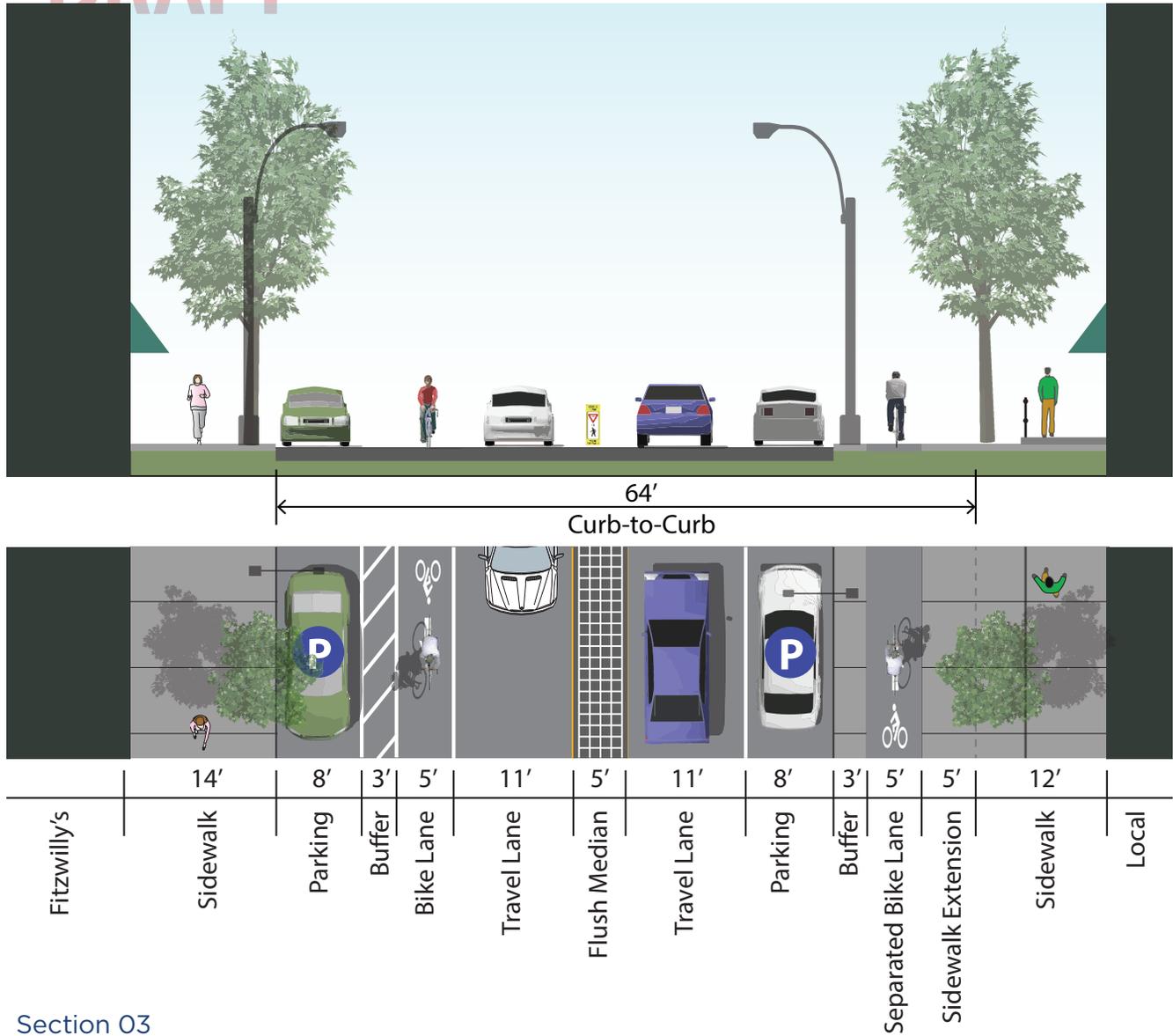
Main Street at Center Street

An expanded sidewalk along the north side of Main Street reinforces this area as a lively pedestrian plaza and provides space for future civic events and outdoor seating. In this section the tapering median reflects the need for a left-turn pocket for motorists traveling up Center Street.

LOCATOR MAP



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Section 03

Main Street at Strong Avenue

A bicycle lane on the north side of main street separated from parked cars by a painted buffer prevents accidental 'dooring' of cyclists by drivers exiting their vehicles. A sidewalk extension on the south side of Main Street allows space for a separated bicycle lane with a 3' buffer / furniture zone. A small flush median retains the one travel lane in each direction prior to the left turn pocket from Main St to Pleasant St.

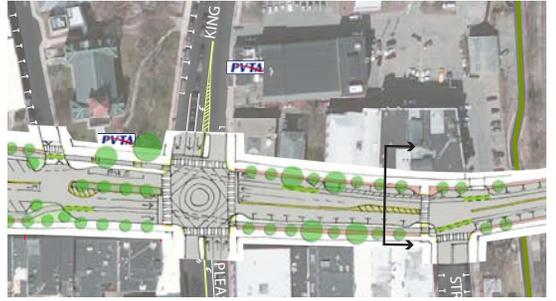


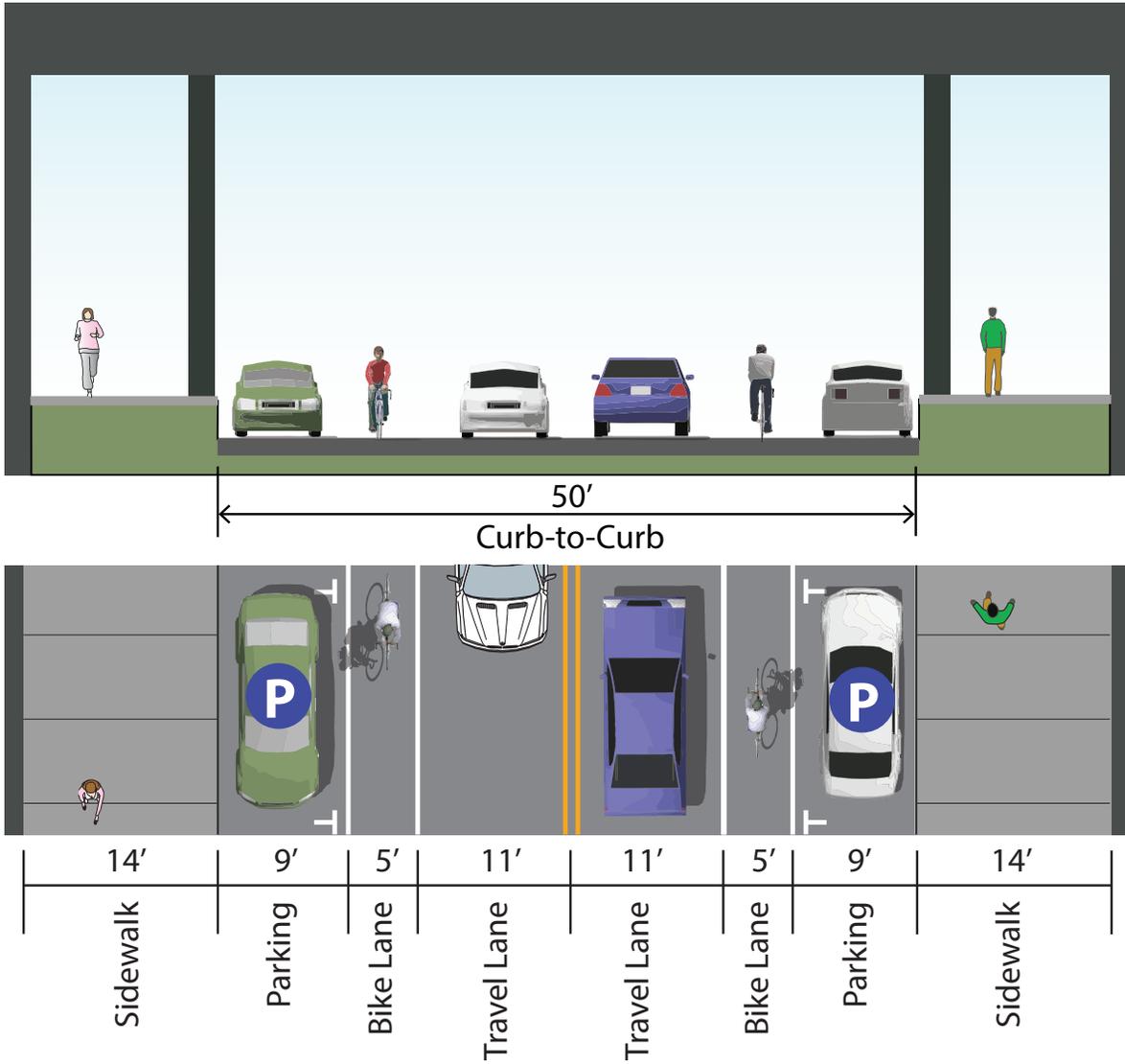
Existing conditions, looking east



Existing conditions, looking southeast

LOCATOR MAP





Existing conditions, looking west



Existing conditions, looking east

Section 04

Main Street at Rail Trail Trestle

Generous 9' parking lanes provide a small buffer between passenger doors and the elevated sidewalk foundation. A 5' bike lane provides a comfortable facility for cyclists passing underneath the bridge. The one lane in each direction roadway is narrowed slightly compared to existing conditions.

LOCATOR MAP



10.3 Main Street Engineering Constructability Review

Designing any streetscape retrofit presents numerous challenges that require careful consideration during design in order to ensure a quality design, regulatory compliance and constructability. During the concept-level design of Main Street, Alta considered these potential issues and attempted to use all available information to ensure that the final recommendation would be implementable.

Roadway Geometry

The roadway reconfiguration being implemented in this recommendation maintains the existing roadway alignment of Main Street and does not exceed the current ROW or impose any new substandard geometry. A travel lane width of 11 feet was chosen to ensure compliance with the MassDOT Project Development and Design Guide. This lane width will allow adequate space for vehicles without encouraging excessive traffic speeds. The existing roadway consists of a single wide lane in each direction that varies from approximately 24' to 35' in width. Despite being striped as only one lane in each direction, the roadway often operates as two unmarked lanes in each direction. The recommended conceptual design maintains one lane, albeit a much narrower lane than currently exists. The addition of left turn lanes at unsignalized intersections will help to ensure smooth traffic operations despite the narrowed pavement width.

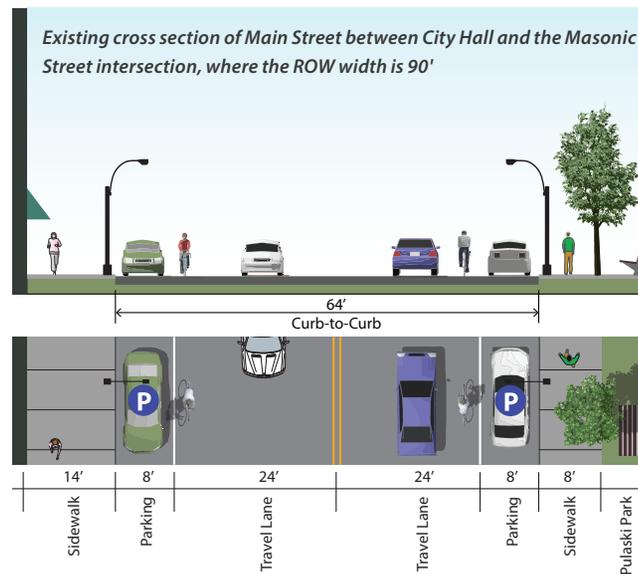
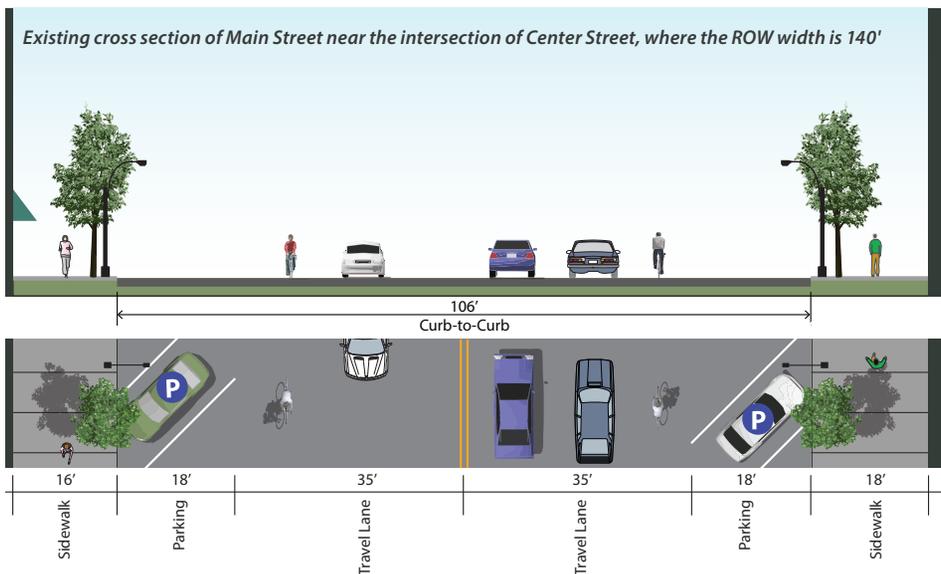
Separated Bike Lane Geometry

The separated bike lanes in the conceptual design recommendation have been designed to comply with the MassDOT Separated Bike Lane Planning & Design Guide. As the project progresses from this conceptual design to contract documents it will be the responsibility of the designer to ensure full compliance with the design guide as the overall design evolves.

Intersection Geometry and Signalization

There are three signalized intersections present in the corridor:

1. Main Street and New South Street/State Street
 - This intersection will be fully designed under a separate project and will be coordinated with Pedestrian and Bicycle Comprehensive Plan's conceptual design for Main Street to ensure compatibility. The current concept developed by Nelson/Nygaard does not provide adequate accommodation for trucks turning left from Main Street onto New South Street.



The designer will need to explore options to accommodate this movement during the development of contract documents.

2. Main Street and Pleasant Street/King Street /US Route 5/MA Route 10

- The configuration of this intersection will remain largely unchanged. All approaches will be maintained, with one minor exception: the de facto thru/right lane on Main Street's westbound approach to the intersection will be changed to a right-turn only to accommodate safe bicycle connectivity. In the next stage of design, a thorough traffic analysis of this change will be needed to confirm its viability
- Due to the construction of wide sidewalks to accommodate the separated bike lane and curb extensions along Main Street, the crossing of Main Street will be shortened, potentially allowing signal retiming in order to improve traffic operations.
- Vehicles and bicycles will move through the intersection simultaneously; major signal modifications are not anticipated.

3. Bridge Street and Hawley Street/Market Street

- The configuration of the approaches to this intersection will remain unchanged. Traffic operations at this intersection should remain unchanged.
- Vehicles and bicycles will move through the intersection simultaneously; major signal modifications are not anticipated.

All turn lane lengths and tapers for all intersections (signalized and unsignalized) require further traffic analysis which will occur during preparation of the Functional Design Report, which is beyond the scope of this project.

Drainage and Utilities

Two major components of the conceptual design are sidewalk-level separated bike lanes and curb extensions. Any time that these features are proposed, drainage and utility modifications become a major point to be considered.

By widening the sidewalks to create sidewalk level separated bike lanes, the gutter elevation is raised and drainage must be carefully examined to prevent ponding along the sidewalk and flooding into doorways. In extreme cases, full depth

reconstruction and lowering of the roadway may be required in order to ensure positive drainage.

The construction of curb extensions provides great benefit to pedestrians by reducing crossing distances, but by extending the curb line, stormwater



Future curb extensions on Main Street will need to be carefully designed to ensure good drainage and can potentially include stormwater retention features requiring the installation of new drainage structures.

The changes to finished grade and drainage modifications resulting from the proposed improvements must be coordinated with the existing utilities present to minimize conflicts. Any conflicts will need to be resolved, which may include utility relocation. A detailed field survey is required to perform this analysis. Significant utility coordination will likely be required and could be a major component of the design work for this project.

Accessibility

Compliance with Massachusetts Architectural Access Board (AAB) standards will be critical during design and construction of this project. There are numerous wheelchair ramps along the corridor that will require

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detailed design to ensure that they meet all aspects of the AAB rules and regulations. Implementation of this conceptual design will improve access to pedestrians of all ages and abilities by resolving existing deficiencies



The future redesign of Main Street will ensure full compliance with Massachusetts Architectural Access Board (AAB) standards

including: excessively steep curb ramps, lack of detectable warning panels, and exceptionally long crossing distances.

Loading Zones

Due to the existing pavement width on Main Street, trucks loading and unloading typically park in the roadway since there is ample room for other vehicles to pass. The recommended single through lane design will prevent this from happening. In order to accommodate loading vehicles, additional consideration will need to be given to the implementation of loading zones during the transition from concept to contract documents.

The recommended conceptual design for Main Street includes some stretches on flush median to help accommodate snow storage where Main Street is at its widest

Conceptually, deliveries will occur in designated curb-side loading zones (TBD) and informally within extended-length turn lanes and portions of the recommended flush median.

Snow Removal

The current excessive width of Main Street allows Public Works staff to plow snow to the center of the roadway and haul off-site after the storm has concluded. The recommended conceptual design will require that the City modify their snow removal plan to ensure that the roadway remains passable during storms due to the minimal space in the center of the roadway to store snow. In order to alleviate some issues with snow removal, Main Street's final design should incorporate features that are easily accessed by forward moving snow plows, since reverse maneuvers slow down the process of snow removal and can be hazardous to users of the roadway, bicycle, and pedestrian facilities. This is of primary concern at the curb extensions, as they present unique snow removal challenges if not designed properly. Two key design components will help aid snow removal efforts:

- Eliminate acute curb line angles since obtuse angles allow easier access by snow plows.



- Utilize a flush median to the maximum extent practical to temporarily store snow during storms.

Proper design of hardscape elements ensures that snow removal will be more efficient and less likely to damage the streetscape.

Transit

The recommended conceptual design shows bus stops along the corridor to encourage transit use. In order to allow buses to stop without impeding traffic flow, designated pull-offs are included. Bus stops located adjacent to the separated bike lane will be designed according to the standards in the MassDOT Separated Bike Lane Planning & Design Guide in order to provide safe access for transit users while maintaining the integrity of the bicycle facility. It will be the responsibility of the designer to coordinate the details of all bus stops with the Pioneer Valley Transit Authority (PVTA) to ensure their concurrence with the design and location.

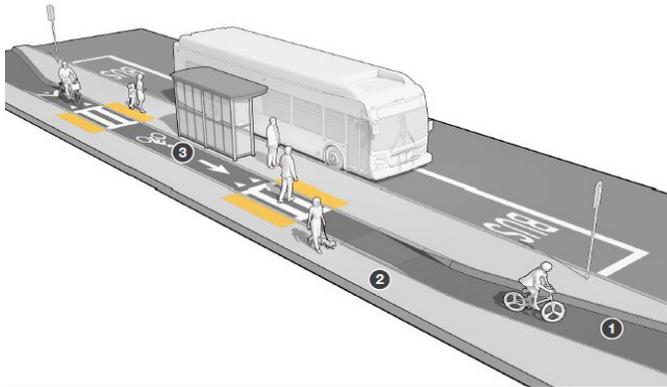
Cost

The cost estimate for the Main Street project based on current unit prices is approximately \$5.8 million. Assumes two years of inflation. For a detailed cost estimate, see Appendix 2 in the Annex of this report.

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Design Toolkit - Key Features

The following graphics illustrate design-feature precedents for Northampton to consider in the future planning and design of Main Street



Floating Bus Stop - Mid Block

As illustrated in MassDOT's Separated Bike Lane Planning & Design Guide, "floating" bus stops can be incorporated at PVRTA stops in order to maintain the integrity of the separated bike lane, while accommodating a comfortable waiting area for transit users.



Wide Sidewalks

Similar to the sidewalks in Central Square Cambridge, the future sidewalks along Main Street can be designed to incorporate a generous walking zone and provide a wide, varied-material furniture zone to accommodate outdoor seating, cafes, bike racks and street trees.



Raised Crossings at Side Streets

In conjunction with a green separated bike lane crossing, raised crosswalks slow turning motorists and emphasize that safe pedestrian and bicycle connections are the higher priority at low-volume cross streets.



Flush Median and Pedestrian Refuge Islands

Along Mass Ave in East Arlington, a flush median articulated in red "streetprint" surface seamlessly gives way to raised island that provides a safe refuge for pedestrians crossing the formerly four-lane roadway



11. PUBLIC REALM DESIGN GUIDE

Introduction

The purpose of this guide is to provide developers, property owners, and town officials with a set of recommended practices regarding the design of the public realm in the City of Northampton's primary commercial areas. The guidelines are designed to establish standards that will unify the visual environment along the major entries to the downtown, create pedestrian spaces that are consistent and inviting, and provide a vocabulary of materials and components that will create uniqueness and consistency to the City.

The guidelines are focused on the following zoning districts:

CB – Central Business:

Primarily along Main and Bridge streets from the intersection of Main and West streets to the Historic Northampton Museum, and also along King and Pleasant Streets from Summer Street to Holyoke Street;

EB – Entranceway Business:

Along King Street from Summer Street to the MassCentral / Norwottuck Rail Trail;

GB – General Business:

Along Pleasant Street from Holyoke Street to the former dike; and

HB - Highway Business:

Along King Street from the Northampton Bikeway to the I-91 interchange.

In general, these zones follow the primary streets identified above, and are typically only the depth of the properties immediately along those streets. The exception to this is the CB zone, which includes several side streets off of Main Street in the downtown, including portions of State, Mason, Center, New South, Old South, and Pearl streets.

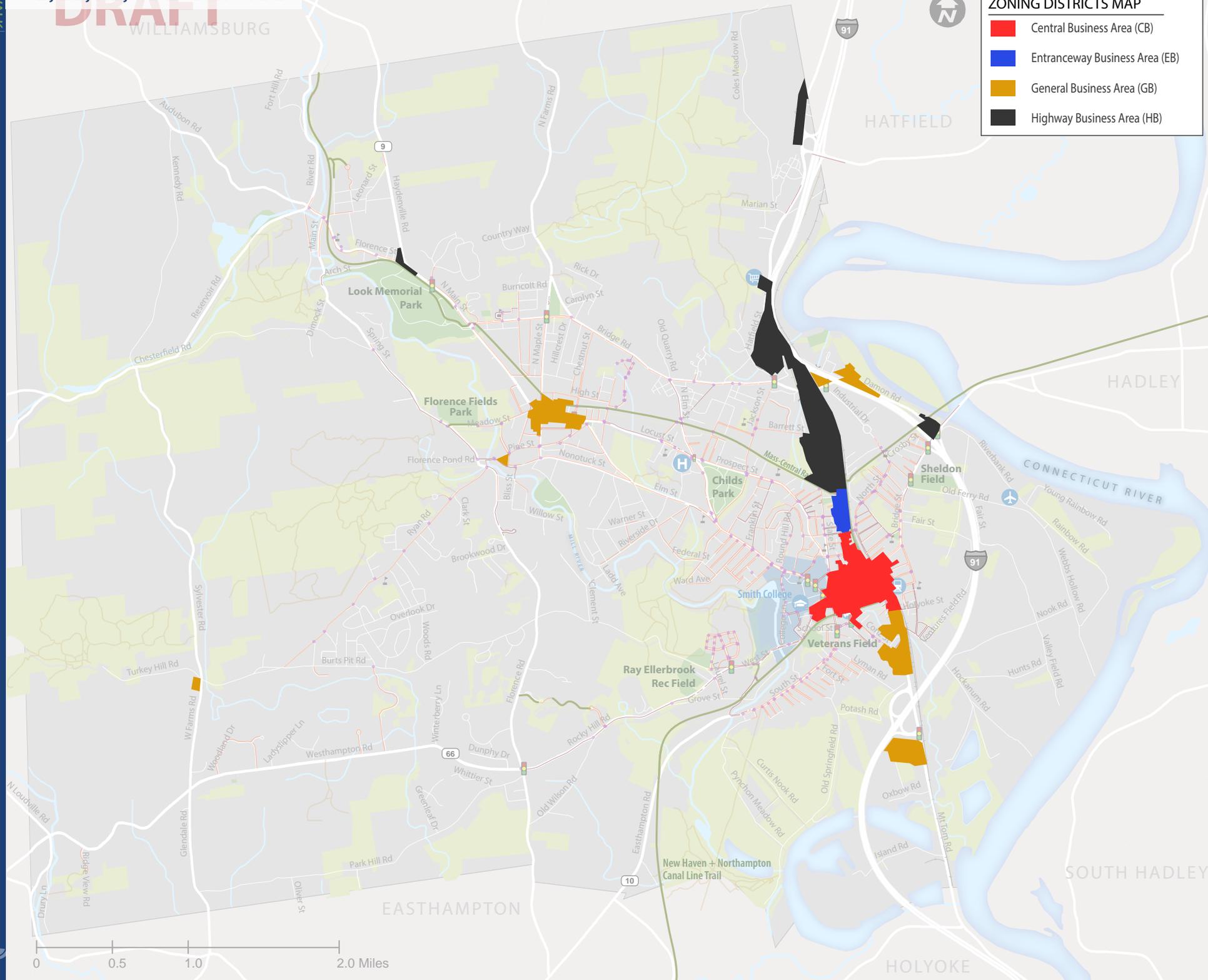
CB, EB, HB, GB ZONING MAP

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ZONING DISTRICTS MAP

- Central Business Area (CB)
- Entranceway Business Area (EB)
- General Business Area (GB)
- Highway Business Area (HB)



The GB and HB zones also cover other areas within the City, such as the businesses along Damon Road east of I-91 and in the business district of Florence. While these guidelines may have applicability to these areas, they are primarily written for the core business districts of Northampton.

Description of Zones

While the zones under study in this document generally represent the majority of the commercial districts of the city, they are very different in character based on both the zoning parameters provided in the code and the actual development of

the areas. The following table captures some of the key criteria and characteristics of each zone:

The zones under study work as a progression into the center of Northampton from the north and south, increasing in density towards the Central Business District. Along with the increase of density of buildings, the proximity of structures to the public realm and the presence of parking both decrease, ultimately forming the continuous street wall of Main Street. One outcome of this increasing density is an increasing presence of pedestrians along the streets, requiring greater attention to the development of an appropriately scaled and furnished sidewalk environment.

Business Districts: Comparison of Zoning Parameters

Zone	Allowed Uses	Building Height	Setbacks	Parking	Landscaping
CB: Central Business	Commercial (retail, office), residential (second floor or back of first)	30' min. 70' max.	Front: 5' max. Side: 0' Rear: 0'	No new parking	--
EB: Entranceway Business	Retail, wholesale, office, residential (above first floor)	20' min. 65' max.	Front: 0' Side: 0' Rear: 0'	No parking within 10' of front lot line. One curb cut. Bicycle parking required.	8' buffer if building does not abut sidewalk; 10' buffer in front of parking.
GB: Greater Business	Any use	60' max.	Front: 0' Side: 0' Rear: 0'	No parking between building and front lot line	Landscaping, pedestrian malls or plazas required between building and front lot line
HB: Highway Business	Retail, wholesale, office, drive-throughs, residential (above first floor)	20' min. 65' max.	Front: 0' beyond required buffer and sidewalk Side: 0' Rear: 0'	Quantity and layout by site plan review. Bike parking required.	10' tree belt plus 6' sidewalk.

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and building presence which transitions along with the density of development. By establishing guidelines for the public-realm design in all of these zones, a consistent and readable framework can be created to bring greater unity and imageability to the city center and its approaches.

Design Intent

The intent of the Public Realm Design Guide is to respond to this increasing intensity of use while also creating a consistent vocabulary of materials and furnishings that is readable and understandable throughout the entire business district. To reinforce the progression and transition from edge to center, the following goals for the streetscape in each zone have been established:

HB – Highway Business:

- Separate pedestrians from traffic
- Provide only modest sidewalk capacity
- Buffer parking and development areas from roadway views
- Establish street trees as dominant street element

GB – General Business:

- Separate pedestrians from traffic
- Provide comfortable sidewalk capacity
- Buffer off-street parking from roadway views
- Bring street trees closer to roadway to reduce scale

EB – Entryway Business:

- Encourage pedestrian use by providing broad, comfortable sidewalks

- Incorporate amenities into sidewalk zones such as seating, tables, area lighting
- Provide variety of materials and colors to enliven pedestrian environment
- Maintain strong street tree presence

CB – Central Business

- Reinforce existing pedestrian activity with broad, comfortable sidewalks
- Incorporate amenities into sidewalk zones such as seating, tables, lighting, kiosks, clocks, etc.
- Provide a variety of materials and colors to enliven pedestrian environment
- Maintain strong street tree presence; provide understory plantings where appropriate

Permit access between on-street parking and businesses

The goals can be translated into specific dimensional criteria to establish the framework of the street system. For consistency, the sidewalk is divided into four different components:

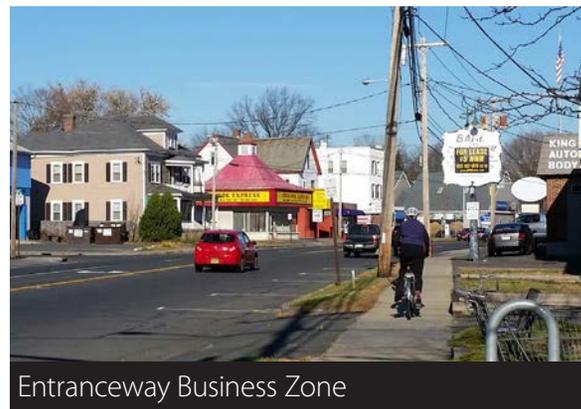
1. Greenscape/Furniture Zone

This is the area of the sidewalk immediately adjacent to the curb. Its primary role is to provide a buffer between vehicles moving in the street or parked at the curb and the pedestrians walking within the sidewalk. In the densely developed zones, this area can be paved and used for activities supporting the adjacent businesses, such as benches and tables, bicycle parking, information kiosks, and other furniture. In the less densely developed districts, where pedestrian traffic across it is minimal, this area becomes a green buffer forming an edge to the roadway and begins to soften the street. In both high and low density areas, the inclusion of street trees is critical



Central Business Zone

The Central Business District sidewalks should be broad, comfortable, and well equipped with amenities for shoppers and strollers.



Entranceway Business Zone

Sidewalks in the Entranceway Business District should be attractive and comfortable to encourage pedestrian usage in this emerging area.

to forming an edge to the roadway corridor and creating a pedestrian zone that is inviting and habitable from their shade. Green infrastructure, in the form of infiltration planters that collect runoff from the roadway and infiltrate it back into the groundwater, is an important function that provides both softening and cooling and is an appropriate use of the greenscape zone as well. Other utilities, such as street lights, traffic signals, equipment cabinets, etc., also should be placed in this zone.

2. Pedestrian Zone

The pedestrian zone is the primary travel zone of the sidewalk. The primary criteria for this zone is the width: it must be wide enough to comfortably accommodate the volume of pedestrians expected to use the length of sidewalk in question; at a minimum, it must meet ADA criteria. The pedestrian zone must be clear vertically to a comfortable dimension as well – branches, utilities, canopies, and other structures must not protrude into the envelope above the sidewalk; a minimum height of 6’ – 8” must be kept clear to meet accessibility standards.

3. Frontage Zone

This zone is particular to the CB and EB districts, and essentially provides a clear space in front of stores where merchants can display goods for sale or place outdoor seating for restaurants and cafes. While it is desirable for this zone to be consistent with the adjacent pedestrian zone, it does not necessarily have to be identical: different paving materials and furnishings can distinguish this use area from the circulation function of the pedestrian zone. Where this zone is not populated by uses supporting the adjacent businesses, it provides a shy zone

from the building wall, making pedestrian circulation more comfortable.

4. Buffer Zone

For the GB and HB districts, the buffer zone is the equivalent of the frontage zone. While it can be used in manners similar to the frontage zone, the adjacent land uses tend to be less supportive of those types of activities. Its primary function therefore becomes more focused on creating an aesthetically pleasing space in front of the building wall that incorporates the pathway leading to the building entrance. In areas outside buildings, it provides critical screening of parking and other uses beyond the parcel’s lot line, contributing to a more consistent and harmonious street environment.

Dimensional Characteristics and Materials

The tables on the following pages indicate recommended widths for each zone and also provide guidance on materials and furnishings to be provided within each zone.



General Business Zone

The General Business District should provide adequate buffering of pedestrians from cars, both on the street and in parking lots for businesses.



Highway Business Zone

In the Highway Business District, the emphasis is on providing buffering and protection for pedestrians while creating a strong identity for the street through the use of street trees.



Greenscape / Furniture Zone Pedestrian Zone Frontage Zone

Zone	Street Type	Greenscape / Furniture Zone		Pedestrian Zone		Frontage Zone	
		Minimum	Preferred	Minimum	Preferred	Minimum	Maximum
Central Business	Primary	4'	10'	8'	12'	2'	5'
	Secondary	4**	6'	6'	8'	2'	5'
Entryway Business	Primary	6'	10'	8'	12'	2'	5'
	Secondary	4'	6'	6'	8'	2'	5'

Materials Criteria

Central Business	All	Street tree planting, permeable pavement (unit pavers, etc.); Infiltration planters. Street furniture including benches, bike racks, trash receptacles, lighting, tables, etc. Must be pedestrian accessible.	Concrete with saw-cut joints for a minimum of 5' of sidewalk width; ADA-compliant unit pavers (no mortar joints)	Same as pedestrian zone.
Entryway Business	All	Street tree planting, permeable pavement (unit pavers, etc.); Infiltration planters. Street furniture including benches, bike racks, trash receptacles, lighting, tables, etc. Must be pedestrian accessible	Concrete with saw-cut joints for a minimum of 5' of sidewalk width; ADA-compliant unit pavers (no mortar joints greater than 1/4")	Same as pedestrian zone.

**Optional, if sidewalk space is available.*



Zone	Street Type	Greenscape / Furniture Zone		Pedestrian Zone		Buffer	
		Minimum	Preferred	Minimum	Preferred	Minimum	Preferred
General Business	Primary	6'	10'	6'	8'	4'	10'
	Secondary	6'	6'	5'	6'	4'	6'
Highway Business	Primary	10'	--	6'	8'	12'	--
	Secondary	10'	--	5'	6'	4'	6'
Materials Criteria							
General Business	All	Street tree planting; lawn or low-maint. shrubs and groundcovers, max. 24" ht. above sidewalk. Infiltration planters are encouraged. Only roadway lighting may be included within this zone; all other street furniture to be placed in the buffer zone.		Concrete with saw-cut joints.		Provide a planted buffer to screen parking. Planting design shall be consistent with the highway business district landscaping standards for the front buffer planting. Street furniture such as benches and bike racks may be included.	
Highway Business	All	Refer to highway business district landscaping standards - tree belt.		Concrete with saw-cut joints.		Refer to highway business district landscaping standards - front buffer.	



12. CONCLUSION

Northampton has cemented its place as a leader in bicycle and pedestrian planning and advocacy in Western Massachusetts. Northampton's pedestrian friendly streetscape and world-class rail trails draw users from across the region.

Northampton is becoming a more walkable and bikeable city with the completion of this Comprehensive Plan . Currently, the City is:

- Seeking Tier III Complete Streets funding from MassDOT for 15 priority projects to enhance Northampton's walk / bike infrastructure.
- Requesting state funding for a complete redesign of Main Street.
- Engaged in a robust analysis of all sidewalks, curbs, and ramps using digital technology to create an inventory that will be used to prioritize sidewalk and ramp construction and upgrades.

As Northampton looks to the future and begins to benchmark progress, it will be critical to carefully assess performance measures. Performance measures are tools to monitor progress related to building new facilities, expanding ridership, and improving safety for pedestrians and bicyclists. The following list will be helpful to measure success and track progress.

Participation Data

Continue to conduct pedestrian and bicycle counts on sidewalks and streets in addition to existing counts located along rail trails. This count data could inform future funding as increasing use patterns will make it politically easier to bring in Federal, State and local funding.

Reported Crashes

Tracking both pedestrian and bicycle involved crashes -- with special attention to patterns in severe or fatal crashes -- should be indexed

and compared to participation rates in walking and bicycling to better understand safety improvements in the City.

Bicycle Theft

Indexed compared to participation in bicycling, based on police reports. Because not all thefts are reported, this metric may be supported by the City actively reaching out to bicycle-related programs at schools and other centers to encourage safe riding and theft reporting.

Implementation of Facilities

The installation of new pedestrian crosswalks and sidewalks, the improvement of existing sidewalks and crosswalks, miles of trails, lane miles of bike lanes, and shared lane markings, should be recorded in order to track progress. In addition, major infrastructural upgrades such as bridges and underpasses should be highlighted as significant achievements and advertised as targeted investments to increase the health, safety, and mobility of Northampton residents, workers, and visitors.

Mode Share

One simple way to understand progress on conditions for walking and bicycling in Northampton is to benchmark mode share as a critical performance measure. Using ACS data and other survey information, the City should track the percentage of people walking and bicycling to work. Future goals should establish benchmarks that increase over time, with the 2025 goal of increasing walking by 50% and bicycling by 150% (see table below).

Walk / Bike Friendly Community Status

The Pedestrian and Bicycle Information Center (PBIC) and League of American Bicyclists (LAB) manage Walk Friendly and Bike Friendly Community programs, respectively. Northampton is currently designated as a bronze level community in both programs. As the PBIC and LAB provides a robust criteria system to designate participating communities, goals to increase Northampton's designation is seen as a good proxy for overall improvements in the walking and bicycling environment (see table below).

Performance Measures	2016	FUTURE GOALS		
		2019	2022	2025
Walk Mode Share	11.2%	13%	15%	18%
Walk Friendly Community Status	Bronze	Silver	Silver	Gold
Bike Mode Share	3.8%	6%	8%	10%
Bike Friendly Community Status	Bronze	Silver	Silver	Gold

Properly tracked with regular ped/bike counts and other data gathering efforts, these Performance Measures will complement the Goals established for this Comprehensive Plan, describe in Chapter 1, section 4. The measures can also help to leverage pedestrian and bicycle infrastructure improvements to enhance the city's livability and economic vitality. Combined with on-going sustainability efforts, neighborhood revitalization and an expanding arts/culture/food scene, a more walkable and bikable Northampton will continue to place the City on a trajectory of being one of the most livable cities in New England.