City of Springfield Pedestrian and Bicycle Complete Streets Plan

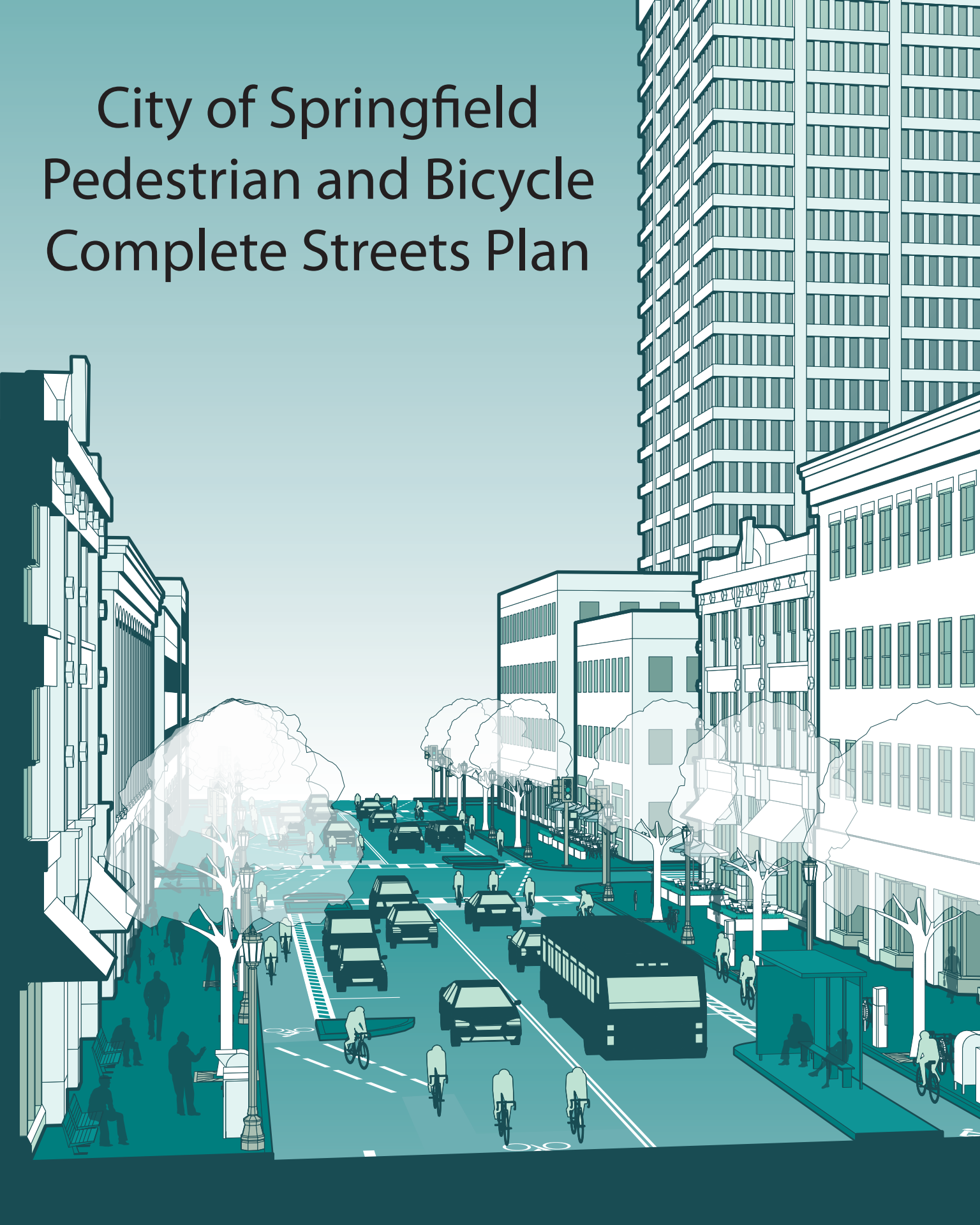


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In addition, the following LiveWell Springfield community-based organizations were vital to the plan's development:

- Caring Health Center
- Concerned Citizens of Mason Square
- Develop Springfield
- Mason Square Health Task Force
- New North Citizens Council
- Pioneer Valley Riverfront Club
- Partners for a Healthier Community
- Gardening the Community
- Vietnamese-American Civic Association

The City would also like to thank the residents on the ad hoc Bicycle/Pedestrian Advisory Committee (BPAC) who donated their time to advise PVPC and MassBike in the development of this plan, Mark Fenton for his review and suggestions, and members of the many neighborhood councils, community organizations, and the residents of Springfield who contributed to the plan, and whose feedback throughout the planning process was invaluable.

EXECUTIVE SUMMARY

The city of Springfield, Massachusetts is in the midst of a successful long term effort to revitalize itself. The economy is growing, crime is decreasing, and public spaces are being made more vibrant every day. The ability of residents to walk and bicycle around their city with ease and comfort is an important factor in this resurgence and not promotes a healthy lifestyle, but also helps to attract two new groups of urbanites: down-sizing baby boomers and millennials. In order to realize the city's vision for bicycling and walking, the City of Springfield developed this plan, titled "the City of Springfield Pedestrian and Bicycle Complete Streets Plan."

At the center of the city's vision for bicycling and walking is the implementation of the proposed Complete Streets Network which can be found at: http://pvpc.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=a20a2ff43f13488fb343815a4f89d116. Additionally, the Complete Streets Implementation Guide, included at the end of this document, was developed to assist the City of Springfield realize the Complete Streets Network. The Guide provides specific design elements, key dimensions, and considerations for constructing the Complete Streets infrastructure recommended in this plan.

A Complete Street is a street designed to accommodate all users in a safe, convenient, and comfortable manner. Complete Streets can include sidewalks, bicycle lanes or other bicycle infrastructure, dedicated bus lanes, pedestrian islands, transit stops, curb extensions, pedestrian signals, and other elements which add to comfort and ease of travel. In April 2014, Massachusetts Governor Deval Patrick signed the Transportation Bond Bill, which included $50 million for a Complete Streets certification and grant program that will incentivize communities to create safe and comfortable roads for everyone. This plan, as well as the plan's recommendation for the City to adopt a Complete Streets policy, position Springfield to take advantage of this funding and catalyze the long-range work of "completing" Springfield's streets.



Bicycling on the Connecticut River Walk and Bikeway.

When built out, the Complete Streets Network will allow for safe, easy movement of pedestrians, bicyclists, users of public transit, and motorists. It will accommodate all users, regardless of their age or ability. For bicyclists, the network includes recommendations for bicycle infrastructure and heightened attention to roadway maintenance, including street sweeping, on-street bike lanes, wayfinding signage, buffered bike lanes, shared lane markings / sharrows, bike boxes, and cycle tracks. For pedestrians, the network includes recommendations for sidewalk and crosswalk

maintenance and possible expansion, pedestrian-activated walk signals, conventional crosswalks, midblock crosswalks, pedestrian safety islands, and curb extensions.

The proposed Complete Streets Network accommodates different street widths and traffic volumes by incorporating categories of Complete Streets developed by the National Association of City Transportation Officials (NACTO). The Network is proposed to be phased over time as resources are available and streets are re-designed and maintained. Projects are separated into 5, 10, 15 and 20-year categories. This Pedestrian and Bicycle Complete Streets Plan does not describe how to improve transit in the city. The Pioneer Valley Transit Authority (PVTA) has recently worked with the city to modify transit routes and more information on transit in Springfield is available at: www.pvta.com.

A variety of data sources were used to develop the Complete Streets Network, including: input from over 650 residents, focus groups with walkers and bicyclists, a review of traffic crashes, numerous walk audits, identification of major activity centers, and analysis of city streets considering traffic volume, sidewalk availability, shoulder width, street width, truck traffic, travel speeds and other important criteria. Census data such as car ownership, median income, race, and ethnicity were also reviewed to ensure the Complete Streets Network provides access for all city residents. More information on the criteria used to develop the Complete Streets Network can be found in Section 3.



The Complete Streets Network will further the current momentum that exists for walking and bicycling in Springfield.

Development of the Complete Streets Network involved an extensive public outreach process that engaged the residents of Springfield. Residents were asked about which streets they prefer for walking and bicycling, what destinations they like to visit on foot or bicycle, and changes they would like to see to improve the transportation network. Based on the information gathered from this outreach process, residents had the following recommendations:

- Connect neighborhoods to schools and parks
- Construct off-road paths
- Create safe, comfortable, and well-maintained bicycle and walking routes for all neighborhoods
- Provide programs that support safe walking and bicycling

More information about the public outreach process can be found in Section 4.

RECOMMENDATIONS

In addition to the proposed Complete Streets Network, a list of recommendations was developed for top priority policies, programs, and projects to promote bicycling and walking. The recommendations, listed below, prioritize the critical action steps that city departments and partnering community-based organizations can take to achieve the city's Complete Streets vision.

POLICIES

1	Adopt a Complete Streets policy to become eligible for MassDOT Active Streets funding
2	Incorporate consideration of the needs of bicyclists and pedestrians in the City's development review process by adopting proposed modifications to the City's development review procedure
3	Create a Complete Streets Council comprised of city staff, elected officials, and residents to oversee implementation of this plan
4	Apply to make Springfield a certified "Bicycle Friendly Community"

PROGRAMS

1	Maintain pedestrian and bicycle infrastructure
2	Become part of MassDOT's Bicycle and Pedestrian Safety Awareness and Enforcement Program
3	Routinely apply for Highway Safety funding for pedestrian and bicycle safety enforcement and education
4	Work with DevelopSpringfield, the Springfield Business Improvement District, and city employers to promote bicycle commuting, including participation in Bay State Bike Week
5	Participate in the Pioneer Valley regional bike sharing initiative and develop a bicycle re-use program
6	Implement healthy prescription program citywide
7	Expand participation of Safe Routes to School Program to every elementary and middle school
8	Incorporate bicycling and walking into regional and local tourism campaigns, including walking tours and maps in the new cultural district
9	Launch a local Share the Road campaign for bicyclists and motorists
10	Enforce local and state laws pertaining to bicycling and walking
11	Educate the public about using 311 to report pedestrian and bicycle hazards, such as un-cleared sidewalks, debris in bike lanes, fading crosswalks, and malfunctioning pedestrian signals

PROJECTS	
1	Implement the proposed Complete Streets Network
2	Increase bicycle parking throughout the city, particularly in business districts, K-12 schools, and colleges
3	Increase pedestrian and bicycling signage
4	Create a citywide bicycling map highlighting bike lanes, paths and connections between major destinations
5	Create a walking map focusing on the city's cultural districts

The plan's appendices are a valuable resource for carrying out the Complete Streets vision. They contain a guide for conducting walk audits, a draft Complete Streets resolution that the City of Springfield can adopt, information on the state's bicycle safety laws, and a list of programs for funding infrastructure improvements. Utilizing this information will be essential for Springfield to become a city that safely and conveniently accommodates bicyclists, pedestrians, motorists, and public transit users.

The table below estimates costs for basic bicycle and pedestrian infrastructure, in order to assist the city of Springfield implement Complete Streets improvements.

ESTIMATED COSTS FOR PEDESTRIAN AND BICYCLE INFRASTRUCTURE

Item	Estimated Cost
Crosswalk street treatment	$1,500 each
Crosswalk bump-out, mid-block	$7,000-$10,000 each
Crosswalk bump-out, intersection	$10,000-$20,000 each
Bus shelter and pad	$7,000-$8,000 each
Lane striping (Thermoplastic)	$0.65/ linear foot
Plantings	Varies
Park bench	$800-$2,400 each
Signage	$10-$20/square foot

Source: PVPC

SECTION 1: INTRODUCTION

1.1. A CITY IN TRANSFORMATION

Springfield is in the midst of a renaissance. New businesses are opening. Innovative ways to fight crime, such as the C3 initiative in the North End featured on *60 Minutes*, are making neighborhoods safer. [1] Public spaces are being revitalized.

Walking and bicycling will further Springfield's revival by improving the quality of life for current residents, as well as making the city more attractive for new residents. For those without regular access to a car, walking and bicycling are convenient options for carrying out daily errands. Increasing walking and bicycling activity also provides "eyes on the street," a key strategy to improve public safety. Bicycling and walking also offer an inexpensive, fun, and healthy option for Springfield residents and visitors to enjoy their beautiful city.

Improving access to bicycling and walking opportunities will better the quality of life for all Springfield residents.

A recent study, commissioned as part of the city's economic recovery plan following the 2011 tornado, found that there is increasing demand for market rate housing in several parts of Springfield, including Downtown/Metro Center and the South End. This demand is fueled by two generations of Americans: baby boomers, born in the late 1940s through early 1960s, numbering about 77 million nationally and millenials, born during the late 1970s to mid 1990s, numbering about 78 million nationally.[2] Attracting these two groups, which generally have high disposable incomes, is essential for continuing Springfield's resurgence. Research has found that millenials and baby boomers desire dense urban centers with access to healthy activities where it is possible to get around without a car. Improving access to walking and bicycling in Springfield will improve the city's ability to attract both groups.

Making Springfield easier and safer to walk and bicycle will undoubtedly have positive effects on the city's economy as well as on the health and well-being of city residents and visitors. The Bicycling Means Business Report, produced by the League of American Bicyclists and the Alliance for Walking and Bicycling documents the billions of dollars generated nationwide as a result of bicycling.[3] As the report notes, "the best way to attract people who ride bikes and accrue (financial) benefits is by building infrastructure that makes it more attractive for people to ride."

[1] http://www.wfsb.com/story/22177290/springfield-based-c3-policing-getting-national-recognition

[2] *Residential Market Potential – Downtown Springfield: Update*. September 2013. Zimmerman / Volk Associates, Inc. http://www3.springfield-ma.gov/planning/fileadmin/Planning_files/Economic_Development/Downtown_Springfield_Residential_Market_Potential.pdf . Accessed February 19, 2014.

[3] http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(small).pdf

1.2. Plan Purpose

The purpose of this plan is to facilitate walking and bicycling in Springfield, Massachusetts by strategically "completing" the city's streets, in order to assure that they are safe and comfortable for walking, bicycling, driving, and using public transit. The plan and its accompanying Complete Streets Network are tools to be used by the City of Springfield – especially the Department of Public Works – to create a city in which people move about on foot or on a bicycle with ease and comfort.

This plan is a tool for creating a city in which people can walk and bicycle with ease and comfort.

The plan has five sections:

Section 1 provides **background** on the development of the plan, including the **purpose** and a **vision** for walking and bicycling.

Section 2 summarizes the proposed **Complete Streets Network**, which includes locations for bike lanes, critical corridors for pedestrian movement, and off-road paths.

Section 3 explains the **walking and bicycling data analysis** used to develop the Complete Streets network, which included examining the bicycle level of service (LOS) and bicycle compatibility for city roads, high-crash locations, and trip generators.

Section 4 provides a **summary of resident input**, based on the public outreach process that was carried out as part of this plan.

Section 5 offers **recommendations** for improving walking and bicycling, including specific projects, policies, and programs that can be undertaken by the City of Springfield, community-partners, and residents.



A redesign of Springfield's Apremont Triangle, at the junction of Pearl, Hillman, Bridge, and Chestnut Streets proposes Complete Streets design elements that make the street friendly for all users. Source: Utile Design

1.3. LiveWell Springfield

This plan is a component of LiveWell Springfield, a city-wide movement for healthy living. LiveWell Springfield is a collaboration between community-based organizations, Springfield city government, and the Pioneer Valley Planning Commission (PVPC). By providing access to healthy food at mobile farmer's markets, catalyzing efforts to bring a grocery store to the Mason Square neighborhoods, and promoting exercise, LiveWell Springfield is dedicated to creating a healthier, more vibrant city. For more information on LiveWell Springfield, visit www.livewellspringfield.org.

A Rich Tradition of Bicycling

Bicycling is a part of Springfield's long, rich history. In 1881, the Springfield Bicycle Club was started with 9 members and grew quickly to 5000 people by 1883. In that year, the club sponsored an event on the Springfield riverfront called the "Bicycle Camp Exhibition and Tournament." Today, the Springfield Bicycle Club no longer exists, but the Cyclonauts Bicycle Club carries on a great bicycling tradition, running group rides and other biking events.





1.4. VISION

Through the public outreach process described in Section 4, a vision statement for walking and bicycling in Springfield was developed. This vision guided the entire planning process and forms the basis for this plan's recommendations and Complete Streets Network.

Vision for the City of Springfield Pedestrian and Bicycle Complete Streets Plan

The vision of the Springfield Pedestrian and Bicycle Complete Streets Plan is to facilitate the development of a transportation network that will:

- Improve the quality of life for all Springfield residents
- Attract new residents to the city
- Provide pedestrians and bicyclists with safe places to walk and bike
- Allow pedestrians and bicyclists to share the transportation network with



A proposed redesign of Worthington Street in Springfield proposes many improvements that would make the street more friendly for bicycling, walking, and using public transit. Source: Utile Design

SECTION 2: COMPLETE STREETS NETWORK

2.1. OVERVIEW

A Complete Street is a street designed to accommodate all users in a safe, convenient, and comfortable manner, regardless of the travel mode they choose, their age, or their ability. Common elements of Complete Streets include sidewalks, bike lanes, dedicated bus lanes, pedestrian islands, curb extensions, and pedestrian signals.[4]

Complete Streets are designed to accommodate bicyclists, pedestrians, public transit users, and motorists of all ages and abilities.

Complete Streets transform roads into vibrant public space, enabling pedestrians, bicyclists, and users of public transit to move about with ease. Designing streets for walking and bicycling also provides residents an inexpensive, convenient way to exercise and stay healthy.

Major support for Complete Streets comes from the Massachusetts Department of Transportation (MassDOT), which requires all state transportation projects to include accommodations for bicyclists and pedestrians through its Healthy Transportation Compact. The state's traffic safety laws also promote Complete Streets by guaranteeing the legal right of bicyclists to ride on all surface streets in Massachusetts. In April 2014, Massachusetts Governor Deval Patrick signed the Transportation Bond Bill that included $50 million for a Complete Streets certification and grant program that incentivizes communities in the Commonwealth to create roads that are safe and comfortable for everyone. This plan, and its recommendation for the city to adopt a Complete Streets policy, position Springfield to take advantage of these funds and catalyze the long-range work of “completing” Springfield’s streets.

Transforming the City of Springfield's road network into a network of Complete Streets required identification of specific corridors to target for bicycle and pedestrian improvements. The Complete Streets Network, described on the following pages, lays out the City of Springfield's plan for implementing these improvements, which once completed will make the city a better place to live, work, and play.

[4] Smart Growth America. http://www.smartgrowthamerica.org/complete-streets.
Accessed September 7, 2014

2.2. Developing the Complete Streets Network

The Complete Streets Network was developed through an extensive 18-month process of data collection and analysis, combined with numerous meetings and workshops with residents and municipal officials, who reviewed and commented upon drafts of the proposed Network. When implemented over the next 20 years, it will result in a Complete Streets network that prioritizes safety, comfort, and connectivity and ensures that people have transportation choices in their neighborhood and throughout the city. Connectivity, either direct or indirect (where a longer route offers more safety and comfort) makes it possible to easily travel between neighborhood business districts, workplaces, schools, parks, churches, senior centers, grocery stores, retail centers, and public transportation.



Development of the Complete Streets Network involved an extensive public outreach process, during which residents of all ages were asked to identify where they like to walk and bicycle.

Chapter 85, Section 11B, Massachusetts General Law: *Every person operating a bicycle upon a way, as defined in section one of chapter ninety, shall have the right to use all public ways in the Commonwealth except limited access or express state highways where signs specifically prohibiting bicycles have been posted, and shall be subject to the traffic laws and regulations of the Commonwealth and the special regulations contained in this section.*

Priority corridors for the Complete Streets Network were identified using the following criteria:

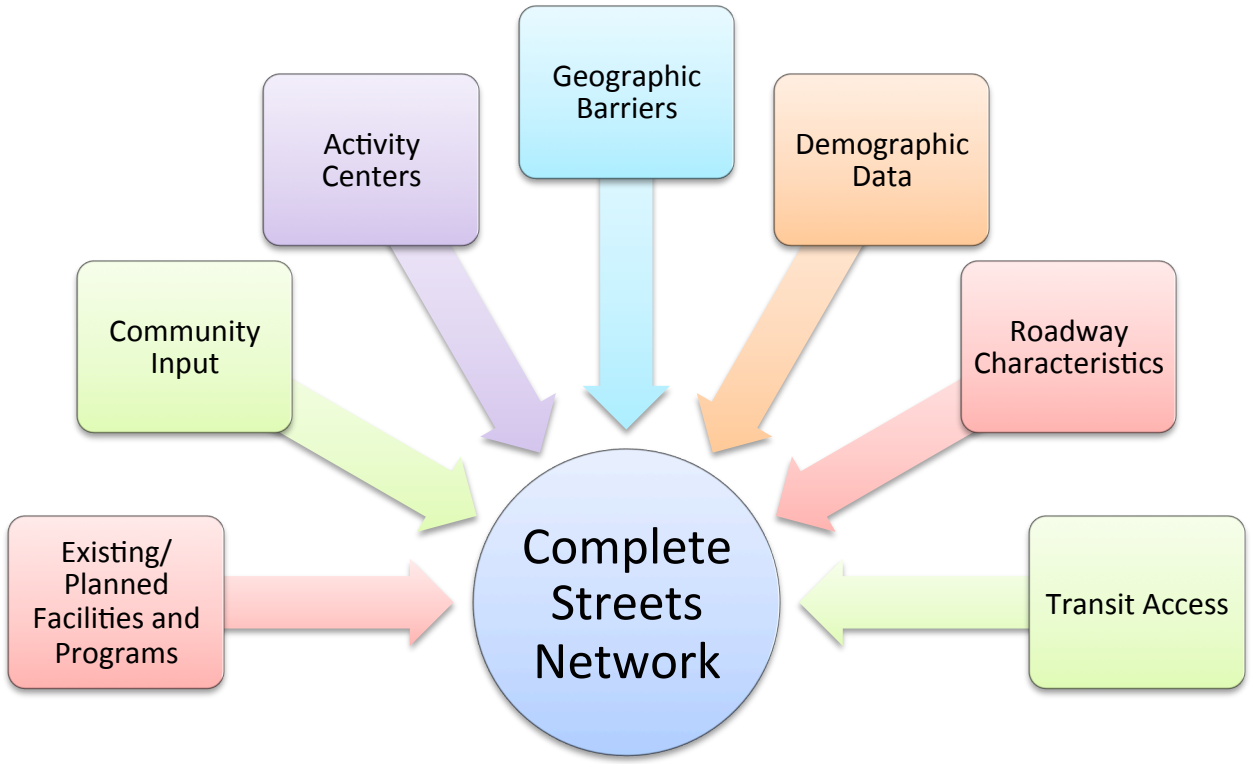
- Existing and planned bicycle and pedestrian facilities and program
- Community input (surveys, meetings, outreach events, Bicycle and Pedestrian Advisory Committee)
- Activity centers (parks, neighborhood centers, employment, schools)
- Geographic barriers (rivers, freeways, steep slopes, railroads)
- Demographics (income, vehicle ownership, travel distance to work)
- Roadway characteristics (traffic speeds, traffic volumes, pavement conditions, lane widths, right-of-way, travel speeds, sidewalks, intersection crash data)
- Transit access

For more information on each of the items above, see Section 3 of this plan.

While the Network identifies a set of priority Complete Streets corridors based on these criteria, it is not meant to exclude or detract from the importance of designing all roadways to acceptable standards for pedestrians and bicyclists and in accordance with the law. However, all city streets should incorporate Complete Streets design concepts to the maximum extent that is practical.

The proposed Complete Streets Network can be found online at:
http://pvpc.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=a20a2ff43f13488fb343815a4f89d116

CRITERIA FOR THE COMPLETE STREETS NETWORK



2.3. Components of Complete Streets

The design of any Complete Street is unique to local community needs. For example, is the street in a dense business district or a more suburban, residential neighborhood? Is it a busy arterial or a quiet neighborhood connector? Each of these factors affects the design elements that are ultimately chosen.

Creating a Complete Streets Network does not mean simply painting a bike lane or reducing the number of vehicular lanes on every street. Rather, it involves evaluating the context of each street and determining how it can be designed to best support safe and convenient travel for pedestrians, bicyclists, motorists, and users of public transit.

While there is no specific formula for creating a Complete Street, the following are examples of common bicycle and pedestrian infrastructure that are often included in Complete Streets designs. More information on specific design elements can be found in the National Association of City Transportation Officials' (NACTO) *Urban Street Design Guide* and *Urban Bikeway Design Guide*, both accessible at www.nacto.org.

Bicycle Elements of Complete Streets

Conventional Bike Lane

Conventional bike lanes provide an exclusive space for bicyclists using on-pavement lane markings and signage. Most bike lanes run in the same direction along the right side of the automobile travel lane along the curb, edge of road, or parking lane. When bike lanes are installed on one-way streets, they may be located on the left side of automobile travel lane.



A bike lane located on Plum Tree Road in Springfield.

Buffered Bike Lane

Buffered bike lanes are conventional bike lanes with additional space to separate or buffer bicyclists from the automobile travel lane or parking lane.



A buffered bike lane in Washington, D.C.

Bike Box

A bike box is an exclusive space at a signalized intersection in front of an automobile travel lane that provides bicyclists with a safe space to wait for traffic during a red signal. Bike boxes position bicyclists in front of the driver instead of at the far right of the road as a way to avoid right-hook accidents.



A bike box, such as the one shown here in Washington, D.C., allows bicyclists to safely move from the bike lane to make left hand turns at red lights.

Shared Lane Marking / Sharrow

Shared lane markings or “sharrows,” are on-pavement markings that signal the shared use of a travel lane by automobiles and bicyclists. Shared Lane Markings are often used where a conventional bike lane is not feasible due to insufficient roadway space. Shared lane markings also help to provide proper positioning of bicyclists on streets to avoid the “door zone” of parked cars and help to reinforce the legitimacy for bicyclists' use of the street.



This sharrow on Eliot Street in Springfield indicates that bicycles have the right to use the road in the same manner as motorists.

Cycle Track

A cycle track is a bike facility that is used exclusively by bicyclists and is physically separated from automobile travel lane, parking lanes, and sidewalks.



A cycle track in San Francisco, CA.

Pedestrian Elements of Complete Streets

Conventional Crosswalks

A crosswalk allows for marked pedestrian crossing at intersections. There are multiple pedestrian crosswalk designs based upon street characteristics such as the volume of traffic, the number of travel lanes, and the demands of pedestrians crossing at the site. Pedestrian crossings may or may not be signalized.



Curb ramp and pedestrian crosswalk on Main Street in Metro Center, Springfield.



A crosswalk on Main Street in the South End of Springfield.

Midblock Crosswalks

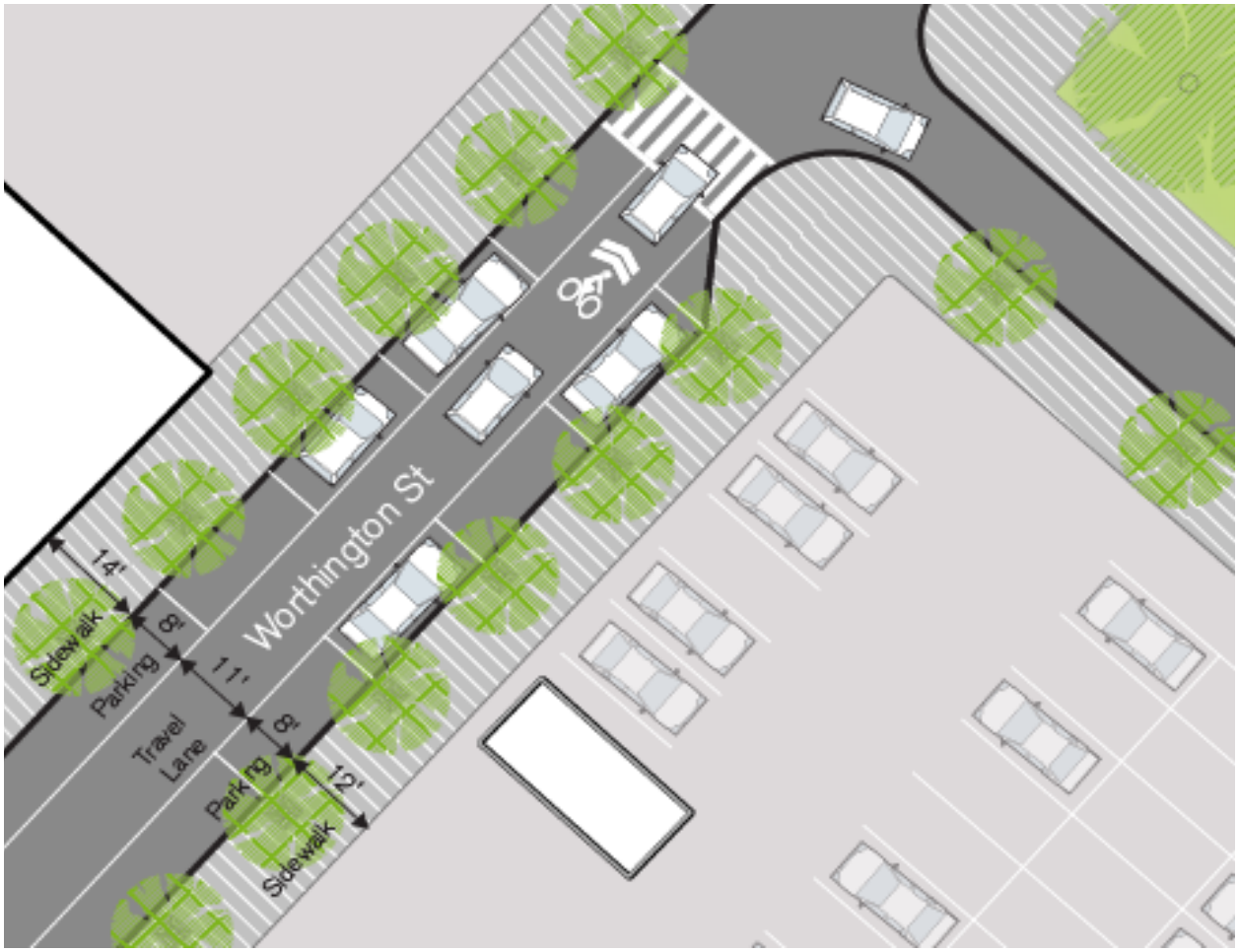
Midblock crossings facilitate pedestrian crossings between signalized intersections. These crossings often are located in areas of high pedestrian demand at a specific location (e.g. parks, schools, bus stops, etc.)

Pedestrian Safety Islands

Pedestrian safety islands provide a safe refuge for pedestrians crossing multiple lanes of traffic on a one-way or two-way street.

Curb extensions

Curb extensions, also known as bulb outs or neck downs, extend the pedestrian curb line into the street, often at intersections or mid-block crossings. Curb extensions provide a traffic calming effect because they reduce traffic speeds and high-speed turning movements.



This proposed redesign of Worthington Street in Springfield includes wide sidewalks (12' and 14'), a sharrow, conventional crosswalk, and curb extensions. Source: Utile Design

2.4. Types of Complete Streets

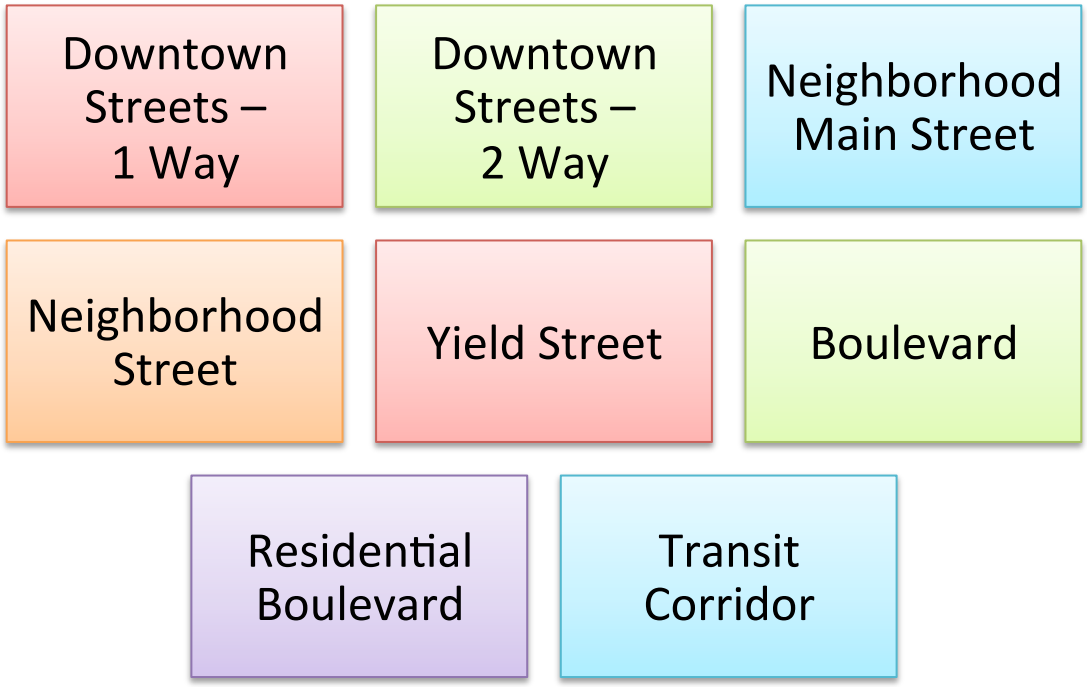
The Complete Streets Network uses a set of eight street types, which recommend specific design elements such as roadway geometry, sidewalks, and intersections, and uses, based on the street's character and adjacent land uses. The design of each street type is based on the *Street Design Guide*, produced by the National Association of City Transportation Officials (NACTO), an organization that represents cities on urban transportation issues.

The different street types reflect the diverse range of conditions in Springfield. A single corridor can change street type as the surrounding land uses or functions of the road changes. For example, the Neighborhood Residential street type can transition to a Neighborhood Main Street, and then back again as it passes through a business district.

All street types are multimodal and aim to equitably share limited right-of-way space. Each design balances the needs of users, giving priority based on the context, land use, existing built environment, and constraints of each site. NACTO's classification system is designed to mirror the traditional functional classification system of streets, support the concept of Complete Streets, and guide development and roadway design projects.

The different types, described in more depth on the following pages, are shown below.

Complete Street Types



DOWNTOWN STREETS – 1 WAY

Many 1-way streets in Springfield, such as Dwight Street and Chestnut Street, operate significantly below capacity and have a lot of space available for Complete Streets features such as a buffered bike lane, cycle tracks or transit lanes. A bus-only lane could be applied at curbside on these streets, though this would require significant police enforcement to prevent double-parking and blocking of the lane due to loading. DevelopSpringfield hired Utile Planning and Design (the firm that created Boston's Complete Streets Guidebook) to create a redevelopment plan for the area of the city affected by a gas main explosion in 2013. Their recommendations included significantly enhanced bicycle and pedestrian infrastructure on these roads.

Parts of the right of way dedicated to bicycles and public transit should either be painted a different color or incorporate colorized asphalt, as this better designates the space for a specific purpose. By adding these design features, the perceived width of the right of way is reduced, creating a more intimate and comfortable walking and bicycling experience. For pedestrians, curb bulb outs and ADA-compliant ramps should be incorporated.



Source: NACTO 2014



Dwight Street in Memorial Square is a good location for additional bicycle and pedestrian infrastructure.

DOWNTOWN STREETS – 2-WAY

Generally, 2-way streets, such as Main Street in downtown Springfield, have much higher traffic volumes than 1-way streets, meaning they are sometimes more of a challenge to transform into Complete Streets. Fortunately, many Complete Street features have already been implemented into Main Street, including wide sidewalks and a wide road shoulder that allows for bicycle travel. A combination of bike lanes and cycle tracks are recommended for these streets to improve their accommodations for bicycles. For pedestrians, curb bulb outs and ADA-compliant ramps should be incorporated.



Source: NACTO 2014



Chestnut Street in Metro Center could benefit from having 2-way traffic to reduce motorist speeds, portions of the right of way dedicated to bicycles and public transit, and sidewalks bulb-outs for pedestrians.



Main Street in downtown Springfield already has many Complete Streets elements, including wide sidewalks, crosswalks, and a wide shoulder that allows for bicycle travel.

NEIGHBORHOOD MAIN STREET

Springfield's neighborhood main streets – in the North End, Indian Orchard, Six Corners, and many other neighborhoods – are where the city comes alive and where residents carry out their day-to-day activities. Naturally, these streets are places where people already bicycle, walk, and take public transit. Limiting traffic speeds, through speed bumps, speeding enforcement, and narrower travel lane widths are essential strategies for these streets.



Source: NACTO 2014

NEIGHBORHOOD STREET

Springfield is a city of neighborhoods, and its many neighborhood streets offer residents an excellent place to walk and bicycle for work and play. They offer vital green arteries through the city that allow people easy access to the store and school. They also offer a way to avoid major thoroughfares that may not be as conducive to bicycling and walking.

Because they have lower traffic volumes, neighborhood street designs do not need cycle tracks that can separate bicycles from motorists. However, bike lanes and sharrows should still be installed where possible, to encourage safe bicycling. In parts of the city in which there are no sidewalks, streets should be designed to accommodate pedestrians on the side of the road by reducing traffic speeds as much as possible.



Source: NACTO 2014



Plainfield Street in the Brightwood neighborhood has relatively low traffic and could be made more friendly for walking by reducing motorist speeds through traffic calming techniques.

YIELD STREET

A yield street is a 2-way corridor with low speed traffic and mostly off-street parking. Because parking is allowed on both sides of the street, motorists traveling down the street are expected to yield to oncoming cars each way. This consistent yielding slows down traffic and keeps motorists more aware of their surroundings. Creating a parking scheme on which on-street parking is "checkered" increases the need for motorists to yield, and makes the yield street most effective. The exact configuration of a yield street will depend on traffic volumes, but key Complete Streets features to include are pedestrian ramps, crosswalks, and bicycle parking.



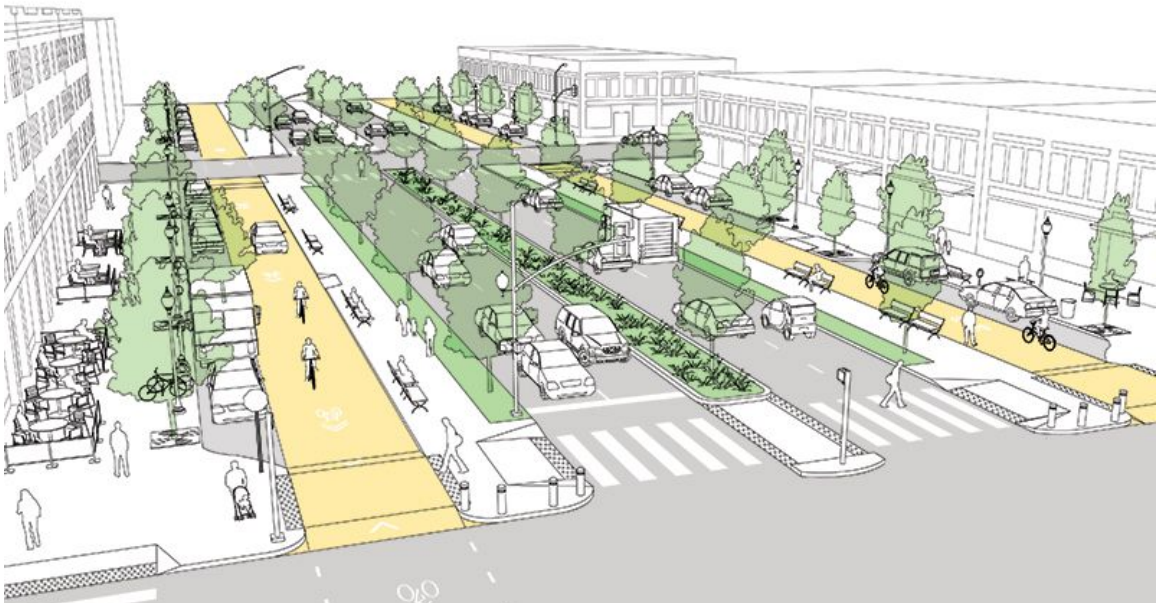
Source: NACTO 2014



Edwards Street adjacent to the Museum Quadrangle is an excellent example of a yield street that slows down traffic with Complete Streets elements such as sharrows, a speed hump, and crosswalks for pedestrians.

BOULEVARD

Boulevards are wide, 2-way streets that were built as grand thoroughfares through the city. The width of these roads means that they are able to accommodate several excellent Complete Streets ideas and provide safe spaces for pedestrians, motorists, and bicyclists. Boulevards can incorporate wide cycle tracks and sidewalk widths, as well as parking lanes and green stormwater management practices that include permeable pavement and stormwater retention planters.



Source: NACTO 2014



Jefferson Street in Memorial Square is an identified location for a Complete Street Boulevard.

RESIDENTIAL BOULEVARD

While they are located in residential areas, some boulevards and parkways have high-speed traffic that is incompatible with the neighborhoods in which they are located. A large reason for the traffic speed is often excess road widths and multiple travel lanes that are underutilized. A transformation of a residential boulevard is possible by expanding the median, resulting in a public space that can be used by pedestrians. The expanded boulevard can also have bike lanes on either side. It is also important to accommodate curb extensions and cross walks that allow for easy, safe access to the center median from either side of the street.



Source: NACTO 2014



Main Street in Indian Orchard is an excellent example of a residential boulevard that could benefit from speed bumps and narrower travel lane widths.

TRANSIT CORRIDOR

Integrating bicycling and walking with public transit is critical to creating a true Complete Streets design. For corridors that have the highest amount of transit activity, including the proposed Bus Rapid Transit line along State Street, accommodating of bicycling and walking will allow people better access to bus lines. Transit corridors should prioritize pedestrian safety improvements both along the transit line itself, as well as on nearby streets. Considerations should also be given to signal timing and phasing, so that busses and pedestrians can move as easily as possible.



Source: NACTO 2014



State Street has been identified as the location of a potential PVTA bus rapid transit line.



Incorporating Complete Streets elements into Boston Road would make the corridor safer for bicyclists and pedestrians.

2.5. PHASING

Developing the Complete Streets Network throughout the city will take time and resources to implement. In order to assist the City in strategically constructing Complete Streets over time, corridor projects are categorized based on their expected timeframe: 5 years, 10 years, 15 years, and 20 years. Descriptions and examples of the four categories are shown in the table below.

PHASING CLASSIFICATIONS FOR THE COMPLETE STREETS NETWORK

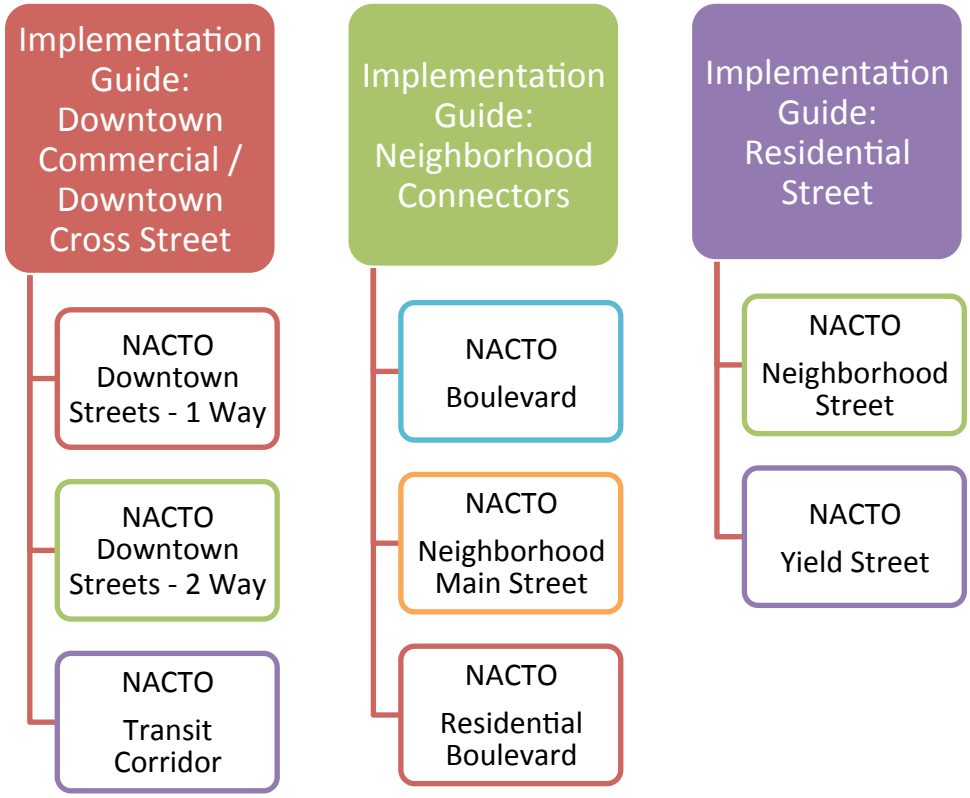
5-year projects	10 and 15-year projects	20-year projects
Projects being funded by MassDOT based on the Pioneer Valley MPO 's Transportation Improvement Program (TIP), and also low-cost projects with minimal construction	Projects that will quickly expand and connect to the existing network of on-road and off-road Complete Streets infrastructure	Projects that require extensive investment which has not yet been identified
Example: Walking and bicycling paths on road networks in Van Horn Park and Blunt Park	**Example:** Bike lane between American International College and Springfield College	**Example:** McKnight Rail Trail Connection between Connecticut River Walk and Forest Park

2.6. Complete Streets Implementation Guide

In order to assist the City of Springfield realize its Complete Streets Network, PVPC worked with the City DPW and Office of Planning and with DevelopSpringfield and Utile Design to create the Springfield Complete Streets Implementation Guide as part of the development of this plan. The Guide, which is included at the end of this document, provides an easy-to-understand overview of specific design elements, key dimensions, and other considerations for constructing Complete Streets infrastructure. The Guide is organized into several street categories - downtown commercial, downtown cross street, neighborhood connectors, and residential. Because the exact Complete Streets design elements implemented on any particular street will depend on local context, the design elements for each street category in the Implementation Guide relate to several different NACTO street typologies. There is also a direct relationship between the NACTO Complete Streets classifications discussed in the previous section and the Implementation Guide, as shown in the graphic below.

The Guide also includes best practices for addressing interactions between pedestrians, bicyclists, public transit users, and motorists at intersections. These include curb extensions, bike boxes, dashed bike lanes to indicate the upcoming intersection, wide crosswalks, and street furniture. When combined with the rest of this document and the Complete Streets Network, the Complete Streets Implementation Guide is a valuable tool for creating a transportation system that accommodates all users.

Relationship Between Complete Streets Implementation Guide and NACTO Street Typologies





The Implementation Guide included in the back of this plan provides an easy-to-understand overview of design elements and key considerations for constructing the Springfield Complete Streets Network. The above illustration identifies infrastructure elements to be included at intersections, such as right turn lanes to the right of bicycle lanes (I-1), cycle tracks (I-2), bike lanes (I-3), bike boxes (I-4), two-stage turn queue boxes (I-5), curb extensions (I-6), crosswalks (I-7), leading pedestrian intervals, transit priority, and dedicated bicycle phases (I-8). Source: Utile Design

SECTION 3: CRITERIA FOR THE COMPLETE STREETS NETWORK

3.1. OVERVIEW

The development of the Complete Streets Network in the previous section involved extensive analysis of existing conditions pertaining to pedestrians and bicyclists in Springfield. This section reviews the findings of this analysis, which provides valuable guidance for how to improve bicycling and walking in the city. In addition to the information provided in this section, Section 4: Public Participation provides a detailed description of the public outreach process and feedback used to develop the Complete Streets Network.

3.2. EXISTING AND PLANNED BICYCLE AND PEDESTRIAN FACILITIES

Springfield has a variety of existing facilities and programs that promote bicycling and walking. The Complete Streets Network expands upon these existing facilities and programs to provide a well-connected continuous network of Complete Streets that can build off the momentum of previous efforts. Priority has been given in the Complete Streets Network to connecting future improvements to this existing bicycling and walking infrastructure. Existing infrastructure includes:

- Sidewalks that provide an extensive pedestrian access in older neighborhoods, particularly downtown
- Bike lane along Plumtree Road between Wilbraham Street and Bradley Road
- Complete Streets on Edward Street and Eliot Street in Metro Center, with bicycle sharrows and speed bumps installed
- Way Finding Signage and maps to assist pedestrians with finding attractions downtown
- Main Street Renovations that involve new sidewalks, marked crosswalks, and street trees.
- Shared Use Pavement Markings on State Street downtown
- Connecticut River Walk and Bikeway runs adjacent to the Connecticut River, from south of the Basketball Hall of Fame Complex to Wason Avenue in the North End.

For more information about these existing facilities and programs, see Appendices B and C.



The Connecticut River Walk and Bikeway provides Springfield residents a great resource for recreation and exercise.



Wide sidewalks and existing bike racks next to the MassMutual Center in downtown Springfield are existing bicycle and pedestrian facilities in Springfield.

3.3. WALK AUDITS

Walk audits, or walkability assessments, serve three general purposes:

- To teach participants the elements of the pedestrian environment
- To evaluate the safety and quality of the walking environment in a particular place
- To discuss ways to advocate for pedestrian infrastructure improvements.

Walk audits have been conducted for four schools in Springfield as part of Springfield's Mass in Motion initiative. The walk audits were conducted by WalkBoston at the following schools: Boland Elementary School, Gerena School, Dorman Elementary School, and Elias Brookings Elementary School.

The results of these walk audits have been incorporated into the Complete Streets Network by making sure that the road network around schools are considered as Complete Streets corridors.

Key recommendations from these audits are:

- Use traffic calming measures around all schools and surrounding streets, including reducing travel lane widths, installing speed tables at various locations, flashing pedestrian crossing signs, and installing curb bulb-outs

- Improve pavement markings and designating additional crossing points

- Increase signage (pedestrian crossing, speed limit, school zones)

- Encourage the use of a verge (zone between the curb and sidewalk) to provide additional space between pedestrians and cars. Verges are particularly important for snow storage in winter

- Improve intersection designs to ensure safer crossing points and sidewalks, and limit the number of vehicular lanes (particularly free-right turning lanes)

Appendix A has more information about the methodology for conducting walk audits as well as information on how to access the reports from these four audits.

3.4. WALK SCORE

A Walk Score is a calculation that measures how walkable a city or neighborhood is, on a scale of 0 to 100. The calculation is based on nearby amenities, such as local businesses, parks, and schools. Amenities that are close together results in a higher score than amenities that are spread out, up to a distance of one mile. While Walk Score does not account for sidewalk availability, street widths, weather, and crime, it offers a convenient metric for comparing walkability in different cities and neighborhoods.

In many neighborhoods, Springfield is already extremely walkable.

Walk Score was incorporated into the Complete Streets Network in two ways. First, neighborhoods with high walk scores, and are thus already walkable, were included as Complete Streets corridors. This is so because they are already high-activity areas for pedestrians and should be designed to be as accommodating as possible for walking. Second, neighborhoods with low walk scores were seen as important areas to target for Complete Streets, so that their walking conditions can be improved.



Main Street in Metro Center has a high walk score and is designed well for pedestrians.

A direct comparison of Walk Scores between specific neighborhoods in Springfield and specific neighborhoods in other cities indicates that in many areas, Springfield is extremely walkable. However, many of the more recently developed neighborhoods of Springfield, in which development looks much more like a suburban community than Springfield's downtown, places like Sixteen Acres and Boston Road, are much less walkable.

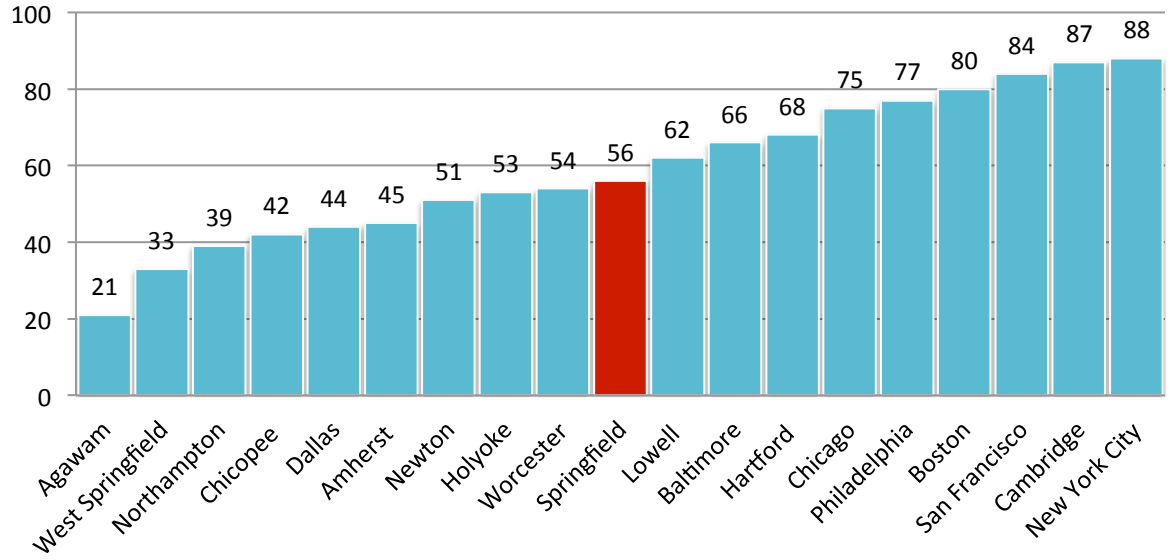
Overall, Springfield's Walk Score of 58, or "somewhat walkable," places it in a group with several other older industrial New England cities, including Lowell, Worcester, Newton, and Holyoke. Springfield's overall score of 58 compares favorably with the scores for Amherst (45) and Northampton (39), places in the region generally thought of as leaders with respect to walking and bicycling.

Springfield does have a lower overall score than many cities that are known nationally for their walkability, such as New York City, Boston, Philadelphia, Chicago, and San Francisco. However, this is largely due to the auto-dependent design of many newer neighborhoods in Springfield, such as Sixteen Acres or Boston Road. Looking only at Springfield's downtown Metro Center neighborhood results in a Walk Score of 77, or "very walkable," the same as Philadelphia, and the city's South End neighborhood has a score of 83, higher than Boston's overall score of 80.

WALK SCORE CATEGORIES

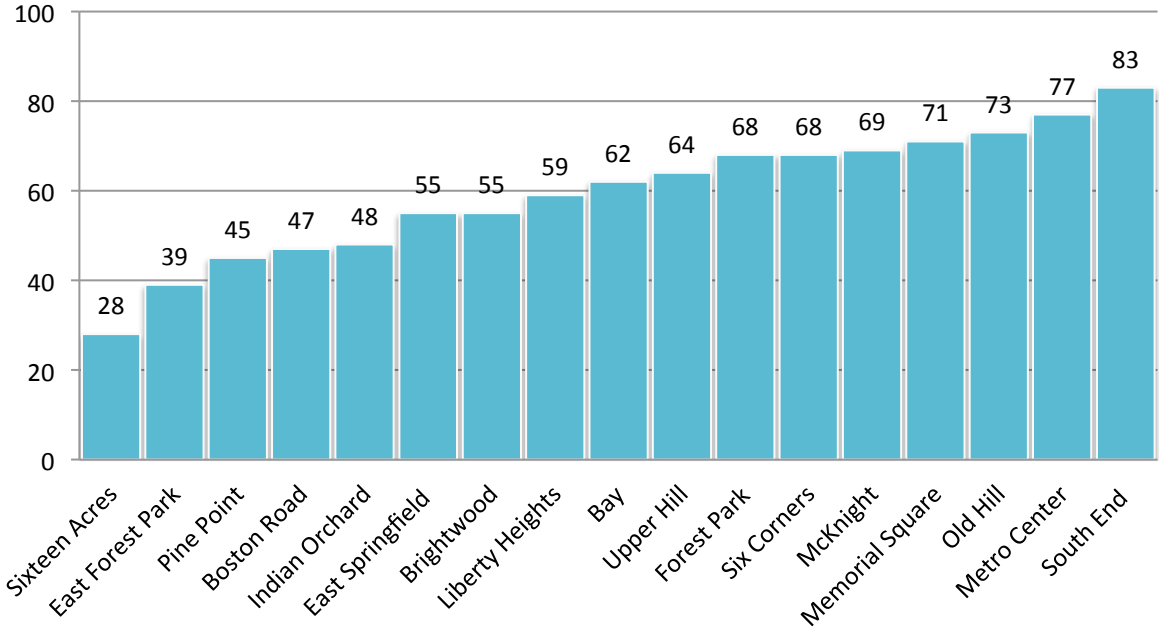
90–100	Walker's Paradise – Daily errands do not require a car
70–89	Very Walkable – Most errands can be accomplished on foot
50–69	Somewhat Walkable – Some errands can be accomplished on foot
25–49	Car-Dependent – Most errands require a car
0–24	Car-Dependent – Almost all errands require a car

Walk Score Comparison of Selected Cities



Source: WalkScore.com

Walk Score of Springfield Neighborhoods



Source: WalkScore.com

3.5. Activity Centers

Identifying Springfield's major activity centers was an important step to designing the Complete Streets Network, in order to easily connect people to the places they frequent. There are a wide range of activity centers to which Springfield residents bicycle and walk, a list of which was collected as part of the public outreach process described in Section 4 and are as follows:

- Colleges
- Libraries
- Bike trails
- Train stations
- Post offices
- Hospitals
- Schools
- Grocery stores
- Shopping centers
- Parks
- Bus lines

A "heat map" was created to evaluate where the largest concentrations of these activity centers exist in Springfield. The heat map divided the city into a grid of equal-sized squares, each of which are assigned a value based on the number of different activity types and proximity. Each type was assigned a numeric value based on the importance it was given during the public outreach process (see Appendix F for numeric values). Population and employment densities in each square were also factored into the analysis, since concentrations of people are generally associated with activity centers. Based on this methodology, squares are ranked highest if they have a large number of activity centers nearby and have the highest population and employment densities.

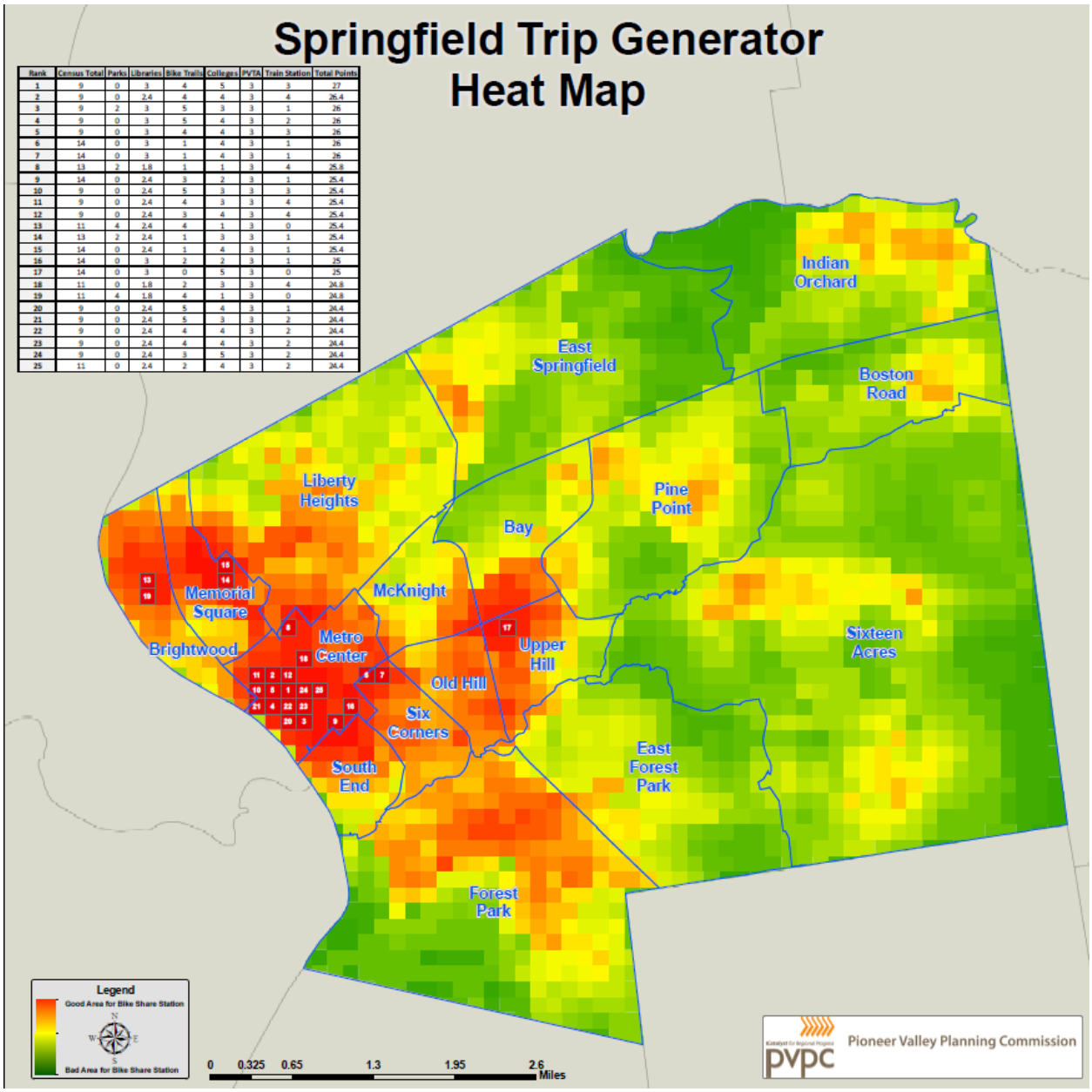
The map on the next page shows the results of the heat map analysis. The major activity center in the city is located in Springfield's older neighborhoods, which include Metro Center, Brightwood, Memorial Square, and South End. These neighborhoods are the location of several large employers, including Bay State Health, The Republican, and the Springfield Police Department. They also have the highest population densities, transit lines, and concentration of activity types.

Planned development in Springfield's downtown will further increase activity occurring there. The South End will be the location of the MGM Casino and related businesses and restaurants. Additionally, the South End and the Metro Center neighborhoods are where the city is projecting future market-rate housing development, more information on which can be found in Utile Planning and Design's *Worthington Street Area Redevelopment Plan* and the *Springfield Market Rate Housing Study*, completed by Zimmerman Volk.

As the current and future hub of activity in the city, the Complete Streets Network provides for an extensive list of Complete Streets corridors in downtown Springfield.

In addition to Springfield's primary activity center, there are more local activity centers located throughout the city. These represent neighborhood main street and businesses districts, including Indian Orchard Main Street and Boston Road shopping. The Complete Streets Network also takes these activity centers into consideration, with connecting different neighborhoods and business districts a key component of the identified Complete Streets corridors.

HEAT MAP OF MAJOR ACTIVITY CENTERS



Rank	Census Total	Parks	Libraries	Bike Trails	Colleges	PVTA	Train Station	Total Points
1	9	0	3	4	5	3	3	27
2	9	0	2.4	4	4	3	4	26.4
3	9	2	3	5	3	3	1	26
4	9	0	3	5	4	3	2	26
5	9	0	3	4	4	3	3	26
6	14	0	3	1	4	3	1	26
7	14	0	3	1	4	3	1	26
8	13	2	1.8	1	1	3	4	25.8
9	14	0	2.4	3	2	3	1	25.4
10	9	0	2.4	5	3	3	3	25.4
11	9	0	2.4	4	3	3	4	25.4
12	9	0	2.4	3	4	3	4	25.4
13	11	4	2.4	4	1	3	0	25.4
14	13	2	2.4	1	3	3	1	25.4
15	14	0	2.4	1	4	3	1	25.4
16	14	0	3	2	2	3	1	25
17	14	0	3	0	5	3	0	25
18	11	0	1.8	2	3	3	4	24.8
19	11	4	1.8	4	1	3	0	24.8
20	9	0	2.4	5	4	3	1	24.4
21	9	0	2.4	5	3	3	2	24.4
22	9	0	2.4	4	4	3	2	24.4
23	9	0	2.4	4	4	3	2	24.4
24	9	0	2.4	3	5	3	2	24.4
25	11	0	2.4	2	4	3	2	24.4

Source: Pioneer Valley Planning Commission







The Springfield Bus Station, American International College, and PVTA transit lines are all activity centers that were incorporated into the Complete Streets Network.

3.6. CRASH DATA

Examining the locations of traffic crashes is important for identifying where interventions are urgently needed to avoid future crashes. Traffic accidents may be caused by an unsafe environment, such as a busy intersection that lacks a pedestrian-activated signal, or by human error, such as motorists who fail to yield to pedestrians in a crosswalk or pedestrians who cross mid-block without a crosswalk.

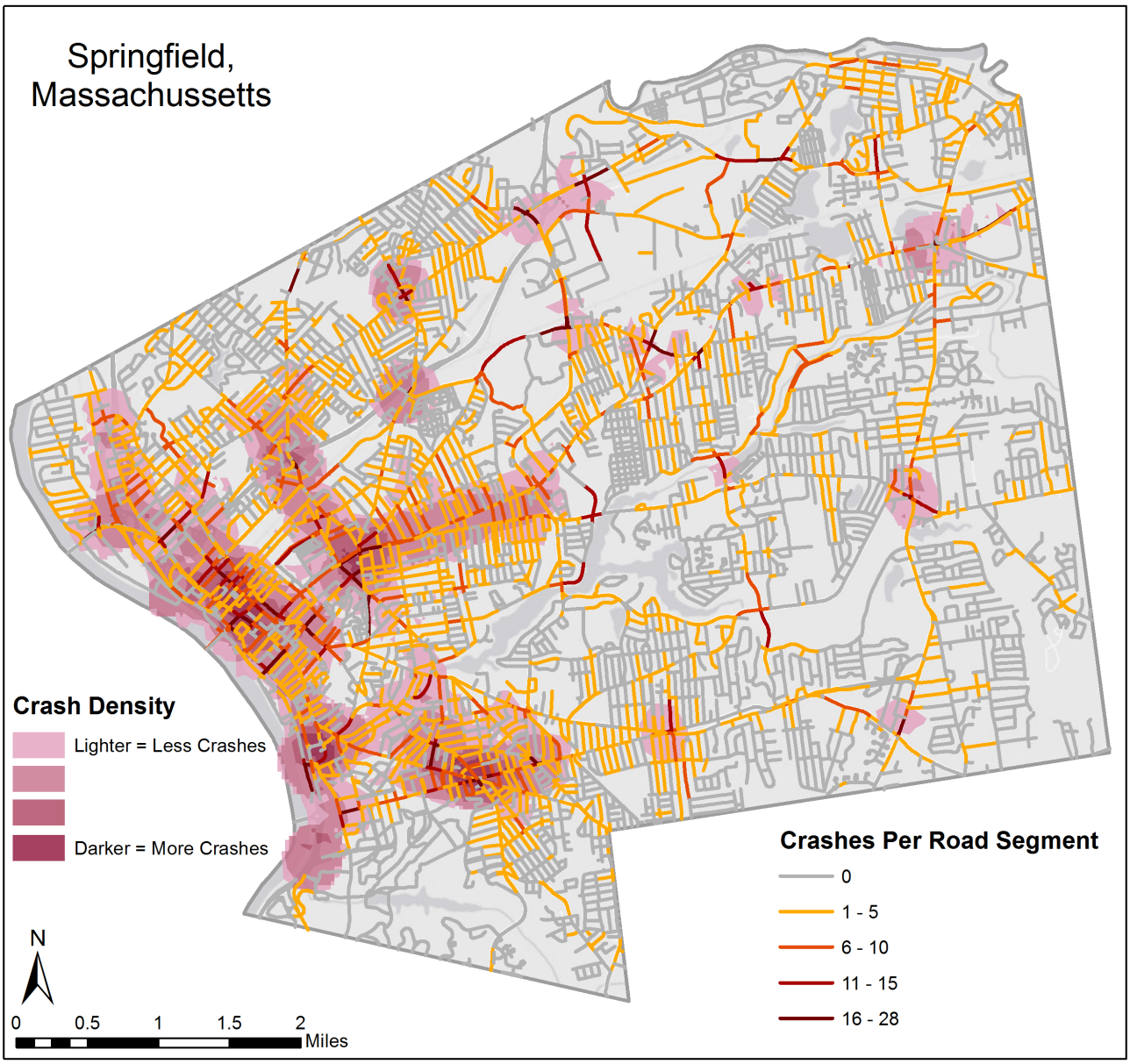
Creating intersections that accommodate all users are very important to assuring the safety of pedestrians and bicyclists. As the critical junction where different modes of travel are most likely to interact with each other, congested intersections are where well-intentioned Complete Street concepts can break down. The addition of turning lanes at the intersection widens the pedestrian crossing zone, and bike lanes often disappear through the intersection.

The City of Springfield Police Department provides annual reports to the Massachusetts DOT regarding all crashes that occur on public streets. The City began organized reporting of bicycle and pedestrian crash data in 2011. Prior to this, crashes involving pedestrians and bicyclists were not specifically identified. Moving forward, the City will continue to maintain information about bicycle and pedestrian crashes. As this collection of data grows, the City will have an excellent metric for promoting the Complete Streets network. Because of this small sample size, all crash data, including those only involving automobiles was examined in order to identify the parts of the transportation network that are least safe for all potential Complete Streets.

The most crashes occurred in the Metro Center neighborhood of Springfield, centered along Main Street and intersecting streets. State Street is also the location of a large number of crashes. Other high crash locations are Main Street in the North End and the “X” intersection of Belmont Avenue, Sumner Avenue, and Dickinson Avenue.

In some cases relocating one mode of travel can help alleviate intersection problems by looking for other places for pedestrians to cross (mid-block), bicycles to travel (parallel street) or a different route for through traffic. At high-crash locations, alternative routes are proposed in the Complete Streets Network, to ensure that bicyclists have the safest route possible.

LOCATIONS OF ALL CRASHES FOR THE CITY OF SPRINGFIELD, 2011



Source: Springfield Police Department, 2011



The X intersection in the Forest Park neighborhood of Springfield is one of the highest crash locations in the city.

3.7. Bicycle Compatibility Index

A bicycle compatibility analysis was conducted of major roads in the city, to determine which streets are most suitable for the installation of bicycle infrastructure and the various Complete Streets treatments. The analysis took into consideration traffic volumes, street widths, and traffic speeds to determine whether each road is currently practical for bicycling. Based on these factors, each road segment was given a level of bicycle compatibility score, ranging from extremely high to extremely low. PVPC produced a bicycling map for the City of Springfield in 2008 using the Federal Highway Administrations' (FHWA) bicycle compatibility index, and this map served as the base map for analysis.

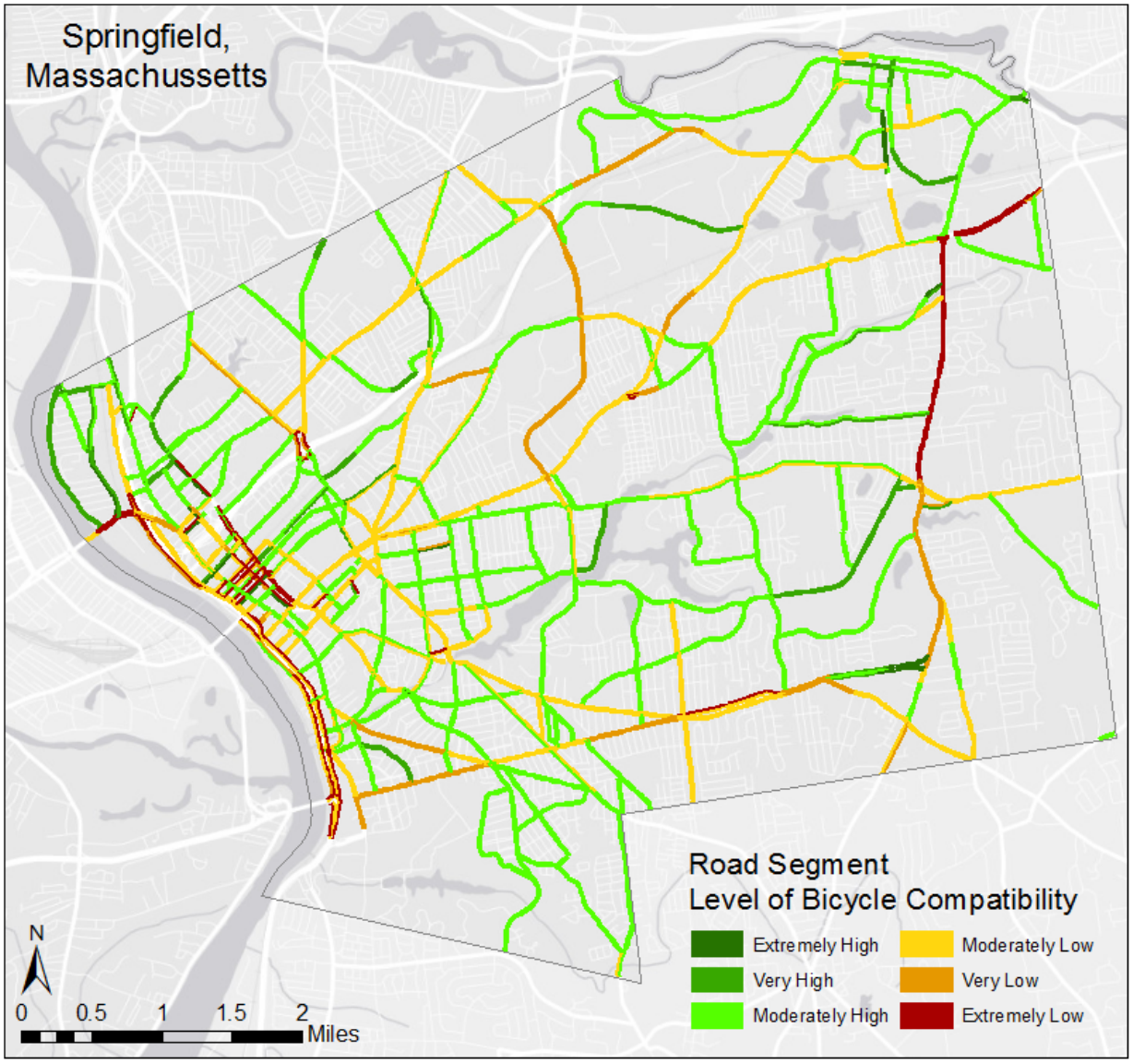
The bicycle compatibility score are shown on the map on the next page. Most streets rate extremely high to moderately high in terms of suitability for bicycling. Notable exceptions to this are Sumner Avenue, Parker Street, West Columbus Boulevard, Boston Road, and Berkshire Avenue. These roads receive a rating of Very Low or Low, and as a result, the Complete Streets Network avoids these busy thoroughfares in the proposed Complete Streets network.

For a more detailed explanation of the methodology used for the Bicycle Compatibility Index, see Appendix F.



Boston Road currently has a bicycle compatibility index score of "Moderately Low" and "Extremely Low" along various portions of the corridor.

BICYCLE COMPATIBILITY INDEX FOR MAJOR SPRINGFIELD ROADS



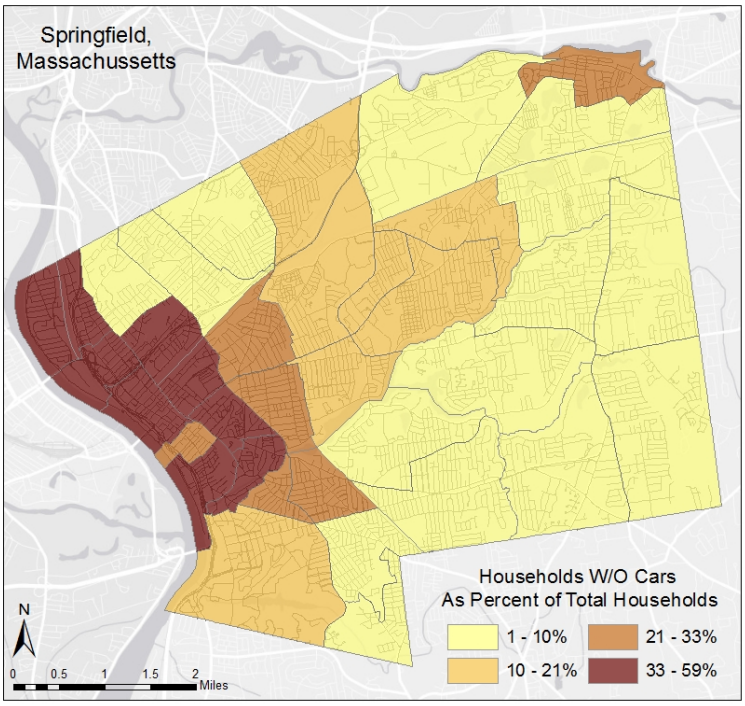
Source: Pioneer Valley Planning Commission

3.8. Demographic Data

Data from the U.S. American Community Survey was analyzed and incorporated into the Complete Streets Network in order to understand more about the commuting and mode share characteristics of Springfield residents. Citywide, 7.5 percent of residents do not have access to a car. Those residents who do not have access to a car are densely concentrated in the North End, South End, and Metro Center. Portions of these neighborhoods have over half of residents that do not have access to a car. The same areas that have the lowest access to cars also have the lowest median household incomes. With fewer financial resources, low-income households often have reduced access to cars and must rely more on alternative modes of transportation.

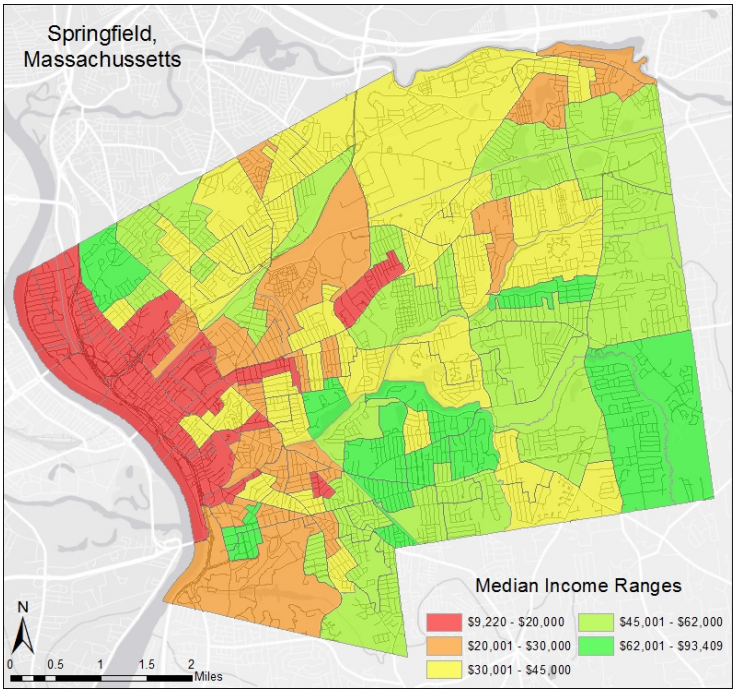
The relationship between cars and income means that auto-dependency puts those with lower incomes at an unfair disadvantage. With less transportation access, low-income residents must spend more of their time using public transit, walking, or bicycling. Because of this, the Complete Streets Network includes a special focus towards ensuring that areas with low incomes and low car ownership are provided with Complete Streets corridors. For more information about the demographic data assessed for the Complete Streets Network, see Appendix F.

PERCENT OF HOUSEHOLDS THAT DO NOT OWN A CAR



Source: American Community Survey, 2008-2013

MEDIAN HOUSEHOLD INCOME



Source: American Community Survey, 2008-2013

SECTION 4: PUBLIC PARTICIPATION

4.1. OVERVIEW

From October 2013 through August 2014, extensive public outreach was conducted to ensure that this plan included input from city residents and other individuals, businesses, and organizations that feel they have a stake in the future of walking and bicycling in the city of Springfield. Outreach was conducted in the following ways:

- Public meetings (targeted at neighborhood councils) and tabling events for LiveWell Springfield
- Springfield Biking and Walking Survey 2014 (administered online and at community events)
- Springfield Bicycle and Pedestrian Advisory Committee (BPAC)
- Public events to discuss the draft plan
- Review of the draft plan with comments collected, summarized, and incorporated

This section summarizes the activities and outcomes of these efforts.

4.2. PUBLIC MEETINGS AND TABLING EVENTS

Ten public meetings, held from November 2013 through March 2014, helped inform the development of the Springfield Complete Streets Plan. Each meeting consisted of three tasks:

1) **discussion with residents** about existing conditions and recommendations for improving biking and walking in Springfield

2) **mapping exercise** to identify points of interest, hazardous locations, and proposed pedestrian and bicycle improvements

3) completion of the **Springfield Bicycling and Walking Survey 2014**

In many cases, the public meetings were held in conjunction with scheduled monthly neighborhood council meetings but were advertised to the general public to attract as many Springfield residents as possible. Additionally, staff from MassBike and Partners for Healthier Communities set up a table at community events to collect survey data from residents.

Data collected during public meetings and from the Springfield Bicycling and Walking Survey 2014 helped to inform the development of the Complete Streets Network (See Section 2), and also informs the plan recommendations. Combined, these events engaged over 700 Springfield residents. Consistent themes, issues and areas of concern emerged throughout the course of meetings with residents.

Connect neighborhoods to schools and parks

Many residents expressed a desire to connect high schools, colleges, parks, and neighborhood business districts. In particular, connecting high schools such as Springfield Central High, Springfield High School of Science and Technology, the Springfield Renaissance School, and the High School of Commerce with college campuses like Springfield Technical Community College, American International College, and Western New England University were identified as an important way to encourage bicycling and walking for student populations. Additionally, residents in nearly every meeting desired better connections to parks like Forest Park, the Connecticut River Walk and Bikeway, Van Horn Park, and Blunt Park.

Residents identified easy, convenient connections between schools, colleges, parks, and neighborhood businesses as an important way to improve bicycling and walking.

Construct off-road paths

Springfield has unique opportunities to create off-road paths from the Mason Square Community Rail Trail to commonly used walking trails traversing Blunt Park. The need to evaluate potential off-road paths connecting to on-road bicycle and pedestrian facilities was mentioned at multiple meetings. Off-road paths were considered by many to provide a safer biking and walking experience over on-street bicycle facilities like bicycle lanes mixing with automobile traffic. However, when given the choice of only on-road facilities most residents agreed that having a bicycle lane was preferred over having nothing.

Create safe, comfortable, and well-maintained bicycle and walking routes for all Springfield neighborhoods

Concern for safety for both pedestrians and bicyclists was a nearly unanimous theme at every public meeting. Residents mentioned the need for safe pedestrian and bicyclists facilities throughout all of Springfield neighborhoods. Concerns were voiced over unsafe pedestrian crosswalks, unmaintained sidewalks, faded paint on crosswalks, poor access to transit stops especially during snow events, and a general lack of bicycle lanes or bicycle parking throughout the city.

Provide programs that support safe walking and bicycling

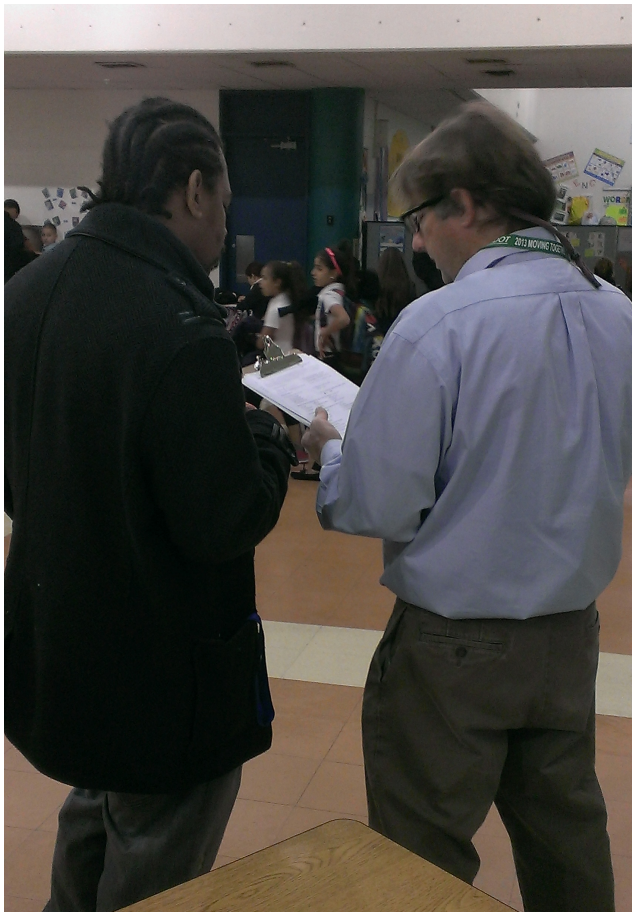
Several residents offered that a focus on traffic safety education for all users of the roads including motorists, bicyclists, and pedestrians was needed. Some felt that school aged children should be receiving more instruction on bicycle safety and that seniors could be introduced to bicycling as a healthy from of transportation and recreation.

Residents desire programs that support safe walking and bicycling, such as traffic safety courses.

4.3. Springfield Bicycling and Walking Survey 2014

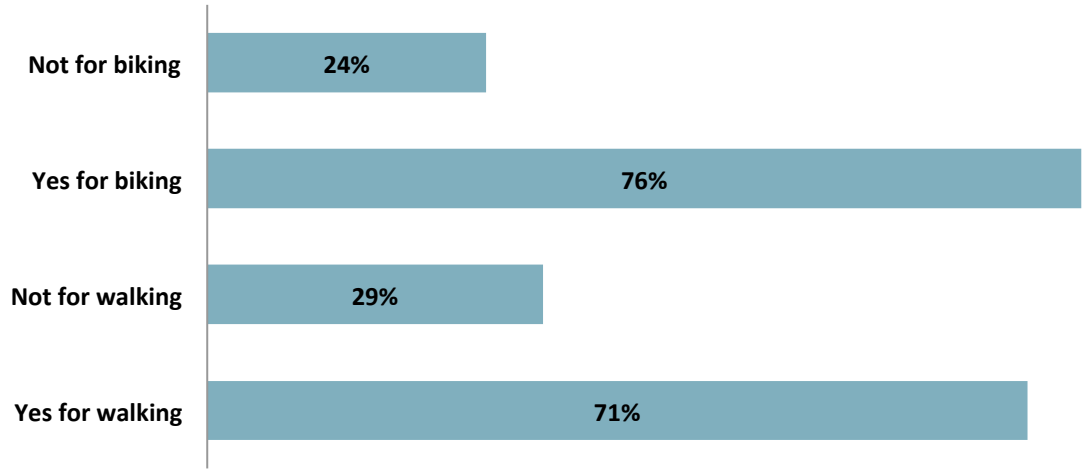
The Springfield Bicycling and Walking Survey 2014 was developed to gather information about people's walking and biking activities, preferences, and perceptions in Springfield. From October 2013 through March 2014 the Springfield Bicycling and Walking Survey 2014 was provided to the public in a paper version (in both Spanish and English) at public meetings and tabling events and as a web-based survey. In total, there were 603 responses over the six month period.

The following summary provides data from select questions from the Springfield Biking and Walking Survey 2014. To read the full detailed summary report, see Appendix H.



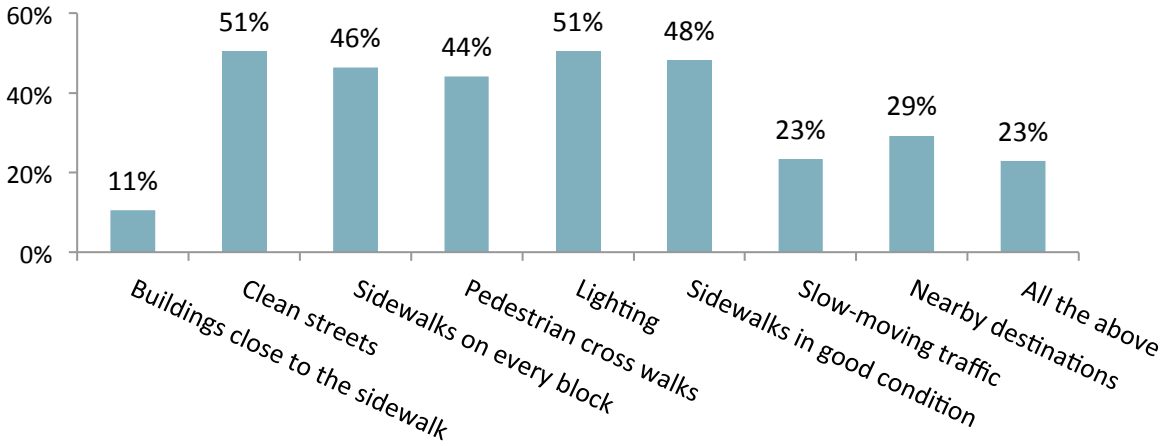
As part of the outreach process conducted for this plan, residents were asked to complete a survey about their thoughts and preferences about walking and bicycling.

DO YOU CONSIDER YOUR NEIGHBORHOOD GOOD FOR WALKING/BIKING?



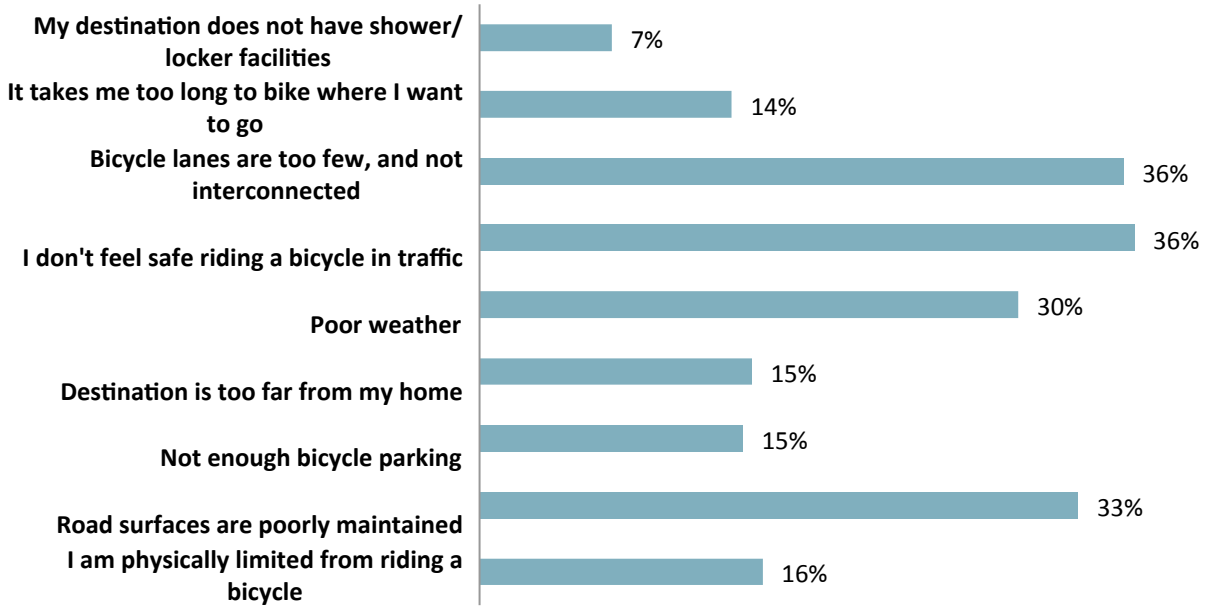
Over three quarters (76%) of residents considered their neighborhood good for biking, and more than two-thirds (71%) felt their neighborhood was good for walking. Fewer than one-fourth (24%) of respondents feel their neighborhood is not good for biking and less than a third (29%) of residents consider their neighborhood not good for walking.

WHAT FEATURES ARE IMPORTANT FOR MAKING A NEIGHBORHOOD GREAT FOR WALKING?



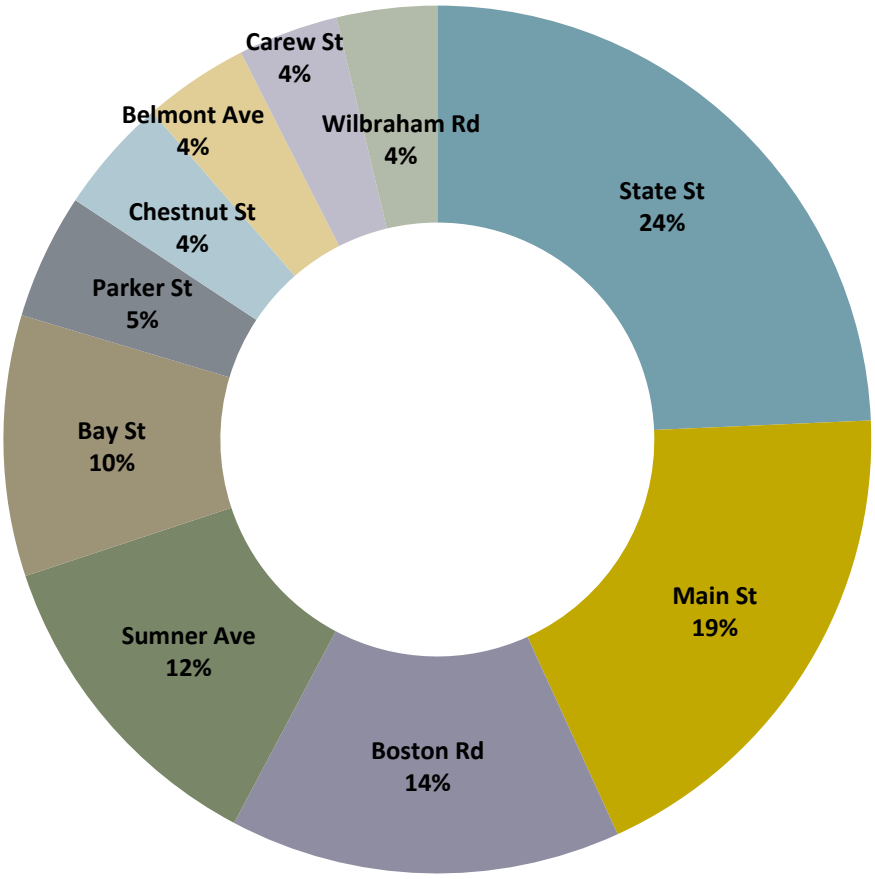
Of equal or nearly equal importance, three features were considered important for a good walking neighborhood including, clean streets (51%), lighting (51%), and sidewalks in good condition (48%) followed closely by sidewalks on every block (46%) and pedestrian crosswalks (44%). The least important feature of a good walking neighborhood identified by residents was 'buildings close to the sidewalk' (11%).

WHAT KEEPS YOU FROM BICYCLING MORE OFTEN?



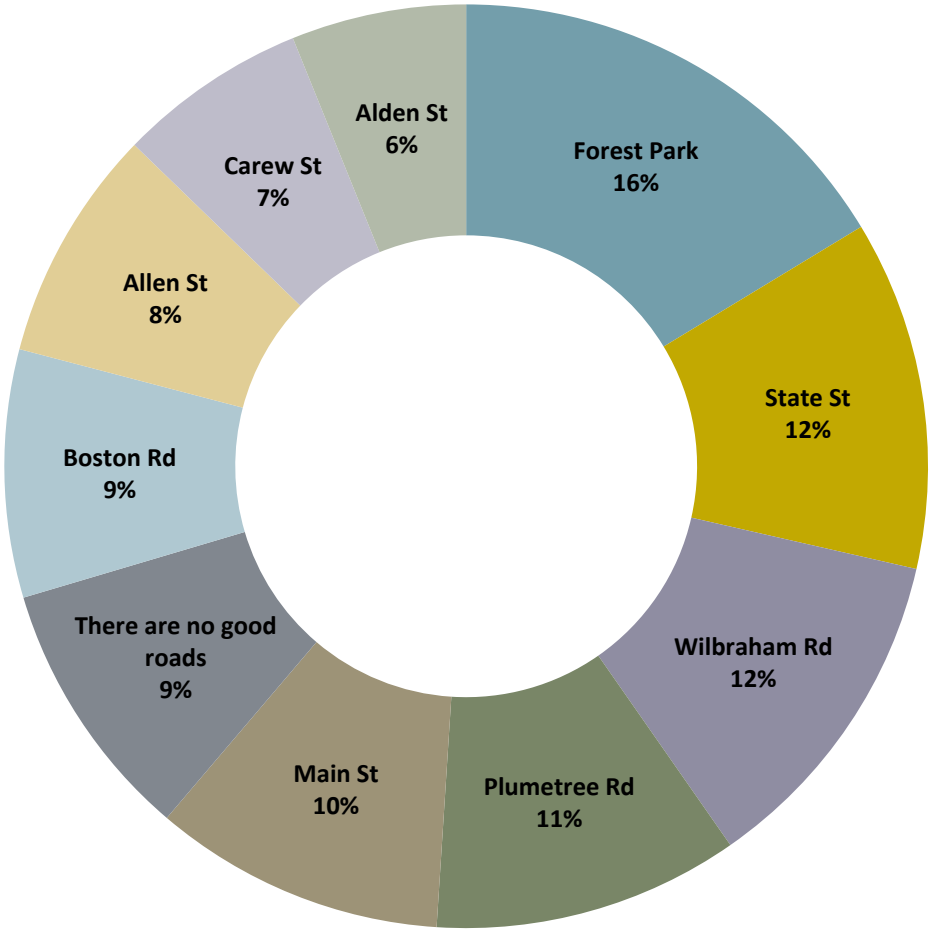
For the relatively small set of respondents who reported that they do not bicycle, nearly three quarters indicated that they are kept from bicycling more often because bicycle lanes are too few, and not interconnected (36%) and they don't feel safe riding a bicycle in traffic (36%). One-third of respondents stated that road surfaces are poorly maintained (33%) which keeps them from bicycling more.

WHAT ARE THE WORST ROADS FOR BICYCLING IN SPRINGFIELD? *(ORGANIZED BY TOP TEN)*



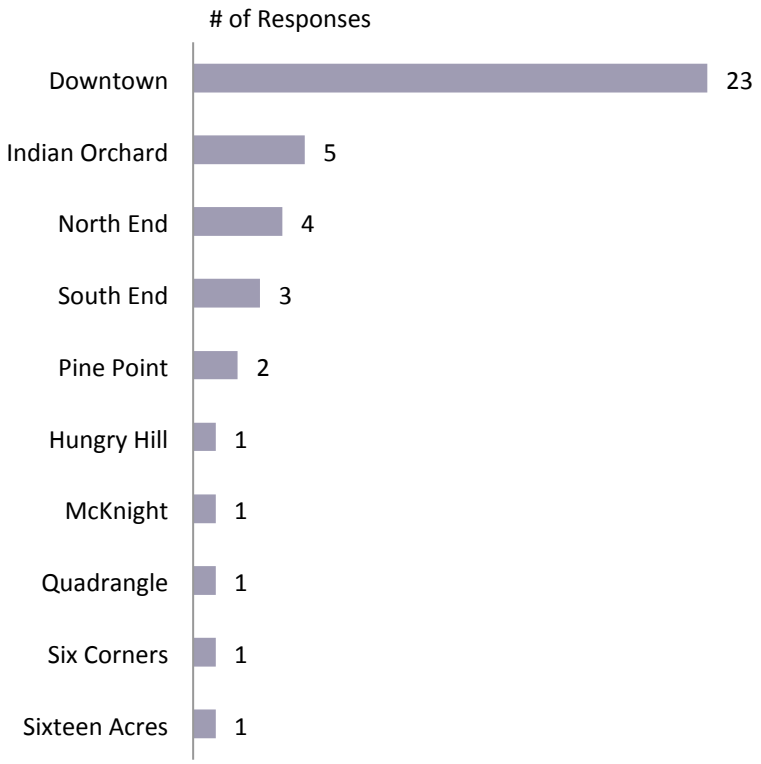
The top three streets considered the worst for riding a bicycle in Springfield are State Street (24%), Main Street (19%), and Boston Road (14%).

WHAT ARE THE BEST ROADS FOR BICYCLING IN SPRINGFIELD? *(ORGANIZED BY TOP TEN)*



The top three streets considered the best for riding a bicycle in Springfield are Forest Park (16%), State Street (12%), and Wilbraham Road (13%).

IN WHAT NEIGHBORHOODS SHOULD BICYCLE PARKING BE INSTALLED?



The most frequently mentioned neighborhood to install bicycle parking was in the downtown area of Springfield.

4.4. Springfield Bicycle and Pedestrian Advisory Committee

In April 2014, PVPC convened the Springfield Bicycle and Pedestrian Advisory Committee (BPAC) to provide guidance and feedback on the draft Complete Streets Plan. A public city-wide call for volunteers was advertised through LiveWell Springfield community partners, the City of Springfield, the Pioneer Valley Planning Commission, and Springfield's neighborhood councils. In addition, each BPAC meeting was advertised to the public by the Pioneer Valley Planning Commission.

The committee included roughly twenty-three representatives from neighborhood groups, community organizations, and business associations from across Springfield.

The purpose of the Springfield BPAC was to help PVPC and MassBike to:

- Provide feedback on the approach of the draft Complete Streets Plan;
- Identify missing gaps in the plans proposed Complete Streets Network;
- Inform friends, family, and neighbors of the planning process; and to,
- Promote how other residents may get involved with LiveWell Springfield by attending public events.

Springfield BPAC meeting schedule:

- **April 29th** – Kick-off Meeting – Introduce the planning process, vision, and goals
- **May 27th** – Review and revise recommendations for the Complete Streets Network
- **June 24th** – Review and revise recommendations for the Complete Streets Plan
- **August 26th** – Consider next steps for implementing the Complete Streets Plan

The BPAC was comprised of residents who volunteered to serve on the committee because they have a particular interest in walking and/or bicycling. The committee served a valuable purpose over the course of this plan development process and since the final planned meeting of the BPAC, members have indicated their interest in continuing to meet to oversee implementation of this plan. Members should be considered when the city moves to create a Complete Streets Council. One member has since created a Facebook page dedicated to promoting walking and bicycling in Springfield, which can be found at: http://www.facebook.com/BikeandWalkSpringfield

For more information on the Bicycle and Pedestrian Advisory Committee see Appendix K.

SECTION 5: RECOMMENDATIONS

5.1. OVERVIEW

This section outlines key projects, programs, and policies that will assist the City of Springfield in making its Complete Streets vision a reality. The recommendations under each category are:

PROJECTS	
1	Implement the Complete Streets Network
2	Increase bicycle parking throughout the city, particularly in business districts, K-12 schools, and colleges
3	Increase pedestrian and bicycling signage
4	Create a citywide bicycling map highlighting bike lanes, paths and connections between major destinations
5	Create a walking map focusing on the city's cultural districts

PROGRAMS	
1	Maintain pedestrian and bicycle infrastructure
2	Become part of MassDOT's Bicycle and Pedestrian Safety Awareness and Enforcement Program
3	Routinely apply for Highway Safety funding for pedestrian and bicycle safety enforcement and education
4	Work with DevelopSpringfield, the Springfield Business Improvement District, and city employers to promote bicycle commuting, including participation in Bay State Bike Week
5	Participate in the Pioneer Valley regional bike sharing initiative and develop a bicycle re-use program
6	Implement healthy prescription programs citywide
7	Expand participation of Safe Routes to School Program to every elementary and middle school
8	Incorporate bicycling and walking into regional and local tourism campaigns, including walking tours and maps in the new cultural district
9	Launch a local Share the Road campaign for bicyclists and motorists
10	Enforce local and state laws pertaining to bicycling and walking
11	Educate the public about using 311 to report pedestrian and bicycle hazards, such as un-cleared sidewalks, debris in bike lanes, and fading crosswalks, and malfunctioning pedestrian signals

POLICIES

1	Adopt a Complete Streets policy to become eligible for MassDOT Active Streets funding
2	Incorporate consideration of the needs of bicyclists and pedestrians in the City's development review process by adopting proposed modifications to the City's development review procedure
3	Create a Complete Streets Council comprised of city staff, elected officials, and residents to oversee implementation of this plan
4	Apply to make Springfield a certified "Bicycle Friendly Community"

Each recommendation will require collaboration between municipal departments of the City of Springfield, community-based organizations, residents, and elected officials. Each recommendation in this chapter is split into subtasks that can be addressed by individual stakeholder groups.

5.2. The 6 E's

Understanding how to accommodate the needs of pedestrians and bicyclists requires a comprehensive approach. The 6 E's – engineering, enforcement, and education combined with encouragement, evaluation, and equity, provide a framework for addressing these needs. The recommendations in this chapter are categorized into the 6 E's.

The 6 E's

Enforcement

Police **enforce** traffic laws, such as those which require motorists to stop for pedestrians in crosswalks and share the road with bicyclists.

Encouragement

Fun, interactive events and programming around the region, such as Bike Commute Week and Car Free Day, **encourage** people to walk and bicycle more frequently.

Evaluation

Finally, planners and public officials **evaluate** the effectiveness of bicycle and walking programs and infrastructure to make further improvements.

Equity

Equity recognizes the unfair distribution of resources and limited access to opportunity, in order to channel resources for improving neighborhoods that have less opportunity.

Education

The Registry of Motor vehicles, driver's education, as well as advocacy organizations such as MassBike and WalkBoston **educate** motorists and bicyclists about how to safely drive, bike, and walk.

Engineering

Engineers and public works officials design, build, and maintain safe places for people to walk and bike.

5.3. Project Recommendations

Project #1: Implement the Complete Streets Network

The Network described in Section 2 provides for a connected system of Complete Streets corridors that will facilitate walking and bicycling throughout the city. Priority should be given to projects identified to be completed over the next 5 years, but keep the 10, 15 and 20 year projects in mind in case those roads are re-paved or re-designed sooner.

Promotes



Actions

Residents

- Provide feedback to City Council and Complete Streets Council about specific design features to be included.
- Include discussion of bicycle and walking issues at neighborhood council/association meetings.
- Bicycle and walk throughout the city as much as possible.

City of Springfield

- Construct and implement Network per the timeline in Section 2.
- Solicit feedback from citizens about design features for Complete Streets through neighborhood council/association meetings.
- Work with the Pioneer Valley MPO Joint Transportation Committee (JTC) to secure funding for projects.
- Collaborate with MassDOT to ensure a Complete Streets approach for all new roadway projects.

MA Department of Transportation

- Provide support to the City of Springfield in implementing the Complete Streets Network by ensuring design elements recommended by City are incorporated into road projects.

6 E's Addressed

Equity | Education | Encouragement | Engineering | Enforcement | Evaluation

PROJECT #2: INCREASE BICYCLE PARKING THROUGHOUT THE CITY, PARTICULARLY IN BUSINESS DISTRICTS, K-12 SCHOOLS, AND COLLEGES

Plentiful bike parking will encourage bicycling for short trips and reduce car parking issues. Parking should be located near resident destinations, including colleges, libraries, bike trails, the train station, post office, grocery store, schools, shopping centers, and bus lines.

PROMOTES



ACTIONS

Residents	• Provide feedback to City of Springfield about where bike racks should be located. • Identify locations for parking at neighborhood association meetings.
Businesses	• Install bicycle parking in front of business location to facilitate bicycle transportation. • Work with business associations to purchase additional bike racks and place them strategically around neighborhood business districts.
City of Springfield	• Install bicycle parking and storage facilities at locations shown in Complete Streets Network. • Solicit feedback from citizens about appropriate locations for bicycle parking.
MA Department of Transportation	• Encourage all street design projects to include bicycle parking facilities, in line with Complete Streets guidance.
Schools	• Install bike parking to accommodate a minimum of 20 bikes, and increase this by 1 for every 30 students.

6 E'S ADDRESSED

Equity **Encouragement** **Engineering**





Increasing bicycle parking throughout the city by installing bike racks, like those shown above on Sumner Avenue, will make bicycling much more convenient. It will also reduce the need for bicyclists to chain up their bicycles in railings, as shown below at Springfield Technical Community College.

PROJECT #3: INCREASE PEDESTRIAN AND BICYCLING SIGNAGE

Signage promotes walking and bicycling by making people feel more knowledgeable and secure about where they are going. It also gives residents much-needed guidance for traveling by bike. Signage should include way finding signs for walking destinations in Metro Center, as well as on-street signage that designates specific bike routes throughout the city.

PROMOTES



ACTIONS

Residents

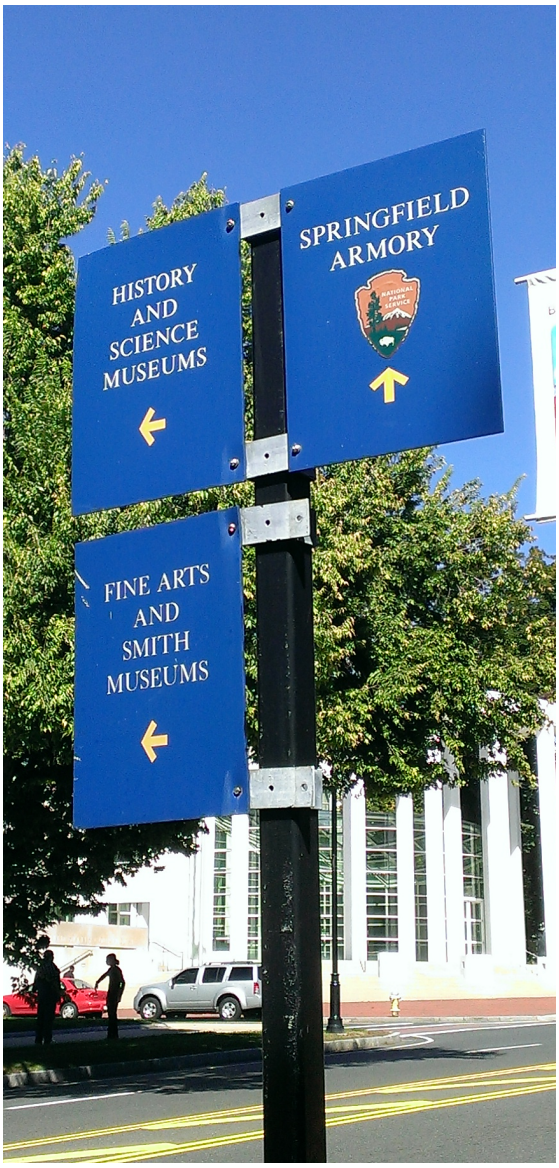
- Inform City of Springfield about what destinations should be included on pedestrian way finding signage, and which streets should be identified as preferred bike routes.
- Describe signage priorities at neighborhood council/association meetings.

City of Springfield

- Identify and sign bike travel routes throughout the city. Preferred routes should be low-traffic, residential streets. Routes do not need to include a designated bike lane.
- Install way finding signs, applicable to both cyclists and pedestrians, throughout the city.
- Install "Share the Road" signs along corridors that are potential conflicts between motorists and cyclists Signage helps remind motorists of the need to keep cyclists in mind, and will help reduce accidents, especially at busy intersections.

6 E'S ADDRESSED

Encouragement **Engineering**





Increasing the amount of wayfinding signage and maps in Springfield will make it easier for pedestrians and bicyclists to navigate the city. On the left, wayfinding signage along State Street. On the right, a visitors map on Main Street.

PROJECT #4: CREATE A CITYWIDE BICYCLING MAP HIGHLIGHTING BIKE LANES, PATHS AND CONNECTIONS BETWEEN MAJOR DESTINATIONS

A Springfield bicycling map will allow people to plan out safe routes for bicycling, and encourage them to bicycle for work, recreation, and running errands.

PROMOTES



ACTIONS

Residents	• Provide input to City on what routes should be highlighted on map. • Use the map and promote it to fellow residents.
City of Springfield	• Hold public contest for designing the map, in order to increase public participation and interest, with the winner receiving funding for map printing. • Seek funding for printed and online versions of map.
Pioneer Valley Planning Commission	• Provide technical mapping support to the City of Springfield. • Work with City of Springfield to coordinate regional bike route map with Springfield map.

6 E'S ADDRESSED

Encouragement **Education**

PROJECT #5: CREATE A WALKING MAP FOCUSING ON THE CITY'S CULTURAL DISTRICTS

A walking map highlighting the city's cultural districts will be most useful for integrating economic development with safe walking and be very interesting and useful for residents and visitors alike.

PROMOTES



ACTIONS

Residents	• Use the map and promote it to fellow residents and visitors.
City of Springfield	• Allocate resources or work with PVPC to secure grant funds to develop the map.
Pioneer Valley Planning Commission	• Provide technical assistance as needed to the city to secure funds and/or create the walking map.

6 E'S ADDRESSED

Encouragement **Education**

5.4. PROGRAM RECOMMENDATIONS

PROGRAM #1: MAINTAIN PEDESTRIAN AND BICYCLE INFRASTRUCTURE

Maintenance is critical to successfully expanding bicycling and walking in Springfield. Well-maintained sidewalks, bike lanes, and bicycle parking will invite residents to bicycle and walk and send the message that the city values these modes of transportation. Maintenance is also cost effective, as continuous operational improvements are less expensive than the capital construction costs that come with deferred repairs.

PROMOTES



ACTIONS

Residents	• Communicate with City of Springfield through 311 about locations where sidewalks and streets are in need of maintenance and/or repairs. Neighborhood associations/councils should be made aware of the problems as well.
Springfield Business Association	• Supplement City of Springfield work by carrying out additional maintenance activities, such as trash pickup and repair of bike racks and street furniture.
City of Springfield	• Monitor bicycle lanes and parking to ensure they are clear of debris and in good working order. • Continue regular maintenance of the Connecticut River Walk and Bikeway, through the agreements developed between the Department of Public Works and the Department of Parks and Recreation.

6 E'S ADDRESSED

Equity **Encouragement** **Engineering**

PROGRAM #2: BECOME PART OF MASSDOT'S BICYCLE AND PEDESTRIAN SAFETY AWARENESS AND ENFORCEMENT PROGRAM

PROMOTES



In 2014, the Massachusetts Department of Transportation announced the Bicycle and Pedestrian Safety Awareness and Enforcement Program, the purpose of which is to reduce bicycle and pedestrian fatalities. In its first year, the program received $460,000 in funding from the Federal Highway Administration and focuses on enforcement, maintenance, and infrastructure improvements in 12 Massachusetts communities. These communities were chosen based on factors that included the highest number of reported non-motorist crashes per capita, and the highest proportion of trips made by bicycle and walking. Through increased reporting of bicycle and pedestrian metrics, the City of Springfield can join this state program in the future.

ACTIONS

Residents

- Actively bicycle and walk to increase the proportion of trips made by bicycling and walking.
- Report all bicycle and pedestrian-related accidents to Springfield Police Department.

City of Springfield

- Continue to record traffic accidents that involve a bicyclist or pedestrian and report these figures to the state.
- Collaborate with MassDOT to determine the steps needed for becoming a future part of the Bicycle and Pedestrian Safety Awareness program.

6 E'S ADDRESSED

Enforcement **Education**

PROGRAM #3: ROUTINELY APPLY FOR FEDERAL HIGHWAY ADMINISTRATION FUNDING FOR PEDESTRIAN AND BICYCLE SAFETY ENFORCEMENT AND EDUCATION

Applying for funding from the Federal Highway Administration will enable the City to run bicycle safety enforcement and education campaigns. These campaigns will raise awareness of traffic laws related to pedestrian and bicycle safety, and complement the Complete Streets Network's goal of accommodating all modes of transportation.

PROMOTES



ACTIONS

City of Springfield

- Through collaboration between the Department of Public Works, Department of Planning and Sustainability, Police Department, and Parks Department, develop potential safety enforcement and education programs that are eligible for Federal Highway Administration funding.
- Working with Federal Highway Administration and MassDOT officials, apply for programs to sponsor safety enforcement and education programs.

6 E'S ADDRESSED

Education **Encouragement** **Enforcement**

PROGRAM #4: WORK WITH DEVELOPSPRINGFIELD, THE SPRINGFIELD BUSINESS IMPROVEMENT DISTRICT, AND CITY EMPLOYERS TO PROMOTE BICYCLE COMMUTING, INCLUDING PARTICIPATION IN BAY STATE BIKE WEEK

Employers play a critical role in encouraging residents of Springfield to bicycle, by promoting bike commuting. Specific incentives include discounts for bicycle-related purchases, financial benefits for not commuting via single occupancy vehicle, shower facilities, and a guaranteed ride home, among others.

PROMOTES



Bay State Bike Week, which occurs annually during the third week of May, is an excellent opportunity for employers to encourage bicycling. Potential Bike Week events include hosting commuter breakfasts and participating in the MassCommute Challenge, a state-wide online contest between organizations to see whose employees can log the most miles by bike.

ACTIONS

Residents	• Work with human resources departments at employers to encourage participation in bike commuting programs and Bay State Bike Week.
City of Springfield	• Provide employers with financial or development incentives to provide at-work shower access and bicycle parking facilities for commuting cyclists.
Pioneer Valley Planning Commission	• Encourage employers to provide incentives for using alternative modes of transportation. • Promote participation amongst major employers in Bay State Bike Week, through bike commuter breakfasts or participating in the MassCommute Challenge.

6 E'S ADDRESSED

Encouragement





City employers can encourage participation in Car Free Week, occurring in mid-September, or Bay State Bike Week in May to encourage use of public transit, bicycling, and walking for making trips. In 2013, the City of Springfield participated in Park(ing) Day (above) as part of Car Free Week, during which a parking space on Main Street was temporarily transformed into an urban park. In May, the City sponsored a free breakfast for bicyclists commuting to work during Bike Week (below).

PROGRAM #5: PARTICIPATE IN THE PIONEER VALLEY REGIONAL BIKE SHARING INITIATIVE AND DEVELOP A BICYCLE RE-USE PROGRAM

PROMOTES



There are two ways in which to get more bicycles conveniently in the hands of Springfield residents: Bike Sharing and Bicycle Re-Use. In 2013, the Pioneer Valley Riverfront Club began a local bike share program with over ten bicycles available for short-term rental. In 2014, the Pioneer Valley Planning Commission conducted a study to assess the feasibility of a regional bike sharing program in Springfield, Holyoke, and Northampton, and Amherst.

Through a re-use program, local youth are taught how to repair used bikes, often using bicycles recovered by police and donated to the initiative. Volunteers from local bicycle shops, MassBike or other bicycle advocacy organizations, donate their time to educate youth on bicycle repair and maintenance. Youth who cannot afford to purchase a bicycle are able to "earn" one through volunteering in the program. The City of Holyoke runs a re-use program that can be used as a model and the PVRC is interested in creating such an initiative in Springfield.

ACTIONS

Residents	• Express interest in bike sharing program to City officials and provide feedback about where docking stations should be located. • Volunteer to participate in bicycle re-use program.
City of Springfield	• Collaborate with the Pioneer Valley Riverfront Club to promote and participate in their programs, in order to encourage resident participation.
Pioneer Valley Riverfront Club	• Continue current bike rental program, collaborating with PVPC and City of Springfield to be an eventual location for a larger bike share program.
Pioneer Valley Planning Commission	• Work with City of Springfield and other local bike-related organizations to implement a regional bike share program.

6 E'S ADDRESSED

Equity **Encouragement** **Engineering**





Springfield's youth, such as the volunteers who participate in Gardening the Community (above), are enthusiastic about healthy living. Engaging them to be part of a bicycle share or re-use program, like the one currently operating at the Pioneer Valley Riverfront Club (below) will help them to make a difference in their community.

PROGRAM #6: IMPLEMENT HEALTHY PRESCRIPTION PROGRAM CITYWIDE

Health care professionals should encourage patients to maintain healthy activity by bicycling and walking. To increase activity, patients can be given walking and bicycling maps that show them easy ways to exercise in their neighborhoods.

PROMOTES



ACTIONS

Residents	• Inquire about tips for staying healthy from local physicians. • Shop regularly for healthy food at Springfield's mobile markets (see livewellspringfield.org for locations).
City of Springfield	• Collaborate with PVPC on creation of activity maps that allow residents to find walking and bicycling routes in their neighborhoods.
Pioneer Valley Planning Commission	• Collaborate with the City of Springfield on creation of activity maps that allow residents to find walking and bicycling routes in their neighborhoods.
Medical Professionals	• Utilize activity maps for walking and bicycling developed by PVPC and the City of Springfield. • Encourage patients to engage in healthy activity through bicycling and walking in their communities.

6 E'S ADDRESSED

Equity **Education** **Encouragement**

PROGRAM #7: EXPAND PARTICIPATION OF SAFE ROUTES TO SCHOOL PROGRAM TO EVERY ELEMENTARY AND MIDDLE SCHOOL

There are currently eight schools in Springfield that have Safe Routes to School Programs. The positive results of these programs could benefit every school in the city and should be expanded to facilitate walking and bicycling to and from school.

PROMOTES



ACTIONS

Residents	• Work with teachers and school administrators to express interest in assisting and organizing Safe Routes to School programs.
City of Springfield	• Provide education and awareness to residents about Safe Routes to School program.
Pioneer Valley Planning Commission	• Provide mapping and technical support regarding sidewalks and street conditions for Safe Routes to School programs, in collaboration with Mass in Motion.
Mass in Motion	• Educate teachers and community members about Safe Routes to School program and its benefits. • Collaborate with schools to facilitate walking audits as a key element of understanding the necessary improvements to facilitate safe walking and bicycling to school.
Schools	• Work with Mass in Motion and parents to begin Safe Routes to School programs, such as a walking school bus.

6 E'S ADDRESSED

Equity **Education** **Encouragement**

PROGRAM #8: INCORPORATE BICYCLING AND WALKING INTO REGIONAL AND LOCAL TOURISM CAMPAIGNS, INCLUDING WALKING TOURS AND MAPS IN THE NEW CULTURAL DISTRICT

The City of Springfield hosts may visitors throughout the year, whether for conferences or visits to local museums. Promoting awareness of bicycling and walking opportunities – including those in Forest Park, the downtown cultural district, and the Connecticut River Walk – offers an opportunity to greatly increase the total number of people bicycling and walking in the city.



ACTIONS

City of Springfield

- Work with the Greater Springfield Convention and Visitors Bureau to encourage the highlighting of Springfield's bicycling and walking assets in marketing materials.
- Collaborate on development of newly designated downtown cultural district and promote it in collaboration with cultural institutions. Creating a vibrant arts and culture scene in Springfield will increase the number of people visiting Metro Center and promote a pedestrian-friendly feel to downtown.

Pioneer Valley Planning Commission

- Highlight bicycling and walking in Springfield as part of publications and regional plans that showcase the region's assets.

6 E'S ADDRESSED

Encouragement

PROGRAM #9: LAUNCH A LOCAL SHARE THE ROAD CAMPAIGN FOR BICYCLISTS AND MOTORISTS

Educating motorists and bicyclists about the importance of safely sharing the road will reduce accidents. To promote engagement from residents, the campaign should have a positive tone and emphasize a common sense approach to what drivers and cyclists should know.

PROMOTES



ACTIONS

City of Springfield

- Initiate a local Share the Road Campaign, through a collaboration of the Department of Public Works, Department of Planning and Development, and the Police Department, to educate motorists, bicyclists, and pedestrians about safe travel practices.
- Join the Massachusetts Bicycle and Pedestrian Safety Awareness and Enforcement Program to receive funding for expansion of local campaign.

6 E'S ADDRESSED

Education **Encouragement** **Enforcement**

PROGRAM #10: ENFORCE LOCAL AND STATE LAWS PERTAINING TO BICYCLING AND WALKING

Laws regarding bicycling and walking are in place to make the transportation network safer for motorists, bicyclists, and pedestrians. Enforcing these laws will ensure a better environment for all Complete Streets users.

PROMOTES



ACTIONS

Residents

- Follow local and state laws for bicycling and walking safely – see Appendix G for a list of regulations.

City of Springfield

- Institutionalize use of the MassBike Police Safety Training video for all Police Officers in the city.
- Conduct a "Share the Road" public information campaign to educate motorists and bicyclists about the importance of safely sharing the road to reduce crashes.
- Initiate a short-term program to enforce traffic laws that pertain to pedestrians and bicyclists. High-profile enforcement has been shown to quickly change motorist behavior, with Northampton, Massachusetts being a local example.
- Secure funding for bicycle and pedestrian traffic enforcement.
- Include law enforcement representative in monthly bicycle progress meetings, to ensure police are educated with up-to-date information about laws.
- Institute a bicycle-mounted patrol in most frequently walked and bicycled areas, such as along Main Street and the Connecticut River Walk.

6 E'S ADDRESSED

Education **Encouragement** **Enforcement**

PROGRAM #11: EDUCATE THE PUBLIC ABOUT USING 311 TO REPORT PEDESTRIAN AND BICYCLE HAZARDS, SUCH AS UN-CLEARED SIDEWALKS, DEBRIS IN BIKE LANES, FADING CROSSWALKS, AND MALFUNCTIONING PEDESTRIAN SIGNALS

311 is a vital resource that residents can use for reporting maintenance issues, such as un-cleared sidewalks, debris in bike lanes, and broken crosswalks, in their local community. Ensuring that the public knows it can use 311 to quickly report problems with sidewalks, debris, and crosswalks will help the City to resolve any bicycling and pedestrian issues.

PROMOTES



ACTIONS

Residents

- Utilize 311 to report pedestrian and bicyclist hazards throughout the City.
- Tell neighbors and friends about 311 and encourage them to use it.

City of Springfield

- Conduct a local advertising campaign to promote the use of 311 and ensure that residents know that it can be used to report bicycling and pedestrian hazards.

6 E'S ADDRESSED

Education **Enforcement**

5.5. Policy Recommendations

Policy #1: Adopt a Complete Streets policy to become eligible for MassDOT Active Streets funding



The most recent state Transportation Bond Bill, passed into law in 2014, made $50 million available for Complete Streets infrastructure projects. To be eligible for this funding, Massachusetts communities must adopt local legislation that promotes Complete Streets. A City Council-passed Complete Streets policy would encourage all city blocks to be designed with bicyclists and pedestrians in mind. An example policy can be found in Appendix I. As of August 2014, only five Massachusetts municipalities had adopted Complete Streets policies: Boston, Littleton, Maynard, Northampton and Somerville.

Actions

City of Springfield

- As a collaboration between the Departments of Public Works and Planning and Economic Development, work with the City Council to review and pass a Complete Streets policy.

Pioneer Valley Planning Commission

- Provide technical assistance to the City of Springfield on drafting and facilitating adoption of the proposed Complete Streets policy.

6 E's Addressed

Equity **Encouragement** **Engineering**

POLICY #2: INCORPORATE CONSIDERATION OF THE NEEDS OF BICYCLISTS AND PEDESTRIANS IN THE CITY'S DEVELOPMENT REVIEW PROCESS BY ADOPTING PROPOSED MODIFICATIONS TO THE CITY'S DEVELOPMENT REVIEW PROCEDURE

The design of proposed new developments will impact how comfortable residents will feel when bicycling and walking in and around them. The design review process is an opportunity to evaluate, and improve as necessary, proposed projects to assure that they support bicycle and pedestrian-friendly conditions. Appendix E has more information about specific items that should be examined as part of development review.

PROMOTES



ACTIONS

City of Springfield

- Hold monthly inter-departmental coordination meetings between City agencies to assure development projects incorporate bicycle and pedestrian-friendly features.
- Secure funding for position of City of Springfield Healthy Design Coordinator, which was previously funded through the end of September of 2014 the Centers for Disease Control's grant to LiveWell Springfield. Securing funding to maintain this position at least part-time will provide a Springfield official who can focus significant attention towards including bicycle and pedestrian amenities into new development.
- Incorporate a full set of bicycle and pedestrian-friendly features into the design criteria for new development, such as the guidelines found in Appendix E of this report.

6 E'S ADDRESSED

Encouragement **Engineering** **Evaluation**

POLICY #3: CREATE A COMPLETE STREETS COUNCIL COMPRISED OF CITY STAFF, ELECTED OFFICIALS, AND RESIDENTS TO OVERSEE IMPLEMENTATION OF THIS PLAN

The Springfield Complete Streets Council would be composed of citizens and representatives of all City departments that affect walking and bicycling in Springfield. Meeting on a regular basis, the committee would be able to encourage collaboration among various stakeholders and address challenges and opportunities.



ACTIONS

Residents	• Volunteer to participate in Council during City of Springfield outreach. • Participate in regular meetings of the Council, bringing forward issues related to improving bicycling and walking.
City of Springfield	• Organize regular meetings of Complete Streets Council with participation from residents and businesses, and representatives from the Mayor's Office, Departments of Public Works, Planning and Economic Development, Health and Human Services, and Parks and Recreation.
Businesses	• Volunteer to participate in Council during City of Springfield outreach. • Participate in regular meetings of the Council, bringing forward issues related to improving bicycling and walking.

6 E's ADDRESSED

Equity **Education** **Encouragement** **Evaluation**

POLICY #4: APPLY TO MAKE SPRINGFIELD A CERTIFIED "BICYCLE FRIENDLY COMMUNITY"

There are several national organizations that designate cities for having quality bicycle and walking infrastructure. The League of American Bicyclists "Bicycle Friendly Community" program offers a comprehensive guide of metrics for evaluating bicycling. Applying for this program will provide the City of Springfield an opportunity to examine how it can improve bicycling and walking.

PROMOTES



ACTIONS

Residents

- Participate in events and programs that will assist the City of Springfield in becoming a Bicycle Friendly Community, such as organizing community cycling rides, starting a bicycle advocacy group, and participating in Bay State Bike Week.

City of Springfield

- Complete the League of American Bicyclists' application to become a Bicycle Friendly Community. The League of American Bicyclists will provide a free feedback report that will help Springfield become a more bicycle-friendly community.[5]

6 E'S ADDRESSED

Evaluation

[5] More information about the Bicycle Friendly Community Program can be found at: www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/BFAbrochure2013-rebrand.pdf

LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADA	Americans with Disabilities Act
BID	Business Improvement District
BPAC	Bicycle and Pedestrian Advisory Committee
CDC	Centers for Disease Control
CCMS	Concerned Citizens of Mason Square
CMAQ	Congestion Management and Air Quality
DPR	Department of Parks and Recreation
DPW	Department of Public Works
GTC	Gardening the Community
HUD	Department of Housing and Urban Development
NACTO	National Association of City Transportation Officials
NNCC	New North Citizens Council
MAAB	Massachusetts Architectural Access Board
MassDOT	Massachusetts Department of Transportation
MPO	Metropolitan Planning Organization
MSHTF	Mason Square Health Task Force
PD	Police Department
PHC	Partners for a Healthier Community
PVPC	Pioneer Valley Planning Commission
PVTA	Pioneer Valley Transit Authority
PVRC	Pioneer Valley Riverfront Club
TIGER	Transportation Investments Generating Economic Recovery
TIP	Transportation Improvement Plan
VACA	Vietnamese-American Civic Association
US DOT	United States Department of Transportation

APPENDIX A: FUNDING AND IMPLEMENTATION RESOURCES

OVERVIEW

This section provides an outline of potential funding sources for the bicycle and pedestrian projects outlined in the Complete Streets Network in Section 2, and the Recommendations listed in Section 5.

TRANSPORTATION ALTERNATIVES PROGRAM / HSIP / CMAQ

Most federal support for bicycle and pedestrian projects comes from the Transportation Alternatives Program (TAP). This program funds the following bicycle-specific uses:

- Pedestrian and Bicycle Facilities – This includes sidewalks, walkways or curb ramps; bike lane striping, wide paved shoulders, bike parking and bus racks; traffic calming; off-road trails; bike and pedestrian bridges and underpasses; ADA compliance.

- Safe Routes for Non-Drivers – Access and accommodation for children, older adults, and individuals with disabilities.

- Conversion of Abandoned Railway Corridors to Trails – Acquisition of railroad rights-of-way; planning, design and construction of multiuse trails and rail-with-trail projects.

TAP funding is provided by the federal government and allocated to the Metropolitan Planning Organizations. For more information on funding availability, the Pioneer Valley Planning Commission should be contacted. (http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm)

TIGER GRANTS

Transportation Investments Generating Economic Recovery (TIGER) Grants may be used for bicycle and pedestrian projects. Recently, TIGER funded an active transportation initiative called Connect Historic Boston at $14 million. This project in Boston seeks to provide better bicycle and pedestrian connections between the Freedom Trail and nearby transit stations.

The purpose of TIGER Grants is to fund multi-modal, multi-jurisdictional, or otherwise difficult-to-fund transportation projects with significant economic impacts. It is a highly competitive discretionary grant program administered by the US Department of Transportation. (http://www.dot.gov/tiger)

Local Aid (Chapter 90)

Chapter 90 funding is a local aid reimbursement program for road projects funded from the Commonwealth. This funding is extremely flexible, and can generally be used for bicycle and pedestrian facilities within road right of way. Off-road paths are not eligible for Chapter 90 funding.
The most promising opportunity in Springfield lies in identifying Chapter 90 projects in which bicycle and pedestrian facilities can relatively easily be added. This provides a low-cost option for installing bicycle and pedestrian facilities as projects are done. (http://www.mhd.state.ma.us/ch90FY.asp)

Community Preservation Act

The Community Preservation Act (CPA) is a state matching program that serves to promote the preservation of open space, historic sites, and affordable housing in the Commonwealth's communities. Communities that vote to adopt the CPA raise funding locally through a property tax surcharge, which is then matched by the state at a rate currently of around 30%.

CPA funding must be approved by a municipal committee and adopted into the budget. Bicycle and pedestrian facilities located in recreational open spaces is eligible for funding, though would not apply to road projects. Springfield is currently not a CPA community, and would have to adopt it through referendum. (http://www.communitypreservation.org)

MassWorks

MassWorks is a funding program administered by the Office of Housing and Economic Development. The purpose of the fund, according to the website, is to "support housing and commercial growth opportunities that contribute to the long-term strength and sustainability of Massachusetts, with a particular emphasis on projects that support the production of multi-family housing (consistent with the Commonwealth's 10,000 Multi-Unit Housing Production Goal) in appropriately located mixed-use districts, or that support economic development in weak or distressed areas."

Importantly, MassWorks has been used to fund transportation improvement projects that support mixed-use, multi-family housing. One recent example is in Salem. From the website:

The City of Salem was awarded $1.275 million to support the improvement of Grove Street from Harmony Grove Road to Goodhue Street. The project will produce a "complete streets" circulation environment with pedestrian and bicycle accommodations. MassWorks funds will be used for construction, environmental remediation, and design. The infrastructure development will directly support the proposed redevelopment of Legacy Park and four other key sites within the North River Canal Corridor.to create a total of 315 housing units. These projects will revitalize this blighted, former industrial area into a mixed-use neighborhood consistent with the goals of the North River Canal Corridor Master Plan.

For those parts of the Plan that align with the goals of the MassWorks fund, this could be a fruitful source of funding for implementation.

(http://www.mass.gov/hed/economic/eohed/pro/infrastructure/massworks/)

Active Streets Fund

In 2014, the state legislature passed a bill that designates $50 million over five years for "Active Streets." The concept is to certify certain communities as "Active Streets Communities," which would mean that they would need to (according to the Active Streets Bill):

1. file an application with the department [of transportation] in a form and manner to be prescribed by the department;
2. adopt a complete streets bylaw, ordinance, or administrative policy in a manner which shall be approved by the department including at least one public hearing; such policy shall, at a minimum, identify the body, individual, or entity responsible for carrying out such policies;
3. coordinate with the department to confirm the accuracy of the baseline inventory of pedestrian and bicycle accommodations in order to prioritize projects based on the inventory;
4. identify procedures to follow when conducting municipal road repairs, upgrades, or expansion projects on public rights-of-way to incorporate complete streets elements;
5. confirm the existence of a review process for all private development proposals to ensure complete streets components are incorporated into new construction; and
6. set a municipal goal for an increased mode share for walking, cycling, and public transportation where applicable to be met within five years and develop a program to reach that goal; and
7. submit an annual progress report to the department. Certified municipalities shall be eligible to receive funding as specified in Section 6 of this act.

APPENDIX B: EXISTING CONDITIONS

OVERVIEW

By identifying the existing conditions pertaining to bicycling and walking in Springfield, this section provides a foundational understanding of the existing policies, programs, and facilities currently in place in the city. This understanding will allow Springfield's government and residents to build upon the great momentum already in place and further improve bicycling and walking.

GENERAL CONDITIONS

ZONING

Zoning helps control and mold the built environment, and has a great impact on how Springfield residents move about their neighborhoods and city. The placement of sidewalks, how close buildings must be to the street, architectural design elements, and parking requirements are all elements of zoning. Springfield's zoning code requires a certain number of parking spaces for each new and existing development, a number usually determined based on the building's square footage. As part of recent changes to the city's zoning code, the City of Springfield adopted a new policy that encourages businesses to provide alternative transportation accommodations. Specifically, businesses can reduce their minimum number of required parking spaces by incorporation of bicycle parking. This both increases the space available for development, and also promotes higher density.

DENSITY

Many of Springfield's neighborhoods have a high level of density that make it easy for residents to walk. The densest neighborhoods tend to be those which were developed first, prior to the automobile oriented development of the 20th Century. Dense neighborhoods include Memorial Square, Metro Center, the South End, Six Corners, and Old Hill. These neighborhoods offer the most potential to see a large number of walkers and cyclists.

SIDEWALKS

Much of Springfield was developed prior to the dominance of the automobile, meaning that the majority of streets in the older parts of the city were designed with sidewalks to accommodate walking. However, several areas of the city that were developed more recently do not have sidewalks, such as the Sixteen Acres and Indian Orchard neighborhoods. Residents who walk in these neighborhoods either walk in the street, sharing the road with cars, or walk on private property and frequently create dirt walking paths on the edge of lawns. For more information about sidewalks, see Section 3 of this plan, which includes an analysis of sidewalks in selected areas of the city based on several characteristics, including their condition, width, and material.

On-Street Infrastructure

Plumtree Road Bike Lanes

In the fall of 2013, Springfield's first on-road bike lanes were installed on Plumtree Road, between Wilbraham Street and Bradley Road. The 1.4 mile stretch of bike lanes are located in the Sixteen Acres neighborhood and were installed as part of regularly scheduled repaving work by the City's Department of Public Works. This was the first time that the DPW had installed bike lanes as part of its regular street construction, and there are plans to consider bicycle infrastructure as part of all regularly scheduled maintenance activities moving forward.

Complete Streets on Edward Street and Eliot Street in Metro Center

Edward Street and Eliot Street in the Metro Center neighborhood have bicycle sharrows and speed bumps installed. As discussed in Section 2 of this plan, these design elements are key elements of creating complete streets that can safely accommodate bicycle traffic. These features were installed by MassDOT through their GreenDOT program (discussed later in this Appendix).

Way Finding Signage and maps

Numerous signs are currently placed throughout downtown Springfield which direct pedestrians to nearby attractions, such as the museum quadrangle, Riverfront Park, and MassMutual Center. The signs, which have a Dr. Seuss' "Cat in the Hat" theme, are very useful for directing and orienting visitors. In addition, there is a large map located at the corner of Harrison Street and Main Street in downtown Springfield that further helps orient visitors to their surrounding area.

Main Street Renovations

As part of renovations to Main Street between 2011 and 2012, many features were installed to improve the road for cyclists and pedestrians – new sidewalks, marked crosswalks, and street trees. The street is already quite comfortable for a variety of road users, including bicyclists, pedestrians, transit riders and motorists. However, while the street currently accommodates bikes with a large shoulder, it does not include a designated, striped bike lane.

Shared Use Pavement Markings

Shared use pavement markings generally consist of chevrons and an image of a cyclist painted on the right hand side of the right most travel lane (a "sharrow"). For situations in which a bike lane is not feasible, either because of traffic flow or road width, a sharrow serves as a reminder to motorists that cyclists may be present and are allowed to be in the travel lane. State Street in downtown Springfield includes a sharrow, next to a row of parked cars.

OFF-STREET INFRASTRUCTURE

CONNECTICUT RIVER WALK AND BIKEWAY

The Connecticut River Walk and Bikeway runs adjacent to the Connecticut River, from south of the Basketball Hall of Fame Complex to Wason Avenue in the North End. Initially constructed in the 1990s, the path will eventually become part of a regional trail network that connects the communities of Agawam, Chicopee, Holyoke, Springfield, and West Springfield. The River Walk and Bikeway is a valuable asset to Springfield's biking and walking infrastructure. It offers a car-free connection between the North End, Metro Center, and South End neighborhoods of Springfield. It also provides an opportunity for Springfield residents to embrace healthy activity through recreation and exercise.

The Connecticut River Walk and Bikeway is envisioned as eventually a regional trail that will connect from Holyoke to Agawam. In order to do this, several potential regional connections have been identified to connect to other towns and cities:

- Extension of South End Bridge to Agawam
- North End Bridge to West Springfield
- North terminus to Chicopee
- South terminus to Longmeadow

BIKE RACKS

Bike racks complement other bicycle infrastructure by assuring that bike commuters have a place to store their bicycles once they arrive at their destinations. Currently, bike racks are primarily located at select locations in downtown Springfield and were installed by the Springfield Business Improvement District with assistance from the PVPC. Bike racks have also been installed at various schools throughout the city, many as part of Safe Routes to Schools programs. Where to install additional bike parking racks has been an important element of resident engagement in this plan development process because installing a bike rack is a relatively inexpensive way to signal to the public that a building or other destination welcomes bicyclists.

PARKS

Springfield contains a large number of neighborhood parks that are important assets to local residents. Parks are an essential component of a bicycling and walking network. As centers of recreation, they are often the destination to which people ride and walk. And offer central public gathering spaces in which bicyclists and pedestrians do not encounter conflicts with car traffic.

Several parks that were identified as critical destinations as part of this plan are:

- **North Riverfront Park** – this park is home to the Pioneer Valley Riverfront Club, a non-profit that encourages healthy activities among Springfield residents, particularly by providing access to the Connecticut River. While it is called a "club" it is open to the public and does not require membership to take advantage of the considerable array of programs available. PVRC moved into its current facility, located on the banks of the Connecticut River near the North End Bridge on the Connecticut Riverwalk and Bikeway, in the spring of 2013, and with seed money from Live Well Springfield, was able to expand its programming and purchase a fleet of rental bicycles as well as rowing machines.

- **Riverfront Park** – fronting the Connecticut River Walk in downtown Springfield, the park is a vital public space to all residents of the city because of the access it provides to the riverfront and Connecticut River Walk and Bikeway. Multiple events are held at Riverfront Park throughout the summer months, including music concerts, July 4th fireworks displays, and cultural festivals.

- **Forest Park** – New England's largest public park, the 736-acre park is incredible asset for the residents of Springfield. It offers great opportunities for recreation and exercise. Located in the southern portion of the city, the park offers excellent opportunities for residents to bicycle and walk and includes botanical gardens, two golf courses, sports fields, and a zoo.

- **Van Horn Park** – the second-largest park in the city, located in the Liberty Heights neighborhood of Springfield, in the Hungry Hill subdivision. The park includes a playground, picnic area, baseball field, soccer field, football field, and tennis courts.

MASS TRANSIT SERVICES

BUS SERVICE

Bus service in Springfield is provided by the Pioneer Valley Transit Authority (PVTA). As the largest city in the Pioneer Valley, Springfield has 17 bus routes that run through it, which is the most of any municipality in the region. Most of the city is within a quarter mile of a transit stop, meaning that transit is easily accessible. There are also many intersection points of individual lines, facilitating transfers between different routes when needed. Busses run Monday through Saturday, but not on Sundays or holidays, which can make travel difficult for those dependent on public transit. In the last few years, the PVTA has installed bike racks on the front of almost all busses in Springfield. These racks allow transit users to easily bicycle to and from the bus route, greatly expanding the ease of traveling by public transit.

RAIL SERVICE

The renovation of Union Station, to be completed in 2014, is occurring in conjunction with infrastructure improvements to the passenger rail service between New Haven and Vermont, with trains running more frequently and at a higher speed. The upgrades of the rail line and train station are projected to greatly increase the number of people utilizing passenger train service and make the station a major transportation hub in the center of Springfield that combines bicycling, walking, local bus service, and regional train service.

BIKE SHARING

Plans are currently underway for the development of a Bike Sharing program throughout the Pioneer Valley. The Pioneer Valley Riverfront Club purchased a fleet of over ten bicycles, with grant funding from LiveWell Springfield. The bicycles are available for rental at PVRC with display of a driver's license and signing of a waiver. In order to assure that the bicycles are available to low-income residents of surrounding neighborhoods, rental rates are low.

APPENDIX C: EXISTING POLICIES, PLANS AND PROGRAMS

OVERVIEW

Springfield currently has and/or is governed by, many existing policies, plans, and programs that facilitate walking and bicycling. These state-wide, regional, and local initiatives are described below.

REBUILD SPRINGFIELD

The ReBuild Springfield initiative is the City's Master Plan update that capitalized on the opportunity presented by the impacts of the June tornado that hit Springfield in 2011. Building on the energy of recovering from this natural disaster, the city, with its private partner, Develop Springfield, worked with Concordia Planning Consultants. Key recommendations from the plan regarding bicycling and walking are as follows:

- Promoting pedestrian-friendly streets and neighborhoods, such as along Main Street in downtown Springfield, by incorporating street trees, marked crosswalks, benches, landscaping, lighting, and pedestrian countdown lights.

- Enhancing connections to the Connecticut River and Riverfront Park, especially from downtown and the South End, and increasing the park's visibility by supporting southern expansion of the Connecticut River Walk and Bikeway.

- Activating plazas and urban parks with cafes, food trucks, and events, including improving the Court Street connection between Main Street and the Quadrangle, and activating Pynchon Park.

- Improving public transit, by increasing the frequency of service, the number of routes, and bus stop benches.

- Installing pedestrian and bicycle infrastructure on the following streets: Island Pond Road, South Branch Parkway, Plumtree Road, and Tinkham Road. Most of these streets are two lanes with wide lanes and which lack sidewalks on either one or both sides of the street.

- Developing a long-term strategy by the City to address construction, repair, and maintenance of sidewalks. This includes construction of sidewalks on streets that do not have any or have sidewalks only on one side, as well as improving the City's pavement management system and sidewalk inventory process to repair broken sidewalks.

Worthington Area Downtown Re-Development Plan

Through the efforts of the Mayor and the City's Chief Development Officer Kevin Kennedy, Columbia Gas of Massachusetts/NiSource provided a $200,000 grant to DevelopSpringfield to support a comprehensive redevelopment plan for the area impacted by the November 2012 Gas Explosion together with neighboring commercial and residential blocks.

DevelopSpringfield worked with the planning and architectural firm Utile, Inc. together with a steering committee comprised of City Officials, the Springfield Redevelopment Authority, the BID, neighborhood representatives and other stakeholders to address land use issues, infrastructure and redevelopment alternatives that address the Worthington Street area's challenges while leveraging key assets such as the Union Station improvements now underway. The Plan, presented in August 2014, can be found here: http://developspringfield.com/2014-09-10%20Worthington%20Street%20Comprehensive%20Presentation%20jm.pdf

Downtown Market Rate Housing Study

In November 2013, Mayor Domenic J. Sarno announced the results of a market rate housing study commissioned for Springfield, indicating a strong potential for new downtown market-rate housing. The study was completed by national expert Laurie Volk of Zimmerman/Volk Associates (ZVA), and was funded under a grant from the Economic Development Administration (EDA) under a city partnership with the Pioneer Valley Planning Commission (PVPC). ZVA's work covered a study in the Metro Center neighborhood as well as the South End neighborhood. The downtown study served as an update to ZVA's work on the same subject in 2006. As the housing market took a severe downturn after that point and new factors influencing the downtown landscape, the city requested an update to that work. The findings indicate that while the for-sale condominium housing market has declined both nationally and locally, the market for new rental, market-rate apartment housing remains strong – and actually stronger in downtown Springfield than it was in 2006.

The findings for downtown show the market potential exists for 106 to 171 new units of market rate housing per year, for the next five years as well as an additional sum of between 78 and 124 in the South End neighborhood. The full study is available at www.springfieldplanning.org.

Proposed MGM Casino

Springfield is one of three cities in the Commonwealth that stands to receive a casino license. MGM casinos have been selected as the developer and proposes an open plan that should contribute to the economic revitalization of the city. MGM pledged to develop a park at the Riverfront.

Union Station Re-development

The city has been working to upgrade the city's train station for over a decade and work is anticipated to be complete by 2016. The revitalization of the train station is anticipated to promote ore walking and bicycling in the downtown.

Central Cultural District

The Massachusetts Cultural Council gave its approval in November for the city to create a cultural district after a rigorous application process. Springfield's district was the 19th approved in Massachusetts. "The cultural district is a program that really gives communities a platform and framework in which to build a vibrant and exciting cultural life," according to Anita Walker, executive director of the state cultural council. The state designation is designed to help promote and expand upon the historic, artistic and cultural assets in the downtown area. The designation of the cultural district will be used in marketing and tourism efforts, and can help in securing grants. The district is generally in the downtown Springfield area. The size was reduced from an earlier proposal to make it more walkable, a key component of cultural districts. The designation serves to bring together a group of partners, provides organization and leadership, and creates a series of programming that brings all the assets in Springfield to life. For more information, visit: www.massculturalcouncil.org.

Bay State Bike Week

Bay State Bike Week is a weeklong series of events held each May held to raise awareness about bicycling. Started in the Pioneer Valley in 2001, Massachusetts became the first state to have a statewide bike week in 2010. The program is a collaboration between MassDOT, MassBike, and MassRides. In 2013, the Pioneer Valley had over 1,400 riders who participated in over 50 events. In Springfield, Bike Week 2013 saw a large increase in participation and the growth of the number of events, spurred largely by the organizing of the Pioneer Valley Riverfront Club. It is anticipated that PVRC's work on Bike Week will continue in the years to come, offering a major potential building block to develop a great bicycling culture in Springfield. For more information visit: www.baystatebikeweek.org.

Car Free Week

Part of the global event taking place September in over 1,000 cities in 40 countries, Massachusetts Car-Free Week is run by MassDOT and promotes bicycling, walking, public transit, carpooling, or vanpooling. Springfield participated in the event during 2012 and 2013 by holding a Park(ing) Day event, hosted by the Department of Parks and Recreation. During Park(ing) Day, a downtown parking space was temporarily transformed into green space, to help promote alternative modes of transportation. For more information visit: www.commute.com/carfree/home.

Springfield Renaissance School Classes

The Springfield Renaissance School has run projects related to bicycling and walking over the past few years, including incorporating bicycle planning into math classes several times over the last few years. In early 2013, students in a math class examined the challenges facing bicycling on adjacent Carew Avenue. The Renaissance School has also been involved in bicycle maintenance programs and the Springfield Department of Health and Human Services Mass in Motion initiative brought MassBike to the school to run a bike safety training.

Safe Routes to School

Safe Routes to School is a national initiative that provides funding to all states in the country to make sure it is safe for children to walk and bicycle to school. The program works to create safe, convenient, and fun opportunities for children to bicycle and walk to and from school. Communities can apply for program funding, provided through MassDOT, to construct new bicycle lanes, pathways and sidewalks, as well as to create programs that educate and encourage children and parents to walk and bicycle.



In Springfield, there are currently eight schools that participate in Safe Routes to School: Alice Beal School, Boland School, Brightwood School, Dorman, Gerena, Elias Brookings, Indian Orchard and Mary Lynch.

One way walking advocates have learned to educate parents and their children on how to safely walk to school is a "Walking School Bus". Parents and in some cases interested teachers and school administrators walk with students to school to establish the safe route and reassure themselves and the children that it is indeed safe to walk to school. In Springfield a small but consistent group of six to 10 children and supportive teachers started walking every morning to the Brightwood School. By the end of the first year, the number of students participating increased to 40 to 50 students. The next school year, the program expanded to include three separate walking routes led by school staff on Monday through Friday, with about 130 students consistently walking to school each day. In 2013 the Boland School added a walking school bus and participation has continued to grow there as well. "Footloose Fridays" is an additional Safe Routes to School initiative, which encourages students to walk to school at least one day a week, focusing on Fridays.

Safe Routes to School is operated locally by the Springfield Safe Routes to School Alliance, consisting of a variety of public agencies and community organizations. The Alliance continues to look for strategic opportunities for growing the number of Springfield schools involved in the program. For more information visit: www.mass.gov/MassDOT/SafeRoutes.

GreenDOT Implementation plan and Healthy Transportation Compact

Developed by MassDOT, the 2012 GreenDOT Implementation Plan is a guide for implementing sustainable transportation practices in Massachusetts. Key goals of the plan include tripling bicycling, transit, and walking statewide by 2030 and accommodating pedestrians and bicycles into all current and future MassDOT projects. Building upon the plan, in 2013 MassDOT announced the Healthy Transportation Compact, through which pedestrian and bicycling facilities will be incorporated into road design. Specific components of this will include reviewing locations of pedestrian and bicycling crash sites to determine ways to make intersections safer, incorporating wider sidewalks, landscaping, bike lanes, and more pedestrian crosswalks. For more information visit: www.massdot.state.ma.us/GreenDOT/HealthyTransportationCompact.aspx.

Mass in Motion

Mass in Motion, started with funding from the Centers for Disease Control and Prevention (CDC) through the Massachusetts Department of Public Health. This state-wide initiative strives to reduce obesity through policy and environmental changes that increase access to healthy eating and active living where people live, learn, work and play. For more information visit: www.mass.gov/massinmotion.

Pioneer Valley Metropolitan Planning Organization

The Pioneer Valley Metropolitan Planning Organization (MPO) is responsible for approving federally-funded projects in Hampshire and Hampden counties. The MPO, which is composed of representatives of each town and city in the two counties, jointly develops, reviews, and endorses the region's Transportation Improvement Program (TIP), which identifies a schedule for allocating federal funds in future years.

The MPO also provides for direction of the Pioneer Valley Regional Transportation Plan, which outlines the direction of regional transportation planning and improvements through 2035. The plan concentrates on both existing needs and anticipated future deficiencies in the region's transportation infrastructure. Key bicycling and walking components of the plan include:

For more information visit: www.pvpc.org.

VARIOUS NEIGHBORHOOD PLANS AND PLANNING STUDIOS

Springfield's 17 neighborhoods have various stages of neighborhood plans in place; some of which prioritize the ability of residents to walk and bicycle safely to their destinations. In addition, the city is often the subject of Urban Planning School projects, including UMASS-Amherst, MIT and Tufts. For details on all these plans, contact the City Planning Department, below we excerpt a selection of the more recent plans that highlight the needs of pedestrians and/or bicyclists

SOUTH END NEIGHBORHOOD REVITALIZATION

The South End has been the location of several revitalization efforts in the past few years. In 2006, the Springfield Finance Control Board approved a $6.1 million municipal bond to initiate development and streetscape improvements. In recent years this funding has been used for streetscape improvements on Dwight Street and Main Street, as well as renovations to Emerson Wight Park. The City's stated goals for South End improvements are:

- Work with police and neighbors to increase public safety
- Improve vehicle and pedestrian circulation through neighborhood
- Increase visibility and safety of Emerson Wight Park
- Improve curb appeal of existing apartment buildings
- Increase income diversity by providing new housing ownership opportunities
- Enhance Main Street to retain and attract businesses[6]

In 2011, the U.S. Department of Housing and Urban Development awarded the City of Springfield and Springfield Housing Authority a Choice Neighborhoods grant of $300,000 to initiate further revitalization efforts through the renovation of the Marble Street apartments, Concord Heights, and Hollywood Apartments. HUD's Choice Neighborhoods program is focused on creating vibrant mixed-income communities that are safe for people to choose to live in.[7] Incorporating bicycle and pedestrian infrastructure into the renovations of these housing developments will be a critical component of accomplishing this mission.

STATE STREET CORRIDOR REDEVELOPMENT PROGRAM

The State Street Corridor Redevelopment Program is a planning document that identifies catalytic projects and initiatives along the 3.2-mile State Street. The plan was developed by the State Street Alliance, which is comprised of over 50 private and public entities involved in State Street redevelopment. The plan identified key challenges facing pedestrians along the corridor, particularly

[6] City of Springfield. "South End Revitalization Project Information." http://www3.springfield-ma.gov/planning/313.0.html. Accessed August 15, 2013.

[7] U.S. Department of Housing and Urban Development. "HUD Awards a $300,000 Choice Neighborhoods Planning Grant to Springfield." http://portal.hud.gov/hudportal/HUD?src=/states/massachusetts/news/HUDNo.2012-01-10. Accessed August 15, 2013.

multiple curb cuts, a lack of a continuous building edge, few public open spaces, and insufficient retail or pedestrian-oriented activities. However, the Mason Square District is identified as currently the most pedestrian friendly area along State Street, due to its proximity to many neighborhoods and schools. The plan addresses improvements to pedestrian infrastructure through the development of retail and commercial space along the corridor. These developments would fill vacant lots and create areas in which people wish to congregate. Specific target areas for development include Mason Square District, the former Mason Square Fire Station, the American International College area, the Aquarius Banquet Hall, and River Inn Motel.

OLD HILL MASTER PLAN

The Old Hill Master Plan, developed by the Cecil Group under the guidance and oversight of the Old Hill Neighborhood Council in 2004, found that "Pedestrian conditions today are very poor throughout the neighborhood and result in an unsafe and unattractive condition." The plan found the following conditions on the key corridors through the neighborhood:

- State Street provides a physical barrier for pedestrian circulation and has an emphasis on cars.
- Walnut Street is a physical barrier for users into and out of the neighborhood
- Neighborhood roads (King Street, Alden Street, Hancock Street, and Eastern Avenue) are used as cut-through routes for the regional road system, creating high traffic volumes that conflict with bus routes and pedestrians

The plan recommends improvements to streetscape conditions, with a focus on safety, function, and aesthetics. Specifically, these improvements involve a wayfinding system of signs that provide pedestrians with directions to nearby attractions, additional street lighting to improve the perception of safety at night, and adding ADA-compliant sidewalks and crosswalks to promote accessibility. The plan also recommends that further work on a traffic planning study be performed to determine the appropriate traffic calming measures that could be implemented in the neighborhood.

SPRINGFIELD WATERSHOPS DISTRICT REVITALIZATION PLAN

The Watershops District Revitalization Plan, developed by PVPC with guidance and oversight from **HAP**Housing and the Six Corners Neighborhood Council, and funded with support from the Barr Foundation, focused on revitalization strategies within sections of the Six Corners and Old Hill Neighborhoods in Springfield, MA. The plan was a continuation of ReBuild Springfield, a community planning initiative created by the Springfield Redevelopment Authority and DevelopSpringfield, in response to a tornado that struck Springfield in 2011. The plan's target areas have high rates of vacant and underutilized properties but also hold opportunities for transformational redevelopment. The plan was based on the results of a neighborhood assessment and community input, including a workshop attended by twenty-three participants representing local stakeholders.

The plan included recommendations for:

- Redevelopment of Old Brookings School into housing and community uses
- Development of owner-occupied single-family housing on vacant lots with a density of at least 7 units per acre, to ensure transit service and walkability
- Three mixed-use neighborhood centers, to involve redevelopment of an intersection with public safety issues and preservation of the historic Watershops Armory
- Revitalization of Ruth Elizabeth Park with new recreation amenities and healthy activity programs
- Incorporation of street crossings, trees, benches, and lighting
- New alternative transportation and open space connections, such as construction of Mill River Greenway Bike Path, and connecting path to Harriet Tubman Park

MASSACHUSETTS INSTITUTE OF TECHNOLOGY DEPARTMENT OF URBAN STUDIES AND PLANNING STUDIOS

Since 2001, students in the MIT Department of Urban Studies and Planning have been working in the North End neighborhood on a range of topics, including health, housing, economic development, and urban design. In 2004, the studio addressed the limited connectivity that exists between the Plainfield and Memorial Square halves of the North End, which are split by Interstate 91. The studio developed a concept called "Plan for the North End Campus," which identified the area around the Gerena Montessori School as a potential location for a major pedestrian corridor that could link the two areas and serve as a gateway for each. The existing design of the school includes an underpass that allows for pedestrian crossing under Interstate 91. The studio's plan recommended urban design improvements that would make use of the passage more inviting by residents through a "campus" concept. The concept would include the addition of community arts and learning space, a redesign of the existing Thomas Street Park, and the construction of a raised and painted pedestrian pathway across Main Street.

UNIVERSITY OF MASSACHUSETTS LANDSCAPE ARCHITECTURE AND REGIONAL PLANNING (LARP) STUDIOS AND PLANNING STUDIES

LARP has conducted many urban planning studios and projects in Springfield. Information is available at the City Office of Planning and Economic Development.

Appendix D: Methodology for Conducting a Walk Audit

Overview

Walkability is a measure of the safety and quality of the pedestrian environment. Many elements contribute to the quality of the walking experience including infrastructure, traffic speed and volumes, economic vitality, confidence in personal safety, and street furnishings, such as trees and benches. Walkability has many health, economic, and environmental benefits. Walkable neighborhoods also contribute to an increased feeling of community pride, lower crime rates, and higher levels of social interaction among neighbors. Walking is a sustainable, active mode of transportation. Safe walking routes play an integral role in promoting transit use since the first and last ¼ to ½ mile leg of any trip is usually on foot.

A walk audit is a powerful tool because participants actually experience the pedestrian environment that they are evaluating. Many decision-makers understand that certain facilities need improvement, but have not had the opportunity to visit them firsthand. The combination of information and experience is an effective strategy to instigate change.

Purpose

Walk audits, or walkability assessments, serve three general purposes:

- To teach participants the elements of the pedestrian environment
- To evaluate the safety and quality of the walking environment in a particular place
- To discuss ways to advocate for pedestrian infrastructure improvements.

Assessments can also generate energy around walking programs and spur efforts to increase everyday walking in the study area.

PARTICIPANTS

Walk audits are an excellent opportunity to bring people together that work on similar issues, but may not be aware of each other's current projects. It is recommended that the following offices and interests be represented on the audit:

- Municipal officials (mayor, town manager, selectmen, etc.)
- Department of Public Works
- Planning Department
- Engineering Department
- Department of Public Health or Health Department
- Parks and Recreation Department
- Council on Aging (or equivalent)
- School Board/Department
- Police Department
- Advocacy groups
- Neighborhood groups
- Concerned citizens

It is best to keep the group relatively small (up to 10); one person can represent multiple interests.

PROCESS

The walk audit process involves six basic steps. Each step can be more or less complex depending on the goals of the audit, individual participants' level of understanding of the built environment, and degree of specificity desired in the proposed recommendations.

CHOOSE AN ASSESSMENT AREA OR WALKING ROUTE

The goals of the walk audit determine the scope of the assessment area and routes within it. For example, if the assessment is focused on safe walking routes to a school, then the audit should evaluate the pedestrian environmental within ¼ to ½ mile radius of the school. Include established paths of travel and areas with a high potential for use. The existing conditions of the pedestrian environment could be a contributing factor in encouraging or discouraging walkers.

Communities may want to assess the walking conditions between key destinations, such as town centers, senior centers, public buildings, recreation areas, schools or other community assets. Include existing and potential routes between destinations, and be aware of how people arrive at these routes (e.g., park and walk, public transit, bike, walk from home, etc.). The connection between arrival and the walking route can be crucial in shaping the overall walking experience.

Once the walking route is established, prepare a base map with the intended route and key landmarks to pass out to audit participants. The map should include context to help orient people and provide enough space to allow note taking.

CONDUCT A SITE VISIT PRIOR TO OFFICIAL WALK AUDIT OR WORKSHOP TO IDENTIFY POSITIVE AND NEGATIVE ASPECTS OF THE SPECIFIC STUDY

Walk audit facilitators should visit the proposed assessment area prior to the official event. It is helpful to have a member of the local community participate in this initial visit to describe current walking patterns, problem areas, and key destinations. The site visit will help to finalize the walk audit route. Allow time to photograph positive and negative attributes of the area. These images can be used in the discussion prior to the walk audit and in the walk audit summary report.

REVIEW THE BASICS OF THE PEDESTRIAN ENVIRONMENT

Before the walk audit begins, it is important to give participants information about the elements of the pedestrian environment that they will be asked to evaluate. While many can name places they like to walk, most cannot describe specific physical elements that contribute to that place's walkability. An introduction to the elements of the pedestrian environment reveals infrastructure combinations that garner a successful pedestrian environment and provides a common vocabulary to discuss walkability.

CONDUCT WALK AUDIT

The walk audit is a learning experience for both the participants and facilitators. Most participants will know more about the daily use and traffic patterns of the area than the facilitators. The combination of the facilitator's site analysis skills and the community's knowledge of the place strengthens the results of the walk audit and can position it as a catalyst for change.

Before beginning the walk, facilitators should review the walk audit process with participants. The mechanics of the walk audit are straightforward. Participants are given a map of the walking route and a walk audit form which lists several prompts to remind them of the infrastructure elements to look for and questions to consider while walking.

Many different organizations have published checklists, forms and other tools to measure walkability. Scores can be effective in establishing priorities or rankings, and may be most useful when completing inventories for large areas. For advocacy purposes, photographs and narrative descriptions of infrastructure problems and needs have proven effective in prompting change.

Along the walk route, stop and evaluate each length of road/street and intersection. Assess both the safety and aesthetics of the pedestrian environment. Take note of how participants feel while walking along a road (e.g., crowded, protected, exposed, relaxed, etc.) and see if they can identify the elements of the built environment that contribute to their feelings (e.g., trees, no curb, narrow sidewalk, fast moving traffic, smooth pavement, etc.). Facilitators should point out both positive and negative aspects of the walking environment. Any key elements identified in the pre- walk audit site visit should be discussed. Preliminary recommendations for improvements can be made on the walk audit. If there are examples of well-designed infrastructure (e.g., intersections, curb radii, crosswalks, curb ramps, bulb-outs, etc.), then be sure to refer to them as models.

DISCUSS WALK AUDIT EXPERIENCE AND ANSWER ANY QUESTIONS

At the conclusion of the walk audit, it is helpful to regroup and discuss the experience collectively. Using flip charts, facilitators can record participant observations and proposed recommendations. If participants are willing to share their notes/drawings, these can be helpful in preparing the summary report. Participants are often thankful for not only the experience of the walk audit, but also the opportunity to meet/work with others that share the common interest of improving the community's walkability.

PREPARE SUMMARY REPORT OF FINDINGS

The report gives walk audit participants and members of the community with a summary of what was observed as well as recommendations for improvements to physical infrastructure. The report can also suggest policy recommendations that support pedestrian safety, such as complete streets policies. A model report might include the following sections:

1. **Description of the study area**: neighborhood, landmarks, institutions, and land use (residential, commercial, etc.). Information about the school or town center should also be included (enrollment, number of students walking, traffic volumes, downtown character, etc.).

2. **Walk audit**: purpose, participant names and affiliations, weather description, time of day audit was conducted, summary of the walking route (map is important).

3. **Overall findings and key recommendations**: general description of the walking experience in the study area and list of specific pedestrian infrastructure recommendations by street/intersection (details to be covered in the body of the report).

4. **Specific recommendations**: description of each major road/street in the study area and the recommended infrastructure improvements. Headings within this section could be road or intersection names with descriptions and recommendations specific to that location. Or, headings could be a sentence describing an observation about a link or intersection on the walking route followed by a description and recommendations. In either case, recommendations should be bold and easy for the reader to find when flipping through the document.

5. **Terminology**: definition of key terms used in the report that describe the walking environment (crosswalk, curb ramp, curb extension, fog line, etc.). Can be in an appendix or included before the findings sections of the report.

COMMON TERMINOLOGY USED DURING A WALK AUDIT

CROSSWALK AND STOP LINE

Crosswalks can be painted in a variety of ways, some of which are more effective in warning drivers of pedestrians. Crosswalks are usually accompanied with stop lines. These lines act as the legally mandated stopping point for vehicles, and discourage drivers from stopping in the middle of the crosswalk.

CURB RAMP AND DETECTABLE WARNING STRIP

Curb ramps provide access from the sidewalk to the street for people using wheel chairs and strollers. They are most commonly found at intersections. While curb ramps have improved access for wheelchair-bound people, they are problematic for visually impaired people who use the curb as an indication of the side of the street. Detectable warning strips, a distinctive surface pattern of domes detectable by cane or underfoot, are now used to alert people with vision impairments of their approach to streets and hazardous drop-offs.

CURB EXTENSION/CURB BULB-OUT

A sidewalk extension into the street (into the parking lane) shortens crossing distance, increases visibility for walkers and encourages eye contact between drivers and walkers.

CURB RADIUS

A longer curb radius (on the left in figure below) allows vehicles to turn more quickly and creates longer crossing distance for pedestrians. A shorter curb radius (on the right in the figure below) slows turning speeds and provides pedestrians shorter crossing distances.

There are two excellent examples of the shortening of curb radii in Woburn, MA. The first (A) is a low- cost solution using a gravel-filled zone between the original curb line and the newly established road edge. The second is a higher-cost solution using grass and trees and extending the sidewalks to the new curb. Both work to slow traffic.

FOG LINE

A fog line is a solid white line painted along the roadside curb that defines the driving lane and narrows the driver's perspective. Fog lines are most often used in suburban and rural locations, but may be appropriate in some urban conditions.

IN-STREET PEDESTRIAN CROSSING SIGN

In-street pedestrian crossing signs are used at the road centerline within crosswalks to increase driver awareness of pedestrians in the area. These signs are relatively low-cost, highly effective tools to slow traffic by the narrowing travel lanes. They are popular with road maintenance departments since they can be easily moved for snow removal.

APPENDIX E: BICYCLE AND PEDESTRIAN FACILITY CONSIDERATIONS IN THE SITE PLAN REVIEW/BUILDING PERMIT REVIEW PROCESS

OVERVIEW

Development projects can have a powerful impact on promoting active transportation modes. Depending on the scope of a project, roadway and/or intersection design including pedestrian and bicycle considerations can be part of construction projects. The design review process associated with development is an opportunity to evaluate projects for their impact to the bicycle and the pedestrian environment at site locations and their immediately surroundings. The criteria summarized below describe general categories to consider when reviewing site plans for their effectiveness in supporting bicycle and pedestrian-friendly conditions. These criteria are designed to be used by both public agencies responsible for approving development projects as well as community groups seeking an understanding of ways that physical development can support active transportation.

NEIGHBORHOOD CONTEXT AND LAND USE

- Connect to existing sidewalks, bicycle lanes, multi-use trails, transit stops, parks, and neighborhood schools.
- Reduce on-site driving through efficient design of roads and parking areas.[8]
- Encourage short block lengths that provide more crossing options and flexibility for pedestrians. In cases where long blocks are unavoidable, provide safe mid-block crossings highlighted with signage, curb extensions or traffic signals where appropriate.[9]
- Provide direct and adequate access to public transit where possible.
- Consider a Crime Prevention Through Environmental Design (CPTED) approach that places and designs physical features to maximize visibility: building orientation, windows, entrances and exits, parking lots, walkways, landscaping, fences or walls, lighting and signage.[10]
- Encourage pedestrian-supportive commercial uses in downtown or pedestrian-oriented districts, such as stores, restaurants or parks at street level. Discourage drive-through establishments (banks, restaurants and pharmacies) and auto repair shops that can interrupt or endanger foot and bicycle traffic.[11]

[8] Healthy Community Design Toolkit - Leveraging Positive Change, p.17.
[9] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/short-street-blocks
[10] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/eyes-street
[11] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/pedestrian-supportive-commercial-uses

BUILDING DESIGN

PEDESTRIANS

- Provide opportunities for natural surveillance (e.g., limit garage-fronts on houses, encourage alley-access or set back garages, orient front doors facing the street, include front porches limits, front fence heights, and promote use of materials that promote visibility (e.g., wood, chain link or ornamental metal).[12]
- Orient buildings to serve pedestrians on the street, (e.g., locate main building entrance along sidewalk, and include human scale architectural details such as windows, articulated exteriors patterns or sheltering roofs).[13]
- Encourage a percentage (70-80%) of the building facade be built along street property line to form a street wall that feels comfortable to pedestrians (most likely in downtown centers and retail settings).[14] Allow some variation along the edge to promote diversity of uses and building forms.
- Limit the amount of uninterrupted building length (e.g., limit contiguous building length (new or contiguous groups of buildings) to three hundred feet (300').[15]
- Where applicable, incorporate the consideration of existing bicycle and pedestrian plan implementation into the development application review.

VEHICLE PARKING

- Locate parking lots to the side of or behind buildings, with the main entrance in the front near the sidewalk. A secondary entrance may be oriented to the parking.[16]
- Provide surface lot size and design requirements, including pedestrian and vehicle separation (walkways), landscaping, etc.
- Require pedestrian paths to/from, and within, the parking facility.

[12] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/eyes-street
[13] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/human-scale-building-facade
[14] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/street-walls
[15] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/human-scale-building-facade
[16] Healthy Community Design Toolkit - Leveraging Positive Change, p. 17.

Driveways and Curb Cuts

- Limit the number of driveways on arterial streets (i.e. access management), which reduces danger to bicyclists and pedestrians by reducing number of turning movements.
- Require level (flat) and continuous sidewalks at driveways so they do not look like roadways.

Bicycle Facilities

- Provide showers, lockers, and bicycle fix-it stations[17] for bicycle commuters.
- Offer safe, secure, and convenient bicycle parking.
- Show bicycle parking in detail on plans.
- Label number and type of bicycle racks on plans.
- Label dimensions of bike parking areas on plans.
- Provide long-term bike parking in secure, weather protected locations and short-term bike parking near entrances of the use being served.
- Show bicycle parking sign locations and showers for bicycle commuters, if applicable.[18]
- Evaluate the potential to add on-street bicycle facilities to the abutting roadways of the project site, such as bicycle lanes, cycle tracks, bike boxes, and bicycle corral parking (For examples see, the Urban Bikeway Design Guide http://nacto.org/cities-for-cycling/design-guide/).
- Where applicable, incorporate the consideration of existing bicycle and pedestrian plan implementation into the development application review.

Pedestrian Infrastructure

Sidewalks

- Include site-wide sidewalk networks in large developments.[19]
- Require sidewalks on both sides of the street.
- Require that sidewalk width be based on pedestrian volumes in the area.
- Provide a physical barrier between the sidewalk and vehicular traffic to ensure pedestrian safety and comfort. Physical barriers include planting strips, furniture zones, on-street parking, bike lanes and transit stops.[20]
- Ensure that pedestrian ramps meet Massachusetts Architectural Access Board (MAAB) Guidelines.

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[17] City of Cambridge, Community Development Department. https://www.cambridgema.gov/CDD/Transportation/gettingaroundcambridge/bybike/fixitstations.aspx

[18] City of Cambridge, Building Permit Review Guideline. http://www2.cambridgema.gov/traffic/bldgptrvwgdlines.cfm

[19] Healthy Community Design Toolkit - Leveraging Positive Change, p. 17.

[20] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/buffering-traffic

- Walking surfaces should be continuous and smooth with no variations greater than a quarter of an inch (ADA and Mass State Access Code). While concrete is the preferred standard material, other materials are acceptable if they can maintain a smooth, vibration-free surface.

LIGHTING

- Promote pedestrian-scaled lighting that is nearer to the ground, spaced closer together, white in color, and has interesting and/or attractive shaped fixtures.[21]

STREET TREES

- Require shade trees along streets with high pedestrian volumes. Trees should be planted between 30 and 45 feet apart, be of sufficient size to survive urban conditions, and be provided with adequate access to water, soil and air to promote growth.[22]

UTILITIES

- Encourage the location of utilities underground or in rear alleys so that access and utility boxes are also hidden from view.[23]

SIGNAGE

- Consider pedestrian scale signage for development sites in retail or special interest areas (e.g., historic or downtown districts). Signs should be consistent in shape, size, color, height and lettering. Pedestrian signs assist in wayfinding.

[21] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/pedestrian-oriented-lighting
[22] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/shade-trees
[23] ChangeLab Solutions. Pedestrian Friendly Code Directory: Buffering From Traffic http://changelabsolutions.org/childhood-obesity/underground-utilities

APPENDIX F: COMPLETE STREETS NETWORK DATA ANALYSIS

RACE AND ETHNICITY

The four maps on the following pages show which U.S. Census block groups have the largest percentages of whites, African Americans, Asians, and Hispanics. Key takeaways from this data are:

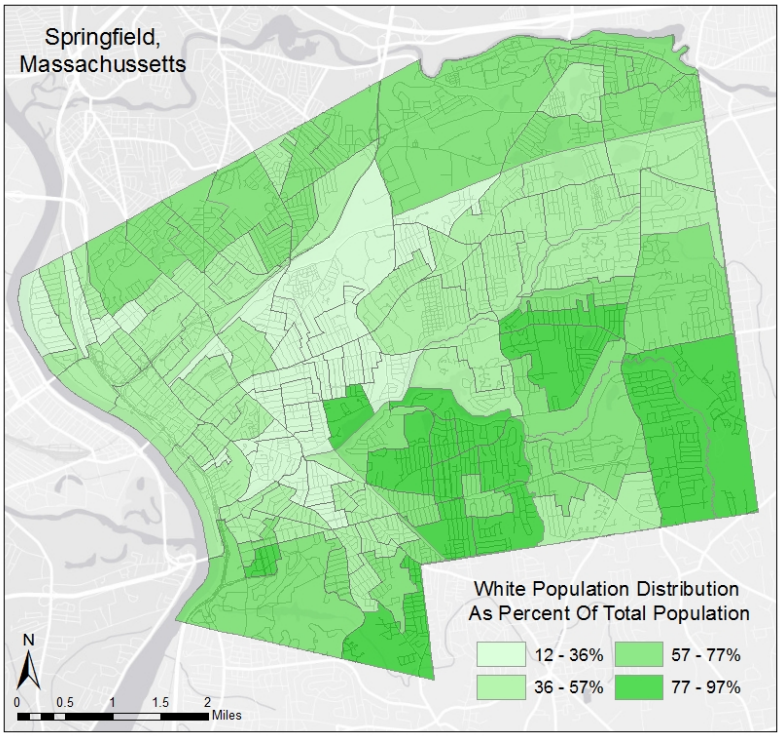
- The largest African-American communities are located in the McKnight, Bay, Old Hill, and Upper Hill neighborhoods. Many portions of these neighborhoods are over 50% African American. Overall, 21.6 percent of Springfield residents are African-American.

- The largest Asian communities in the city are located in the Forest Park neighborhood, with up to 15% of residents in some block groups identifying as Asian. East Forest Park also has a higher percentage of Asian residents than the city average of 2.3%. Vietnamese residents compose over half of the city's Asian population.

- The largest Hispanic populations in the city are located in the North End neighborhoods of Brightwood and Memorial Square, with up to 90 percent in some block groups. There are also large numbers of Hispanic residents in Metro Center, South End, Six Corners, Liberty Heights, East Springfield, Bay, McKnight, Pine Point, and Boston Road. Overall, 39.5% of the city's population identifies as Hispanic, of which 85% is Puerto Rican.

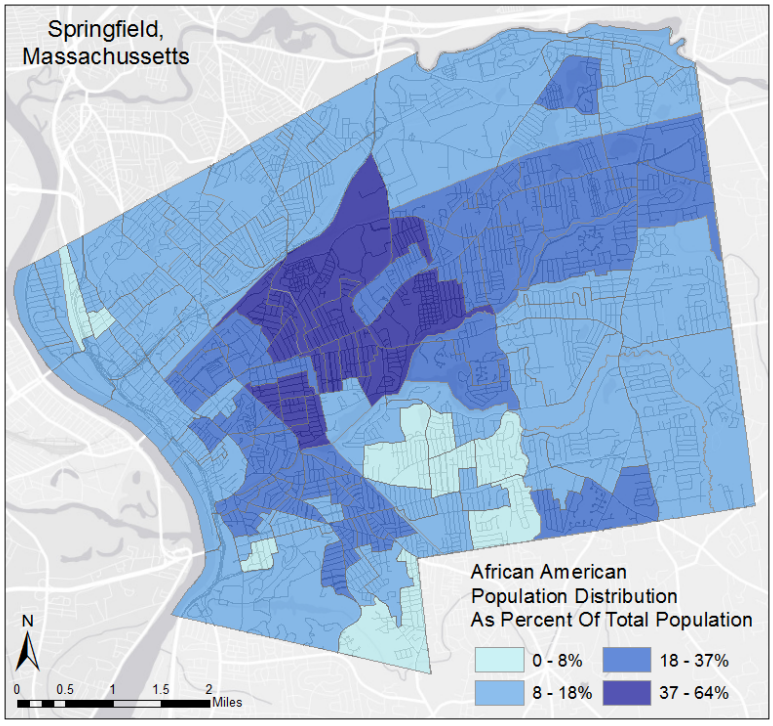
The findings above indicate that minority residents are living in sub-groups throughout the city. Segregation is an issue in Springfield, but the data show that non-whites live in many neighborhoods throughout the city. To accommodate all residents, and assure equitable distribution of resources, bicycling and walking infrastructure needs to be implemented citywide.

White Population Distribution as Percent of Total Population



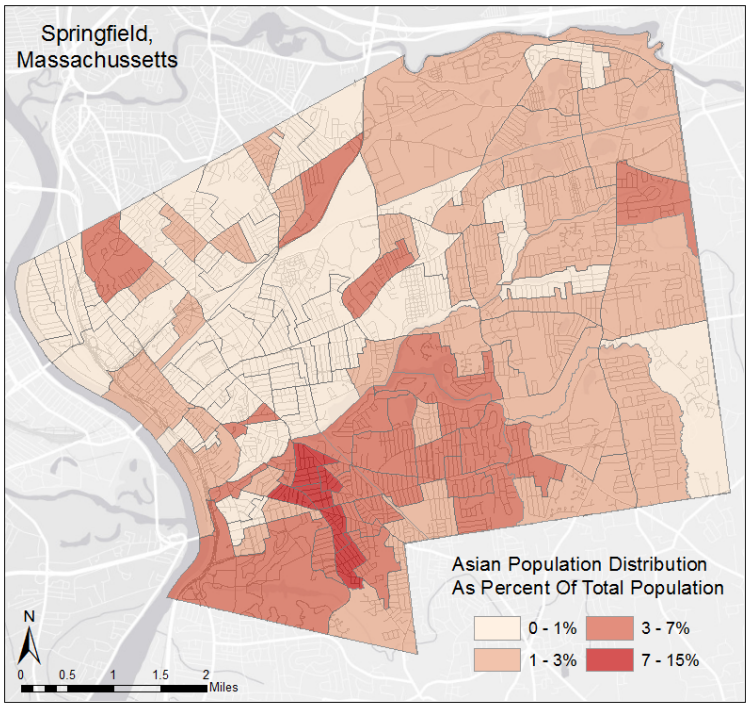
Source: American Community Survey, 2008-2013

African-American Population Distribution as Percent of Total Population



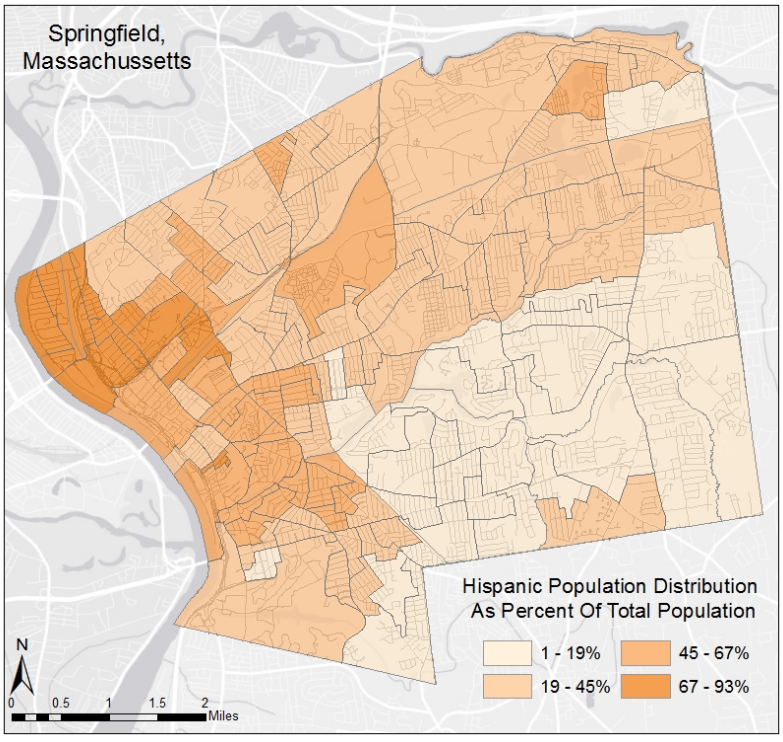
Source: American Community Survey, 2008-2013

Asian Population Distribution as Percent of Total Population



Source: American Community Survey, 2008-2013

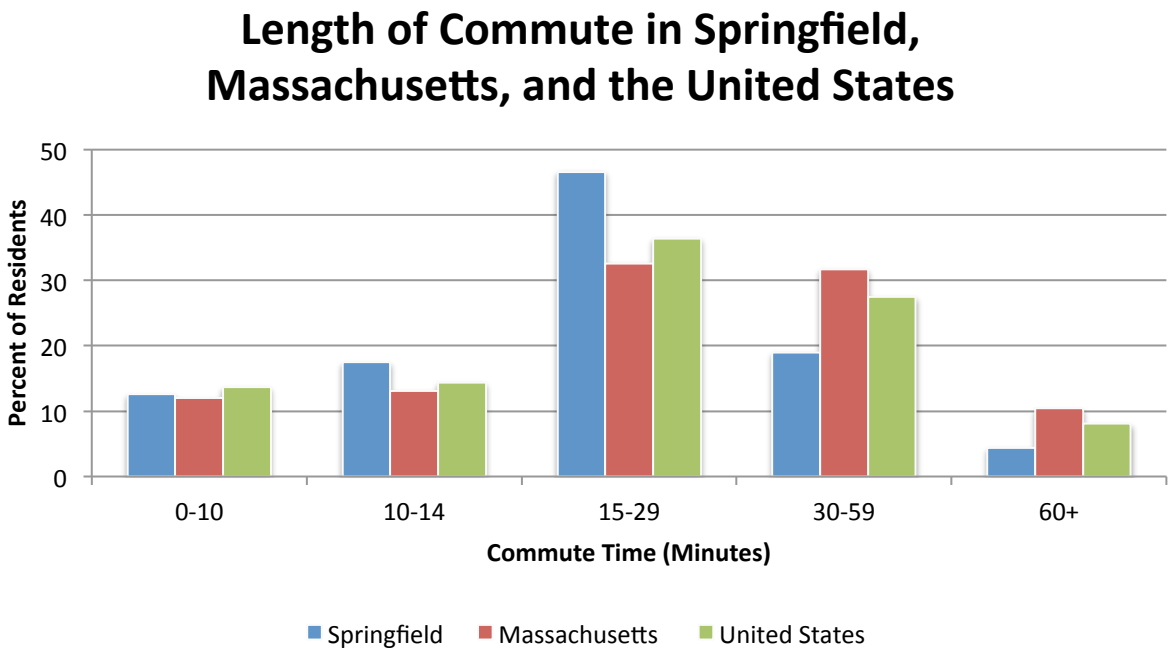
Hispanic Population Distribution as Percent of Total Population



Source: American Community Survey, 2008-2013

Commuters with Short Commute Times

Commuting to work is a major percentage of all vehicle trips made by Springfield residents and there is great potential for improving residents' health, the environment and promoting the local economy by replacing some of these trips with alternative transportation. Bicycling and walking are best suited for shorter trips, meaning that it is most useful to identify how many Springfield residents have short commute times (0-10 minutes and 10-14 minutes) and where they live. A breakdown of commute times, in comparison with national and state averages is shown in the table below.



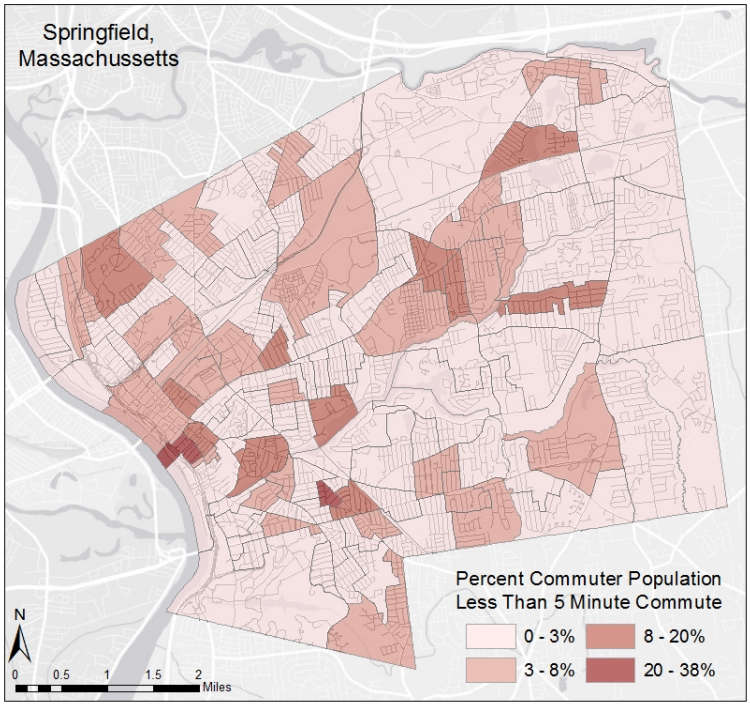
Source: American Community Survey, 2008-2013

Overall, average commute times for Springfield residents are slightly lower than the state and national rates. The average commute time for the City of Springfield is 21.4 minutes, below the state average of 27.7 minutes and the national average of 25.4 minutes. However, as shown in the table above, the percentage of residents with commutes of fewer than 15 minutes is about the same as the state and national average.

Residents with shorter commute times tend to live in specific areas of the city. Metro Center, Pine Point, and the North End are areas of Springfield in which the highest number of residents have commute times of less than 5 minutes. These neighborhoods, as well as portions of neighborhoods throughout the city, also have a large number of residents with commute times between 5 and 15 minutes and are therefore, great locations for prioritized Complete Streets improvements.

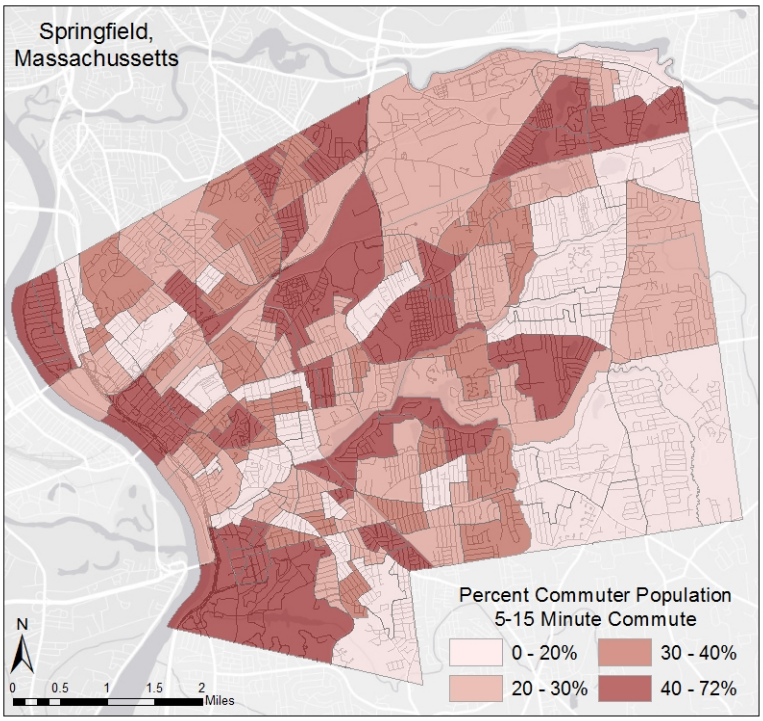
This data indicates that bicycle and pedestrian infrastructure improvements targeted for the Metro Center and the North End neighborhoods offer the greatest potential for increasing commuting by bicycling and walking.

Percent of Commuter Population with a Less Than 5 Minute Commute



Source: American Community Survey, 2008-2013

Percent of Commuter Population with a 5-15 Minute Commute

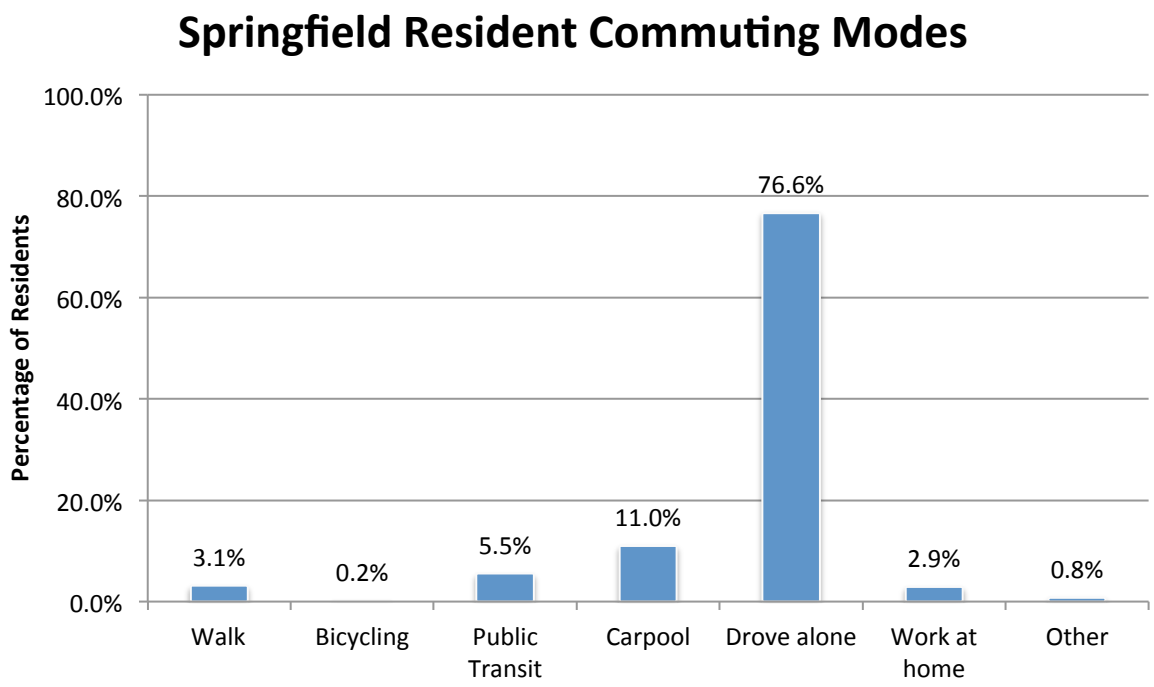


Source: American Community Survey, 2008-2013

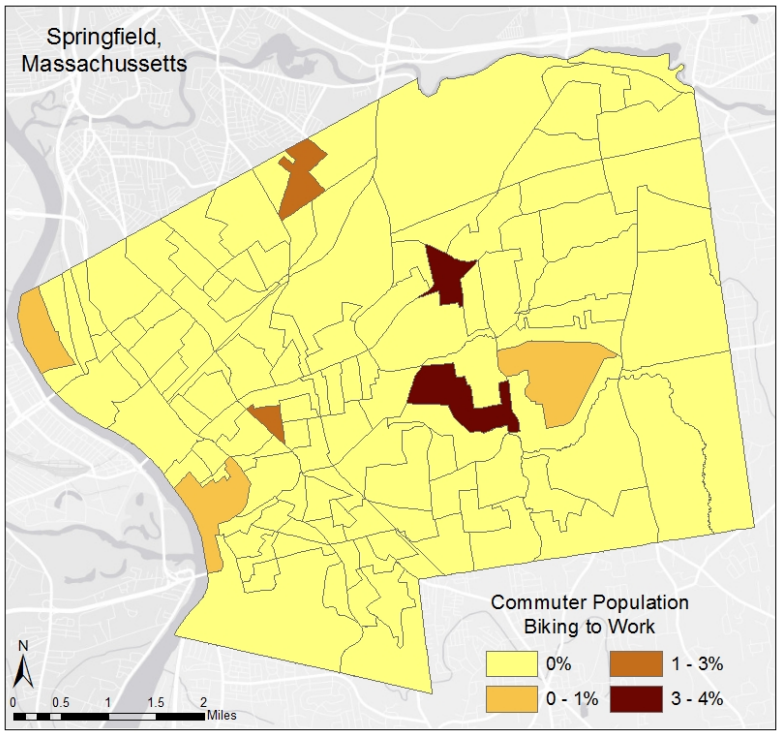
Transportation Mode for Commuting to Work

Despite the short commute times of many Springfield residents, the majority of Springfield residents use their car to commute to work by driving alone (76.6%). As shown in the table below, citywide 3.1 % of residents walk to work, but a very small number, (0.2%) bicycle to work. However, there are certain neighborhoods in Springfield where the rate of walking is significantly higher than the citywide average. Areas of Metro Center have up to 60% of residents walking to work. This speaks to the walkability and density of this area of the city. The North End neighborhoods, as well as the Six Points neighborhood, also have significantly higher rates of walking to work than the city average.

Unlike walking, there are not significant concentrations of areas of the city in which people bicycle to work. A slight exception to this is an area of Sixteen Acres neighborhood, in which up to 4% of the population is bicycling to work, thus making this neighborhood a good early target for on-road bicycling infrastructure enhancements.

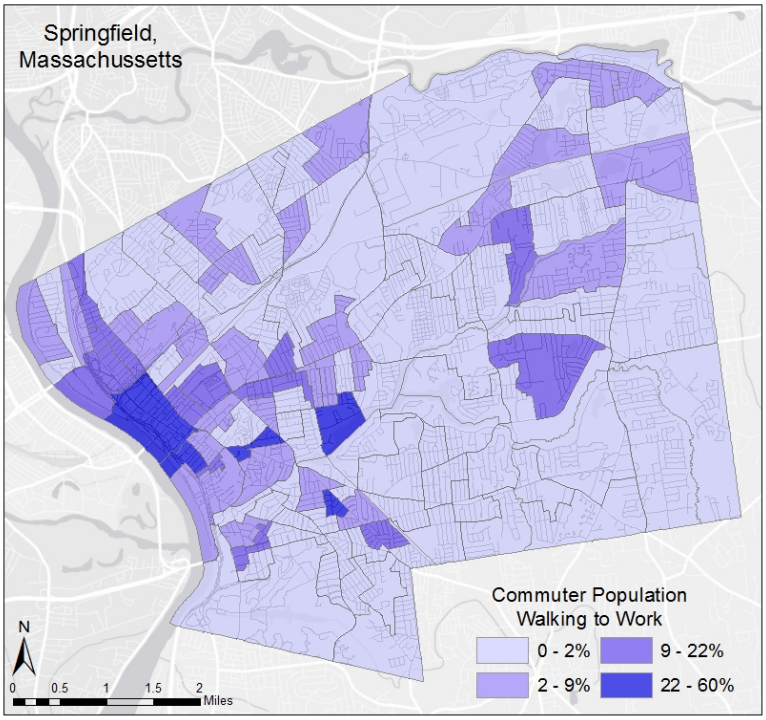


COMMUTER POPULATION BICYCLING TO WORK



Source: American Community Survey, 2008-2013

COMMUTER POPULATION WALKING TO WORK



Source: American Community Survey, 2008-2013

RESIDENTS WITHOUT CARS

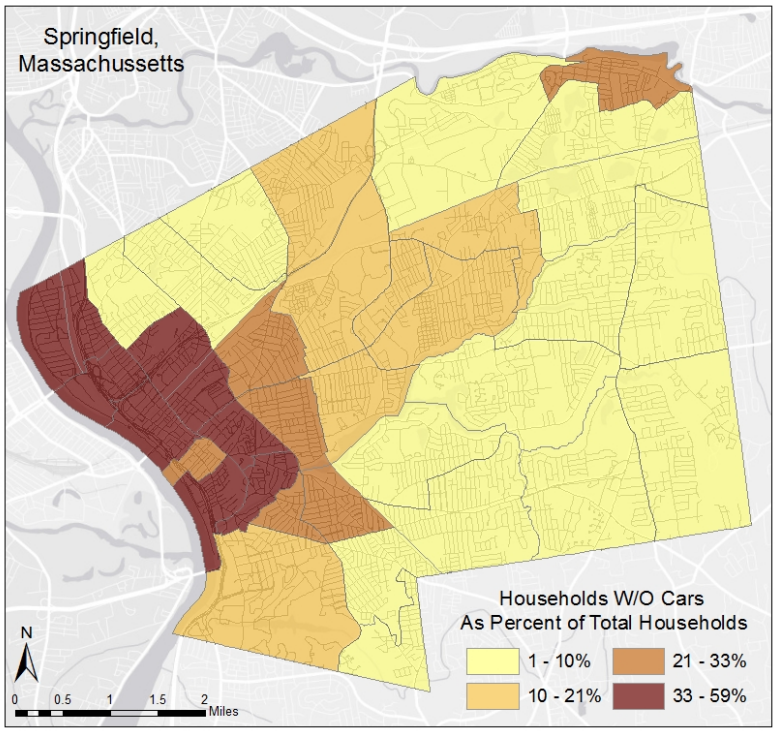
Consistent with the fact that most Springfield residents commute alone by car, the majority of Springfield households have access to at least one automobile. Citywide, 7.5% do not have access to a car. However, the residents who do not have access to a car are densely concentrated in specific neighborhoods of the city. These areas are the neighborhoods of the North End, South End, and Metro Center, portions of which have a third to over half of residents that do not have access to a car.

Access to cars is closely related to household income. With fewer financial resources, low-income households often have reduced access to cars and must rely more on alternative modes of transportation. According to the Federal Highway Administration, households living in auto-dependent locations spend 25% of its income on transportation costs. [24] There is a correlation between income and car ownership. Areas of the city that have the lowest household median incomes also have the highest percentages of residents who do not own cars.

The relationship between cars and income means that auto-dependency puts those with lower incomes at an unfair disadvantage. With less transportation access, low-income residents must spend more of their time using public transit, walking, or bicycling. The current limitations in these transportation options restrict the mobility of many residents in the North End, South End, and Metro Center. Improving bicycling and walking in the City of Springfield will help reduce the unfair burden placed on low-income households by providing convenient, inexpensive alternatives to traveling by car.

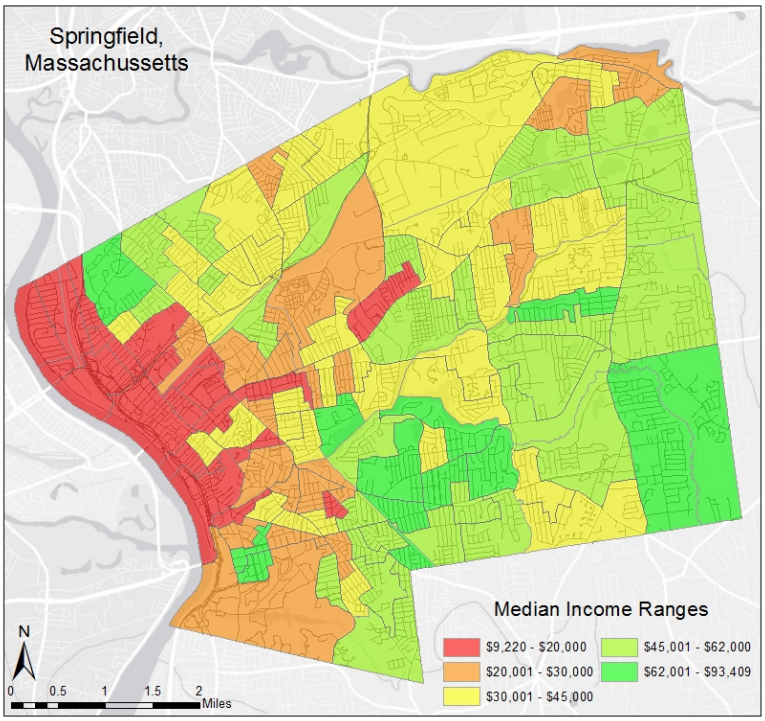
[24] Federal Highway Administration. Livability Initiative Transportation and Housing Costs. https://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.cfm Accessed March 4, 2014.

Percent of Households that Do Not Own a Car



Source: American Community Survey, 2008-2013

Median Household Income



Source: American Community Survey, 2008-2013

Values Assigned for Activity Generators Heat Map

Layer	Source	Points
Population Density		
Density Less than 600 Per Sq. Mile	Census 2010 Block Groups	**1**
Density 600 - 1999 Per Sq. Mile	Census 2010 Block Groups	**2**
Density 2000 - 3499 Per Sq. Mile	Census 2010 Block Groups	**3**
Density 3500 - 7499 Per Sq. Mile	Census 2010 Block Groups	**4**
Density 7500 - 34000 Per Sq. Mile	Census 2010 Block Groups	**5**
Population 20-49		
Density Less than 1000 Per Sq. Mile	Census 2010 Block Groups	**1**
Density 1000 - 2499 Per Sq. Mile	Census 2010 Block Groups	**2**
Density 2500 - 5500 Per Sq. Mile	Census 2010 Block Groups	**3**
Density 5500 - 9999 Per Sq. Mile	Census 2010 Block Groups	**4**
Density 10000 - 15000 Per Sq. Mile	Census 2010 Block Groups	**5**
Employment Density		
Density Less than 350 Per Sq. Mile	ACS 5 year Estimates 2006-2010 Block Groups	**1**
Density 350 - 999 Per Sq. Mile	ACS 5 year Estimates 2006-2010 Block Groups	**2**
Density 1000 - 2499 Per Sq. Mile	ACS 5 year Estimates 2006-2010 Block Groups	**3**
Density 2500 - 3999 Per Sq. Mile	ACS 5 year Estimates 2006-2010 Block Groups	**4**
Density 4000 - 12082 Per Sq. Mile	ACS 5 year Estimates 2006-2010 Block Groups	**5**
Attractors		
Colleges	MassGIS	**5**
Libraries	MassGIS	**3**
Bike Trails	MassGIS	**5**
Train Stations	Multiple	**5**
Post Offices	PVPC	**3**
Hospitals	MassGIS	**3**
Schools	MassGIS	**5**
Grocery Stores	PVPC	**3**
Shopping Centers	PVPC	**5**
Parks/Rec	MassGIS	**1-5 (By Size)**
Bus Lines	PVTA	**3 (within 1/8th mile) 1.5 (with in 1/4 Mile)**
Proximity To Features	*Only for Colleges, Libraries, Bike Trails & Train Stations, Hospitals, Schools, Grocery, Shopping Centers, and Post Offices	
1/8 Mile	**(Points) * 1**	
1/4 Mile	**(Points) * 0.8**	
1/3 Mile	**(Points) * 0.6**	
1/2 Mile	**(Points) * 0.4**	
1 Mile	**(Points) * 0.2**	

USING THE BICYCLE LEVEL OF SERVICE MODEL (BLOS) TO EVALUATE ROADWAYS

The Bicycle Level of Service (BLOS) evaluation was applied to roadways in Springfield, Massachusetts with the goal of evaluating roadway conditions. These evaluations will serve as a resource to local planning officials in identifying roadway improvement projects that could improve conditions for bicycling in the community. The BLOS evaluation of the Springfield roadway network is provided in Table 3 (page 4-9). Roadway segments are identified by their score on the accompanying map. Conditions on roadways with BLOS scores below level "C" would be considered roadways that experienced bicyclist avoid, while level of service "A" roads appeal to a broad range skill levels. Neighborhood street were not included in the evaluation. Most neighborhood streets in Springfield would be classified as level of service "A" due to the low volume/ low speed nature of the traffic flows on these roads.

The BLOS is a useful tool for evaluating local conditions for bicycling. By using the model in a "what if" scenario local officials can assess the impact of proposed improvements. Changes to shoulder width, resurfacing, or striping can be readily assessed. Routes with high potential for bicycling, including those connecting schools, recreation areas, and public buildings can be evaluated and prioritize for improvements. As a planning tool the BLOS model is an easy to use resource for managing transportation resources efficiently.

Existing roads provide cyclists with the most direct connections from origin to destination, just as they do motorists. In the past, a method for evaluating roadways either did not exist or relied on the opinions of local bicyclists. While bicyclists have proven to be skilled at assessing the relative safety of traffic and roadway conditions they encounter, their assessment is largely subjective, i.e. "the road little shoulder", "traffic is heavy", "it's dangerous". Relying on individual assessments creates a large margin for error, can be time consuming, and may not provide a clear course of action. The Bicycle Level of Service model is designed to overcome these limitations and allows local officials to assess existing conditions and identify future highway improvements. The Bicycle Level of Service (BLOS) model defines a bicyclist perception of traffic conditions and a road's geometry in a "A" through "F" level of service score. ("F" as the lowest rating)

To calibrate the BLOS, bicyclists from across the Pioneer Valley Region participated in a two month survey evaluating of over 900 miles of roadway in 1997. The cyclists evaluated roads on the routes they travel most often as well as those roads they intentionally avoid. Participants were asked to identify deficiencies including; narrow widths, heavy traffic volume, or high speeds. Also identified were favored routes, those that were characterized as direct or having low motor vehicle volumes, scenic qualities, or particularly pleasant to ride. The information was tabulated and route evaluations were collected on a base map. The evaluations were then correlated with objective data collected from the MassHighway Roadway Inventory File, and Pioneer Valley's Region Traffic Count Program. Significant variables were identified and assigned coefficients to obtain a correlation with the bicyclist's assessment. Variables selected include: traffic volume, roadway width, travel speed, and conflicting traffic movements along the roadway segment. The variables and their coefficients create the BLOS model and are defined in an equation.

Bicycle Level of Service (BLOS) Equation:

$BLOS=a_1\ln(vol_{15}/L)+a_2\ln(SPD)+a_3\ln(COM15)+a_4\,(PC5)^{-2}-a_5(W_e)^2-C$

Coefficients: a_1 = .607 (Volume), a_2 = .901 (Speed), a_3 = .019 (Commercial Development), a_4 = 6.51 (Pavement Condition) a_5 = .005 (Roadway Width)

VARIABLES DEFINED

Variable		Definition	Baseline Inputs
Vol_{15}	=	Outside lane volume in 15 minute period during peak period. Assume directional split of .50, peak hour factor of 1.0, peak to daily factor of .10	12,000 vehicle per day
L	=	Number of travel lanes	2 travel lanes
W_e	=	width of the travel lane (including shoulder)	12 foot travel lane (including shoulder)
SPD	=	posted speed	40 mph posted speed
%HV	=	percent heavy vehicles (data was not collected)	2 percent heavy vehicles
PC	=	pavement condition (from PCI index)	80 (good pavement condition)
COM15	=	% commercial development 1.0 = high .10 = medium .01 = low	10 % com dev. (medium)
C	=	Constant	-1.833
CCF	=	curb cut frequency 60/ quarter mile = high 12/ quarter mile = medium 1/ quarter mile = low, medium, low)	12 curb cuts per 1/4 mile
ln	=	natural log	

BLOS SCORE

BLOS Grade	BLOS Score
A	< 1.5
B	< 2.5
C	< 3.5
D	< 4.5
E	< 5.5
F	> 5.5

APPENDIX G: MASSACHUSETTS BICYCLE SAFETY LAWS

OVERVIEW

Below is a summary of Massachusetts' bike laws that covers equipment, riding, safety standards, races, violations, and penalties.[25] This law applies to all cyclists in Massachusetts. For exact requirements, please read the complete text of the laws pertaining to bicyclists and bicycling in Massachusetts. General Laws of the Commonwealth of Massachusetts, Chapter 85, Section 11B. In addition, it is important to note that the city of Springfield prohibits bicycle riding on sidewalks.

CYCLIST RIGHTS

- You may ride your bicycle on any public road, street, or bikeway in the Commonwealth, except limited access or express state highways where signs specifically prohibiting bikes have been posted.
- You may ride on sidewalks outside business districts, unless local laws prohibit sidewalk riding.
- You may use either hand to signal stops and turns.
- You may pass cars on the right.
- If you carry children or other passengers inside an enclosed trailer or other device that will adequately restrain them and protect their heads in a crash, they need not wear helmets.
- You may hold a bicycle race on any public road or street in the Commonwealth, if you do so in cooperation with a recognized bicycle organization, and if you get approval from the appropriate police department before the race is held.
- You may establish special bike regulations for races by agreement between your bicycle organization and the police.
- You may have as many lights and reflectors on your bike as you wish.

CYCLIST RESPONSIBILITIES

- You must obey all traffic laws and regulations of the Commonwealth.
- You must use hand signals to let people know you plan stop or turn.
- You must give pedestrians the right of way.
- You must give pedestrians an audible signal before overtaking or passing them.
- You may ride two abreast, but must facilitate passing traffic. This means riding single file when faster traffic wants to pass, or staying in the right-most lane on a multi-lane road.
- You must ride astride a regular, permanent seat that is attached to your bicycle.
- You must keep one hand on your handlebars at all times.
- If you are 16 years old or younger, you must wear a helmet that meets U.S. Consumer Product Safety Commission requirements on any bike, anywhere, at all times. The helmet must fit your head and the chin strap must be fastened.
- You must use a white headlight and red taillight or rear reflector if you are riding anytime from 1/2 hour after sunset until 1/2 hour before sunrise.
- At night, you must wear ankle reflectors if there are no reflectors on your pedals.
- You must notify the police of any accident involving personal injury or property damage over $100.

[25] Excerpted with permission from the website of the Massachusetts Bicycle Association. www.massbike.org/resourcesnew/bike-law/#sthash.j8Eb3Ao9.pdf

- You may **not** carry a passenger anywhere on your bike except on a regular seat permanently attached to the bike, or to a trailer towed by the bike.
- You may **not** carry any child between the ages of 1 to 4, or weighing 40 pounds or less, anywhere on a single-passenger bike except in a baby seat attached to the bike. The child must be able to sit upright in the seat and must be held in the seat by a harness or seat belt. Their hands and feet must be out of reach of the wheel spokes.
- You may **not** carry any child under the age of 1 on your bike, even in a baby seat; this does not preclude carrying them in a trailer.
- You may **not** use a siren or whistle on your bike to warn pedestrians.
- You may **not** park your bike on a street, road, bikeway or sidewalk where it will be in other people's way.
- You may **not** carry anything on your bike unless it is in a basket, rack, bag, or trailer designed for the purpose.
- You may **not** modify your bike so that your hands are higher than your shoulders when gripping the handlebars.
- You may **not** alter the fork of your bike to extend it.

Cyclist Responsibilities: Equipment

- Your bike must have a permanent, regular seat attached to it.
- Your brakes must be good enough to bring you to a stop, from a speed of 15 miles an hour, within 30 feet of braking. This distance assumes a dry, clean, hard, level surface.
- At night, your headlight must emit a white light visible from a distance of at least 500 feet. A generator-powered lamp that shines only when the bike is moving is okay.
- At night, your taillight must be red and must be visible from a distance of at least 600 feet.
- At night, your reflectors must be visible in the low beams of a car's headlights from a distance of at least 600 feet. Reflectors and reflective material on your bike must be visible from the back and sides.

Penalties

- Violations of any of these laws can be punished by a fine of up to $20.
- Parents and guardians are responsible for cyclists under the age of 18.
- The bicycle of anyone under 18 who violates the law can be impounded by the police or town select board for up to 15 days.

Motorist Responsibilities

- Motorists and their passengers must check for passing bicyclists before opening their door. Motorists and their passengers can be ticketed and fined up to $100 for opening car or truck doors into the path of any other traffic, including bicycles and pedestrians.
- Motorists must stay a safe distance to the left of a bicyclist (or any other vehicle) when passing. Motorists are also prohibited from returning to the right until safely clear of the bicyclist.
- Motorists must pass at a safe distance. If the lane is too narrow to pass safely, the motorist must use another lane to pass, or, if that is also unsafe, the motorist must wait until it is safe to pass.
- Motorists are prohibited from making abrupt right turns ("right hooks") at intersections and driveways after passing a cyclist.
- Motorists must yield to oncoming bicyclists when making left turns. The law expressly includes yielding to bicyclists riding to the right of other traffic (e.g., on the shoulder), where they are legally permitted but may be more difficult for motorists to see.
- Motorists may not use the fact that bicyclists were riding to the right of traffic as a legal defense for causing a crash with a bicyclist.

Appendix H: Results from Springfield Bicycling and Walking Survey 2014

From October 2013 through March 2014 staff from MassBike and the Pioneer Valley Planning Commission held ten public meetings on the development of the Complete Streets Plan. Each meeting consisted of a discussion with residents about existing conditions and recommendations for improving biking and walking in Springfield, a mapping exercise to identify problem locations, and the completion by attendees of the Springfield Bicycling and Walking Survey 2014. Additionally, staff from MassBike and Partners for Healthier Communities attended seven community events to survey residents.
The following provides the dates and locations of each event.

Public Meetings

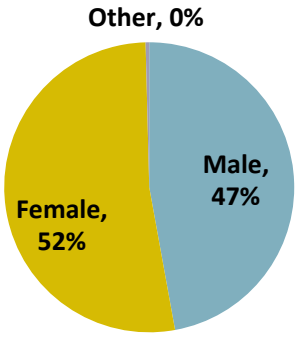
11/1/2013	Pioneer Valley Rowing Club
11/13/2013	Dunbar YMCA
11/14/2013	Dunbar YMCA
11/20/2013	Gerena Elementary School
12/6/2013	Vietnamese American Civic Association - Senior Citizens Meeting
12/5/2013	Vietnamese American Civic Association - Youth Meeting
12/12/2013	Mason Square Health Task Force
1/16/2014	Armory Quadrangle Civic Association
2/4/2014	Bay Area Neighborhood Council
3/11/2014	New North Citizens Council

Survey Tabling

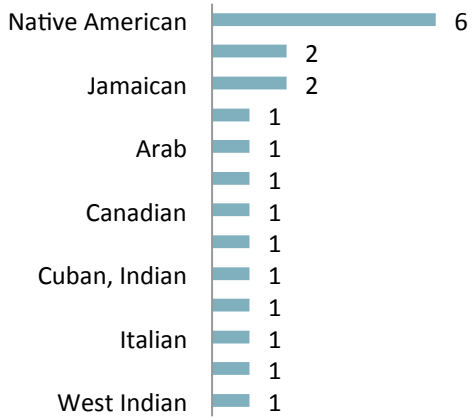
1/30/2014	Basketball Clinic - Dunbar YMCA
2/11/2014	Forest Park Library
2/20/2014	Springfield College Fit Fest
2/20/2014	YMCA- Chestnut Street
2/25/2014	Edgewater Brown Bag
2/28/2014	Boys and Girls Club
3/3/2014	Caring Health WIC Office - Main Street

Gender

Response rate = 81%

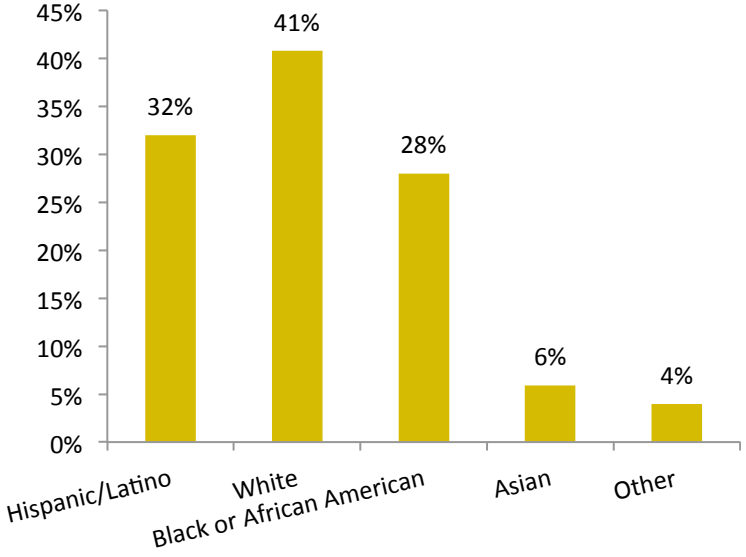


"Other" Responses for Race



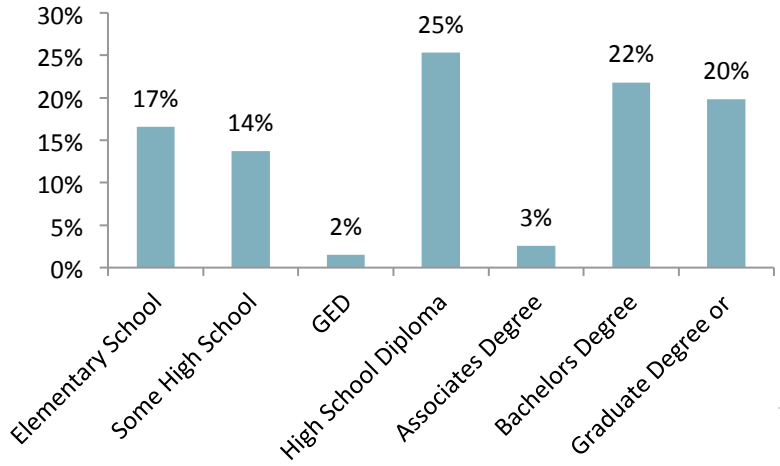
Race/Ethnicity (Check All That Apply)

Response rate = 79%



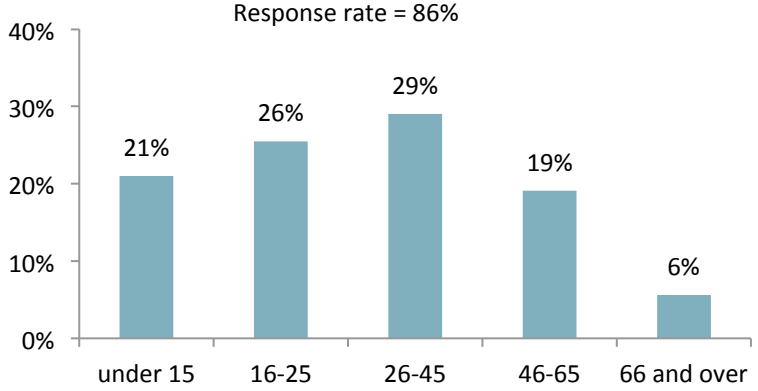
Highest Level of Education

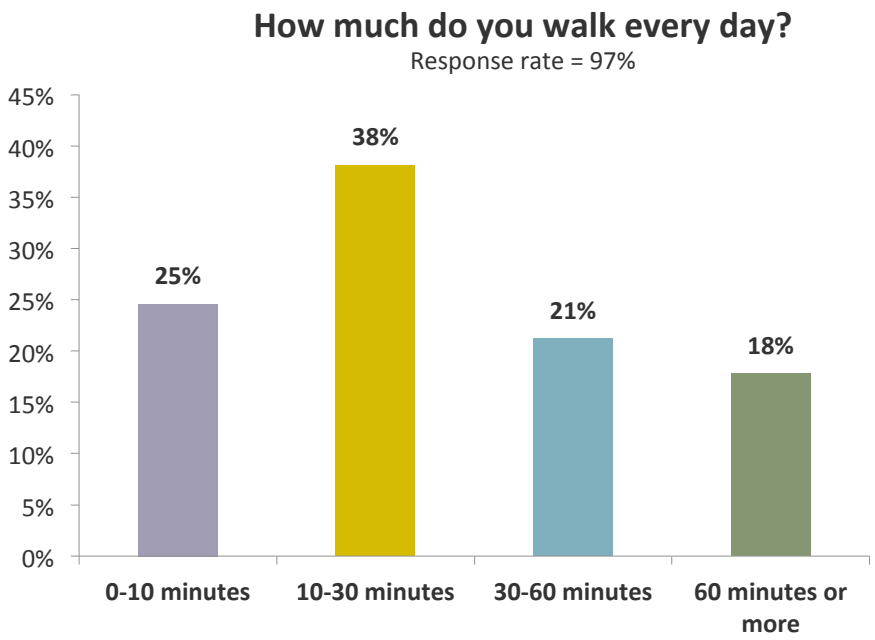
Response rate = 76%



Age

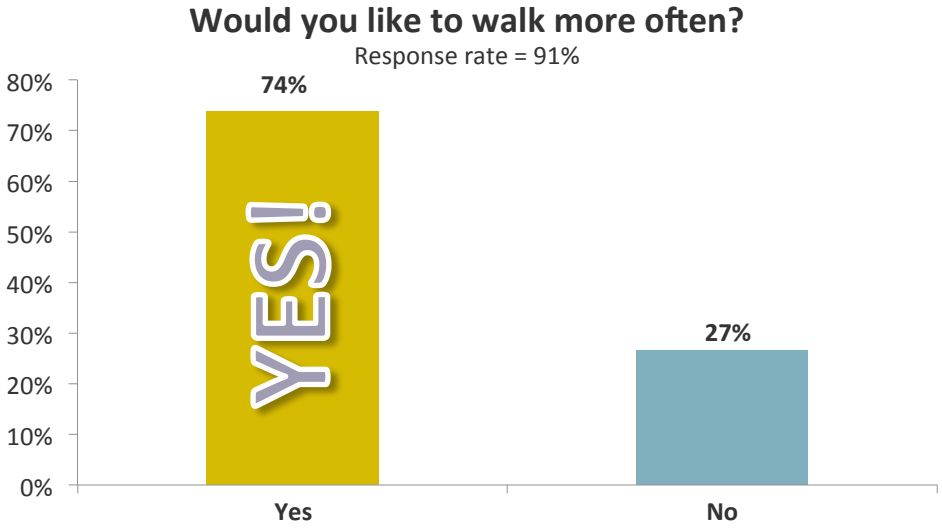
Response rate = 86%





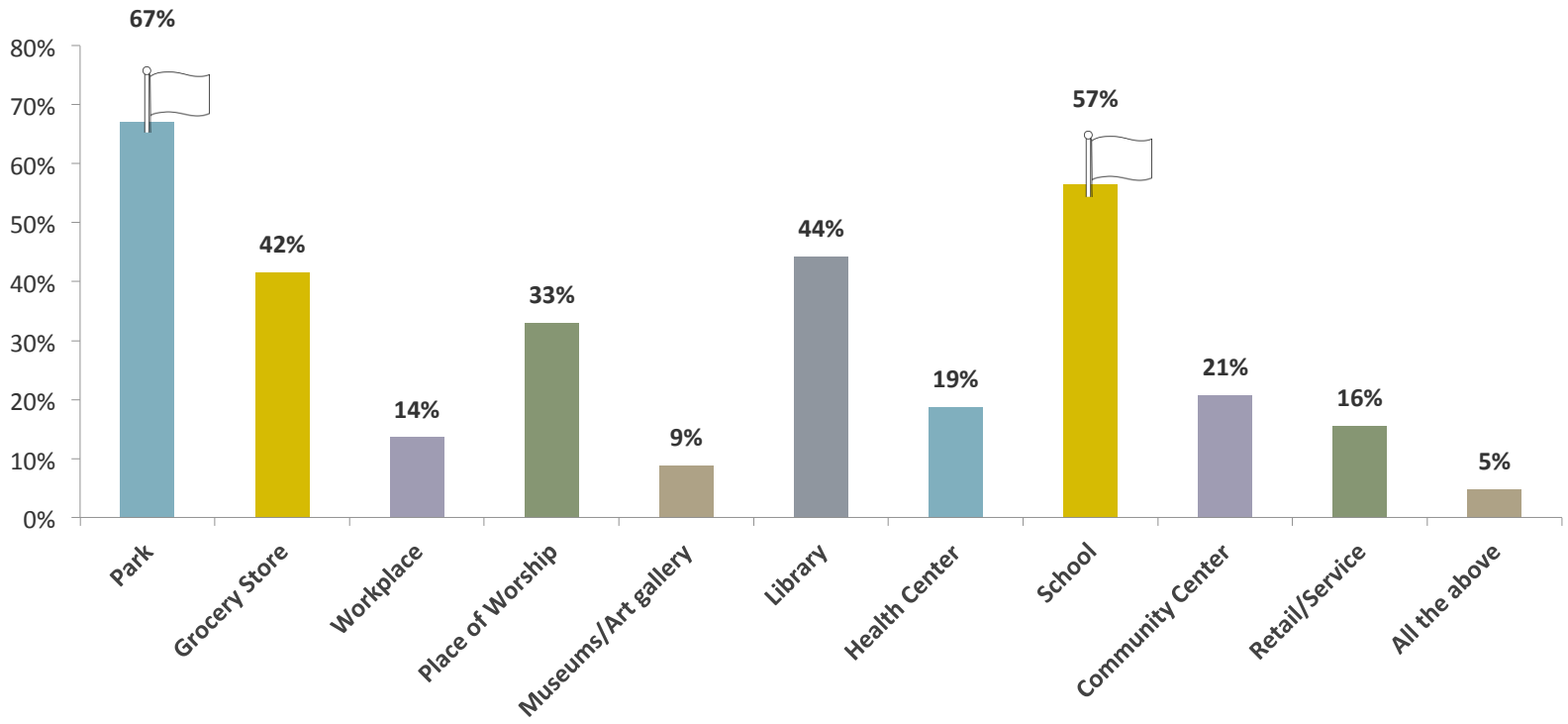
Did you know…
The Centers for Disease Control recommends 150 minutes of brisk walking every week!
That's only 20 minutes a day, seven days a week!
Source: CDC
http://tinyurl.com/7ljl5v





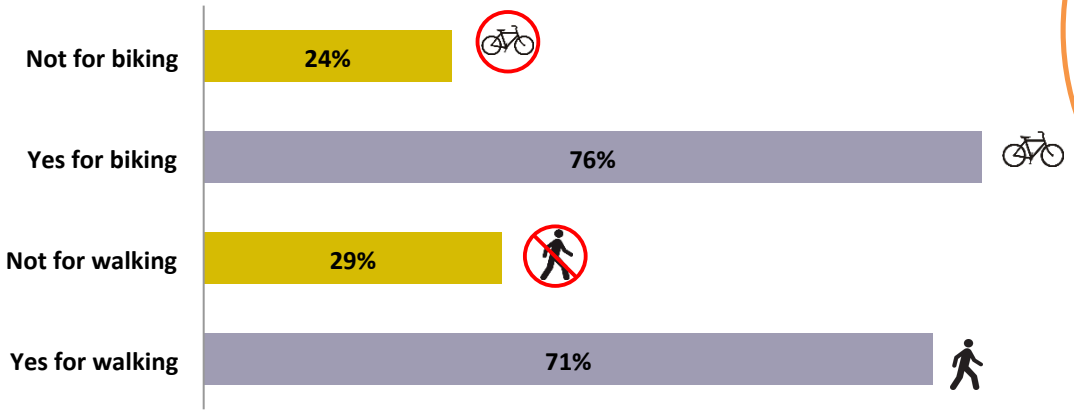
Which of the following neighborhood services are within walking distance of your home?

Response rate = 96%



Do you consider your neighborhood good for walking/ biking?

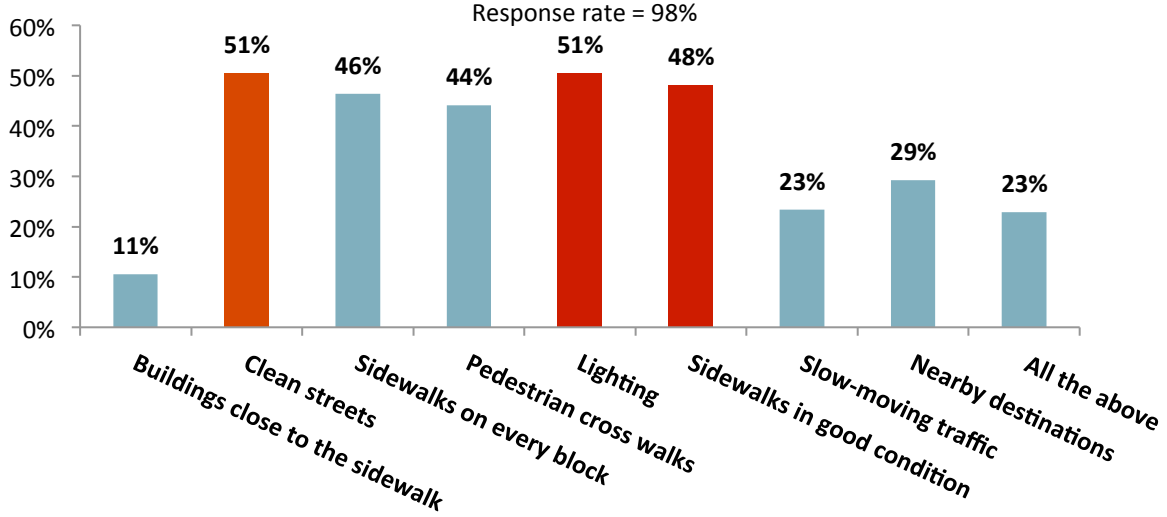
Response rate = 82%



Great News!
The majority of Springfield residents rate their neighborhood good for both walking and biking! The top three most important features that make for a great neighborhood for walking are clean streets, lighting, and sidewalks that are in good condition.

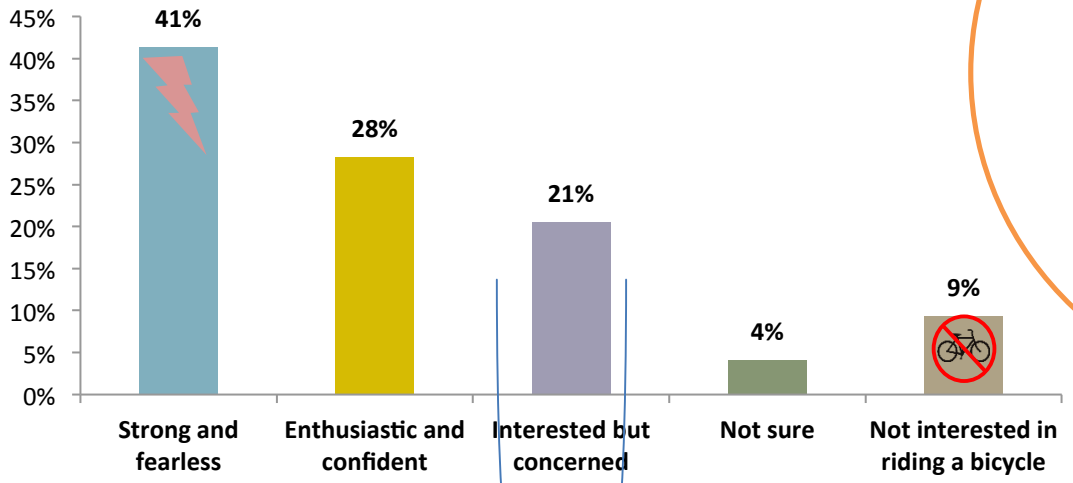
What features are important for making a neighborhood great for walking?

Response rate = 98%



How confident are you on a bicycle?

Response rate = 93%



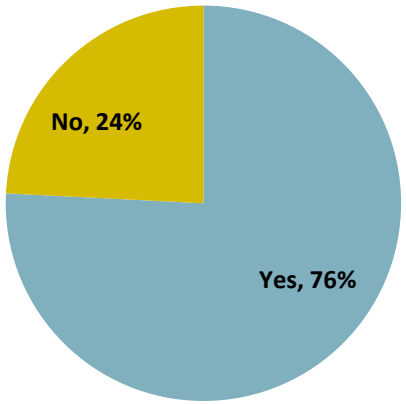
Did you know…
National data show that bicyclists riding in areas without off road bike paths or bike lanes are much more likely to *feel unsafe* compared to bicyclists riding on paths or lanes….
Also, nearly one-third of the population (32%) is dissatisfied with their community designs for making biking safe.
Imagine that!
Source: How Bike Paths and Lanes Make a Difference, BTS



Generally, behavioral changes (mode shift) happens within these groups of folks!
Creating safe opportunities for biking through the addition of bike lanes, separated bike lanes, wayfinding signage, and bike parking can all help to encourage and support increasing levels of bicycling.
For more on this topic see: Four Types of Transportation Cyclists in Portland

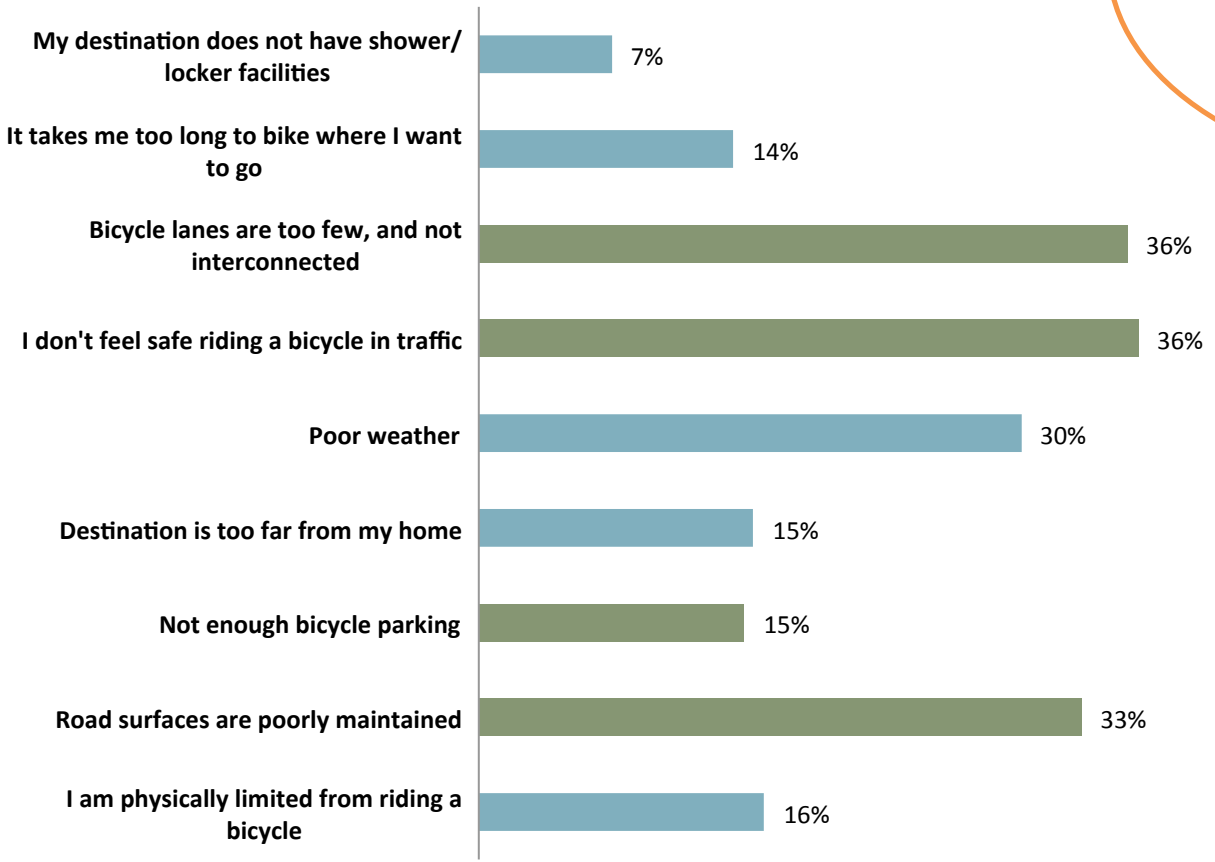
Would you like to bicycle more often?

Response rate = 90%



What keeps you from bicycling more often?

Response rate = 75%

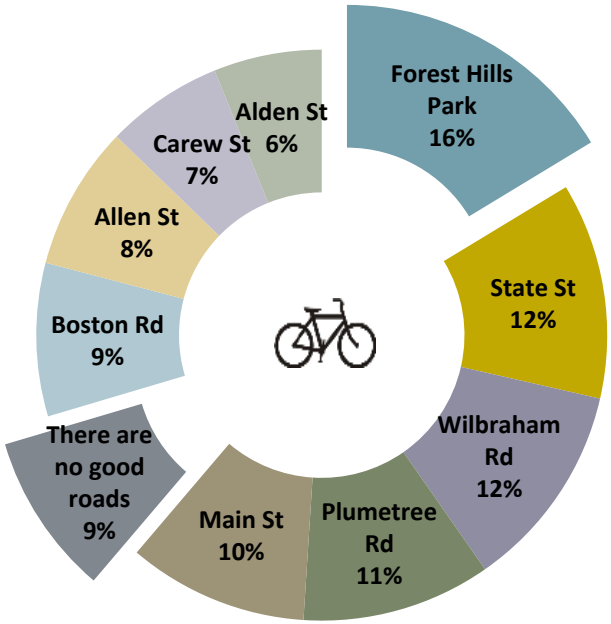


Good News!
We can't change the weather, but the Springfield Pedestrian and Bicycle plan will call for bike lanes, bike parking and improving roadway maintenance throughout the city!



Top 10 Best Roads for Bicycling in Springfield

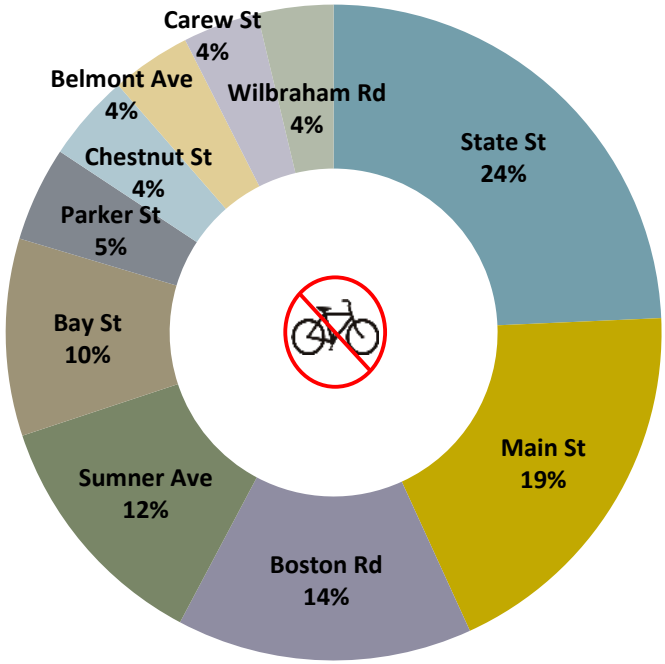
Response rate = 45%

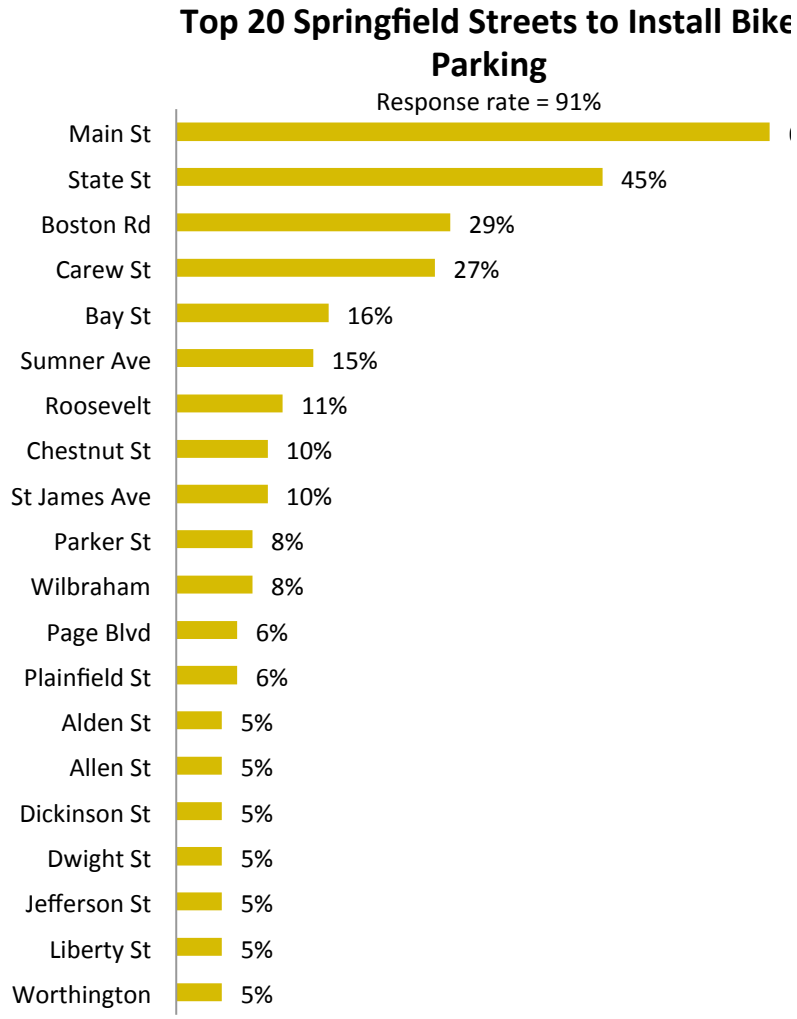


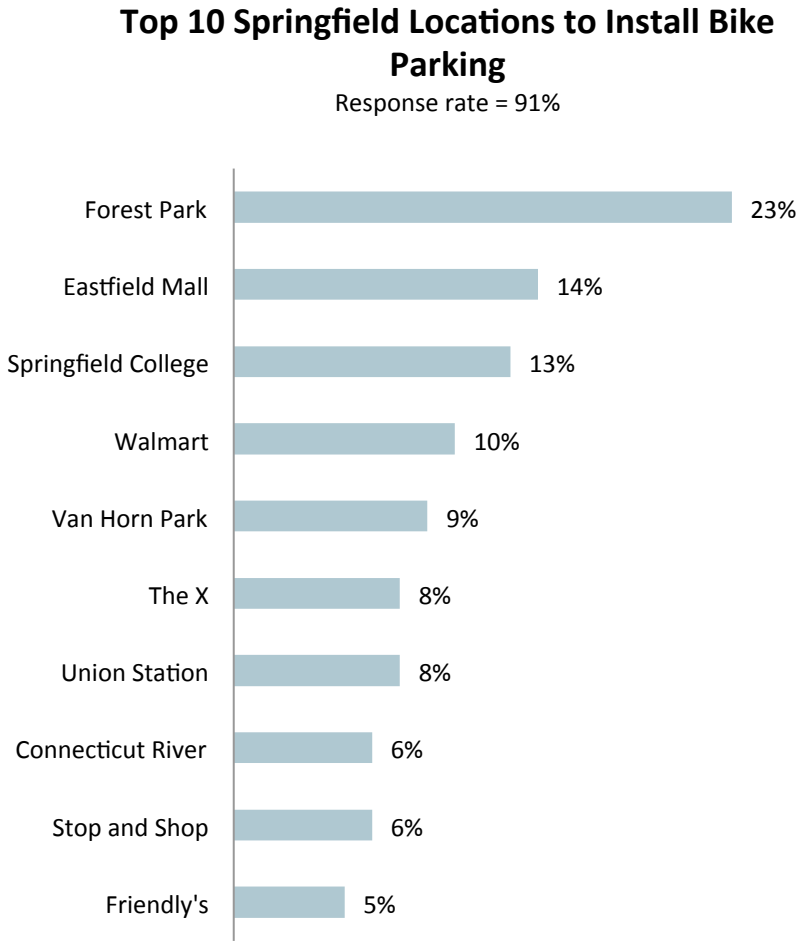
Streets for which Best & Worst Responses Overlap			
Worst		**Best**	
State St	24%	State St	12%
Main St	19%	Main St	10%
Boston Rd	14%	Boston Rd	9%
Carew St	4%	Carew St	7%
Wilbraham Rd	4%	Wilbraham Rd	12%

Top 10 Worst Roads for Bicycling in Springfield

Response rate = 61%

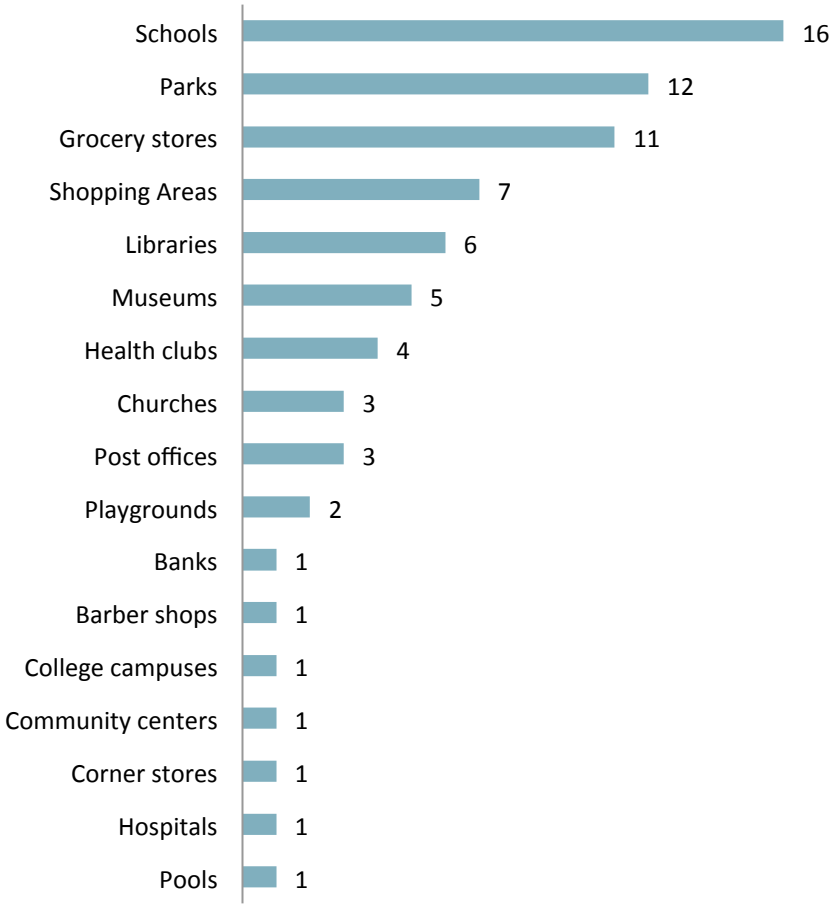



Top 20 Springfield Streets to Install Bike Parking
Response rate = 91%
Main St
State St
45%
Boston Rd
29%
Carew St
27%
Bay St
16%
Sumner Ave
15%
Roosevelt
11%
Chestnut St
10%
St James Ave
10%
Parker St
8%
Wilbraham
8%
Page Blvd
6%
Plainfield St
6%
Alden St
5%
Allen St
5%
Dickinson St
5%
Dwight St
5%
Jefferson St
5%
Liberty St
5%
Worthington
5%


Top 10 Springfield Locations to Install Bike Parking
Response rate = 91%
Forest Park
23%
Eastfield Mall
14%
Springfield College
13%
Walmart
10%
Van Horn Park
9%
The X
8%
Union Station
8%
Connecticut River
6%
Stop and Shop
6%
Friendly's
5%

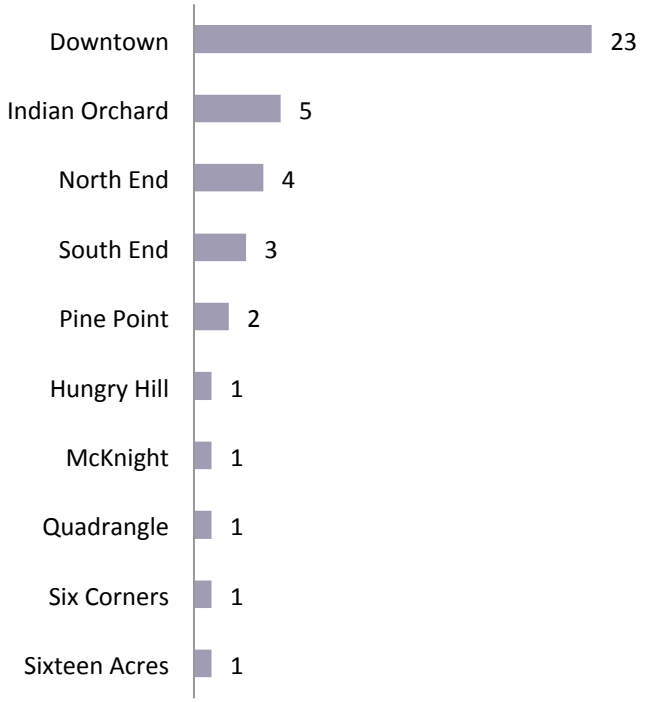
Springfield General Locations to Install Bike Parking

Total # of responses = 76



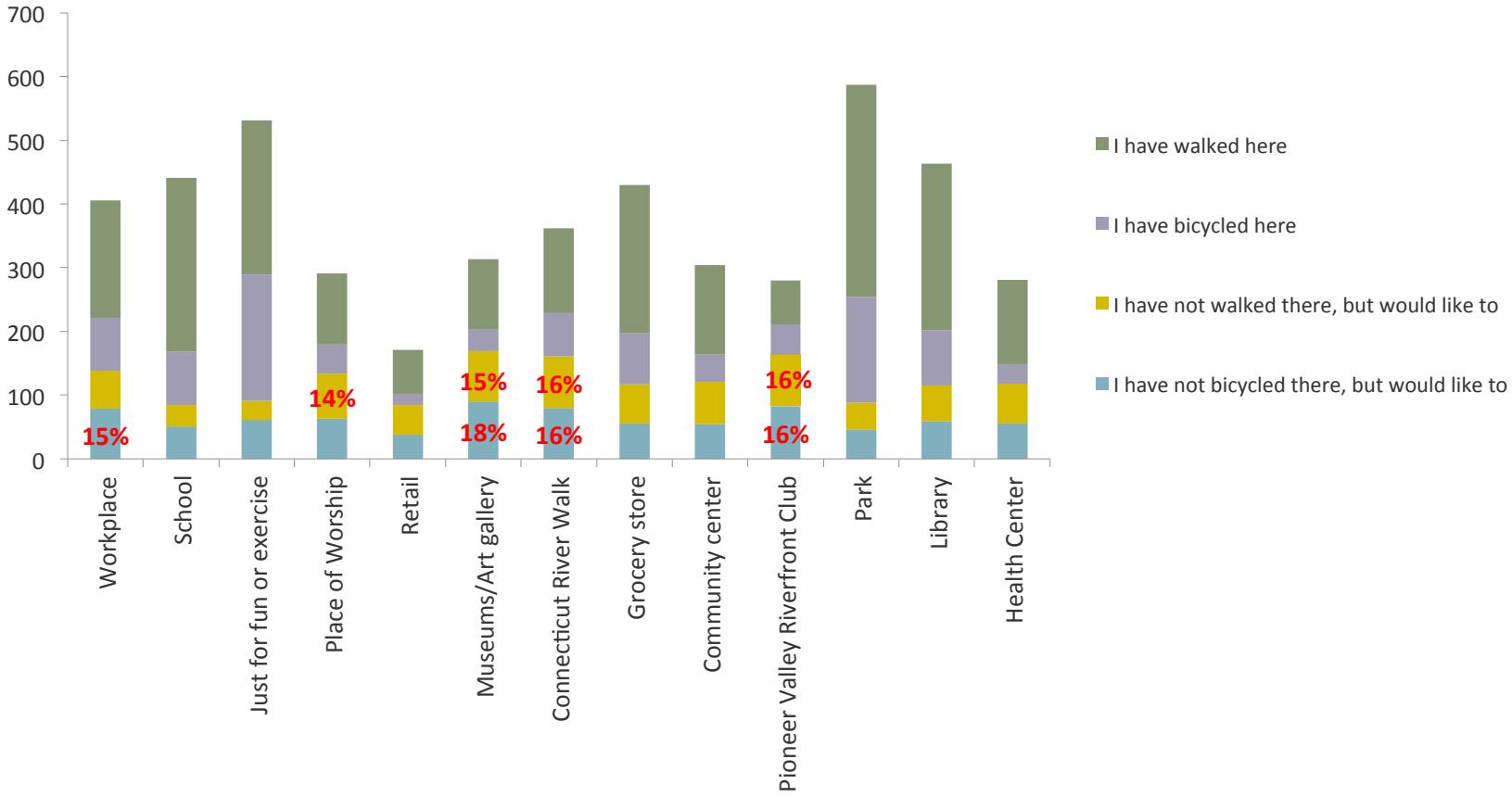
Springfield Neighborhoods to Install Bike Parking

Total # of responses = 42



For each of the following destinations, please indicate whether <u>you have</u> walked or bicycled there. If you <u>have not</u> walked or bicycled to the destination, please indicate whether you would like to do so if it were convenient.

Response rate = 85%



APPENDIX I: PROPOSED CITY OF SPRINGFIELD COMPLETE STREETS RESOLUTION

WHEREAS, "Complete Streets" are defined as streets that are designed to accommodate all users - motorists, pedestrians, bicyclists, and transit riders;

WHEREAS, "Complete Streets" can include a range of elements to accommodate all users, including, but not limited to, sidewalks, signage, paved shoulders, bicycle lanes, cycle tracks, traffic lanes shared with motorist including sharrows and other bicycle pavement marking, crosswalks and other pavement marking for pedestrians, pedestrian control signalization, bicycle actuated traffic signals, bus pull outs, curb cuts, raised crosswalks, roundabouts, traffic islands and other traffic calming measures;

WHEREAS, "Complete Streets" principles should guide future street and transportation plans for both new and retrofit projects in the City of Springfield, and any exception to this approach should be appropriately justified;

WHEREAS, "Complete Streets" application will vary depending on the surrounding land uses and densities and its general context, however street and transportation plans should always be guided by the principle that streets should promote multiple transportation options for all people;

WHEREAS, "Complete Streets" can spark economic development and community development by helping to create walkable, vibrant communities where businesses can thrive and be strong, livable neighborhoods for City of Springfield residents;

WHEREAS, "Complete Streets" can play a role by reducing pedestrian and bicyclist injuries and deaths, reducing traffic congestion, improving air quality both by promoting alternative forms of transportation and by helping to improve traffic flow;

WHEREAS, the people of the City of Springfield have expressed a strong desire for increased transportation options, including walking, cycling, and transit;

NOW, THEREFORE BE IT RESOLVED that the Springfield City Council strongly endorses a Complete Streets approach for the City of Springfield to enhance transportation options and to improve quality of life for the residents of Springfield as follows:

1. The City of Springfield shall, to the maximum extent practical, scope, plan, design, construct, operate, and maintain all City streets to provide a comprehensive and integrated network of facilities for people of all ages and abilities traveling by foot, bicycle, automobile, public transportation, and commercial vehicle.

2. Such improvements shall be consistent with and supportive of the local community, and that early consideration shall be given to any project's land use and transportation context.

3. Facilities for all users shall be considered in the construction, reconstruction, retrofit, repaving, and rehabilitation of City streets, except under one or more of the following conditions:

    a. The project involves a roadway on which a specific use is prohibited by law.

    b. There is a documented absence by the City of Springfield of existing bicycle or pedestrian activity and absence of future need recognized in approved Springfield Transportation Plan elements.

    c. The Subdivision Regulations does not require sidewalks along the proposed street; however some accommodations for bicycles may be needed depending on approved plans.

    d. The costs of providing accommodation are "excessively disproportionate" to the need or probable use, as recognized by the City of Springfield. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project. This twenty percent figure should be used in an advisory rather than an absolute sense. Claims of "excessively disproportionate" cost shall be submitted for review by the City of Springfield.

4. The City shall, to the maximum extent practical, follow the latest adopted design standards when implementing this policy, including, but not limited to:

    a. Guidance issued by the:

        - American Association of State Highway Transportation Officials publications including A Guide for Achieving Flexibility in Highway Design
        - Institute of Transportation Engineers' Recommended Practice, "Designing Walkable Urban Thoroughfares: A Context-Sensitive Approach
        - National Association of City Transportation Officials' "Urban Bikeway Design Guide"

    b. Application of design standards shall be flexible, recognizing that all streets are not alike and that user needs should be balanced, and innovative or non-traditional design options shall be considered.

5. The City Engineer and Traffic Engineer shall develop implementation strategies that include revising and updating processes, procedures, design and construction manuals, recommended traffic control devices, standard construction specifications and other guidance to assist in this resolution's implementation.

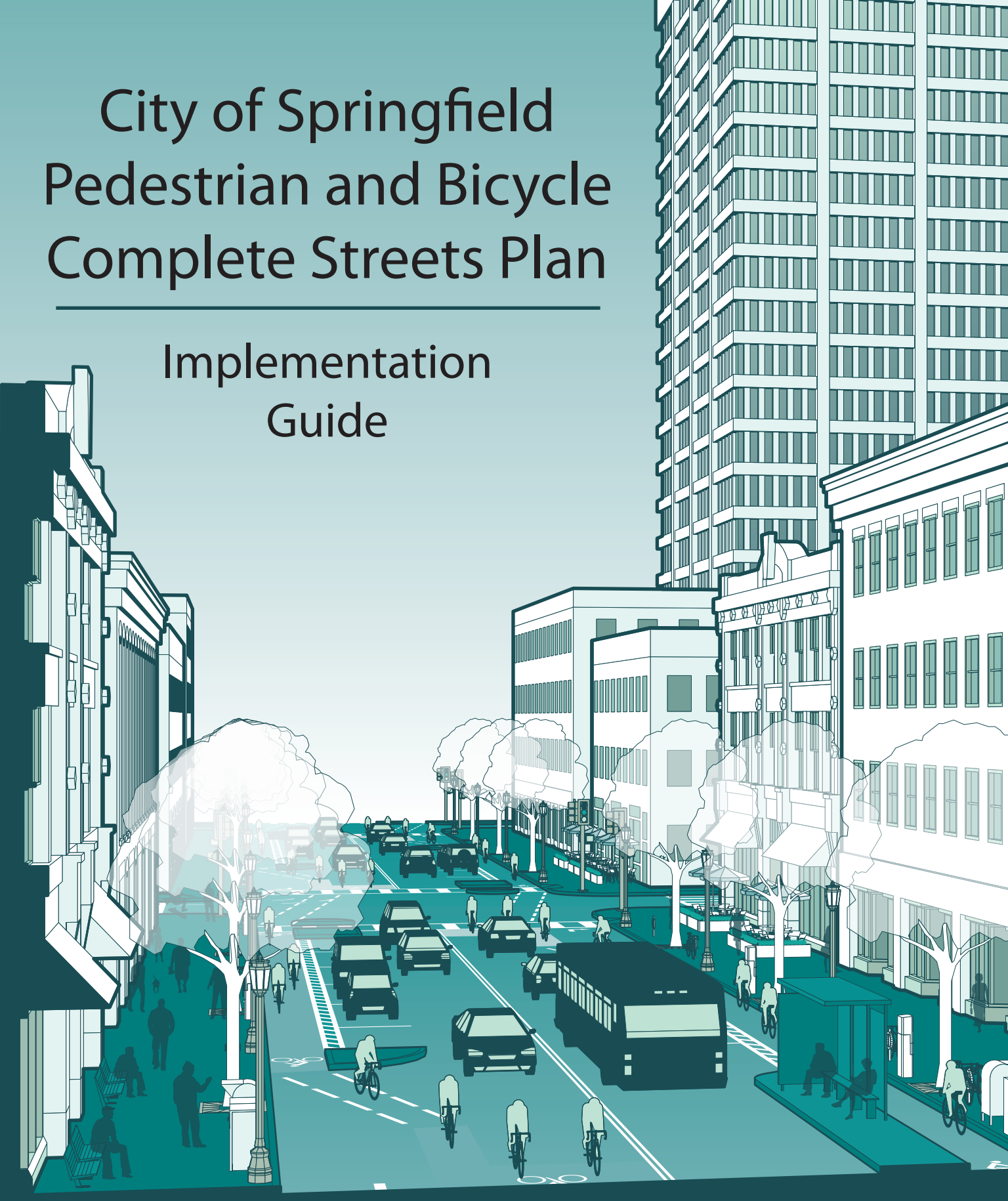
BE IT FURTHER RESOLVED that the City of Springfield will work with the Pioneer Valley Planning Commission, Massachusetts Department of Transportation, and community organizations to achieve the goals set forth in this Complete Streets policy.

BE IT FURTHER RESOLVED that the Planning Commission urges the Springfield City Council, the Mayor's Office, and relevant governmental agencies to revise, adopt, and implement policies and practices to support the Complete Streets approach.

BE IT FURTHER RESOLVED that the Planning Commission urges the City of Springfield to release annual reports on its progress in implementing this policy.

City of Springfield Pedestrian and Bicycle Complete Streets Plan

Implementation Guide



Acknowledgments

This booklet was made possible with a funding award from the Centers for Disease Control and Prevention's (CDC) Community Transformation Grant initiative awarded to the Pioneer Valley Planning Commission (PVPC) on behalf of the City of Springfield, LiveWell Springfield, from 2012 to 2014.

It was prepared by Utile, Inc. with oversight and guidance provided by a working committee of LiveWell Springfield:

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Springfield's Complete Streets

Streets direct people; they move goods; they accommodate cars, buses, and bicycles; they provide social connections, and ultimately they establish the platform for the rest of the city to build upon.

An efficient street network that easily moves traffic is desirable, but it should not be prioritized to the exclusion of a street designed for the human scale—one that adds daily life to a city and accommodates all modes of transportation equally. This is the intent of the design recommendations for new streets and the reconfiguration of existing streets in Springfield.

This Complete Streets Implementation Guide prioritizes safe streets that can be used equally by all modes of transportation. Pedestrian safety measures have been incorporated into the design recommendations, such as curb extensions, well-marked street crossings, and crossing islands. It also provides guidance on how to incorporate bicycle accommodations into the street system where appropriate. Streetscape elements, such as accessible and well-scaled sidewalks with room for tree plantings and landscape are part of the composition too. Taking into consideration the role of transit and vehicular traffic in the street design is also essential. The collection of these elements go toward a rich and functional street network.

A Complete Streets approach to transportation planning in Springfield augments pre-existing assets including the city's street grids and well-scaled blocks. These assets provide a logical framework from which to work. The street character and its adjacent uses will also help to influence the type of interventions needed in its redesign. For instance, an active retail street may have more cafe space and seating areas. This "implementation guide" shows how these streetscape elements can be distributed depending on the condition of the street and its desired

character. The pressing issue for Springfield is determining how to transform those streets that are less hospitable into streets that cater to people walking, bicycling, and taking transit, as well as vehicular traffic.

This issue arises on a number of occasions. Springfield is challenged by urban thoroughfares that are often oversized compared to their current capacity. Looking at ways to retrofit these streets—breaking them down into component parts—is part of the intent of this guide. There are also streets that are a comfortable scale; however, the allocation of space for different uses is not distributed well. In these cases there are opportunities to increase the pedestrian realm without affecting the efficiency of traffic circulation or capacity. Resizing travel lanes, adding on-street parking and bike lanes, and widening sidewalks are ways in which streets could be improved. This guide will illustrate that there are multiple ways to work within the existing right-of-way to construct a more ideal street.

These are some examples of how this "implementation guide" can be of use. It presents best practices for improving the appeal and function of streets. It also provides different street types from which to draw guidance. Consider these types as precedents, drawing from them the appropriate techniques and interventions needed to make a better street. This booklet is an information guide, as much as it is a toolkit.

The ultimate intent of a complete streets approach is to improve the safety and comfort for all users. By reducing design speeds, narrowing crossing distances and adding protected bike lanes—to name just a few—we are prioritizing personal safety in the design of our streets and cities for all age groups and users.

This booklet was developed in 2014 as part of the City of Springfield's LiveWell Springfield initiative to promote healthy behavior and sustainable economic development.

It is a companion piece to the City's new Complete Streets Pedestrian and Bicycling Plan and the city's proposed Complete Streets Network available here: http://www.livewellspringfield.org/pedestrian-bike-plan/

Street Types



Downtown Commercial

These are the most important and most heavily-trafficked streets in Downtown Springfield. Downtown Commercial Streets, examples of which include Dwight Street, Chestnut Street, and Main Street, contain a mix of office, commercial, and institutional buildings and see high volumes of vehicular, pedestrian, and bicycle traffic.

Downtown Commercial Streets should be designed to accommodate the needs of all user groups. They should also incorporate urban design amenities and become vibrant centers of Springfield's civic and commercial life in and of themselves.

Equivalent MassDOT Classification:
Urban Principal Arterial

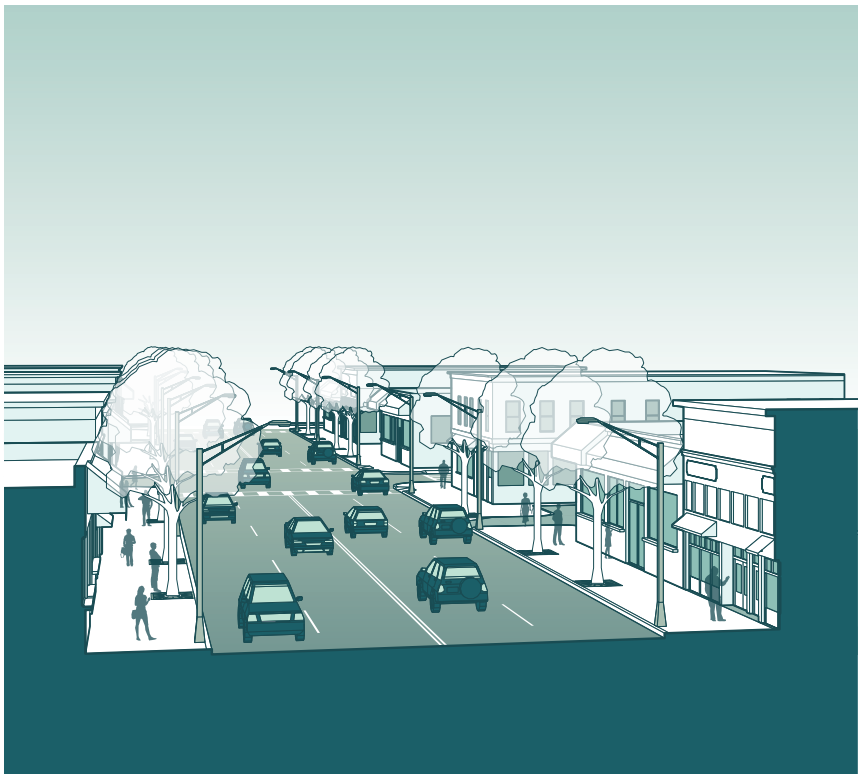


Downtown Cross Street

These are the typical secondary streets found in downtown Springfield. They form the connective tissue between major streets and often contain parking and loading zones that are vital to downtown's functions. Many of these streets are also one-way. Streets such as Worthington, Bridge and Taylor St would fall into this category.

Redesigning Downtown Cross Streets requires being imaginative about their future role. More than passive parking zones, these streets can become urban destinations in their own right. On streets with relatively low traffic speed and volume, new bicycle facilities can help complete important connections in the overall network.

Equivalent MassDOT Classification:
Urban Collector

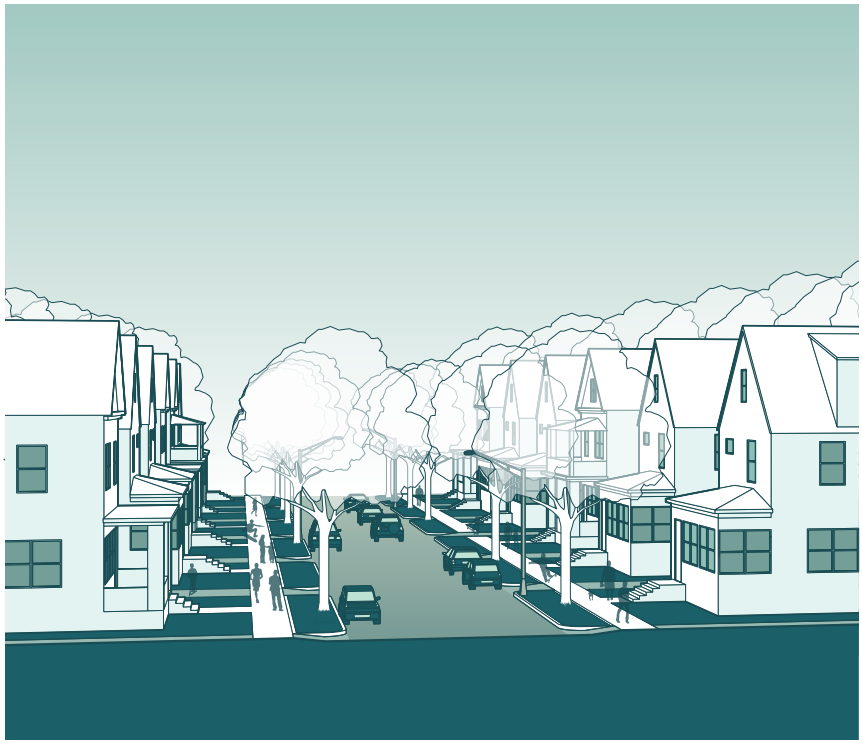


Neighborhood Connectors

Neighborhood Connectors are the major thoroughfares that connect neighborhoods to downtown and each other. They form the backbone of Springfield's street network and provide continuous routes for pedestrians, cyclists, and vehicles. In neighborhood centers, these streets can also become the de facto main street. Local examples of this type of street, such as Boston Road and Sumner Ave, may range in scale and activity.

Redesigning Neighborhood Connectors requires balancing the need to efficiently and safely move vehicles, transit, and cyclists against the opportunity to create vibrant neighborhood destinations.

Equivalent MassDOT Classification:
Urban Principal/Minor Arterial

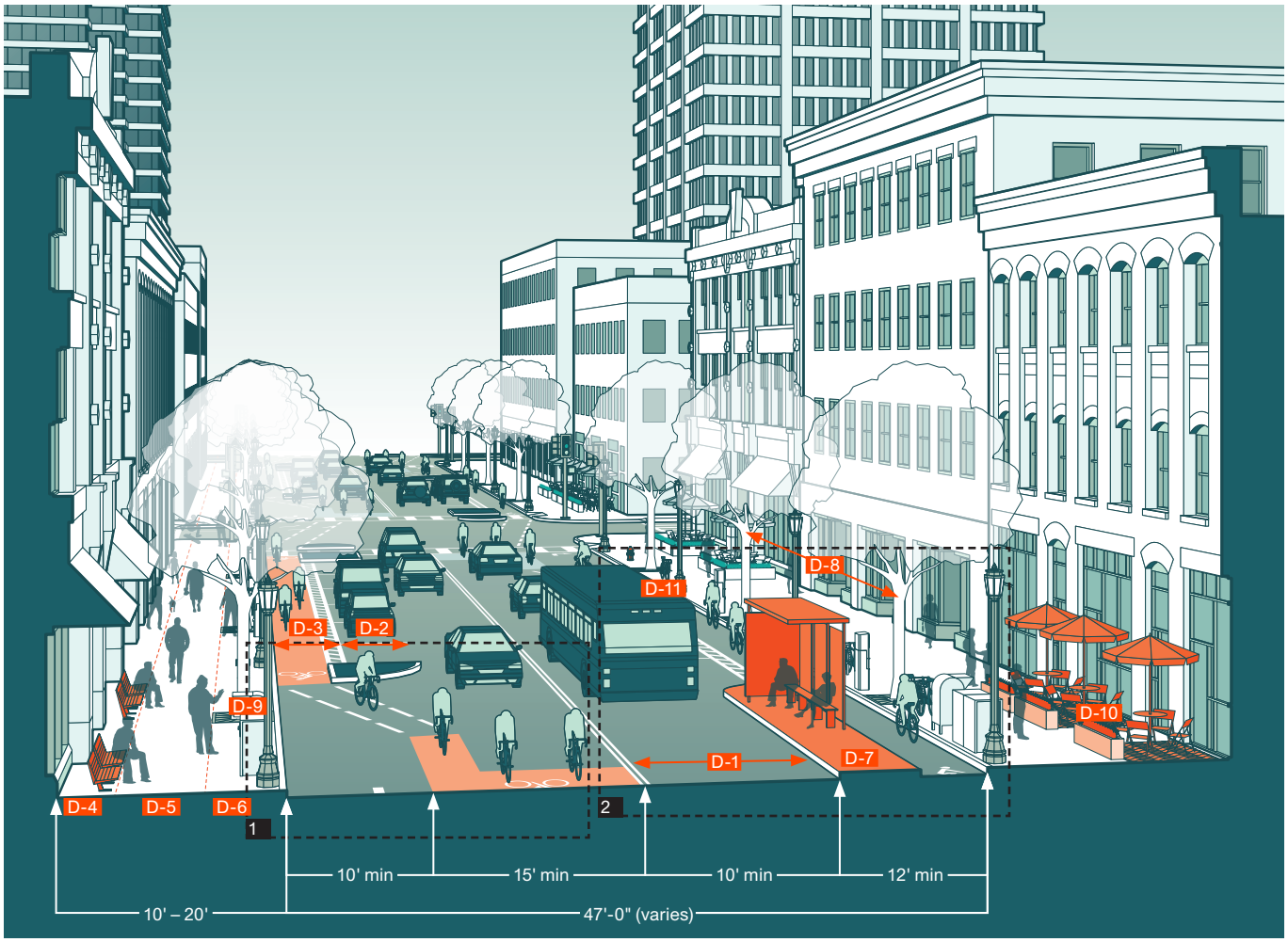


Residential Street

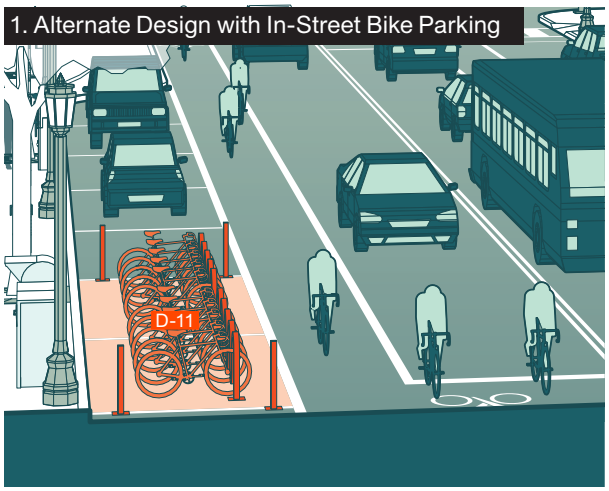
Residential Streets are found all over the neighborhoods of Springfield, from Old Hill to Belmont Heights. They are used for local trips and frequently have on-street parking.

Residential Streets should be designed to maximize residents' safety and quality of life. Designs should encourage lower vehicular speed and the sharing of roadway space between all user groups. Residential Streets should also be retrofitted with greenscape and stormwater infrastructure to enhance their aesthetic appeal and ecological function.

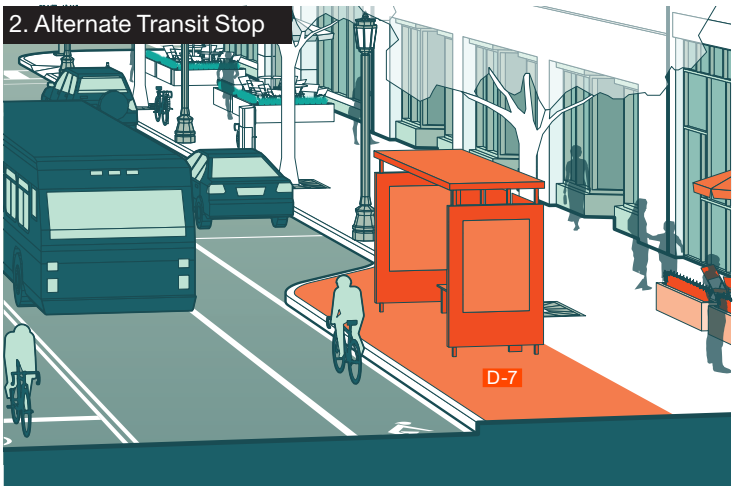
Equivalent MassDOT Classification:
Urban Collector/Local Road



1. Alternate Design with In-Street Bike Parking



2. Alternate Transit Stop



Best Practices

Downtown Commercial

	Design Elements and Key Dimensions	Considerations
Roadway	D-1 10' minimum for travel lanes and turn lanes; 11' minimum for bus lanes; D-2 7' minimum for on-street parking lanes; D-3 5' minimum for on-street bike lanes; 6' is preferred (diagram shows a 3'-wide buffer).	· Narrower lane width has limited impact on road capacity and is associated with a reduction in travel speed; · A high volume of heavy vehicles may require a minimum lane width of 11'; · In frequent loading zones, parking lanes may need to become wider.
Sidewalk	Total sidewalk width for this street type should be at least 10', divided into zones as follows: D-4 Frontage zone: 0 – 2'; D-5 Pedestrian zone: 8' – 12'; D-6 Amenity zone: 1'-6" – 6'; minimum for street tree installation is 2'-6".	· Where sidewalk cafes are desired D-10, the preferred width for the frontage zone is 6'; · The pedestrian zone must be kept clear of all obstructions; · The minimum width for the pedestrian zone for ADA is 4', with 5' of width every 200'.
Transit and Bicycle	D-3 5' minimum (6' preferred) for on-street bike lanes; D-7 Bus bulbs should be at least 40' long and 6' wide.	· Physically separated bicycle facilities, as shown, should be considered on streets with high volume of bicycle traffic; · Where possible, dedicated, physically separated facilities should be placed behind transit stops, as shown.
Landscape and stormwater treatment	D-8 On-center spacing of street trees should be 25' to 30' while maintaining adequate clearance from street furniture, loading zones, and intersections.	· For optimal street tree health, allow tree pit size to be 4'×8'. Consider maximizing soil volume by using structural soil in a covered tree trench. · Appropriate tree species should be chosen so as not to interfere with store entrances and signage.
Street furniture and street management	D-9 All street furniture should be located a minimum of 18" from the edge of the curb.	· Consider alternative sidewalk uses such as bicycle and motorcycle parking D-11 in lieu of regular parking spaces, especially if narrow sidewalk width doesn't permit bicycle parking; · Consider replacing single-space parking meters with smart, multi-space meters, which increase user convenience and allow variable pricing.

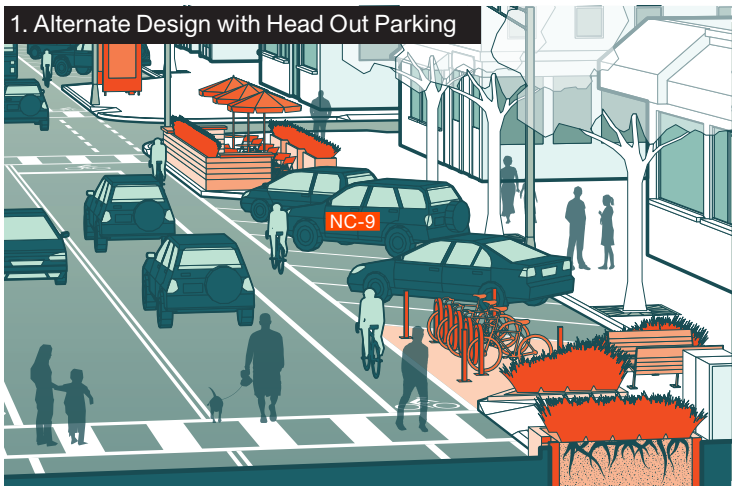

DC-7
DC-5
DC-6
DC-1
DC-2
DC-3
DC-4
8' min
20' min
7' min
10' – 16'
35'-0" (varies)

Downtown Cross Street

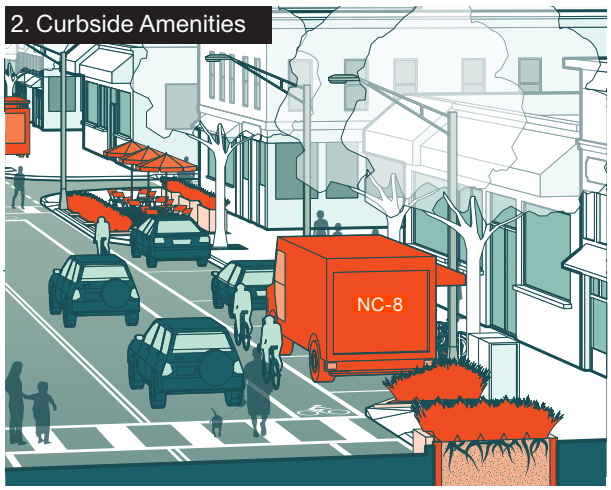
	Design Elements and Key Dimensions	Considerations
Roadway	Refer to “Downtown Commercial” for the minimum dimensions of travel lanes; DC-1 Contra-flow bike lanes should have a minimum width of 5'; the buffer should have a minimum width of 3'.	· Midblock “neckdowns” create pinch points in the street where pedestrians can cross more safely. They are also effective for reducing vehicular speed.
Sidewalk	Total sidewalk width for this street type should be at least 10', divided into zones as follows: DC-2 Frontage zone: 0 – 2'; DC-3 Pedestrian zone: 5' – 8'; DC-4 Amenity zone: 1'-6" – 6'; minimum for street tree installation is 2'-6".	· Where sidewalk dimensions are constrained, consider using curb extensions to locate additional amenities and greenscape.
Transit and Bicycle	DC-1 5' minimum (6' preferred) for on-street bike lanes. DC-5 Where dimensions for a bike lane do not exist and traffic speed is sufficiently low, sharrows can be used to indicate a shared bike lane. Sharrow markings must be placed sufficiently far away from the curb (at least 11') to avoid opening car doors.	· Contra-flow bike lanes shown on this page can provide convenient connections on one-way streets and are useful for completing missing links in the bicycle network. · While there are no fixed dimensional requirements for shared bike lanes, design consideration must be given to the cyclists’ level of comfort, which is impacted by vehicular speed, lane geometry, and cyclists’ sightlines.
Landscape and stormwater treatment	DC-6 Stormwater planters are a greenscape alternative to street trees. They can be engineered to fit different constraints. When used on curb extensions, a typical width is 5'-6".	· Stormwater planters can contain a variety of plant types. Where visibility is important, such as at street crossings, they should be designed with low vegetation. · Stormwater planters are ideal snow storage spaces in the winter.
Street furniture and street management	DC-7 On-center spacing should be between 50' and 60' for acorn-style street lights.	· Alternative curbside uses such as bicycle and scooter parking and food trucks, identified in “Downtown Commercial”, are also appropriate for Downtown Cross Streets, especially where sidewalk dimensions are constrained.



1. Alternate Design with Head Out Parking



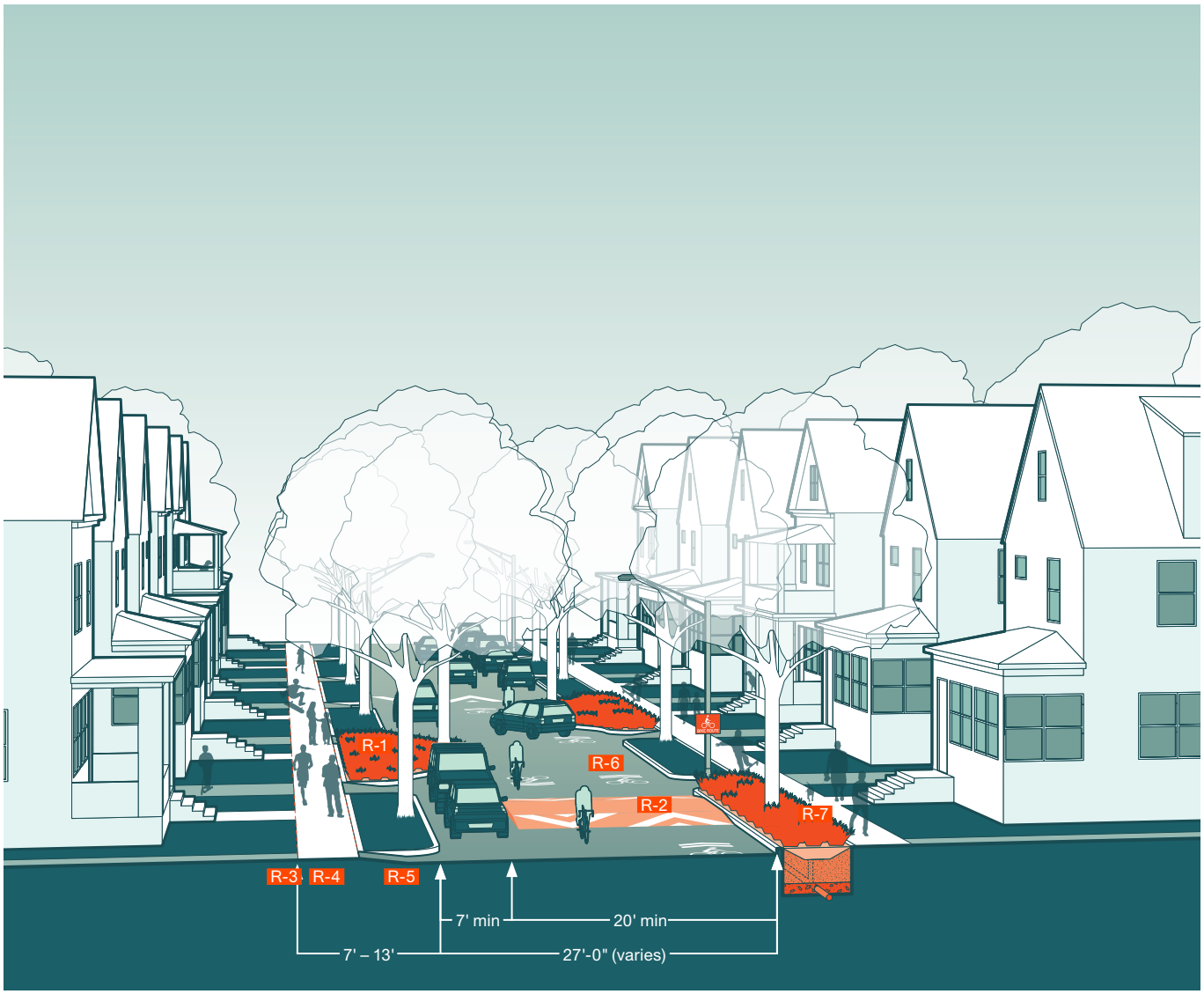
2. Curbside Amenities



Best Practices

Neighborhood Connector

	Design Elements and Key Dimensions	Considerations
Roadway	Refer to “Downtown Commercial” for the minimum dimensions of travel and parking lanes; NC-1 Bike lanes adjacent to narrow parking lanes with high turn-over should be at least 6' wide; NC-2 Curb extensions into the parking lane are typically 6' wide, and can be as long as needed to accommodate desired programs.	· Curb extensions reduce crossing distance and enhance pedestrians’ perception of comfort and safety. They can also include streetscape amenities such as transit stops, seating and sidewalk cafes, and greenscape. · If room allows consider back-in/head-out angled parking. NC-9 This type of on-street parking provides additional safety by allowing the driver to easily see oncoming vehicular and bicycle traffic.
Sidewalk	Total sidewalk width for this street type should be at least 7': NC-3 Frontage zone: 0 – 2'; NC-4 Pedestrian zone: 5' – 8'; NC-5 Amenity zone: 1'-6" – 6'; minimum for street tree installation is 2'-6".	· Where sidewalk dimension are constrained, consider using curb extensions to locate additional amenities and greenscape.
Transit and Bicycle	NC-1 Bike lanes adjacent to narrow parking lanes with high turn-over should be at least 6' wide; NC-6 Bus bulbs, if provided, should be at least 40' long and 6' wide.	· The recommended location for transit stops is after the intersection. “Far-side” stops such as these increase pedestrian safety.
Landscape and stormwater treatment	Refer to “Downtown Commercial” for guidelines on street trees; NC-7 Stormwater planters are an ideal application on curb extensions, where their typical width is 5'-6".	· Stormwater planters can contain a variety of plant types. Where visibility is important, such as at street crossings, they should be designed with low vegetation.
Street furniture and street management	NC-8 On Neighborhood Connectors serving as busy neighborhood main streets where sidewalk space is at a premium, consider curbside amenities such as in-street bicycle parking and food truck spaces in addition to regular parking spaces.	· The placement of street furniture on the sidewalks must not interfere with the 5' minimum clearance for the pedestrian path of travel.


R-1
R-6
R-2
R-7
R-3
R-4
R-5
7' min
20' min
7' – 13'
27'-0" (varies)

Residential

	Design Elements and Key Dimensions	Considerations
Roadway	Residential streets are low-speed, low-volume environments, typically without clearly demarcated lanes. Roadway design features should focus on encouraging low speed. R-1 Chicanes create "S" curves in the roadway by alternating the side of parking; R-2 Speed humps, typically 3" high and with a ramp length of 6', also reduce speed. They need to be clearly marked to alert drivers and cyclists.	· Chicanes create opportunities to introduce additional greenscape elements. To maintain sightlines, the height of plantings should be low; · Features to reduce speed should be used in series to effectively discourage speeding between them; · Speed humps should provide visual cues for snow plow operators.
Sidewalk	Total sidewalk width for this street type should be at least 7': R-3 Frontage zone: 0 – 2'; R-4 Pedestrian zone: 5'; R-5 Amenity zone: 1'-6" – 6'.	· Wide greenscape zones, where they exist on Residential streets, are ideal places for enhanced greenscape and stormwater treatments such as open tree trenches and rain gardens.
Transit and Bicycle	R-6 On streets with low traffic speed and volume, separate bicycle facilities are not necessary. Quiet residential streets are ideal places to implement "bicycle boulevards".	· "Bicycle boulevards" can be enhanced with pavement markings and wayfinding signage.
Landscape and stormwater treatment	R-7 Rain gardens are slightly depressed landscape areas in the frontage zone that can slow, filter, and convey stormwater runoff.	· Rain gardens function in a similar way to stormwater planters but can be more appropriate on Residential streets where a more natural aesthetic is desired.


I-1
9' min
I-2
I-3
50' min
I-4
I-5
I-6
I-6
I-7
10' min
I-8
I-9
I-10

Intersections

	Design Elements and Key Dimensions	Considerations
Roadway	Roadway design at intersections focuses on reducing conflict between turning and through movements for both vehicles and bicycles: I-1 Right turn lanes should be placed to the right of bicycle lanes (similarly, left turn lanes to the left of bicycle lanes); they should be as short as possible and a minimum of 9' wide.	I-9 Curb geometry at intersections impacts vehicular speed and safety. A small physical turning radius (10'~) reduces speed and allows greater sidewalk space for pedestrians. Parking lanes and bike lanes increase effective turning radius.
Transit and Bicycle	Bicycle accommodation at intersections focuses on providing clear, direct, and continuous facilities that minimize conflict with vehicle movements: I-2 Physically separate facilities (cycle tracks) should transition into a regular bike lane at intersections; I-3 Bike lanes should be to the left of right turn lanes; dashes indicating the transition should begin a minimum of 50' from the intersection; I-4 **Bike boxes** place cyclists in front of vehicular traffic, increasing their visibility and reducing conflict; I-5 **Two-stage turn queue boxes** offer a safe way to make left turns at multi-lane intersections.	• Where bicycle lanes go through unsignalized or complicated intersections, or where bicycles may not be anticipated, consider striping the bicycle lane through the intersection with dashed lines supplemented with sharrows; • Where possible, transit stops should be located at the far side of the intersection and behind any physically separated bicycle facility. Consult “Downtown Commercial” for dimensions of bus bulbs.
Sidewalks	I-6 Consider using **curb extensions** at intersections to incorporate street amenities; I-7 Crosswalks should be at least 10' wide and aligned with the incoming direction of travel.	I-10 Curb ramps need to be installed per ADA requirements, and should contain **detectable warning strips**.
Street furniture and street management	I-8 Consider using **leading pedestrian intervals**, **transit priority**, and **dedicated bicycle phases** in signal timing to enhance the level of service for pedestrians, transit, and cyclists.	

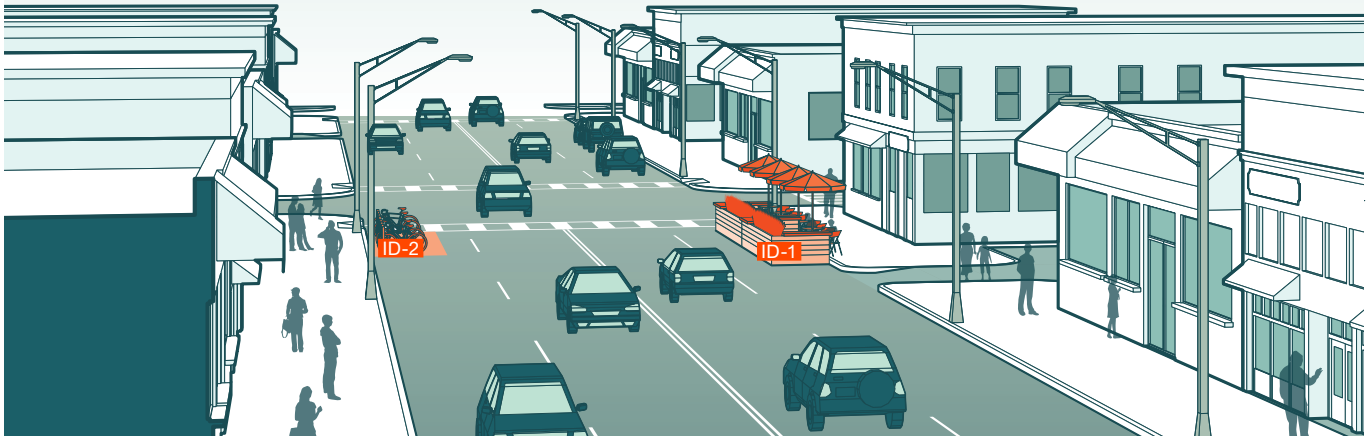
Best Practices

Interim Design Strategies

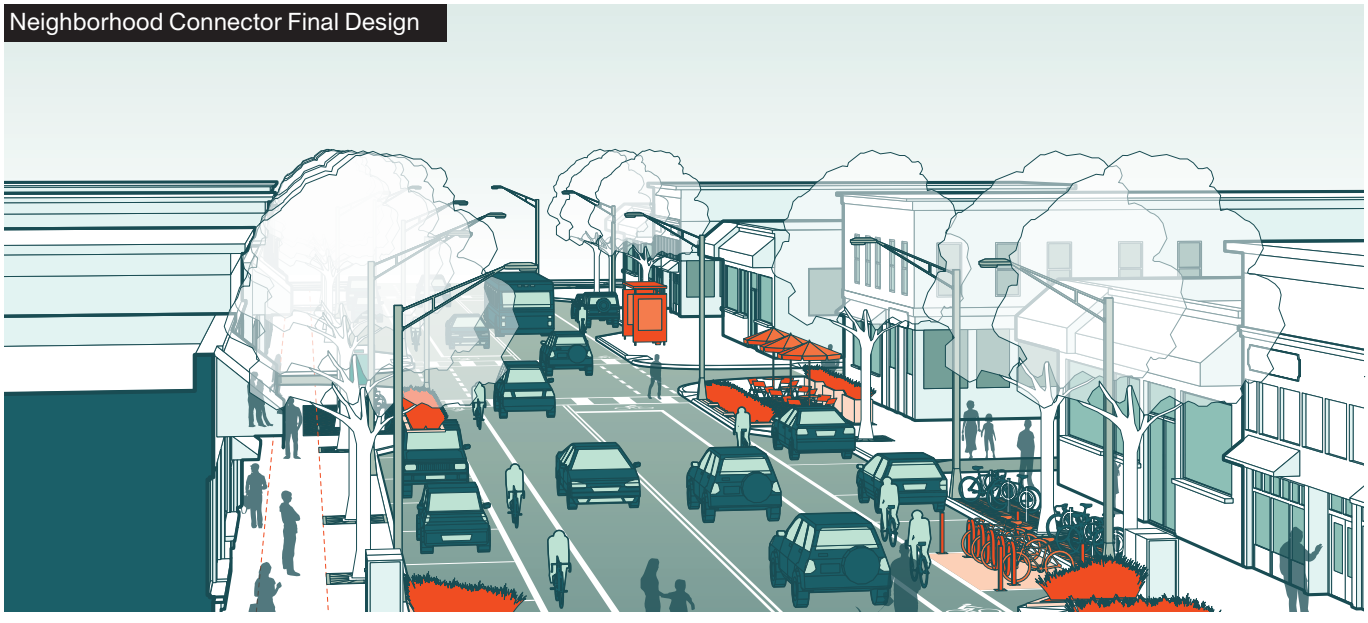
Street redesign and reconstruction projects are usually multi-year, multi-agency efforts that require significant investments of time and money. In advance of such significant commitments, **interim design solutions** can help test and refine final design solutions, build crucial community support, and improve quality of life in a relatively quick and cost-effective way.

The interim strategies shown here focus on reclaiming curbside space for multi-purpose use and traffic calming. They can serve as a first step in a longer-term street redesign project.

Neighborhood Connector Interim Phase

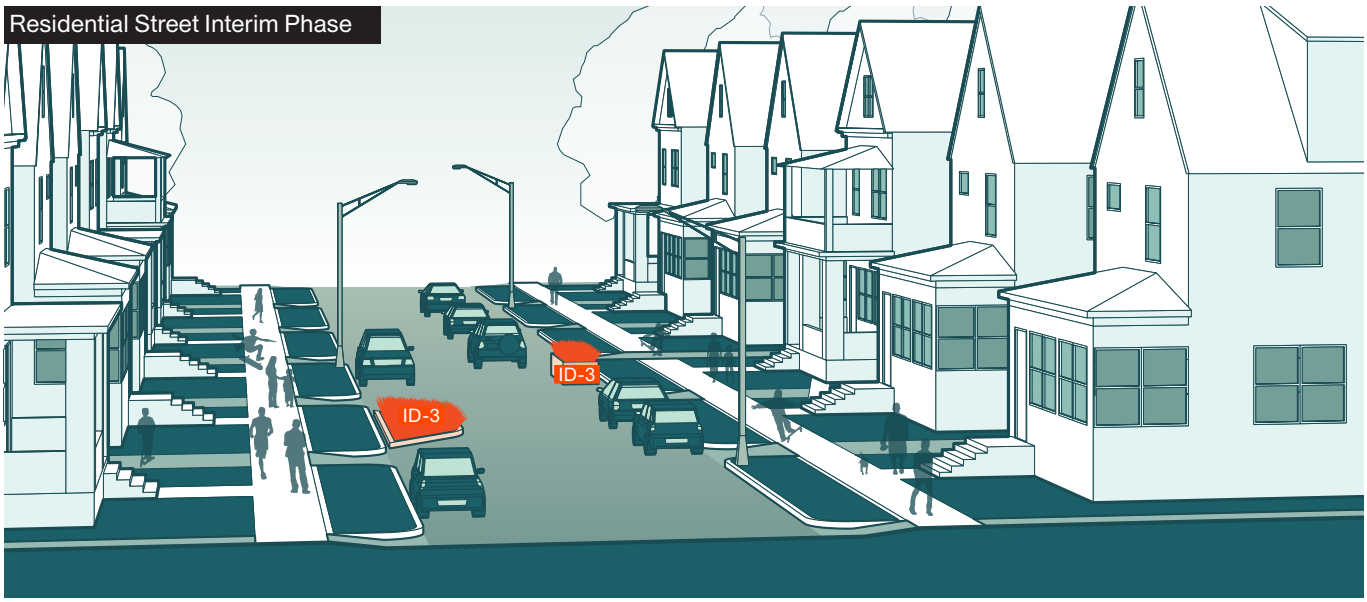


Neighborhood Connector Final Design



	Design Elements and Key Dimensions
Parklets	ID-1 These platforms can take up to several parking spaces and increase valuable sidewalk space for seating, outdoor cafes, etc.
In-street Bike Parking	ID-2 Up to 12 bike spaces can fit into a single parking space. In addition to freeing up sidewalk space, in-street bike parking reduces crossing distance at intersections and effectively serves as a curb extension.

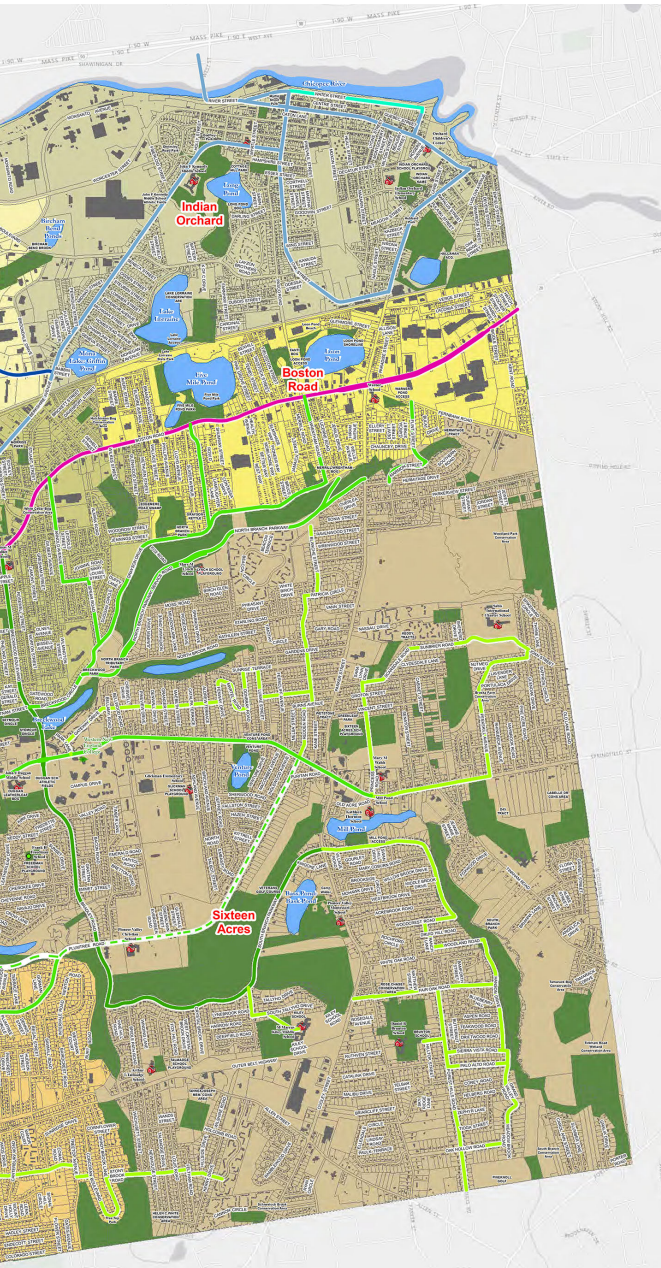
	Design Elements and Key Dimensions
Traffic Calming	ID-3 Planters and **temporary offset islands** can create traffic calming street configurations ahead of full curb relocation.





City of Springfield Complete Streets Map





Downtown One-way



Downtown Two-way



Neighborhood Main Street



Neighborhood Street



Yield Street



ntial Boulevard



Boulevard



Transit Corridor

