

Pioneer Valley Regional Bike Share System Pilot



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- Chris Curtis, Chief Planner - PVPC
- Jaimye Bartak, Senior Planner - PVPC
- Joshua A. Garcia, Municipal Services Coordinator - PVPC
- Gary Roux, Principal Planner/Traffic Manager – PVPC
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1. Introduction

Dozens of North American cities, large and small, recognize the health, environmental, and economic benefits of bike sharing. The Pioneer Valley has many of the key characteristics required to make bike sharing successful and continue the region's development as one that is bike-friendly with a high quality of life.

The purpose of this report is to build upon the recommended Business Model, Operational Structure and Financing strategy outlined in the Pioneer Valley Regional Planning Commission's (PVPC) March 2015 Feasibility Study for Regional Bike Share in the Pioneer Valley. It also proposes a phasing strategy for the launch of bike share in 2017 and includes site-planning guidelines and conceptual designs for key station sites in the four communities looking to launch bike share in the coming years.

The recommended system, tentatively named "ValleyBike", will consist of a Phase I launch of up to 26 stations and 234 bikes at key locations in Springfield, Holyoke, Northampton and Amherst. Serious consideration for breaking up the first phase into two sub-phases should be made, however, as the regional system may ultimately benefit from a pilot project consisting of only 13 stations in Northampton and Amherst. This more-targeted launch will help to build awareness of bike share regionally and promote a bike share culture in communities in which bicycling is currently a more-common form of transportation and recreation. Success in Northampton and Amherst will help "prime the pump" for bike share in Holyoke and Springfield in the 2nd year of the program.

This Study recommends that the Pioneer Valley move forward with "smart lock" bike share equipment based on the quality of the product, the success of smart lock programs elsewhere and the relatively low cost of the equipment. The ValleyBike program would be the first, city/region-wide smart lock program in New England and only the second bike share system, after Hubway in Greater Boston. This will help continue to place the Pioneer Valley on the forefront of innovative thinking in Massachusetts and promote new businesses and residents.



The Pioneer Valley has the opportunity to become the 2nd location for bike share in New England, after the highly-successful Hubway program in Greater Boston

2. Business Models

2.1 Overview

One of the key early decisions for a city or region exploring bike share is to determine a governance structure for the program. Who will own the assets? Who will administer the program? Who will be responsible for day-to-day operations?

There are generally five bike share business models in the United States. Each business model varies depending on the characteristics of the local market. Some contextual differences include, for example, municipal and regional procurement capabilities, capacity and interest of local partners, and the funding environment.

Variations aside, the business models considered in this memo are:

1. **Publicly Owned and Operated:** a government agency takes on the financial risk of purchasing, owning and operating the bike share program.
2. **Publicly Owned / Privately Operated:** a government agency takes on the financial risk of purchasing and owning the system and contracts operations to a private company that takes on liability for the system (note: certain operating tasks, such as marketing, may be taken on by the jurisdiction).
3. **Non-Profit Owned and Operated:** an existing or a newly formed non-profit takes on the responsibility of one or more of the roles of ownership, administration, and operation. Financial risk is taken on by the non-profit, although government agencies may provide start-up funds or act as a fiscal agent for the pass-through of federal, state, or local funding.
4. **Non-Profit Owned / Privately Operated:** a non-profit takes on the financial risk of purchasing and owning the system and contracts operations to a private company that takes on liability for the system.
5. **For-Profit Owned and Operated:** a private company takes on the responsibility of providing and operating the system. The private sector takes on all risk and fundraising responsibility and retains all profits



Model 2: Boston Hubway



Model 3: Denver B-cycle



Model 5: Miami Beach DecoBike

(although it is not uncommon for a portion of profits to be paid to the jurisdiction for use of right-of-way, advertising, etc.). This model is highly dependent on the capacity of private sector fundraising.

The key pros and cons of the five primary models are summarized in Table 2-1 and Table 2-2 and are used to confirm the Governance recommendation for the Pioneer Valley in the subsequent section.

2.2 Business Model Matrix

Operations & Ownership Pros / Cons

Table 2-1: Pros and Cons of Business Model options: OWNERSHIP

Model	PROS	CONS
Public	<ul style="list-style-type: none"> • Highest level of public control and transparency • Profits could be returned to the City or regional entity as revenue, or reinvested into the system for expansion • For a multi-jurisdictional system, a regional agency has greater ability to coordinate among the jurisdictions • May have stronger connections and higher-level experience needed to bring in federal or state funding • Higher likelihood to coordinate a unified bike share and public transit pass • Strong oversight of contract operator 	<ul style="list-style-type: none"> • Agency or cities may not see governing a bike share system as within their mission, unless they typically deal with multi-modal transportation • Concern may exist about potential liability to the city, county, etc. • Requires significant time commitment by staff at participating municipalities • Some corporate or institutional sponsors may feel uncomfortable dealing with and giving money to a government entity
Non-Profit	<ul style="list-style-type: none"> • Transparency can be easily achieved through representation on the Board • High likelihood that staff and board will be committed and passionate about bike share as their sole mission • Easily able to accommodate a regional system • More likely to respond to issues related to system equity and promotion of public health • Corporate or institutional sponsors are accustomed to giving to non-profits • Profits can be reinvested into the system for expansion 	<ul style="list-style-type: none"> • Requires investment of time and funding, likely from government partners, sponsors, and other stakeholders • May not be effective at raising local, state, or federal funding • Board composition is critical to help bring in private sponsors • May take longer than other models to organize an ownership, management and Board structure • Without an existing non-profit to build off of, starting a new one from scratch can be a challenge
For-Profit	<ul style="list-style-type: none"> • All liability issues are borne by the for-profit company 	<ul style="list-style-type: none"> • Little transparency in the equipment procurement process

	<ul style="list-style-type: none"> • May increase some people's confidence that the private sector is fully providing the service • Private company has the major incentive to ensure well-maintained (and profitable) equipment 	<ul style="list-style-type: none"> • Limited ability for local governments to influence changes to station siting and/or operations issues • There are few companies in the U.S., so interest may be slow to arise
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Table 2-2: Pros and Cons of Business Model options: OPERATIONS

Model	PROS	CONS
Public	<ul style="list-style-type: none"> • If the public agency's primary mission is transportation, they may have some level of relevant experience. • Opportunity to integrate with established transportation/transit practices 	<ul style="list-style-type: none"> • Public agency lacks experience and knowledge of bike share operations • Costs related to staffing and union rules will likely make operations more expensive • Multi-jurisdictional bike share programs require multi-jurisdictional agencies or agreements
Non-Profit	<ul style="list-style-type: none"> • Potentially lower cost • Foundation grants and individual donations more likely • With a small system (<200 bikes), non-profit can team with bike shops and/or advocacy groups to assist with maintenance and rebalancing 	<ul style="list-style-type: none"> • Learning curve • If operations performance is poor, it may be difficult for a non-profit to change course quickly • With a larger system (>200 bikes), non-profit may have difficulty assembling experienced staff • Less likely for bike share to become fully integrated into transportation system
For-Profit	<ul style="list-style-type: none"> • Can handle multi-jurisdictional systems relatively easily • If operations performance is poor for an extended period, a new vendor can be hired for operations • More knowledge and experience with operational issues from other systems • Economies of scale with multiple systems • Can mobilize equipment and staff from other systems if needed 	<ul style="list-style-type: none"> • Need to be profitable may limit ability to prioritize equity and public health issues • Foundation grants and donations less likely

2.3 Proposed Business Model

Per the March 2015, *Regional Bike Share in the Pioneer Valley Feasibility Study*, the recommended business model is a program that is publicly-owned by the municipalities and operated by a private vendor. Based on goals for the bike share program, along with analysis of the Operations and Ownership Pros and Cons described above, this Technical Memorandum supports the viability of the March 2015 study's recommendation. There are a variety of reasons why this is a sound choice:

- Ability of many elected officials at the four towns/cities (not just a single mayor) and high level officials at the University of Massachusetts to work with various government agencies and local businesses/corporations to raise money for capital and operations costs.
- With at least four separate municipalities involved, it maximizes the transparency and accountability of decision making.
- The solid establishment of PVPC as the regional coordinator among the municipalities, pending available funding for staff time
- The strength of the Partnership Agreement Memorandum of Understanding (MOU) and the number of signatories to the agreement (especially when the "Lead Party" emerges).
- A for-profit operator is typically a good fit for a regional bike share program, per the experience of other multi-jurisdictional bike share systems to date, including Hubway and Capital Bike Share in Metro Washington DC.

The recommended business model for the Pioneer Valley is similar to the Hubway bike share program in Greater Boston, whose equipment is owned separately by the cities of Boston, Cambridge, Somerville and the Town of Brookline. These municipalities have a contract with Motivate, Inc. to maintain and operate the program. In principle, there is no "lead" municipality, but the regional planning agency MAPC (Metropolitan Area Planning Commission) set up the original RFP for equipment and operations. They also act as the arbiter between the four municipalities through their coordination of the Hubway Advisory Committee, which meets monthly to discuss and negotiate issues that impact the regional system, such as proposed fee increases or equitable distribution of revenues between the cities.

With PVPC playing the coordinator/arbiter role, the governance of a bike share program in the Pioneer Valley could function in a similar format as in Greater Boston. To do so, however, funds must be found to support a 0.5 FTE at PVPC. In the first two years of the Bike Share Feasibility Study effort, District Local Technical Assistance (DLTA) program was used to fund PVPC staff's efforts. A third year of DLTA assistance could potentially be provided if the participating communities make the formal request (of which they are recommended to do so). Other options for funding a part-time staffer at PVPC include:

- Using the Unified Planning and Work Program (UPWP) process with local match provided by participating municipalities
- The four participating municipalities can equally provide direct funding to PVPC in order to provide hire a part-time staffer, who may ultimately transition to becoming a part or full time Executive Director for the bike share program (likely done after a primary sponsor is secured)
- Use of sponsorship funds, after explicit permission of a potential bike share Title or Presenting sponsor, when secured

- Through a grant by local Foundation or national advocacy group such as People for Bikes

In the short term, the most critical need is to formally establish the Lead Party and Program Administrator (LPPA). Because they will likely move forward with a bike share program first, it is recommended that the City of Northampton become the LPPA, of which the City has expressed a willingness to do so. As stated in the MOU, the LPPA will need to take on the role of contractor on behalf of all parties involved, for the future operations contract. As the LPPA, Northampton could also be the primary media contact and the top elected official or administrator can be a *de facto* cheerleader for the effort to bring bike share to the Pioneer Valley. Also, with the consent of the other signatories of the MOU, the LPPA will be the primary fiscal agent for all grant application.

The City of Northampton should work closely with PVPC and coordinate with them on the development of the equipment and operations Request for Proposal (RFP). Also, because of its role as an arbiter in this process so far, PVPC should become the keeper of the federal grant and sponsorship money that is expected to come in the months after the completion of this report.

3. System Costs and Revenues

3.1 Cost Components

There are four major costs that will be associated with a regional bike share program in the Pioneer Valley: start-up costs (broken into **launch** and **capital** costs), **administrative** costs for the equipment owner, and **operating** costs. Costs will range—especially capital costs—depending on whether the equipment selected is more-expensive, electro-magnetic docking stations (“dock-based” system) or one with an integrated lock (smart lock system). For either scenario, all cost estimates are based on a first phase launch of 26 stations with approximately 234 bicycles (nine per station, average), as initially established by PVPC’s March 2015 Feasibility Study and further refined by members of the Bike Share Committee. Depending on future equipment bids received and the ultimate size of the potential federal CMAQ grant for which PVPC has applied, there may be funding available for an initial launch that exceeds 26 stations.

3.2 Launch Costs

There are a number of general system launch costs associated with establishing a system. These are mostly one-time startup costs, some of which recur during expansion phases. Launch costs include items such as hiring employees, procuring a storage warehouse, purchasing bike and station assembly tools, website development, communications and IT set-up, and pre-launch marketing. There may be opportunities to reduce some of these costs through partnerships with other organizations or public agencies – for example, by using a city-provided warehouse space instead of renting storage space. For smart lock systems, launched costs are significantly lower since the much-lighter station equipment does not require a flat-bed crane typically used for installation of dock-based systems.

For the potential system in the Pioneer Valley, one-time launch costs are expected to range from \$187,200 to \$374,400 (or \$800 per bike x 234 smart lock bikes, to \$1,600 per bike x 234 dock-based bikes).

3.3 Capital Costs

Capital costs are costs associated with purchase of essential bike share equipment. This includes stations, transaction kiosks, map frame panels, bikes, and docks (or bike racks). Equipment costs will vary depending on:

- Selected equipment (“high” cost range for dock-based stations vs. “low” cost range for rack-based stations with ‘smart-lock’ bikes)
- System parameters such as the number of bikes per station or the number of docks per bike
- Additional features such as or equipping bikes with GPS units

Per-station capital costs typically range from \$32,000¹ (low end at \$3,600/bike, gross) to \$50,000 (high end at roughly \$5,600/bike, gross) per station. Both are based on information from both various vendors, including Social Bicycles (SoBi), B-cycle and Motivate/PBSC. Some 'smart lock' equipment providers such as Zagster offer an even lower-cost option, but the range described above is used within this analysis as a baseline. On the other end, some equipment providers offer dock-based systems with electric-assist bicycles which can be more expensive than the high end.

For the proposed system in the Pioneer Valley, capital costs are expected to range from \$828,000 – \$1,300,000 for the proposed 26 stations and 234 bikes in Phase I (*note: does not include potential price changes related to inflation*)

The costs summarized above do not include a 10% contingency cost for one additional bicycle for each station planned, i.e. the cost of one additional bike, at \$1,500/bike, for each station. The additional bicycle per station has been added to account for potential loss or theft.

3.4 Administrative Costs

There will be costs associated with administering the program by the equipment owners. For each model, a total of \$80,000 has been budgeted for this service as the lead-in to the Phase I launch. The primary administrative cost is, at a minimum, hiring the General Manager to lead the effort during the year prior to the first fully-operational season. The costs also relate to recruiting and securing full- and part-time staff, and to imitating special marketing efforts that are most prevalent during the launch year. Longer-term, the municipal agency(ies), (or potentially, the non-profit) that owns and administers the bike share program will have administrative costs associated with staff positions, marketing, and general expenses. These are included in operating costs as described below.

3.5 Operating Costs

Operating costs include those expenses required to operate and maintain the system for reliable use. This includes staff and equipment related to:

- **Station maintenance**, which includes troubleshooting any technology problems with the kiosk or docking points, cleaning and clearing the station, removing litter and graffiti, etc.
- **Bike maintenance**, including regular inspection and servicing of bikes, maintaining equipment inventory and/or technology problems associated the integrated lock mechanism
- **Rebalancing** processes that entail staff time and equipment associated with moving bikes from full to empty stations and vice versa, a problem typically associated with peak demand at commute periods, a result of special events, or avoidance of riding up hills. Rebalancing costs can be mitigated in a smart-lock system through the use of pricing incentives that encourages riders to return bikes to stations with lower demand. This can represent a significant cost savings of a smart lock vs. a dock-based system.

¹ This estimate assumes that approximately 75% of all stations will feature a transaction kiosk, an expensive piece of equipment that is desirable but not required for the functionality of a smart lock system

- **Customer service** that provides a responsive interface for customer inquiries and complaints, as well as a capability to conduct marketing and outreach to new and existing customers.
- **Direct expenses** such as maintaining an operations facility, purchasing tools and spare parts, upkeep of software, communications and IT, and general administrative costs such as insurance and membership database management.

Operational costs will depend on numerous factors, but are most influenced by the Service Level Agreement (SLA) that will need to be reached between the system's operator and the participating Pioneer Valley municipalities. The SLA sets out the operating terms that must be met: how long a station can remain empty, how often bikes are inspected, cleaning policies, and other concerns. The agreed-upon service levels will need to balance operating costs with customer service. Some jurisdictions, however, do not define SLAs for their operators; this depends on the overall structure of the contract and the extent to which the risk is borne by the contractor. If the financial risk is borne by the jurisdictions expected to own the equipment, and a flat operations fee paid to an operator, then SLAs are appropriate, but if the financial risk is borne by the operator, then SLAs are not typically a part of the contract.

Depending on the service-level expectations, monthly operating costs could range from \$85 per rack (based on SoBi smart lock system experience) up to \$110 per dock (based on Motivate dock-based system experience). This is based on experience with systems that currently exist throughout the U.S. **With expectations for 1.8-2.0 parking spots for every bike share bicycle (either rack or dock) this equates to an operations cost range of \$429,624 to 617,760 per year.²**

3.6 Revenues

One of the goals (born frequently out of necessity) of many bike share systems is to use a diverse range of revenue sources. Potential revenues include: user fees, sponsorship, advertising and public funding (through grants and direct appropriations from the Capital Budget).

User Fees

User fees include the fees bike share patrons pay for annual, monthly or daily memberships, along with any potential overtime fees (i.e. use of a bicycle beyond the proscribed 30-minute or 45-minute free-use period). A key factor to determine revenue through user fees is the "Farebox Recovery" (FR) rate, a term borrowed from public transit planning and operations. The FR rate equates to the percentage of the system's operating costs expected to be covered by user fees. Of the three typical user-fee sources—annual memberships, 24 hour passes and overtime usage fees—the most lucrative for most bike share programs are the 24 hour passes. While annual members typically pay the \$50-\$100 fee once a year, casual users who purchase a 24 hour pass bring \$6-\$10 into the revenue stream for only a single day of use. In most instances, visitors and tourists are the casual users who purchase the day passes. As such, cities and regions with major destinations and a significant tourist economy have the highest FR rates in

² Note that while a bike share program in the Pioneer Valley is expected to run between April and November, the range above includes a 12 month multiplier. This is to account for the additional costs associated with packing up, storing and redeploying the equipment on a twice-yearly basis.

the bike share industry. This includes Metro Washington DC and Chicago programs which pay for virtually all of their operations costs through user fees (i.e. a 100% FR rate). Bike share programs in New York and Boston have FR rates in the 75% range, while Seattle and Denver B-cycle pay for roughly half of their operations through user fees.

Smaller cities with few major destinations and modest levels of tourism have significantly lower FR rates that range from 20% to 40%. While the FR rate for each community within the Pioneer Valley will vary, in aggregate, the FR rate is expected to fall within this range. Also impacting the FR rate is the equipment vendor chosen and the estimated operations costs for the equipment. Because operations costs for smart lock equipment is roughly two-thirds compared to dock-based systems, the FR rates are projected to be significantly higher. As shown in Tables 3-1 and 3-2 below, the FR rate for a smart lock system starts at 32% during year 1, while the FR rate starts at 20% for dock based equipment. For either equipment option, a small increase in the FR rate is expected as bike share use (and revenues) increase with each year of operations. However, if/when the program doubles in size in a second phase—shown in Year 3 in the tables—the increased operations costs would be expected to increase at a rate higher than the increase in use (i.e. operations cost would roughly double while ridership will increase more incrementally). Therefore, the estimated FR rate for both smart lock and dock based equipment drops approximately 20% from the first year's rate in relative terms. After Year 3, the FR rate would then be expected to resume a modest annual increase of a few percent thereafter.

Sponsor Revenue

Sponsorship provides a significant funding opportunity in the Pioneer Valley given the number of large employers and potentially-interested corporate and institutional partners. Experience in other cities has shown that companies are generally interested in sponsorship for its positive impression and “good corporate citizen” benefits, as much as for its media exposure. Sponsorship typically involves a five-year agreement between the sponsor and the owner of the bike share equipment. Company or institutional decals are typically placed on the bike share infrastructure (bikes and station) and sponsors are also recognized and highlighted on the bike share program web site and other promotional materials.

In many larger cities, bike share sponsorship agreements frequently bring in roughly \$1000 per bike per year. These cities feature much larger populations, higher levels of traffic (both automobile and pedestrian), higher brand visibility and more-intensive media markets than in the Pioneer Valley. As such, for the sake of the revenue projections, the annual sponsorship fee is estimated to be a more conservative figure: \$750 per bike. With an expected system of 26 stations and 234 bicycles, this equates to a sponsorship deal of \$175,500 per year for phase 1 and ultimately \$337,500 per year in a full build-out expected by the third year of operations. **However, in sponsorship negotiations, seeking a more-robust \$1000-\$1500 per bike per year is recommended, and could perhaps be attainable with a sponsor who is exceptionally enthusiastic about bike share.**

Table 3-1: Bike Share sponsorship levels

SYSTEM NAME	# of BIKES (STATIONS)	PRIMARY SPONSOR	QUANTITY (TERM)	SPONSOR FUNDS PER BIKE
Hubway, Boston	600 (60 stations at launch in 2011)	New Balance	\$600,000 (3 years)	\$333 / bike / year *
CoGo Bike Share, Columbus OH	300 (30 stations)	Medical Mutual	\$1,250,000 (5 years)	\$833 / bike / year
Pronto, Seattle	500 (50 stations)	Alaska Airlines	\$2,500,000 (5 years)	\$1,000 / bike / year
Healthy Ride, Pittsburgh	500 (50 stations)	Highmark Blue Cross/Blue Shield	\$2,500,000 (5 years)	\$1,000 / bike / year
GREENbike, Salt Lake City	100 (10 stations) (150 by early 2016)	Select Health and Rio Tinto	\$350,000 combined (3 years)	\$1,163 / bike / year

* - City of Boston acknowledges that they undersold the sponsorship and "left money on the table"

Advertising Revenue

Advertising includes a contract with a company to provide a regularly changing graphic display and message, typically inserted into the map-panel portion of a typical bike share station. The advertiser and/or message may not be associated with bike sharing or bicycling in general, though the local jurisdiction may have specific restrictions on the advertisements related to tobacco products or alcohol. In some cities with bans on outdoor advertising in the public ROW, many bike share programs include Public Service Announcements within the map frame panel as an alternative. According to Steve Hebert, General Manager of Lamar Advertising in Hartford—who manages billboards and public-space advertising in the Greater Springfield region—monthly advertising revenue will range from \$100 to \$150 per month at bike share stations. This is similar to what's charged for ads at bus shelters. As such, the monthly revenue estimate of \$125 per station is used.³

Grants and Public Funding

Numerous public funding options are available for bike sharing in the United States but the most common are federal grants issued by agencies such as FHWA, FTA, or CDC, state grants, and local transportation funds.

The FHWA provides a summary of public funding sources in its guide to Bike Sharing in the United States (2012):

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/faq_bikeshare.cfm

³ This assumes that jurisdictions with current ordinances prohibiting or regulating advertising signs are able to revise their regulations to allow advertisement and logo display on bike share stations and bicycles.

The table below also summarizes the funding sources used for bike share in the US (FHWA, 2012).

FEDERAL					STATE and LOCAL
U.S. Department of Transportation (USDOT) ⁵⁹		Centers for Disease Control (CDC)	Department of Health and Human Services (HHS)	Department of Energy (DOE)	
Federal Highway Administration (FHWA) ⁶⁰	Federal Transit Administration (FTA) ⁶¹				
Congestion Mitigation Air Quality (CMAQ)	Job Access Reverse Commute (JARC)				Public Health Grants
Surface Transportation Program: Transportation Enhancements (TE)	Bus Livability Pilot Programs	Health and Obesity Prevention Grant	Communities Putting Prevention to Work ⁶²	Energy Efficiency Conservation Block Grant ⁶³	Local Transportation Funds
Transportation, Community and System Preservation Program (TCSP)	Paul S. Sarbanes Transit in Parks Grant Program				
Transportation Investment Generating Economic Recovery (TIGER) Grant					
Nonmotorized Transportation Pilot Program					

There are a number of factors to consider before pursuing federal funds:

- There is a significant amount of competition for federal funds and grants, and a detailed understanding of the application process is often required.
- Going after discretionary federal funding for bike share comes with some level of risk that it could compete with other regional transit, greenway and non-motorized transportation projects
- These sources are generally less flexible than other funding sources, e.g., FTA Bus Livability Discretionary Grant (used in Boston for Hubway financing) funding may only be used for bike share docks/racks, equipment, and other capital costs but NOT for purchasing bicycles or for launch and operating costs. FHWA funding such as CMAQ grants, on the other hand, CAN be used for all equipment including bikes. Note that few grants are available for operations.
- There may be additional requirements such as “Buy America” provisions for steel and iron products, NEPA environmental assessment, etc.
- There are often delays associated with the application, evaluation, and distribution of funds, which can delay deployment. There may also be a timeline within which to use the funds, which can create difficulties in piecing together several grants.
- There are restrictions on the use of federal funds for bike share stations on private property (for example, if any stations are ultimately planned for the Smith College campus)

Most cities have limited the use of local public funding to providing any required local matches to federal grants (such as CMAQ) as well as providing in-kind services such as staff time, right-of-way use, or displacement of on-street parking revenues. Columbus, Ohio is one exception as they committed \$2.3 million of local funds from the Capital budget to purchase the equipment. Another is in Washington State, where the Legislature has allocated \$5.5 million to expand Seattle’s Pronto system to cities on the east side of Puget Sound. Any potential local funding from cities and towns in the Pioneer Valley would most likely be directed towards the potential match required for capital costs or a specific amount for annual operations costs.

The CMAQ grant application that awaits approval from the Federal Highway Administration is for the sum total of \$1.2 million. Typically, CMAQ funding for bike share is used for capital expenditures and for launch costs, but there are opportunities to use some of the funds for up to three years of operations.

Municipalities in the Pioneer Valley will need to negotiate with MassDOT, the administrator of FHWA grant money. MassDOT will also be the final arbiter related to reimbursement of local CMAQ funds obligated for subsequent fiscal years to accommodate the communities that may not be ready to launch bike share during year one.

Finally, there are also opportunities to raise money through grants offered by non-profit advocacy organizations and private foundations. Options include the People for Bikes grant program at <http://www.peopleforbikes.org/pages/community-grants> or the TD Bank Charitable Foundation program at <https://www.tdbank.com/community/>. These and other grants are typically available to non-profit organizations, so applications will need to be submitted by PVPC's sister non-profit organization or a local non-profit group committed to sustainability, bicycling or public health.

3.7 Cost Summary

The Phase I, five-year cost forecast for a bike share program in the Pioneer Valley region and associated jurisdictions is shown in the tables below. Each present a regional system that was primarily defined in the Bike Share Feasibility Study written in March 2015 by the Pioneer Valley Planning Commission. PVPC's study recommended a 24 station system but subsequently, the City of Northampton has expressed the desire for two additional stations, resulting in 26 total stations. For estimating purposes, an average of 9 bicycles is used for each station, so the initial 26 station launch is expected to include 234 bicycles. By community, the number of stations includes:

- Amherst: 6 stations (3 in the town and 3 on the UMass campus)
- Northampton: 7 stations
- Holyoke: 5 stations
- Springfield: 8 stations

Table 3-2 presents costs for a smart-lock system, while Table 3-3 includes costs for the more-expensive dock-based option for the regional system⁴. Subsequently, Tables 3-4 through 3-7 break the costs and revenues down by individual municipality. Because the smart lock system is the one favored by the Bike Share Advisory Committee, these four tables **do not** include costs for a dock-based system. For cost-estimating purposes, a potential expansion that could nearly double the size of the system—24 additional stations with 218 additional bicycles—is included during the third full year of operations. This expansion could be smaller or larger than 24 new stations, and will be dependent on the initial success after the first phase launch and availability of additional funds. A significant expansion of a program size in the third year is not unusual for the bike share industry.

Note: using a relatively conservative estimate of \$750 per bike in annual sponsorship leaves an annual need that ranges from \$73,459 - \$90,644 for Phase 1 operations that would need to be covered with public

⁴ Note that capital, launch, and administrative costs occur in the year *prior* to operations – i.e., these costs occur in Year “0” for a system whose actual operations begin in Year 1

funds or additional grants, show as "TBD" in the tables below. If annual sponsor funding comes in at \$1000 per bike or more, the need for public funds or additional grants would be very minimal.

Table 3-2: Five-Year Cost Estimate for Pioneer Valley Bike Share – SMART LOCK EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	26	26	26	50	50	50
# of bikes	234	234	234	450	450	450
# of docks/racks (1.8 per bike)	421	421	421	810	810	810
COSTS						
launch costs	\$187,200	\$0	\$0	\$172,800	\$0	\$0
capital costs (low)	\$828,100	\$0	\$0	\$764,400	\$0	\$0
contingency costs	\$39,000	\$0	\$0	\$36,000	\$0	\$0
admin. costs	\$80,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$429,624	\$429,624	\$826,200	\$826,200	\$826,200
Low Cost sub-total	\$1,134,300	\$429,624	\$429,624	\$1,799,400	\$826,200	\$826,200
Low Cost Cumulative	\$1,134,300	\$1,563,924	\$1,993,548	\$3,792,948	\$4,619,148	\$5,445,348
REVENUE PROJECTIONS						
User-fees	\$0	\$137,480	\$154,665	\$214,812	\$247,860	\$280,908
"Farebox Recovery" rate	na	32.0%	36.0%	26.0%	30.0%	34.0%
Sponsorship (\$750/bike)	\$0	\$175,500	\$175,500	\$337,500	\$337,500	\$337,500
Advertising	\$0	\$26,000	\$26,000	\$50,000	\$50,000	\$50,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$338,980	\$356,165	\$602,312	\$635,360	\$668,408
Revenue Cumulative	\$0	\$338,980	\$695,144	\$1,297,456	\$1,932,816	\$2,601,224
FINANCIAL GAP						
Annual need	-\$1,134,300	-\$90,644	-\$73,459	-\$1,197,088	-\$190,840	-\$157,792
Cumulative need	-\$1,134,300	-\$1,224,944	-\$1,298,404	-\$2,495,492	-\$2,686,332	-\$2,844,124

Table 3-3: Five-Year Cost Estimate for Pioneer Valley Bike Share – DOCK BASED EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	26	26	26	50	50	50
# of bikes	234	234	234	450	450	450
# of docks/racks (2 per bike)	468	468	468	900	900	900
COSTS						
launch costs	\$374,400	\$0	\$0	\$345,600	\$0	\$0
capital costs (high)	\$1,300,000	\$0	\$0	\$1,200,000	\$0	\$0
admin. costs	\$80,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$617,760	\$617,760	\$1,188,000	\$1,188,000	\$1,188,000
High Cost sub-total	\$1,754,400	\$617,760	\$617,760	\$2,733,600	\$1,188,000	\$1,188,000
High Cost Cumulative	\$1,754,400	\$2,372,160	\$2,989,920	\$5,723,520	\$6,911,520	\$8,099,520
REVENUE PROJECTIONS						
User-fees	\$0	\$123,552	\$119,000	\$205,000	\$240,000	\$270,000
"Farebox Recovery" rate	na	20.0%	22.0%	16.0%	18.0%	20.0%
Sponsorship (\$750/bike)	\$0	\$175,500	\$175,500	\$337,500	\$337,500	\$337,500
Advertising	\$0	\$26,000	\$26,000	\$50,000	\$50,000	\$50,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$325,052	\$320,500	\$592,500	\$627,500	\$657,500
Revenue Cumulative	\$0	\$325,052	\$645,552	\$1,238,052	\$1,865,552	\$2,523,052
FINANCIAL GAP						
Annual need	-\$1,754,400	-\$292,708	-\$297,260	-\$2,141,100	-\$560,500	-\$530,500
Cumulative need	-\$1,754,400	-\$2,047,108	-\$2,344,368	-\$4,485,468	-\$5,045,968	-\$5,576,468

Table 3-4: Five-Year Cost Estimate for Town of Amherst Bike Share – SMART LOCK EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	6	6	6	11	11	11
# of bikes	54	54	54	99	99	99
# of docks/racks (1.8 per bike)	97	97	97	178	178	178
COSTS						
launch costs	\$43,200	\$0	\$0	\$36,000	\$0	\$0
capital costs (low)	\$191,100	\$0	\$0	\$159,250	\$0	\$0
contingency costs	\$9,000	\$0	\$0	\$7,500	\$0	\$0
admin. costs	\$20,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$99,144	\$99,144	\$181,764	\$181,764	\$181,764
Low Cost sub-total	\$263,300	\$99,144	\$99,144	\$384,514	\$181,764	\$181,764
Low Cost Cumulative	\$263,300	\$362,444	\$461,588	\$846,102	\$1,027,866	\$1,209,630
REVENUE PROJECTIONS						
User-fees	\$0	\$31,726	\$35,692	\$47,259	\$54,529	\$61,800
"Farebox Recovery" rate	na	32.0%	36.0%	26.0%	30.0%	34.0%
Sponsorship (\$750/bike)	\$0	\$40,500	\$40,500	\$74,250	\$74,250	\$74,250
Advertising	\$0	\$6,000	\$6,000	\$11,000	\$11,000	\$11,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$78,226	\$82,192	\$132,509	\$139,779	\$147,050
Revenue Cumulative	\$0	\$78,226	\$160,418	\$292,927	\$432,706	\$579,756
FINANCIAL GAP						
Annual need	-\$263,300	-\$20,918	-\$16,952	-\$252,005	-\$41,985	-\$34,714
Cumulative need	-\$263,300	-\$284,218	-\$301,170	-\$553,175	-\$595,160	-\$629,874

Table 3-5: Five-Year Cost Estimate for City of Northampton Bike Share – SMART LOCK EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	7	7	7	12	12	12
# of bikes	63	63	63	108	108	108
# of docks/racks (1.8 per bike)	113	113	113	194	194	194
COSTS						
launch costs	\$50,400	\$0	\$0	\$36,000	\$0	\$0
capital costs (low)	\$222,950	\$0	\$0	\$159,250	\$0	\$0
contingency costs	\$10,500	\$0	\$0	\$7,500	\$0	\$0
admin. costs	\$20,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$115,668	\$115,668	\$198,288	\$198,288	\$198,288
Low Cost sub-total	\$303,850	\$115,668	\$115,668	\$401,038	\$198,288	\$198,288
Low Cost Cumulative	\$303,850	\$419,518	\$535,186	\$936,224	\$1,134,512	\$1,332,800
REVENUE PROJECTIONS						
User-fees	\$0	\$37,014	\$41,640	\$51,555	\$59,486	\$67,418
"Farebox Recovery" rate	na	32.0%	36.0%	26.0%	30.0%	34.0%
Sponsorship (\$750/bike)	\$0	\$47,250	\$47,250	\$81,000	\$81,000	\$81,000
Advertising	\$0	\$7,000	\$7,000	\$12,000	\$12,000	\$12,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$91,264	\$95,890	\$144,555	\$152,486	\$160,418
Revenue Cumulative	\$0	\$91,264	\$187,154	\$331,709	\$484,196	\$644,613
FINANCIAL GAP						
Annual need	-\$303,850	-\$24,404	-\$19,778	-\$256,483	-\$45,802	-\$37,870
Cumulative need	-\$303,850	-\$328,254	-\$348,032	-\$604,515	-\$650,316	-\$688,187

Table 3-6: Five-Year Cost Estimate for City of Holyoke Bike Share – SMART LOCK EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	5	5	5	12	12	12
# of bikes	45	45	45	108	108	108
# of docks/racks (1.8 per bike)	81	81	81	194	194	194
COSTS						
launch costs	\$36,000	\$0	\$0	\$50,400	\$0	\$0
capital costs (low)	\$159,250	\$0	\$0	\$222,950	\$0	\$0
contingency costs	\$7,500	\$0	\$0	\$10,500	\$0	\$0
admin. costs	\$20,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$82,620	\$82,620	\$198,288	\$198,288	\$198,288
Low Cost sub-total	\$222,750	\$82,620	\$82,620	\$482,138	\$198,288	\$198,288
Low Cost Cumulative	\$222,750	\$305,370	\$387,990	\$870,128	\$1,068,416	\$1,266,704
REVENUE PROJECTIONS						
User-fees	\$0	\$26,438	\$29,743	\$51,555	\$59,486	\$67,418
"Farebox Recovery" rate	na	32.0%	36.0%	26.0%	30.0%	34.0%
Sponsorship (\$750/bike)	\$0	\$33,750	\$33,750	\$81,000	\$81,000	\$81,000
Advertising	\$0	\$5,000	\$5,000	\$12,000	\$12,000	\$12,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$65,188	\$68,493	\$144,555	\$152,486	\$160,418
Revenue Cumulative	\$0	\$65,188	\$133,682	\$278,236	\$430,723	\$591,141
FINANCIAL GAP						
Annual need	-\$222,750	-\$17,432	-\$14,127	-\$337,583	-\$45,802	-\$37,870
Cumulative need	-\$222,750	-\$240,182	-\$254,308	-\$591,892	-\$637,693	-\$675,563

Table 3-7: Five-Year Cost Estimate for City of Springfield Bike Share – SMART LOCK EQUIPMENT

year	0	1	2	3	4	5
# of stations/hubs	8	8	8	15	15	15
# of bikes	72	72	72	135	135	135
# of docks/racks (1.8 per bike)	130	130	130	243	243	243
COSTS						
launch costs	\$57,600	\$0	\$0	\$50,400	\$0	\$0
capital costs (low)	\$254,800	\$0	\$0	\$222,950	\$0	\$0
contingency costs	\$12,000	\$0	\$0	\$10,500	\$0	\$0
admin. costs	\$20,000	\$0	\$0	\$0	\$0	\$0
operations costs	\$0	\$132,192	\$132,192	\$247,860	\$247,860	\$247,860
Low Cost sub-total	\$344,400	\$132,192	\$132,192	\$531,710	\$247,860	\$247,860
Low Cost Cumulative	\$344,400	\$476,592	\$608,784	\$1,140,494	\$1,388,354	\$1,636,214
REVENUE PROJECTIONS						
User-fees	\$0	\$42,301	\$47,589	\$64,444	\$74,358	\$84,272
"Farebox Recovery" rate	na	32.0%	36.0%	26.0%	30.0%	34.0%
Sponsorship (\$750/bike)	\$0	\$54,000	\$54,000	\$101,250	\$101,250	\$101,250
Advertising	\$0	\$8,000	\$8,000	\$15,000	\$15,000	\$15,000
Public funds/grants	\$0	TBD	TBD	TBD	TBD	TBD
Revenue sub-total	\$0	\$104,301	\$109,589	\$180,694	\$190,608	\$200,522
Revenue Cumulative	\$0	\$104,301	\$213,891	\$394,584	\$585,192	\$785,715
FINANCIAL GAP						
Annual need	-\$344,400	-\$27,891	-\$22,603	-\$351,016	-\$57,252	-\$47,338
Cumulative need	-\$344,400	-\$372,291	-\$394,893	-\$745,910	-\$803,162	-\$850,499

4. Equipment Alternatives

As stated earlier, the cost and revenue estimates in the previous chapter are contingent upon the type of equipment selected. This section examines the two bike share equipment types (smart lock and dock-based) that were considered by PVPC's Bike Share Advisory Committee and provides an assessment of the five equipment vendors that made presentations to the committee.

4.1 Equipment Technology

Bike share is not a recent phenomenon, and in fact has been around for nearly 25 years in the US. Most of the so-called 1st generation "systems" were volunteer-led and informally organized. In most places, these programs experienced minimal success because of theft, vandalism, inefficient technology and insufficient operational oversight. However, in the past five to ten years, innovations in technology have increased accountability and given rise to a new generation of technology-driven bike share programs. Advancements in credit card transaction capabilities and RFIC (radio-frequency identification chips) have allowed operators to introduce accountability and reduce theft and vandalism.

The most recent bike-share technologies, developed in North America, are modular systems that do not require excavation because they use solar power and wireless communication, as opposed to hardwired installation. With these new changes, stations can be moved, relocated, expanded, or reduced to meet demand. This ability allows systems to be flexible in terms of service coverage and availability and helps reduce capital costs related to construction.

Bike share technology is evolving quickly along with other wireless and digital changes. In just the past three years, systems that do not require docking stations (i.e. "smart lock" systems), have become more popular with launches in several U.S. and Canadian cities. This includes domestic and foreign companies such as Social Bicycle (SoBi) from Brooklyn NY, NextBike from Germany and the French company Smoove. There is also a Massachusetts-based company called Zagster that provides a very low cost option. To access the bicycles, use of a Smart Phone to access an App or to make a text message is required.

Systems utilizing grid-connected stations featuring electric-assist bicycles are also emerging as a more-viable option due to successes in several European cities. The electric-assist option remains largely untested in the U.S., however. The near future may also bring a unified transit and bike share pass, of which a number of cities are interested in implementing. Finally, operations have evolved from volunteer-led and informal, to sophisticated and formal, with significant investments in aspects from deployment to rebalancing (i.e. moving bikes from full to empty stations), customer service, marketing and maintenance.

Elements of a Contemporary Dock-Based Bike Share System



A software back-end that keeps track of transactions and ridership information and can be linked to real-time website and mobile device applications and user profiles that report the number of trips, distance travelled, or calories burned.

A fleet of bicycles - specially designed for short trips and constructed of customized components to limit their appeal to theft and vandalism.

A network of stations spread across a broad area to provide convenient access to bikes. Each station includes a terminal where transactions are made and docking points where the bicycles are secured when not in use. Recent technologies have introduced modular station platforms that can be relocated, expanded, and have solar power and wireless communications.

Maintenance: staff and programs to rebalance bikes amongst the stations and maintain the system infrastructure.

Elements of a Contemporary smart lock Bike Share System



Digital screen to receive unlocking code

Key pad to insert unlocking code or other information

Integrated U-Lock intended to be taken with bike when ridden so that bike can be locked anywhere (typically for a higher fee than parking the bike at a station)

Bike Share Bicycle

Docking station with space for custom branding and advertisements. A kiosk can be added at station to process bike rental transaction. Since bikes can be rented via mobile device and online, not all stations require a kiosk.

4.2 Vendor Overview

There are a number of established and emerging vendors that offer variations on the dock based and smart lock technology options described above. Table 4-1 below offers an overview and evaluation of ten criteria developed in conjunction with the Bike Share Advisory Committee. The evaluation includes the five vendors that have expressed interest in potentially providing bike share equipment in the Pioneer Valley: B-cycle (dock-based), Social Bicycles (smart lock), Zagster (smart lock), Bewegen (dock based) and Motivate (dock based).

Criteria	Vendor Options				
	B-Cycle	Social Bicycles (SoBi)	Zagster	Bewegen	Motivate
Equipment vendor experience	~5,317 bikes at ~610 stations	~1,964 bikes utilizing ~384 hubs	~14 locations in corporate / private settings	Bewegen has systems operating in Portugal and is the selected vendor for Birmingham, AL's electric-assist program	~15,500 bikes at ~1,340 stations
Bicycle/station durability	40 - 42 pound bike, with proprietary components and internal brake and shifting cables to minimize vandalism; puncture-proof tires; built-in lighting; internal gearset	40 - 42 pound bike, with proprietary components to minimize vandalism; puncture-proof tires; built-in lighting; internal gearset; shaft-drive removes need for chain	Standard off-the-shelf bicycle	A quarter of the bicycles planned for Birmingham will feature electric assist, capable of increasing the range a user may travel without requiring excessive exertion	40 - 42 pound bike, with proprietary components and internal brake and shifting cables to minimize vandalism; puncture-proof tires; built-in lighting; internal gearset
Operations costs	High	Medium	Low - Medium	High	High
Equipment costs (gross costs per bike): Low = < \$2,000 Medium = \$2,001 - \$4,000 High = > \$4,000	High	Medium	Low	High	High
Ability to expand reach of transit	Limited due to cost of each station	More flexible options	More flexible options	Limited due to cost of each station	Limited due to cost of each station
Ability to expand mobility for low-income populations	Limited due to cost of each station	More flexible options	More flexible options	Limited due to cost of each station	Limited due to cost of each station
Ease of use	Access requires swipe card for members or kiosk interaction for casual users (can access bicycle from designated dock without code)	Members can use either an RFID swipecard or simply punch in their member code to each bicycle; casual users can punch in their temporary member code on the back of each bike	Members punch in their member code to receive a key from the lockbox	Modern docking system features touch screen display with live, real-time system map and payment hardware	Access requires swipe card for members or kiosk interaction for casual users (need to access bicycle from designated dock using a code)
Site planning challenges	Docking stations require a location clear of utility poles, man hole covers, sewer grates, etc.	Dockless bike share systems with integrated locks are more flexible in regards to site planning challenges because they are able to be locked to any bike rack within the service area, potentially mitigating the need for large station footprints	Dockless bike share systems with integrated locks are more flexible in regards to site planning challenges because they are able to be locked to any bike rack within the service area, potentially mitigating the need for large station footprints	Docking stations require a location clear of utility poles, man hole covers, sewer grates, etc.	Docking stations require a location clear of utility poles, man hole covers, sewer grates, etc.
High visibility and "brandability"	Branding space on: rear fender, front basket and kiosks	Branding space on: fender and front basket. Fewer kiosks limit brandability of the station itself.	Small branding space on front of the front basket limits opportunities	Branding space on: rear fender, front basket and kiosks	Branding space on: rear fender and kiosks
Interoperability with other systems	None within New England (currently)	None within New England (currently)	Yes, with limited locations in New England	None nationally (currently)	Yes, four cities in Greater Boston.

4.3 Equipment Typology Recommendation

Given the quality of the presentations made by the vendors, test rides on some of the bicycles and the evaluations described above, the Bike Share Advisory Committee favors a smart lock system for use in the Pioneer Valley. Some of the primary reasons stated by committee members include:

- The much lower estimated capital costs for equipment will provide better bang for the buck related to the securing of the \$1.2m CMAQ grant
- The lower estimated operations costs will likely mitigate the need to provide public funding for operations, on top of what is expected to be raised through corporate or institutional sponsorship
- The opportunity for smart lock bicycles to be parked throughout a designated service area and not restricted to parking at docking stations only; this was seen as particularly advantageous in parts of the region which lack the density and level of activity to warrant stations spaced at the ideal ¼ mile walking distance from one another
- Confidence in the growing level of experience that smart lock equipment vendors have with city or region-wide bike share programs
- The high quality and perceived durability of the smart lock bikes presented and test ridden
- The build-in GPS tracking system that is part of all smart lock programs
- The opportunity for some smart lock vendors to provide field-tested transaction kiosks (which until 2014, was not an option)



Member of the Advisory Committee test riding a smart lock model at the July 2015 meeting

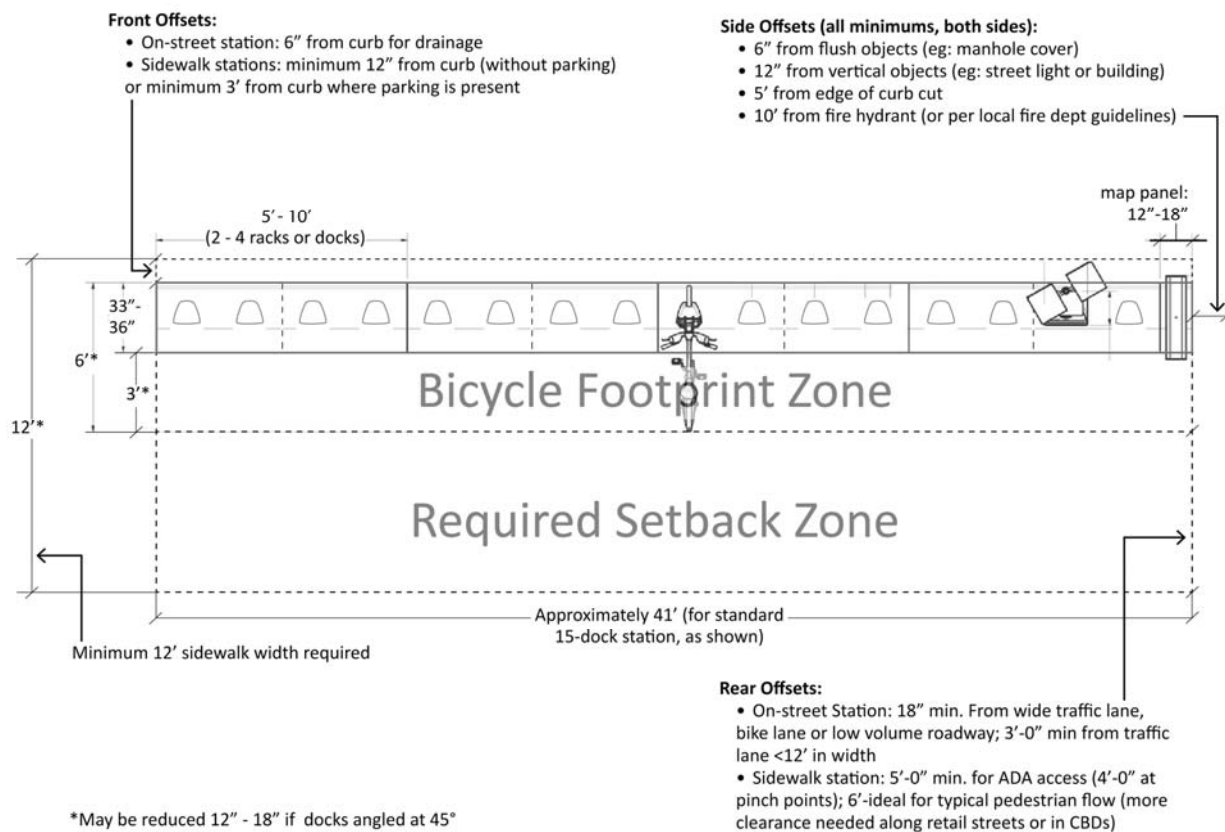
Based on the committee's strong preference and the increasingly successful launch of smart lock programs in cities and campuses throughout the U.S., this study recommends that the subsequent equipment RFP developed for a regional bike share program include language that requires: 1) bike share bicycles have the flexibility to be locked outside of designated stations, 2) have GPS technology to track bicycles in real time and 3) vendors have a track record of success. In theory, this does not preclude vendors of dock-based equipment from including secondary locks on their bikes and GPS tracking technology. However, the more-traditional, dock-based vendors will need to provide a competitive bid with the smart lock companies, which may prove to be difficult.

4.4 Design Guidance

Based on the equipment recommendation made above, this section provides site planning guidance to the cities and towns intending to launch bike share in the coming years. Because all vendors' equipment uses solar power, wireless communications and GPS technologies, they do not require excavation or hardwiring. The stations can be moved, relocated, or expanded easily to meet demand, or to accommodate temporary events.

Station locations should be highly visible and accessible and need to consider other modes of travel (e.g., they should not impede pedestrian circulation or be placed in bus zones or block building entrances). Station sites also need to be accessible by motor vehicle, which allows vans or small trucks to both install the station, and to provide rebalancing of bicycles during peak periods.

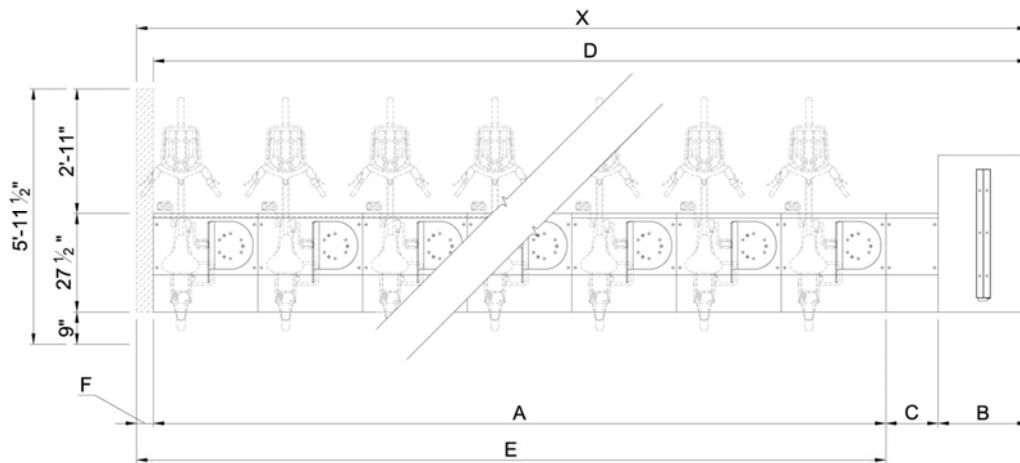
The physical space occupied by a bike share station will vary depending on the equipment selected and the number of racks or docking points at each station. Modules generally come in 2.5-foot, 5-foot or 10-foot lengths that accommodate one to four parking spots. In nearly all cases, six feet of station depth will be needed to accommodate the length of a parked bicycle within the station. In some cases, orienting racks or docks at a 45-degree angle can save 12"-18" of station depth. Additional space is also required behind the bike to allow users to pull the bike out from the station and reorient it in the desired



Graphic diagram showing the spacing and offset needs for a generic, 15-dock/rack bike share station

direction of travel. The example diagram shown above is for a typical station with 15 docks or racks (plus a payment kiosk and map panel) that would be roughly 41 feet in length by six feet in width. The diagram also illustrates key front, side and rear offset dimensions (e.g. hydrants, manhole covers, traffic lanes, curbs and vertical objects).

Fifteen docking points or racks should be considered the average size for bike share stations in the Pioneer Valley. Some variation should be expected however, based on the prevailing land uses and presence of nearby destinations. Sites within dense business districts, next to college campuses, at transit stations or in the heart of popular shopping and eating districts should be the largest stations, while those sited in predominantly residential areas or the edge of business districts can be smaller. The graphic below illustrates the dimensional needs of a smart lock station utilizing Social Bicycles equipment that includes 12 to 18 racks. Stations with fewer than 12 racks should be avoided if possible, as they are more likely to suffer from being either full (no racks available) or without available bicycles.



# of Racks	General Dimensions				
	A	B	C	D	E
	Base Plate(ft/in)	Sign(ft/in)	Spacer (ft/in)	Base Plate + Sign (ft/in)	Base Plate + Bike Overhang (No Sign) (ft/in)
12	29' 6"	2' 1"	1' 2 3/4"	32' 9 3/4"	30' 2"
13	31' 11 1/2"	2' 1"	1' 2 3/4"	35' 3 1/4"	32' 7 1/2"
14	34' 5"	2' 1"	1' 2 3/4"	37' 8 3/4"	35' 1"
15	36' 10 1/2"	2' 1"	1' 2 3/4"	40' 2 1/4"	37' 6 1/2"
16	39' 4"	2' 1"	1' 2 3/4"	42' 7 3/4"	40' 0"
17	41' 9 1/2"	2' 1"	1' 2 3/4"	45' 1 1/4"	42' 5 1/2"
18	44' 3"	2' 1"	1' 2 3/4"	47' 6 3/4"	44' 11"

W/ Sign on Right	
F	X
Bike Overhang (ft/in)	Total Length (ft/in) *
0' 8"	33' 5 3/4"
0' 8"	35' 11 1/4"
0' 8"	38' 4 3/4"
0' 8"	40' 10 1/4"
0' 8"	43' 3 3/4"
0' 8"	45' 9 1/4"
0' 8"	48' 2 3/4"

W/ Sign on Left (not shown)	
F	X
Bike Overhang (ft/in)	Total Length (ft/in) *
0' 0"	32' 9 3/4"
0' 0"	35' 3 1/4"
0' 0"	37' 8 3/4"
0' 0"	40' 2 1/4"
0' 0"	42' 7 3/4"
0' 0"	45' 1 1/4"
0' 0"	47' 6 3/4"

Graphic diagram showing the sizing requirement for a smart lock bike share station of varying sizes (image used with permission from Social Bicycles)

There are three typical station placement scenarios in the participating communities in the Pioneer Valley: on-street stations, off-street sidewalk stations and off-street stations in public plazas or on private property. In all cases, care must be taken to accommodate the concerns of abutters. This frequently comes in the form of worries related to possible noise impacts, maintenance issues, potential vandalism, pedestrian safety (i.e. sidewalk riding) and loss of parking (on-street station sites only).

- **On-street station sites:** Because bicycles are considered vehicles, there is a certain logic to placing bike share stations on-street. Doing so requires careful consideration of the spatial requirements to ensure a safe and comfortable environment for users however. Because 12-18 rack stations require anywhere from 32 to 48 feet, the removal of two or three parking spaces should be assumed. In many cases the spaces removed will be metered so impacts to city/town revenue will need to be considered. In some cities, many business owners consider the bike share stations to be beneficial by bringing additional customers to the district, along with branding an area as progressive and “green”. In seasonal systems like the one recommended in the Pioneer Valley, stations should be completely removed before snow removal typically becomes a likelihood. In Boston, bike share stations are removed in late November and re-installed in late March, unless an early spring storm creates delays. Other considerations for on-street installations include:

- Protection: some cities require little to no protection, whereas others require engineering treatments such as painted end treatments and flexible delineator posts. Typically, on-street station installation next to a bike lane or buffer is preferred, but depending on the volume and speed of traffic, parking lanes eight feet wide can be acceptable for on-street installations.

- Orientation: typical bike share station orientation is to place the front wheels adjacent to the curb, so bikes can be removed and repositioned to join the flow of adjacent traffic. However, some cities rotate the stations so the rear wheel points to the curb, allowing users to access a bike without having to back out into motor vehicle traffic. This can be an effective strategy, especially when there is not a buffer or bike lane immediately adjacent to the station. It’s important, however that at least 18” (24”-30” ideally) be left between the edge of the rear wheel and the curb so there is space for maneuvering.



Most on-street stations in the City of Boston have been located adjacent to striped bike lanes

- Clear zones: stations cannot be placed in transit lanes, in off-peak parking lanes (that convert to moving traffic lanes during peak hours), or in other clear zones. Potential displacement of bus stops, loading zones, and other curbside uses needs to be considered as well.
- **Off-street sidewalk station sites.** Placing bike share stations on sidewalks creates a comfortable environment for users to access a bike without concern for passing traffic. With bikes parked, the stations themselves are typically six feet deep. At a bare minimum, station footprints require an additional five feet for pedestrian passage to meet ADA requirements. In many cases

however, five feet could be inadequate for the volume of pedestrians along a given street. On commercial streets with retail store-fronts, 8' clearance is more desirable.

It is expected that sidewalk installations of bike share station will occur without the need for permanent changes to the sidewalk. In some cases however, small pieces of street furniture such as trash bins or benches may need to be relocated in order to provide the needed space at a key location. Where street reconstructions or major sidewalk repairs are scheduled—as part of a large redevelopment project, for instance—a long curb extension or a building setback would be desirable to accommodate bike share.



NextBike sidewalk station in Pittsburgh PA (image: www.environmentstrack.wordpress.com)

- **Off-street/plaza station sites:** stations in publicly-owned plazas and in parks will require consultation with the relevant city agency. For stations on privately-owned lands, agreements will need to be negotiated between the owner/operator and the individual land owner. For stations on private property, it is critical that the sites be visible from an adjacent public street and publicly accessible at all times. In either case, the appropriate setbacks will need to be considered, along with the need to accommodate events and programming that frequently occur in public spaces in central business districts.

5. Site Planning and Phasing Strategy

As referenced in section 3.7 above, the overall size of the bike share system is based primarily on the recommendations made in Pioneer Valley Planning Commission's (PVPC) March 2015 Bike Share Feasibility Study. One change to the PVPC study's recommended number of station is the addition of two stations in Northampton. This results in an initial-stage launch of 26 stations with 234 bicycles. Per community, this equates to:

- Amherst: 6 stations (3 in the town and 3 on the UMass campus)
- Northampton: 7 stations
- Holyoke: 5 stations
- Springfield: 8 stations

5.1 Station Spacing

Within typical medium-to-large size cities, the ideal bike share station spacing is approximately $\frac{1}{4}$ mile (1320 feet) apart. This represents a station density of at least 16 stations per square mile. This density provides access to a bike within a short walk and provides a nearby alternative to access a bike if the destination station is full. In less-dense cities and/or along the edges of the service area, demand typically is lower and it is acceptable for stations to be spaced further apart, frequently as far as $\frac{1}{2}$ mile, sometimes more. While some portions of the bike share service area in the Pioneer Valley—primarily, downtown Springfield and Northampton—will feature the ideal density discussed above, many others will range from four to six stations per square mile. This is due to:

- The desire to provide bike share service to a larger number of neighborhoods
- Barriers to comfortable bicycle travel (e.g. busy arterials and interstates)
- Geographic location of destinations in which bike share stations are desired
- Available funding that precludes ideal station density until future phases

Because the recommended smart lock equipment is theoretically able to be parked and locked anywhere, effort will need to be taken to encourage users to return bikes to designated station locations. This can be done through a pricing mechanism that triggers a modest fee for any bike parked outside of a station site, and/or beyond the designated service area. In most cities with smart lock systems, a \$2-\$3 fee is charged for bikes parked not parked at a designated station, and a much higher fee—sometimes as much as \$50—for parking outside of the entire designated service area. The latter typically includes significant swaths of a downtown area and the surrounding neighborhoods, so non-compliance is

generally rare. A high fee is set to ensure the smart lock bikes are not left in remote and difficult-to-find locations, minimizing the retrieval costs for the operator.

5.2 Phasing Strategy and Site Planning

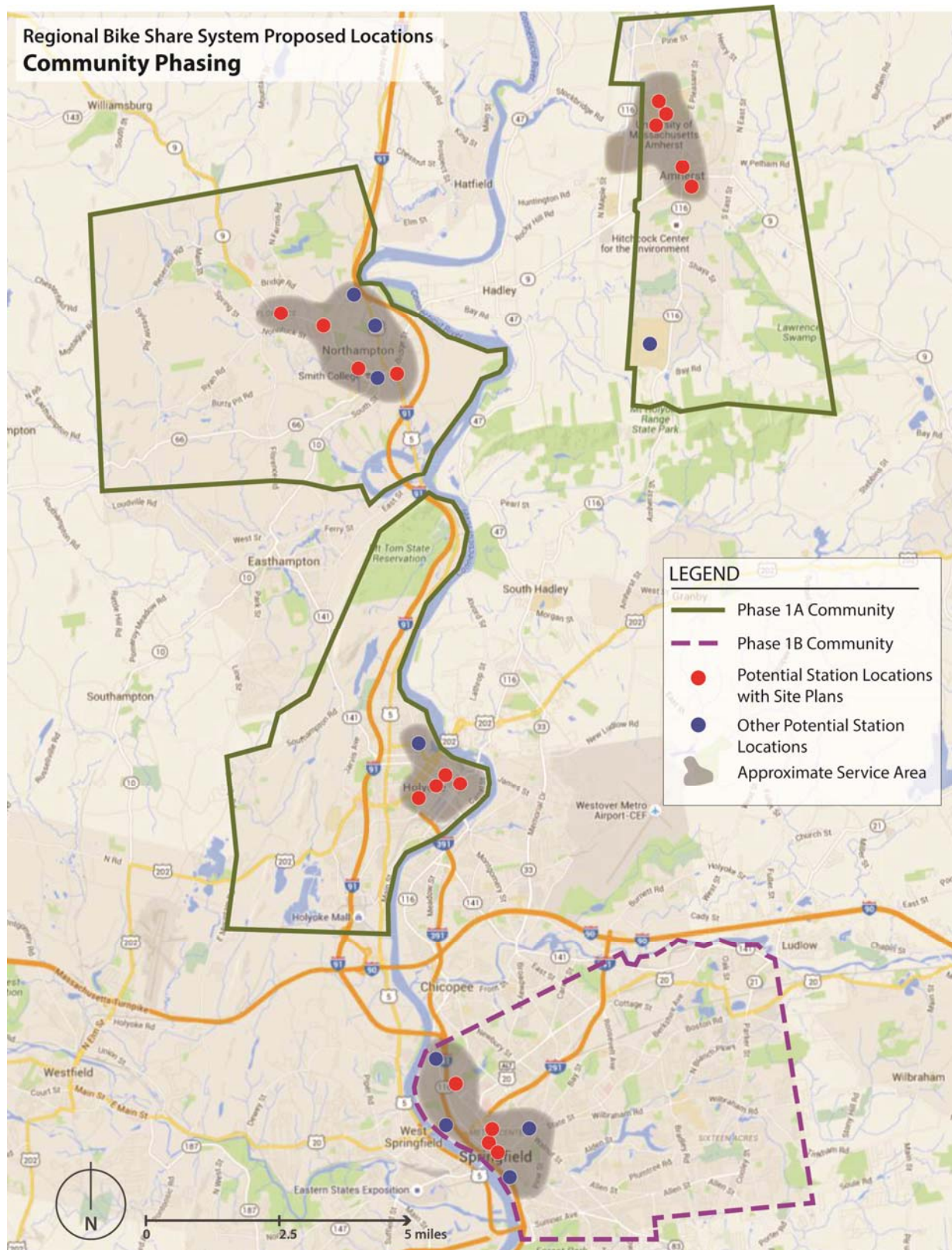
The proposed phasing plan was developed by incorporating the recommendations of PVPC's Bike Share Feasibility Study, the desires expressed recently by the Bike Share Advisory Committee and by developing a logical roll-out program. Roll-out in the Pioneer Valley should occur in manageable stages that match funding and organizational capacity, yet be significant enough to create media attention and provide coverage to active areas within the region. To increase the probability of success, it is also critical that the initial launch of bike share include high-profile areas and destinations where the relatively high levels of use are more likely to draw exposure to larger groups of people. Because of this, it is recommended that a pilot for the first phase of bike share include Northampton, Holyoke and the UMass Amherst campus with other locations in the Town of Amherst included.

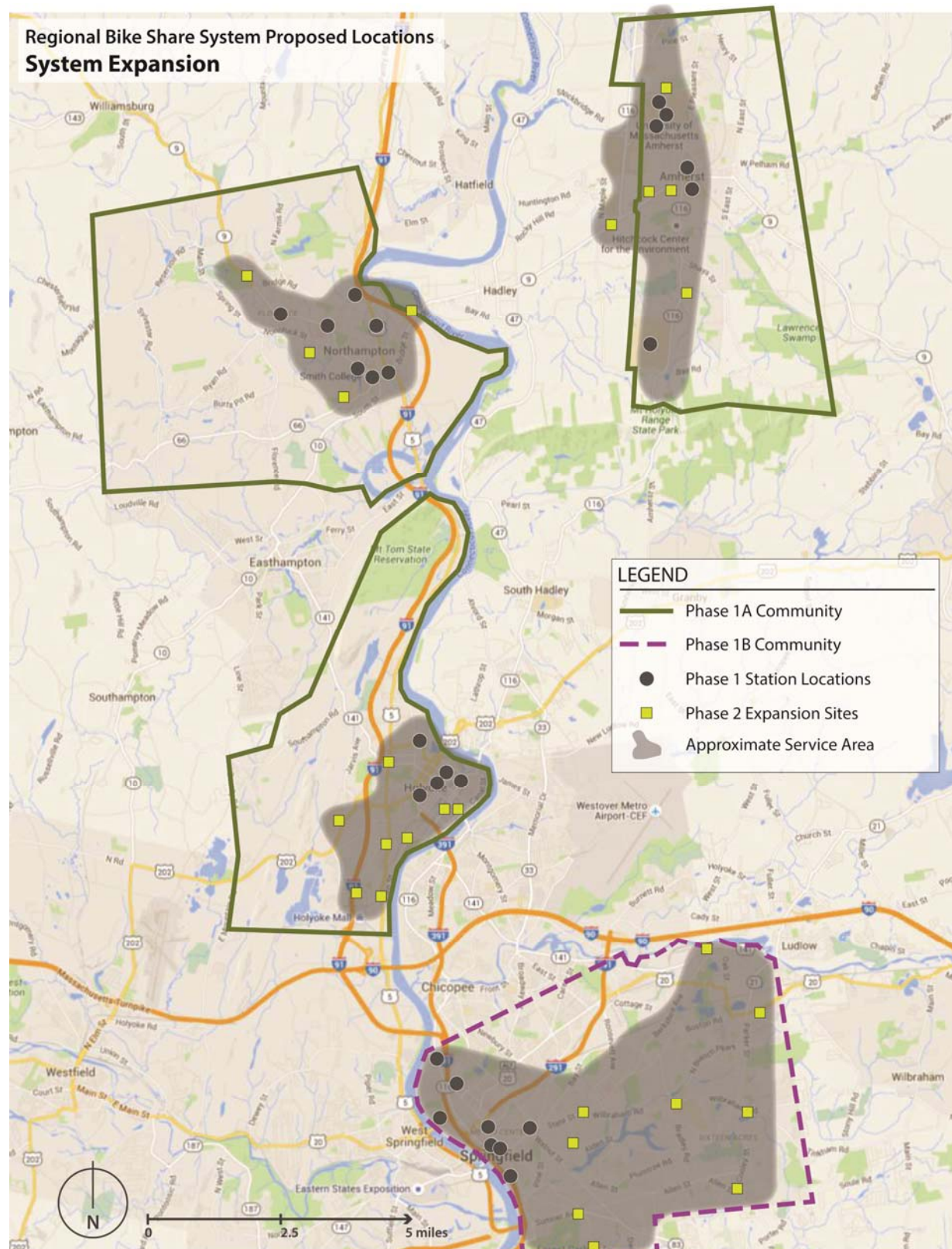
The proposed phasing strategy for the Pioneer Valley region is shown on the maps on the following pages and include:

- **Phase 1A** (18 stations with 162 bikes): the recommended initial launch area covers downtown and other key destinations in the cities of Northampton and Holyoke, along with the UMass campus and other locations in Amherst, including Main Street and Amherst College.
- **Phase 1B** (8 additional stations with 72 bikes): the second phase will launch bike share in the City of Springfield. The launch of bike share may occur simultaneously or in different years, depending on funding availability and local outreach and marketing.
- **Phase 2:** subsequent phases are expected with a bike share program in the Pioneer Valley but an anticipated number of stations and bikes is much harder to estimate because of variables related to the success of Phases 1A and 1B and available funding. However, expansion of up to 24 additional stations is expected in all communities that launch bike share.

The decision to expand beyond the relatively-robust first phase will depend on available funding and the success of the system. Success is typically measured in terms of visible achievements such as high ridership, positive public response, few crashes/casualties, neighborhood or institutional requests for service area expansion, and ongoing financial performance. Essentially, the system will grow if the expansion can be sustained through existing funding or an additional influx of user fees, private sponsorship, grants, or public funding.

Of the 26 stations that comprise Phase 1A (Northampton, Holyoke and Amherst) and Phase 1B (Springfield), this report includes conceptual site plans for at least four station sites for each community. Illustrated in the pages following the phasing maps, the four or five sites were chosen in consultation with community/institutional representatives on the BSAC and with PVPC. **The site plans should in no way be considered final, as abutter outreach and permitting will be required before the sites are ready to receive bike share stations.**

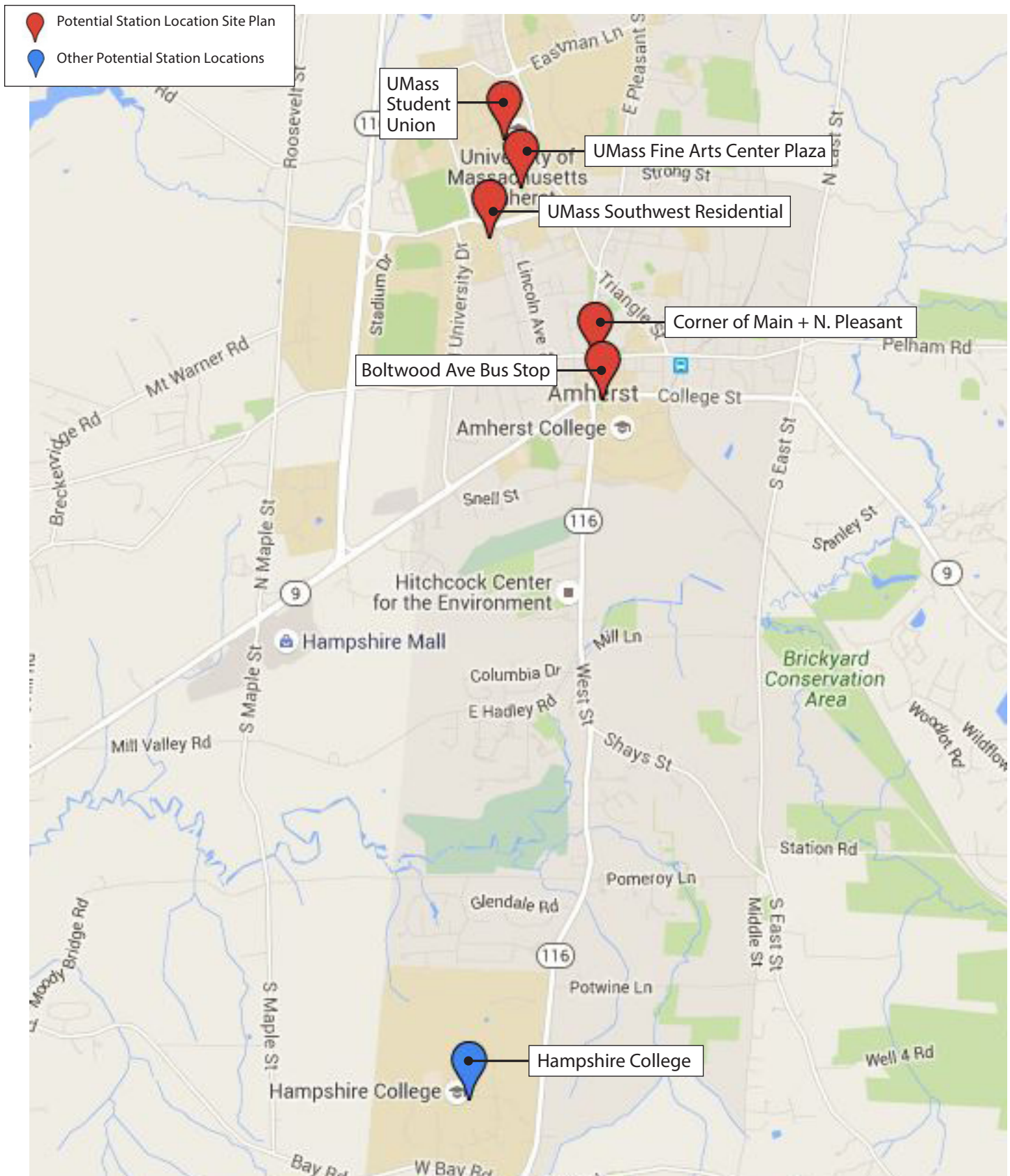




Map 2: Phase 2 map of the Pioneer Valley Bike Share program

Potential Station Sites

UMass / Amherst



Potential Station Sites

Student Union, UMass Amherst

Location:

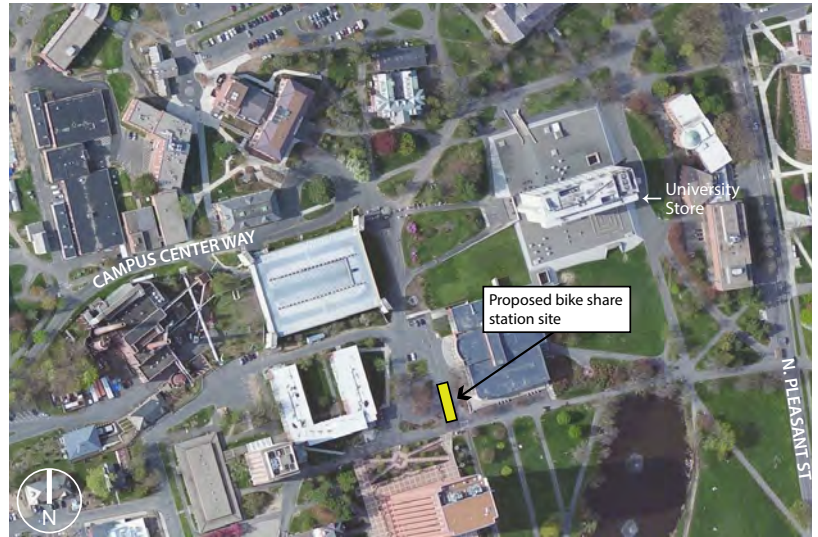
Adjacent to the Student Union.

Property Owner:

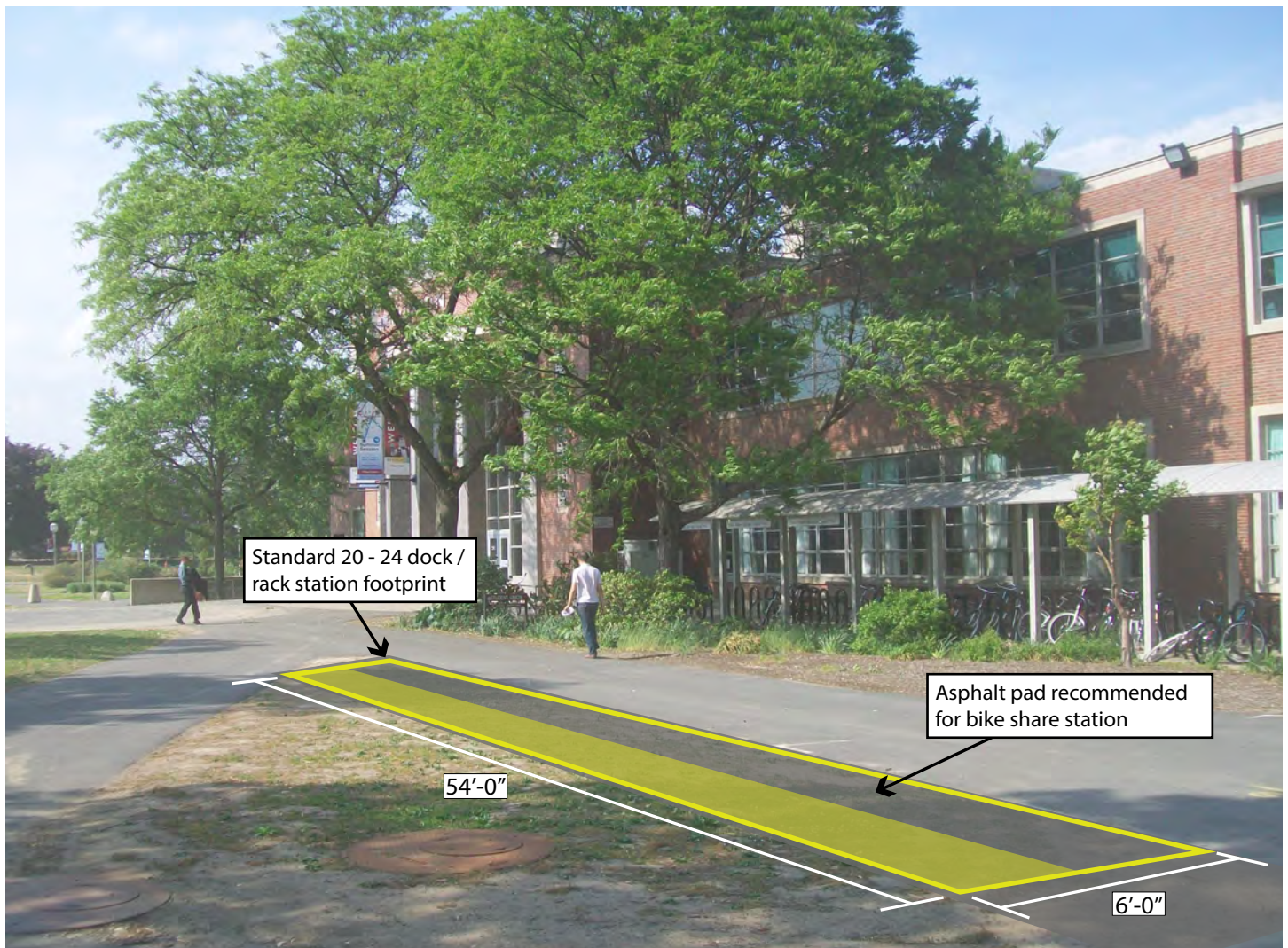
UMass Amherst

Station Footprint:

54 ft X 6 ft



Student union area, UMass Amherst



Potential station site outside of UMass Student Union

Potential Station Sites

Fine Arts Center Plaza, UMass Amherst

Location:

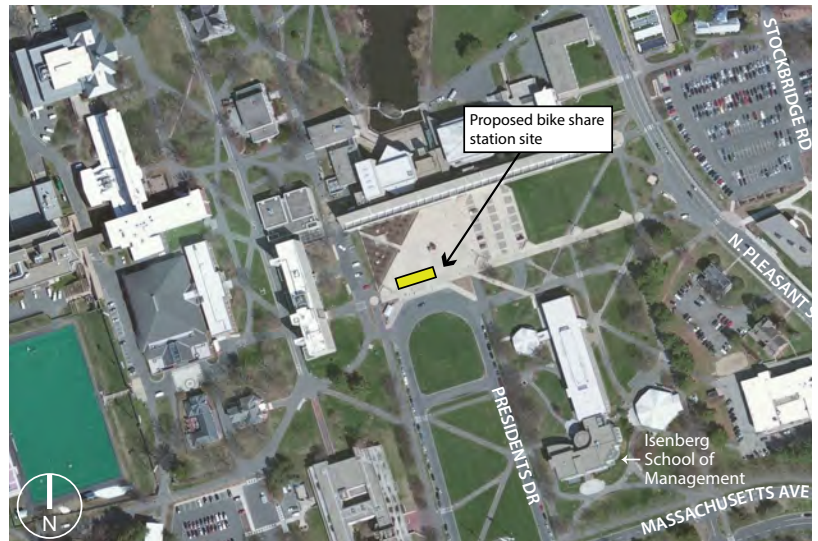
Plaza site at bend in Presidents Dr, between Haigis Mall and UMass Fine Arts Center

Property Owner:

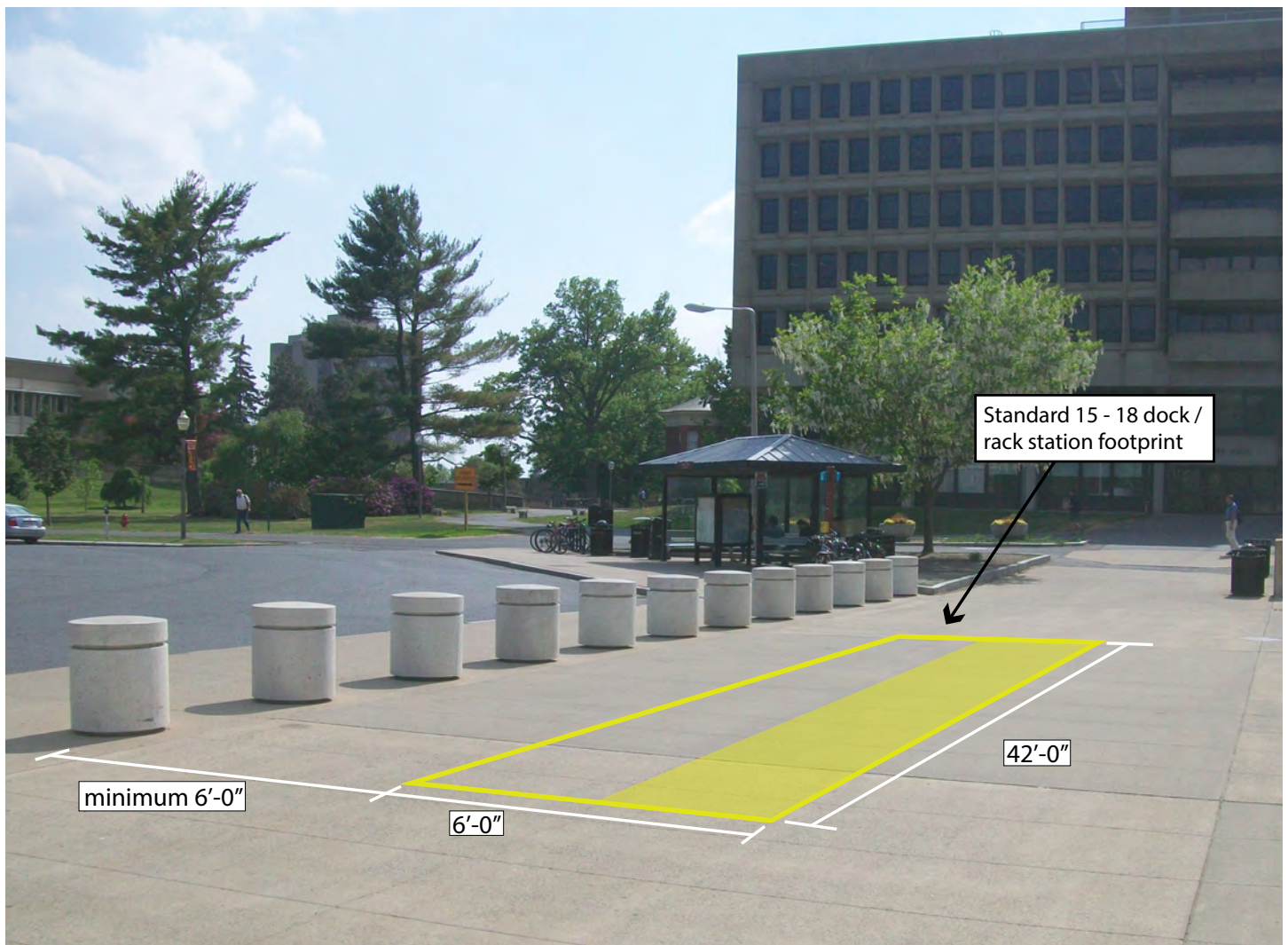
UMass Amherst

Station Footprint:

42 ft X 6 ft



Fine Arts Center Plaza, UMass Amherst



Potential station site looking southwest on Presidents Dr

Potential Station Sites

Southwest residential area, UMass Amherst

Location:

Adjacent to southwest residential area.

Property Owner:

UMass Amherst

Station Footprint:

42 ft X 6 ft



Southwest residential area, UMass Amherst



Potential station site looking southeast on Southwest Residential area pathway

Potential Station Sites

Main Street at Pleasant Street, Amherst

Location:

At the intersection of Amity, N. Pleasant, and Main St in downtown Amherst.

Property Owner:

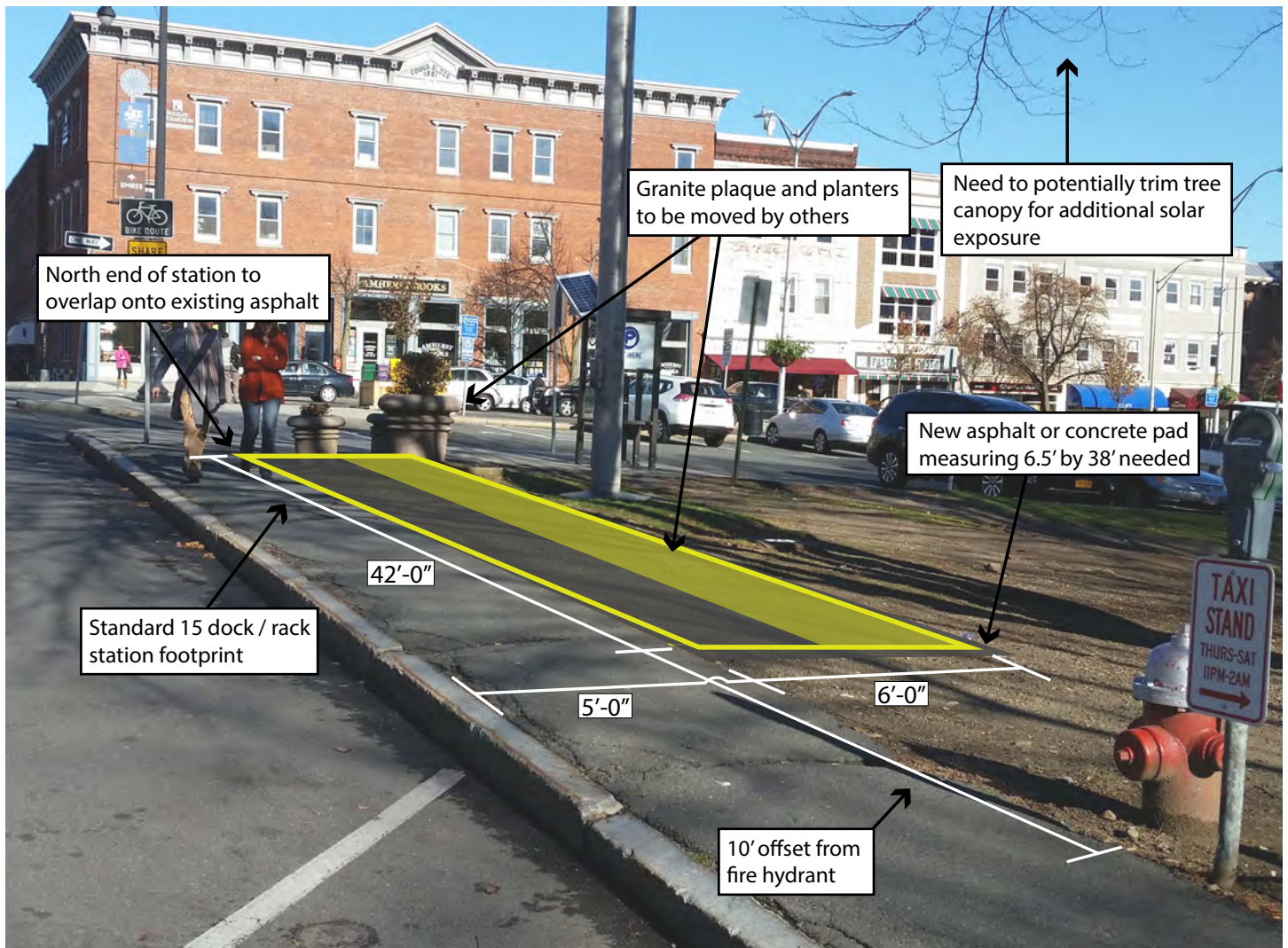
Town of Amherst

Station Footprint:

42 ft X 6 ft



Main Street at Pleasant, Amherst



Potential station site looking northeast on S. Pleasant St towards Main St

Potential Station Sites

Amherst College: Boltwood Avenue bus stop

Location:

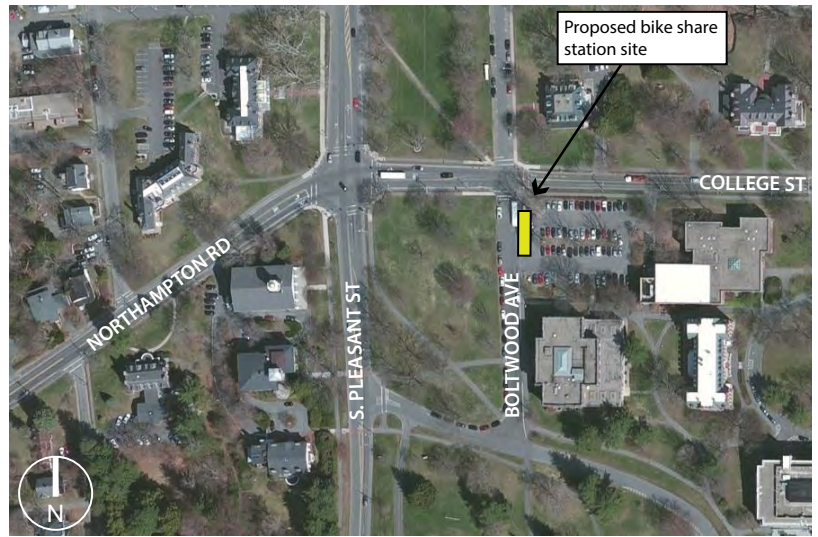
Adjacent to existing sidewalk and bus stop on Boltwood Avenue near the intersection of College Street.

Property Owner:

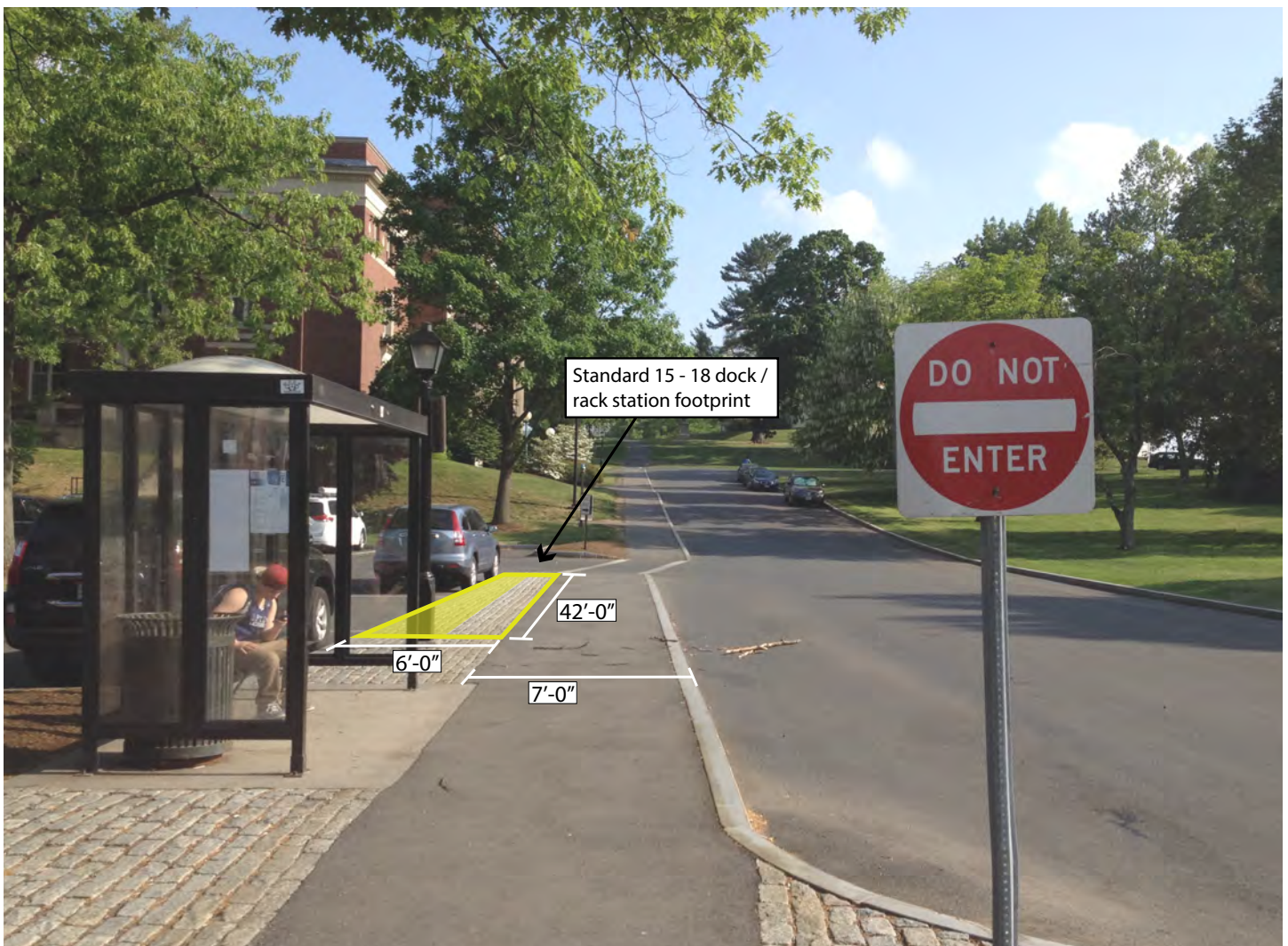
Amherst College

Station Footprint:

42 ft X 6 ft



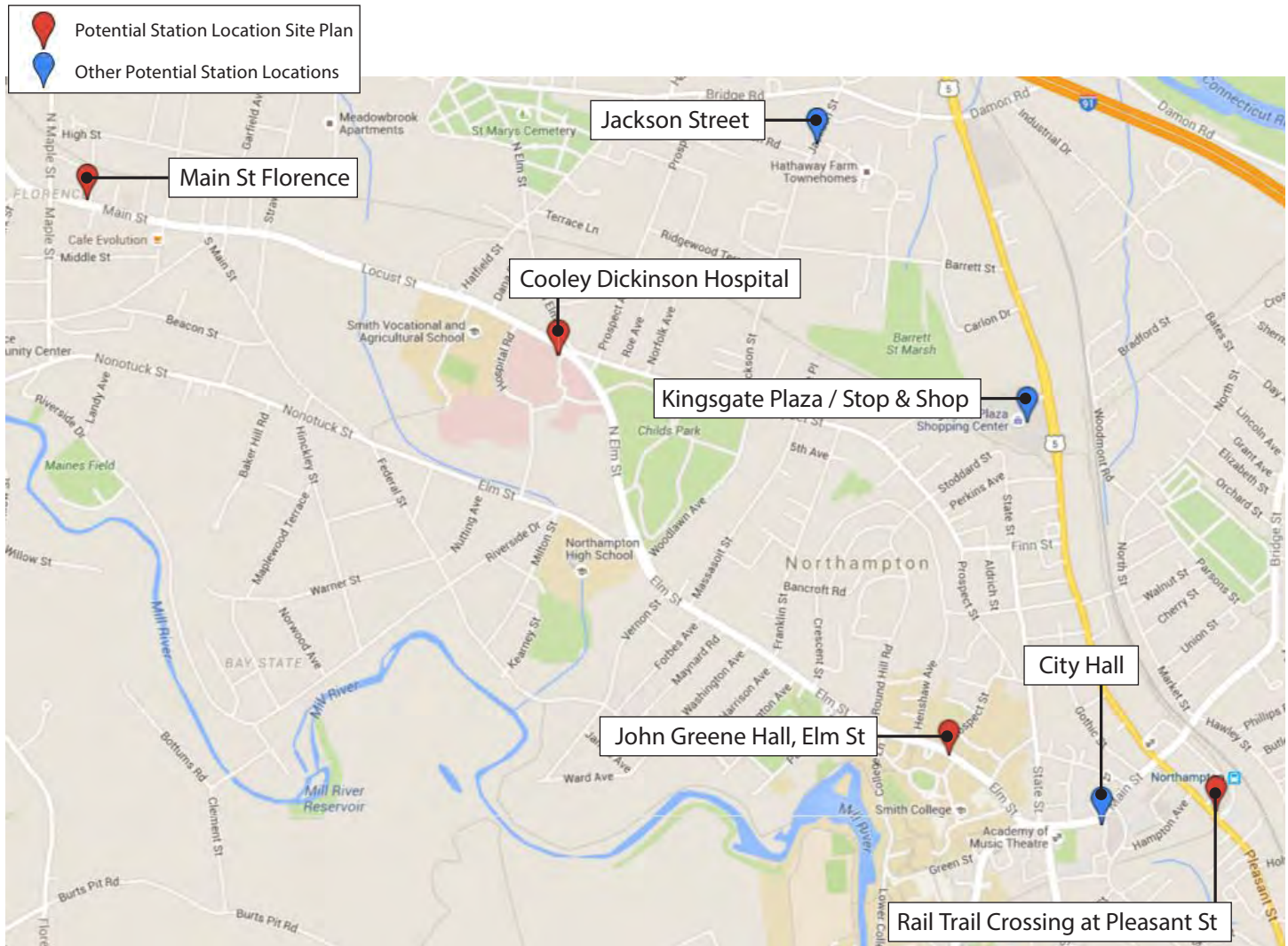
Boltwood Avenue bus stop, Amherst



Potential station site looking south on Boltwood Avenue

Potential Station Sites

Northampton



Potential Station Sites

Downtown Florence, Northampton

Location:

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

Property Owner:

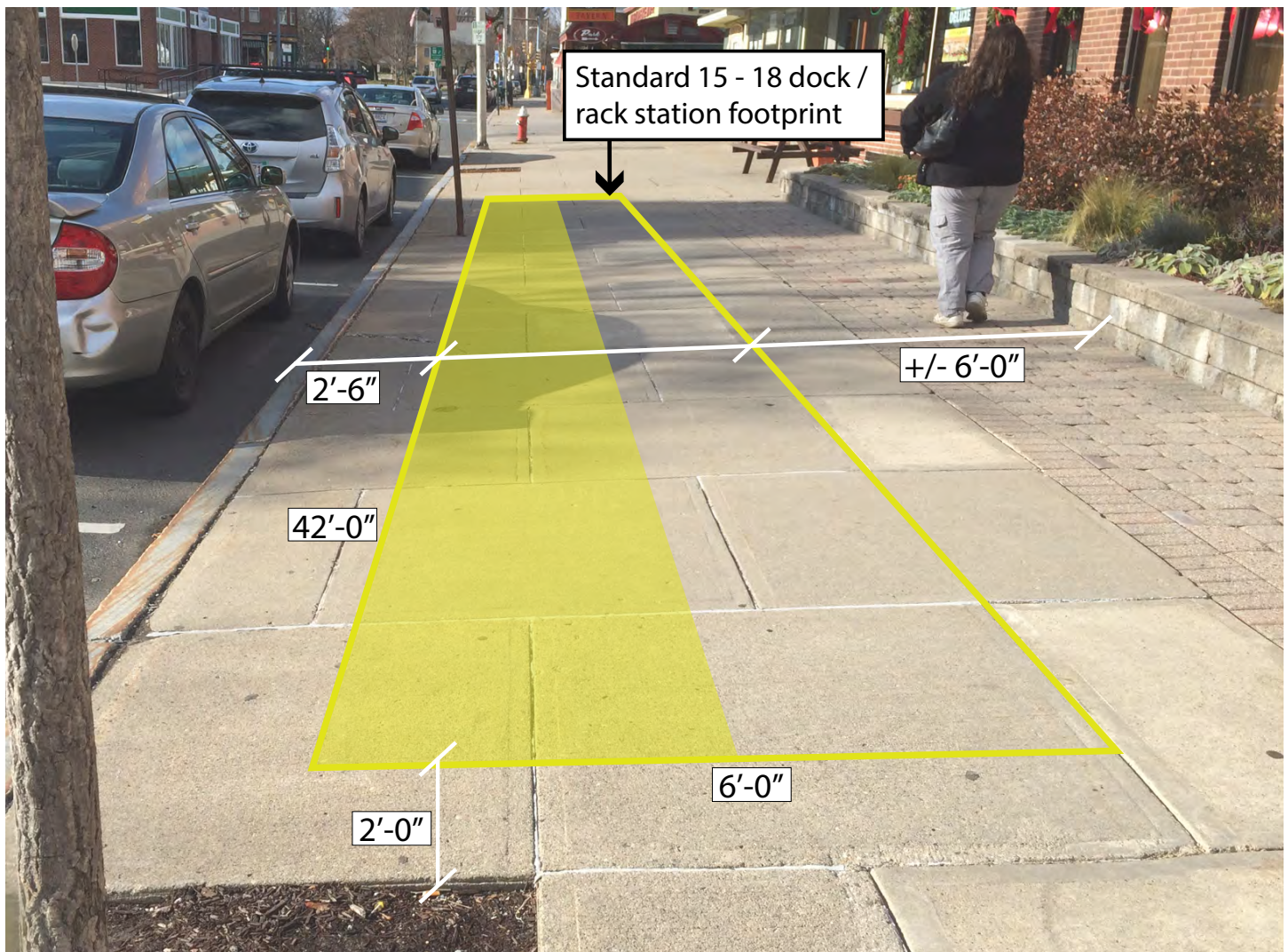
City of Northampton

Station Footprint:

42 ft X 6 ft



Main St downtown area, Florence



Potential station site looking west on Main Street

Potential Station Sites

Cooley Dickinson Hospital, Northampton

Location:

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

Property Owner:

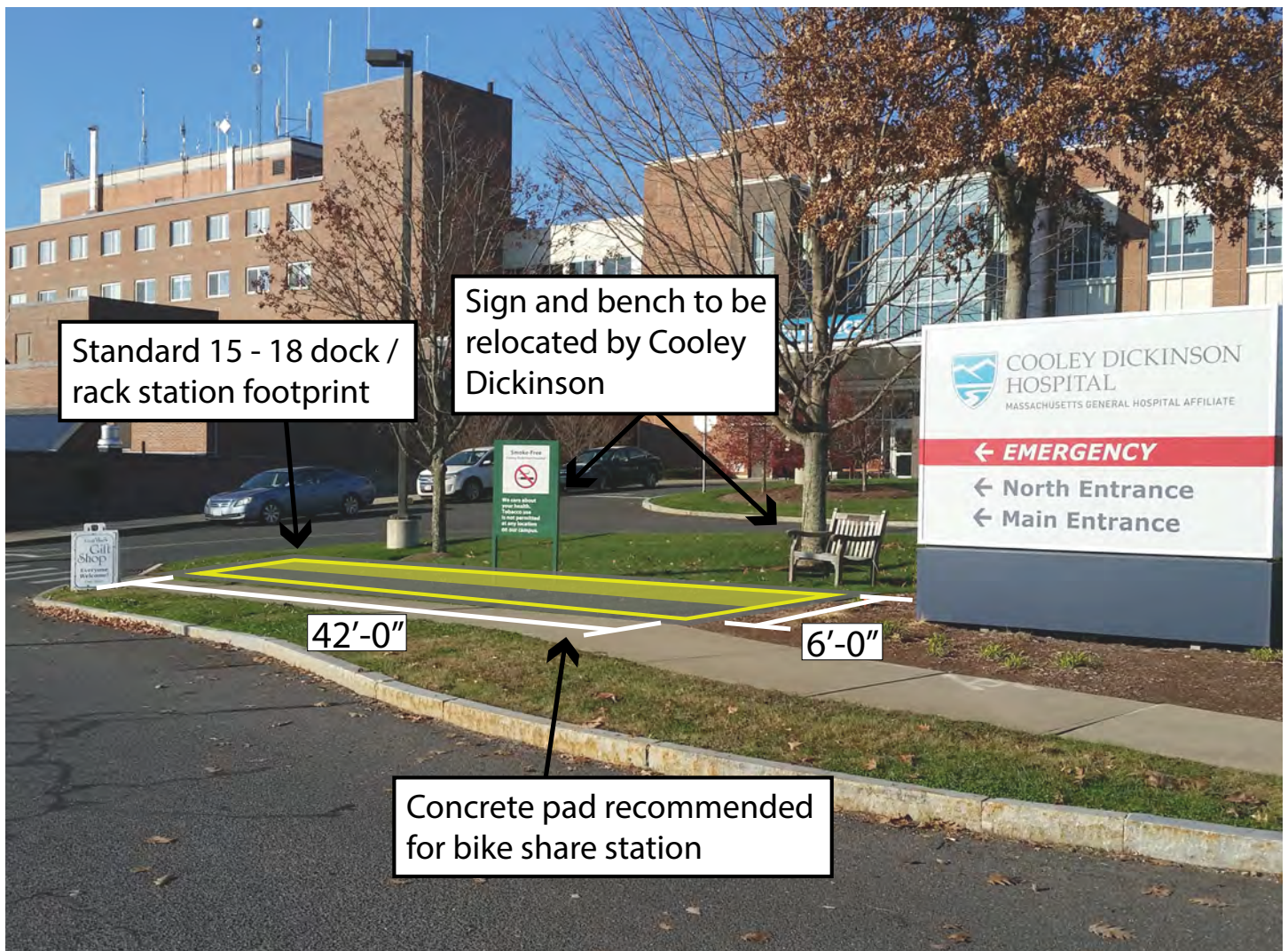
Cooley Dickinson Hospital

Station Footprint:

42 ft X 6 ft



Cooley Dickinson Hospital entrance, Northampton



Potential station site looking west on Locust Street

Potential Station Sites

John M Greene Hall entrance on Elm St, Northampton

Location:

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

Property Owner:

Town of Northampton, adjacent to Smith College

Station Footprint:

42 ft X 6 ft



In front of John M. Greene Hall on Elm St, Northampton



Potential station site looking northwest on Elm St

Potential Station Sites

Rail trail crossing Pleasant St, Northampton

Location:

Adjacent to existing rail trail as it crosses Pleasant St.

Property Owner:

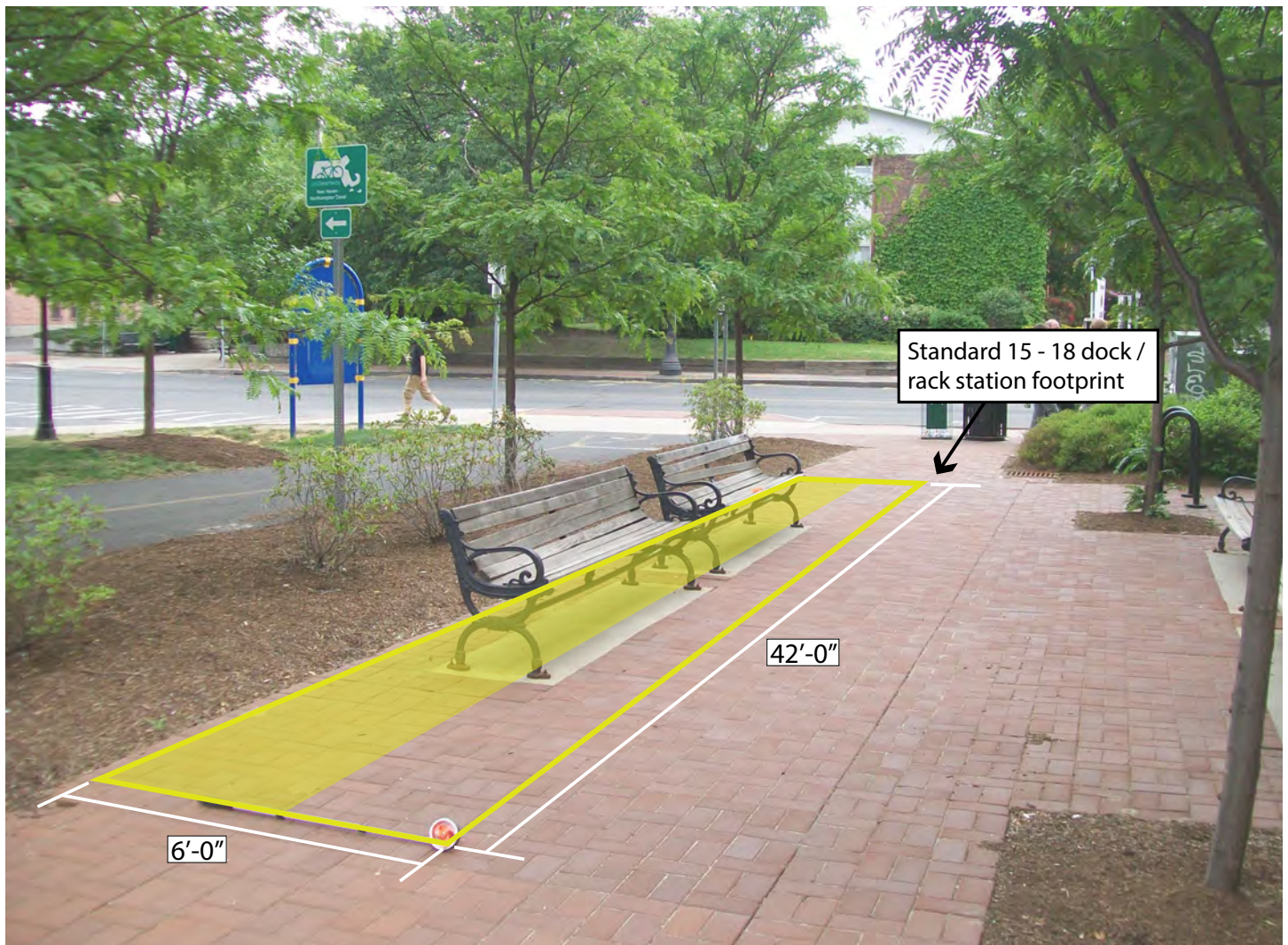
Town of Northampton

Station Footprint:

42 ft X 6 ft



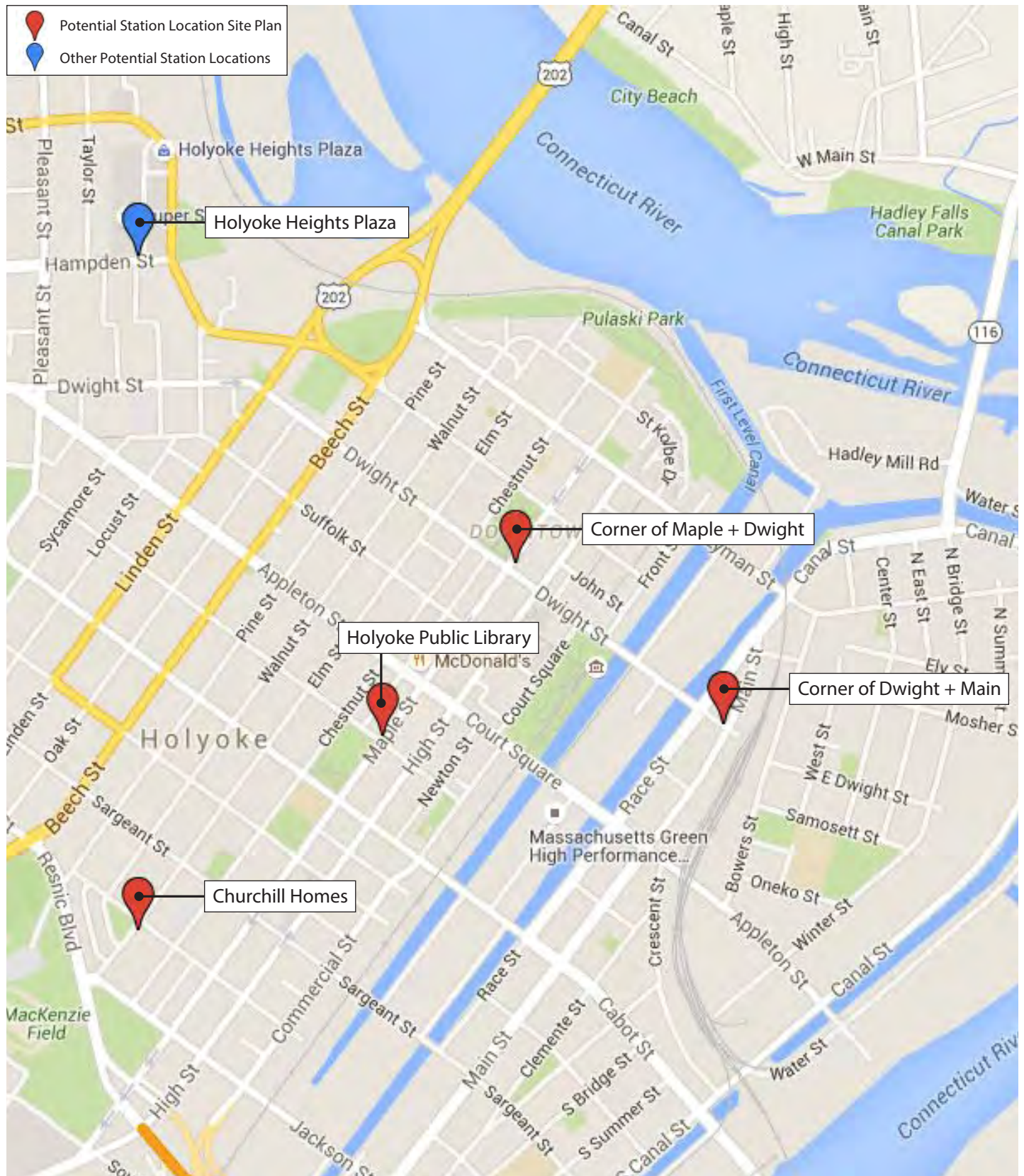
Rail trail adjacent to train station parking area, Northampton



Potential station site looking southwest towards Pleasant Street

Potential Station Sites

Holyoke



Potential Station Sites

Holyoke Public Library

Location:

Across the street from library at the intersection of Maple St and Essex St in Holyoke.

Property Owner:

City of Holyoke

Station Footprint:

42 ft X 6 ft

NOTE:

This station site is considered a placeholder as the City of Holyoke explores options on the Chestnut Street side of the library.



Maple St at Essex St intersection (across the street from library), Holyoke



Potential station site looking south on Maple St

Potential Station Sites

Amtrak station on Dwight St at Main St, Holyoke

Location:

Across the street from Holyoke train station at the Intersection of Dwight St and Main St.

Property Owner:

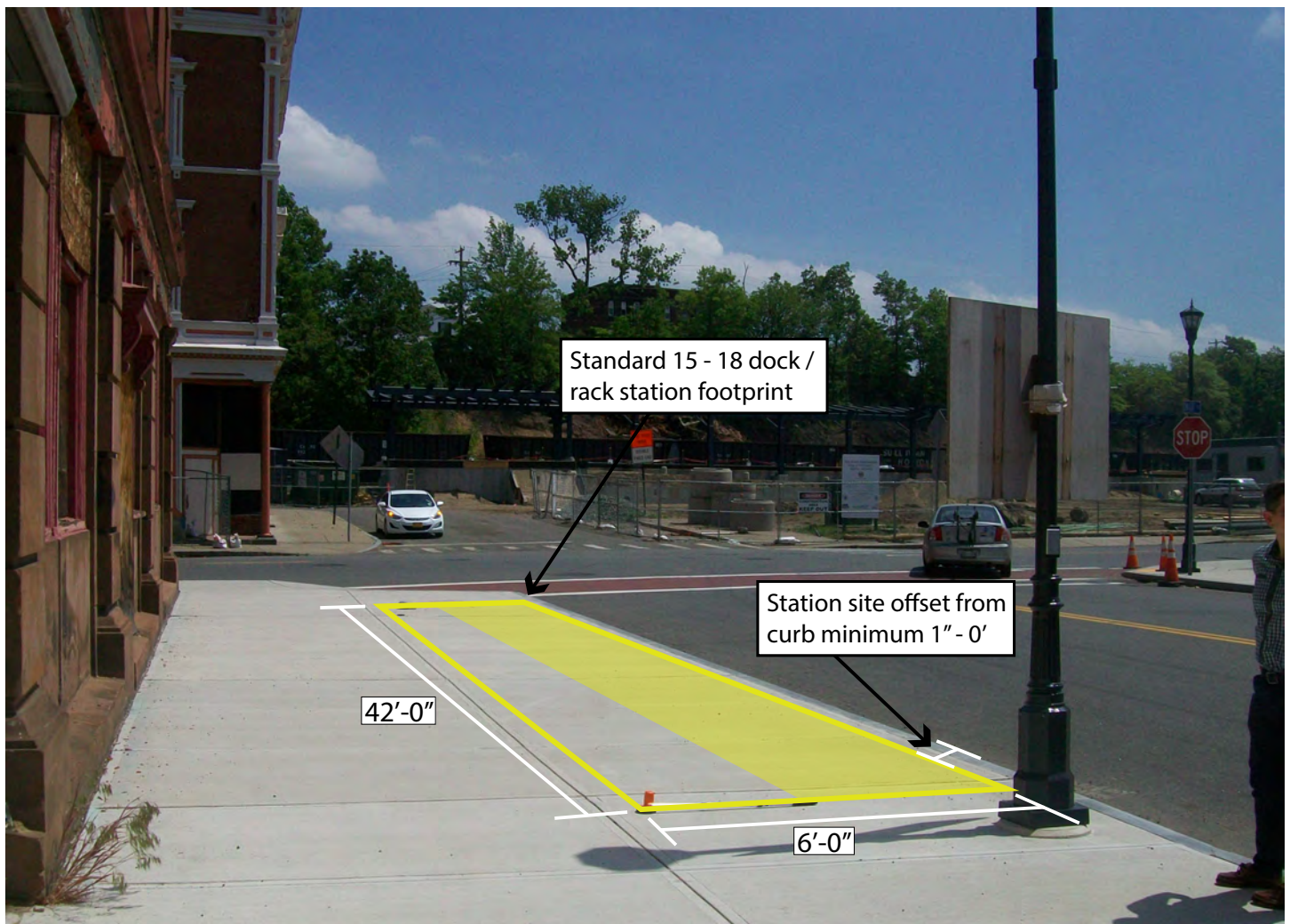
City of Holyoke

Station Footprint:

42 ft X 6 ft



Corner of Dwight St and Main St, Holyoke



Potential station site looking east on Dwight St

Potential Station Sites

Dwight St at Maple St, Holyoke

Location:

Across the street from Veterans Memorial Park on Maple St at the intersection of Dwight St.

Property Owner:

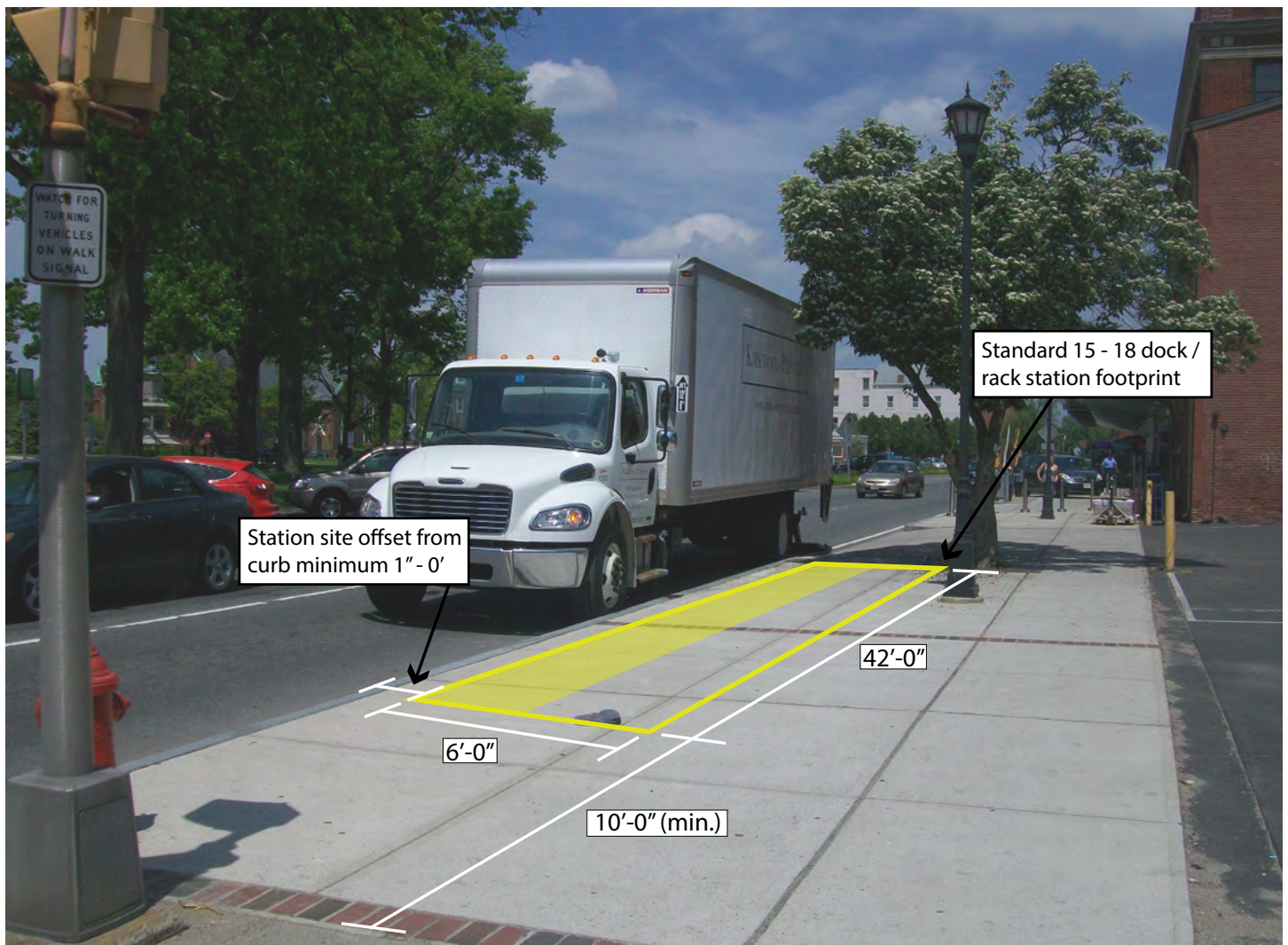
City of Holyoke

Station Footprint:

42 ft X 6 ft



Corner of Dwight St and Maple St, Holyoke



Potential station site looking northeast on Maple St

Potential Station Sites

Churchill Homes, Holyoke

Location:

At the entrance of the Churchill Homes Early Education and Child Care Center at the Intersection of Elm St and Franklin St.

Property Owner:

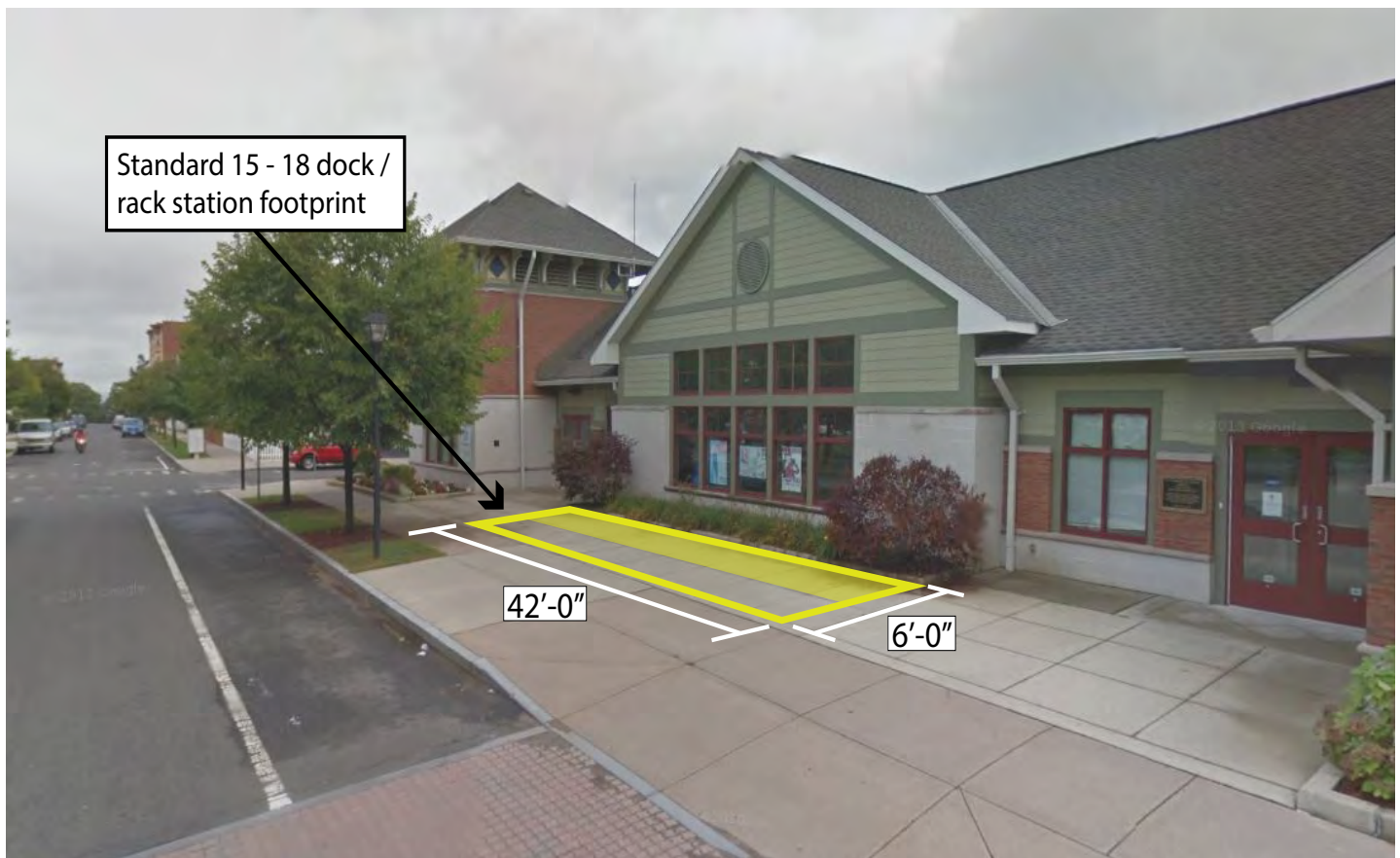
City of Holyoke

Station Footprint:

42 ft X 6 ft



Corner of Elm St and Franklin St, Holyoke



Potential station site in front of the Churchill Homes Early Education & Child Care Center, looking northeast



Potential Station Sites

Baystate Medical Center, Springfield

Location:

Adjacent to Baystate Medical Center parking area, between Springfield Eye Associates and Hand Center of Western Massachusetts.

Property Owner:

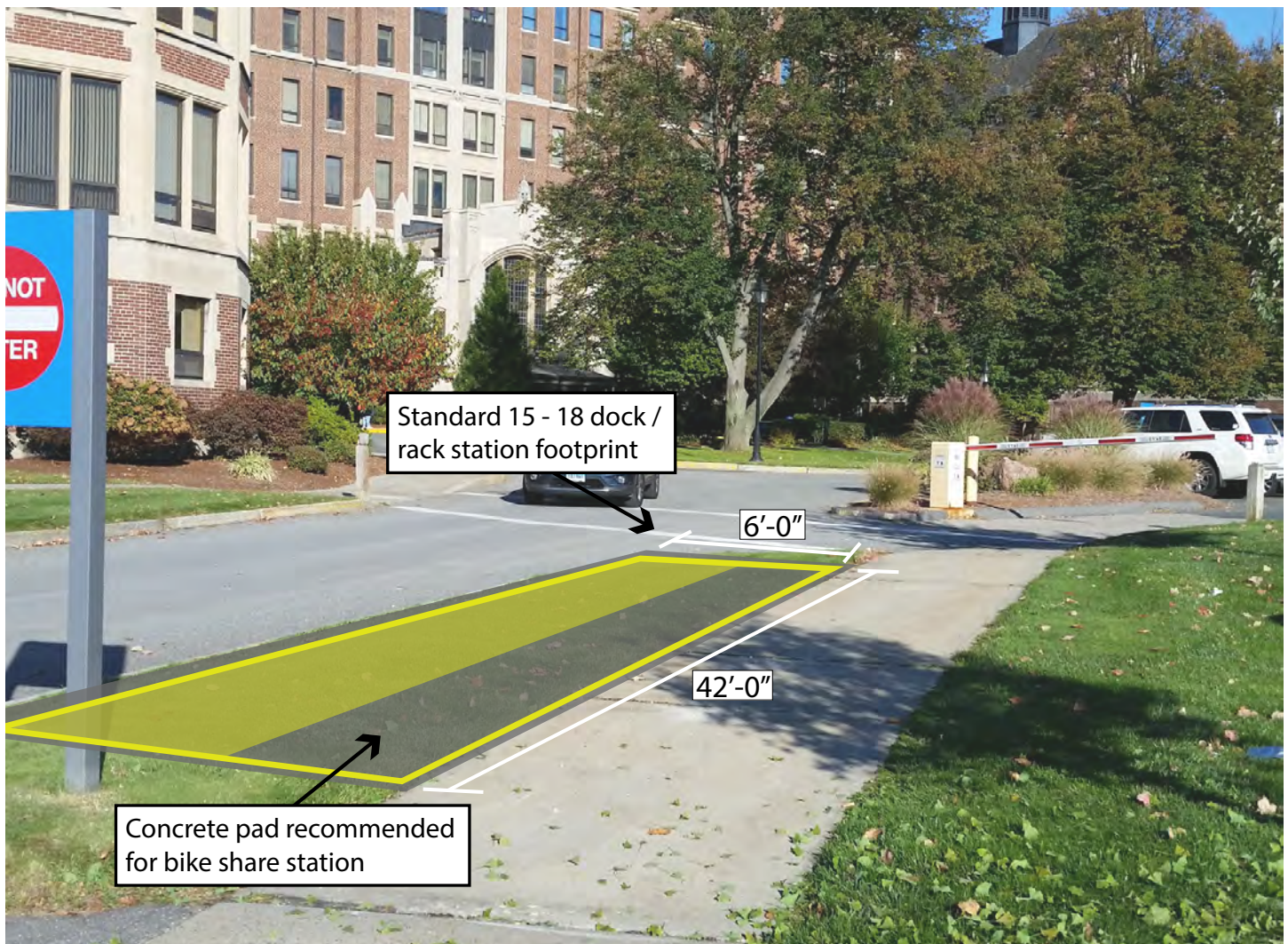
City of Springfield, Baystate Health

Station Footprint:

42 ft X 6 ft



Baystate Medical Center parking area, Chestnut St, Springfield



Potential station site view to main entry off of Chestnut St

Potential Station Sites

Springfield City Hall

Location:

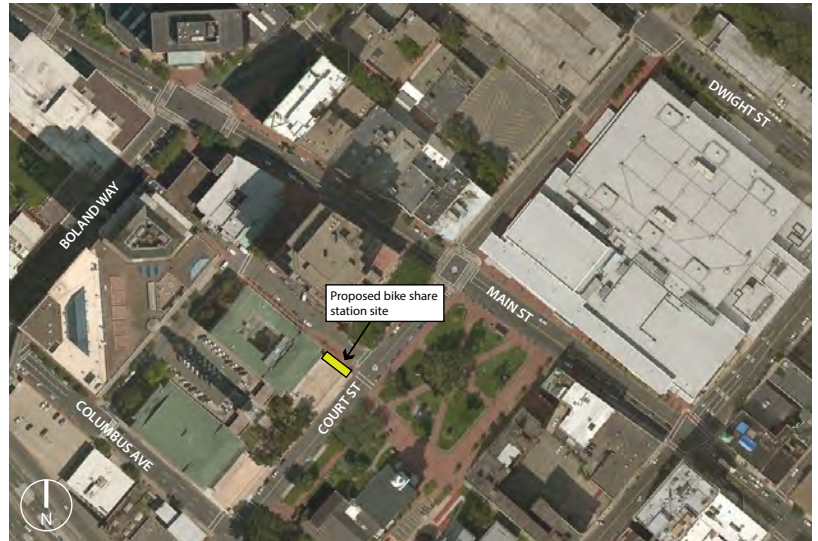
Adjacent to City Hall, at the intersection of Court St and Main St.

Property Owner:

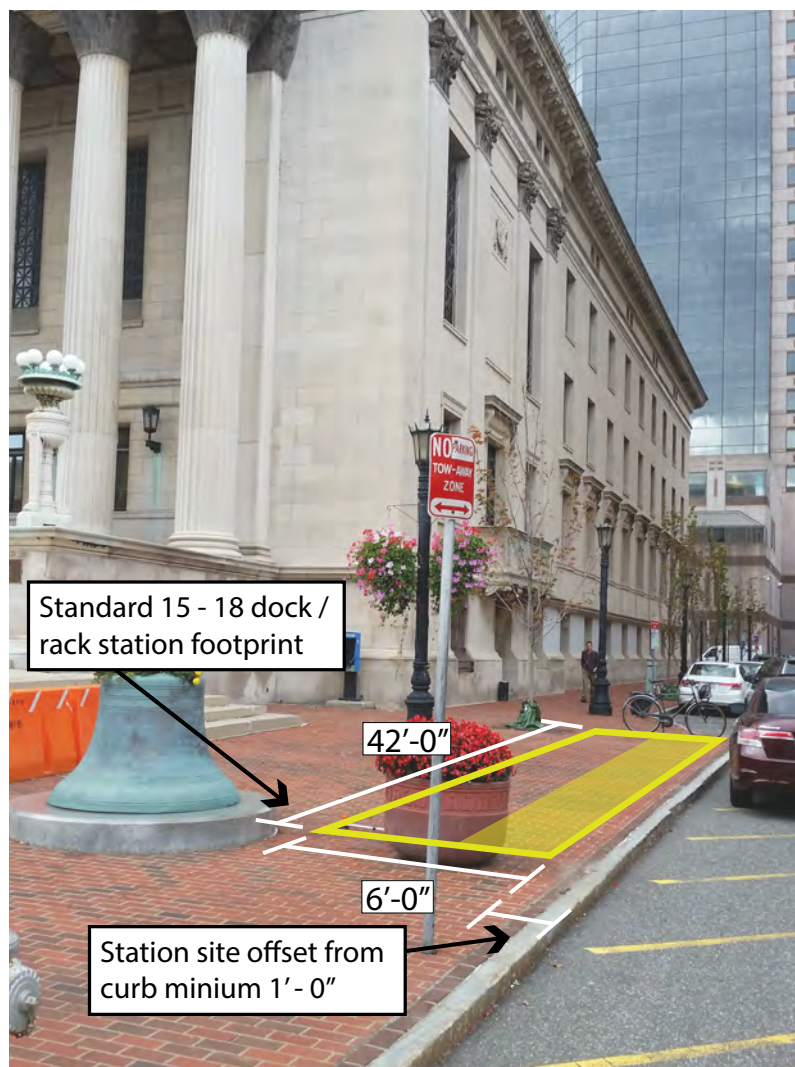
City of Springfield

Station Footprint:

42 ft X 6 ft



Springfield City Hall, Springfield



Potential station site looking northwest on Court St

Potential Station Sites

Amtrak Station, Springfield

Location:

At the Springfield Amtrak station, at the intersection of Lyman St and DwightSt.

Property Owner:

City of Springfield

Station Footprint:

42 ft X 6 ft



Springfield Amtrak Station



Potential station site looking northwest on Lyman St

Potential Station Sites

Tower Square Park, Springfield

Location:

In Tower Square Park at the intersection of Bridge St and Main St.

Property Owner:

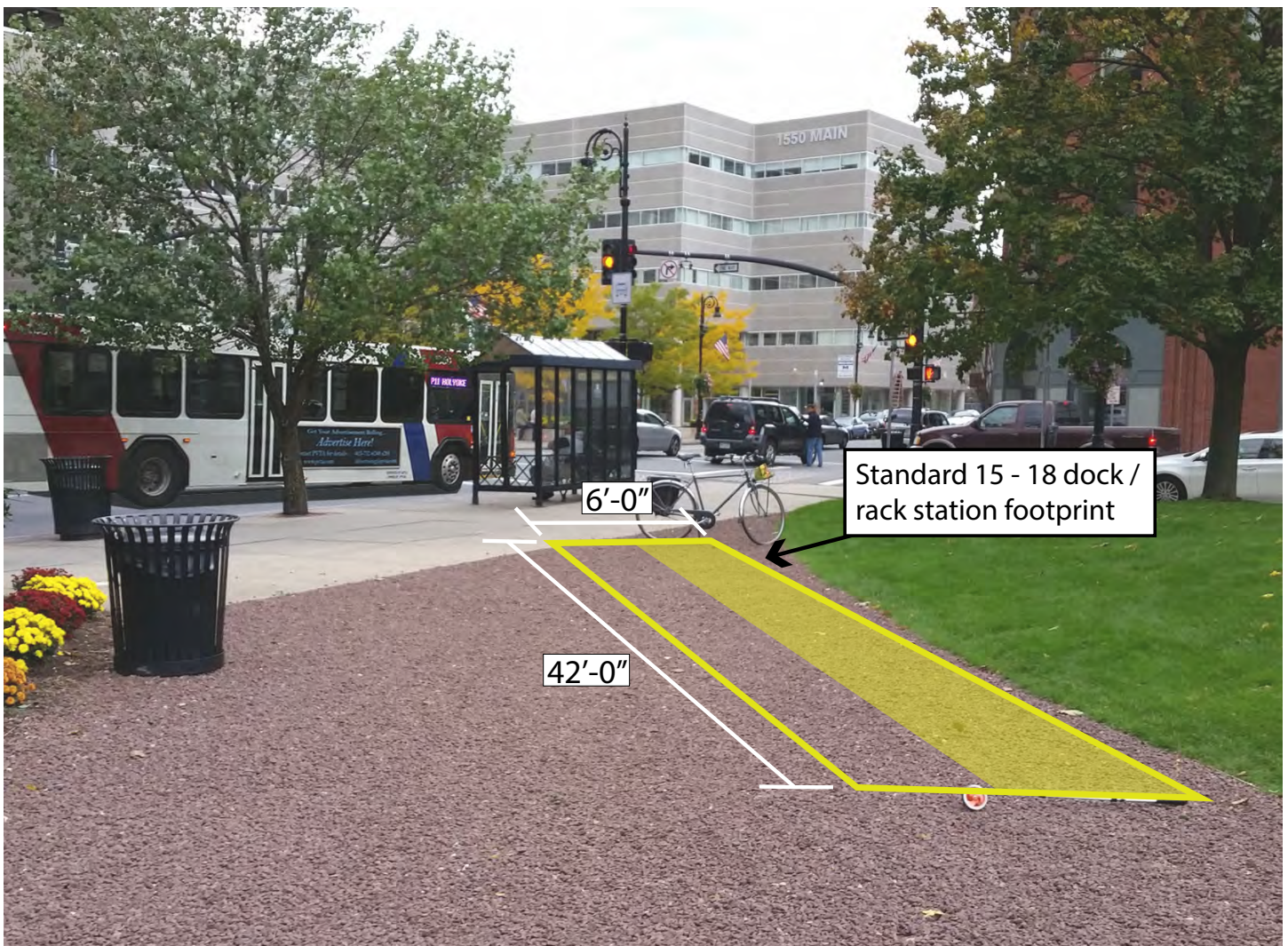
Park owned by MassMutual

Station Footprint:

42 ft X 6 ft



Tower Square Park, Springfield



Potential station site looking northwest towards Bridge St and Main St

6. Conclusion and Next Steps

This report recommends a business and equipment model for the creation of a bike share program in the Pioneer Valley, and provides guidelines for station planning, site design and phasing. It is intended to be a detailed supplement to the Share Feasibility Study written in March 2015 by PVPC.

The recommended system, tentatively named “ValleyBike”, will consist of a Phase I launch of up to 26 stations and 234 bikes at key locations in Springfield, Holyoke, Northampton and Amherst. The regional system will benefit from a pilot project consisting of 18 bike share stations in Northampton, Holyoke and Amherst (including the UMass campus). This more-targeted launch will help to build awareness of bike share regionally and promote a bike share culture in communities in which bicycling is currently a more-common form of transportation and recreation. Success in Northampton, Holyoke and Amherst will help “prime the pump” for 8 additional stations in Springfield in the 2nd year of the program. For all communities, station sites will include a mixture of sidewalk and on-street sites at train stations, college campuses, business districts and important destinations. The intent is to enhance mobility between those locations, promote active transportation/public health, economic vitality and to brand the Pioneer Valley as a region promoting livability and sustainability.

A five-year analysis of system costs and revenue for a two-phased approach indicates that the costs of purchasing, launching and operating a program to be a total of \$5.4 million for smart lock equipment and \$8.1 million for dock-based equipment. In either scenario, the costs over this five year period will be offset by roughly one million dollars in system revenue through user fees. The rest will come from a combination of federal grants, sponsorships, advertising revenue and perhaps, from municipalities’ capital budgets. Based primarily on the high probability that a dock-based system will require expenditures from local governments, the consensus of the Bike Share Committee is that the lower cost smart lock equipment is the best fit for the Pioneer Valley. There are now a handful of manufacturers of such equipment (some domestic, some European) that make a durable and quality product. In just the past year, a handful of cities in North America have successfully launched smart lock bike share systems. Some cities, such as Hamilton ON, Phoenix AZ and Pittsburgh PA have already announced their intent to expand in their second full year of operations.

Regardless of the equipment model selected, municipal ownership of the equipment with operations by a private vendor is recommended. Each of the four participating cities and towns will own the equipment that sits within their jurisdiction, but must agree to the likelihood that bicycles may on occasion be ridden to neighboring jurisdictions. As a regional system, this will be the reality. Helping to negotiate this and other issues will be the ongoing Bike Share Advisory Committee (BSAC) to be chaired by the Pioneer Valley Planning Commission. An important part of the BSAC will be the operations vendor who will need to negotiate performance measures and fees with each individual municipality.

Summary of Key Recommendations

Recommended Governance

- Ownership: individual municipalities and UMass Amherst
- Operations: private vendor
- Lead Party and Program Administrator (LPPA): City of Northampton
- Fiscal Agent (required for grants): City of Northampton
- Fiscal Oversight and Payouts: PVPC
- Oversight of Operations Vendor: each municipality
- RFP Development: PVPC with significant input from the City of Northampton
- Regional Coordination: Bike Share Advisory Committee, chaired by PVPC

Equipment Recommendation

- Smart lock technology

Table 6.1: Phase 1 System Costs (after first full year of operations)

	Phase 1A			Phase 1B	Phase 1
	Amherst	Northampton	Holyoke	Springfield	TOTAL
System size	6 stations w/ 54 bikes	7 stations w/ 63 bikes	5 stations w/ 45 bikes	8 stations w/ 72 bikes	26 stations w/ 234 bikes
Capital Costs	\$191,100	\$222,950	\$159,250	\$254,800	\$828,100
Contingency Costs*	\$9,000	\$10,500	\$7,500	\$12,000	\$39,000
Launch/Admin. Costs	\$63,200	\$70,400	\$56,000	\$77,600	\$267,200
Operations Costs	\$99,144	\$115,668	\$82,620	\$132,192	\$429,624
TOTAL	\$362,444	\$419,518	\$305,370	\$476,592	\$1,563,924
Expected Grant \$\$	\$263,300	\$303,850	\$222,750	\$344,400	\$1,134,300
User Fees	\$31,726	\$37,014	\$26,438	\$42,302	\$137,480
Advertising Revenue**	\$6,000	\$7,000	\$5,000	\$8,000	\$26,000
FUNDING NEEDS***	\$61,418	\$71,654	\$51,182	\$81,890	\$266,144

* - assumes purchase of one additional bike (at \$1,500, est.) per station

** - requires changes to current bylaws in some communities to allow advertising on station kiosks

*** - Expected to come primarily from sponsorship, with gaps filled by individual jurisdictions

Next Steps

There are a number of critical steps that should be taken to ensure an orderly transition from concept to fundraising to equipment selection/purchase to launch. Though some deviation is possible, following the steps outlined below will be an effective means of moving forward with the program in 2017-18.

Steps Already Complete:

- Completion of Bike Share Feasibility Study (March 2015)
- Maintaining the Bike Share Advisory Committee (BSAC) with regular meetings
- Submit application for CMAQ grant for capital funding
- Research equipment options, issue an RFI and invite vendors to demo product to committee
- Equipment demonstrations from multiple bike share vendors

- Alta Planning + Design developed sponsorship handout and Powerpoint presentation made to seven potential corporate or institutional sponsors
- Memorandum of Understanding (MOU) has been signed by the cities of Springfield, Holyoke and Northampton, the Town of Amherst and the University of Massachusetts

Next Steps Recommendations (12-24 month timeline, total)

1. All MOU signatories should continue to attend the monthly BSAC meetings chaired by PVPC
2. Continue the ongoing search for title or presenting sponsor at \$125,000-250,000/year
 - a. With completion of seven sponsor recruitment presentations by Alta Planning + Design, PVPC and BSAC members will need facilitate ongoing introductions and outreach for additional presentations, as needed
 - b. Maintain an on-going database of potential sponsorship contacts
3. PVPC to create an internal part-time staff position to provide on-going facilitation for the nascent bike share program. The options to fund such a position include:
 - a. Each municipality with representation on the BSAC to make a formal request for 2016 District Local Technical Assistance (DLTA) funding
 - b. Leverage funding through PVPC's annual Unified Planning and Work Program process (available for 2017 and beyond, however)
 - c. The four participating municipalities can equally provide funding to PVPC, or could offer to use significant staff time to provide direct assistance to PVPC staff
4. As the community most likely to launch bike share first, this study recommends that the City of Northampton become the designated Lead Party and Program Administrator (LPPA)
5. When money is available through sponsorship fund raising, the LPPA should hire an Executive Director (a part or full time contract worker requiring approval by City Council) who will use office space provided by the City of Northampton and work closely with PVPC, recommended as the principal regional coordinator; (Note that the Executive Director position will eventually transition to the bike share operations vendor, upon selection)
6. Grant funding supplemental to the sponsorship funds should be applied for by the City of Northampton, as the designated LPPA
7. PVPC staff to develop an RFP for equipment and operations, either combined or as separate RFPs. It is recommended that former RFPs from other cities such as Boston, Providence, Memphis, Detroit or elsewhere be looked at as a potential template.
8. PVPC staff (or new Executive Director if initial sponsor funds are available) to continue outreach to potential title/presenting sponsors and, potentially, for individual stations. When a corporation or institution has agreed to become the Title or Presenting sponsor, PVPC's or the City of Northampton's attorney will need to draft the sponsorship contract and bank term sheet,



In 2017, communities in the Pioneer Valley may have a smart lock bike share system similar to the Social Bicycles program in Topeka, Kansas

subject to the final approval of the master contract with the equipment and/or operations vendor.

9. Concurrent with the two items above, public meetings in the communities interested in launching bike share should be held to discuss bike share service area and potential station sites
10. Where relevant, signatories of the MOU must revise any current ordinances or bylaws that prohibit corporate logos or advertising on public or private property to allow carefully-worded exceptions for any publicly-accessible, non-polluting transportation system

Summary table of jurisdictional responsibilities:

Entity	Primary Role	Key Responsibilities
Pioneer Valley Planning Commission	Regional arbiter	<ul style="list-style-type: none"> Continue to seek potential sponsors Seek funding for part-time staffer to provide planning continuity and chair the BSAC Oversight and control of funding commitments and pay-outs to the vendors, aka "the bank" Draft equipment and operations vendor RFP, in coordination with the LPPA When a sponsor is secured, PVPC's attorney to prepare sponsorship contract and term sheet (or City Attorney from Northampton)
City of Northampton	LPPA	<ul style="list-style-type: none"> Begin to seek potential sponsors Host Executive Director (funded through sponsor funding) within a City Department Fiscal agent for all grant applications Overseer of the future equipment/operations vendor, with funding and payouts from PVPC Lead local planning/permitting process in 2016, including public meetings to discuss proposed station locations and site planning When a sponsor is secured, City Attorney to prepare sponsorship contract and term sheet (or PVPC's Attorney) Initiate discussion at City Council level for possible use of city funds for operations (amount will depend on level of sponsorship secured)
Town of Amherst	Participant	<ul style="list-style-type: none"> Begin to seek potential sponsors Lead local planning/permitting process in 2016, including public meetings to discuss proposed station locations and site planning Initiate discussion with Town Select Board for possible use of town funds for operations (amount will depend on level of sponsorship secured)
City of Holyoke	Participant	<ul style="list-style-type: none"> Begin to seek potential sponsors Prepare for local planning/permitting process in 2017 Initiate discussion at City Council level for possible use of city funds for operations (amount will depend on level of sponsorship secured)

		sponsorship secured)
City of Springfield	Participant	<ul style="list-style-type: none"> • Begin to seek potential sponsors • Prepare for local planning/permitting process in 2017 • Initiate discussion at City Council level for possible use of city funds for operations (amount will depend on level of sponsorship secured) •
University of Massachusetts	Participant; Potential Sponsor	<ul style="list-style-type: none"> • Seek internal funding options for sponsorship of campus stations or Amherst-wide • Lead planning/permitting process in 2016, to finalize proposed station locations and site planning • Promote bike share to students and staff
Amherst College	Participant; Potential Sponsor	<ul style="list-style-type: none"> • Seek internal funding for station sponsorship • Promote bike share to students and staff
Smith College	Participant; Potential Sponsor	<ul style="list-style-type: none"> • Seek internal funding for station sponsorship • Promote bike share to students and staff
Hampshire College	Participant; Potential Sponsor	<ul style="list-style-type: none"> • Seek internal funding for station sponsorship • Promote bike share to students and staff
MassRIDES	State Support	<ul style="list-style-type: none"> • Assist with promotion and marketing

After the selection of equipment and operations vendor, and, with capital, launch and first-year (minimum) operations funding in place, the vendor will take the lead on the following steps:

- a. Secure insurance through the private operator
- b. Develop equipment purchase orders with each community and lease warehouse and shop space
- c. Maintain ongoing branding and marketing of bike share regionally
- d. Finalize program name (tentatively called "ValleyBike"), color scheme and logo depending on sponsorship and with input from all jurisdictions
- e. Establish program web site
- f. Hire additional full and part-time staff support (1-3 mechanics, 1-3 rebalancing crew, dispatcher, director of marketing/member relations)
- g. Pre-launch marketing (to build awareness and bring in early adopters as members)
- h. Assemble and install equipment
- i. Launch event/celebration (in coordination with each jurisdiction)

Numerous cities in the United States recognize the health, mobility and economic benefits of bike sharing. Cities and towns in the Pioneer Valley share some of the key characteristics required to make a bike sharing program successful. With on-going commitment from the local jurisdictions and regional leaders, a modest size bike share system will continue to enhance the quality of life in the Pioneer Valley.