

6

Recommendations

Chapters 4 and 5 developed, screened, and analyzed potential transportation and mobility improvements for the Arsenal Street corridor. The alternatives analysis was combined with input from a variety of stakeholders including the Working Group, Town of Watertown, MassDOT, the MBTA, and the public (residents, employers, and workers). These efforts resulted in the identification of recommended improvement projects to be considered for implementation. This chapter presents an “Action Plan” for implementation of the study recommendations.

Overview

The study took a multimodal approach to transportation infrastructure needs and recommends a program of short-term actions (1 to 5 years), medium-term actions (5 to 10 years), and long-term actions (over 10 years). Immediate recommendations (under 1 year) were presented in Chapter 4 and consist of RSAs, traffic signal deficiency/compliance, and curb ramp improvements.

Improved mobility and safety were the primary drivers that guided the development of the recommended Action Plan. This study does not identify specific funding sources for each recommendation because of the many variables and the uncertainty associated with funding sources and schedules for projects. While funding is always a consideration and was factored into the evaluation criteria, funding availability was not a primary driver for the development of the study recommendations.

It is acknowledged that the recommendations presented herein represent a significant investment in potential transportation-related infrastructure. These projects represent an investment in total that currently far exceeds available funding as presently programmed. The advancement of the recommendations developed as part of this study will require prioritization by (and coordination between) the Town of Watertown, MBTA, MassDOT, and other stakeholders to address current fiscal constraints as related to transportation improvements. Besides prioritization,

identification of potential funding sources and availability to leverage funding could alter priorities.

Recommended Action Plan

Table 6-1 presents the details of this Action Plan, including construction cost estimates, potential funding sources, the responsible facilitating organizations, the implementation timeframe, and specific next steps. Figure 6-1 presents an overview of the recommended non-transit projects that comprise the Action Plan. Figure 6-2 focuses specifically on transit recommendations.

Each of the projects will need to follow a multi-step process as shown below. Depending on the project, some of the early steps may have already been completed either as part of this study or in other studies.

- Step 1: Problem/Need/Opportunity Identification
- Step 2: Project Planning
- Step 3: Project Initiation
- Step 4: Environmental Review and Permitting /Design/Right-of-way Acquisition
- Step 5: Funding/Programming on the Regional and State Transportation Improvement Programs
- Step 6: Advertise/Bid and Contract Award
- Step 7: Construction

As noted in Table 6-1, some recommendations are not anticipated to require environmental review and permitting. More complex recommendations, such as **Soldiers Field Road Gateway Improvements** and **Watertown Square Gateway Improvements**, will likely require more in-depth design, permitting, and environmental documentation. These initial steps would begin in the immediate- or short-term timeframes. Right-of-way acquisition is anticipated for some of the recommendations, as noted in Table 6-1.

The town's bicycle network continues to evolve and will become more robust with plans for connections between Arsenal Street and Saltonstall Park and for an extension of the Watertown Greenway to the existing Fresh Pond trail system. The recommendations of this study should be coordinated, with respect to timing and scope, with these and other ongoing initiatives to develop a comprehensive bicycle network. For example, **Bicycle Lanes East of School Street** should be coordinated with the planned bicycle accommodations to the west being advanced by athenahealth. Similarly, **Cross Connectivity between the Greenway and Charles**

River should be coordinated to connect with the Arsenal Street bicycle accommodations and could evolve to interface more directly with the Hanover/Elan Union Market east-west pathway to improve connectivity between the river and the neighborhoods north of Arsenal Street.

As noted in Chapter 4, along with supporting appendix materials, there are several immediate safety and operational improvements that could be implemented along the corridor, as well as accessibility improvements that could be made to existing curb ramps throughout the corridor. These improvements fall solely under the jurisdiction of the town and do not require coordination with other agencies or jurisdictions. Most of these improvements could be completed as part of regular intersection maintenance and should be progressed as quickly as possible. Changes to curb ramps, which in some cases require reconstruction of the entire ramp, should be planned and programmed over the next year.

Funding Sources

Although not an exhaustive list, Table 6-1 provides possible funding sources for each of the alternatives recommended. The funding sources noted were chosen based on the anticipated size, scope, and cost of a particular project. It was assumed the town would consider state and/or federal funding assistance for higher cost projects. In these cases, the town is generally responsible for any permitting and design associated with the improvement and the state provides funding for certain construction elements. Town and private developer funds can come from a variety of sources and were not specifically delineated for the purposes of the Recommended Action Plan. Three state funding sources were identified. It should be noted that Chapter 90 funding (discussed below) may also be used discretionally by the town to cover project design costs.

- **Complete Streets Funding** –The state currently offers up to \$400,000 of construction finding per year to eligible communities to implement Complete Streets infrastructure elements. These can include enhancements or dedicated accommodations for bicycle, pedestrian, and transit use, upgrading existing infrastructure to meet current ADA standards, and constructing “missing links” in roadway infrastructure that would improve access for non-automobile users. To be eligible for funding, the town must have a MassDOT approved Complete Streets policy and prioritization plan. Additional information on this funding source can be found at <http://mass.gov/massdot/completestreets>.
- **Chapter 90 Funding** - The state currently provides reimbursement funding for projects that create or extend the life of capital facilities under Section 34 of Massachusetts General Law (MGL) Chapter 90. Within all applicable allowances, municipalities have discretion on how the funding can be used. The funding amount allocated is based on the municipality's accepted road miles, population, and employment. For the fiscal year 2017, Watertown

received \$742,636 of Chapter 90 funds to cover 72 lane miles. This is on par with allocations from previous years. Additional information on this funding source can be found at <http://mass.gov/massdot/chapter90>.

- **Transportation Improvement Plan Funding** – Each Metropolitan Planning Organization (MPO) within the state has a rolling, five-year capital funding program. Eligible transportation projects can receive federal and state roadway funding if the project is selected by the MPO. Selection is based on an evaluation and prioritization of all eligible projects and includes municipal and public feedback. Additional information on this funding source can be found at <http://ctps.org/tip-dev>.

Table 6-1 Recommended Action Plan – Commitment Matrix and Implementation Timeframe

			Facilitating Organizations					Implementation Timeframe (Years)										Next Steps			
Alternative	Construction Cost ¹	Possible Funding Source(s)	MassDOT	MBTA	DCR	Town of Watertown	EEA	Short-Term					Medium-Term					Long-Term	Next Steps	Responsible Party	Notes
								1	2	3	4	5	6	7	8	9	10	10+			
1. Bicycle Lanes east of School Street	\$75,000 to \$2,100,000 ²	<ul style="list-style-type: none">State Complete StreetsState Chapter 90Private developer			X	X											Advance to final design. Seek funding source(s).	Town	No environmental review/permring anticipated. Preferable to coordinate with athenahealth bike lanes.		
3. Cross Connectivity between the Greenway and Charles River	Variable	<ul style="list-style-type: none">Paths being advanced by othersTown funds for shared lane markings			X	X												Support path development by others. Determine support for Complete Streets elements on neighborhood streets.	Town	No environmental review/permring anticipated. May be required if formal crossings of Charles River Road are developed	
6. Soldier's Field Road Gateway Improvements	\$1,500,000 to \$2,500,000	<ul style="list-style-type: none">Town fundsPrivate developerState Transportation Improvement Program	X		X	X	X						Permitting and Design			Construction	Advance design. Stakeholder outreach. Research permitting requirements.	Town	ROW acquisition anticipated. Will require additional public and stakeholder outreach.		
7. Watertown Square Gateway Improvements	\$950,000 to \$1,500,000 ³	<ul style="list-style-type: none">Town fundsPrivate developerState Transportation Improvement Program	X	X	X	X	X			Permitting and Design		Construction					Advance design. Engage DCR. Study Charles River Road cut-through traffic impacts.	Town	ROW acquisition anticipated. Will require additional public and stakeholder outreach.		
10. North Beacon Street Express Bus	Variable	<ul style="list-style-type: none">Area stakeholdersMBTATMA		X		X							Pilot Program			Full Service	Establish pilot program.	Town/MBTA	Potential ROW acquisition for transit stops.		
11. Transit Signal Priority	\$250,000 + Upgrades ⁴	<ul style="list-style-type: none">Town fundsPrivate Developer		X		X											Advance system design. Coordinate bus stop modifications. Identify signal upgrades.	Town/MBTA	ROW acquisition or easements anticipated for relocation of bus stops.		
14. Transit Shelters	\$30,000/ location	<ul style="list-style-type: none">Town fundsPrivate DeveloperMBTA		X		X											Determine installation & maintenance responsibility. Initiate easement process.	Town/MBTA	All locations require small easements from property owners (ROW acquisition).		
15. Transit Service Improvements to Existing Routes	\$3,600,000 ⁵	<ul style="list-style-type: none">MBTA		X		X		With Existing Fleet			With Expanded Fleet					Further analyze and refine as part of the MBTA's bus service planning process and bus improvement plan initiative.	MBTA	Alternative 15 cost estimates are intended solely for purposes of comparing alternatives within the context of this study and are not for budgeting purposes. Capital and operating costs will depend on the allocation of MBTA resources across all system routes based on systemwide priorities.			
17. Adaptive Signal Control	\$250,000 to \$500,000 ^{4,6}	<ul style="list-style-type: none">Town fundsPrivate Developer		X		X				Planning/ Implementation		Refinement/Upgrades			Maintenance	Advance system design. Identify signal upgrades. Further evaluate Watertown Square operations.	Town				

MassDOT - Massachusetts Department of Transportation, MBTA - Massachusetts Bay Transportation Authority, DCR - Department of Conservation and Recreation, EEA - Executive Office of Energy and Environmental Affairs

Information on state funding sources can be found at the following locations: Complete Streets (mass.gov/massdot/completestreets), Chapter 90 (mass.gov/massdot/chapter90), State Transportation Improvement Program (ctps.org/tip-dev)

1 Construction cost estimates in 2017 dollars. Estimates do not include survey, design fees, right-of-way (ROW) acquisition, permitting, drainage improvements, or utility modifications (if necessary).

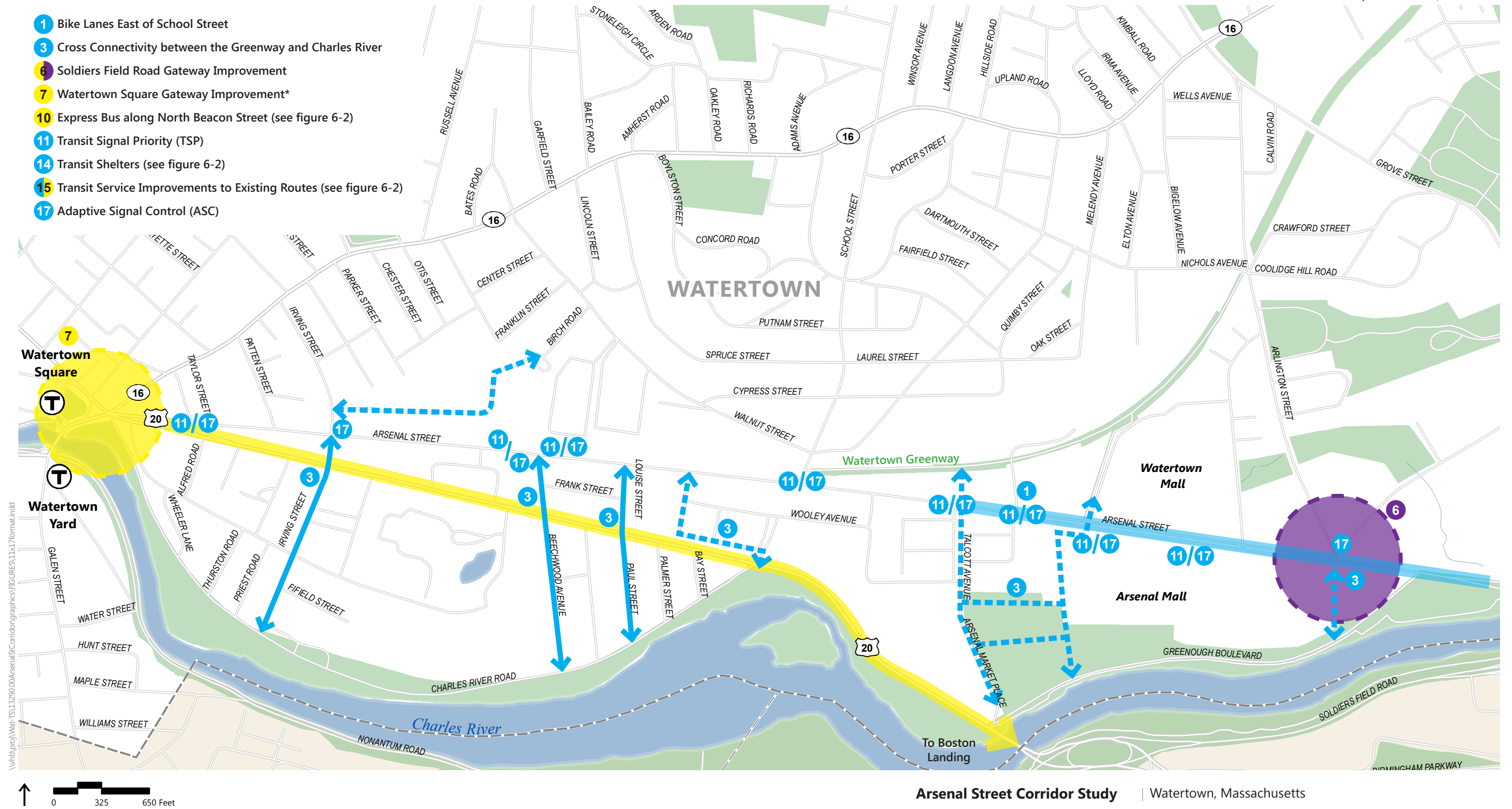
2 Lower cost estimate includes removal of paint markings and restriping only. Higher cost estimate includes cold plane/overlay in addition to restriping.

3 Costs may be increased by signal system upgrades/modifications, hardscape/ landscape design, pedestrian lighting, site furnishings.

4 New traffic signal cabinet assembly may be required at some locations. The cost of a new assembly is approximately \$40,000 per location. If the intersection is recommended for both transit signal priority and adaptive signal control, this cost is incurred only once.

5 Estimate includes capital cost only for additional vehicles anticipated for medium-term recommendations, and excludes capital costs associated with expanded fleet storage and maintenance facilities. Incremental operating costs are estimated at \$200,000 and \$800,000 per year for short-term and medium-term recommendations, respectively.

6 Ultimate cost will be dependent on type of communication and server chosen.



- Short-Term (0-5 years)
- Medium-Term (5-10 years)
- Long-Term (10+ years)
- By Others

Note: Funding availability (ie. State Transportation Improvement Program) may impact assumed recommendation time frames.

Study Recommendations

Source: MassGIS

