



CITY OF WATERTOWN

Conservation Commission

Leo Martin, Chair
Maria Rose, Vice Chair
Charles Bering, Member
Patrick Fairbairn, Member
Jamie O'Connell, Member

The Conservation Commission of the City of Watertown will hold a remote public meeting on the first Wednesday of March, on March 2, 2022 at 7:00 p.m. in accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20, relating to the 2020 COVID-19 emergency and to avoid group congregation, this meeting has only remote opportunities for participation with public access provided as follows:

CONSERVATION COMMISSION MEETING WEDNESDAY, MARCH 2, 2022 AT 7:00 PM AGENDA

ACCESS INFORMATION:

- A. The meeting will be televised through WCATV (Watertown Cable Access Television):
<http://vodwcatv.org/CablecastPublicSite/?channel=1>
- B. The Public may join the virtual meeting online: <https://watertown-ma.zoom.us/j/99597080710>
- C. Public may join the virtual meeting audio only by phone: (877) 853-5257 or (888) 475-4499 (Toll Free) and enter Webinar ID: 995 9708 0710
- D. Public may comment through email: lschwab@watertown-ma.gov

-
- 1. Public Hearing-
 - A. (Continued to the April Meeting at the request of the applicant). **Notice of Intent-** 0 Arlington St. (Williams Pond Parcel)- to construct a 2-story commercial building and parking lot of property known as the Williams Pond parcel. Max Hatziliades, Applicant and Owner
 - 2. Public Hearing-
 - A. **Notice of Intent-** 93 California Street- For the construction of an addition to an existing single-family dwelling and associated site appurtenances at the above-referenced property. Christopher and Rose Zevitas, applicants and owners
 - 3. Informational Meeting
 - A. Presentation and discussion of Whitney Hill Park Annual Report 2021 per the City Council's 2013 Resolution Preserving Whitney Hill Park.

4. Agent Report
 - A. CPA
 - Climate and Energy Plan
 - Pollinators
 - Ongoing Orders of Conditions
 - Arsenal Park
5. Acceptance of Minutes-
 - A. January 5, 2022 Conservation Commission Meeting
 - January 19, 2022 special Conservation Commission Meeting
 - February 9, 2022 Conservation Commission Meeting

Notice of Intent Application and Wetland Resource Area Analysis



February 9, 2022

Subject Property

93 California Street

Parcel ID: 125-2-0

Watertown, Massachusetts

Applicants and Property Owners

Christopher and Rose Zevitas

93 California Street

Watertown, MA 02472

LEC Environmental Consultants, Inc.

380 Lowell Street

Suite 101

Wakefield, MA 01880

781-245-2500

www.lecenvironmental.com

February 9, 2022

Hand Delivery

Watertown Conservation Commission
 Watertown Administration Building
 149 Main Street, 3rd Floor
 Watertown, MA 02472

**Re: Notice of Intent Application and
 Wetland Resource Area Analysis
 93 California Street
 Parcel ID: 125-2-0
 Watertown, Massachusetts**

[LEC File #: PLA\12-260.02]

Dear Members of the Conservation Commission:

On behalf of the Applicants and Property Owners, Christopher and Rose Zevitas, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed Notice of Intent (NOI) Application and *Wetland Resource Area Analysis* with the Watertown Conservation Commission for the construction of an addition to an existing single-family dwelling and associated site appurtenances at the above-referenced property. Portions of the proposed activities are located within Riverfront Area and Bordering Land Subject to Flooding (BLSF) associated with the Charles River. The Applicants propose a reduction of impervious area, compensatory flood storage, and erosion controls to minimize the potential for impacts to the resource areas and improve site conditions.

LEC was retained to identify Wetland Resource Areas protectable under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40), its implementing Regulations (310 CMR 10.00), and the *Watertown Wetlands Ordinance* (Chapter XV), and its *Rules and Regulations*, and to prepare this NOI Application. Everett M. Brooks Co. has prepared the enclosed *Plan of Land in Watertown, MA* dated September 15, 2021 and revised through October 4, 2021 (Appendix B).

Enclosed please find two checks payable to the City of Watertown for Ninety-Five Dollars (\$95.00) and One Hundred Dollars (\$100.00), for the purpose of filing this NOI Application under the State and Local Statutes (respectively). A check payable to the Commonwealth of Massachusetts for Seventy Dollars (\$70.00) has been sent to the DEP Lockbox along with the Wetland Fee Transmittal Form.



Thank you for your consideration of this Application. We look forward to meeting with you at the March, 2, 2022 Public Hearing. Should you have any questions, please do not hesitate to contact me in our Wakefield office at 781-245-2500 or at rkirby@lecenvironmental.com.

Sincerely,

LEC Environmental Consultants, Inc.

A handwritten signature in black ink, appearing to read "Richard A. Kirby", written over a horizontal line.

Richard A. Kirby

Senior Wetland Scientist

cc: DEP, Northeast Region
 Pierce Lamb Architects
 Everett M. Brooks Co.
 Christopher and Rose Zevitas

i.	WPA Form 3 – Notice of Intent
ii.	WPA Appendix B – Wetland Fee Transmittal Form
iii.	Watertown Wetlands Ordinance Fee Calculation and Transmittal Form
iv.	Watertown Wetlands Ordinance Application for Permit/Determination
v.	Affidavit of Service
vi.	Letter to Abutters
vii.	Abutter Notification Form
viii.	Certified List of Abutters

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Appendix A

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Figure 2: FEMA Flood Insurance Rate Map

Figure 3: MassGIS Orthophoto

Appendix B

Site Plan of Land in Watertown, MA dated September 15, 2021, revised through October 4, 2021 and February 3, 2022 prepared by Everett M. Brooks Co.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Watertown Wetlands Ordinance (Chapter XV)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Watertown

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

93 California Street

a. Street Address

Watertown

b. City/Town

02472

c. Zip Code

Latitude and Longitude:

42.364706 N

d. Latitude

-70.192543 W

e. Longitude

Parcel ID: 125-2-0

f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

Christopher and Rose

a. First Name

Zevitas

b. Last Name

Home Owners

c. Organization

93 California Street

d. Street Address

Watertown

e. City/Town

MA

f. State

02472

g. Zip Code

617-744-0028

h. Phone Number

N/A

i. Fax Number

christopher.d.zevitas@dot.gov

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

Same as Applicant

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Richard

a. First Name

Kirby

b. Last Name

LEC Environmental Consultants, Inc.

c. Company

380 Lowell Street, Suite 101

d. Street Address

Wakefield

e. City/Town

MA

f. State

01880

g. Zip Code

781-245-2500

h. Phone Number

781-245-6677

i. Fax Number

rkirby@lecenvironmental.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$165.00

a. Total Fee Paid

\$95.00

b. State Fee Paid

\$70.00 (+ \$100.00 Ordinance Fee)

c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The Applicants propose to construct an addition and associated site appurtenances to a single-family dwelling. The activities will be located within the outer portion of the Riverfront Area and within BLSF. No change in flood storage is proposed. Erosion controls and a reduction of impervious surface are proposed.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. ☒ Single Family Home | 2. ☐ Residential Subdivision |
| 3. ☐ Commercial/Industrial | 4. ☐ Dock/Pier |
| 5. ☐ Utilities | 6. ☐ Coastal engineering Structure |
| 7. ☐ Agriculture (e.g., cranberries, forestry) | 8. ☐ Transportation |
| 9. ☐ Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

49573

c. Book

N/A

b. Certificate # (if registered land)

475

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☒ Bordering Land Subject to Flooding	362 (Lawn to pervious pavers and shed) 1. square feet 1± 3. cubic feet of flood storage lost	362 (Lawn to pervious pavers and shed) 2. square feet 3± 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	Charles River 1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project:

5,959
square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
----------------------	-------------------------------	--

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☒ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet _____ 2. cubic yards dredged _____	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet _____	2. cubic yards beach nourishment _____
e. ☐ Coastal Dunes	1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☐ Coastal Banks	1. linear feet _____	
g. ☐ Rocky Intertidal Shores	1. square feet _____	
h. ☐ Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____
i. ☐ Land Under Salt Ponds	1. square feet _____	
	2. cubic yards dredged _____	
j. ☐ Land Containing Shellfish	1. square feet _____	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged _____	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet _____	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW _____

b. square feet of Salt Marsh _____

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings _____

b. number of replacement stream crossings _____



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C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☒ No

If yes, include proof of mailing or hand delivery of NOI to:

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

2021

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_fee_schedule.htm).
Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
 2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____
 3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
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Document Transaction Number

Watertown

City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
2. ☐ A portion of the site constitutes redevelopment
3. ☐ Proprietary BMPs are included in the Stormwater Management System.
b. ☒ No. Check why the project is exempt:
1. ☒ Single-family house
2. ☐ Emergency road repair
3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Plan of Land in Watertown, MA (3 Sheets)

a. Plan Title

Everett M. Brooks Co.

Bruce Bradford, PLS

b. Prepared By

c. Signed and Stamped by

Dated 9/15/21; Revised 10/4/21 and 2/3/21

1" = 20'

d. Final Revision Date

e. Scale

N/A

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

1143

2. Municipal Check Number

2/4/2022

3. Check date

1144

4. State Check Number

2/4/2022

5. Check date

Christopher D.

Zevitas

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
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Provided by MassDEP:

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MassDEP File Number

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Watertown

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

2/3/2022

3. Signature of Property Owner (if different)

4. Date

2/8/2022

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

93 California Street

a. Street Address

1144

c. Check number

Watertown

b. City/Town

\$70.00

d. Fee amount

2. Applicant Mailing Address:

Christopher and Rose

a. First Name

Zevitas

b. Last Name

Home Owners

c. Organization

93 California Street

d. Mailing Address

Watertown

e. City/Town

MA

f. State

02472

g. Zip Code

617-744-0028

h. Phone Number

N/A

i. Fax Number

christopher.d.zevitas@dot.gov

j. Email Address

3. Property Owner (if different):

Same as Applicant

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 1a: work associated with a single-family dwelling	1.5 (Riverfront Area)	\$110.00	\$165.00
Step 5/Total Project Fee:			\$165.00

Step 6/Fee Payments:

Total Project Fee:	<u>\$165.00</u>
	a. Total Fee from Step 5
State share of filing Fee:	<u>\$70.00</u>
	b. 1/2 Total Fee less \$12.50
City/Town share of filling Fee:	<u>\$95.00</u>
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)



Town of Watertown
 Administration Building
 149 Main Street
 Watertown, Massachusetts 02472
Conservation Commission
 Tel: (617) 972-6426 • Fax: (617) 972-6484

WATERTOWN WETLANDS ORDINANCE Fee Calculation and Transmittal Form

Owner		Applicant	
Name	Christopher and Rose Zevitas	Name	Same as Owner
Street	93 California Street	Street	
City	Watertown	City	
State	MA	State	
Zip	02472	Zip	
Phone	617-744-0028	Phone	
e-mail	Chris.zevitas@dot.gov	e-mail	

Project Location:

93 California Street, Watertown, MA

Any person filing an Application for Permit/RDA/NOI pursuant to the Ordinance shall, at the same time, pay a filing fee in accordance with the Filing Fee Schedule contained in the *Rules and Regulations for the Administration of the Watertown Wetlands Ordinance of 2008*. Municipal agencies are exempt from this requirement.

A. Fee Schedule:

Project Size	Fees
Less than 1,000 sq. ft.	\$50.00
1,000 sq. ft. to less than 2,000 sq. ft.	\$100.00
2,000 sq. ft. to less than 3,000 sq. ft.	\$150.00
3,000 sq. ft. to less than 4,000 sq. ft.	\$200.00
4,000 sq. ft. to less than 5,000 sq. ft.	\$250.00
5,000 sq. ft. to less than 6,000 sq. ft.	\$300.00
6,000 sq. ft. to less than 10,000 sq. ft.	\$400.00
10,000 sq. ft. to less than 15,000 sq. ft.	\$500.00
15,000 sq. ft. to less than 20,000 sq. ft.	\$650.00
20,000 sq. ft. to less than 30,000 sq. ft.	\$750.00
30,000 sq. ft. to less than 50,000 sq. ft.	\$850.00

50,000 sq. ft. or greater	\$1000.00
---------------------------	-----------

Project Fee

\$100.00

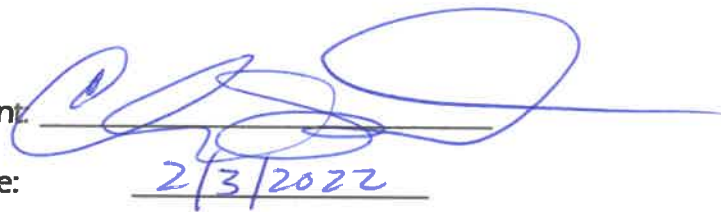
B. Fee Exemption

The Commission may waive the filing fee for an Application or Request for Determination filed by a government agency, for an RDA filed by a person having no financial connection with the subject property, for any projects whose sole effect is to substantially enhance a Resource Area, or for other reasonable grounds as determined by the Commission at its discretion.

Grounds for Exemption (to be filled out by CC staff)

Signature of Owner or Applicant: _____

Date: _____


2/3/2022

Enclose this form with a check or money order for the calculated amount payable to the Town of Watertown with the Application for Permit or Request for Determination of Applicability. These fees are non-refundable.

Please note this payment does not relieve the Applicant from the further fee requirements as stated in the Wetlands Protection Act Regulations MGL Chapter 44, Section 53G.



Town of Watertown
Administration Building
149 Main Street
Watertown, Massachusetts 02472
Conservation Commission
Tel: (617) 972-6426 • Fax: (617) 972-6484

WATERTOWN WETLANDS ORDINANCE

Application for Permit/Determination

Application for: ☐ Request for Determination of Applicability ☐ Notice of Intent
☐ Other

Owner*		Applicant	
Name	Christopher and Rose Zevitas	Name	Same as Owner
Street	93 California Street	Street	
City	Watertown	City	
State	MA	State	
Zip	02472	Zip	
Phone	617-744-0028	Phone	
e-mail	Chris.zevitas@dot.gov	e-mail	

**Name(s) and address(s) under which title of property is recorded at Registry of Deeds.*

1. Location of site where work is proposed:
93 California Street, Watertown, MA

Town of Watertown Assessor's Information:

Map: 125 Lot: 2 Block: 0 (Assessors Parcel ID: 125-2-0)

2. Briefly describe the proposed work:

The Applicants propose to construct an addition and associated site appurtenances to a single-family dwelling. Erosion controls and stormwater management are proposed. The activities will be located within the 200-foot Riverfront Area and within Bordering Land Subject to Flooding

3. Are there any impediments to accessing the site? No

If yes, what are they (fence, dog, topography, etc.):

N/A _____

If yes, what arrangements have been or will be made to ensure that the Conservation Commission members and designated representatives have safe and easy access to the site?

N/A _____

6. Do you understand that notification of this application and the Public Hearing will be published in a newspaper of local circulation at your expense? Please check-off appropriate box: Yes

7. How much is the filing fee, for this project, under the local ordinance? And under the Wetlands Protection Act?

\$100.00

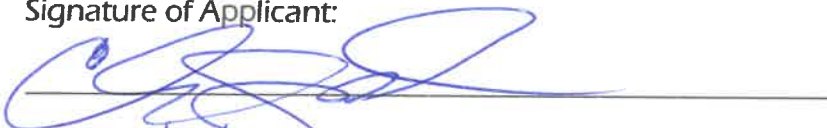
(See Fee Schedule). Make check payable to the Town of Watertown.

\$165.00 (City portion is \$95.00)

(See NOI Wetland Fee Transmittal Form wpaform3.doc) Make check payable to the Watertown Conservation Commission)

I hereby certify, under the pains and penalties of perjury, that the contents of this application are true and complete.

Signature of Applicant:



Date: 2/3/2022

By signing this application the owner grants permission to the Conservation Commission for its members and designated representative to enter upon the premises of the site.

Signature of Owner:



Date: 2/3/2022

Waiver

If the next regular meeting of the Conservation Commission is not within 21 days of submission of this filing, or if the agenda for the next regular meeting is full, I waive the 21 day requirement and agree to a later date for this Hearing no later than the next regular scheduled meeting or 30 days from the date of the filing a complete application (whichever is less).

Signature of Applicant:



Date: 2/3/2022

AFFIDAVIT OF SERVICE

Under the *Massachusetts Wetlands Protection Act*
and the
Watertown Wetlands Ordinance (Chapter XV)

I, Sharon A. Sullivan, on behalf of Christopher and Rose Zevitas, hereby certify under the pains and penalties of perjury that on February 9, 2022 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and 310 CMR 10.05 (4) (a), in connection with the following matter:

A Notice of Intent filed under the *Massachusetts Wetlands Protection Act* and the *Watertown Wetlands Ordinance* by LEC Environmental Consultants, Inc., on behalf of Christopher and Rose Zevitas, with the Watertown Conservation Commission on February 9, 2022 for property located at 93 California Street (Assessor's Parcel ID: 125-2-0) in Watertown, Massachusetts.

The form of notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.

Sharon A. Sullivan
Sharon A. Sullivan
Permitting Technician

2/9/2022
Date

February 9, 2022

CERTIFIED MAIL

«Name»

«Name2»

«Name3»

«Address»

«City», «State» «Zip»

Re: Notice of Intent Application
93 California Street
Assessor's Parcel ID: 125-2-0
Watertown, Massachusetts

[LEC File #: PLA\12-260.02]

Dear Abutter:

On behalf of the Applicants, Christopher and Rose Zevitas, LEC Environmental Consultants, Inc. (LEC) has filed a Notice of Intent (NOI) Application with the Watertown Conservation Commission for the proposed construction of an addition to an existing single-family dwelling and associated site appurtenances at the above-referenced property. The proposed activities are located within Riverfront Area and Bordering Land Subject to Flooding associated with the Charles River. The Applicants propose a reduction of impervious area, compensatory flood storage, and erosion controls to minimize the potential for impacts to the resource areas and improve site conditions.

The report entitled *Notice of Intent Application and Wetland Resource Area Analysis* and accompanying site plans are available for review by the public by contacting the Watertown Conservation Commission. A remote Public Hearing will be held on March 2, 2022 at 7:00 p.m., in accordance with the provisions of the *Massachusetts Wetlands Protection Act* (M.G.L. Ch. 131, s. 40, as amended), its implementing Regulations (310 CMR 10.00), and the *Watertown Wetlands Ordinance*. Notice of the Public Hearing, including its date, time, and place, will also be published at least five (5) days in advance in the *Watertown Tab*. Notice of the Public Hearing will also be posted at the Watertown Administration Building at least 48 hours in advance. Please check the Town's website and the Board/Committee's page for any updated information on the meeting.

Please do not hesitate to review the materials and/or attend the public hearing should you have questions or concerns about the proposed project.

Sincerely,

LEC Environmental Consultants, Inc.

Richard A. Kirby, Manager
 Senior Wetland Scientist

LEC Environmental Consultants, Inc.

www.lecenvironmental.com

12 Resnik Road
 Suite 1
 Plymouth, MA 02360
 508.746.9491

380 Lowell Street
 Suite 101
 Wakefield, MA 01880
 781.245.2500

100 Grove Street
 Suite 302
 Worcester, MA 01605
 508.753.3077

P.O. Box 590
 Rindge, NH 03461
 603.899.6726

680 Warren Avenue
 Suite 3
 East Providence, RI 02914
 401.685.3109

PLYMOUTH, MA

WAKEFIELD, MA

WORCESTER, MA

RINDGE, NH

EAST PROVIDENCE, RI

Notification to Abutters Under the
Massachusetts Wetlands Protection Act
and the
Watertown Wetlands Ordinance

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and the *Watertown Wetlands Ordinance*, you are hereby notified of the following:

- A. The names of the Applicants are Christopher and Rose Zevitas, 93 California Street, Watertown, Massachusetts.
- B. The Applicants have filed a Notice of Intent with the Conservation Commission for the municipality of Watertown, Massachusetts seeking permission to remove, fill, dredge or alter an area subject to protection under the *Massachusetts Wetlands Protection Act* (General Laws Chapter 131, Section 40) and the *Watertown Wetlands Ordinance*.
- C. The address of the lot where the activity is proposed is 93 California Street (Assessor's Parcel ID: 125-2-0), Watertown, Massachusetts.
- D. Copies of the Notice of Intent may be examined by contacting the Watertown Conservation Commission at (617) 972-6426, between the hours of 8:30 a.m. and 5:00 p.m., Monday through Friday.
- E. Copies of the Notice of Intent may be obtained from LEC Environmental Consultants, Inc. (the applicants' representative) by calling (781) 245-2500 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday. A fee may be charged for each copy requested.
- F. Information regarding the Public Hearing may be obtained from the Watertown Conservation Commission (the regulatory agency) by calling (617) 972-6426, between the hours of 8:30 a.m. and 5:00 p.m., Monday through Friday.

NOTE: Notice of the Public Hearing, including its date, time, and place, will be published at least five (5) days in advance in the Watertown Tab.

NOTE: Notice of the Public Hearing will also be posted at the Watertown Town Hall not less than 48 hours in advance.

NOTE: You also may contact the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call:

Northeast Region: 978-694-3200

Parcel ID: 125 2 0
ZEVITAS CHRISTOPHER
93 CALIFORNIA ST
WATERTOWN, MA 02472

Parcel ID: 122 12 0
KF REALTY ASSOCIATES
C/O THE STOP + SHOP CO
c/o AHOLD FINANCIAL SERVICES
P O BOX 6500
CARLISLE, PA 17013

Parcel ID: 123 102 10
FISHER-BOWMAN JENNIFER H
FISHER-BOWMAN JENNIFER J
10 CALIFORNIA PK, UNIT 2
WATERTOWN, MA 02472

Parcel ID: 123 102 8
HAKIMI PARVIN
8 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 11 3
MOOK KEVIN
16 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 12 4
RAZ REGINA
18 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 13 5
BLACKWOOD CLIFTON M
BLACKWOOD ANTOINETTE E
20 CALIFORNIA PARK
WATERTOWN, MA 02472

Parcel ID: 123 14 6
MAMONOV ARTEM
SHEMIRANI ATENA IRANL
19 CALIFORNIA PARK
WATERTOWN, MA 02472

Parcel ID: 123 15 7
HUANG GUO QIU
HUANG YU YUN
15 CALIFORNIA PARK
WATERTOWN, MA 02472

Parcel ID: 123 16 8
SLAMIN JR LEO F
11 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 17 9
ANDREWS RACHEL L
KIRK JAMAL K
7 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 18 10
MAI THANH
3 CALIFORNIA PK
WATERTOWN, MA 02472

Parcel ID: 123 19 11
KENNEY NORMAN
KENNEY PATRICIA
104 CALIFORNIA ST
WATERTOWN, MA 02472

Parcel ID: 123 20 12
PURI BIREN KUMAR
PURI NEETA
108 CALIFORNIA STREET
WATERTOWN, MA 02472

Parcel ID: 123 3E 0
DICIENZO ROSINA MONACO
MAZZOLA MARIA, SANDRA &
92 CALIFORNIA ST
WATERTOWN, MA 02472

Parcel ID: 123 4D 0
TIBERIO ADELE L/E
TIBERIO LAWRENCE M R/M
120 PINE KNOLL DR
LUDLOW, MA 01056

Parcel ID: 123 5C 0
LEONOR ESDRAS R
LEONOR JUSSARA V
74 CALIFORNIA ST
WATERTOWN, MA 02472

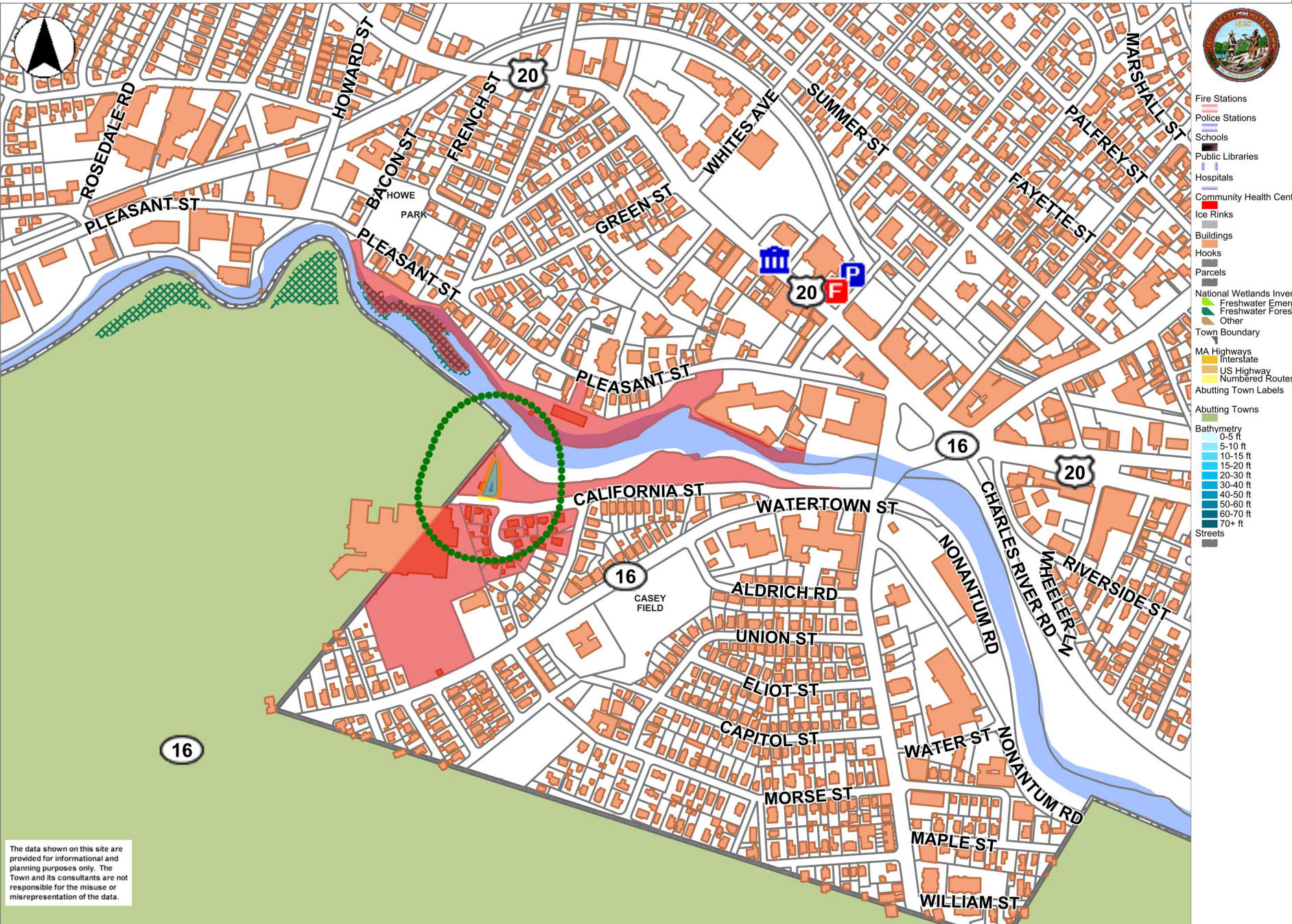
Parcel ID: 123 6B 1
TAYLOR JEFFREY E.
TAYLOR JULIE A.
13 FIFTH AVE
WATERTOWN, MA 02472

Parcel ID: 123 9 1
MAZZOLA EMILIO
MAZZOLA MARIA
92 CALIFORNIA ST
WATERTOWN, MA 02472

Parcel ID: 125 3 0
COMMONWEALTH OF
DEPT OF CONSER. &
251 CAUSEWAY ST. STE 600
BOSTON, MA 02114

Parcel ID: 125 4A 1P
PHILIP A RAND CO., INC
139 CALIFORNIA ST
NEWTON, MA 02458

Parcel ID: 201 1 1136
COMMONWEALTH OF
DEPT OF CONSER. &
251 CAUSEWAY ST. STE 600
BOSTON, MA 02114



The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.



**Notice of Intent Application and
Wetland Resource Area Analysis**

93 California Street
Assessor's Parcel ID: 125-2-0
Watertown, Massachusetts

February 9, 2022

1. Introduction

On behalf of the Applicants, Christopher and Rose Zevitas, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed Notice of Intent (NOI) Application and *Wetland Resource Area Analysis* with the Watertown Conservation Commission for the construction of an addition to an existing single-family dwelling and associated site appurtenances at 93 California Street in Watertown, Massachusetts. Portions of the proposed activities will occur within the Riverfront Area and Bordering Land Subject to Flooding (BLSF) associated with the Charles River. As part of this filing, the Applicants propose to implement mitigating measures, including a reduction of impervious surface, compensatory flood storage, and the installation of erosion controls. The existing conditions and proposed activities are depicted on the enclosed *Plan of Land in Watertown, MA* dated September 15, 2021 and revised through October 4, 2021 prepared by Everett M. Brooks Co., (*Site Plan*, Appendix B).

The Applicants filed a NOI Application for a similar project on July 1, 2013 (DEP File #: 321-0154), but the addition was never constructed. More recently, the Applicants filed with the Watertown Zoning Board of Appeals (ZBA) for relief from several zoning requirements related to conformity, use, dimensions, and parking, and the ZBA granted the requested relief at the January 25, 2022 hearing. The purpose of the relief sought was in part to position the proposed work as far from the Wetland Resource Areas as possible.

2. General Site Description

The 6,473+/- square-foot property is located along the north side of California Street and south of the Charles River walkway, near the Newton/Watertown town boundary in Watertown, Massachusetts. Residential development associated with the southern side of California Street and commercial development west of the site generally surround the property, while DCR land occurs immediately to the east.



Northwesterly view of dwelling from California Street



Southerly view of rear of dwelling

The southern portion of the property contains an existing single-family dwelling with attached garage and paved driveway providing site access from California Street. A wooden deck is situated off the rear of the existing dwelling, and a flagstone patio is located off the rear of the garage. The dwelling and site appurtenances are surrounded by

lawn and landscape plants, including a grove of native grape located within the northern portion of the site. The site's topography gently descends northerly toward the Charles River walkway.

Forested uplands occur on surrounding DCR land. The canopy contains scattered individuals of red maple (*Acer rubrum*), poplar (*Populus* sp.), birch (*Betula* sp.), weeping willow (*Salix babylonica*), larch (*Larix laricina*), and eastern white pine (*Pinus strobus*). The understory contains saplings from the canopy, with clusters of silky dogwood (*Cornus amomum*), European buckthorn (*Frangula alnus*), multiflora rose (*Rosa multiflora*), tartarian honeysuckle (*Lonicera tartarica*), witch hazel (*Hamamelis virginiana*), false indigo bush (*Amorpha fruticosa*), and Japanese knotweed (*Polygonum cuspidatum*). Scattered entanglements of wild grape (*Vitis* sp.) were also observed. The groundcover contains patches of poison ivy (*Toxicodendron radicans*), jewelweed (*Impatiens capensis*), violet (*Viola* sp.), day lilies (*Hemerocallis*), and sensitive fern (*Onoclea sensibilis*).

LEC inspected soil conditions throughout the upland areas up-gradient of the BVW boundary, and generally observed 2 to 3 feet of historic fill material (sandy loam) over sapric organic soils.

2.1

Natural Heritage and Endangered Species Program Designation

According to the 2021 edition of the *Massachusetts Natural Heritage Atlas*, no areas of Estimated Habitat for Rare Wildlife or Certified Vernal Pools exist on the site (Appendix A, Figure 3).

3. **Wetland Boundary Determination Methodology**

LEC conducted a site evaluation on September 17, 2012 to identify and characterize existing protectable Wetland Resource Areas located on or immediately adjacent to the site, and to demarcate the Bordering Vegetated Wetland (BVW) and Bank-Mean Annual High Water (MAHW) Line associated with pertinent portions of the Charles River. A more recent site evaluation was conducted on August 24, 2021. The extent of Wetland Resource Areas was determined through observations of existing plant communities, hydrologic indicators, and bankfull indicators in accordance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40), its implementing Regulations (310 CMR 10.00), and the *Watertown Wetlands Ordinance* (Chapter XV), and its *Rules and Regulations*.

Based on these methods, LEC determined that the Wetland Resource Areas associated with this site include: BVW, Bank, Riverfront Area (extending from the Bank-MAHW Line associated with the Charles River), and Bordering Land Subject to Flooding (BLSF). The BVW boundary was delineated with sequentially-numbered, blaze orange surveyor's tape, with the words "LEC Resource Area" printed in black (LEC flagging stations BVW-1 through BVW-3). The Bank-MAHW boundary was delineated with sequentially-numbered, safety blue surveyor's tape (LEC flagging stations MAHW-1 through MAHW-5). The BVW and Bank-MAHW flags were re-established in the field via survey by Everett M. Brooks Co., and are shown on the enclosed *Site Plan* (Appendix B).

3.1 **Plant Species Identification**

LEC identified plant species comprising 5% or more of the vegetative cover along the BVW boundary. Identifications were made to the species level when morphologically possible and were used along with other hydrologic indicators to determine the extent of BVW on site in accordance with definitions and criteria in 310 CMR 10.55(2).

3.1.1 **Identification of Wetland Indicator Species**

The regional wetland indicator status for all identified plant species was obtained from the classification system described in the *National List of Plant Species that Occur in Wetlands: Massachusetts* (Reed, 1988). This classification system divides plant species into ten categories and identifies the wetland indicator status based on the frequency of

their occurrence in wetland habitat. These include, in order of lowest to highest frequency within wetlands:

Facultative Upland Minus (FACU-),
Facultative Upland (FACU),
Facultative Upland Plus (FACU+),
Facultative Minus (FAC-),
Facultative (FAC),
Facultative Plus (FAC+),
Facultative Wetland Minus (FACW-),
Facultative Wetland (FACW),
Facultative Wetland Plus (FACW+), and
Obligate (OBL).

Plant species with a FAC, FAC+, FACW-, FACW, FACW+, or OBL wetland indicator status occur in wetlands more than 50% of the time and are considered “wetland indicator plants.” Plant species with a FAC-, FACU+, FACU, FACU- wetland indicator status, and those not contained within the list occur in wetlands less than 50% of the time, are not considered “wetland indicator plants.” This system of classification has been adopted by the Department of Environmental Protection (DEP) as the definitive source regarding the indicator status of wetland plants.

3.1.2 **Measurement of Relative Abundance**

The relative abundance or percent cover of each plant species occurring along the BVW boundary was determined visually. When completing DEP BVW (310 CMR 10.55) Delineation Field Data Forms, midpoints were utilized to determine the percent cover of each plant species according to the following classification system: 3% = 1-5%; 10.5% = 6-15%; 20.5 = 16-25%; 38% = 26-50%; 63% = 51-75%; 85.5% = 76-95%; and 98% = 96-100%. The purpose of using midpoints is to reduce variability between wetland scientists when visually determining percent cover. Utilizing midpoints does not affect whether a given species within a sample layer will be a dominant plant and is recommended in DEP’s handbook, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.

3.1.3 **Measurement of Vegetative Distribution and Density**

The relative pattern of plant distribution within each vegetative layer (canopy, sapling, shrub, lianas, and groundcover) was visually determined. Plant species within each layer

were determined to occur as single plants, patches or clusters, entanglements, or as the dominant plant species. In addition, LEC observed the relative plant density between each vegetation layer, noting whether the sample layer is densely vegetated, contains moderately dense vegetation, is variably dense within the sample layer, or is sparsely vegetated.

3.2 **Evaluation of Edaphic (Soil) Characteristics**

3.2.1 **General Soil Analysis**

Prior to conducting the site evaluation, LEC reviewed United States Geologic Survey (USGS) Topographic Maps and United States Natural Resources Conservation Service (NRCS) Soil Survey Maps. The purpose of this review was to become familiar with the site's general soil characteristics. Using a Dutch-style, hand-held auger and/or spade, LEC investigated soil conditions within these representative areas by digging a test pit to a depth of at least 20 inches, or refusal. The purpose of this investigation was to confirm and document the difference in soil conditions along the BVW boundary. Specifically, LEC analyzed soil horizon thickness and depth, soil texture, and soil color, noting the presence or absence of redoximorphic features in accordance with *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (March 1995) and *Field Indicators for Identifying Hydric Soils in New England* (2019).

3.2.2 **Soil Horizon Thickness and Depth**

LEC noted the presence of all soil layers and horizons (e.g. O, A, E, B, and/or C) and their relative thickness and depth within the test pit. The thickness of the O soil layer may be directly related to wetness, and is critical to the identification of a hydric soil. Specifically, histosols (organic soil layers measuring greater than 16 inches thick) and soils with a histic epipedon (an organic layer between 8 and 16 inches thick) always qualify as hydric soils, provided the hydrology that created these soil conditions still exists and has not been altered. Although not directly related to wetness, the thickness of the A or A_p horizons is a function of the depth of plowing (many of New England's forests today were historically agricultural fields) and/or a function of erosion and deposition of organic matter. Interpreting redoximorphic features within the A or A_p horizons can be difficult given their relatively dark color. Redoximorphic features are best observed in the soil layers beneath the A or A_p horizons.

3.2.3

Soil Texture

Soil texture refers to the relative proportions of sand, silt, and clay particles in the soil. Although there are several standard systems for determining soil texture, LEC utilized the United States Department of Agriculture (USDA) system, because it is widely accepted and referred to in the *Field Indicators* guide referenced above. Specifically, LEC identified whether the soil is classified as sand, loamy sand, sandy loam, loam, silt loam, silty clay loam, or clay. LEC also estimated the relative proportion of organic matter within the topsoil to determine if the soil is classified as an organic soil. Differences in soil texture affect how water moves through the soil and the type of hydrologic indicators that form when hydric conditions are present during the growing season.

3.2.4

Soil Color

Using the Munsell® Soil Color Charts, LEC examined the hue, value, and chroma of the different soil horizon matrixes (dominant soil color) and redoximorphic features present within the test pits. The purpose of examining the soil color within the A or A_p horizon is to determine whether these horizons are rich in organic material and meet the criteria for dark or very dark. This distinction refers to the relative amount of organic matter within the soil horizon and may indicate the presence of saturated conditions during the growing season.

Within the B and/or C horizons, the soil color and color patterns may indicate the movement of iron and/or other minerals within the soil. The movement and/or concentration of iron and other minerals, such as manganese, may indicate hydric conditions persist during the growing season. Specifically, a soil matrix color with a relatively low chroma (chroma 2 or less) and high value (value 4 or more) due to wetness is often defined as a depleted matrix - the iron and/or other minerals have been removed or depleted from the soil due to groundwater fluctuations, soil saturation, and reduction. A soil with a depleted matrix due to wetness within the upper 20 inches will likely constitute a hydric soil.

3.2.5

Redoximorphic Features

During the soil evaluation, LEC documented the presence or absence of redoximorphic features within the soil sample. Redoximorphic features are changes in soil color and/or texture that contrast from the matrix color and dominant soil texture and include redox depletions (formerly referred to as “low-chroma mottles”), redox concentrations (formerly referred to as “high-chroma mottles”), nodules, concretions, pore linings, and

oxidized rhizospheres. Redoximorphic features form through the processes of reduction, translocation, and oxidation of Fe and Mn oxides when groundwater levels fluctuate near the soil surface. Commonly observed redoximorphic features include redox depletions, occurring when minerals in the soil are reduced or removed, and redox concentrations or soil masses, occurring when minerals accumulate. Less commonly observed redoximorphic features include nodules and concretions, which are hardened, cemented soil masses. Pore linings are localized areas of brightly colored soils located adjacent to a pore within the soil. Oxidized rhizospheres are a form of pore lining that occurs on the surface of live roots of certain plants.

4. Wetland Resource Areas

The Wetland Resource Areas associated with the site include BVW, Bank, Riverfront Area, and Bordering Land Subject to Flooding (BLSF) associated with the Charles River. A description of each of these resource areas is provided below.

4.1 Bordering Vegetated Wetlands

BVW is defined at 310 CMR 10.55(2) as: *freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes...Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants...The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist.*

A narrow band of forested wetlands occurs up-gradient of a portion of the Charles River north of the property. The canopy contains scattered silver maple (*Acer sacharinum*) and American elm (*Ulmus americana*), while the understory contains clusters of arrowwood (*Viburnum dentatum*), European buckthorn, and saplings from the canopy. The groundcover is sparsely vegetated with scattered patches of poison ivy.

LEC inspected soil conditions within the BVW area and generally observed a deep, dark, mucky topsoil (A horizon) with a soil matrix color of 10YR 2/1 to a depth of up to 20 inches. This topsoil is underlain by sapric organic soils. Redoximorphic concentrations were observed within 10 inches of the soil surface.

LEC flagging stations BVW-1 through BVW-3 demarcate the BVW boundary as it relates to the subject property.

4.2

Bank-Mean Annual High Water

The Mean Annual High Water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of point bars, changes in bank materials, or bank undercuts [310 CMR 10.58 (2) (a) 2].



Northeasterly view of Charles River and Bank

The Charles River is contained within relatively steep embankments measuring 1-2 feet high. The Bank-MAHW line was determined based on LEC's observation of multiple corroborating Bankfull Indicators, including moss lines, bank undercuts, and an abrupt transition between predominantly aquatic and terrestrial land, and is

generally coincident with the top-of-Bank. LEC flagging stations MAHW-1 through MAHW-5 demarcate the Bank-MAHW boundary as it relates to the subject property.

4.3

Riverfront Area

According to 310 CMR 10.58 2(a), *Riverfront Area is defined as the area of land between a river's mean annual high water line and a parallel line measured horizontally 200 feet away.*

Riverfront Area includes land within 200 feet of the MAHW line. The site's Riverfront Area is comprised of forested upland, lawn and landscaped areas, as well as the dwelling, deck, patio, and a portion of the driveway. Riverfront Area containing structure, pavement, and/or lacking topsoil is considered 'Degraded' in accordance with 310 CMR 10.58 (5).

4.4

Bordering Land Subject to Flooding

Bordering Land Subject to Flooding (BLSF) is an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes [310 CMR 10.57(2)(a)1].

According to the June 4, 2010 Federal Emergency Management Agency Flood Insurance Rate Map for Middlesex County, Massachusetts (Map Number: 25017C0552E), the northern half+/- of the property is located within Zone AE: *Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood...Base Flood Elevations determined*. The 1% Annual Chance Floodplain elevation occurs at elevation 12 (Datum NAVD 88), and approaches the flagstone patio and deck off the rear of the dwelling. The land occurring between the Charles River and elevation 12 is considered Bordering Land Subject to Flooding (Appendix A, Figure 2). The remainder of the property appears to be located within Zone X (shaded): *Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees by the 1% annual chance flood*.

5.

Proposed Construction Activities

5.1

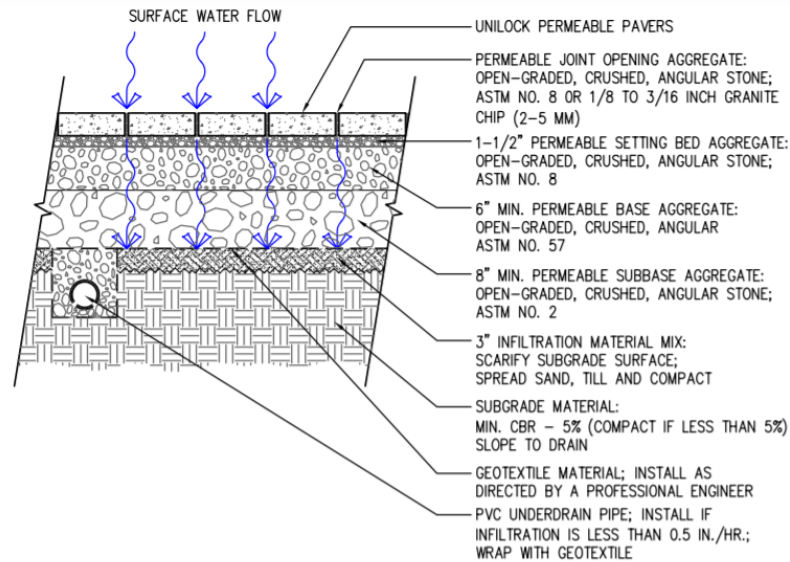
Addition and Site Appurtenances

The Applicants propose to demolish the existing 430± square-foot garage, and construct a 426± square-foot, 2-story addition in its place. The addition footprint will coincide with the existing garage. The proposed addition will be constructed atop a crawl space foundation, and a deck and pervious paver patio will be constructed off the rear of the addition, within the footprint of a flagstone patio (to be removed) and existing lawn.

The existing deck off the rear of the dwelling will be removed and replaced with a second pervious paver patio, and walkways and stairs will be reconfigured to provide access to the backyard from the patios. Further, the existing concrete walkway located along the eastern side of the dwelling will be removed. An attached storage shed measuring 32+/- square feet will be constructed between the existing dwelling and the pervious paver patio proposed behind the addition. This shed will displace roughly 1 cubic foot of flood storage within the BLSF.

The paved driveway will be removed and replaced with a pervious paver driveway. Block-style pervious pavers are proposed for the driveway and two patios, and will be underlain by a permeable base (representative detail provided below) to promote

infiltration of stormwater. The base will be comprised of 12 inches of crushed stone, 4 inches of clean gravel, and 2 inches of grit settling bed for the pavers.



9 LD—Low Infiltration Permeable Paver Section
CS—COM—PERM—T3

6. Mitigation Measures

The Applicants intend to implement erosion controls, reduce impervious area, and provide compensatory flood storage to mitigate for the proposed work in the Riverfront Area and BLSF. A description of each of these mitigating measures is provided below.

6.1 Erosion and Sedimentation Control

The Applicants propose to implement an erosion control program to protect adjacent resource areas from sedimentation during construction activities. The plan for the control of potential impacts to the adjacent Wetland Resource Areas is based on DEP guidelines, and will be comprised of a staked, 12-inch diameter, filtermitt. The erosion controls will be installed along the Limit of Work line to minimize any sedimentation that may occur during construction. All barriers will remain in place until disturbed areas are stabilized by vegetation. The location of the proposed erosion controls is shown on the *Site Plan* (Appendix B).

6.2

Impervious Area Reduction

The project design reduces impervious area by 501± square feet. This is largely accomplished by replacing the existing pavement and impervious patio with permeable pavers, and by eliminating the existing concrete walkway located along the eastern side of the dwelling. A table further detailing the impervious reduction is provided on the *Site Plan*.

6.3

Compensatory Flood Storage

In order to mitigate for the 1 square foot of floodplain displacement resulting from the proposed shed, the Applicants are removing the deck stairs (along with the deck) located off the rear of the dwelling. Removing these stairs will result in roughly 3 cubic feet of compensatory flood storage, resulting in a 3:1 ratio of compensatory flood storage to floodplain displacement.

7.

Regulatory Implications

7.1

Bordering Land Subject to Flooding

The Regulations at 310 CMR 10.57 (4) state that *work within BLSF shall conform to the following criteria:*

(a) *Bordering Land Subject to Flooding*

(1) *Compensatory storage shall be provided for all flood storage volume that will be lost as a result of the proposed work.*

The proposed shed will result in 1± cubic foot of flood storage displacement, while removal of the deck stairs will result in 3± cubic feet of compensatory flood storage. The *Site Plan* contains a table showing the proposed cut and fill within the 100-year floodplain.

(2) *Work within BLSF...shall not restrict flows so as to cause an increase in flood stage or velocity.*

Proposed work in the floodplain will not restrict flows or cause an increase in flood stage.

(3) *Work within BLSF shall not impair its capacity to provide important wildlife habitat functions.*

According to 310 CMR 10.57 (4) (a) 3, alteration of less than 10% or 5,000 square feet of BLSF shall *not* be deemed to impair its capacity to provide important wildlife habitat functions. The proposed work will alter approximately 362 square feet of BLSF, thereby not exceed the above threshold.

(b) Protection of Rare Wildlife Species

(1) Notwithstanding the provisions of 310 CMR 10.57(4)(a) or (b), no project may be permitted which will have any adverse effect on specified wildlife habitat sites of rare vertebrate or invertebrate species.

There are no specified wildlife habitat sites of rare vertebrate or invertebrate species located on the project site; therefore, the proposed project will have no adverse effect on any such sites.

7.2

Riverfront Area

The majority of the proposed work, including the addition, deck, patios, and a portion of the driveway, etc., will be conducted within 'Previously Developed' Riverfront Area in accordance with 310 CMR 10.58 (5). The performance standards outlined therein and the project's compliance with those standards are provided below.

The proposed patios, deck, and shed are considered exempt or grandfathered activities in accordance with 310 CMR 10.58 (6) (b) (which refers the reader to 310 CMR 10.02 (2) (b) 1.).

Redevelopment Within Previously Developed Riverfront Areas: Restoration and Mitigation. *Notwithstanding the provisions of 310 CMR 10.58 (4) (c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation, or expansion of existing structures...A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil...Work to redevelop previously developed riverfront area shall conform to the following criteria:*

- (a) *At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131, s. 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58 (4) shall be met.*

The proposed activities will improve the Riverfront Area function and value by reducing impervious area by 501± square feet.

- (b) *Stormwater management is provided according to standards established by the Department.*

DEP has no stormwater management standards for single-family dwellings, and the Applicants propose to reduce impervious area by 501± square feet.

- (c) *Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less....*

The proposed addition will be located greater than 100 feet from the Bank-MAHW Line and further from the Charles River compared to the existing dwelling and deck.

- (d) *Proposed work, including expansion of structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58 (5) (f) or (g).*

The addition footprint is contained completely within the footprint of the existing garage, and located farther from the Charles River compared to the remainder of the dwelling and deck.

- (e) *The area of proposed work shall not exceed the amount of the degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58 (5) (f) or (g).*

The entire footprint of the proposed addition is contained within a degraded area.

- (f) *When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58 (5) (c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary...*

No restoration in accordance with 310 CMR 10.58 (f) or (g) is proposed.

8. Summary

On behalf of the Applicants, Christopher and Rose Zevitas, LEC is filing this NOI Application and *Wetland Resource Area Analysis* with the Watertown Conservation

Commission for the construction of an addition to an existing single-family dwelling and associated site appurtenances at 93 California Street in Watertown, Massachusetts. Portions of the proposed activities will occur within the Riverfront Area and BLSF associated with the Charles River. As part of this filing, the Applicants propose to implement mitigating measures, including a reduction of impervious surface, compensatory flood storage, and the installation of erosion controls. The existing conditions and proposed activities are depicted on the enclosed *Site Plan of Land in Watertown, MA* dated September 15, 2021, revised through October 4, 2021 and February 3, 2022 prepared by Everett M. Brooks Co., (*Site Plan*, Appendix B).

The proposed activities conform to the performance standards enumerated in the *Massachusetts Wetlands Protection Act* (M.G.L., c.131, s.40), its implementing Regulations (310 CMR 10.00), and the *Watertown Wetlands Ordinance* (Chapter XV), and its *Rules and Regulations*. The Applicants request that the Watertown Conservation Commission issue an Order of Conditions approving the activities proposed herein.

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep

Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00),
www.state.ma.us/dep

Massachusetts Natural Heritage and Endangered Species Program Atlas of Estimated Habitat of State-listed Rare Wetlands Wildlife. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, Route 135, Westborough, MA 01581, www.state.ma.us/dfwele/dfw

Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, A Handbook*. 89 pp.

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map, Middlesex County, Massachusetts, Middlesex County, June 4, 2010.

New England Hydric Soils Technical Committee. 2019, 4th ed., *Field Indicators for Identifying Hydric Soils in New England*, New England Interstate Water Pollution Control Commission, Wilmington, MA. P. 76

Reed, P.B. 1988. *National List of Plant Species that Occur in Wetlands: 1988 Massachusetts*. U.S. Department of the Interior, Fish and Wildlife Service. NERC-88/18.21

Watertown Conservation Commission, *Watertown Wetlands Ordinance* (Chapter XV). City of Watertown, Massachusetts, February 1987, Revised through September 2008.

Watertown Conservation Commission, *Rules and Regulations for the Administration of the Watertown Wetlands Ordinance*.

Appendix A

Figure 1: USGS Topographic Quadrangle & NHESP Estimated Habitat Map

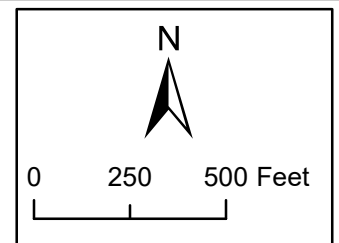
Figure 2: FEMA Flood Insurance Rate Map

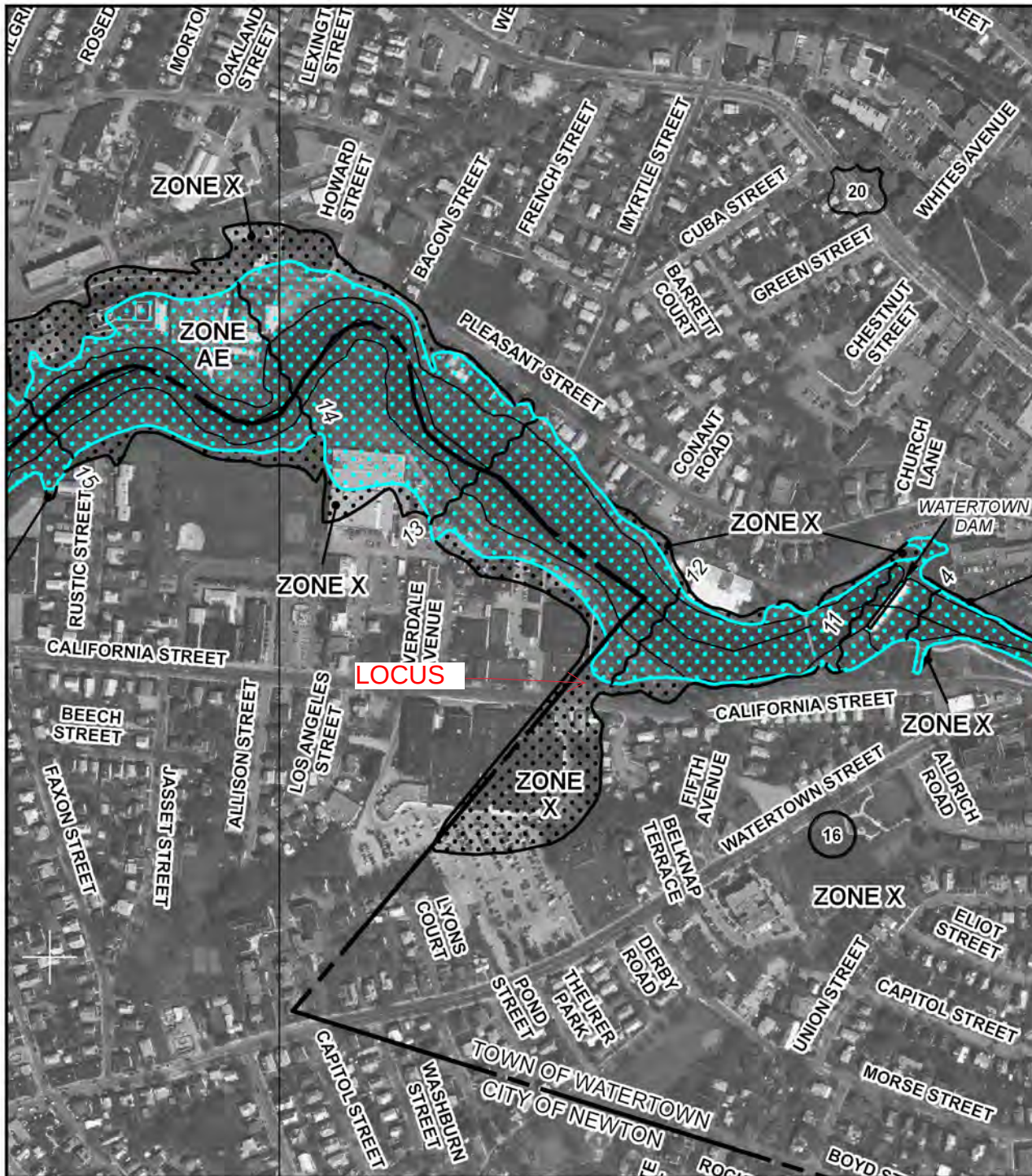
Figure 3: MassGIS Orthophoto



Figure 1: USGS Topographic Map
93 California Street
Watertown, MA

February 2, 2022







MAP SCALE 1" = 500'

250 0 500 1000
150 0 150 300
FEE

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0552E

FIRM

FLOOD INSURANCE RATE MAP

**MIDDLESEX COUNTY,
MASSACHUSETTS
(ALL JURISDICTIONS)**

PANEL 552 OF 656
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NEWTON, CITY OF	250208	0552	E
WALTHAM, CITY OF	250222	0552	E
WATERTOWN, TOWN OF	250223	0552	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
25017C0552E

EFFECTIVE DATE
JUNE 4, 2010

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

Figure 2: FEMA Flood Insurance Rate Map Page 47 of 174

LEGEND



SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.



FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



ZONE X

OTHER FLOOD AREAS

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



ZONE X

OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D

Areas in which flood hazards are undetermined, but possible.



COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS



OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.



1% annual chance floodplain boundary



0.2% annual chance floodplain boundary



Floodway boundary



Zone D boundary



CBRS and OPA boundary



Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.



Base Flood Elevation line and value; elevation in feet*

(EL 987)

Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988



Cross section line



Transect line

87°07'45", 32°22'30"

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

2476000mN

1000-meter Universal Transverse Mercator grid values, zone 19

600000 FT

5000-foot grid values: Massachusetts State Plane coordinate system, Mainland zone (FIPZONE 2001), Lambert Conformal Conic projection

DX5510 x

Bench mark (see explanation in Notes to Users section of this FIRM panel)

● M1.5

River Mile

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP

June 4, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL



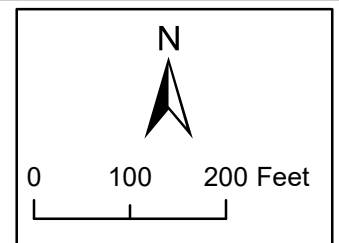
Environmental Consultants, Inc.

Wakefield, MA
781.245.2500

www.lecenvironmental.com

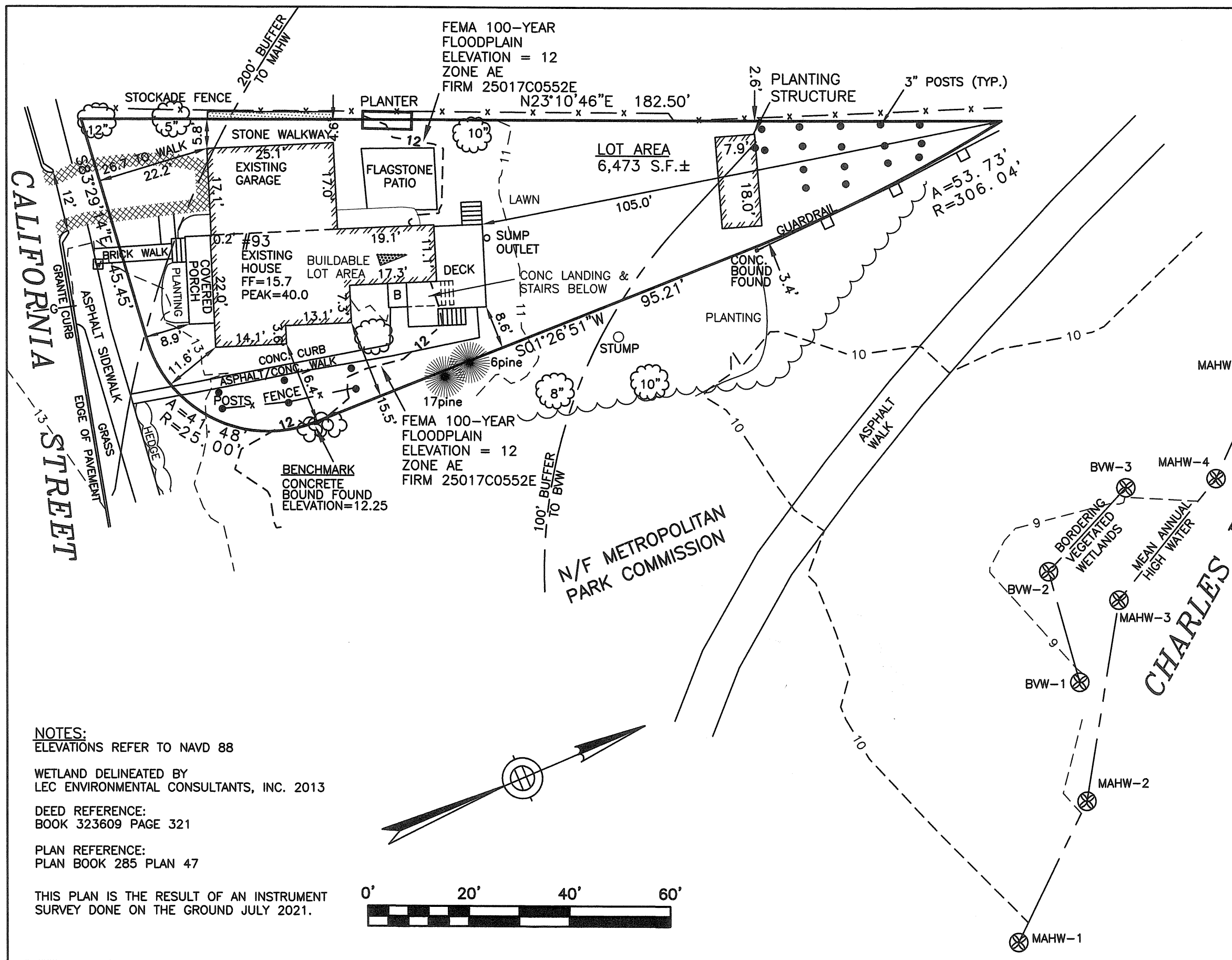
Figure 3: MassGIS Orthophoto & NHESP Map
93 California Street
Watertown, MA

February 2, 2022



Appendix B

Site Plan of Land in Watertown, MA, dated September 15, 2021
revised through October 4, 2021 and February 3, 2022
prepared by Everett M. Brooks Co.



ESTABLISHED 1916

EMB

EVERETT M. BROOKS CO.

SURVEYORS & ENGINEERS

49 LEXINGTON STREET
WEST NEWTON, MA 02465

(617) 527-8750
(617) 332-1578 FAX
info@everettbrooks.com



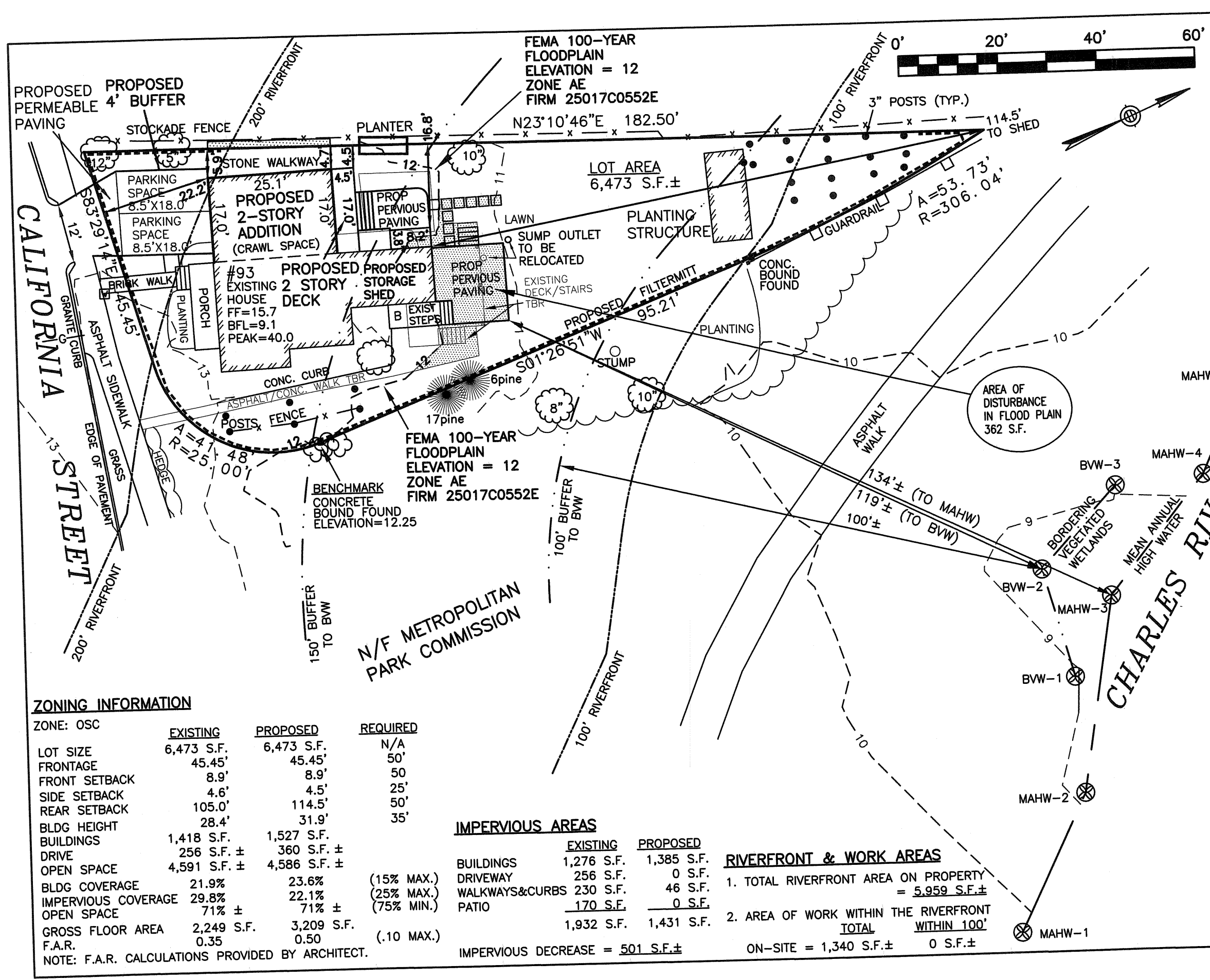
**PLAN OF LAND IN
WATERTOWN, MA**

93 CALIFORNIA STREET
EXISTING CONDITIONS

SCALE: 1 IN. = 20 FT.
DATE: SEPTEMBER 15, 2021
DRAWN: JF/ES/LNS
CHECK: BB

REVISIONS:
10/4/21 | 11x17 size | LNS

PROJECT NO. 24044 SHEET 1 OF 3



ESTABLISHED 1916

EMB

EVERETT M. BROOKS CO.
SURVEYORS & ENGINEERS

49 LEXINGTON STREET
WEST NEWTON, MA 02465

(617) 527-8750
(617) 332-1578 FAX
info@everettbrooks.com

CUT/ FILL IN FLOODPLAIN

CUT:
EXISTING DECK POSTS & STEPS = 3 C.F. ±
TOTAL = 3 C.F. ±

FILL:
PROPOSED SHED = 1 C.F. ±
TOTAL = 1 C.F. ±

BRUCE
BRADFORD
No. 38376
PROFESSIONAL
LAND SURVEYOR
2/3/22

PLAN OF LAND IN WATERTOWN, MA

93 CALIFORNIA STREET
PROPOSED ADDITIONS

SCALE: 1 IN. = 20 FT.
DATE: SEPTEMBER 15, 2021
DRAWN: JF/ES/LNS
CHECK: BB

REVISIONS:

10/4/21	11x17 size	LNS
2/3/22	area of disturbance	LNS

PROJECT NO. 24044 SHEET 2 OF 3

ZONING INFORMATION

ZONE: OSC	EXISTING	PROPOSED	REQUIRED
LOT SIZE	6,473 S.F.	6,473 S.F.	N/A
FRONTAGE	45.45'	45.45'	50'
FRONT SETBACK	8.9'	8.9'	50'
SIDE SETBACK	4.6'	4.5'	25'
REAR SETBACK	105.0'	114.5'	50'
BLDG HEIGHT	28.4'	31.9'	35'
BUILDINGS	1,418 S.F.	1,527 S.F.	
DRIVE	256 S.F. ±	360 S.F. ±	
OPEN SPACE	4,591 S.F. ±	4,586 S.F. ±	
BLDG COVERAGE	21.9%	23.6%	(15% MAX.)
IMPERVIOUS COVERAGE	29.8%	22.1%	(25% MAX.)
OPEN SPACE	71% ±	71% ±	(75% MIN.)
GROSS FLOOR AREA	2,249 S.F.	3,209 S.F.	
F.A.R.	0.35	0.50	(.10 MAX.)

NOTE: F.A.R. CALCULATIONS PROVIDED BY ARCHITECT.

IMPERVIOUS AREAS

	EXISTING	PROPOSED
BUILDINGS	1,276 S.F.	1,385 S.F.
DRIVEWAY	256 S.F.	0 S.F.
WALKWAYS&CURBS	230 S.F.	46 S.F.
PATIO	170 S.F.	0 S.F.
	1,932 S.F.	1,431 S.F.

IMPERVIOUS DECREASE = 501 S.F.±

RIVERFRONT & WORK AREAS

- TOTAL RIVERFRONT AREA ON PROPERTY = 5,959 S.F.±
- AREA OF WORK WITHIN THE RIVERFRONT
TOTAL WITHIN 100'
ON-SITE = 1,340 S.F.± 0 S.F.±

LEGEND

- 

UTILITY POLE
- 

WATER GATE
- 

HYDRANT
- 

GAS GATE
- 

SEWER MANHOLE
- 

DRAIN MANHOLE
- 

CATCH BASIN
- 

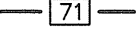
TREE
- 

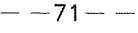
LIGHT POLE
- 

SIGN
- TBR

TO BE REMOVED
- TBA

TO BE ABANDONED
- 71.4 X

SPOT ELEVATION
- 

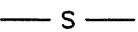
PROPOSED CONTOUR
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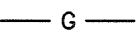
EXISTING CONTOUR
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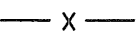
DRAIN LINE
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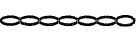
ROOF DRAIN
- 

FOUNDATION DRAIN
- 

WATER LINE
- 

SEWER LINE
- 

GAS LINE
- 

FENCE
- 

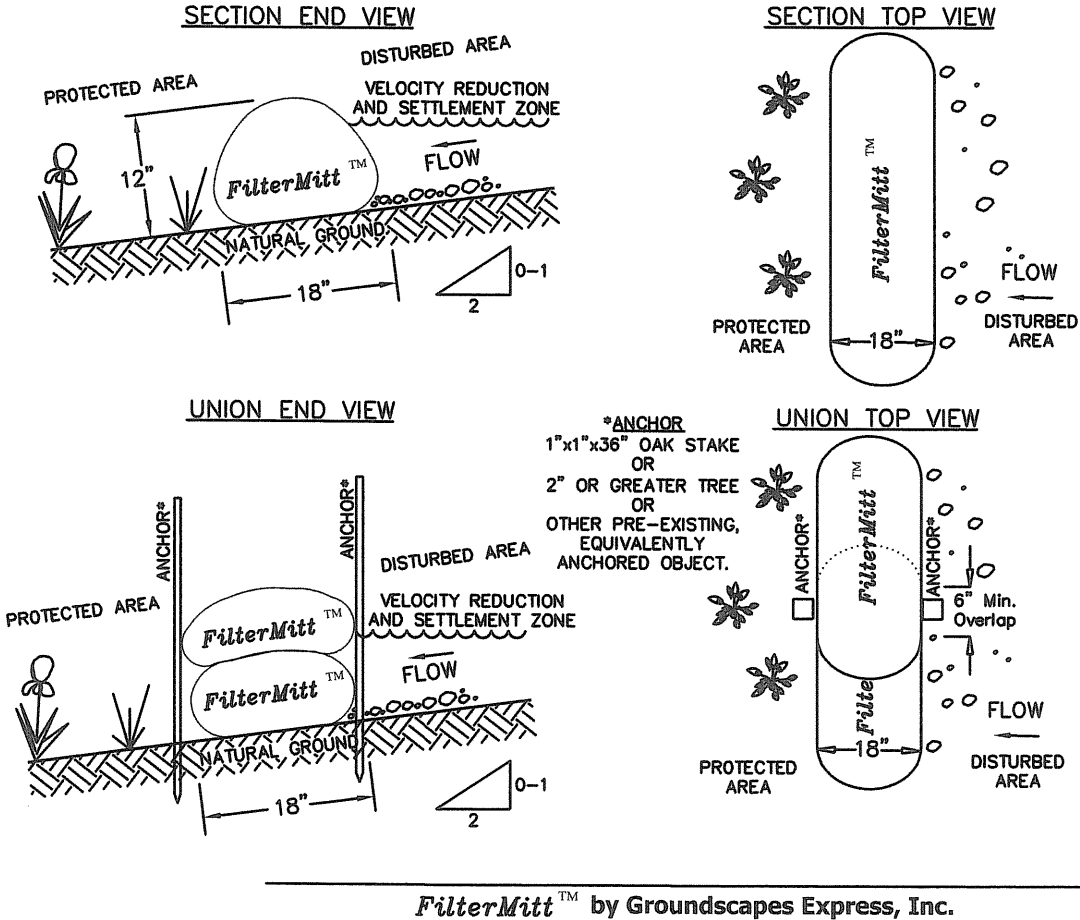
STONEWALL
- 

HEDGE
- 

TREE LINE
- 

FOUND IRON PIPE
- 

WETLAND FLAG



FilterMitt™ by Groundscapes Express, Inc.

2:1 SLOPES OR LESS
SILTATION CONTROL DETAIL
N.T.S.

FilterMitt™ COMPONENTS:
OUTSIDE CASING: 100% organic hessian.
FILLER INGREDIENT: *FiberRoot Mulch™*
• A blend of coarse and fine compost and shredded wood.
• Particle sizes: 100% passing a 3" screen; 90–100% passing a 1" screen; 70–100% passing a 0.75" screen; 30–75% passing a 0.25" screen.
• Weight: Approx. 850 lbs./cu.yd. (Ave. 30 lbs./l.f.)

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www.groundscapesexpress.com
or contact us at:
Groundscapes Express, Inc.
P.O. Box 737
Wrentham, MA 02093
(508) 384-7140

FilterMitt™ INSTALLATION:
With the newest technology and equipment, sections can be constructed on site in lengths from 1' to 100'.
Sections can also be delivered to the site in lengths from 1' to 8'.
The flexibility of FilterMitt™ allows it to conform to any contour or terrain while holding a slightly oval shape at 12" high by 18" wide.
Where section ends meet, there shall be an overlap of 6" or greater. Both sides shall be anchored (oak stakes, trees, etc.) to stabilize the union.

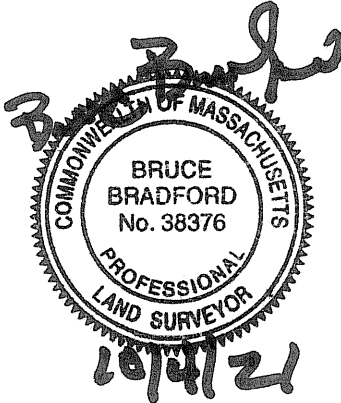
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EVERETT M. BROOKS CO.
SURVEYORS & ENGINEERS

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WEST NEWTON, MA 02465

(617) 527-8750
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info@everettbrooks.com



PLAN OF LAND IN
WATERTOWN, MA

93 CALIFORNIA STREET
LEGEND & DETAIL

SCALE: 1 IN.= 20 FT.
DATE: SEPTEMBER 15, 2021
DRAWN: JF/ES/LNS
CHECK: BB

REVISIONS:
10/4/21 | 11x17 size | LNS
PROJECT NO. 24044 SHEET 3 OF 3

APPENDIX A

Whitney Hill – A Proposal for Development of a Stewardship Plan

Phase 1 General public meeting, to hear citizen opinion about the future of Whitney Hill, and citizen response to the Conservation Commission's proposal for that future. Meetings thereafter to be held periodically as needed, preceded by adequate publicity promulgated through official Town announcement, press notice and communication directly with individual abutters.

Phase 2 Inventory (~ two-year data collection):

Site history from earliest records, investigation of site natural history.

History

- Written references

- Maps (e.g. Sanborn property maps)

- Aerial imagery ca. 1920s to present

- Tree aging by selective core borings

Site ecology

- Geology (at least surficial characteristics)

- Hydrology (e.g. catchment identification)

- Soils (e.g. organic content, pH, major nutrients)

Vegetation

- Major strata (trees, saplings, shrubs, vines, herbs-seedlings)

- Dominant species (size, distribution)

- Invasive exotic species (incl. ranking by degree of threat)

- Others (e.g. mosses, fungi)

- Standing dead trees

- Downed dead wood

- Creation of site-specific herbarium to facilitate consistent identification

Animals

- Birds (species, seasonality, breeding observations)

- Mammals (species observations incl. baiting, tracking, live trapping)

Invertebrates

- Decomposers in topsoil and organic debris

- Pest species (e.g. Winter Moth periodicity, Asian Long-horned Beetle watch)

- Butterflies, dragonflies

- Nocturnal insects by night-lighting

Human use

- Tracks ("desire lines"), major and minor

- Waste disposal (e.g. gardening and construction debris, stump dumping, littering)

- Other

- Adverse impacts (e.g. soil erosion, disturbance of natural vegetation, spread of invasive species).

Mapping

- Topography
- Location of major invasive species zones
- Location of long-term monitoring quadrats
- Location of existing human tracks

Aesthetics

- Identification of landscape value (e.g. autumn foliage, picturesque trees, unusual wild flowers, tranquility), with heavy reliance on citizen input.
- Photographic record of these assets

Identification and refinement of educational opportunities to pursue

Phase 3 Analysis of findings: establishment of an ecological baseline for study of future change, with provision for management as necessary for preservation of its general character.

- Listing of the site's most important aspects
- Management concerns
- Management resources (e.g. individual specialists, volunteer groups, school programs) available to help solve perceived problems.
- Management solutions

Phase 4 Stewardship goals and objectives.

Goals: Overall purpose (e.g. enhance public understanding and appreciation of the site, establish the basis of long-term ecological research, reduce unplanned disturbance, control invasive plants).

Objectives: Specific tasks to achieve the goals in measurable steps (e.g. interpretative labeling, ranking of invasive species and zones by degree of threat for priority control).

Stewardship Chart: Assignment of responsibility, time frame, and budget for achieving each objective.

References: Sources of supporting information

Appendices: Additional useful information

Whitney Hill Park Annual Report, 2021

To: City Manager, City Council
From: Watertown Conservation Commission
Date: 5 January 2022

Background: On 8 January 2013 the Watertown Town Council, by unanimous vote, adopted Resolution No. 3 (R-2013-31), A Resolution Preserving the Property Known as Whitney Hill Park. The resolution directs the Watertown Conservation Commission (WCC) to submit "...a recommended plan for maintenance and educational activities" for Whitney Hill Park. It has proven useful for the WCC to draft and approve the final text of this report in time for its February session, after which it is disseminated not only to the relevant City officials but also to Park abutters for general public discussion at the WCC's regular March session. For a comprehensive long-term outline of the WCC's response to this directive, see Appendix A herewith, Whitney Hill – A Proposal for Development of a Stewardship Plan.

SUMMARY

Activities in 2021: Limited research with Watertown High School (WHS) student volunteers, ongoing collaboration with other persons regarding Park management. As in 2020, WHS was operating under the complications imposed on ordinary teaching by the COVID-19 pandemic.

- On-site inspection and discussion with Tree Warden Greg Mosman.
- Discussions with Student Conservation Association (SCA) regarding soil erosion control.
- On-site inspection and discussion with botanist Peter Del Tredici.
- Routine annual inspection and maintenance of the markings for 32 sample plot centers.
- Data collection (trees) by WCC and WHS student volunteer team.

Plans for 2022: As the nature and extent of WHS participation and WCC capability in the near future remain in doubt, envisaged research comprises only the essential data collection needed to complete a repeat survey of the 2015-2016 woody vegetation survey, which serves as the original database against which to measure all subsequent changes.

- Routine annual inspection and maintenance of the markings for 32 sample plot centers.
- Completion of tree survey in early spring by WCC and other citizen volunteers.
- Survey of the sapling-shrub-liana stratum to complete the woody vegetation survey.
- To accomplish the latter survey, recruitment of volunteers including WHS students in summer.
- Installation of a third information sign at junction of Marshall Street and Oliver Road.
- Development of proposal for partial fencing of Park boundary.
- Furtherance of search for consultancy and project regarding soil erosion control and related footpath management.

FULL REPORT

Activities in 2021: A second year of COVID-19-related exigencies discouraged serious planning of term-time research in collaboration with WHS students. Such research was accordingly limited to that of student volunteers in summer, working outside the WHS 2021 biology curriculum.

An on-site inspection (9 March) by then-Tree Warden Greg Mosman and the WCC (Fairbairn) led to the conclusion that there was no need for immediate pruning or other cutting as a safety measure to protect Park footpath users from windfall events.

In April, the WCC (Fairbairn) began discussions with the non-profit Student Conservation Association (thesca.org) on the possibility of developing an SCA project to manage and/or realign selected footpath segments in the interest of countering soil erosion. It was agreed that the SCA should inspect the Park later in the year to ascertain the feasibility and logistics of such a project. The inspection remains to be made.

On 24 May, the WCC (Fairbairn) walked the Park with botanist Peter Del Tredici to discuss desirable management measures.

Over 6 days in June, the WCC (Fairbairn) inspected all 32 sample plot centers and refreshed their markings. On 26 June, data collection on sample plot trees was begun by the WCC (Fairbairn, O'Connell). Data collection on trees continued on 5 mornings in July with 3 WHS student volunteers (Brianna Hume, Eden Salley, Adrina D'Arrigo) under WCC supervision (Fairbairn), and on 2 other mornings (Fairbairn alone). This collaboration, and indeed all data collection, came to a premature end in early August due to onset of the supervisor's acute bursitis. Data had been collected for just over 50% of the 32 sample plots.

Despite its limited aim and abortive ending, the 2021 research has provided an experience on which it should prove possible to build. Anticipating the continued difficulty of incorporating any field work of this kind in the WHS biology department's term-time curriculum, the WHS (Kelly Hannon) and WCC (Fairbairn) identified 4 interested students for summer vacation volunteer work in partial fulfillment of their Community Service requirement prior to graduation. In addition, 2 adults volunteered research time: a WCC member (O'Connell) to gain familiarity with the research protocol and practice, and a citizen from the neighborhood who responded to the WCC's call for such involvement.

The ideal research effort envisaged the simultaneous deployment of 2 teams comprising 2 or 3 persons each, working on adjacent sample plots to facilitate WCC supervision. In practice, there were enough volunteers to form 2 teams on only one occasion. In retrospect, our experience indicates the need to recruit a slightly higher number of volunteers for vegetation sampling. One of the 4 students who had expressed an interest withdrew without notice or explanation. The remaining 3 were free to work only sporadically on the same mornings (Fridays and Saturdays) when they had agreed they would be most likely available over summer. Rainy weather also disrupted the schedule. An accidental fall prevented the adult citizen volunteer from participating at all, and bursitis from belatedly diagnosed Lyme Disease finally put the WCC supervisor (Fairbairn) out of action, bringing the whole exercise to an end for the year.

Plans for 2022: The monitoring and maintenance of the 32 sample plot centers is an annual routine to facilitate their optical detection. This exercise comprises primarily the renewal of the blue surveyor's tape hung near the PVC stake. Each stake's 2-part numerical code (Transect No. – Plot No.) needs occasional fresh inking with a coarse felt-tip pen. Each stake's steel rebar core serves as a last-resort magnetic marker for search by metal detector.

Completion of the Park's tree survey should be attempted by the WCC (Fairbairn *et al.*) and other adult volunteers in early spring, before diameter measurements diverge any further from those recorded in 2021. Since the combined 2021-2022 data stand in time a significant distance from the original baseline data of 2015, comparison of one cluster with the other will prove meaningful. Next survey – *ca.* 2027.

Completion of the Park's woody vegetation survey requires a sampling of the sapling-shrub-liana stratum, an exercise for which volunteer labor will be sought, using some combination of students for Community Service credit and interested citizens, under WCC supervision. These understory data are especially important in monitoring several invasive species changes. This exercise can be combined with the monitoring of Red-backed Salamander cover boards.

The third public entrance to the Park, on its eastern boundary where Marshall Street meets Oliver Road, needs installation of a sign to remind visitors that City park rules apply here, as elsewhere in Watertown. Basic information for explicit mention: Dogs On Leash, Keep To Trails, Disturb No Living Thing.

Although Park boundaries were surveyed in 2015, these need ground-truth recognition wherever abutting residential properties have historically treated the Park land as a destination for garden wastes and inorganic debris. This need includes the entire southern boundary from Oliver Road westward to Marlborough Terrace. Peter Del Tredici suggests installation of a 3-tier fence of Black Locust (*Robinia pseudo-acacia*) poles supported by 6-foot posts of the same wood buried to a depth of 2 feet; intentionally not an insurmountable barrier, but a definitive separator between public and private land.

The Student Conservation Association's proposed on-site inspection of the Park should be scheduled and carried out as soon as possible, with ensuing negotiations for a possible contract to effect soil erosion control and related footpath maintenance, including realignment where necessary. The previously proposed mapping upgrade of the Park's footpath system can be deferred until any changes resulting from the abovementioned work have been duly implemented.

It must be noted that most of the WCC's work involving Whitney Hill Park has been carried out by WCC member Patrick Fairbairn, whose retirement from the WCC in February 2022 indicates the need for increased commitment by other WCC members, albeit with some reduction in current goals and activities. Fairbairn undertakes to continue the educational aspects of Park activities for at least another year, leaving practical maintenance and management activities to the initiative of others. The long-term institutional partnership of the WCC and the school system needs sustenance and encouragement, as does the cultivation of a routine "team spirit" between the WCC and Watertown Department of Public Works in all matters regarding Park management.



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LETTER FROM CITY MANAGER

Watertown is a vibrant community where people from diverse backgrounds and cultures come together and thrive. Our rich history of evolving industry and innovation informs a present commitment to developing equitably and sustainably. As challenges emerge, we face them together.

Climate change is the most pressing issue of our time, and we are already beginning to experience some of the impacts today. In Watertown, acting on climate change means preserving our unique neighborhoods and natural resources, while also enabling growth, technological innovation, and community well-being. *Resilient Watertown*, our Climate & Energy Plan, is a unified vision that outlines goals, strategies, and actions to drastically reduce our contribution to climate change and enhance our resilience to its impacts.

Resilient Watertown is the result of a collaborative process. We are grateful for the countless hours spent by members of the public, dedicated volunteers, and City staff for their contributions and active participation in meetings, workshops, surveys, and more. I am proud to join them in advancing Watertown's commitment to ensuring a sustainable and resilient future for all those who live, work, and play in Watertown.

Sincerely,

Tom Tracy

Watertown Acting City Manager

LETTER FROM CITY COUNCIL

We are pleased to support Watertown's Climate & Energy Plan, *Resilient Watertown*. This plan demonstrates Watertown's dedication to addressing climate change, a formidable challenge that we are prepared to face together.

Watertown is a community long committed to leadership and stewardship. From our state designation as a Green Community over ten years ago to our commitment to supporting the transition to 100% renewable energy, we are already acting boldly to address climate change.

Resilient Watertown takes this effort a step further in ensuring our long-term sustainability and resilience. The Plan identifies opportunities for lasting improvements here in Watertown, by reducing climate change-causing greenhouse gas emissions and other pollutants and improving quality of life for all residents in the face of extreme events and prolonged stressors.

We would like to thank the Watertown community and all those who participated in the development of this plan for their dedication to climate action. We look forward to working together to implement our Climate & Energy Plan.

Sincerely,

Watertown City Council

ACKNOWLEDGEMENTS

Resilient Watertown was developed through a collaborative effort between municipal staff and the community with support from our consultant team.

Municipal Staff (Core Team)

Steve Magoon	Assistant City Manager; Director, Community Development & Planning
Laurel Schwab	Senior Environmental Planner
Laura Weiner	Senior Transportation Planner
Ed Lewis	Energy / Project Manager; Interim Director, Department of Public Buildings
Greg St. Louis	Superintendent, Department of Public Works

Stakeholder Advisory Group

Buildings & Energy Working Group

Chair: Brian Hebeisen, WE3C

Members:

Dante Angelucci	Alexandria Real Estate Equities
Ed Lewis	Department of Public Buildings
Marcus de Castro	Boylston Properties
Michael Lara	Watertown Housing Authority
Pat Rathbone	Watertown Faces Climate Change
Rick Malmstrom	Alexandria Real Estate Equities
William C. (Bill) Clark	Resident and climate science expert

Transportation & Mobility Working Group

Chair: Laura Wiener, Senior Transportation Planner

Members:

Amy Plovnick	Bicycle & Pedestrian Committee
Andy Compagna	Bicycle & Pedestrian Committee
Bridger McGaw	Athena Health
Doug Orifice	Watertown Business Coalition
Eric Kemp-Benedict	Resident and climate science expert
Ernesta Krackiewicz	Watertown Faces Climate Change

Natural Resources Working Group

Chair: Ellen Menounos, WE3C

Members:

Bob DiRico	Department of Public Works
David Meshoulam	Teens for Trees
Dira Johanif	Charles River Watershed Association
Greg Mosman	Former Tree Warden
Janet Buck	Stormwater Advisory Committee/Planning Board
Leo Martin	Conservation Commission
Libby Shaw	Trees for Watertown
May Cort	Sunrise Watertown
Paul Kwiatkowski	Mt. Auburn Cemetery
Sarah Moylan	Arsenal Yards

Infrastructure & Waste Management Working Group

Chair: Vincent Coljee, Resident and climate science expert

Members:

Greg St. Louis	Department of Public Works
Julie Wormser	Mystic River Watershed Association
Tom Watkins	Department of Public Works

Public Health & Community Preparedness Working Group

Chair: Larry Ramdin, Department of Public Health

Members:

Anne-Marie Gagnon	Council on Aging
Dr. Kimberlee Henry	Watertown Public School
Jan Singer	Watertown Community Foundation
Kim Charlson	Perkins School for the Blind
Robert Quinn	Watertown Fire Department
Sabrina Lopez	Sunrise Watertown
Stephanie Venizelos	Department of Public Health

Consultant Team: Kim Lundgren Associates, Inc.



ACRONYMS

CPC:	Community Preservation Committee
CRWA:	Charles River Watershed Association
DCDP:	Watertown Department of Community Development and Planning
DCR:	Massachusetts Department of Conservation and Recreation
DEP:	Massachusetts Department of Environmental Protection
DPB:	Watertown Department of Public Buildings
DPH	Department of Public Health
DPW:	Watertown Department of Public Works
EVs:	electric vehicles
GHGs:	greenhouse gases/greenhouse gas emissions
HFCs:	hydrofluorocarbons
MBTA:	Massachusetts Bay Transportation Authority
SWAC:	Stormwater Advisory Committee
WE3C:	Watertown Environment and Energy Efficiency Committee
WEC:	Watertown Electricity Choice
WHA	Watertown Housing Authority
WTMA:	Watertown Transportation Management Association



Watertown Free Public Library improves the quality of life in the community, providing valuable services and resources to all residents.



Watertown is committed to taking action on climate change while preserving and strengthening our unique neighborhoods, natural resources, and diverse communities. *Resilient Watertown*, our Climate & Energy Plan, outlines 62 priority actions to ensure Watertown is on a path to a net zero, resilient future

PLAN AT A GLANCE

Cross-Cutting Actions

Goal 1: Achieve synergies across multiple Plan Element goals and enable implementation of all strategies and actions

- » Strategy CC1: Add staff capacity and resources to the Energy Manager's Office, the DPW Forestry Division, and the Planning Department
- » Strategy CC2: Create an overarching *Resilient Watertown* Outreach & Education Campaign
- » Strategy CC3: Develop assistance mechanisms and resources for renters and landlords (regarding energy efficiency, EV charging, etc.)
- » Strategy CC4: Collaborate regionally with other communities and entities
- » Strategy CC5: Explore establishing a Transportation Infrastructure Fund with funding from developers and the City to implement recommendations of this Plan
- » Strategy CC6: Encourage and require sustainable, climate-resilient development patterns





Buildings & Energy

Goal 1: By 2050, 100% of electricity is sourced from renewables

» **Strategy BE1: Accelerate the transition to renewable energy city-wide**

- ◆ Action BE1.1: Expand and strengthen the existing rooftop solar ordinance
- ◆ Action BE1.2: Investigate implementing commercial PACE and other innovative financing programs
- ◆ Action BE1.3: Develop and implement a targeted outreach campaign focused on recruiting for Watertown Electricity Choice program and installing rooftop solar on homes and businesses



Goal 2: By 2050, Watertown's buildings are efficient, resilient, and carbon neutral

» **Strategy BE2: Require the highest standards for efficiency and carbon neutrality for new construction and major renovations**

- ◆ Action BE2.1: Adopt the State's Net Zero Stretch Code as soon as permissible
- ◆ Action BE2.2: Enact fees for residential gas hookups to promote electrification
- ◆ Action BE2.3: Promote workforce development and training programs for net zero construction
- ◆ Action BE2.4: Work with municipalities in the region to eliminate fossil fuels (e.g., identifying mechanisms like home rule petition)
- ◆ Action BE2.5: Include the use of Whole Building LCA as a condition for granting permits for applicable developments and work towards setting progressively tighter standards

» **Strategy BE3: Electrify existing buildings running on fossil fuels**

- ◆ Action BE3.1: Investigate and support development of geo-microgrid pilot programs
- ◆ Action BE3.2: Develop and implement a targeted outreach campaign focused on promoting heat pumps for residential homes on oil heat and natural gas (e.g., zero-interest loans for heat pumps)
- ◆ Action BE3.3: Incentivize the transition to heat pumps through HEAT Smart or other programs

» **Strategy BE4: Enhance and actively promote deep retrofit and aggressive conservation programs**

- ◆ Action BE4.1: Enact a Building Energy Use Disclosure Ordinance
- ◆ Action BE4.2: Provide technical assistance for clean energy, energy efficiency, and financing activities (e.g., home energy guidance, collaborating on retrofits of Watertown Housing Authority properties)
- ◆ Action BE4.3: Upgrade major existing municipal facilities to achieve net zero energy performance
- ◆ Action BE4.4: Develop a bulk procurement and purchasing program to support smaller commercial properties with deep energy retrofits
- ◆ Action BE4.5: Incentivize large grocery stores and buildings with significant refrigeration to get certified in EPA Green Chill program to reduce HFCs



Transportation & Mobility

Goal 1: By 2050, non-vehicular transportation options are accessible, affordable, and connected throughout Watertown, and personal vehicular travel miles are reduced by 50%

- » Strategy TM1: Enhance and actively promote zero-carbon mobility options for travel
 - ◆ Action TM1.1: Install well-shaded bike and pedestrian-only infrastructure for protected and off-street connections in densely developed areas and areas of high traffic volume
 - ◆ Action TM1.2: Collaborate regionally to increase and improve safe, interconnected pathways for bicyclists and pedestrians
 - ◆ Action TM1.3: Increase use of transit, bike, and pedestrian travel through outreach, incentives, and policy changes (e.g., decreasing zoning requirements for parking, traffic calming, safe routes to schools)
 - ◆ Action TM1.4: Work with MBTA to improve accessibility of routes, stops, and CharlieCard purchasing stations within Watertown, and electrification of the bus fleet
 - ◆ Action TM1.5: Implement bus prioritization projects such as dedicated lanes and signal priority
 - ◆ Action TM1.6: Develop an integrated, publicly accessible electric transit system that connects to MBTA and other points of interest not accessible by MBTA (e.g., expanding and/or promoting WTMA)

Goal 2: By 2050, 80% of all vehicles in Watertown are electric

- » Strategy TM2: Accelerate the shift to electric vehicles (EVs)
 - ◆ Action TM2.1: Develop and implement an EV Roadmap for Watertown
 - ◆ Action TM2.2: Transition City owned, leased, and contracted vehicles to electric, including school bus, garbage truck, and maintenance fleets
 - ◆ Action TM2.3: Support the development of Multi-Use Parking Arrangements to develop EV charging at places of worship and other organizations with large parking lots in residential neighborhoods
 - ◆ Action TM2.4: Develop an outreach and incentive campaign to those with a vehicle over 10 years old to promote and incentivize EV purchase
 - ◆ Action TM2.5: Increase the availability of charging stations on municipal property
 - ◆ Action TM2.6: Incentivize homeowners and landlords to install EV chargers





Natural Resources

Goal 1: By 2050, Watertown's natural assets and green space are enhanced, equitably distributed, and delivering full ecosystem benefits

» **Strategy NR1: Enhance and expand forest and open space parcels**

- ◆ Action NR1.1: Incorporate pocket parks into all neighborhoods lacking green space
- ◆ Action NR1.2: Promote biodiversity improvements to existing and new parks and open space
- ◆ Action NR1.3: Acquire more open space, where possible, and create more open space on private property
- ◆ Action NR1.4: Establish natural-habitat corridors along water bodies, trails, and utility easement areas, and protect existing ones

» **Strategy NR2: Protect, enhance, and diversify the tree canopy**

- ◆ Action NR2.1: Establish an enforceable tree ordinance focused on preservation, diversification, and equitable distribution of tree canopy on public and private property
- ◆ Action NR2.2: Establish a community outreach program to increase awareness and appreciation of the importance of the urban forest in mitigating climate change impacts
- ◆ Action NR2.3: Substantially increase annual street and municipal tree plantings and prioritize tree plantings in neighborhoods at high risk for urban heat impacts

» **Strategy NR3: Promote regenerative landscaping and maintenance practices**

- ◆ Action NR3.1: Develop a nature-based landscaping education and outreach plan with expanded opportunities for resident involvement (e.g., "Leave the Leaves" campaign)
- ◆ Action NR3.2: Utilize school gardens and community gardens as nature-based landscaping demonstration sites
- ◆ Action NR3.3: Update current development regulations to require the use of appropriate native plants for new- and re-development and de-emphasize non-native lawn spaces

» **Strategy NR4: Minimize quantity and improve quality of stormwater runoff**

- ◆ Action NR4.1: Expand and accelerate existing Green Stormwater Infrastructure (GSI) policies and management programs for public projects
- ◆ Action NR4.2: Promote and/or incentivize the incorporation of green stormwater infrastructure into existing large impervious areas
- ◆ Action NR4.3: Enhance incentives and ongoing education related to individual actions such as rain barrels, planting strips, and depaving private residential properties





Infrastructure & Waste Management

Goal 1: By 2050, Watertown has achieved a net zero waste community status

» Strategy IW1: Transition community attitudes and actions around consumption and disposal practices

- ◆ Action IW1.1: Create a bulk purchasing network for compostable and environmentally friendly goods among the commercial and industrial sectors
- ◆ Action IW1.2: Design and implement an education and outreach campaign focused on reducing waste sent to the incinerator and the impacts of our current consumption-waste patterns, particularly single use plastics
- ◆ Action IW1.3: Create an organics recycling roadmap for Watertown
- ◆ Action IW1.4: Establish an Environmentally Preferable Purchasing policy (EPP) that focuses on reducing consumption, particularly of single use items within municipal government
- ◆ Action IW1.5: Investigate opportunities to pursue a circular economy in Watertown or within the Metro Boston region (e.g., plastic item ban, grey water recycling, pay-per-bag program, additions to recyclable items)



Goal 2: By 2050, Watertown's infrastructure is well maintained and resilient to the impacts of climate change

» Strategy IW2: Systematically integrate climate change projections into the design of all new and upgraded infrastructure projects

- ◆ Action IW2.1: Require that all major new infrastructure and upgrades incorporate resilient design guidelines, such as Envision™, that take climate impacts into account over the lifespan of the infrastructure
- ◆ Action IW2.2: Review and enhance current infrastructure maintenance systems and protocols to align with the needs of a changing climate
- ◆ Action IW2.3: Advocate with partners for the safe removal of the Watertown Dam
- ◆ Action IW2.4: Investigate local back-up power, microgrid, and battery options in coordination with utilities



Public Health & Community Preparedness

Goal 1: By 2030, Watertown is a model for community resilience to climate change

» Strategy PH1: Promote climate literacy through education and training

- ◆ Action PH1.1: Launch a climate preparedness educational campaign
- ◆ Action PH1.2: Actively recruit volunteers to participate in the Community Emergency Response Team (CERT) program

» Strategy PH2: Acknowledge climate change's impact on and provide resources to enhance overall community health and well-being

- ◆ Action PH2.1: Complete a Climate Change and Health Vulnerability Assessment and develop Adaptation Guidelines (including issues like vector borne disease, pests, mental health)
- ◆ Action PH2.2: Mitigate existing and prevent new urban heat islands in Watertown
- ◆ Action PH2.3: Continue to enhance access to local food by expanding resources for food pantries, community gardens, and the Farmer's Market for those who are food insecure

» Strategy PH3: Provide equitable access to emergency preparedness and response resources

- ◆ Action PH3.1: Identify and reduce structural barriers (e.g., internet access, language, and cultural barriers, cognitive and/or physical disabilities, social isolation, access to services and emergency information) that prevent individuals and neighborhoods from taking care of themselves during and after extreme weather
- ◆ Action PH3.2: Require all commercial building owners to rebroadcast and post Watertown Alert announcements to building occupants in English and Spanish
- ◆ Action PH3.3: Launch a "Sign Up" campaign to ensure equitable access to communication resources
- ◆ Action PH3.4: Enhance emergency preparedness information on City website

» Strategy PH4: Promote overall community connectivity

- ◆ Action PH4.1: Establish a network of resilience hubs that provide resources (e.g., cooling, phone-charging, pantry) throughout the community
- ◆ Action PH4.2: Enhance the existing Live Well Watertown coalition and its programs to incorporate neighborhood connections to nature and to each other



WHAT MOTIVATES US?

There are **two primary ways to address climate change: minimizing our contribution to climate change by reducing our greenhouse gas (GHG) emissions and increasing our resilience to climate impacts through adaptation measures.** The *Resilient Watertown* Climate & Energy Plan identifies opportunities to do both. We recognize the responsibility to do our part to lessen climate impacts while responding to the realities of our changing climate here in Watertown.

Understanding how climate change trends and projections will play out in Watertown allows us to identify the greatest opportunities for climate resilience actions.

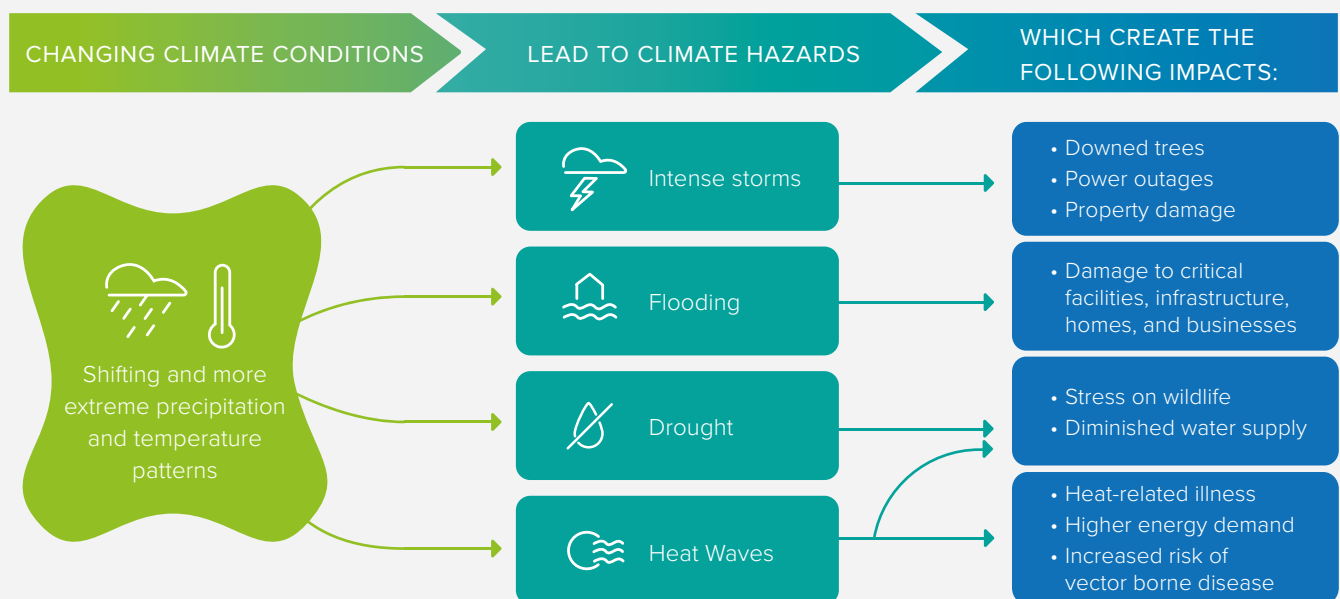
Changing conditions, like increasing temperature and precipitation, are and will continue to exacerbate existing climate hazards in Watertown, with impacts to community health, local natural resources, and infrastructure. As in many other municipalities throughout the region, in Watertown, changes to climate are taking shape through four primary hazards: intense storms, flooding, drought and heat waves.

Understanding how climate change trends and projections will play out in Watertown allows us to identify the greatest opportunities for climate resilience actions.

Changing conditions, like increasing temperature and precipitation, are and will continue to exacerbate existing climate hazards in Watertown, with impacts to community health, local natural resources, and infrastructure. As in many other municipalities throughout the region, in Watertown, changes to climate are taking shape through four primary hazards: intense storms, flooding, drought and heat waves.

CLIMATE HAZARDS

Climate change will intensify existing climate hazards in Watertown, with impacts to community health, local natural resources, and infrastructure.



CLIMATE CHANGE IN WATERTOWN



INTENSE STORMS

The frequency and severity of intense storms—like nor'easters, ice storms, blizzards, hurricanes, windstorms, and heavy precipitation events—are increasing.

Trends

27% increase in heavy downpours in Massachusetts between 1950 and 2014, ranking as the 11th state with the largest increase¹

Projections

Up to 2.4 additional inches of precipitation by 2050 and **up to 3.9 inches** by 2100 projected in Massachusetts²

Impacts

In Watertown, one of the greatest concerns with intense storms is the threat of falling trees and poles, which have been known to lead to power outages.



Arsenal Street experienced downed power lines during a storm in 2018.

Source: Watertown Police Department.



Flooding in Watertown can cause serious damage and disruption, for example, blocking local roadways.



FLOODING

The frequency of high-intensity rainfall events is projected increase, which will in turn increase the risk of flooding.

Trends

flood-related disasters between 1954 and 2018 in Massachusetts, causing **\$35.2 million worth of damage** Middlesex County in March of 2010 alone³

Projections

to 10 more days per year with precipitation of more than inch by 2050⁴

Impacts

Flooding has increasingly affected local roadways, in particular Howard and Pleasant Streets, as well as buildings in Watertown. As storms and precipitation

become more severe, Watertown's stormwater sewer system will be at risk of overcapacity.



DROUGHT

Although more annual precipitation is expected overall, it is anticipated to fall in fewer, more intense, events, rather than sporadically throughout the year. This pattern will lead to longer periods without rainfall and increase the potential for drought.

Trends

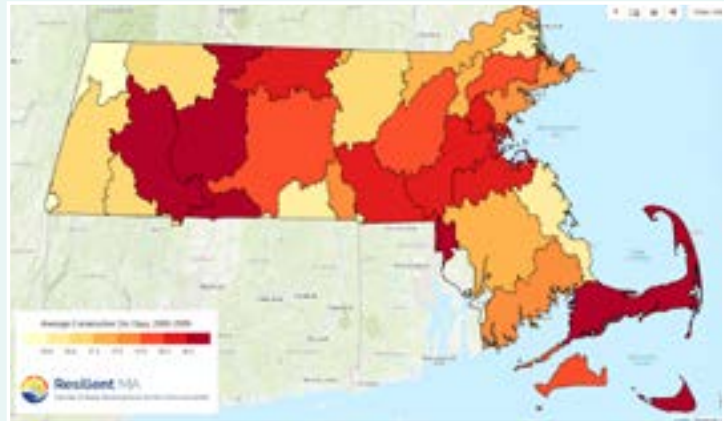
48 weeks of “severe drought” and **21 weeks of “extreme drought”** between 2001-2017 in Watertown⁵

Projections

Increase in frequency of short-term droughts⁶

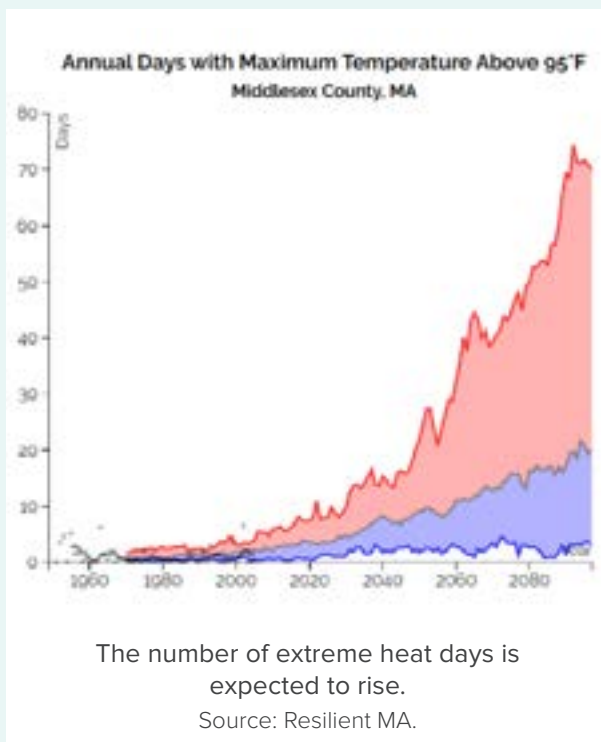
Impacts

Though Watertown’s water supply, which is supplied by the Massachusetts Water Resources Authority, is not typically affected by drought, water scarcity can have an impact on the city’s tree canopy, plants, and landscapes.



Longer periods without rainfall, especially in summer or fall, are expected.

Source: Resilient MA.



The number of extreme heat days is expected to rise.

Source: Resilient MA.



HEAT WAVES

Increasing temperatures and heat waves—periods of three or more days over 90°F—are on the rise in Watertown.

Trends

11.5 days above 90°F between 2010 and 2014 in Massachusetts, the highest number since 1950⁷

Projections

10 to 35 days more extreme heat days and **17 to 39 fewer cold days** (under 32°F) by 2050⁸

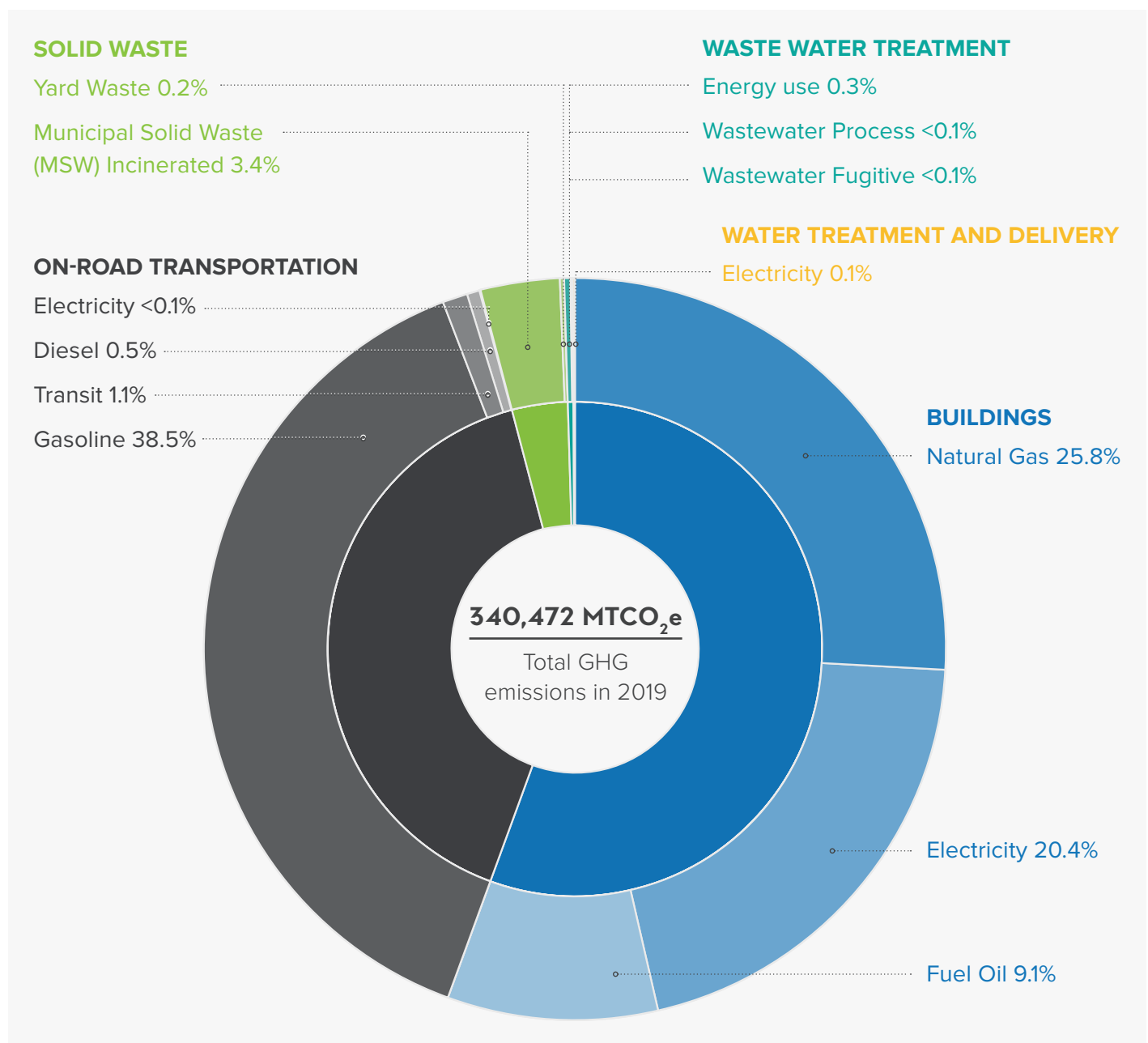
Impacts

Access to cooling has been identified as a top concern related to extreme heat in Watertown, particularly for sensitive populations including seniors and outdoor workers.

WATERTOWN'S GREENHOUSE GAS EMISSIONS

It's important to understand where GHG emissions in Watertown are coming from so we can identify the greatest areas of opportunity to reduce our emissions in pursuit of our climate goals. As part of this planning process, Watertown conducted a GHG inventory to calculate 2019 community-wide and municipal emissions.⁹

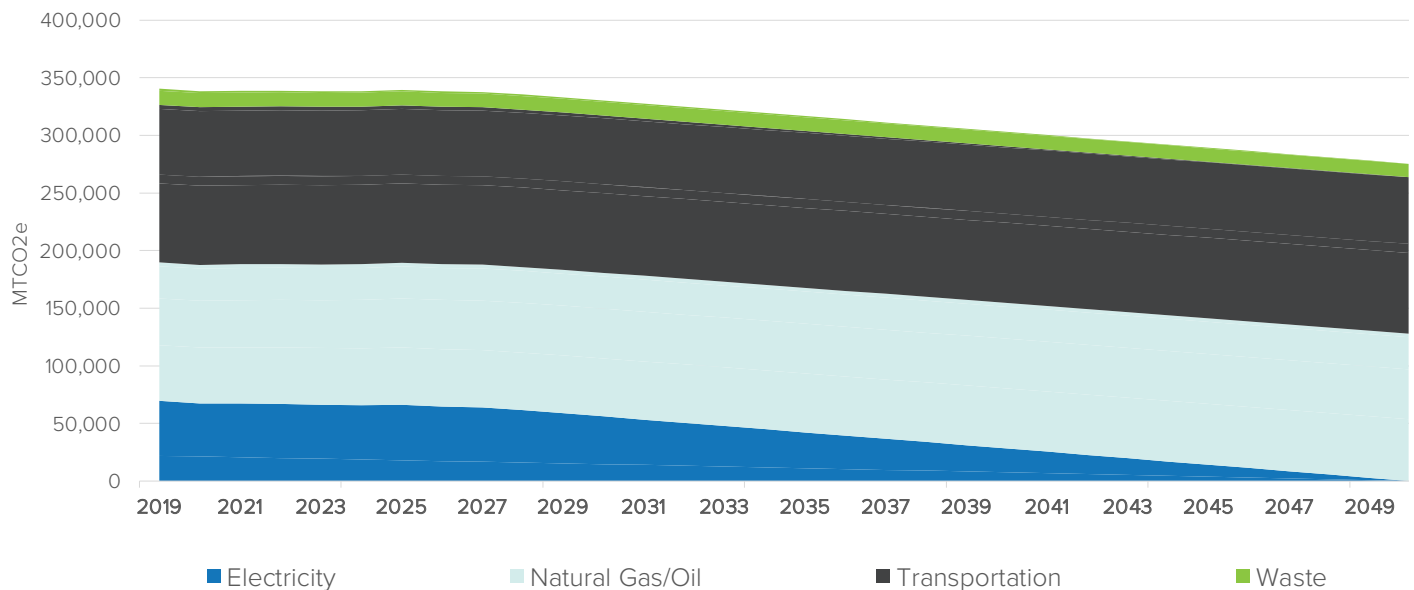
Building-related energy use makes up more than half of Watertown's community emissions, and it is largely comprised of emissions from the use of natural gas. Transportation emissions make up the second largest share at 40.2% and mostly come from the use of gasoline in vehicles. In these two sectors, we'll need to focus our efforts on reducing overall building energy usage and miles traveled in private vehicles, while transitioning to renewable energy sources and bolstering non-vehicular transportation options. Solid waste makes up the next largest share of emissions and can be addressed through a combination of strategies to reduce waste generated and increase the percentage of waste that is recycled or composted.



BUSINESS-AS-USUAL

The following chart forecasts what our emissions will look like if we take no intentional action. While we expect some emissions reductions over time due to the State's Renewable Portfolio Standard (requirements for the percentage of the state's electricity to come from renewable energy) and improved federal fuel economy standards, these actions alone will not put us on a path to achieve our goals.

Business-As-Usual Scenario, 2019-2050



HFC Leaks

Hydrofluorocarbons (HFCs) are used in all types of refrigeration and cooling equipment. These chemicals have very high global warming potential values and are over 1,000 times as powerful at trapping heat as CO₂ and even small amounts of leakage can have a big impact.

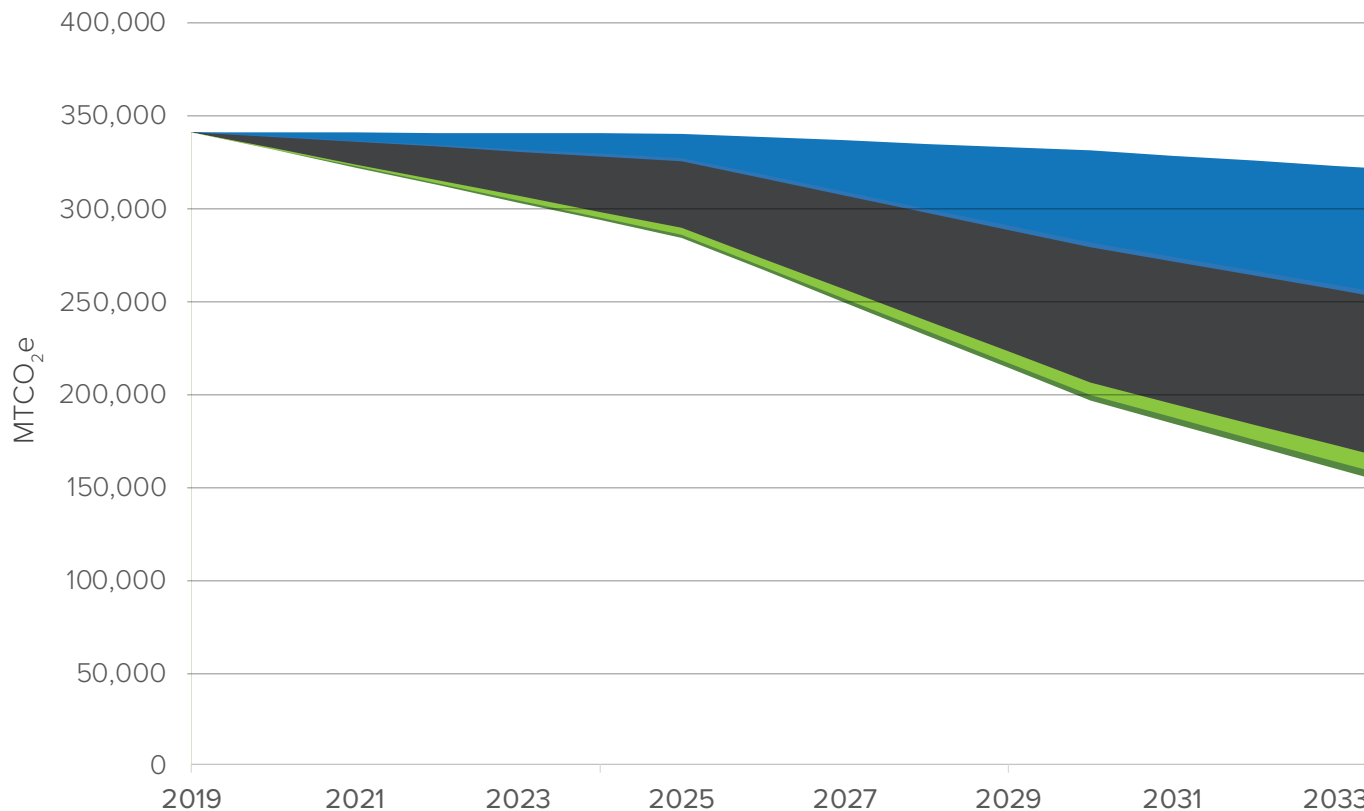
Detailed leakage data is not available, but typical leakage rates applied to Watertown supermarkets and all the cars and buildings with air conditioning would likely raise our emissions profile by over 10,000 MTCO₂e. The good news is that these chemicals are being phased out, but there are a lot of leaks that we can stop right away.



WHERE DO WE GO FROM HERE?

REDUCING OUR CONTRIBUTION TO CLIMATE CHANGE

The strategies outlined in this Climate & Energy Plan are designed to help us reach our climate goals. The chart below models the opportunity for GHG reductions in our community through 2050. The different bands in the graph correspond to the Plan's high impact strategies that will help us get to zero emissions.



Transportation & Mobility

Potential to reduce up to 2,749,000 MTCO₂e

- Strategy TM1: Enhance and actively promote zero-carbon mobility options for travel
- Strategy TM2: Accelerate the shift to electric vehicles (EVs)
- Infrastructure & Waste Management
- Potential to reduce up to 182,000 MTCO₂e
- Strategy IW1: Transition community attitudes and actions around consumption and disposal practices

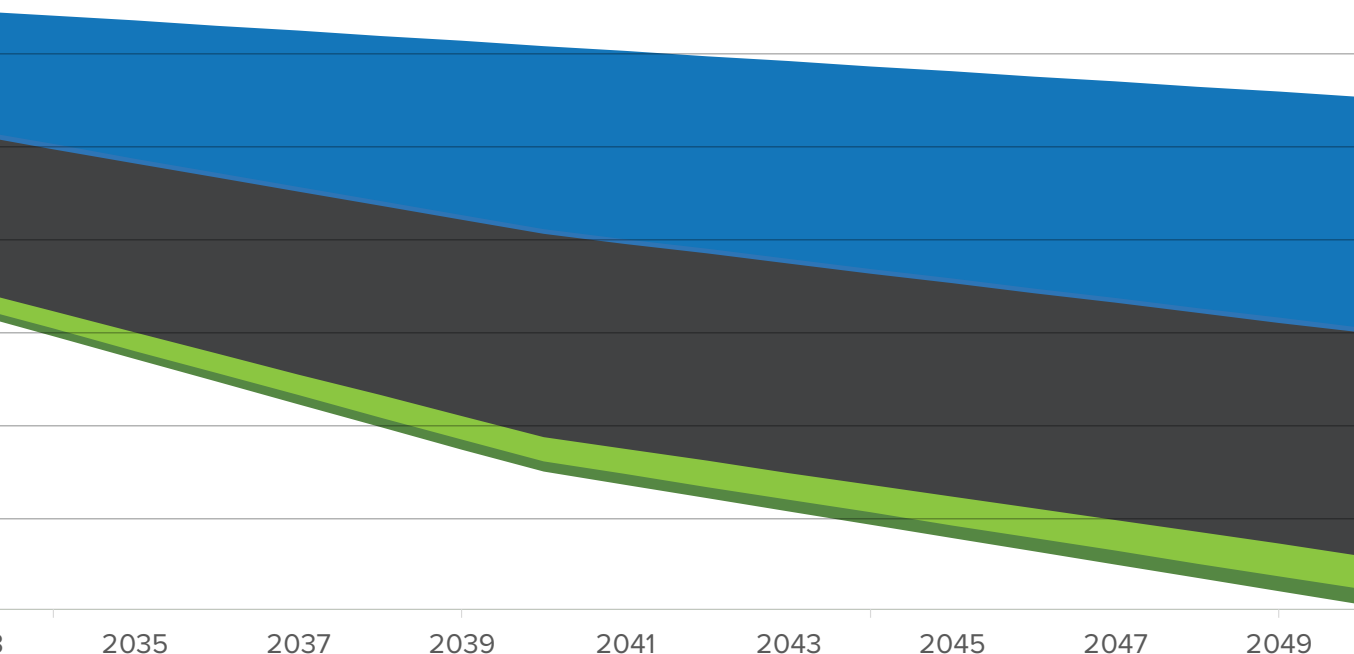


Buildings & Energy

Potential to reduce up to 2,917,000 MTCO₂e



- Strategy BE1: Accelerate the transition to renewable energy city-wide
- Strategy BE2: Require the highest standards for efficiency and carbon neutrality for new construction and major renovations
- Strategy BE3: Electrify existing buildings running on fossil fuels
- Strategy BE4: Enhance and actively promote deep retrofit and aggressive conservation programs



Infrastructure & Waste Management

Potential to reduce up to 5,000 MTCO₂e



- Strategy IW1: Transition community attitudes and actions around consumption and disposal practices

Natural Resources

Potential to reduce up to 5,000 MTCO₂e



- Strategy NR1: Enhance and expand forest and open space parcels
- Strategy NR2: Protect, enhance, and diversify the tree canopy

ENHANCING OUR RESILIENCE TO CLIMATE IMPACTS

As climate hazards continue to threaten Watertown’s infrastructure, resources, and people, there are actions we can take to reduce their impact. The strategies outlined below provide an opportunity to minimize climate change’s worst impacts and enhance our resilience.

Plan Element	Strategy	Climate Change Hazards Addressed
Buildings & Energy	Strategy BE3: Electrify existing buildings running on fossil fuels	
Transportation & Mobility	Strategy TM2: Accelerate the shift to electric vehicles (EVs)	 
Natural Resources	Strategy NR1: Enhance forest and open space parcels	   
	Strategy NR2: Protect, enhance, and diversify the tree canopy	   
	Strategy NR3: Promote regenerative landscaping and maintenance practices	  
	Strategy NR4: Minimize quantity and improve quality of stormwater runoff	  
Infrastructure & Waste Management	Strategy IW2: Systematically integrate climate change projections into the design of all new and upgraded infrastructure projects	 
Public Health & Community Preparedness	Strategy PH1: Promote climate literacy through education and training	
	Strategy PH2: Acknowledge climate change’s impact on and provide resources to enhance overall community health and well being	
	Strategy PH3: Provide equitable access to emergency preparedness and response resources	
	Strategy PH4: Promote overall community connectivity	



Extreme storms



Flooding



Extreme heat



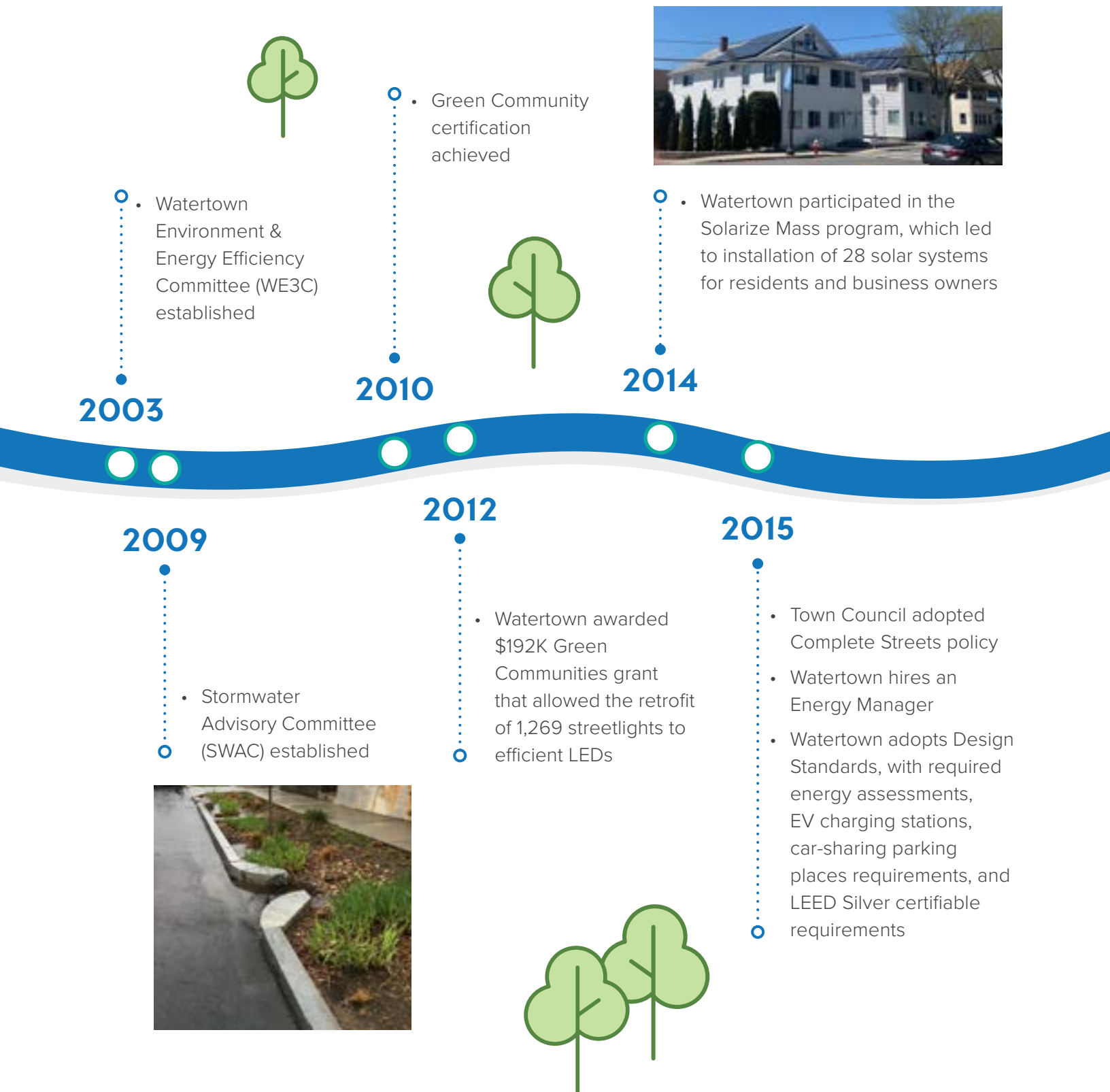
Drought

Climate Change Impacts Minimized

Lessens damage to infrastructure, homes, and businesses	Prevents power outages	Provides back-up power	Reduces energy demand	Minimizes local flooding	Protects water quality	Helps maintain water supply	Reduces stress on wildlife	Prevents heat related illness	Provides resources to residents & businesses in need
	✓	✓							
		✓	✓						
			✓	✓	✓		✓	✓	
			✓	✓				✓	
					✓	✓			
✓				✓	✓		✓		
✓	✓	✓	✓						
								✓	✓
								✓	✓
								✓	✓
								✓	✓

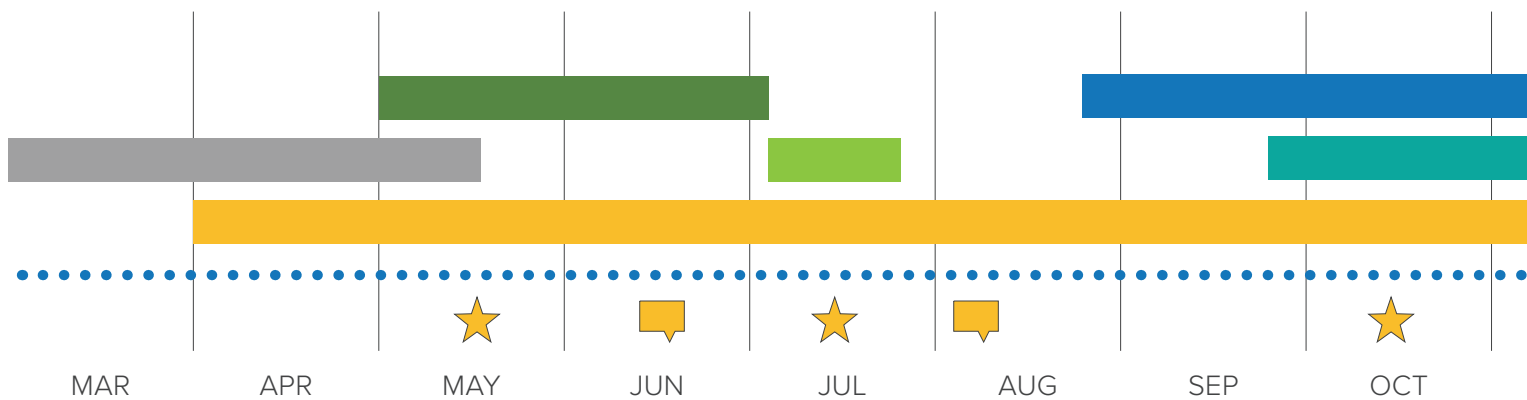
CLIMATE ACTION IN WATERTOWN

Watertown is already taking important steps to mitigate and adapt to climate change. *Resilient Watertown* builds on these existing initiatives and milestones.

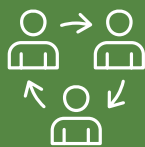




DEVELOPING THE PLAN



Stakeholder Advisory Group



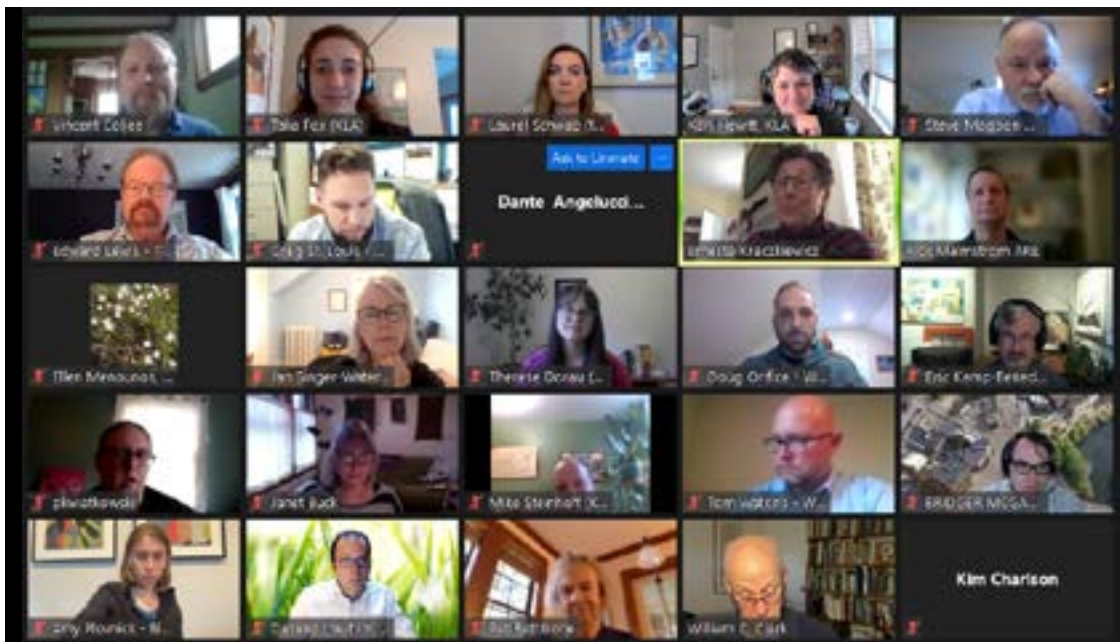
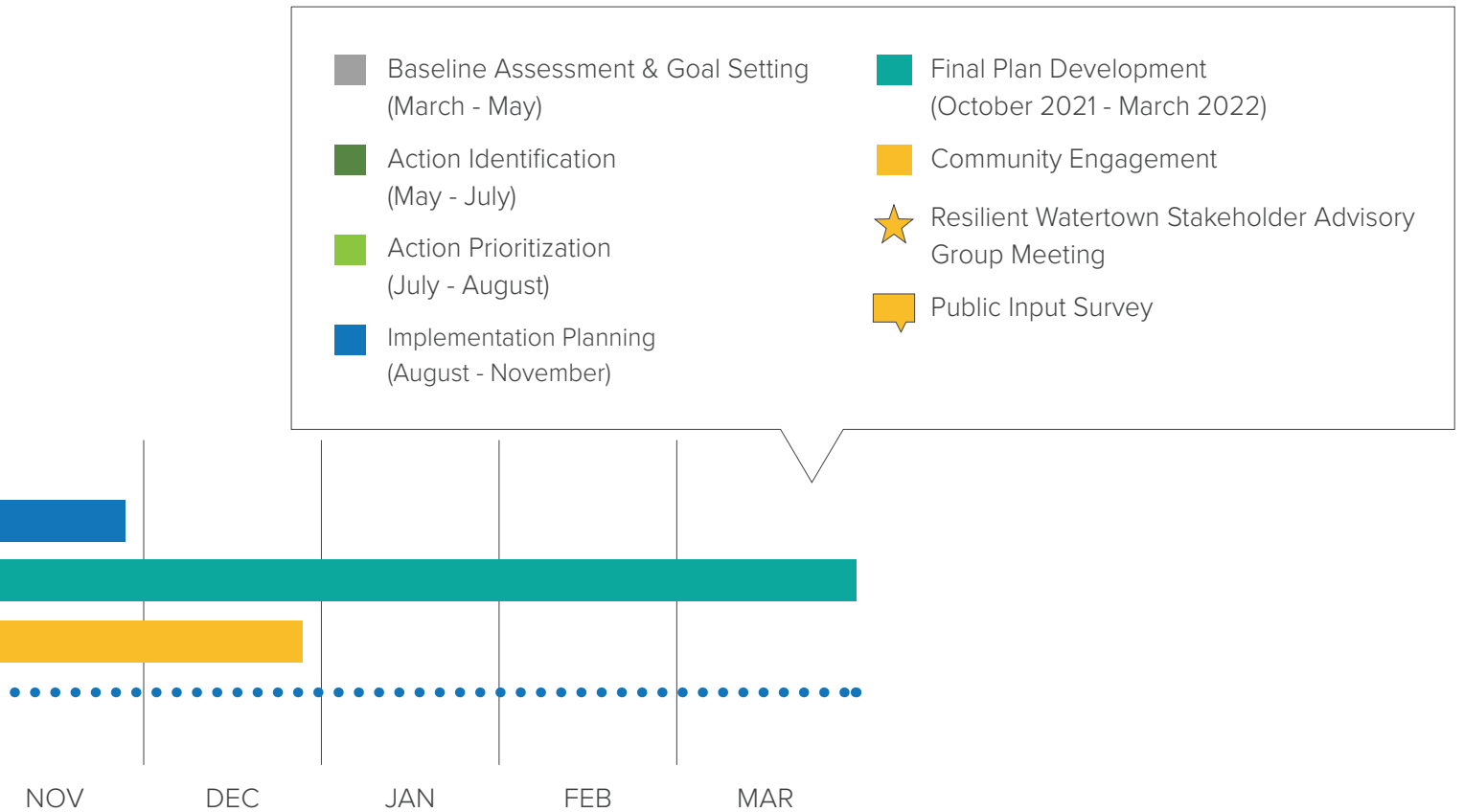
The Resilient Watertown Stakeholder Advisory Group (RWSAG)

supported the planning process and directly informed the vision, goals, priority actions, and implementation steps throughout the plan development. The 35-member Advisory Group consisted of municipal representatives and key stakeholders from universities, non-profits, businesses, and local environmental groups.

Working Groups



In addition to convening as a group, the RWSAG was divided into **Working Groups** for each of the five plan elements based on expertise and interest. Working Groups met independently to collaboratively confirm goals, refine actions, and develop implementation blueprints for priority actions, as well as to support community engagement. The Advisory Group was integral to bringing community-based knowledge to shape the plan in addition to serving as ambassadors for climate action and *Resilient Watertown*.



The *Resilient Watertown* process launched Spring of 2021, building on the MVP planning efforts in 2020. The planning process consisted of five distinct phases that allowed the City to first assess existing conditions and projected climate impacts and then develop goals, actions, and metrics based on that data and input from community members and stakeholders.

ENGAGING OUR COMMUNITY



645 Survey Responses



931 Comments



3,800 Residents engaged



The City connected with 3,800 residents during the yearlong planning process. Impacts from a global pandemic compelled the City to shift to a primarily virtual approach using online engagement tools, in addition to a handful of outdoor events.

Resilient Watertown engagement was intended to build capacity for community members to understand climate issues and foster ongoing climate conversations, with a focus on residents most vulnerable to climate impacts. Across nine months of engagement, the City and community organizations gathered 645 online survey responses across **four** surveys with nearly 1,000 comments from community members. City staff distributed education materials and had personal conversations at five public events and provided public access to the three Advisory Group meetings and multiple opportunities to offer feedback during the process.

Equitable Engagement

Spanish Language – Over **9%** of City residents identify as Hispanic and *Resilient Watertown* aimed to engage this audience in the planning process. Survey One was offered and advertised in Spanish to collect feedback from, and engage with, Spanish-speaking residents. Multilingual engagement efforts demonstrate that the City can work to build connections to Spanish-speaking community members.

Visual Accessibility – Watertown has significant cultural and institutional resources for community members with visual impairments, being the home of Perkins School for the Blind. To ensure that all community members could offer feedback, *Resilient Watertown* offered surveys in a platform that is more visually accessible. Future City planning processes can use best practices for accessibility during public outreach and stakeholder engagement and continue to reach out to include community members with visual impairments.





Planning for Resilient Housing

Nearly half of Watertown residents rent their home—and there are unique challenges to making rental properties more sustainable. Through targeted outreach to renters and owners of rental properties in the form of virtual surveys and focus groups, we gathered data and stories from renters and landlords that was incorporated into the plan. Building capacity among renters and landlords to improve the sustainability of rental housing is a priority for the City, so we developed a public online **Resource Center** that houses valuable tools, how-to-guides, and funding opportunities. Engaging renters and landlords is crucial to understand the barriers and opportunities for action so that Watertown's can promote the character of our unique neighborhoods and support affordable, safe, and resilient rental housing for all.



3 Goals for Engagement

- Gather input through an equitable process
- Build capacity of community members to understand climate issues
- Spark ongoing climate conversation



WHAT WE HEARD

Residents voiced strong support for the City’s climate goals, especially for protecting and enhancing **natural resources** and supporting connected, convenient, and accessible **transportation systems**. Survey respondents were keenly aware that Watertown is a desirable location for new development and want to ensure that the city is an affordable, vibrant, and well-connected community to live, work, and play, for decades to come.

STRENGTHS

“

I pay for 100% wind energy on my electric bill as per the Watertown program. It costs a bit more, but worth it in the long run!

“

Watertown has a lot of open space, trails, and parks compared to most places I’ve lived. It makes the town a great place to live.



“

Walkability is one of the reasons I live in Watertown.

70%

Of Survey 1 respondents strongly support green infrastructure practices



63%

Of Survey 1 respondents agree or strongly agree they have strong social ties in Watertown

Renters and landlords expressed enthusiasm for creating more sustainable rental housing in Watertown and asked for City support for learning about funding, and implementing changes to make buildings healthier, safer, and better able to withstand impacts from climate change.



OPPORTUNITIES

65%

Of Survey 2 respondents support increasing tree planting on public property and prioritizing tree planting in vulnerable neighborhoods first.

37%

Of Survey 2 respondents reported heat, or related poor air quality, could be a health risk for their families.

Take our survey!

The Town of Watertown is creating a Climate and Energy Plan and wants your input.



THE RESILIENT WATERTOWN PLAN WILL FOCUS ON FIVE ELEMENTS



Are you a renter?

Take our survey just for you!

Watertown stands united to preserve and strengthen our unique neighborhoods and natural resources. With Resilient Watertown, our Climate & Energy plan, we are committed to equity, communication, and innovation while reducing our greenhouse gas emissions and enabling all residents to thrive in the face of climate change.



“

I would like to see education, and possibly financial incentives, for new and existing homeowners and landlords to transition their green spaces to be sustainable.

“

In Watertown I'd like to see less new construction destroying existing trees and plants.



“

I chose to sacrifice other things such as amenities, and some of my budget, in order to ensure I live right on the bus route. Not everyone is able to do that. Those inequities need to be addressed. Peoples' access is limited by their socioeconomics, disabilities, age, health, etc. Any changes made need to keep these factors in mind.

OUR PLAN

Watertown’s path forward for acting on climate change includes reducing our greenhouse gas emissions and adapting to unavoidable climate impacts. *Resilient Watertown* identifies opportunities to reduce our GHG emissions, while enhancing our resilience to the climate hazards we are already experiencing in Watertown. This plan will be substantially re-evaluated every five years to update and adjust actions and targets and will undergo review by City staff and the Watertown Environment and Energy Efficiency Committee (WE3C) annually.

Resilient Watertown goals and actions are organized into **5 PLAN ELEMENTS**:



6 GUIDING PRINCIPLES aligned with Watertown’s priorities are the foundation for achieving our goals and actions:

Greenhouse Gas Emission Reduction	Resilience	Preservation of Natural Resources
Regional Collaboration	Economic Vitality	Equity and Justice

HOW TO READ THIS PLAN

Details for each of the plan elements are outlined in the sections ahead and follow the following format:



	Action	Timeframe	Cost	Implementation Champion	Cumulative 2050 GHG Reduction	Resilience Benefits
Goal						
Strategy						
Strategy						

Strategy: General approach the City will take to accomplish our goals

Action: Brief summary of the specific activity that will be undertaken

Timeframe: Approximately how long it will take to accomplish the action. Options include:

- Short = <1 year
- Medium = 1-3 years
- Long = 3-5 years

Cost: Estimated cost to implement the action. Options include:

- \$ = <10K
- \$\$ = <100K
- \$\$\$ = >100K

Implementation Champion: Entity responsible for leading implementation of the action

Estimated GHG Reduction: How much the strategy will help reduce our contribution to climate change, measured in metric tons of carbon dioxide equivalent (MTCO₂e)

Resilience Benefits: How the strategies address the impacts of four primary climate hazards



CROSS-CUTTING ACTIONS

Resilient Watertown's five Plan Elements do not, and should not, exist in silos. Many of the issues within them overlap, indicating opportunity for synergies that help us achieve multiple goals at once. Furthermore, it's important that we pursue measures that enable our successful implementation of all strategies and actions, including by enhancing coordination and capacity, and building up our resources for implementation. Cross-cutting actions help us reduce our contribution to climate change and protect us from its impacts by strengthening success across all strategies and actions. The City will pursue several additional strategies, which speak to these interconnections.

STRATEGIES TO ACHIEVE OUR GOAL

Strategy CC1: Add staff capacity and resources to the Energy Manager's Office, the DPW Forestry Division, and the Planning Department

- Pursuing the many actions in this Plan will require staff capacity. Creating new positions or expanding resources available to existing staff will be critical to the successful and timely implementation of the *Resilient Watertown* Plan.

Strategy CC2: Create an overarching Resilient Watertown Outreach & Education Campaign

- Community-wide education is essential to spreading the word about *Resilient Watertown* and how residents support implementation of actions. This might include toolkits targeted to residents about what they can do to reduce impervious surfaces, plant more trees, conserve energy, change their commuting habits, work together with neighbors, and more. This may also include creation of education materials for use as a "presentation in a box" for volunteers to use while presenting to interested groups.

Strategy CC3: Develop assistance mechanisms and resources for renters and landlords (regarding energy efficiency, EV charging, etc.)

- When it comes to building improvements that support climate action, many landlords and renters want to help, but they may lack the funds, time, or information. The City can provide support to residents to help them access rebates or work with contractors to make changes to their homes.

Strategy CC4: Collaborate regionally with other communities and entities

- Many neighboring municipalities and partner organizations (such as the Resilient Mystic Collaborative, Charles River Climate Compact, and Metropolitan Area Planning Council) share our vision for a net zero, resilient future. We can strengthen existing partnerships and build new ones, both to pursue collaborative projects and advocate for collective goals at the state level.

Strategy CC5: Explore establishing a Transportation Infrastructure Fund with funding from developers and the City to implement recommendations of this Plan

- While still rare in the greater Boston area, a Transportation Infrastructure Fund could be a sustaining funding mechanism and a way of proactively demonstrating to the business community and community at large a strong public-private partnership between developers and City leaders to enable collective achievement of this plan's transportation goals.



GOAL

Achieve synergies across multiple Plan Element goals and enable successful implementation of all strategies and actions.

Strategy CC6: Encourage and require sustainable, climate-resilient development patterns

- Promoting more sustainable, climate-resilient development in Watertown will require both working closely with the development community and updating requirements, such as the upcoming Comprehensive Plan update and other relevant planning and regulatory processes. This might include working with prospective developers to address barriers to expanding reuse or redevelopment of historic and other existing properties. On the regulatory side, this could include enhancing requirements for developers to connect their properties to existing off-street paths to enhance multi-modal connectivity, in addition to strengthening our commitment to mixed-use development to facilitate the creation of “15-minute neighborhoods” where all one’s needs are a short distance from home.



Watertown’s downtown, located along Main Street, includes a variety of shops and restaurants, the Watertown Free Public Library, and more.



BUILDINGS & ENERGY

The Buildings and Energy plan element is focused on investing in smart infrastructure and programs that reduce energy consumption and increase renewable energy supply, preserving valuable historic neighborhood character, providing diverse affordable housing, and promoting vibrancy of the city.



The ~2,700 rooftop solar panels installed at Arsenal Yards represent the largest solar energy project in Watertown, to-date. As of 2018, Watertown's zoning ordinance requires solar panels on new and substantially renovated buildings over 10,000 sq. ft. and parking garages. Credit: Dan Watkins for Arsenal Yards

BUILDINGS, ENERGY, & OUR CLIMATE

We spend most of our daily lives—sleeping, working, eating—in buildings. Our homes, offices, grocery stores, places of worship, etc. require a significant amount of energy to ventilate the air, manage temperatures, power our devices, and provide many of the other basic comforts we are accustomed to. These activities come at a cost. The fossil fuels used in buildings and those used to generate the electricity we consume emit a significant amount of GHGs into the atmosphere. As of 2019, buildings represent 56% of our community's total GHG emissions.¹⁰ Buildings however, also present the biggest opportunity for us to reduce our emissions, improve the daily lives of all of our community members, and design smart and efficient neighborhood systems that are resilient to climate change.



GOALS

By 2050, 100% of electricity is sourced from renewables.

By 2050, Watertown's buildings are efficient, resilient, and carbon neutral.

COMMUNITY PRIORITIES:

- ✓ Electrification and efficiency requirements for new construction in Watertown (Survey 1)
- ✓ Keeping energy affordable (Renter Survey)
- ✓ Rebates and grants to support reduction of fossil fuel uses in homes and businesses (Survey 2)

TRANSITIONING TO RENEWABLE ENERGY

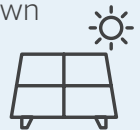
Realizing a 100% clean energy future requires eliminating direct use of fossil fuels and shifting our electricity supply to renewables. While we expect continued changes in the regional electricity grid and will leverage Watertown Electricity Choice to accelerate the transition to renewables, we will also need to maximize installed solar capacity within the community.

3,209 rooftops

Solar Capacity in Watertown

2019: **3,209 rooftops**¹¹

Target: **6,700 rooftops**



LEADING BY EXAMPLE:

Clean Energy at the Police Station

Watertown's new Police Station has a solar array, and super-efficient geothermal heat pump that both cools and heats the building. The solar array has led to approximately \$15,000 in annual savings!¹²



The Cunniff School is one of the first net zero energy certified school buildings in the state. Credit: Cunniff School

BUILDING NEW CONSTRUCTION EFFICIENTLY

To meet its GHG reduction targets, Watertown must eliminate fossil fuel use in both new and existing buildings. With new construction, we have an opportunity, not only to reduce our community's emissions, but also to build highly efficient, dynamic, and healthier buildings. Electric systems are more efficient, and the more energy efficient a building is, the less power (and money) it will need to operate over time. Plus, eliminating fossil fuel powered appliances improves air quality and can enhance comfort.

Watertown will start by requiring all new construction to be powered with electricity by 2025 for most building types. Buildings with more unique energy needs, such as hospitals or labs, can be built in a way that facilitates the transition to electricity as technology allows.

ELECTRIFYING OUR EXISTING BUILDINGS

Most of our residential buildings use natural gas and oil for heat. Accordingly, this is where most building emissions come from. With over 9,000 residential units to convert, the bulk of the work to electrify Watertown is in this sector. There are far fewer commercial buildings to convert, but their size presents opportunities for big wins with the right types of retrofits. To get this work done, the City will take advantage of State, Federal, and other financial support. As more and more communities continue to electrify, coordination with electrical providers will be critical.

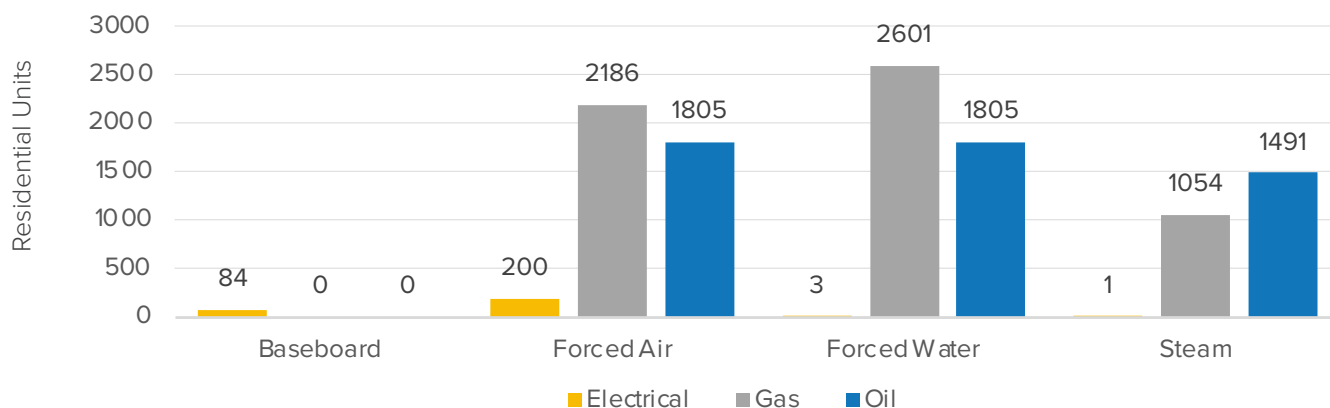
Year	2025	2030	2050
Electrification Target for Existing Buildings	10%	40%	100%

Watertown will prioritize and pursue these actions strategically. For example, over 2,500 residential units have forced air distribution systems.¹³ These are the easiest to retrofit with today's heat pump technologies and should be targeted first. Other easy retrofits include domestic hot water heaters and those homes that are installing central AC. Our actions will also consider how types of housing may play into barriers to retrofitting more heating systems. Condominiums and other multifamily properties may need additional coordination among owners, but there is opportunity to update multiple units at once.

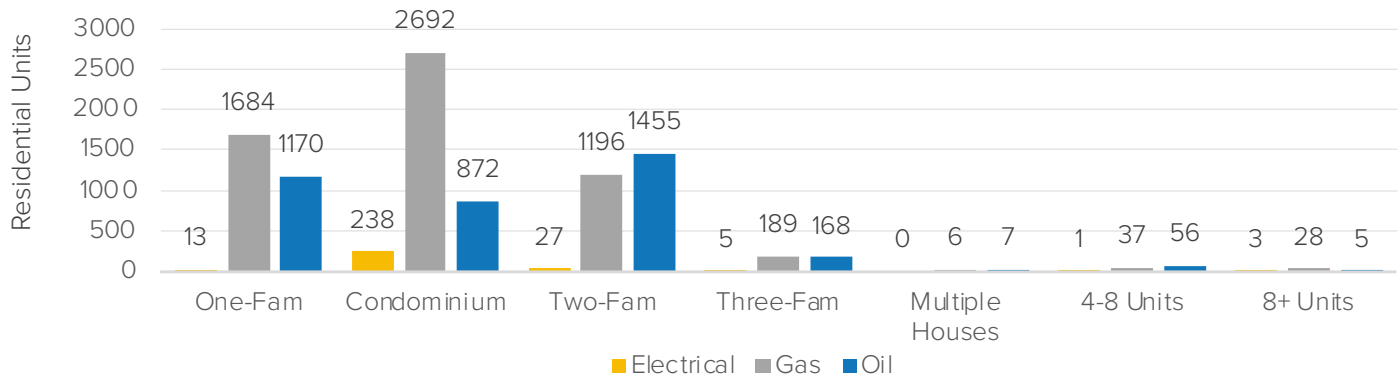
Did You Know? The Benefits of Geo-Micro Grids

Scaling up electrifications for larger commercial and institutional structures could benefit from the use of geo-micro grids, a decentralized solution that uses thermal energy transferred through heat pumps and a shared water loop. Larger, more energy intensive buildings could benefit from this technology as it could serve multiple buildings while providing other resilience benefits, such as enhanced power reliability.

Residential Units by Heating Source (2021)



Residential Units by Unit Type (2021)



Source (both graphs): Watertown Assessor's Database

CONSERVING OUR ENERGY

As we electrify our buildings and power them with 100% clean energy, it may be tempting to discount conservation efforts to reduce GHGs. The fact is that it will be extremely difficult to produce or purchase all the clean energy we need, if we do not find ways to make our buildings more efficient. Electrification in buildings alone will increase electricity use by 47% and electric vehicles will add even more. Combining deep energy retrofits as we electrify our buildings will stabilize the increase in electricity demand and make it easier to get to and maintain carbon-free electricity. Existing programs that help residents and businesses conserve energy include MassSave rebates, incentives, and no-cost energy assessments and the Massachusetts Clean Energy Center's Clean Heating and Cooling programs that offer financial assistance for heat pumps and other technologies.

Residential Targets	2025	2030	2040	2050
Percent Retrofitted	10%	40%	80%	100%
Target Units to Retrofit	962	3,850	7,699	9,624
Units to Retrofit / Year	241	577	385	192

Commercial Targets	2025	2030	2040	2050
Percent Retrofitted	10%	40%	80%	100%
Total Buildings to Retrofit by year	52	207	414	517
Target Buildings to Retrofit / Year	52	31	21	10

Did You Know? Retrofits Support Equity

Households in Watertown below 30% of area median income (AMI) spend on average 16% of income on energy, compared to 2% for those earning higher than AMI.¹⁴ Retrofits are therefore an important way to help low-income residents save money. Furthermore, technical and financial assistance proposed in this Plan will work to address these disparities as we transition our building systems.

STRATEGIES & ACTIONS TO ACHIEVE OUR GOALS

The strategies and actions identified for Buildings and Energy focus on expanding opportunities for solar and other renewables right in Watertown; and creating standards and technical/financial support for new construction to be net zero, and for existing buildings to be all-electric and as efficient as possible.

	Action ID	Action
GOAL 1: By 2050, 100% of electricity is sourced from renewable		
Strategy 1: Accelerate the transition to renewable energy city-wide	BE 1.1	Expand and strengthen the existing rooftop building solar ordinance
	BE 1.2	Investigate implementing commercial PACE and other innovative financing programs
	BE 1.3	Develop and implement a targeted outreach campaign focused on recruiting for Watertown solar on homes and businesses
GOAL 2: By 2050, Watertown's buildings are efficient, resilient, and carbon neutral		
Strategy 2: Require the highest standards for efficiency and carbon neutrality for new construction and major renovations	BE 2.1	Adopt the State's Net Zero Stretch Code as soon as permissible
	BE 2.2	Enact fees for residential gas hookups to promote electrification
	BE 2.3	Promote workforce development and training programs for net zero construction
	BE 2.4	Work with municipalities in the region to eliminate fossil fuels (e.g., identifying mechanisms)
	BE 2.5	Include the use of Whole Building LCA as a condition for granting permits for applicable projects and progressively tighter standards
Strategy 3: Electrify existing buildings running on fossil fuels	BE 3.1	Investigate and support development of geo-microgrid pilot programs
	BE 3.2	Develop and implement a targeted outreach campaign focused on promoting heat pumps
	BE 3.3	Incentivize the transition to heat pumps through HEAT Smart or another program
Strategy 4: Enhance and actively promote deep retrofit and aggressive conservation programs	BE 4.1	Enact a Building Energy Use Disclosure Ordinance with a reporting requirement
	BE 4.2	Provide technical assistance for clean energy, energy efficiency, and financing activities (e.g., retrofits of Watertown Housing Authority properties)
	BE 4.3	Upgrade major existing municipal facilities to achieve net zero energy performance
	BE 4.4	Develop a bulk procurement and purchasing program to support smaller commercial projects
	BE 4.5	Incentivize large grocery stores and buildings with significant refrigeration to get certified

	Timeframe Short (<1 year) Medium (1-3 years) Long (3-5 years)	Cost \$ (<\$10K) \$\$ (<\$100K) \$\$\$ (> \$100K)	Cumulative 2050 GHG Reduction
	Medium	\$	674,800 MTCO ₂ e
	Medium	\$	12% of total reductions
own Electricity Choice program and installing rooftop	Short	\$	
	Medium	\$	154,200 MTCO ₂ e
	Medium	\$\$	3% of total reductions
	Medium	\$\$	
ms like home rule petition)	Long	\$	
e developments and work towards setting	Medium	\$\$	
	Long	\$\$\$	2,029,000 MTCO ₂ e
ps for residential homes on oil heat and natural gas	Medium	\$\$	35% of total reductions
	Short	\$\$	
	Medium	\$\$	58,900 MTCO ₂ e
(e.g., home energy guidance, collaborating on	Medium	\$\$\$	1% of total reductions
	Long	\$\$\$	
properties with deep energy retrofits	Medium	\$\$	
d in EPA Green Chill program to reduce HFCs	Short	\$\$	

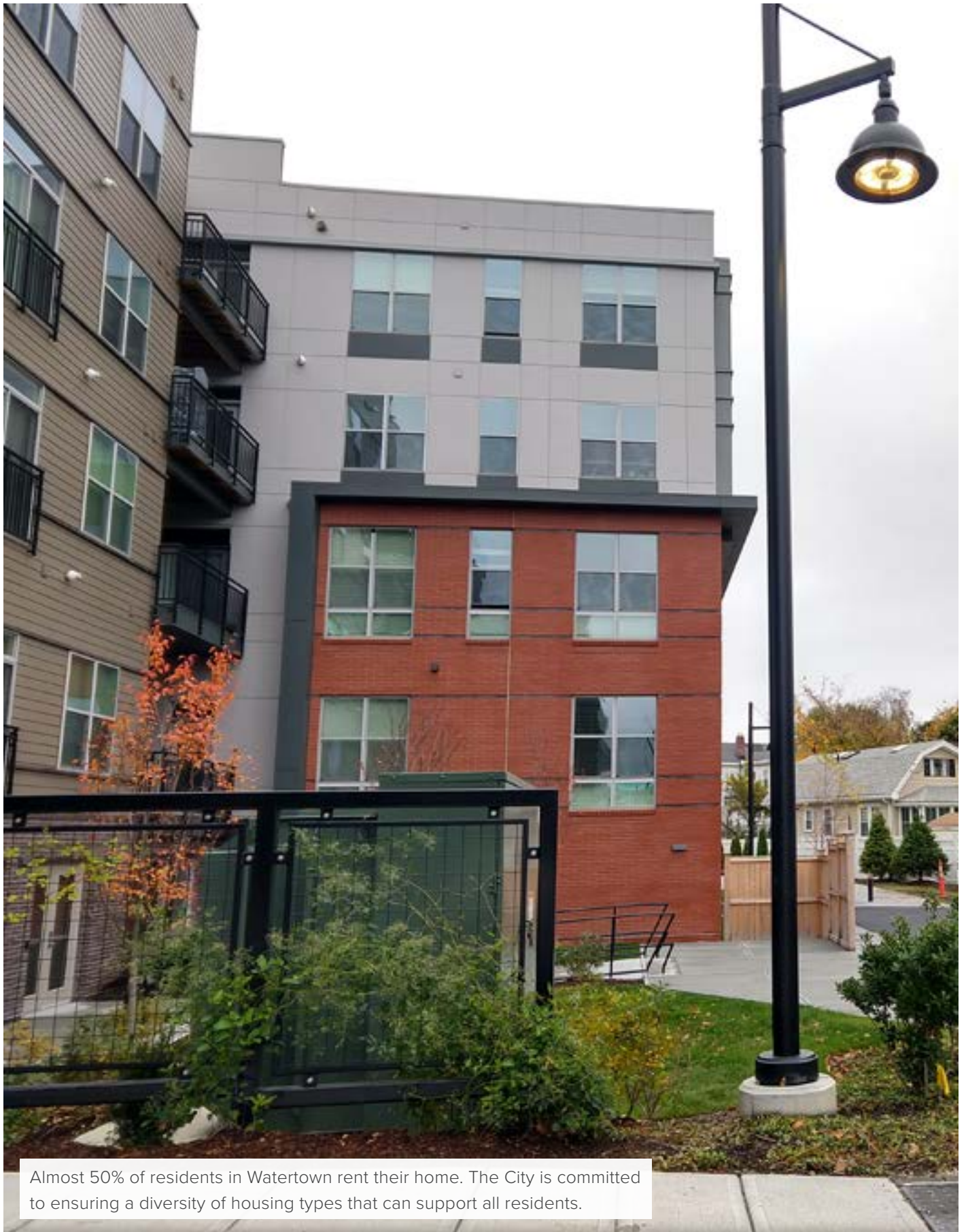


MEASURING SUCCESS

The following indicators will help Watertown monitor progress toward our goals for Buildings and Energy. Multiple actions may contribute to a single target. The City will revisit these targets every 5 years.

Baseline Year	Baseline Year	Baseline Data	2030 Target	2050 Target	Source
Percent of income spent on energy for households within 0% to 30% of AMI	2018	16% of income on energy (2% for those earning higher than AMI)	8%	2%	US DOE Low Income Energy Affordability Database
Enrollment in Watertown Electricity Choice (%), enrollment in 100% renewable option (%)	2019	>82% enrollment 3% of users with 100% renewable option	Increasing 100% Opt Up Participation		Watertown Electricity Choice
Installed solar capacity (kW)	2021	4,521	33,600	112,000*	MassCEC Production Tracking System Reports
Estimated total solar electricity produced (MWh)	2021	5,360	38,400	128,000*	MassCEC Production Tracking System Reports
Commercial EUI For buildings >5,000 square feet (MMBtu/sq. ft.)	New Metric		To develop from disclosure reporting, with considerations for building use type.		
Number of gas/oil heated residential properties	2019	9,625	5,775	0	Watertown Assessor Database
Number of gas/oil heated commercial properties	2019	521	312	0	Watertown Assessor Database

*Maximum potential if all roof space utilized.



Almost 50% of residents in Watertown rent their home. The City is committed to ensuring a diversity of housing types that can support all residents.



TRANSPORTATION & MOBILITY

The Transportation and Mobility plan element is focused on promoting non-motorized, shared, and active transportation modes and creating a safe, accessible, and connected network for bicycles and pedestrians, all while practicing smart parking management to reduce congestion, accidents, and parking demand.



The Watertown Connector is operated by the Watertown Transportation Management Association. Credit: Kevin Bernier

TRANSPORTATION AND MOBILITY & OUR CLIMATE

Transportation in Watertown is the second largest contributor to the City's GHG emissions after buildings, mostly due to residents who drive alone in fossil-fuel powered vehicles. Transportation is critical to our daily lives, and Watertown has the opportunity to aid its residents and visitors in the transition to cleaner modes of commuting that are also connected and accessible for all. Simply put, the more people who bike, walk, and take transit, the fewer miles driven. From enhancing electric vehicle (EV) infrastructure to offering more and safer ways to walk and bike, we can decrease Watertown's contributions to climate change while also promoting public health and wellness and a more connected, vibrant community.



GOALS

By 2050, non-vehicular transportation options are accessible, affordable, connected, and well-utilized throughout Watertown.

By 2050, 100% of Watertown registered vehicles are electric.

COMMUNITY PRIORITIES:

- ✓ Expanded local public transportation options to address resident needs (Survey 1)
- ✓ Convenient, active transportation and walkability. When asked to prioritize a list of nine options, “*walkable to transit*” and “*walkable to amenities like restaurants, shopping, and parks*” ranked number one and two as most important, respectively (Renter Survey)
- ✓ “*I absolutely want my next car to be electric and would love to see greater infrastructure for them.*” (Survey 1)

MAKING PUBLIC TRANSPORTATION CONNECTED AND ACCESSIBLE

Plan actions around transit will work to ensure all Watertown residents have accessible and connected transit options available, continuing efforts such as the introduction of bus rapid transit (BRT) lanes for MBTA bus routes. Bus and shuttle services will need to be supplemented with on-demand services, combining all services in an integrated mobility solution. In doing so, Watertown is supporting increased employment opportunities for its residents and local economic development.



16%

Only 16% of residents take public transit.¹⁵



The Route 71 bus is one of many MBTA bus routes that transports passengers throughout Watertown.

PROMOTING ACTIVE TRANSPORTATION MODES

Active mobility by walking or biking is an important aspect of transportation in and around Watertown. Because there are no emissions associated with these modes, they are a cleaner way to travel and commute around Watertown. Since Watertown is home to a stretch of the Charles River Greenway and the Watertown-Cambridge Greenway, along with bike lanes and sidewalks throughout town, pedestrians, cyclists, and multi-modal commuters have options when it comes to alternate modes of transportation. It has been shown that better, safer bicycle infrastructure leads to higher cycling modal share.¹⁶ With the Transportation and Mobility actions in this plan, Watertown aims to create a network of streets throughout the city that are safe and accessible for bicyclists and pedestrians of all ages and abilities.



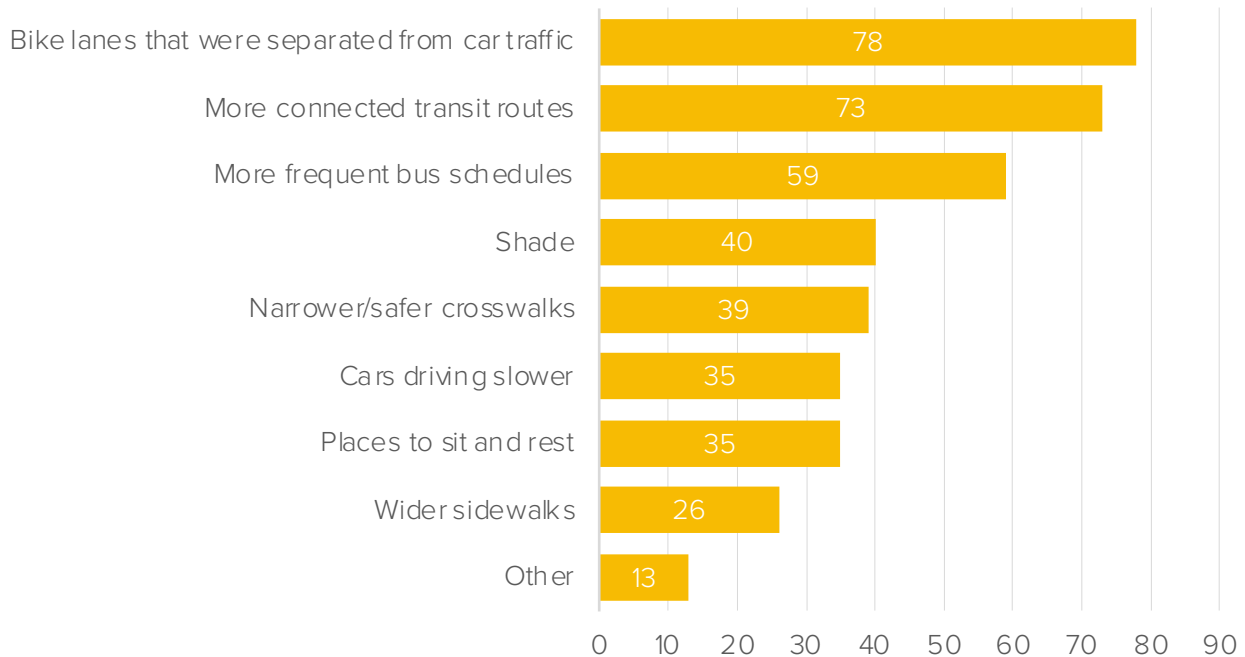
Bicycle infrastructure, like bicycle parking, is an important aspect of making biking easy and accessible.

Data from the Bluebikes program in Watertown show that the top two destinations to and from Watertown are Boston and Cambridge, respectively. These destinations are also the two top destinations where Watertown residents work, suggesting an opportunity for increased active forms of commuting.

INCREASING PEDESTRIAN AND CYCLIST SAFETY

Resident surveys highlighted that road safety for cyclists, safer crossings for pedestrians, and accessibility improvements would enable community members to feel more comfortable as they move around the city.

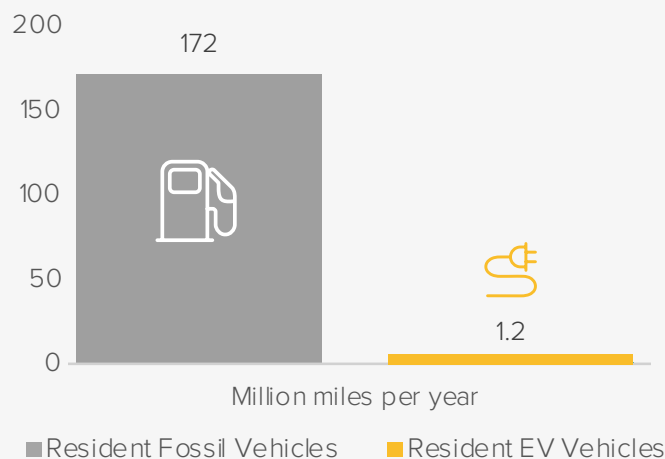
Residents would be more comfortable biking, walking or taking transit if there were:



TRANSITIONING TO ELECTRIC VEHICLES

In 2019, residents were responsible for 172 million miles of on-road vehicle miles traveled, just over half of all Watertown's transportation miles, yet only 0.7% of the total vehicles registered to Watertown were EVs. The fossil-fuel powered vehicles we use to get around produce the majority of Watertown's transportation-related emissions. We have an opportunity to reduce our emissions by transitioning to EVs, both within the community and our municipal fleet. As the grid transitions, the CO₂ per mile for electric vehicles will go to 0. As the grid transitions to renewable energy, the emissions associated with EV use will go down to zero. With the City's waste disposal contract up for renewal in June 2022, Watertown has an opportunity to introduce a hybrid or electric waste truck fleet.

Watertown's Transportation Miles and Emission Rates (2019)



Source: Kim Lundgren Associates, Inc. (2021).

HOW WE'LL GET THERE

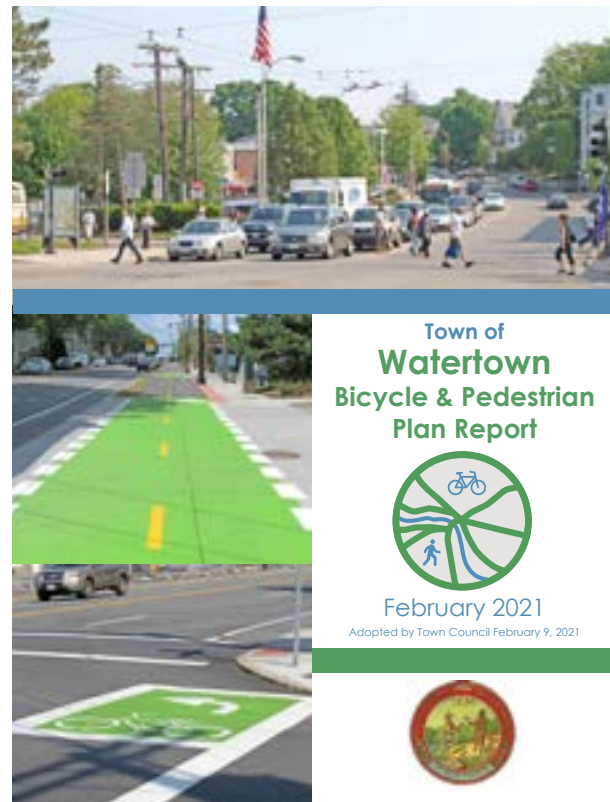
EV sales are booming across the U.S., priming cities like Watertown to accelerate the phase-out of fossil-fuel powered vehicles. The chart below illustrates how we will transition to EVs in order to achieve zero emissions by 2050. As of 2020, Watertown had approximately 172 EVs registered.

Indicators	2025	2030	2040	2050
Vehicles to Replace by Target Year	3,571	7,554	11,949	13,676
Vehicles Replaced by Year	680	797	439	173

LEADING BY EXAMPLE:

Bike and Pedestrian Plan (2021)

Following on the heels of our Complete Streets Plan (2018) and Bluebikes funding (2020), the City recently turned its focus toward a dedicated and detailed Bicycle & Pedestrian Plan. The plan's vision is to support a bicycle and pedestrian network that is safe and accessible, interconnected, and promotes a culture of walking and biking. By developing infrastructure, policies, and programs that encourage residents and visitors to participate in alternative and multi-modal forms of transportation, the City continues to support public health and wellness and vibrant public spaces. The recommendations in the *Resilient Watertown* Plan have been aligned to support and strengthen the recommendations in the Bike-Ped Plan.



Credit: McMahon and Associates



Cyclists, runners, and pedestrians enjoy a sunny day on the Charles River Greenway along Greenough Boulevard.

STRATEGIES & ACTIONS TO ACHIEVE OUR GOALS

The strategies and actions identified for Transportation and Mobility focus on transitioning from fossil-fuel powered vehicles to EVs, ensuring accessible and connected transit for all residents, and enhancing the safety and infrastructure for zero-carbon mobility options like walking and biking. In doing so, Watertown can work to safeguard the health and livelihoods of its residents while reducing its emissions contributions.

	Action ID	Action
GOAL 1: By 2050, non-vehicular transportation options are accessible, affordable, and connected throughout Watertown, a		
Strategy 1: Enhance and actively promote zero-carbon mobility options for travel	TM 1.1	Install well-shaded bike and pedestrian-only infrastructure for protected and off-street connections in densely developed areas and areas of high traffic volume
	TM 1.2	Collaborate regionally to increase and improve safe, interconnected pathways for bicyclists and pedestrians
	TM 1.3	Increase use of transit, bike, and pedestrian travel through outreach, incentives, and policy changes (e.g., decreasing zoning requirements for parking, traffic calming, safe routes to schools)
	TM 1.4	Work with MBTA to improve accessibility of routes, stops, and CharlieCard purchasing stations within Watertown, and electrification of the bus fleet
	TM 1.5	Implement bus prioritization projects such as dedicated lanes and signal priority
	TM 1.6	Develop an integrated, publicly accessible electric transit system that connects to MBTA and other points of interest not accessible by MBTA (e.g., expanding and/or promoting WTMA)
GOAL 2: By 2050, 80% of all vehicles in Watertown are electric		
Strategy 2: Accelerate the shift to electric vehicles (EVs)	TM 2.1	Develop and implement an EV Roadmap for Watertown
	TM 2.2	Transition City owned, leased, and contracted vehicles to electric, including school bus, garbage truck, and maintenance fleets
	TM 2.3	Support the development of Multi-Use Parking Arrangements to develop EV charging at places of worship and other organizations with large parking lots in residential neighborhoods
	TM 2.4	Develop an outreach and incentive campaign to those with a vehicle over 10 years old to promote and incentivize EV purchase
	TM 2.5	Increase the availability of charging stations on municipal property
	TM 2.6	Incentivize homeowners and landlords to install EV chargers



Extreme storms



Flooding



Extreme heat



Drought

Timeframe Short (<1 year) Medium (1-3 years) Long (3-5 years)	Cost \$ (<\$10K) \$\$ (<\$100K) \$\$\$ (> \$100K)	Implementation Champion	Cumulative 2050 GHG Reduction	Resilience Benefits
nd personal vehicular travel miles are reduced by 50%				
Medium	\$\$\$	DPW	449,400 MTCO ₂ e 8% of total reductions	
Medium	\$	DCDP		
Long	\$\$	DCDP		
Long	\$	DCDP		
Medium	\$\$\$	DPW		
Long	\$\$\$	DCDP		
Short	\$\$\$	DCDP	2,299,000 MTCO ₂ e 39% of total reductions	
Long	\$\$\$	DPW		
Medium	\$	DCDP		
Medium	\$\$	DCDP		
Medium	\$\$\$	DPW/DPB		
Long	\$\$\$	DCDP		



MEASURING SUCCESS

The following indicators will help Watertown monitor progress toward our goals for Transportation and Mobility. Multiple actions may contribute to a single target. The City will revisit these targets every 5 years.

Metric (unit)	Baseline Data	Baseline Year(s)	2030 Target	2050 Target	Source
Residents who use sustainable mode (bike, walk, transit) to travel to work (%)	1 in 4 residents / 20%	2013-2017 ACS	50%	60%	US Census American Community Survey
Roads rated at a 4 or 5 stress level (%)	6.9 Miles	2018	3.5 Miles	0	Bicycle and Pedestrian Plan
Total electric vehicles (%)	0.7%	2020	54%	100%	Watertown Excise Tax Records
Population within a ½ mile radius of a public EV charging station (%)	23%	2021	100%	100%	DOE Alternative Fuel Data Center
Number of publicly accessible EV charging stations	17	2021	575	1,050	DOE Alternative Fuel Data Center



The Joseph Thompson Pedestrian Bridge allows pedestrians and cyclists using the Charles River Greenway to cross the Charles River.



NATURAL RESOURCES

The Natural Resources plan element is focused on preserving and enhancing our open spaces, tree cover, habitats, and water resources through smart management practices.



The Charles River and surrounding vegetation provide both climate resilience and mitigation benefits.

NATURAL RESOURCES & OUR CLIMATE

We rely on natural resources for some of our most essential needs—clean water and air, food, comfortable temperatures, and recreation opportunities. Healthy natural resources are therefore increasingly important to our well-being and ability to adapt as climate change impacts like extreme storms and heat intensify. Natural resources, particularly trees, natural landscapes, and other areas of green growth, can also sequester (remove) carbon from the atmosphere, reducing our contributions to climate change. We have an opportunity to work with—not against—our natural systems to protect habitats, infrastructure, and public health, and it's our responsibility to ensure that everyone in the Watertown community can access and enjoy these benefits.



GOAL

By 2050, Watertown's natural assets and green space are enhanced, equitably distributed, and delivering full ecosystem benefits.

ENHANCING AND PRESERVING OUR TREES

Trees do important work in Watertown, like sequester carbon. Carbon sequestration is the process of capturing and storing carbon dioxide, the most common greenhouse gas, from the atmosphere by trees and other plants.. Typical suburban tree canopy can sequester approximately 4.5 MTCO₂e per acre, every year.¹⁷ Over time, that's a lot of carbon storage! Watertown's trees are estimates to store **60,718 MTCO₂e** of carbon.

Increased Tree Canopy Potential in Watertown



The diagram above shows different land uses in Watertown—like open space and residential/commercial impervious surfaces—that could accommodate an estimated 45 acres of additional tree cover (about a 10% increase). This additional tree cover could help remove a significant amount of carbon from the atmosphere in the coming 30 years, supporting our GHG reduction goals.



6,000 tons of CO₂e

Sequestration potential associated with this increase in tree cover in Watertown¹⁸

In addition to carbon storage, Watertown's trees provide critical flood protection, habitat, and cooling, making them important assets as we adapt to climate changes in the region. The right amount of tree cover, for example, can lower summertime temperatures by as much as 10 °F, making trees an important tool to reducing the urban heat island effect.¹⁹

PRIORITIZING GREEN INFRASTRUCTURE

Watertown has already taken steps to introduce green infrastructure throughout the community. This infrastructure replaces impervious surfaces with natural features that enhance water filtration and capture stormwater, reducing flooding and water pollution. As of 2016, **57%** of the community's land area is covered by impervious surfaces.²⁰



Impervious surface:

A hard surface (like pavement) that prevents water—particularly stormwater—from filtering into the soil. By contrast, pervious surfaces filter and absorb stormwater to protect water quality and provide cooling benefits.



COMMUNITY PRIORITIES:

- ✓ Green infrastructure practices, like installing pervious pavers and rain gardens that provide habitat, flood protection, and cleaner air and water (scored 4.6 out of 5 on Survey 1)
★★★★★
- ✓ More public funding for tree planting on public property, as well as in specific neighborhoods with fewer trees and residents with greater vulnerability to climate change impacts. Proper tree maintenance and support for maintenance (Survey 2)
- ✓ Incentives, rebates, and other financial support mechanisms for natural resources protection and maintenance (e.g., sustainable landscaping, replacement of impervious pavement, tree care) (Survey 2)

PROMOTING NATIVE PLANTING

Even a lawn captures more carbon in biomass and soil than it respire! Increasing green growth areas of any kind removes carbon from the atmosphere. Where cost-effective and appropriate, landscaping should favor native plants. Native plants can minimize inputs such as water and fertilizer, requiring less maintenance and protecting against certain invasive and non-native species that can harm ecosystems.

LEADING BY EXAMPLE:

Pollinator Garden at Watertown DPW

In partnership with the Watertown Department of Public Works (DPW) and the Watertown Conservation Commission, volunteers from Friends of Bees installed a pollinator garden at DPW in spring 2021. The garden has native flowers to attract local pollinators like bumblebees and butterflies, which support other local plant and animal species.²¹



Credit: Pam Phillips

STRATEGIES & ACTIONS TO ACHIEVE OUR GOALS

The strategies and actions identified for Natural Resources focus on physical improvements to preserve, enhance, and equitably distribute natural resources, as well as leverage their natural ability to protect us from climate impacts like flooding and extreme heat. Community education and awareness actions support these improvements by promoting collective stewardship of these resources.

	Action ID	Action
GOAL 1: By 2050, Watertown's natural assets and green space are enhanced, equitably distributed, and delivering full ecosystem services		
Strategy 1: Enhance forest and open space parcels	NR 1.1	Incorporate pocket parks into all neighborhoods lacking green space
	NR 1.2	Promote biodiversity improvements to existing and new parks and open space
	NR 1.3	Acquire more open space, where possible, and create more open space on private property
	NR 1.4	Establish natural-habitat corridors along water bodies, trails, and utility easement areas, and protect existing ones
Strategy 2: Protect, enhance, and diversify the tree canopy	NR 2.1	Establish a community outreach program to increase awareness and appreciation of the importance of the urban forest in mitigating climate change impacts
	NR 2.2	Prioritize tree plantings in neighborhoods at high risk for urban heat impacts
	NR 2.3	Establish an enforceable tree ordinance focused on preservation, diversification, and equitable distribution of tree canopy on public and private property
Strategy 3: Promote regenerative landscaping and maintenance practices	NR 3.1	Develop a nature-based landscaping education and outreach plan, with expanded opportunities for resident involvement (e.g., "Leave the Leaves" campaign)
	NR 3.2	Utilize school gardens and community gardens as nature-based landscaping demonstration sites
	NR 3.3	Update current development regulations to require the use of appropriate native plants for new- and re-development and de-emphasize non-native lawn spaces
Strategy 4: Minimize quantity and improve quality of stormwater runoff	NR 4.1	Expand and accelerate existing Green Stormwater Infrastructure (GSI) policies and management programs for public projects
	NR 4.2	Promote and/or incentivize the incorporation of green stormwater infrastructure into existing large impervious areas.
	NR 4.3	Enhance incentives and ongoing education related to individual actions such as rain barrels, planting strips, and de-paving private residential properties



Extreme storms



Flooding



Extreme heat



Drought

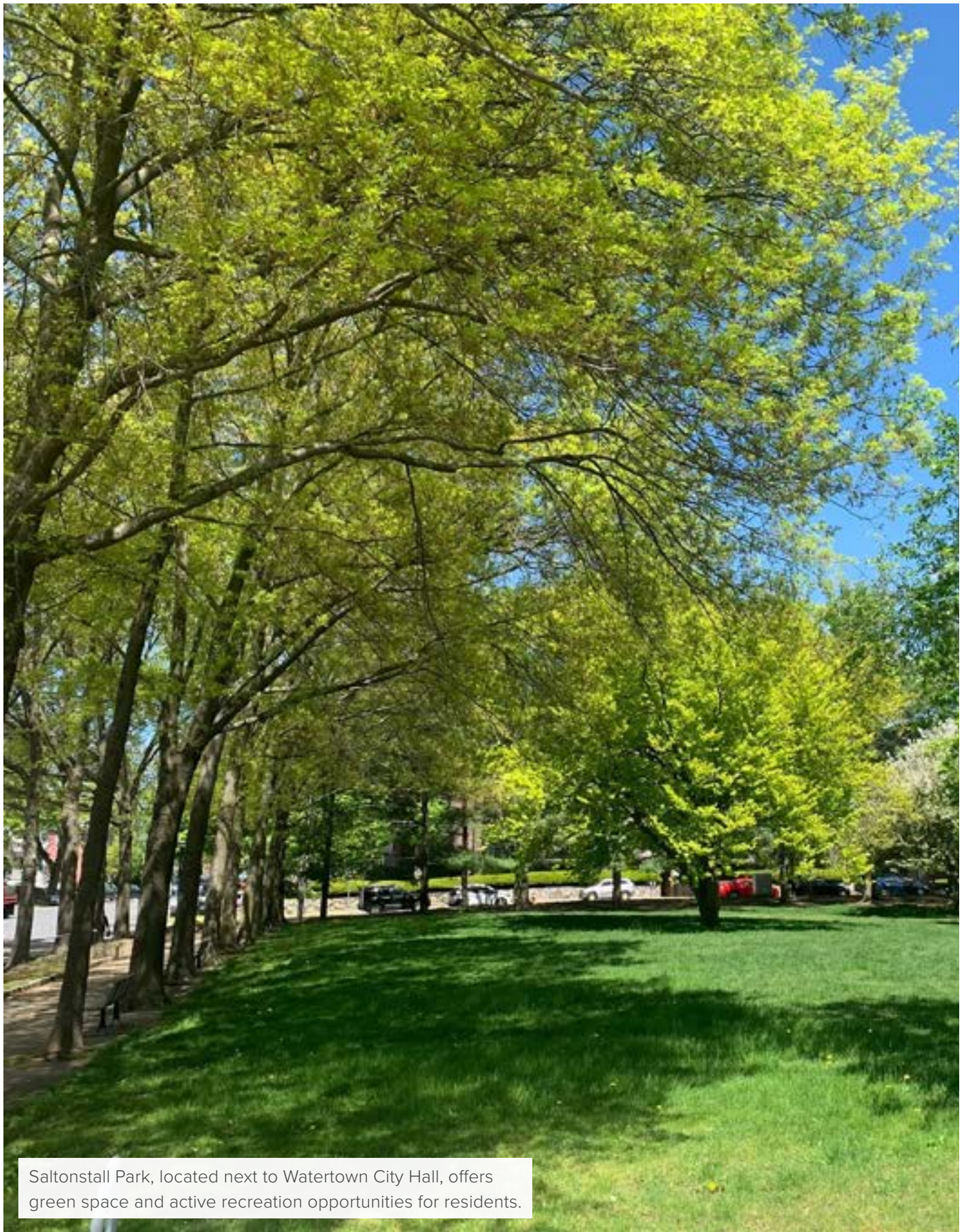
Timeframe Short (<1 year) Medium (1-3 years) Long (3-5 years)	Cost \$ (<\$10K) \$\$ (<\$100K) \$\$\$ (> \$100K)	Cumulative 2050 GHG Reduction	Resilience Benefits
System benefits			
Long	\$\$	4,500 MTCO ₂ e <1% of total reductions	 
Medium	\$		
Long	\$\$\$		
Medium	\$\$		
Short	\$		
Medium	\$\$		
Medium	\$		  
Medium	\$		
Short	\$		
Medium	\$		   
Long	\$\$		
Medium	\$\$		



MEASURING SUCCESS

The following indicators will help Watertown monitor progress toward our goals for Natural Resources. Multiple actions may contribute to a single target. The City will revisit these targets every 5 years.

Indicator (unit)	Baseline Data	Baseline Year	2030 Target	2050 Target	Source
Open space per person (acres/1,000 ppl)	3.25 acres per 1,000 people	2020	5	10	Community Preservation Act Plan
Tree Canopy Coverage (%)	20.89%	2016	23%	27%	MassGIS Land Use Land Cover data layer
Impervious Surface (%)	57%	2016	55%	50%	MassGIS Land Use Land Cover data layer
Public Trees in Good Health (%)	84%	2018	90%	100%	Trees for Watertown
Public Tree Sites Occupied (%)	49%	2018	75%	100%	Trees for Watertown
Area (sf) of school gardens and community gardens	19,250	2021	24,000	30,000	Field calculations



Saltonstall Park, located next to Watertown City Hall, offers green space and active recreation opportunities for residents.



INFRASTRUCTURE & WASTE MANAGEMENT

The Infrastructure and Waste Management plan element is focused on maintaining a sustainable level of resource consumption and ensuring that the infrastructure that supports resource distribution is both helping to mitigate and enhance resilience to climate change.



The Watertown Dam spans the Charles River upstream from the Watertown Bridge. Several entities have recommended it be removed to allow safe passage of fish and wildlife. Credit: Charles River Watershed Association.

INFRASTRUCTURE AND WASTE MANAGEMENT & OUR CLIMATE

The critical services and infrastructure that keep Watertown running, including water, wastewater, energy, and waste services, are essential to our community well-being. How we choose to develop and operate these services, and whether we do so efficiently and sustainably, has a big impact on the climate. Climate change impacts, including higher temperatures and more intense storms and flooding, are already disrupting these essential services and infrastructure. We have an opportunity to build on our history of innovation right here in Watertown, implementing solutions that increase the reliability, efficiency, and cost-effectiveness of our infrastructure.



GOALS

By 2050, Watertown has achieved a net zero waste community status

By 2050, Watertown's infrastructure is well maintained and resilient to the impacts of climate change

REDUCING OUR CONSUMPTION

The more we consume, the more waste we throw away. While minimizing our waste on a larger scale can be challenging, there are policies, incentives, and educational awareness campaigns that can be used to make the transition easier.

COMMUNITY PRIORITIES:

- ✓ Green infrastructure practices, like installing pervious pavers and rain gardens that provide habitat, flood protection, and cleaner air and water (scored 4.6 out of 5 on Survey 1)
★★★★★
- ✓ More public funding for tree planting on public property, as well as in specific neighborhoods with fewer trees and residents with greater vulnerability to climate change impacts. Proper tree maintenance and support for maintenance (Survey 2)
- ✓ Incentives, rebates, and other financial support mechanisms for natural resources protection and maintenance (e.g., sustainable landscaping, replacement of impervious pavement, tree care) (Survey 2)



The Common Street rain garden collects and absorbs stormwater runoff, helping to reduce local flooding and prevent pollution.

REDUCE, REUSE, THEN RECYCLE

The waste we produce contributes both to local environmental pollution and climate change through increased GHG emissions. That shiny new product we want requires a lot of resources to get to the point of purchase—from the raw materials to make it, to its packaging and transportation, all of which have associated emissions. There’s also the waste and emissions associated with discarding an older version of the product. Reducing our consumption, and finding useful alternatives for existing waste streams, allows us to move toward a circular economy.

Circular Economy:



A model of material management that prevents waste and creates value through emphasis on reusing and regenerating, versus a linear model of using and discarding.

Identifying where waste comes from and how it is disposed of is important in understand the more and less wasteful components of our community. Approximately 23.3% of waste produced in Watertown is recycled. While we do not know how much of our waste stream is made up of food and yard waste, approximately 34% of waste produced in Massachusetts is made up of organics.²²

Waste that is not recycled in Watertown is incinerated in a waste-to-energy facility. Most of the energy contained in solid waste that is incinerated is from plastic, effectively a fossil fuel, which leads to higher emissions.



In an acknowledgement of the importance of reforming our community’s waste and recycling practices, the City formed a Solid Waste and Recycling Advisory Committee in 2021. This body will be integral to the successful implementation of new and expanded programs around outreach and education, plastic item bans, organics recycling, and more.

INCREASING OUR INFRASTRUCTURE'S RESILIENCE

Climate change can bring serious effects to our city's infrastructure—from waste management to the electrical grid. With these disruptions to service and infrastructure come impacts to the local economy and community health and well-being. Watertown is taking steps to mitigate impacts to infrastructure from climate change and received its Municipal Vulnerability Preparedness Community certification in 2020, created a Hazard Mitigation Plan in 2019, and has been installing emergency generators at critical facilities like schools.



\$41.9 billion

total property damages due to flooding in Middlesex County²⁵ (Hazard Mitigation Plan)

11 major flood events

that impacted Watertown between 1950 and 2010²⁶

LEADING BY EXAMPLE:

Stormwater Management and Erosion Control

After it rains, much of the water that builds up in our streets, known as stormwater runoff, is carried into our storm drains and local waterways, without treatment. Stormwater runoff is often contaminated from construction sites that can collect pollutants, like sediment, oil, or grease, or from paved surfaces, like roads. In 2019, the City passed an ordinance that requires certain projects to obtain a permit from the Department of Public Works to demonstrate proper stormwater management, pollution prevention, and erosion control during and after construction.²⁷



Green stormwater infrastructure is one approach to managing stormwater onsite. Credit: Watertown DPW

STRATEGIES & ACTIONS TO ACHIEVE OUR GOALS

The strategies and actions identified for Infrastructure and Waste Management focus on increasing the sustainability and resiliency of Watertown's critical assets and infrastructure by altering consumption and disposal practices, as well as integrating information about climate change into our infrastructure.

	Action ID	Action
GOAL 1: By 2050, Watertown has achieved a net zero waste community status		
Strategy 1: Transition community attitudes and actions around consumption and disposal practices	IW 1.1	Create a bulk purchasing network for compostable and environmentally friendly goods among the commercial and industrial sectors
	IW 1.2	Design and implement an education and outreach campaign focused on reducing waste sent to the incinerator and the impacts of our current consumption-waste patterns, particularly single use plastics
	IW 1.3	Create an organics recycling roadmap for Watertown
	IW 1.4	Establish an environmentally preferable purchasing policy (EPP) that focuses on reducing consumption, particularly of single use items within municipal government
	IW 1.5	Investigate opportunities to pursue a circular economy in Watertown or within the Metro Boston region (e.g., plastic item ban, grey water recycling, pay-per-bag program, additions to recyclable items)
GOAL 2: By 2050, Watertown's infrastructure is well maintained and resilient to the impacts of climate change		
Strategy 2: Systematically integrate climate change projections into the design of all new and upgraded infrastructure projects	IW 2.1	Require that all major new infrastructure and upgrades incorporate resilient design guidelines, such as Envision™, that take climate impacts into account over the lifespan of the infrastructure
	IW 2.2	Review and enhance current infrastructure maintenance systems and protocols to align with the needs of a changing climate
	IW 2.3	Advocate with partners for the safe removal of the Watertown Dam
	IW 2.4	Investigate local back-up power, microgrid, and battery options in coordination with utilities



Extreme storms



Flooding



Extreme heat



Drought

Timeframe Short (<1 year) Medium (1-3 years) Long (3-5 years)	Cost \$ (<\$10K) \$\$ (<\$100K) \$\$\$ (> \$100K)	Implementation Champion	Cumulative 2050 GHG Reduction	Resilience Benefits
Medium	\$	DCDP	182,400 MTCO ₂ e 3% of total reductions	
Medium	\$	DCDP		
Short	\$\$	DPW		
Short	\$	Purchasing		
Medium	\$	DPW		
Medium	\$	DPW		
Medium	\$	DPW		
Long	\$	DCDP		
Medium	\$\$\$	DPB		



MEASURING SUCCESS

The following indicators will help Watertown monitor progress toward our goals for Infrastructure and Waste Management. Multiple actions may contribute to a single target. The City will revisit these targets every 5 years.

Indicator (unit)	Baseline Data	Baseline Year	2030 Target	2050 Target	Source
Tons of trash sent to incineration (tons)	2019	9,836	7,500	0	Mass DEP 2019 Municipal Solid Waste and Recycling Survey + Estimates
Household Waste Generation Rate (lbs / household / year)	2019	1,552	1,226	900	Mass DEP 2019 Municipal Solid Waste and Recycling Survey
Diversion rate (tons recycled/total tons waste generated)	2019	23.3% diversion	50%	100%	Mass DEP 2019 Municipal Solid Waste and Recycling Survey
Number of households signed up for food waste pick-up	2021	400 households (Black Earth compost)	2,500	10,000	Conversation with Greg St. Louis
Critical Infrastructure in hazardous areas (e.g., flood plains)	2019	3 critical facilities in flood area			Watertown Hazard Mitigation Plan 2019 Update



Watertown's schools are critical infrastructure that can be used to enhance residents' capacity to adapt to climate emergencies.



PUBLIC HEALTH & COMMUNITY PREPAREDNESS

The Public Health and Community Preparedness plan element is focused on ensuring the well-being, health, and safety of Watertown residents through improved climate change preparedness and response, enhanced communications, and accessible resources for physical, mental, and emotional health.



Watertown Farmers' Market offers local affordable and healthy food options to residents, supporting an estimated 300 food insecure residents.

PUBLIC HEALTH & OUR CLIMATE

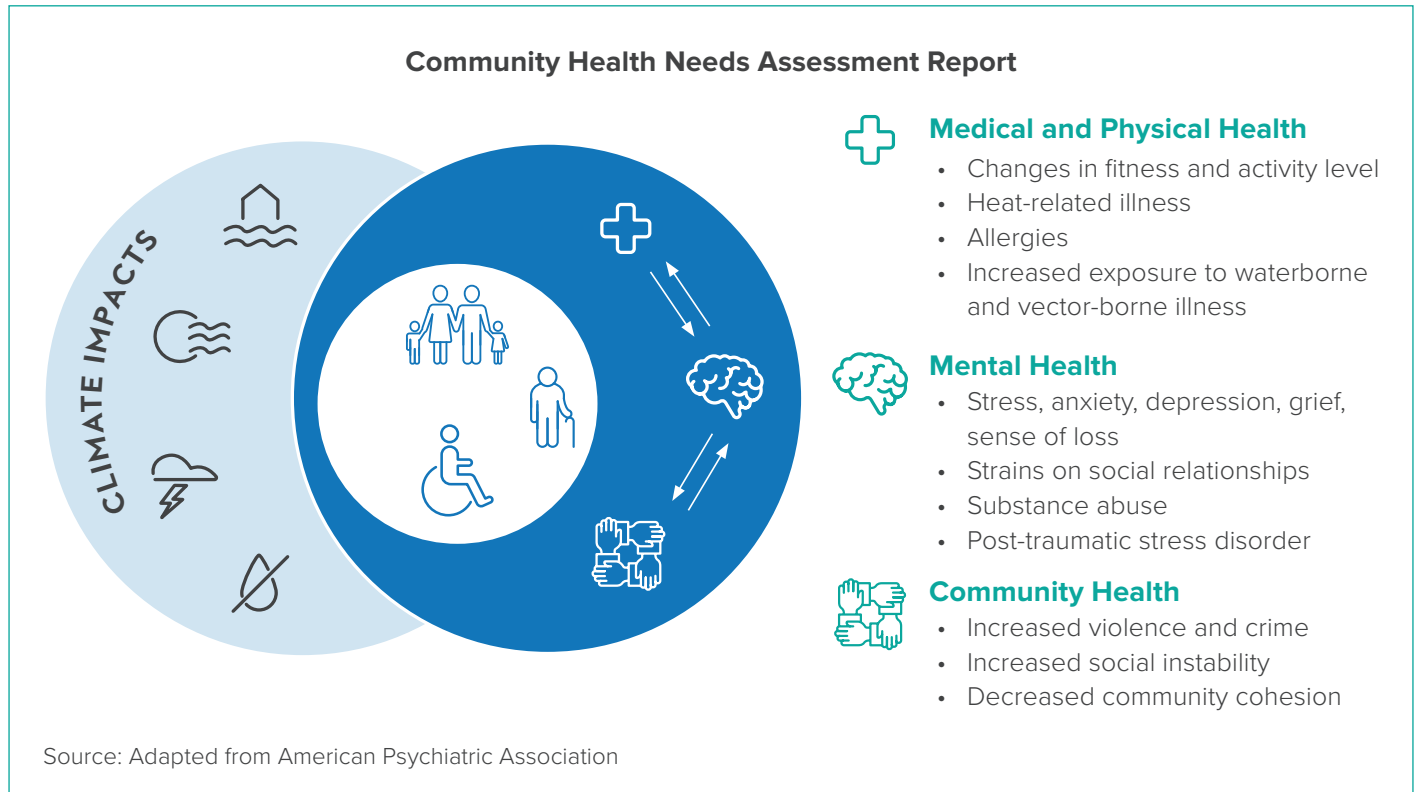
The COVID-19 pandemic has placed a spotlight on public health and our overall community resilience. The increased understanding and appreciation by many of our dependencies on our environment and on each other's actions can set us up for success as we add climate change impacts to the growing list of stressors that impact our physical and mental well-being.



GOAL

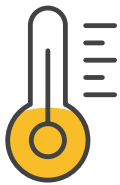
By 2030, Watertown is
a model for community
resilience to climate change

In 2019, Watertown released the Community Health Needs Assessment Report. This report highlighted the major areas of concern based on engagement with community stakeholders. Mental health was one of the areas of greatest concern among all stakeholders. This is not surprising, given the current state of mental health in the nation. Two reasons cited for this high level of concern were lack of community connections and increased stress among residents. “Accessibility, affordability, and awareness/advertising of services were also commonly cited concerns, specifically around equity of access for older residents, those who do not use the internet, and non-native English speakers.” Given these existing priorities, it is essential that actions to strengthen community preparedness focus on existing public health stressors that will be exacerbated by climate change.



REDUCING VULNERABILITY TO EXTREME HEAT

While Watertown is affected by a number of climate hazards, extreme heat poses the greatest risk to human life and in fact, takes more lives than any other weather-related hazard in the U.S.²⁸



11.5: days over 90°F
on average between 2010-2014



24: days over 90°F
in 2021, as of August 2021²⁹



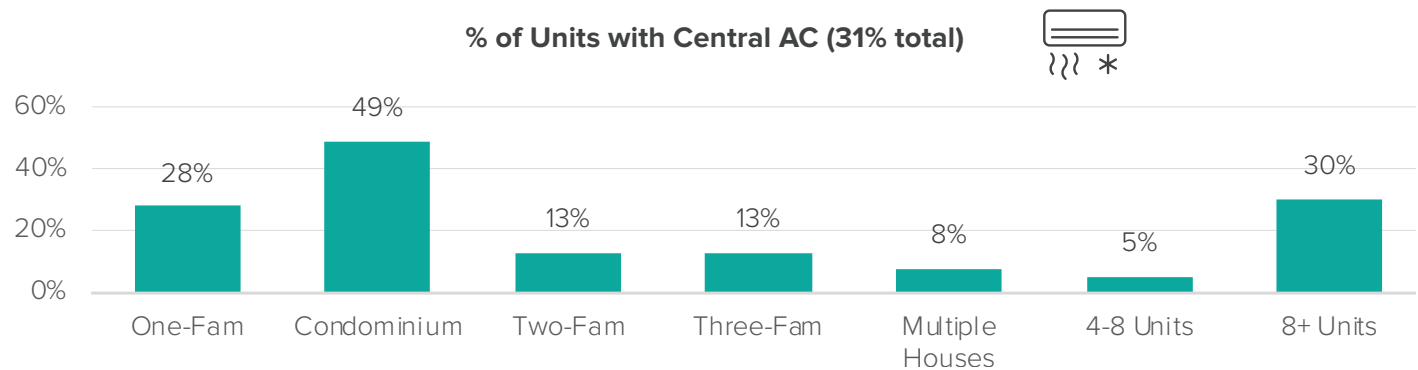
Up to 35: days over 90°F
projected by 2050

COMMUNITY PRIORITIES:

- ✓ Survey respondents in Watertown noted highest concern with heat-related health impacts, such as increasing health risks due to heat and poor air quality, and temperatures that make traveling outdoors or staying at home unsafe and uncomfortable (Survey 2).
- ✓ Respondents felt that resources to make their home or business better able to withstand climate change were most important (Survey 2)
- ✓ Social ties, feeling connected to neighbors, scored 3.7 out of 5 (Survey 1)

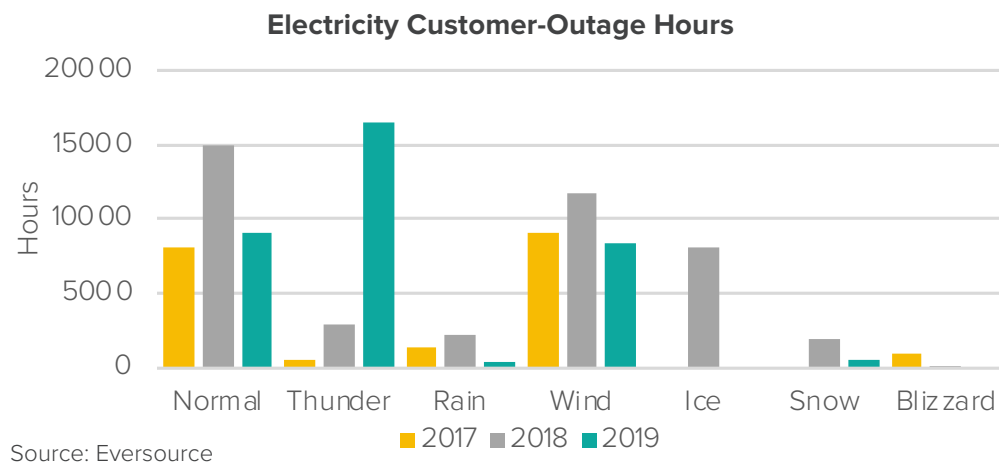
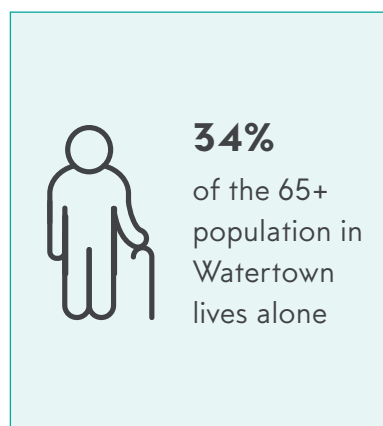


Only 31% of households have central air conditioning and most of them are in newer condo units. Trees are an important resource for reducing extreme heat indoors and outdoors, from cooling outdoor air temperatures to reducing heating and cooling costs by shading buildings. Tree canopy covers less than 21% of the community in Watertown, compared to 27% tree canopy coverage in Boston.



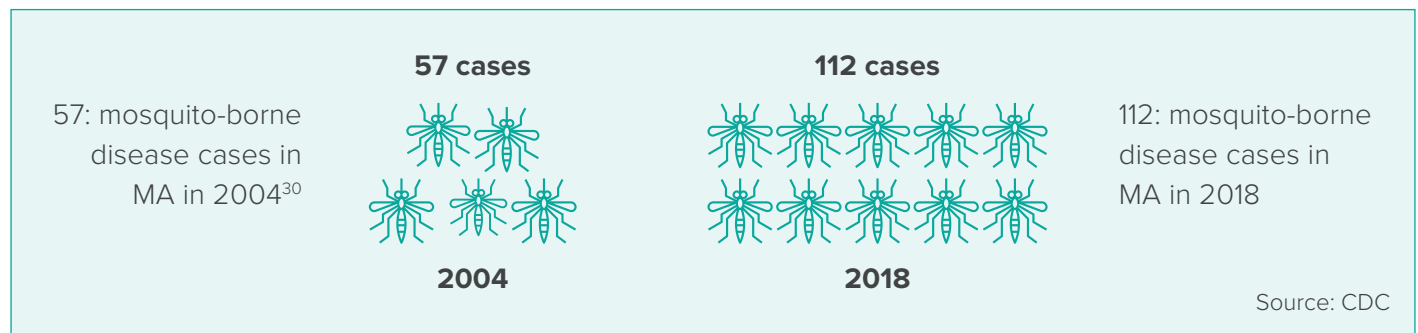
PREPARING FOR INTENSE STORMS

Intense storms are another area of significant concern for Watertown from power outages or property damage due to wind and thunderstorms to at-risk seniors living alone. Power outages due to extreme weather have fluctuated over the past few years but have increased significantly due to thunderstorms.



PROTECTING AGAINST VECTOR-BORNE DISEASES

Viruses and diseases that occur in Massachusetts—like West Nile Virus, Eastern Equine Encephalitis (often known as “EEE” or “Triple E”), and Lyme Disease—are expected to present a higher risk with climate change. As temperatures increase, so does the primary source of vector-borne diseases: ticks and mosquitos. Increasing precipitation and intense storms may also create new habitat for vectors. While the number of tick-borne disease cases in Massachusetts has fluctuated over time, mosquito-borne disease cases have been steadily increasing.



LEADING BY EXAMPLE:

Live Well Watertown

In 2013, Watertown launched Live Well Watertown³¹, a collaborative initiative between Watertown’s Community Development and Planning Department and Health Department, as well as a group of residents. The initiative aims to provide increased access to information, resources, and programs in order to promote healthy living and identify opportunities to build wellness.



Live Well Watertown often partners with other City programs and initiatives, such as promoting bikeshare as an active transportation option. Credit: Live Well Watertown

STRATEGIES & ACTIONS TO ACHIEVE OUR GOALS

The strategies and actions identified for Public Health and Community Preparedness focus on addressing existing public health challenges and building a greater understanding among community members on how climate change affects each of us. Without making the personal connection and building knowledge and capacity, our residents and business owners will continue to be vulnerable to the changing climate.

	Action ID	Action
GOAL 1: By 2030, Watertown is a model for community resilience to climate change		
Strategy 1: Promote climate literacy through education and training	PH 1.1	Launch a climate preparedness educational campaign
	PH 1.2	Actively recruit volunteers to participate in the Community Emergency Response Team (CERT) program
Strategy 2: Acknowledge climate change's impact on and provide resources to enhance overall community health and well-being	PH 2.1	Complete a Climate Change and Health Vulnerability Assessment and develop Adaptation Guidelines (including issues like vector borne disease, pests, mental health)
	PH 2.2	Mitigate existing and prevent new urban heat islands in Watertown
	PH 2.3	Continue to enhance access to local food by expanding resources for food pantries, community gardens, and the Farmer's Market for those who are food insecure
Strategy 3: Provide equitable access to emergency preparedness and response resources	PH 3.1	Identify and reduce structural barriers (e.g., internet access, language, and cultural barriers, cognitive and/or physical disabilities, social isolation, access to services and emergency information) that prevent individuals and neighborhoods from taking care of themselves during and after extreme weather.
	PH 3.2	Require all commercial building owners to rebroadcast and post Watertown Alert announcements to building occupants in English and Spanish
	PH 3.3	Launch a "Sign Up" campaign to ensure equitable access to communication resources
	PH 3.4	Enhance emergency preparedness information on City website
Strategy 4: Promote overall community connectivity	PH 4.1	Establish a network of resilience hubs that provide resources (e.g., cooling, phone-charging, pantry) throughout the community
	PH 4.2	Enhance the existing Live Well Watertown coalition and its programs to incorporate neighborhood connections to nature and to each other



Extreme storms



Flooding



Extreme heat



Drought

Timeframe Short (<1 year) Medium (1-3 years) Long (3-5 years)	Cost \$ (<\$10K) \$\$ (<\$100K) \$\$\$ (> \$100K)	Implementation Champion	Resilience Benefits
Short	\$	DCDP	   
Short	\$	Health	
Medium	\$\$	Health	
Medium	\$\$\$	DCDP	
Medium	\$\$	Health	   
Medium	\$\$	Health	
Medium	\$	DCDP	
Short	\$	IT	
Short	\$	IT	  
Medium	\$\$	Health/Fire	
Medium	\$\$	Health	



MEASURING SUCCESS

The following indicators will help Watertown monitor progress toward our goals for Public Health & Community Preparedness. Multiple actions may contribute to a single target. The City will revisit these targets every 5 years.

Indicator (unit)	Baseline Data	Baseline Year	2030 Target	2050 Target	Source
Number of Census Tracts with Moderate or higher Heat Vulnerability Score	2 of 6	2019	0	0	MAPC
Community members signed up for emergency alerts and communications (%)	34% (12,068)	2021	80%	100%	Watertown Police
Businesses signed up for emergency alerts and communications (%)	2,749 (need to ID total # of biz)	2021	80%	100%	Watertown Police
Customer-hours of weather-related power outages	28,965	Average 2018-2020	14,000	0	Eversource Outage Accident Reports to DPU



Public pools, such as Dealtry Pool, are one strategy to help residents cool off during extreme heat days.



ACTION

Expand and strengthen the existing rooftop solar ordinance



DESCRIPTION OF ACTION

Identify meaningful and achievable ways to build on Watertown's successful rooftop solar ordinance, which currently requires 50 percent roof coverage for new and substantially renovated buildings over 10,000 sq. ft. (or residential units of greater than 10 units) and parking garages.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Analyze options for expanding ordinance. Consider feedback from existing ordinance and cost/benefit of proposed expansions. Consider phasing in changes. Potential changes include: expand to cover all new construction (or lower the square footage threshold for the requirement); include substantial rehab or retrofits; add a provision for solar canopies over parking; include existing parking garages; increase percentage of rooftop coverage required.	3-4 MONTHS	• WE3C • WFCC • Other Massachusetts municipalities
2	Engage relevant property owners and developers in education, outreach, and strategic discussions.	ONGOING	• WE3C • WFCC • Watertown Business Coalition • Real estate and developer community
3	Develop a draft updated ordinance and timeline for further phases.	6 MONTHS	• WE3C
4	Submit the draft development code update to the City Council to undergo the standard review process, including City Council meetings and public review opportunities.	3-4 MONTHS	• City Council
5	Incorporate public and other stakeholder input into language and submit final ordinance for adoption and approval.	2 MONTHS	• City Council
6	Annually evaluate buildings that have been built or upgraded to net zero standards to confirm they are meeting the standard. Plan for small/medium/large maintenance to be done at roughly 1/3/10 years to maintain energy standard.	ONGOING	• DCDP • City Council



FINANCIAL TOOLS & RESOURCES

Technical Resources

- [Current Watertown Solar Ordinance](#)
- [MAPC Municipal Net Zero Playbook](#)



EQUITY CONSIDERATIONS

- ✓ Ensure the life-cycle benefits of solar are communicated equitably and to a diverse audience.
- ✓ Engage all community members when requesting input & comments.
- ✓ Work with regional partners (i.e. other cities) to generate a consistent message to developers, landlords and tenants.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Publicize success and impact of existing ordinance to enhance support.
- ✓ Coordinate with other communities to ensure uniform adoption.



ACTION

Investigate implementing commercial PACE and other innovative finance programs



DESCRIPTION OF ACTION

Investigate financial programs the City can adopt that increase participation in GHG reducing actions. These could include commercial PACE, CCA 2.0, alternative compliance payments from BEUDO, etc.



CHAMPION

Energy Manager's Office

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Investigate possible options for financial programs. Consider which would be most effective for Watertown's unique needs.	6-12 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change • Other Massachusetts communities • Relevant financial experts • Relevant user stakeholders
2	Draft proposals for the highest priority options.	4-6 MONTHS	• DCDP • WE3C
3	Incorporate public and other stakeholder input into language.	2 MONTHS	• DCDP • WE3C
4	Depending on the programs, optionally submit the programs to City Council to undergo the standard review process for program and/or budget approval, including City Council meetings and public review opportunities.	3-4 MONTHS	• DCDP • City Council
5	Incorporate revisions and submit final language for adoption.	3 MONTHS	• DCDP • City Council



FINANCIAL TOOLS & RESOURCES

Financial Tools

- [Massachusetts Clean Energy Center Grant Programs](#)
- [Green Communities Grant Program](#)

Technical Resources

- [Commercial PACE information](#)
- [Local CCAs](#)
- [MAPC Municipal Net Zero Playbook](#)



EQUITY CONSIDERATIONS

- ✓ Engage all community members when requesting input & comments.
- ✓ Depending on the program, target outreach to low-income, POC residents, seniors, renters and small businesses. Also devise compelling message for residential and commercial landlords as conduits for renters.
- ✓ Ensure benefits of the programs are prioritized to those traditionally excluded and those most at need. Build this into program rules.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Work with community partners to design and implement the programs and perform outreach.
- ✓ Work with regional partners to minimize overhead costs.



ACTION

Conduct outreach campaigns for solar, heat pumps, WEC and energy efficiency



DESCRIPTION OF ACTION

Create a multipronged publicity effort to radically increase adoption rates by residential and small commercial entities of solar installations, heat pump space and hot water heaters, City-provided bulk purchase high renewable electricity option (WEC), and deep energy efficiency retrofits and conservation actions.



CHAMPION

Energy Manager's Office

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Allocate financial resources for consultant services and seek City Council approval if required.	3 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change • City Council
2	Identify best practices based on past outreach experience in Watertown and similar campaigns in other MA municipalities.	3 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change • MAPC
3	Develop a multi-phase, multi-year publicity plan with the assistance of expert consultants	6 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change
4	Rollout of initial phases. Include in-person demonstrations or tours to familiarize residents and businesses with relevant technologies or interventions.	6 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change • Other interested partner organizations
5	Ongoing rollout with annual evaluation of progress and adjustments made.	ONGOING	• DCDP • WE3C • Watertown Faces Climate Change • Other interested partner organizations



FINANCIAL TOOLS & RESOURCES

Financial Tools

- [MAPC Accelerating Climate Resiliency Grant Program](#)

Technical Resources

- [WEC materials](#)
- [Heat Pump Heatsmart programs \(e.g., Belmont\)](#)
- [Solarize Mass](#)
- [MassSave](#)



EQUITY CONSIDERATIONS

- ✓ Target outreach to low-income, POC residents, seniors, and renters. Also devise compelling message for landlords as conduits for renters.
- ✓ Engage all community members when requesting input & comments.
- ✓ Work with regional partners (i.e. other cities) to generate a consistent message to developers, landlords and tenants.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Coordinate with other communities and regional organizations for lessons learned (e.g. Newton) and to gain economies of scale.
- ✓ Use multiple forms of media and repetition to increase power of message.
- ✓ Partner with trusted community members and local organizations (e.g. church leaders, local businesses) to spread the message and leverage existing communication networks.



ACTION

Adopt the State's Net Zero Stretch Code as soon as permissible



DESCRIPTION OF ACTION

Watertown will actively advocate for and participate in the development of a net zero stretch code by the Commonwealth of Massachusetts and adopt it immediately. This action will also allow Watertown to align with and contribute to the State of Massachusetts' net zero energy standard.



CHAMPION

Energy Manager's Office

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Designate a representative of the City of Watertown to engage in the state code development process. Attend regular meetings of the Board of Building Regulations and Standards and relevant energy working groups. Work with Key Partners to advocate for rapid development of a standard that aligns with Watertown's priorities for a net zero standard.	8-12 MONTHS	• DCDP • WE3C • Watertown Faces Climate Change • Other Massachusetts communities • Northeast Energy Efficiency Partnerships • Net zero developer and architectural community
2	Develop a draft stretch code adoption ordinance, tightening feasible standards as soon as possible for each building type. Include alternate compliance mechanisms to the net zero standard, if appropriate for furthering other resilience goals.	2-3 MONTHS	• DCDP • WE3C
3	Submit the draft development code update to City Council to undergo the standard review process, including City Council meetings and public review opportunities.	3-4 MONTHS	• City Council
4	Incorporate public and other stakeholder input into language.	1 MONTH	• City Council
5	Submit final net zero standard language for City Council approval and adoption.	1 MONTH	• City Council



FINANCIAL TOOLS & RESOURCES

Technical Resources

- [Boston Planning & Development Agency: Boston Net Zero Carbon Building Zoning Initiative](#)
- [Northeast Energy Efficiency Partnership: Massachusetts Energy Zero Code \(MA E-Z Code\)](#)
- [City of Cambridge: Green Building Requirements and Net Zero Narrative](#)
- [Passive House Institute US: The Passive House Standard](#)
- [Northeast Sustainable Energy Association: Building Energy Case Study Database](#)
- [Built Environment Plus \(former USGBC-MA\)](#)
- [ASHRAE: Advanced Energy Design Guide- Achieving Zero Energy series](#)



EQUITY CONSIDERATIONS

- ✓ Work with existing developers to help them understand the available resources to comply with new standards.
- ✓ Ensure the life-cycle benefits of net zero construction are communicated equitably and to a diverse audience.
- ✓ Engage all community members when requesting input and comments.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Incorporate reporting and enforcement of new standards into existing responsibilities.
- ✓ Connect the development community with appropriate training resources and qualified partners who can meet the standard.
- ✓ Coordinate closely with the State of Massachusetts and develop adoption language concurrent with standard development so that adoption process can begin immediately.
- ✓ Coordinate with other communities to ensure uniform adoption.



ACTION

Enact a Building Energy Use Disclosure Ordinance



DESCRIPTION OF ACTION

Adopt an ordinance to require property managers of buildings of designated sizes and types to track and report energy use to the City of Watertown. This will allow Watertown to set equitable building energy use reduction targets that tighten over time to drive reductions in greenhouse gases. Consider setting reduction targets initially rather than phasing it in over time.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Complete a review of existing ordinances from similar jurisdictions to determine best practices in both ordinance language and process of developing ordinances. Consider ordinances in jurisdictions that can be appropriately compared to Watertown, including those with similar building types and sizes, GHG emissions, energy sources, and climate.	2-3 MONTHS	• Energy Manager's Office • WE3C • Watertown Faces Climate Change • Massachusetts Climate Action Network • Boston/Cambridge/other municipalities identified • Large property owners and commercial developers • Watertown Business Coalition
2	Identify data gaps in current assessment of energy use, especially around non-utility energy such as fuel oil, range of existing building performance levels, and other data to design reporting requirements to obtain a complete accounting of energy related GHGs, enabling development of performance standards.	3-4 MONTHS	• Energy Manager's Office • DPB • WE3C
3	Write draft Ordinance language. Ensure language specifically requires information on building energy sources and fuel mix.	3-6 MONTHS	• Energy Manager's Office • WE3C
4	Review reporting process design, data requirements, and other details with impacted parties to ensure feasibility and adjust as needed.	3-4 MONTH	• Building and property managers • Eversource, National Grid
5	Submit the draft Ordinance to the Planning Board to undergo the standard review process, including City Council meetings and public review opportunities.	3-4 MONTHS	• City Council
6	Incorporate revisions and submit final Ordinance language for adoption.	2-3 MONTHS	• City Council



FINANCIAL TOOLS & RESOURCES

Technical Resources

- [Institute for Market Transformation: Putting Data to Work](#)
- [Institute for Market Transformation: Analyzing Benchmarking Data](#)
- [Institute for Market Transformation: Sample Specifications for a Building Performance Reporting Software Platform](#)



EQUITY CONSIDERATIONS

- ✓ Review existing reporting requirements for building managers/owners and determine if the intent of this action can be made through other means.
- ✓ Ensure the benefits of energy use reporting are communicated equitably and to a diverse audience.
- ✓ Consider a threshold (e.g., building size, building type) that would limit the buildings that need to comply with the ordinance.
- ✓ Identify systems that could automatically collect and report information (e.g., ENERGY STAR® Portfolio Manager®).
- ✓ Engage all community members when requesting input & comments.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Reach out to those who have implemented similar ordinances (in Massachusetts or the Northeast) for guidance.
- ✓ Develop a data review process and instructions for enforcement, establishing both incentives and penalties.
- ✓ Develop clear expectations, process, and schedule for phasing in public data disclosure, considering building types and landlord-tenant relationships.
- ✓ Phase in reporting at regular intervals to allow for managing data and supporting impacted property owners as the program matures to minimize reporting burden.
- ✓ Consider alternative compliance payments that could be redirected toward meeting other goals or be reinvested locally.
- ✓ Select initial thresholds for covered buildings that balance the need for obtaining a meaningful representative sample against the reporting burden for small entities. Phase additional building types and/or lower thresholds over time.
- ✓ Demonstrate the value of the data for understanding progress and highlighting tangible achievements and exceptional performance within the city.
- ✓ Explicitly link observed energy and GHG performance data obtained from the program into the periodic review and update of the Resilient Watertown Climate and Energy Plan.
- ✓ Utilize data on onsite fuel use to target local stationary combustion sources which impact public health and local air quality.
- ✓ Provide regular training and technical assistance to help less-resourced building owners.



ACTION

Upgrade major existing municipal facilities to achieve net zero energy performance



DESCRIPTION OF ACTION

Analyze all existing municipal and school buildings and perform deep energy retrofits to achieve as close to net zero performance as possible. Analyze buildings designed for net zero performance to verify they meet the standard and make adjustments or improvements as needed.



CHAMPION

DPB

OVERALL TIMEFRAME

Long (3-5 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Analyze all existing municipal buildings for existing conditions and opportunities for deep energy retrofits, utilizing energy performance consultant services if deemed necessary.	12 MONTHS	• DCDP • WE3C • Eversource and National Grid • Library Trustees and Director • WHA
2	Create a priority list of facilities for upgrades based on urgency, cost, previously planned upgrades or renovations, barriers, and other factors identified.	2 MONTHS	• DCDP • WE3C
3	Submit the budget items associated with the upgrades to the City Council for review during the normal budget process.	4 MONTHS	• DCDP • City Council
4	Integrate net zero upgrades into planned renovations already in capital plans.	3-4 MONTHS	• DCDP • City Council
5	As construction occurs, install high quality energy monitoring equipment in all municipal buildings.	ONGOING	• DCDP • City Council
6	Annually evaluate buildings that have been built or upgraded to net zero standards to confirm they are meeting the standard. Plan for small/medium/large maintenance to be done at roughly 1/3/10 years to maintain energy standard	ONGOING	• DCDP • City Council



FINANCIAL TOOLS & RESOURCES

Financial Tools

- [Green Communities Grant Program](#)

Technical Resources

- [Boston Net Zero Carbon Building Zoning Initiative](#)
- [Massachusetts Energy Zero Code \(MA E-Z Code\), Northeast Energy Efficiency Partnership](#)
- [Green Building Requirements and Net Zero Narrative, City of Cambridge](#)
- [Building Energy Case Study Database, Northeast Sustainable Energy Association \(NESEA\)](#)
- [ASHRAE Advanced Energy Design Guide-Achieving Zero Energy series](#)



EQUITY CONSIDERATIONS

- ✓ Consider equity impacts of upgrades when creating priority list of upgrades.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Incorporate ongoing monitoring of building energy performance against net zero standard into existing responsibilities.
- ✓ Establish a budget item for maintenance relative to energy performance to streamline process.



ACTION

Collaborate regionally to increase and improve safe, interconnected pathways for bicyclists and pedestrians



DESCRIPTION OF ACTION

Watertown will continue to build out a robust bicycle and pedestrian network that reaches to destinations beyond our municipal boundaries.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)/Ongoing

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Include sidewalks and curbs wherever new road construction is planned.	ONGOING	• Department of Public Works
2	Work with DPW and Complete Streets Committee to ensure that at least one project on each year's road plan improves bike safety. Protected bike lanes are preferred where feasible.	ONGOING	• Department of Public Works
3	Coordinate with Planning and Public Works Department in adjacent towns when road projects are close to borders.	ONGOING	• Cambridge, Boston, Newton, Waltham, Belmont
4	Increase bike parking in business districts and transit nodes (Watertown Yard, Watertown Square and Coolidge Square).	ONGOING	• Department of Public Works • Local business community • Real estate and developers
5	Maintain and grow the number of Bluebikes station to improve first and last mile travel options.	ONGOING	• Department of Public Works • Local business community • Real estate and developers



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Massachusetts Chapter 90 Funding](#)
- American Rescue Plan Act Funding
- Capital Improvement Plan

Technical Resources

- [Watertown Bicycle and Pedestrian Plan](#)
- [MAPC Net Zero Playbook: Zero Emission Mobility](#)



EQUITY CONSIDERATIONS

- ✓ Prioritize investments in areas with Environmental Justice populations and climate-vulnerable communities.
- ✓ Consider how investments will connect to local and regional transit.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Consider long-term economic development of Watertown and the region to anticipate future mobility routes.
- ✓ Conduct frequent outreach to the public on the accessibility of pedestrian and bicycle movement in Watertown.



ACTION

Increase use of transit, bike, and pedestrian travel through outreach, incentives, and policy changes



DESCRIPTION OF ACTION

Systematically expand use of non-vehicular travel by instituting and advertising changes such as decreased zoning requirements for parking, traffic calming, and safe routes to schools.



CHAMPION

DCDP

OVERALL TIMEFRAME

Long (3-5 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Conduct an inventory of transportation assets and programs to generate a baseline.	2 MONTHS	• Department of Public Works • Bike/Ped Committee
2	Develop incentives to reduce parking needs, including expanding the shuttle program, sharing parking between businesses, and improving bike infrastructure in municipal parking lots.	6 MONTHS	• Department of Public Works
3	Consider policy changes such as a reduction in parking requirements in the zoning code and better integrating traffic calming measures into road planning.	1 YEAR	• Department of Public Works • City Council
4	Expand and/or formalize programs aimed at specific locations in Watertown, such as “safe routes to school” and promoting walkability of the central business district.	ONGOING	• Department of Public Works • Local business community • WPS • neighborhood organizations
5	Plan and promote events and other creative ways to communicate about existing and new programs and technologies.	ONGOING	• Department of Public Works • Local business community • Bike/Ped Committee



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [MAPC Accelerating Climate Resiliency Grant Program](#)
- [MassDOT Shared Streets and Spaces funds](#)

Technical Resources

- [MAPC Net Zero Playbook: Zero Emission Mobility](#)
- [MAPC Maximum Parking Allowances](#)



EQUITY CONSIDERATIONS

- ✓ Prioritize policy changes and incentive programs that will benefit low-income residents, renters, and other climate vulnerable populations.
- ✓ Conduct meaningful public engagement when discussing and adopting policy changes.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Engage property owners and businesses early on and lead with successful examples from other communities.
- ✓ Tie efforts to long-term economic and community development goals.



ACTION

Develop an integrated, publicly accessible electric transit system that connects to MBTA and other points of interest not accessible by MBTA



DESCRIPTION OF ACTION

Increase the connectedness of mobility choices and destinations in and around Watertown using clean and affordable options.



CHAMPION

DCDP

OVERALL TIMEFRAME

Long (3-5 years)

		PLANNING CONSIDERATIONS	
IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Assess current ridership demographics and local and regional transit origin/destination needs.	3 MONTHS	• MBTA • WTMA • Surrounding communities (e.g., Belmont, Newton, Waltham) • Watertown businesses and employers • E-bikeshare providers
2	Create a transit advisory group that reflects the demographics of the city to prioritize ridership, routes, and destinations to focus on and determine which are best serviced by shuttles, on-demand, or other modes.	2 MONTHS	• MBTA • WTMA • WE3C • Council on Aging
3	Collaborate with transit partners to assess and develop an electrification plan for bus and shuttle fleet.	6 MONTHS	• Participating service providers • WTMA
4	Collaborate with existing service providers in and around Watertown to discuss partnership opportunities for public use. Develop and implement Integrated Mobility Solutions so that services enhance rather than compete with each other.	6-12 MONTHS	• MBTA • WTMA • NewMO • Council on Aging
5	Expand the TDM Ordinance to apply to existing businesses: Collaborate with local businesses and anchor institutions on transportation demand management options; amend or revise the TDM Ordinance to expand its reach.	6 MONTHS	• Large employers in Watertown (e.g., Athenahealth, Riverworks, VHB) • WTMA • City Council • Watertown Public Schools • Perkins School for the Blind



6	Implement new bus routes, shuttle routes, priority bus lanes and signal priorities, and e-bikeshare stations as deemed relevant by the assessment in steps 1 and 2.	1-2 YEARS (ONGOING)	• Participating service providers • MBTA • WTMA • Private property owners • Traffic Commission • DPW
7	Review ridership fee structures for equity, in collaboration with chosen partners.	2 MONTHS	• Participating service provider partners
8	Rollout new services. Develop ridership guidebook that encompasses all publicly available routes, connections, service providers, and fees. Develop and release public outreach to advertise new transit options and connections.	3 MONTHS	• Participating service provider partners



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Mascot: Community Transit Grant Program](#)
- [National Center for Mobility Management: Grants and Opportunities](#)

Technical Resources

- [City of Newton: New-Mo](#)
- [Salem Skipper](#)
- [Uber Transit \(Partner of the MBTA\)](#)
- [Community Compact Cabinet: Best Practices Program, Transportation / Public Works](#)
- [Community Transportation of America](#)
- [Transit Planning 4 All](#)
- [National Center for Applied Transit Technology](#)
- [Operating a Successful Community Shuttle Program: A Guidebook](#)



EQUITY CONSIDERATIONS

- ✓ Ensure accessibility for people with disabilities and seniors including both accessibility of stops and consideration of distance between stops.
- ✓ Consider affordability of ridership fee schedule and strategies to facilitate reduced fares.
- ✓ Identify neighborhoods that have specific transit needs (e.g., "transit deserts" or a larger percentage of 2nd and 3rdshift workers not served by current transit timetables).



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Ensure that new routes and ridership services cover a wide range of resident demographics to provide connectedness opportunities for all.
- ✓ Consider long-term economic development of Watertown to anticipate future routes and service needs.
- ✓ Collaborate early and often with the MBTA on forthcoming improvements to their routes and services to ensure synergy and reduce duplication of services.
- ✓ Engage the Watertown community through multiple strategies and at multiple touchpoints to gather the most accurate ridership needs data.
- ✓ Work with neighboring communities to fund and maintain regional transit and connection options.



ACTION

Develop and implement an EV Roadmap for Watertown



DESCRIPTION OF ACTION

Create a detailed and actionable roadmap to install localized electric vehicle (EV) infrastructure and develop programs to increase EV adoption in Watertown.



CHAMPION

DCDP

OVERALL TIMEFRAME

Short (<1 year)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Conduct a baseline assessment of current Watertown EV infrastructure (public and private), existing number and adoption rate of EVs.	3 MONTHS	• Director of Public Buildings/Energy Manager • Watertown Registry of Motor Vehicles
2	Identify and engage with all critical and relevant parties, including the audience that will be directly or indirectly impacted by the Roadmap, and populations who have been underserved.	1 MONTH	• Energy Manager • WE3C • DPB • DPW • Watertown Business Coalition • Large developers and property owners
3	Research best practices nationally and from surrounding communities; understand upcoming developments in the industry.	3 MONTHS	• Surrounding communities • National Grid and Eversource • ChargePoint • Clean Cities Coalition
4	Utilizing data collected from steps 1-3, define scope of EV Roadmap and set City goals for the Roadmap.	2 MONTHS	• Traffic Commission • Energy Manager • WE3C • DPB • DPW • Watertown Business Coalition • Large developers and property owners
5	Identify barriers to EV adoption at all scales and engage the community for feedback.	3 MONTHS	• Renters and landlords • Low-moderate income residents • Watertown visitors and commuters • Car dealerships • Businesses • Developers



6	Analyze data and community and stakeholder feedback, identify key themes, and compile and prioritize immediate, medium, and long-term actions.	6 MONTHS	• Consultant
7	Launch Roadmap in conjunction with a public outreach campaign and begin implementation.	2 MONTHS	• WE3C • Energy Manager • City Council



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [US Department of Transportation – Low or No Emission Vehicle Program](#)
- [US Department of Energy – Federal Tax Credits](#)
- [MassDOER – MOR-EV Rebate Program](#)
- [MassDOER – MOR-EV Trucks Program](#)

Technical Resources

- [USDN - Electric Vehicle Charging Access for Renters: A Guide to Questions, Strategies, and Possible Next Steps](#)
- [MJ B&A - Regional EV Charging Infrastructure Location Identification Toolkit \(ILIT\)](#)
- [US Department of Energy – Electric Vehicle Infrastructure Projection Tool \(EVI-Pro\) Lite](#)
- [City of Boston – Recharge Boston](#)
- [Tucson Electric Power - Electric Vehicle 5-Year Strategic Roadmap](#)
- [Partnership between City of Melrose and National Grid](#)



EQUITY CONSIDERATIONS

- ✓ Provide opportunities for renters to access and utilize EV infrastructure.
- ✓ Identify creative solutions for Watertown's building stock of older multifamily homes.
- ✓ Ensure EV charging is physically, logistically, and financially accessible to all residents of Watertown.
- ✓ Include actions that increase low-income access to electric vehicles.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Seek feedback proactively and have conversations with developers and landlords on any new policies and regulations, both while the Roadmap is in development and after launch.
- ✓ Ensure City implements a long-term maintenance plan for new EV infrastructure.
- ✓ Conduct early and frequent outreach to the public on the accessibility of new EV infrastructure.
- ✓ Consider future local and regional economic development plans to ensure EV infrastructure readily connects to other infrastructure.
- ✓ Ensure new infrastructure is guided by core principles, such as ability to enhance workforce development by way of expanded transit options, etc.
- ✓ Provide technical assistance to property owners interested in hosting EV infrastructure.
- ✓ Evaluate pros and cons of private vs. public infrastructure ownership.
- ✓ Seek funding to offer financial incentives for gaps the Roadmap identifies in state and federal funding.



ACTION

Incorporate pocket parks into all neighborhoods lacking green space



DESCRIPTION OF ACTION

Watertown will identify and implement pocket parks on public and private property, with a priority focus on neighborhoods lacking open space. This process will take place in coordination with private development activity wherein privately-owned public open space may be created.



CHAMPION

DCDP

OVERALL TIMEFRAME

Long (3-5 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Identify sections of Watertown that meet the definition of "lacking green space" based on number of residents within a ten-minute walk to open space.	1-2 MONTHS	• GIS consultants
2	2 Create a set of criteria that would make: a) public property suitable for conversion to open space (minimum square footage, potential for other priority uses, abutting land uses, etc) b) private property appropriate for purchase by the City for use as open space (square footage range, current use, abutting land uses, etc)	1-2 MONTHS	• Department of Public Works • Assessor's Office
3	Conduct a mapping exercise to identify existing public properties that could accommodate open space and to identify small parcels the City can purchase.	1-2 MONTHS	• GIS consultants
4	Develop a list of priority properties for acquisition (if applicable) and conversion	1-2 MONTHS	• Department of Public Works • City Council
5	Incorporate priority public parcels for conversion into upcoming capital plans and aim for development of 1 pocket park per year via a combination of capital funds and applicable grant programs	2 MONTHS	• Department of Public Works



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Massachusetts Parkland Acquisitions and Renovations for Communities \(PARC\) Grant Program](#)
- [MassDevelopment: Commonwealth Places](#)
- [Municipal Vulnerability Preparedness \(MVP\) Action Grant](#)
- [Metropolitan Area Planning Council: Accelerating Climate Resiliency Grant Program](#)
- [MA DCR: Urban and Community Forestry Challenge Grants](#)
- [Community Preservation Act Grant Program](#)

Technical Resources

- [National Recreation and Park Association: Issue Brief on Pocket Parks](#)
- [Trust for Public Land Pocket Park Toolkit](#)



EQUITY CONSIDERATIONS

- ✓ Balance need for open space with other priority needs such as affordable housing.
- ✓ Identify local leadership for each site as it is developed to steer the process and generate buy-in for the future park.
- ✓ Prioritize green space enhancements in environmental justice communities and neighborhoods with low tree canopy coverage.
- ✓ Ensure programs and activities are sensitive to variety of cultures in Watertown, including types of activities as well as days activities are held.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Connect with existing volunteer groups (e.g., Friends of Bees, Watertown Community Gardens) for training, outreach, and support.
- ✓ Identify opportunities to use green space enhancements for climate resiliency objectives (e.g., trees for shading, rain gardens for stormwater management).
- ✓ Plan for any additional maintenance requirements for enhancements early on in the projects.



ACTION

Establish natural habitat corridors along water bodies, trails, and utility easement areas, and protect existing ones



DESCRIPTION OF ACTION

This is a two-pronged strategy to enhance our existing natural habitat corridors, improve the ecology along the Charles River, and identify opportunities to establish or formalize new habitat corridors.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Conduct a mapping exercise and field study to identify areas where natural habitat corridors could exist or could be bolstered; keep regional connections in mind.	3 MONTHS	• Department of Public Works • WE3C • Conservation Commission • Mass Audubon • DCR • Mount Auburn Cemetery • Friends of Bees
2	Develop a priority list of specific properties, rights of way, and other parcels that should be naturalized and/or preserved in service of habitat corridor creation.	3 MONTHS	• Department of Public Works • WE3C • Conservation Commission
3	Add identified projects to capital plans as appropriate, seeking opportunities to add onto already planned work if feasible.	1-2 MONTHS	• Department of Public Works • City Council
4	Work with DCR and partner groups to support the maintenance and improved health of habitat corridors on their properties.	1-2 MONTHS	• DCR • Partner groups and stewardship volunteer organizations
5	Connect new habitat corridor efforts to outreach and education around natural resources and climate change.	ONGOING	• DCR • WE3C • Conservation Commission



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Municipal Vulnerability Preparedness \(MVP\) Action Grant](#)
- [Metropolitan Area Planning Council: Accelerating Climate Resiliency Grant Program](#)
- [MA DCR: Urban and Community Forestry Challenge Grants](#)
- [Community Preservation Act Grant Program](#)

Technical Resources

- [Smart Cities Dive: Corridor Ecology and Planning](#)



EQUITY CONSIDERATIONS

- ✓ Prioritize green space enhancements in environmental justice communities and neighborhoods with low tree canopy coverage.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Coordinate with regional organizations and neighboring municipalities to enhance habitat across city boundaries.
- ✓ Integrate this effort with the City's emerging pollinator program and multi-use path developments.



ACTION

Develop a nature-based landscaping education and outreach plan with expanded opportunities for residential involvement



DESCRIPTION OF ACTION

Create educational materials and incentives to facilitate resident engagement in landscaping practices that minimize pesticide use, support native species, and use green infrastructure and low-impact development.



CHAMPION

DPW

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Review existing nature-based landscaping education and incentive programs in partnership with community members and City staff to understand opportunities to expand existing offerings and design new programs.	3-4 MONTHS	• Watertown Community Gardens • Friends of Bees • CRWA • Trees for Watertown • Teens for Trees • Watertown Free Public Library • Mount Auburn Cemetery • Recreation • Conservation Commission • Watertown Public Schools • Watertown Housing Authority • Watertown Community Education
2	Establish a City-approved pollinator plant and tree species list to distribute to developers, homeowners, etc.	3-4 MONTHS	• Above listed partners
3	Develop an annual calendar for outreach and education that builds off both existing and new educational programs and is based on seasonal, consistent themes.	1 MONTH	• Above listed partners
4	Develop and launch a multimedia campaign in English and Spanish consistently promoting seasonal educational opportunities and programs and distribute materials to local landscaping companies.	3 MONTHS	• Above listed partners
5	Develop a sustainable landscaping workshop series for residents and/or commercial entities, in partnership with local experts.	6 MONTHS	• Massachusetts Master Gardener Association • Mass Audubon • CRWA • DCR • Middlesex Conservation District • Watertown Community Education • Watertown Free Public Library
6	Connect education campaign to Watertown Public Schools curriculum and professional development, in coordination with action NR3.2.	1 YEAR	• Watertown Public Schools



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Massachusetts Executive Office of Energy & Environmental Affairs: Municipal Vulnerability Preparedness Action Grant](#)
- [Metropolitan Area Planning Council: Accelerating Climate Resiliency Grant Program](#)
- [Toxics Use Reduction Institute: Community Grants](#)

Technical Resources

- [City of Cambridge: Miyawaki Forest demonstration project](#)
- [Town of Concord: Sustainable Concord Landscape Handbook](#)
- [Ecological Landscape Alliance](#)
- [Massachusetts Horticultural Society](#)
- [Grow Native Massachusetts](#)
- [X-Cel Education program](#)
- [Boston Water & Sewer Commission and Boston Public Schools: Stormwater & Green Infrastructure Curriculum for Boston Public Schools](#)
- [USDA Conservation Districts](#)



EQUITY CONSIDERATIONS

- ✓ Celebrate and actively incorporate non-western methods of sustainable landscaping (see Cambridge Miyawaki Forest example).
- ✓ Consider technology access, as well as physical, geographic, cultural, and/or linguistic barriers to participation when designing programs.
- ✓ Incorporate green infrastructure maintenance training into demonstration projects (modeled after and potentially via partnership with X-Cel Education Program).
- ✓ Prioritize support for projects in neighborhoods with higher percent impervious surface, lower income residents, and historically limited investment.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ The adopt-an-island program would be an example of an existing program to expand. An example of a new program could be free or discounted native pollinator seeds and guidance on how to maintain native plants.
- ✓ Leverage existing volunteer groups (e.g., Friends of Bees, Watertown Community Gardens, Master Naturalist, Master Gardener, Scouts) to support City staff.
- ✓ Work with student and teacher groups to integrate sustainable landscaping into school curricula and professional development programs. Support teachers with training to ensure they can develop and teach the curriculum.



ACTION

Promote and/or incentivize the incorporation of green stormwater infrastructure into existing large impervious areas



DESCRIPTION OF ACTION

Create a green stormwater infrastructure promotion structure that incorporates ordinance updates, public outreach, incentives, and technical assistance. Include biosales, rain gardens, trees, pervious pavement, and other green infrastructure techniques that help to filter pollutants out of stormwater and control flooding.



CHAMPION

DPW

OVERALL TIMEFRAME

Long (3-5 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Convene an ad-hoc group to design incentives for both commercial and residential properties.	6-8 MONTHS	• SWAC • DCDP • Conservation Commission • Schools • Large property owners • Developers • Charles River Watershed Association • Mystic River Watershed Association
2	Assess the types and locations of impervious surfaces, locations of frequent surface flooding, stormwater basins, and areas where infrastructure is due for replacement across Watertown to identify high-priority replacement opportunities.	3-4 MONTHS	• SWAC • DCDP • GIS consultants
3	Modify the Stormwater Management and Erosion Control Ordinance to lower the trigger size for including green infrastructure.	6-12 MONTHS	• SWAC • City Council
4	Work with partners to promote the incentives, alongside expanded technical assistance and education opportunities.	4-6 MONTHS	• SWAC • Conservation Commission • Schools • Large developers
5	Develop demonstration projects for the various sectors represented focusing on sectors with limited existing information and educational resources.	1-2 YEARS	• SWAC • Conservation Commission • Schools • Large developers



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Massachusetts Executive Office of Energy & Environmental Affairs: Municipal Vulnerability Preparedness Action Grant](#)
- [Metropolitan Area Planning Council: Accelerating Climate Resiliency Grant Program](#)
- [Massachusetts Department of Environmental Protection: Section 319 Nonpoint Source Grants Program](#)
- [National Fish & Wildlife Foundation: Resilient Communities Program](#)
- [US EPA: Green Infrastructure Funding Opportunities](#)

Technical Resources

- [Devens Enterprise Commission: Green Infrastructure Guidelines for Devens Projects](#)
- [The Nature Conservancy: Eco-Urban Assessment](#)
- [Metropolitan Area Planning Council: Designing Parks and Playgrounds as Green Infrastructure for Stormwater and Climate Resilience](#)



EQUITY CONSIDERATIONS

- ✓ Maximize public benefits of green infrastructure alternatives to impervious surfaces, particularly in neighborhoods experiencing more severe impacts (e.g., flooding, heat island).
- ✓ Incorporate the results of Mystic River Watershed Association's forthcoming heat island analysis (Wicked Hot Mystic) into the projects/locations that are incentivized.
- ✓ Provide job training opportunities for green infrastructure (potentially via partnership with X-Cel Education Program – see action on green infrastructure).
- ✓ Provide support for renters to have conversations with their landlords about the benefits of replacing impervious surface.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Offer a range of incentive options, tailored to different sectors and property types, to encourage replacement of existing impervious surfaces.
- ✓ Ensure that programs and incentives account for the realities of sector-specific constraints. For example, incentivizing existing commercial entities to convert their impervious surfaces may be cost-prohibitive, so capitalizing on existing pavement replacement or repair projects may be most effective.
- ✓ Seek creative opportunities to introduce green infrastructure (e.g., as part of projects to convert underutilized areas to parks or community green spaces).
- ✓ Direct local landscapers and contractors to green infrastructure training opportunities and resources (or provide these resources via the City, if possible).
- ✓ Pair City support with increased regulation regarding trigger size for green infrastructure.
- ✓ Plan for green infrastructure maintenance with necessary partners very early in projects.
- ✓ Use well-maintained demonstration projects to build buy-in with neighbors.



ACTION

Investigate opportunities to pursue a circular economy in Watertown or within the Metro Boston region



DESCRIPTION OF ACTION

Investigate opportunities to pursue a circular economy in Watertown and throughout the region, such as plastic item bans, grey water recycling, pay-per-bag trash collection system, and other actions.



CHAMPION

DPW

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Conduct research into examples of circular economy efforts in other municipalities for opportunities to replicate locally and/or join into and expand existing programs.	3-4 MONTHS	• DCDP • WE3C • Recycling Committee
2	Evaluate options for expansion of services at recycling center to include hazardous waste, yard waste, and used clothing swap opportunities. Include these needs in any future upgrade or renovation plans for recycling center.	3-4 MONTHS	• DCDP • WE3C • Recycling Committee
3	Conduct a feasibility study on solid waste reduction programs such as “pay-as-you-throw” in partnership with solid waste contractor, built into new contract that is due to be renegotiated in June 2022.	6 MONTHS	• Republic Waste Services (contractor) • Recycling Committee
4	Implement programs that are deemed feasible and incorporate education about new programs into overarching Resilient Watertown outreach efforts.	1-2 YEARS	• Recycling Committee • WE3C • Watertown Faces Climate Change



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [MassDEP: Sustainable Materials Recovery Program \(SMRP\) Municipal Grant](#)

Technical Resources

- [MassDEP: Sustainable Materials Recovery Program \(SMRP\) Municipal Technical Assistance](#)
- [Natick Pay as You Throw Strategy](#)



EQUITY CONSIDERATIONS

- ✓ Minimize the impact of programs such as pay-as-you-throw on low-income residents.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Integrate circular economy concepts into broader Resilient Watertown education and outreach efforts.
- ✓ Begin education and outreach efforts at start of effort.



ACTION

Investigate local back-up power, microgrid, and battery options in coordination with utilities



DESCRIPTION OF ACTION

Identify opportunities for sustainable back-up power sources, microgrids, and battery energy storage for installation at City facilities or anchor institutions within the community with the goal to reduce disruptions during normal operations and during disasters.



CHAMPION

DPB

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Develop and convene a joint working group with utilities and critical facilities/ large energy users to assess gaps and opportunities and set guiding principles for the Action.	4 MONTHS	• Eversource • WE3C • DCDP • DPW • Critical facilities (e.g., schools, emergency response facilities) • Fire Department • WHA • Community organizations • Residents and businesses
2	Conduct a needs assessment of current infrastructure and resident and business energy use to identify where back-up power is needed and most critical. Evaluate opportunities to convert fossil fuel-based back-up power to renewable or microgrid technologies.	8 MONTHS	• Joint working group • External consultants
3	Develop an evaluation framework to use for project prioritization to maximize community resilience, including greenhouse gas reductions.	2 MONTHS	• Joint working group
4	Prioritize projects based on evaluation framework, urgency, cost, barriers, and other factors identified.	3 MONTHS	• Joint working group
5	Establish an implementation plan and identify potential funding sources.	4 MONTHS	• Joint working group



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Massachusetts Executive Office of Energy and Environmental Affairs: Municipal Vulnerability Preparedness Action Grant](#)
- [Massachusetts Department of Energy Resources \(DOER\): Community Clean Energy Resiliency Initiative](#)
- [Federal Emergency Management Agency \(FEMA\): Building Resilient Infrastructure and Communities \(BRIC\) Grant Program](#)

Technical Resources

- [US Department of Energy: Energy Storage](#)
- [DOER & Massachusetts Clean Energy Center \(MassCEC\): State of Charge: A Comprehensive Study of Energy Storage in Massachusetts](#)
- [MassCEC: Microgrids Background and Studies](#)
- [MassCEC: Clean Energy and Resiliency Case Studies](#)
- [Rocky Mountain Institute: Solar Plus Storage Case Studies](#)
- [National Renewable Energy Laboratory: Renewable Energy Integration & Optimization Tool \(REopt\)](#)
- [U.S. Department of Energy: Solar-plus-storage economics: What works where, and why?](#)



EQUITY CONSIDERATIONS

- ✓ Consider environmental justice communities and historically under-resourced neighborhoods in assessment and prioritization of investments.
- ✓ Collaborate with a diverse range of residents, businesses, agencies, and institutions during the assessment and prioritization phases.
- ✓ Consider where back-up power may benefit emergency response (e.g., evacuation centers, cooling centers).
- ✓ Identify opportunities for workforce development, local hiring, and vocational training opportunities during development of implementation plan.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Engage with a broad set of stakeholders, particularly utilities, early in the process to ensure project buy-in.
- ✓ Identify diversity of funding sources to cover upfront cost of investments and alleviate objections or concerns stakeholders may have about cost.
- ✓ Evaluate utility rates and demand response programs for potential funding.



ACTION

Mitigate existing and prevent new urban heat islands in Watertown



DESCRIPTION OF ACTION

Reduce the impact of existing and future urban heat islands on Watertown neighborhoods by taking action to enhance green space, shading, water features, and reflective surfaces.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Map existing impervious surfaces, surface temperatures, and environmental justice communities to understand the geographic and demographic distribution of urban heat islands.	1 MONTH	• Tree Warden • DPW • DPH • GIS consultants
2	Identify approaches for heat mitigation for residential and commercial properties, considering options including, but not limited to, a “cool roofs” program, an artificial turf ban, and incentives for deparing private property.	3 MONTHS	• DPW • DPB • WE3C • Watertown Faces Climate Change • Large property owners
3	Develop educational materials on the dangers of the urban heat island effect and the benefits of green space and tree canopy.	2 MONTHS	• Education/outreach consultants
4	Conduct outreach to residents and businesses to understand the best approaches for heat mitigation. Use this step as an opportunity to continue education around heat impacts and strategies.	3 MONTHS	• Watertown Free Public Library • Watertown Public Schools • Businesses • WE3C • Watertown Housing Authority
5	Establish targets to mitigate a percentage of existing urban heat islands each year.	1 MONTH	• DPW
6	Make appropriate zoning or other regulatory amendments to minimize urban heat island effects in the built environment.	6 MONTHS	• Zoning Board • City Council
7	Implement new programs and/or regulations as identified to be feasible and impactful approaches for Watertown.	ONGOING	• DPW • WE3C • DPH • Large property owners



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [MassDevelopment: Community Health Center Grant Program](#)
- [MassDevelopment: Commonwealth Places](#)
- [MA DCR: Urban and Community Forestry Challenge Grant](#)
- [EPA New England: Healthy Communities Grant Program](#)

Technical Resources

- [Metropolitan Area Planning Council: Extreme Heat Resources](#)
- [Metropolitan Area Planning Council: Climate Vulnerability in Greater Boston](#)
- [US EPA: Keeping Your Cool](#)
- [City of Philadelphia: Beat the Heat Toolkit](#)



EQUITY CONSIDERATIONS

- ✓ Ensure that initiatives target neighborhoods and populations that are most vulnerable to extreme heat (e.g., communities of color, low-income communities, elderly population, individuals experiencing homelessness).
- ✓ Incorporate practices into public housing projects or any publicly funded projects.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Promote the benefits of heat mitigation strategies, including green space, shading, water features, and reflective surfaces, to overcome the cost benefits of increasing pervious surfaces, like parking lots.
- ✓ Continue to seek feedback and conversations with property owners and residents on impacts of any new policies or zoning changes.
- ✓ Create a plan for monitoring progress, including review of heat maps and other heat-related indicators on a recurring basis.
- ✓ Conduct ongoing public outreach and education about urban heat islands and mitigation strategies.



ACTION

Establish a network of resilience hubs that provide resources (e.g., cooling, phone-charging, pantry) throughout the community



DESCRIPTION OF ACTION

This network of spaces will serve residents during a climate-related emergency or other disruption, providing power, food and water, and other basic services.



CHAMPION

DCDP

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Create a list of criteria necessary for a resilience hub to have and quantify the number of hubs needed to serve Watertown. Consider locations that have other assets nearby like grocery stores for essential items.	2 MONTHS	• Fire Department • Police Department • DPB • DPH
2	Engage residents to identify whether specific services are needed in different parts of Watertown.	3 MONTHS	• DPH • Live Well Watertown
3	Conduct a mapping exercise to identify existing locations that are or can be used as a hub.	2 MONTHS	• Fire Department • Police Department • DPB • DPH
4	Engage property owners, if applicable, to design and execute partnership agreements.	6 MONTHS	• Fire Department • Police Department • DPH
5	Develop final list of resilience hubs and develop protocol to follow during operation as a resilience hub, including coordination with City emergency preparedness communications.	2 MONTHS	• Fire Department • Police Department • DPH • Live Well Watertown
6	Publicize new network of resilience hubs to residents.	ONGOING	• Police Department • DPH • Live Well Watertown



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [Municipal Vulnerability Preparedness \(MVP\) Action Grant](#)

Technical Resources

- [Resilient Medford: Resilience Hubs Report](#)
- [Cambridge Community Center Resilience Hub Plan](#)
- [Pew Charitable Trusts: Health Impact](#)



EQUITY CONSIDERATIONS

- ✓ Engage climate-vulnerable populations to ensure their needs will be met during emergencies.
- ✓ Consider multi-modal accessibility to resilience hubs when identifying potential locations.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Coordinate implementation with existing Watertown Hazard Mitigation Plan
- ✓ If applicable, integrate resilience hub upgrades into capital plan for public facilities



ACTION

Enhance the existing Live Well Watertown coalition and its programs to incorporate neighborhood connections to nature and to each other



DESCRIPTION OF ACTION

Acknowledging the health and climate benefits associated with experiences in nature and connected communities, the Live Well Watertown coalition will enhance the existing “Walk with a Doc/Just Walk” program, which includes themed talks, building social connections, and movement for health, to include new partnerships and the incorporation of nature and environmental themed programs. This expanded initiative aims to eventually culminate into the creation of localized neighborhood walking networks that can also be utilized to distribute information and aid in an emergency.



CHAMPION

Live Well Watertown

OVERALL TIMEFRAME

Medium (1-3 years)

PLANNING CONSIDERATIONS

IMPLEMENTATION STEPS		TIMEFRAME	KEY PARTNERS
1	Conduct community outreach to assess the interest and feasibility of partnering with local organizations on new, expanded Walk with a Doc/Just Walk programming.	3 MONTHS	• Watertown Free Public Library • Watertown Public Schools • Watertown Boys & Girls Club • Watertown Recreation • Watertown Community Gardens • Friends of Bees • Trees for Watertown • Watertown Faces Climate Change • Riverside Neighborhood Group
2	Conduct education and outreach through new partnerships to strengthen the connection between health and nature in residents' minds.	6 MONTHS	• Partners
3	Expand group of existing walk leaders by identifying a leader for each new walking group (and affiliated neighborhood).	3 MONTHS	• Partners who are ready to participate in 2022
4	Launch of new walking programs, staggering based on timing needs/constraints of each organization.	3 MONTHS	• Partners who are ready to participate in 2022
5	Establish localized networks of neighborhood walking groups that can also serve as information conduits and emergency preparedness safeguards.	ONGOING	• Partners



FINANCIAL TOOLS & TECHNICAL RESOURCES

Financial Tools

- [America Walks: Community Change Grants](#)
- [Environmental Protection Agency: Healthy Communities Grant Program](#)
- [Massachusetts DCR: MassTrails Grants](#)

Technical Resources

- [America Walks: Resource Center](#)
- [MassDOT: Municipal Resource Guide for Walkability](#)



EQUITY CONSIDERATIONS

- ✓ Ensure outreach, education, and newly created walking programs are reaching Environmental Justice areas and climate-vulnerable communities, as well as elderly, special needs populations, minorities, and those with limited mobility.



OPPORTUNITIES TO OVERCOME POTENTIAL IMPLEMENTATION BARRIERS

- ✓ Work with coalition members and collaborators and leverage their established networks to add capacity for outreach, engagement, and participation.
- ✓ Consider looking at walking programs in nearby municipalities, such as WalkBoston, WalkUP Roslindale, or West Rox Walks.

REFERENCES

1. Climate Central. (2015). When it Rains it Pours: Heaviest Downpours are on the Rise. Retrieved from: http://assets.climatecentral.org/pdfs/WhenItRainsItPours_methods.pdf.
2. Northeast Climate Adaptation Science Center. (2018). Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins.
3. Ibid.
4. Resilient MA. N.d. Changes in Precipitation. Retrieved from <https://resilientma.org/changes/changes-in-precipitation>
5. National Drought Mitigation Center. N.d. United States Drought Monitor.
6. Massachusetts Executive Office of Energy and Environmental Affairs. (2018). Massachusetts Integrated State Hazard Mitigation Plan and Climate Adaptation Plan.
7. Runkle et al. (2017). Massachusetts State Climate Summary. NOAA Technical Report NESDIS 149-MA. Retrieved from: <https://statesummaries.ncics.org/chapter/ma/>.
8. Northeast Climate Adaptation Science Center. (2018). Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins.
9. Kim Lundgren Associates. (2021). Watertown Community and Municipal 2019 Greenhouse Gas Emissions Inventory Summary Report.
10. Kim Lundgren Associates, Inc. (2021). Watertown Community and Municipal 2019 Greenhouse Gas Emissions Inventory Results Summary.
11. Massachusetts Clean Energy Center, Production Tracking System. Retrieved from <https://www.masscec.com/data-and-reports>
12. City of Watertown. (2021). Sustainability, Energy and Resiliency. Retrieved from <https://www.watertown-ma.gov/209/Sustainability-Energy-and-Resiliency>
13. City of Watertown. (2021). Assessor’s Database.
14. DOE. (2018). Low Income Energy Affordability Database. Retrieved from <https://www.energy.gov/eere/slsc/maps/lead-tool>
15. Kim Lundgren Associates, Inc. (2021). Watertown Community and Municipal 2019 Greenhouse Gas Emissions Inventory Results Summary.
16. Elizabeth Karpinski (2021). Estimate the effect of protected bike lanes on bike-share ridership in Boston: A case study on Commonwealth Avenue. Case Studies on Transport Policy, 9, 3, pgs 1313-1323.

17. Nowak, D.J., Greenfield, E.J., Hoehn, R.E., & Lapoint, E. (2013). Carbon storage and sequestration by trees in urban and community areas of the United States. *Environmental Pollution*, 178, 229-236. <https://doi.org/10.1016/j.envpol.2013.03.019>
18. Ibid
19. Ziter, C.D., Pedersen, E.J., Kucharik, C.J., Turner, M.G. (2019). Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer. *PNAS*, 116, 7575-7580. <https://doi.org/10.1073/pnas.1817561116>
20. MassGIS (2016). MassGIS Data: 2016 Land Cover/Land Use. Retrieved from: <https://www.mass.gov/info-details/massgis-data-2016-land-coverland-use>
21. Watertown Citizens for Peace, Justice, and Environment. (2021). New Pollinator Garden at Watertown DPW. Retrieved from: <https://watertowncitizens.org/new-pollinator-garden-at-watertown-dpw/>
22. Massachusetts Department of Environmental Protection. (2021). Massachusetts 2030 Solid Waste Master Plan: Working Together Toward Zero Waste. Retrieved from <https://www.mass.gov/doc/2030-solid-waste-master-plan-working-together-toward-zero-waste/download>
23. Massachusetts Department of Environmental Protection. (2019). Municipal Solid Waste and Recycling Survey. Retrieved from <https://www.mass.gov/lists/recycling-solid-waste-data-for-massachusetts-cities-towns>
24. Massachusetts Department of Environmental Protection. (2019). Municipal Solid Waste and Recycling Survey. Retrieved from <https://www.mass.gov/lists/recycling-solid-waste-data-for-massachusetts-cities-towns>
25. City of Watertown. (2019). Hazard Mitigation Plan 2019 Updates.
26. City of Watertown. (2019). Hazard Mitigation Plan 2019 Updates.
27. City of Watertown. (2020). Stormwater Management & Erosion Control Permit. Retrieved from <https://www.watertowndpw.org/207/Stormwater-Management-Erosion-Control-Pe>
28. Jonathan Erdman. (2021). America's No. 1 Weather Killer is Not Tornadoes, Flooding, Lightning or Hurricanes. Retrieved from <https://weather.com/safety/heat/news/2021-06-03-heat-america-fatalities>
29. Martin Finucane. (2021). Boston has seen 24 days with temps 90 or above this year – and there's still time for more. Retrieved from <https://www.bostonglobe.com/2021/08/27/metro/boston-has-seen-23-days-with-temps-90-or-above-this-year-theres-still-time-more/>
30. Centers for Disease Control and Prevention. (2018). Massachusetts: Vector-borne Diseases Profile (2004–2018). Retrieved from <https://www.cdc.gov/ncezid/dvbd/vital-signs/massachusetts.html>.
31. Live Well Watertown. About Us. Retrieved from <https://livewellwatertown.org/about>

