

**TOWN OF PLYMOUTH CAPITAL IMPROVEMENT PLAN REQUEST  
FY24 FALL ANNUAL TOWN MEETING**

<b>Department:</b> Office of the Town Manager	<b>Priority #:</b>	
<b>Project Title and Description:</b> Downtown Corridor Heat Island Mitigation and Beautification	<b>Total Project Cost:</b>	<b>\$126,400</b>

**Department/Division Head:** Derek Brindisi

**Check if project is:** New ☒ Resubmitted ☐ **Cost estimate was developed:** Internally ☐ Externally ☒

**For project re-submittals, list prior year(s):**

**List any funding sources and amounts already granted:** \$63,200 (not yet granted from Environmental Affairs Fund)

Basis of Estimated Costs (attach additional information if available)			Plan and future ted amounts.	
Capital:	Cost	Comments	Fiscal Year:	Operations & Maintenance
Planning and Design	\$126,400		FY23	
Labor and Materials			FY24	
Administration			FY25	
Land Acquisition			FY26	
Equipment			FY27	
Other				
Contingency				
Total Capital	\$126,400			

**Project Justification and Objective:** The objective of this project is to design a project for the main st. ext. parking lot/ Main St./ Court St. to Samoset corridor. This project will redesign this corridor to incorporate green and heat island reducing infrastructure while also promoting the beautification of the corridor. This will likely prescribe a multi years phased approach that will also leverage grant funding.

**For Capital Project Requests:**

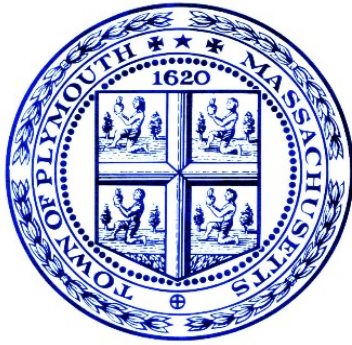
Will this project be phased over more than one fiscal year? If yes, enter it on the 5 Year Plan Yes ☐ No ☒  
Can this project be phased over more than one fiscal year? Yes ☐ No ☒

**For Capital Equipment Requests:**

☐ Check if equipment requested is replacement and enter the year, make & model, VIN and present condition of existing equipment

**What is the expected lifespan of this new/replacement equipment:** \_\_\_\_\_

**Attach backup information, estimates, or justification to support this request.**



# TOWN OF PLYMOUTH

OFFICE OF THE TOWN MANAGER  
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PHONE: (508) 747-1620  
WWW.PLYMOUTH-MA.GOV

## MEMORANDUM

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TO: Capital Improvements Committee, Advisory and Finance, Select Board  
CC: Derek Brindisi- Town Manager,  
Brad Brothers- Assistant Town Manager,  
Lynne Barrett- Director of Finance  
FROM: Mark Reil- Climate Resiliency and Sustainability Planner  
DATE: 8/9/23  
SUBJECT: **Downtown Resiliency Project Design- Green and Heat Island Reduction Infrastructure**

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Over the last few months, we have been working internally with the DPW, the Town Manager, and DMEA to discuss concepts relating to a resiliency project. This project is focused in the Downtown area, specifically from the Main Street Extension parking lot, up Main Street, and from the southern end of Court Street to the Samoset Street intersection. This area has been identified as an urban heat island in our Municipal Vulnerability Preparedness (MVP) report that was produced in 2020. The plan specifically identified mitigating stormwater runoff and heat islands as a resiliency action, and we must work to address those identified actions to meet our obligations to our residents.

In our discussions, we have identified a variety of issues this project would address not only environmentally, but also economically, and socially. This project is likely to be complex and requires investigation and design by qualified professionals to produce actionable and practical solutions. We have engaged with GPI, who have provided a comprehensive scope and fee for their services totaling an estimated cost of \$126,400. We are seeking funding for half of this amount through the environmental affairs fund and the remainder from capital funds. The project that is designed will presumably need to be completed in a phased approach and it is our intention to apply for up to \$3 million in FY25 MVP action grant funds in addition to leveraging other available grants.

We recognize that this project has a multitude of benefits beyond the environmental aspects. This project would provide beautification to the Downtown business district and enhance the historic character of this highly popular area. Additionally, we will have an opportunity to improve ADA accessibility and will aim to promote a safer, walkable location and that provides for a more comfortable experience in the Downtown.

Attached to this memo you will find the detailed scope and fee provided by GPI along with conceptual documents that show how we have been developing this idea. Please note that our conceptual ideas are subject to change as design and investigation take place.

# Scope of Services

## Court Street/Main Street – Green Infrastructure Study

### Plymouth, MA

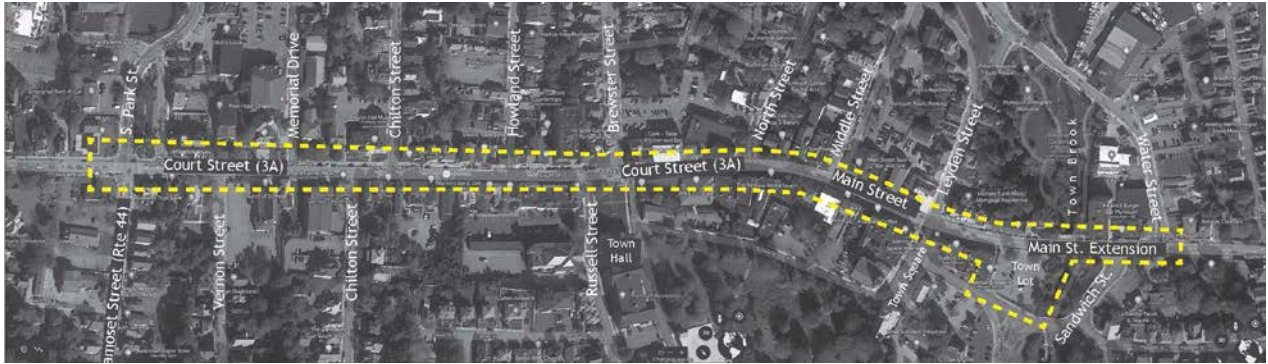


Figure 1. Project limits shown in dashed yellow.

The following scope of services is for the planning and development of implementable concepts for climate change resilience following the principles of the Core Principles of the Municipal Vulnerability Preparedness (MVP) Program for the following locations: 1) A 3,000-foot portion of Court Street and Main Street, and 2) the entirety of the Main Street Extension public parking lot within the limits shown in Figure 1.

## Task 1.0 Data Collection & Analysis

### Subtask 1.1: Record Files Research for Project Area

GPI will coordinate with the Town of Plymouth to research and obtain available plans and mapping of Court Street, Main Street, and Main Street Extension for use in developing a project base map. These may consist of municipal and/or private projects (electronic or paper plans) detailing previous projects along the project corridor.

*Deliverables: Summary of record files search.*

### Subtask 1.2: Base Map Development

GPI will combine information found under Subtask 1.1 with available GIS, aerial imagery and LIDAR data in order to create a project base map that is suitable for conceptual planning study.

*Deliverables: 1"=20' Base Map*

### Subtask 1.3: Review of Grant Requirements and Applicability

The Town of Plymouth anticipates submitting the project for a Municipal Vulnerability Preparedness (MVP) Action Grant. GPI will coordinate with the Town Staff to review the grant requirements – including the town's own MVP municipal goals and objectives then aligning those principles to the MVP

grant program as outlined in the 10 MVP core principles - This would include consultation with the town on the matters of equity and opportunity in accordance with MVP mapped demographic areas.

*Deliverables: Summary of grant requirements and list of potential improvements.*

#### **Subtask 1.4: Corridor Analysis**

GPI will conduct an on-location review of the project corridor to make observations and collect data relevant to the study. Tasks will likely include the following efforts:

- Measurements and photos as needed to confirm important features (steps, ramps, sidewalk widths, etc.)
- Site analysis for overall features such as: (circulation patterns, drainage sheds, solar aspect, wind, etc.)
- Site analysis for features specific to determine applicable elements of the project area that have physical or infrastructure feasible elements that can be incorporated into design that will be eligible for MVP criteria and grant funding.
- Photographs of project limits and relevant surroundings.

*Deliverables: Summary of data collection including written inventory and photo log.*

## **Task 2.0 Conceptual Alternative Development**

GPI will work with Town Staff to develop a design concept that fits the context and aesthetics of the downtown area, and incorporates priority climate adaptation actions, consistent with the goals of the Action Grant.

#### **Subtask 2.1 Conceptual Prototypes**

Utilizing the base survey, GPI will break up the elements of the site design into approximately 8-12 miniaturized investigations and develop design concepts for key areas with plan, section, and concept. The objective is to develop sketches to address the following goals:

- Identify potential heat island reduction techniques including shade tree plantings, shade structures, green roofs/walls, cooler streets and pavement types (i.e. pavement colors, green infrastructure, etc.),
- Maintain vehicle circulation, parking, and deliveries,
- Integrate traffic calming measures,
- Improve pedestrian circulation and accessibility,
- Incorporate stormwater management through green infrastructure or nature-based practices,
- Locate electric vehicle charging stations,
- Identify potential lighting upgrade locations
- Identify community gathering and education opportunities.

The design prototypes will minimize impacts to private property, existing trees, and resource areas as feasible. Alternatives will be submitted to the Town for review and comment.

*Deliverables: Initial concept studies, revised studies, consolidated preferred components.*

### **Subtask 2.2 Client Coordination & Meetings**

Provide virtual or in-person coordination services. GPI will coordinate with Town Staff to facilitate the review and refinement of the conceptual prototypes and to provide an orderly exploration of design considerations that facilitates a decision-making process to reach a preferred design concept.

*Deliverables: Client coordination and reviews per assumed hours (virtual or in-person).*

### **Subtask 2.3: Concept Alternatives**

The project team will take each of the conceptual prototypes developed in Subtask 2.1 with feedback from Subtask 2.2 and will develop up to three conceptual alternatives. GPI will work with the town to select a preferred concept which may consist of one of the options or a combination of options.

*Deliverables: Three conceptual alternatives & selection of a preferred option.*

## **Task 3.0 - Preferred Overall Schematic Design**

### **Subtask 3.1: General Plan Development**

Building on the previous tasks, the preferred concept will be assembled into a final schematic design plan. Initial AutoCAD line work will be developed for the following areas in representing conditions that we anticipate - but would be the result of the working process. The plan will consist of but not be limited to the following:

- Pedestrian environment improvements,
- Roadway environment improvements,
- Parking modifications,
- Traffic calming measures,
- Planting and shade canopy framework,
- Surface drainage & green infrastructure improvements,
- Lighting upgrades,
- Drainage and utility modifications,
- Public engagement and/or artwork,
- Historic preservation/treatment of special elements.

An overall plan will be developed with all of these components and perhaps others, which may be identified through the planning process. The draft plan will be a black and white representation in line work of all of the elements to be included. This plan will be completed and conveyed to the town staff for general review. Once the review of the project components has been completed in the context of the entire plan, a colored illustrative version of the plan will be prepared for public presentation.

*Deliverables: Black and white schematic draft plan, color final schematic plan.*

### **Subtask 3.2: Enlarged Views and 3D Visualizations**

Based upon the overall illustrative site plan, distinct areas will be identified for elaboration with sketches or constructed perspectives and other detailed drawings. We assume that there will be four to five areas that will require these illustrations to show multiple elements and the surrounding areas. These will be

developed as a series of design sketches and precedent images for key elements of the design including traffic calming measures, tree plantings, green infrastructure, community gathering, etc.

- Selected Enlarged Scale Plans: These studies will explore the quantitative and detail aspects, including:
  - Rendered plan areas with supporting details
  - Cross-sections
- Selected Visualizations: These studies will explore the various visual qualities and styles of the design and develop potential themes or motifs, including:
  - 2D & 3D sketches
  - Precedent images

*Deliverables: Cross sections, 2D enlarged details & 3D images.*

### **Subtask 3.3 Probable Estimate of Cost**

An initial construction cost estimate will be developed for the overall project and the new elements to be included as defined by the overall plan. The estimate will be based upon cost experience from comparable projects as well as providing prevailing costs in the marketplace. An excel spreadsheet will be developed with unit prices and quantities subtotaling to different components of the plan by specification divisions.

*Deliverables: Order of magnitude cost broken down by project components.*

## **SCOPE EXCLUSIONS**

The following items are excluded from the scope of services:

- Topographic or boundary survey.
- Resource delineation or environmental permitting.
- Final design services.
- Public engagement workshops/charrettes



## Design Fee Estimate

Project: Green Infrastructure Study  
 Location: Court Street / Main Street  
 Town, State: Plymouth, MA

Proj. #: NEX-2300129.00  
 Date: 8/1/2023  
 Prepared By: RH

PHASES	Project Director	Project Manager	Project Eng/LA	Engineer	Designer	Assistant Designer	Task Budget
Hourly Rate for each employee x 3.0	\$ 240.00	\$ 210.00	\$ 165.00	\$ 135.00	\$ 115.00	\$ 100.00	
<b>Task 1.0 - Data Collection &amp; Analysis</b>							
1.1 Record Files Research for Project Area	2	8	12				\$ 4,140.00
1.2 Base Map Development	4		16		40		\$ 8,200.00
1.3 Review of Grant Requirements and Applicability	12	24	8				\$ 9,240.00
1.4 Corridor Analysis	2	24	24				\$ 9,480.00
Subtotal Hours	20	56	60		40		176
Subtotal Costs	\$ 4,800.00	\$ 11,760.00	\$ 9,900.00	\$ -	\$ 4,600.00	\$ -	\$ 31,060.00
<b>Task 2.0 - Conceptual Alternative Development</b>							
2.1 Conceptual Prototypes	8	24	80	24			\$ 23,400.00
2.2 Client Coordination & Meetings	16	16	8				\$ 8,520.00
2.3 Concept Alternatives	4	12	24	40	60		\$ 19,740.00
Subtotal Hours	28	52	112	64	60		316
Subtotal Costs	\$ 6,720.00	\$ 10,920.00	\$ 18,480.00	\$ 8,640.00	\$ 6,900.00	\$ -	\$ 51,660.00
<b>Task 3.0 - Preferred Overall Schematic Design</b>							
3.1 General Plan Development	2	24			80		\$ 14,720.00
3.2 Enlarged Views and 3D Visualizations	2	12		120			\$ 19,200.00
3.3 Probable Estimate of Cost	2	8	40				\$ 8,760.00
Subtotal Hours	6	44	40	120	80		290
Subtotal Costs	\$ 1,440.00	\$ 9,240.00	\$ 6,600.00	\$ 16,200.00	\$ 9,200.00	\$ -	\$ 42,680.00
<b>TOTAL HOURS</b>	54	152	212	184	180		782
<b>TOTAL COST OF LABOR</b>	\$ 12,960.00	\$ 31,920.00	\$ 34,980.00	\$ 24,840.00	\$ 20,700.00	\$ -	\$ 125,400.00
<b>Expenses and Subconsultant Services</b>							
Mileage, printing, and miscellaneous expenses							\$ 1,000.00
(10 trips @ 120 miles round trip @ .655)							\$ -
							\$ -
							\$ -
							\$ -
Expenses Subtotal	\$ -						\$ 1,000.00
<b>TOTAL PROJECT</b>							\$ 126,400.00

# FY25 MVP PROPOSAL

DELIVERING RESILIENCY  
to  
Downtown Plymouth

## PROJECT ELEMENTS

1

### HEAT ISLAND EFFECT

- Tree Plantings
- Increased green space
- Solar Carport Installation in parking lots

### STORM WATER MANAGEMENT IMPROVEMENTS

- Implement Green Infrastructure
- Reduce Impervious Surfaces
- Increased Green Space
- Pervious Brick Sidewalks

2

3

### HISTORIC CHARACTER ADVANCEMENTS

- Pervious Brick Side Walks
- Bench Placement
- Lighting Upgrades
- Landscaping

### IMPROVED PUBLIC SAFETY

- Tree Planted Bump Outs
  - Traffic Calming
- Drop Off Zones
  - Improve Pedestrian Safety

4

5

### EDUCATION AND PUBLIC ENGAGEMENT

- Build Social Resiliency
- Partner with Community organization for educational program
- Obtain project input and buy in from public