



# 23

# COMMUNITY MITIGATION FUND

## 2023 Transportation Planning Grant Application

Bid No. BD-23-1068-1068C-1068L-81256

All completed applications must be sent by January 31<sup>st</sup> to be considered for funding for the 2023 Grant Round. Please submit this completed form as well as any relevant attachments to [MGCCMF@Massgaming.gov](mailto:MGCCMF@Massgaming.gov).

For more detailed instructions as well as the 2023 Application Guidelines please visit <https://massgaming.com/about/community-mitigation-fund/>

<b>I. Project Summary</b>
<b>Legal Name of Applicant:</b> City of Cambridge, Massachusetts
<b>Project Name (Please limit to 5 words):</b> Grand Junction – Community Path Connection
<b>Amount Requested:</b> \$249,900
<b>Brief Project Description (approx. 50 words):</b> <i>The Grand Junction Multi-use Path in Cambridge and the Community Path Extension in Somerville come close, but don't quite connect. Connecting these two multi-use paths will enable thousands of nearby residents and employees to have sustainable active transportation options to get to and from home, work, and the casino.</i>

<b>II. Applicant Contact Information</b>
Please provide below the manager for this grant and any other individuals you would like to be copied on all correspondence.
<b>Grant Manager:</b> William Deignan
<b>Email Address:</b> <a href="mailto:wdeignan@cambridgema.gov">wdeignan@cambridgema.gov</a>
<b>Telephone Number:</b> 617-349-4632
<b>Address:</b> City Hall Annex, 344 Broadway, 4 <sup>th</sup> Floor, Cambridge, MA 02139
<b>Contact II: Charlie Creagh</b>
<b>Role:</b> Transportation Planner
<b>Email Address:</b> <a href="mailto:ccreagh@cambridgema.gov">ccreagh@cambridgema.gov</a>
<b>Telephone Number:</b> 617-349-9167
<b>Address:</b> City Hall Annex, 344 Broadway, 4 <sup>th</sup> Floor, Cambridge, MA 02139
<b>Contact III: Susanne Rasmussen</b>
<b>Role:</b> Director of Environmental and Transportation Planning
<b>Email Address:</b> <a href="mailto:srasmussen@cambridgema.gov">srasmussen@cambridgema.gov</a>
<b>Telephone Number:</b> 617-349-4607
<b>Address:</b> City Hall Annex, 344 Broadway, 4 <sup>th</sup> Floor, Cambridge MA 02139

**III. Detailed Project Description & Mitigation**

- 1) Please describe in detail the impact that is attributed to the operation of a gaming facility. Please provide documentation or evidence that gives support for the determination that the operation of the gaming facility caused or is causing the impact (i.e. surveys, data, reports)

The gaming facility generates significant additional motor vehicle trips because of its regional market which draws many visitors from New England and further. Its location in Everett, with minimal transit options, makes it more likely for clients to arrive by motor vehicles. While the intersection of Land Boulevard / O'Brien Highway was identified in the Environmental Impact Report during the gaming facility planning process as likely to be impacted by the increase in motor vehicle trips, the intersection of Route 28 at Rufo Road is less than one mile away on the same road, and closer to the casino. Also, East Cambridge suffers from congested streets and some of this is likely related to traffic to the casino from points south and west making their way to regional streets and highways leading to and from the casino.

The primary objective of connecting the Grand Junction Multi-use Path, which is in final design, <https://www.cambridgema.gov/CDD/Projects/Transportation/GrandJunctionPathway> and the Community Path Extension is to reduce surface street congestion in East Cambridge, and similarly east and central Somerville by making this off-road connection possible. This will link Kendall Square to Cambridge Crossing at North Point, as well as to locations in Somerville where a Mystic River path connection is being studied. In connecting to the paths along the Mystic River, a future convenient connection to the casino is possible via a bicycle/pedestrian bridge over the Mystic River. By creating this off-road connection, many people who bicycle and walk will feel safer getting to the casino than using unprotected roads in the area. See **Attachment A** for a regional locus map.

The location where the proposed path connection would be constructed are within two Environmental Justice population neighborhoods (block groups 1 and 3, census tracts 3521.01 and 3522, criteria: minority). Creating a seamless off-road connection between these two multi-use paths is important because it improves the ability of people in Cambridge to get to points north like Somerville, Medford, and Everett. People who are not able to drive, whether because they don't possess a license, can't afford to drive, or choose not to drive, can use multi-use paths to get back and forth from Cambridge to other existing and future off-road paths and bridges to connect to the gaming facility. This is critical as more and more people like to walk, bike, and take transit to recreation destinations. Reducing the number of gaps in the off-road network will encourage folks to use walking, bicycling, and transit for more trips and reduce the number of single occupant vehicles on the road.

- 2) *(If applicable)* Please explain how this impact was not anticipated in the Applicant's Host or Surrounding Community Agreement.

The Surrounding Community Agreement between the City of Cambridge and Wynn MA, LLC from April 22, 2014, did not specifically discuss any traffic impacts to the area for where we are seeking Transportation Planning grant funds for the multi-use path connection. The Surrounding Community Agreement does not mention bicycle, walk, or sustainable or active

modes of transportation to and from Cambridge or East Cambridge and the gaming facility. These are important sustainable ways to travel to encourage.

The local and regional street transportation network has been impacted by the predicted “35,754 Saturday trips” because of the opening of the gaming facility. Through local planning processes like the Cambridge Street corridor planning, the City has heard from the public that congestion on local streets at peak periods is a problem for drivers and those that take the bus. Having off road connections for people to use, and the City to refer the public to would be helpful in relieving a part of this problem.

3) Please describe what the Applicant is proposing and how the mitigation request will address the impact indicated.

We are proposing to advance the planning and design of an off-road, multi-use path connection between the Grand Junction Path in Cambridge and the Community Path Extension in Somerville. The connection will make a critical link between two major multi-use paths and establish an off-road connection to travel between Somerville, Cambridge, Boston, and points north, through projects being contemplated in Somerville, and Everett including proposed paths and a bridge. Establishing additional options for residents, employees, and visitors in the area to travel on foot or by bicycle alleviates roadway congestion, air pollution, reduces costs related to parking, and can encourage an active and healthy lifestyle.

Specifically, work is proposed to include the following scope for the planning and conceptual design and final design of the following elements (**See Attachment B**):

- 1) Work to widen an existing pathway in Cambridge’s Gold Star Mother’s Park to create a more comfortable two-way multi-use path for people walking and bicycling.
- 2) Geometric changes at the Rufo Road approach to the Route 28 intersection to widen the sidewalk for a two-way area for bicycles and pedestrians.
- 3) Changes at and adjacent to the Rufo Road intersection with Route 28 including the construction of a new section of two-way bicycle facility between the sidewalk and travel lanes, crosswalks, a bicycle crossing of Route 28 and related traffic signal equipment.
- 4) Coordinate with SomerBridge Hotel project which is obligated to construction a 10’ wide ramp for bicyclists and pedestrians from the Rt. 28 sidewalk to the top of the retaining wall at the rear of the site.
- 5) At the top of the retaining wall, we will design and get MBTA approvals for a two-way section of multi-use path proposed on MBTA property under the Green Line Extension viaduct. MBTA has already reviewed design concepts and is awaiting a more advanced design based on recent topographical survey.
- 6) Signage, wayfinding, and pavement markings to create a safe and seamless connection between the Grand Junction Path and Community Path.
- 7) Addition of path amenities in all locations including landscaping/trees, benches, lighting, and other items.

4) Please provide details around any consultation with MassDOT, your RTA or MBTA, and or the regional planning agency serving your community as applicable.

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The City of Cambridge coordinates regularly on this work with an array of partners both public and private.

We have an on-going process of coordination meetings with the MBTA on section #1, since the multi-use path would be located on MBTA-owned land beneath the Green Line Extension overhead viaducts. The City also is coordinating with the developer of Cambridge Crossing on this design and future maintenance of this section of path which abuts their property in North Point.

The City also coordinates regularly with MassDOT about the scope and timing of their planned re-surfacing project which will create a two-way section of separated bicycle path along a short section of Rt. 28 when complete in 2024.

Additionally, the City of Cambridge is coordinating a process with Somerville's Office of Strategic Planning and Community Development, MassDOT, MBTA and three developers working adjacent to the intersection of Rt. 28 and Rufo Road. A concept to provide protected, off-road path and crossings for people cycling and walking has been developed and agreed upon by all parties. Developers are committed to constructing these intersection changes through development mitigation.

IV. Scope, Budget, and Timeline	
Applicant: City of Cambridge	Vendor Code:
Total Grant Amount Requested: \$249,900	Estimated Total Project Cost: \$280,000

Scope of Work
<p>Please include below a breakdown of the proposed work. The project scope should be sufficiently detailed to allow the review team to understand the steps required for project completion.</p> <p>Below is the city process for advancing the design overall. A detailed consultant scope of their work is included in <b>Attachment C</b>.</p> <p>City Process Steps:</p> <ol style="list-style-type: none"> <li>1. Retain consultant and conduct a kick-off meeting with them and partners to confirm scope of work and responsibilities</li> <li>2. Conduct formal topographical survey where needed, use city GIS for mapping where appropriate</li> <li>3. Review concepts for various path segments internally and revise as needed</li> <li>4. Conduct regular update meetings with appropriate parties, MassDOT, MBTA, private property owners (abutters) to review designs</li> <li>5. Coordinate public engagement through public meetings, site walks and on-line information such as a web site, social media and other means</li> <li>6. Work closely with consultant design team to troubleshoot any issues and make design decisions</li> <li>7. Advance conceptual design to more advanced final design stages, including 100% design (pre-bid) documents</li> <li>8. Work to identify construction funding, where it's not already identified in North Point/GLX area, Gold Star Mothers Park and along Rufo Road, and work on implementation within 24-36 months of design conclusion.</li> </ol>

Proposed MGC Grant Budget			
<p>Please use the following table to outline the budget of your project. Include any requests for proposals, quotes, or estimates that would quantify the costs associated with the mitigation as an attachment. In determining the funding request, please round up to the nearest hundred dollars.</p>			
Timeline	Description of Purchase/Work	QTY	Budget
Mid 2023	1. Project management, meetings, quality control, permitting	1	\$58,000
Late 2023	2. Public meetings (2), stakeholder meetings (9)	1	\$26,600

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Late 2023	3. Topographic and right-of-way surveys	1	\$38,900
Late 2023	4. Geotechnical and environmental	1	\$17,200
Late 2023	5. Traffic analysis and intersection modeling	1	\$10,500
Late 2023	6. Urban design, landscape, public art	1	\$23,700
Late 2023	7. Conceptual design	1	\$29,800
Early 2024	8. 25% design	1	\$30,000
Mid 2024	9. Final design	1	\$15,200
	<b>TOTAL:</b>		<b>\$249,900</b>
<b>Funding Source</b>	<b>Description of Purchase/Work</b>	<b>QTY</b>	
In-kind Services	Intersection changes @ Rufo Rd and Rt. 28 designed and constructed through development mitigation, plus bicycle/pedestrian ramp to be built by SomerBridge Hotel.	1	\$1,500,000
Federal			
State	MassDOT Rt. 28 re-surfacing and safety improvement project with separated, two-way bicycle lanes.	1	\$2,000,000
Local Match	City of Cambridge coordination and design work as part of Grand Junction Path design work on Rufo Road intersection and path concepts on MBTA land.	1	\$65,000

<b>V. Regional Incentive Award</b>	
<b>Are you applying for a Regional Incentive Award?</b>	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

<b>Partner Community Contact</b>
<b>Name: Brad Rawson, Head of Transportation &amp; Infrastructure</b>
<b>Role: Partner Community Lead Planner</b>
<b>Email Address: <a href="mailto:brawson@somervillema.org">brawson@somervillema.org</a></b>
<b>Telephone Number: 617-625-6600 X 2518</b>
<b>Address: Somerville City Hall, 93 Highland Ave, Somerville, MA 02143</b>

<b>VI. Waiver</b>	
If you are applying for a waiver, please submit the Waiver Form with your application. The form can be found at <a href="http://www.massgaming.com/about/community-mitigation-fund/forms/">www.massgaming.com/about/community-mitigation-fund/forms/</a>	
<b>Are you applying for a waiver?</b>	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

<b>VII. <input type="checkbox"/> Please provide a brief description of each attachment.</b>
Attachment A – regional locus map
Attachment B – project map
Attachment C – consultant scope for project

**VIII. Applicant Certification**

On behalf of the aforementioned municipality/governmental entity I hereby certify that the funds that are requested in this application will be used solely for the purposes articulated in this Application.



Signature of Responsible Municipal  
Official/Governmental Entity

January 31, 2023

Date:

Yi-An Huang




(print name)

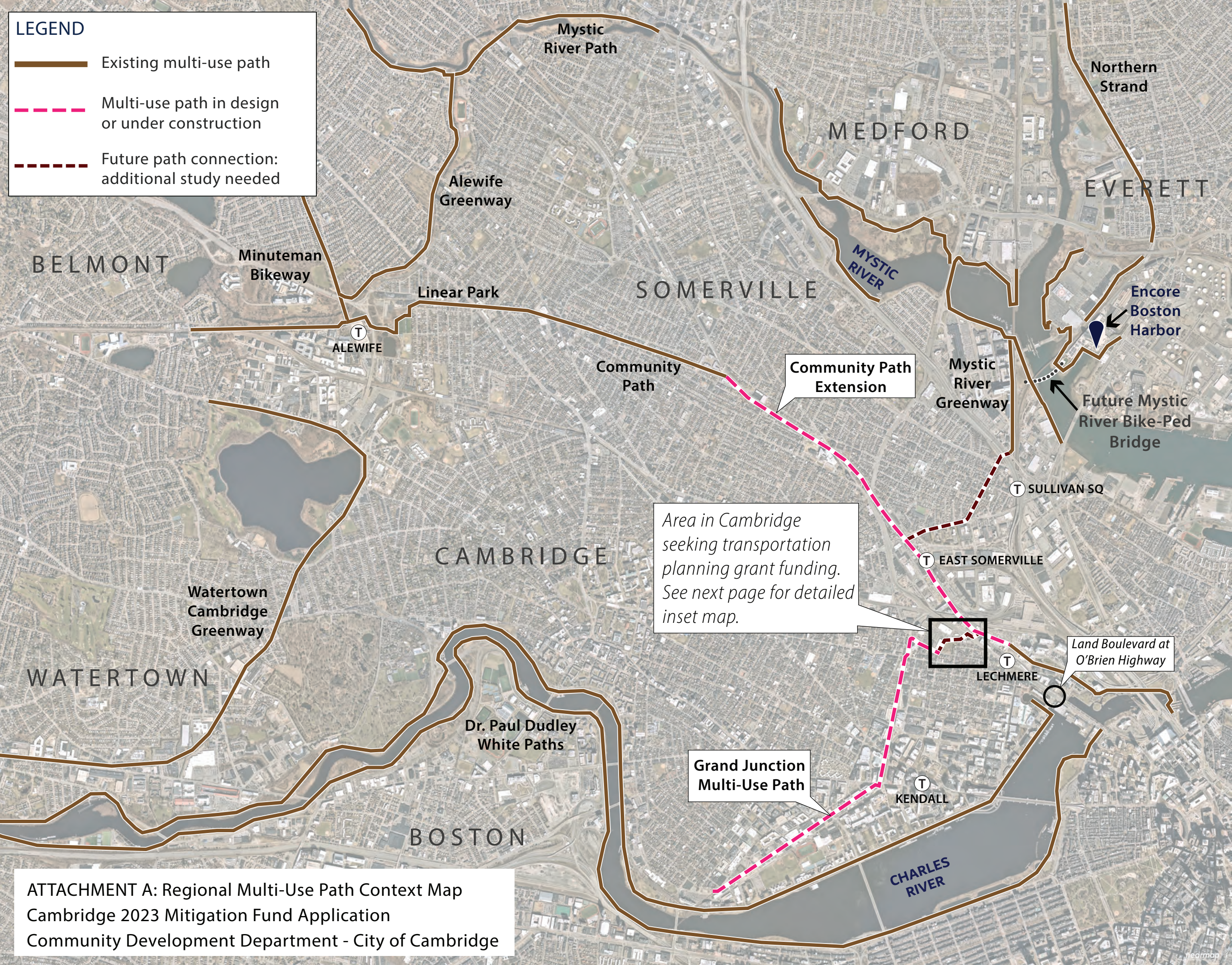
City Manager

Title:



**LEGEND**

-  Existing multi-use path
-  Multi-use path in design or under construction
-  Future path connection: additional study needed



*Area in Cambridge seeking transportation planning grant funding. See next page for detailed inset map.*

**Community Path Extension**

**Grand Junction Multi-Use Path**

**Land Boulevard at O'Brien Highway**

**ATTACHMENT A: Regional Multi-Use Path Context Map**  
Cambridge 2023 Mitigation Fund Application  
Community Development Department - City of Cambridge



**LEGEND**

- Multi-use path in design or under construction
- Planning for a future multi-use path connection

**The Grand Junction to Community Path connection includes the following segments:**

- 1 Gold Star Mother's Park**  
City of Cambridge to look at options through Gold Star Mother's Park to determine the preferred route.
- 2 Rufo Road Sidewalk**  
City of Cambridge to work with City of Somerville and Twin City Plaza to widen sidewalk to accommodate a two-way path connection.
- 3 MA Route 28 at Rufo Road Intersection**  
The City of Cambridge worked with the City of Somerville, MassDOT and several property owners in the area to create a plan for this intersection. Plans include a new pedestrian crosswalk and separate bicycle crossing on the east side of the intersection, as well as a two-way path leading to the planned ramp at the future Somerbridge Hotel.
- 4 Somerbridge Hotel Ramp**  
This 10' wide ramp, to be built by the hotel project, will rise the 8'-10' grade difference and bring path users up to the top of the wall at the rear of the property.
- 5 Path Connection in North Point**  
Create a short path connection from the top of the hotel ramp to the existing community path in North Point.

**GRAND JUNCTION PATH TO COMMUNITY PATH  
CONNECTION DESIGN  
CAMBRIDGE, MA**

**ATTACHMENT C - SCOPE OF SERVICES**

## INTRODUCTION

The Grand Junction Path Extension is proposed to be a multi-use path running from the terminus of the proposed Grand Junction Multi-Use Path at Gore Street to connect with the Community Path Extension in Somerville. The desired width of the multi-use path is 14' with 2' buffers (a total of 18'). It will provide a continuous linear path for residents, schoolchildren, students, commuters, and visitors to walk, jog, or bicycle. It will connect several neighborhoods, commercial areas, institutions, and regional recreational resources such as the Charles River and Assembly Row.

The path will serve as an important link in the growing regional trail network in the metro Boston area. The path connects the newly constructed Community Path Extension built as part of the Green Line Extension<sup>1</sup> in Somerville as well as Grand Junction Multi-use Path spanning from Gore Street to Waverly Street with connections to the Charles River Paul Dudley White Bike Path and beyond.

This scope of work for the Grand Junction to Community Path Connection (PROJECT) includes:

- Gore Street: Review the connection of the newly construction shared use path terminus at Sixth Street into Gold Star Mother's Path for an enhanced safe and comfortable crossing for all path users considering signage, wayfinding, and other treatments,
- Gold Star Mothers Park: Alternatives analysis and of up to two concepts for designing the widening and enhancement of the existing paths surrounding and within the park, including drainage, lighting, wayfinding, landscaping, and pavement marking design to connect from Gore Street to Rufo Road,
- Rufo Road: Design to include widening existing sidewalk to incorporate a two-way multi-use path from Gold Star Mother Park to MA Route 28, including drainage, lighting, wayfinding, landscaping, and pavement marking design. The design will incorporate and tie-into the agreed upon changes to MA Route 28 and Rufo Road by the City of Cambridge, MassDOT, Somerville, and the adjacent private developers.
- MA Route 28: Review of Rufo Road intersection (not included in this project) for wayfinding and connection to Rufo Road and the Somerbridge Hotel Bike Ramp, and
- Somerbridge Bike Ramp to Community Path Extension: Develop concept designs for this connection in discussion with MBTA, including development of drainage, lighting, wayfinding, landscaping, and pavement marking design, and permitting for construction on MBTA Property.

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<sup>1</sup> <http://greenlineextension.eot.state.ma.us/>

<sup>2</sup> See <http://www.cambridgema.gov/CDD/Projects/Transportation/GrandJunctionPathway> for the same description, links to other projects, and links to relevant resources.

# Task 1 Project Management and Administration

## 1.1 Project Management and Administration

The CONSULTANT will:

- Coordinate contract, process, and substantive issues with the City, unless directed otherwise
- Prepare a detailed Design Schedule for the PROJECT. We assume that the construction bid package will be separate from the Grand Junction Path bid package or could be added to that construction contract by addendum.
- Prepare a Work Plan for the PROJECT including scope, staffing, design and bid phase budget, design, and bid phase schedule, and QA/QC schedules.
- Monitor and coordinate schedules, budgets/invoices, workload, permitting, staffing, and resources for the PROJECT duration, at least monthly. When needed to reallocate resources to complete the PROJECT to the satisfaction of the City, the CONSULTANT shall develop proposals for reallocating those resources and present them to the City for approval.
- Coordinate and prepare monthly sub-consultant and vendor invoices for the estimated PROJECT duration. Invoices shall include reports of monthly activities and cover letter for submission to the City.

### Deliverables

- Design Schedule
- Work Plan
- Monthly invoices with progress reports

## 1.2 Coordination Meetings

During the PROJECT, CONSULTANT TEAM staff shall attend regular progress and technical coordination meetings with the City, on average on a bi-weekly basis.

The CONSULTANT shall prepare an agenda for each team meeting, as well as prepare and distribute meeting notes after each team meeting. It is assumed that all City departments having design review responsibilities for the various components of the PROJECT will be represented at these meetings as appropriate.

### Deliverables

- Coordination Meeting agendas and other materials as needed to facilitate meetings
- Coordination Meeting notes

## 1.3 QA / QC

At the completion of the Alternatives Analysis, 25%, 75% and 100% design development phases, the CONSULTANT shall perform a QA/QC review including:

- An Internal Peer Review conducted in accordance with their own standard QA/QC procedures.
- A Team Coordination Review performed by the Project Manager from both the CONSULTANT and the City, senior team members from any sub-consultants and other staff as necessary. The reviewers will review those elements of the design not

- prepared by them and will check for continuity and coordination of the design elements.
- In addition, at the completion of the 75% Design, a Constructability Review.

#### 1.4 Purchasing Department Bid Suitability Review

Once a bid package has been developed, it will be reviewed by the City's Purchasing Dept. and others for completeness. Changes will be made by the CONSULTANT in response to those comments.

#### 1.5 Permitting and Regulatory Approvals

Note: This task is provided for information only and will be scoped as an Additional Service. Due to ongoing discussions and negotiations between the City and owners of the Grand Junction right-of-way and adjacent properties, it is not possible to definitively determine the scope of permits and licenses which may be required for design and construction. A fee estimate is not included for this task at this time.

CONSULTANT will identify permits and other regulatory approvals needed for the proposed design and construction work and complete permit documents and other relevant applications as needed for review by the City. After receipt of any City comments, CONSULTANT shall finalize and submit permits and applications to relevant agencies in accordance with agency requirements.

This subtask includes any permits, rights-of-entry, license agreements, or other approvals to be obtained from MBTA/MassDOT and MIT for both the design phase and construction phase. Any fees or other costs associated with permitting and approvals or other work will be paid by CONSULTANT unless waived by or for the City. Note that depending on CONSULTANTS design phase work plan, such costs may include, but are not limited to, license and administrative fees, railroad protective liability insurance, flagging, and safety training for CONSULTANT staff.

##### Deliverables

- Completed permit applications and supporting documentation

### TASK 2 Stakeholder and Community Participation

#### 2.1 Stakeholder Meetings

Stakeholder meetings will include one Twin City Mall meeting, three MBTA coordination meetings, one MassDOT meeting, and four interdepartmental or other internal City meetings in addition to those described in Task 1.2.

The CONSULTANT TEAM will provide agendas, materials, presentations, and notes from the meetings as well as send appropriate staff depending on the meeting focus. The City will generally contact the stakeholders and arrange logistics such as meeting rooms but may need occasional assistance from the CONSULTANT TEAM.

##### Deliverables

- Stakeholder Meeting agendas, presentations, graphics and other meeting materials as needed
- Stakeholder Meeting notes

## 2.2 Public Meetings

The CONSULTANT shall coordinate with the City to provide materials and graphics for and have appropriate CONSULTANT TEAM staff attend approximately two (2) public meetings during the PROJECT. An example set of public meetings may include:

- Public Meeting 1: Alternatives Analysis – Purpose of the path, existing conditions, challenges, landscaping approach, lighting study, ownership, possible alignment alternatives
- Public Meeting 2: 75% design – alignment, crossings, landscaping approach, path alignment, landscaping

The CONSULTANT will prepare visually compelling presentations for each meeting, and will be expected to include graphs, graphics, and design drawings as needed to represent the above topics. The CONSULTANT will produce cross sections, renderings, and photosimulations as appropriate to illustrate the anticipated look and feel of proposed facilities, particularly for the first three meetings. CONSULTANT will assume ten (10) of such graphics to be produced based on the City's needs.

### Deliverables

- Agendas, presentations, and other meeting materials as needed, including presentations at a bare minimum for each meeting, and on average three (3) boards for two of the above meetings
- Meeting notes and compilation of public comments including those submitted on-line and through surveys
- Contact list (maintained through PROJECT), including stakeholders and interested parties

## TASK 3 Topographic and Right-of-Way Surveys

The CONSULTANT will perform a document survey as well as a physical survey for the corridor as needed to complete the design of the project.

The consultant will confirm completion of the document or perform additional work to complete as needed.

### 3.1 Document Survey - Deed and Plan Research

The CONSULTANT will perform a document survey to identify ownership information and boundaries, including easements, encroachments, utilities, and improvements on the Grand Junction to Community Path Connection Corridor from the edge of the Grand Junction Path at Gore Street to Rufo Road including Gold Start Mother's Park, and the intersection of Rufo Road and Massachusetts Route 28, and the Community Path within the MBTA Green Line Extension, and all abutting properties. This compiled information will be both described on a map showing ownership, building setbacks, easements, and encroachment boundaries. The CONSULTANT will also identify any conflicts or discrepancies in boundaries that cannot be resolved in this survey.

### Deliverables

- Written report discussing results of the survey, identifying any conflicts or

unresolved discrepancies.

- A physical map including each relevant parcel, including boundaries, setbacks, easements, utility locations and encroachments.

### 3.2 Physical Survey

The CONSULTANT will perform a survey of the Grand Junction to Community Path Corridor from the edge of the Grand Junction Path at Gore Street to Rufo Road including Gold Start Mother's Park, and the intersection of Rufo Road and Massachusetts Route 28, and the Community Path within the MBTA Green Line Extension. The City has already negotiated with MBTA to allow access to the portions of the survey area under their ownership or easement. The CONSULTANT did not include budget for any additional fees associated with additional requirements for access such as additional insurance, flaggers, license coordination, etc.

The CONSULTANT will perform the survey for the Grand Junction to Community Path Connection corridor. Details on building entries within the survey limits will also be included. In addition, at intersections (Rufo Road, Massachusetts Route 28), the consultant will complete survey to include nearest catch basins on the perpendicular crossings, or 100' beyond the intersection.

Survey information will be compiled to complete an existing conditions base plan (1"=20'; 0.5' contours) that conforms to the MassDOT Field Survey and Base Plan Preparation Standard for English units. Data Accumulation Surveys need to be provided including, at a minimum, existing utility infrastructure, property ownership and street addresses. The survey will be oriented according to the Massachusetts State Plane, NAD 1983, horizontal coordinate system and vertically will use the City of Cambridge Datum. It will include details on, at a minimum, the following:

- All utilities including catch basins, manholes, gas/water valves, subgrade vaults, "Dig Safe" locations, etc.
- Limits of existing pavement, such as parking areas, drives
- Limits of existing sidewalk and back of sidewalk within the 50' area from the track centerline
- 10' behind back of sidewalk-driveways, walls, trees, structures, etc.
- All changes in grading
- All ground level materials, including sidewalks, edges, etc.
- Railroad centerline
- The centerline for cross streets
- Top and bottom of curb
- Spot elevations every 10' as well as at adjacent doors and access points,
- Location and grades of all surface utilities
- Location and elevation of all benchmarks and control points
- Location of all subsurface utilities, including inverts on gravity systems.
- Building edges and doorways/entryways
- Adequate grading and utility information at cross streets to fully evaluate and understand drainage patterns
- All electrical equipment related to lighting, signals (traffic, railway)
- Any other street furniture (benches, bike racks, etc.)

### Deliverables

- Plans, at a minimum scale of 1"=20'

- Electronic copies of all survey and design information in PDF as well as in AutoCAD version 2007 or newer, with layers that can be turned on and off pending discussion with the City.

## TASK 4 Geotechnical and Environmental

### 4.1 Geotechnical Investigations and Analysis

The CONSULTANT will subcontractors to perform subsurface explorations in support of the existing pavement and subbase condition assessment on each of the locations as summarized in the following table. The landscape architect will coordinate, if necessary, with CONSULTANT team on a strategic boring program for analysis of soils and groundwater. We have estimated that one boring in the park and two pavement cores either in the park or in the street will be needed to gain an understanding of pavement and subsurface soil characteristics. Costs for associated permitting/licensing/rights-of-entry are not identified at this time and will be treated as an Additional Service (see Subtask 1.4.)

#### Soil Borings

Kleinfelder will mark proposed exploration locations in the field. Once exploration locations are marked, Kleinfelder will coordinate the required utility clearance notification with our drilling subcontractor. The borings will be located in the field using taping and line of sight from existing site features. The proposed subsurface explorations will include one (1) test boring.

Kleinfelder's subcontractor will perform utility preclearing to a depth of about 5 feet at select boring locations using vacuum excavation techniques. Borings will be advanced using drive and wash with flush joint casing techniques to a maximum depth of 10 feet below ground surface unless refusal is encountered at a shallower depth. Should soft or otherwise unstable soil conditions be encountered at the scheduled termination depth of the test borings, the borings will be extended until suitable bearing strata are identified or to a maximum depth of 15 feet below ground surface. If rollerbit or auger refusal is encountered at shallower depths, refusal will be confirmed by split-spoon refusal and the boring will be terminated. Rock coring is not proposed at this time. Split spoon samples using standard penetration test (SPT) will generally be performed at standard 5 feet intervals in the borings. The location and depth of proposed borings may be modified in the field based on actual conditions encountered during drilling.

Boreholes will be backfilled with cuttings or sand if there is an insufficient amount of drill cuttings to backfill the boreholes. An asphalt patch will be placed at the ground surface and the boring locations will be cleaned from surficial debris or soil. No other surface repair is included. Up to 5 groundwater monitoring wells are proposed for this project. Groundwater levels will also be noted during drilling, if encountered.

One groundwater monitoring well will be installed at the boring location for the purposes of estimating the groundwater elevation. Kleinfelder will measure the groundwater elevations at the monitoring well locations up to two times after the boring program.

Kleinfelder will perform laboratory testing on soil samples in general accordance with ASTM standards. We will perform up to 2 index property tests (grain size analyses or Atterberg limits tests, organic content) to assist with correlating properties of the subsurface materials, evaluate soil infiltration properties and evaluation of the suitability of materials for re-use as fill on-site. The results of the geotechnical tests will be included in our geotechnical report.

A Kleinfelder representative will be onsite to observe and coordinate the borings. Our representative will coordinate the drilling subcontractor on site, observe drilling and in-situ testing, perform preliminary screening using a Photoionization Detector (PID), and log soil



samples using the Modified Burmister and the Unified Soil Classification System (USCS). Geotechnical soil samples will be collected for review and select geotechnical laboratory testing.

The Kleinfelder team will prepare a Geotechnical Data Report (GDR). The report will include boring logs; a plan of the location of the borings and pavement cores; results of laboratory testing; and groundwater monitoring well readings.

### Pavement Assessment

Kleinfelder will contract with Briggs Engineering to conduct pavement cores and soil samples to a depth of 12 inches below existing pavement grade and will perform a visual assessment of the pavement condition. After the initial assessment, Briggs Engineering will advise on the number of laboratory tests to perform on each retrieved core.

A soil sample at each pavement core will be collected and shall be tested by a sieve analysis (gradation) to measure distribution of aggregate particle sizes within a given sample AASHTO T 27. Material smaller than No. 200 will use AASHTO T 11 (#200 wash) in conjunction with AASHTO T 27. Sample testing will meet Soil Classification AASHTO M-145.

Police details will be coordinated by our team as needed and invoices will be sent to DPW as on previous projects in Cambridge.

### 4.2 Environmental Review

The CONSULTANT with their Licensed Soil Professional (LSP) will review publicly available environmental information and data. The objective will be to determine the potential presence of contaminants in the area which may impact construction activities and soil and groundwater management costs.

### OHM Assessment

Kleinfelder will conduct a limited OHM investigation to identify areas where contaminated soil and/or groundwater may be encountered during construction and to provide information on anticipated requirements for management and off-site disposal of surplus soils. Kleinfelder will obtain and review historical resources for the project vicinity and review MassDEP files for sites in the vicinity of the project area.

During the advancement of geotechnical borings, soil samples will be screened for volatile organic compounds (VOCs) using a properly calibrated photoionization detector (PID). Up to one soil sample will be collected for laboratory analysis of the following parameters for disposal pre-characterization.

- Total Petroleum Hydrocarbons (TPH) by Environmental Protection Agency (EPA) Method 8015D;
- VOCs by EPA Method 8260;
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270;
- MCP 14 metals by EPA Methods 6010 and 7471;
- Polychlorinated biphenyls (PCBs) by EPA Method 8082;
- Flashpoint by EPA Method 1010;

- Corrosivity/pH by EPA Method 9045;
- Reactivity by EPA Methods 9014 and 9030; and,
- Conductivity by EPA Method 2510.

Up to one sample will be submitted for Toxicity Characteristic Leaching Potential analysis if analytes are detected at concentrations exceeding the RCRA “Rule of 20.” If historic fill material is encountered, up to two additional soil samples may be submitted for identification of coal, coal ash and/or wood ash.

Based on possibility to encounter shallow groundwater, up to 2 samples for groundwater analysis are proposed to analyze options and/or treatment requirements for dewatering discharge. Groundwater will be sampled if encountered within depths of planned work during drilling.

Should excess soil or groundwater be generated during drilling, it will be placed in drums and transported to a temporary staging area designated by the City until laboratory analytical results are received. Following receipt of results, Kleinfelder will prepare disposal profile and transportation documents and coordinate drum transportation and disposal. This scope includes costs to analyze up to two drum samples and dispose of up to three drums.

Following completion of the above-referenced scope, Kleinfelder will prepare a letter summarizing the findings of the OHM research and soil and groundwater results. The soil and groundwater results will be compared to regulatory standards to evaluate soil and groundwater management requirements.

### Deliverables

- Geotechnical Data Memorandum including, but not be limited to, results of document research; site investigations; laboratory analyses; geotechnical design and construction recommendations.
- Oil and Hazardous Materials (OHM) Assessment Memorandum including, but not be limited to, results of relevant local, state, and federal document research, any conclusions regarding soil management and disposal options and estimated costs; and recommendations for soil and groundwater management provisions during construction.
- Pavement Condition Assessment Summary memorandum (which may be combined with one or more of the above)

## TASK 5 Traffic Analysis and Intersection Modeling

### 5.1 Traffic Analysis

The CONSULTANT will assess the crossings at unsignalized locations, including the Grand Junction Connection at Gore Street to make recommendations for appropriate treatments. The CONSULTANT will also assess major pedestrian crossings at Massachusetts Route 28 to make recommendations for appropriate treatments.

CONSULTANT will provide recommendations for intersection control at the major Massachusetts Route 28 crossings including but not limited to:

- New signals for path crossings including pedestrian signals, bicycle signals, and railroad pre-emption phasing;
- Signal timing and/or equipment changes to adjacent signalized intersections; and
- Coordination methods and offsets to maintain traffic flow between closely spaced

signalized intersections

### Deliverables

- Technical memorandum describing results of traffic analysis and recommended treatment, including signal timing recommendations

## 5.2 Traffic Signal Design

The CONSULTANT will prepare traffic signal plans to be included with each design submission for all locations with new or modified traffic signal equipment. The CONSULTANT will identify recommended signal phasing modifications for the City.

Anticipated signal plan revisions will include minor signal modifications including phasing changes, timing changes, and signal communications equipment to facilitate coordinated operation. These locations include:

- Massachusetts Route 28 at Rufo Road

All signal plans will be prepared using the City of Cambridge Traffic Signal Template to be provided by the City in AutoCAD format. Existing signalized intersection layout plans are not available.

### Deliverables

- Final traffic design deliverables are included in Task 8 and 9

## TASK 6 Urban Design and Landscape

### 6.1 Preliminary Urban Design/Landscape Architecture

The CONSULTANT will document and analyze existing conditions for vegetation and opportunities for landscaping along the proposed alignment for the multi-use path. Work will include the following:

- Perform field observations and photo-documentation of existing conditions and urban design/landscaping considerations.
- Consult with private developers about constraints and opportunities for landscape alterations, integrating contemplated landscape and urban design improvements with adjacent campus opportunities
- Prepare tree impact analysis as part of the alternatives analysis phase
- Prepare draft recommendations for appropriate materials for landscaping, lighting and other improvements related to the path. A lighting study will be required to identify lighting needs and suggest energy efficient fixtures which will be evaluated by staff in consultation with the City Electrician and stakeholders.
- Provide preliminary description and estimation of resources required for maintenance of proposed landscaping and design.
- Engage a Certified Arborist to perform a detailed inventory/health assessment of existing trees within the corridor, noting trees of significance. The CONSULTANT will review the assessment with the City Arborist. The City Arborist will specify existing trees to remain and any to be removed on publicly-owned property. The CONSULTANT will provide a tree preservation plan, which will subsequently be incorporated by the CONSULTANT into final design specifications and details.

## Deliverables

- Draft Memorandum and Plans describing existing landscaping conditions and opportunities for landscaping, lighting (including results of lighting study), and other urban design improvements
- Presentation describing existing landscaping conditions and opportunities for landscaping, lighting (including results of lighting study), and other urban design improvements
- Existing Tree Inventory
- Impact Analysis Memo
- Draft Tree Preservation Plan (for existing trees)
- Renderings/visuals as needed to show concepts produced through photo renderings or other methods (up to 10 to be used throughout public process)

## 6.2 Final Urban Design/Landscape Architecture

The CONSULTANT TEAM will modify materials from Task 6.1 based on City and stakeholder input and advance a single preferred concept through final design. Plans will depict locations and types of plants; planting beds; trees; structured planters; areas of special planting soils; disposition/protection of existing trees and vegetation; furnishings; seating and amenities; lighting; and other special features.

Plans will also include irrigation design for up to two (2) “pocket” park locations within the PROJECT.

## Deliverables

- Final Memorandum, plans and presentation describing existing landscaping conditions and opportunities for landscaping, lighting (including results of lighting study), and other urban design improvements
- Final Tree Preservation Plan
- Final Maintenance Plan for proposed landscaping
- Final Design deliverables are included in Task 8 and 9

## Task 7 Conceptual Design

### 7.1 Alternatives Analysis

The Alternatives Analysis will consider previously prepared concept design alternatives regarding path standards, operational concerns to abutting properties, considerations as specified by the City in conjunction with stakeholders. The CONSULTANT will clearly identify any potential impact of the proposed alignment on additional privately owned right-of-way as part of the alternatives analysis.

The CONSULTANT will also prepare a conceptual level cost estimation for the construction of the multi-use path as represented in the conceptual design alternatives. All assumptions for the cost estimates will be documented and the estimate will be made in a unit-price format. If the estimated cost for the project does not fall within the budget, the CONSULTANT will make recommendations on cutting costs associated with the project and provide another conceptual design iteration that is representative of a project expected to fall within budget.

## Deliverables

- Alternatives Analysis Memo on the Conceptual Alignments of the Grand Junction

Multi-Use Path to Community Path Connection, including cost analysis on the recommended concept.

## 7.2 Document Design Assumptions and Design Criteria

The CONSULTANT shall develop a standalone document that summarizes the design criteria established for this project, and assumptions made in establishing such criteria. This document will continually be updated and refined throughout the PROJECT, with a final version at the end of the project serving as a completely up to date reference document. This document will include rationale behind the assumptions, leading to the final criteria, particularly if there is discussion with the City or other stakeholders to refine the criteria.

### Deliverables

- Draft and Final Design Criteria and Assumptions Document

## 7.3 Agency Approval

The CONSULTANT shall confer with the City, MassDOT, MBTA, and the City of Somerville as directed by the City. The City shall facilitate meetings as necessary to come to an agreement between the relevant parties. The CONSULTANT will be required to prepare one or more conceptual submissions to MassDOT on alignments with supporting documentation, The CONSULTANT shall attend and provide information for up to two meetings (to discuss a recommendation and then to present refinements) to come to an agreement before beginning the final design. Note that the PROJECT cannot move to the next task until there is agreement from the relevant stakeholders described in this task.

### Deliverables

- Interim alternatives and possible final report to MassDOT, if needed, similar to a Functional Design report
- Meeting materials (agendas, presentation, notes) for up to two inter-agency meetings

# TASK 8 25% Design

## 8.1 Additional Analysis

The CONSULTANT shall develop preliminary layout and grading plans for the multi-use path, which addresses any deficiencies or challenges understood from previous tasks.

The CONSULTANT shall develop preliminary design at roadway crossings/intersections identifying striping, signal and signage changes needed to accommodate the multi-use path crossings. The CONSULTANT shall identify roadway construction work and signal improvements if needed.

The CONSULTANT shall develop preliminary profile, grading and stormwater strategy for the multi-use path which addresses drainage and the City's stormwater management requirements and which is coordinated with tree preservation strategy.

The CONSULTANT shall perform Universal Design analysis of the final alignment and grading and incorporate current and/or pending regulatory requirements and additional best practices into the design.

The CONSULTANT shall develop/recommend Low Impact Design (LID) techniques to manage stormwater runoff. The CONSULTANT shall review case studies of appropriate multi-use path

related stormwater approaches with City for consideration and explore applications for the multi-use path.

The Preliminary Design shall be approved by the City before moving onto 25% design.

### Deliverables

- Annotated plans and photographs documenting visual inspections
- Preliminary LID Recommendations
- Documentation of City comments and resolution

## 8.2 Prepare 25% plans

### Key Assumptions:

1. PROJECT limits for construction bid documents are from an access point to the Grand Junction Path at Gore Street to Rufo Road including Gold Start Mother's Park, and the intersection of Rufo Road and Massachusetts Route 28, and the Community Path within the MBTA Green Line Extension. The design for Rufo Road shall incorporate and coordinate with current plans for the intersection of Rufo Road and Massachusetts Route 28 being developed by Cambridge DPW, and the design for the Community Path shall incorporate and coordinate with the MBTA Green Line Extension Bicycle Path access ramp.
2. 25% and subsequent submittals shall be incorporated into phased construction contracts.
3. The PROJECT will not receive State or Federal funding, and therefore typical MassDOT administrative submission requirements (i.e. environmental checklists, DER, etc.) will not apply.
4. The design shall include new lighting for the Path where necessary, including all associated underground infrastructure such as conduit, wiring, handholes, manholes, and grounding. The design shall be provided per the direction of the City Electrical Department.
5. The design shall include an emergency call box system, in accordance with City Electrical Department requirements and Emergency Communications/Public Safety IT, including all associated underground infrastructure for required power and data links. The design shall also include electrical infrastructure so that the City could, in the future, install security cameras.

Based on consensus reached and materials refined through previous tasks, the CONSULTANT shall prepare 25% level plans in accordance with MassDOT requirements.

## 8.3 Prepare Opinion of Probable Construction Costs

The CONSULTANT shall develop preliminary opinion of probable construction costs, in unit-price format based on standard MassDOT nomenclature.

### Deliverables

- 25% Plans
- 25% Construction Cost Estimate
- Documentation of City comments and resolution

## Task 9 Final Design

### 9.1 Prepare 75%, 100%, and PS&E Documents

### Key Assumptions:

1. Submittal documents (plans, specifications, estimate) to be based on standard MassDOT procedures, including use of MassDOT standard specifications modified by special provisions, and unit price bid format.
2. As directed by City departments (DPW, TP&T, Water Dept, Electrical Dept, etc.) City standard design details and/or specifications shall be used.
3. The City, as part of a separate process, is in discussions and negotiations with owners and abutters of the Grand Junction corridor to acquire the necessary right-of-way for the project. The CONSULTANT shall assume that additional right-of-way actions will not be required as part of this Project.
4. See also assumptions under Task 8 above.

The CONSULTANT shall advance design for all packages from the 25% Design to 75% Design, to 100% Design, and Plans, Specification and Estimate (PS&E) bid package. The CONSULTANT shall utilize the 75% design phase to refine design details not specified or revised since the 25% design. The CONSULTANT shall, for each of the respective milestones:

- Review design details with applicable interested parties including utilities, property owners, and regulatory agencies.
- Prepare complete drawings and specifications
- Prepare construction and design schedule updates
- Prepare Engineer's Opinion of Probable Construction Cost updates
- Prepare written responses to design review comments at each stage

For the 100% and PS&E submittals, the CONSULTANT shall prepare full Specifications / Bid Documents including all required sections in MassDOT format required to complete the work. Specifications shall consist of technical special provisions which refer to and supplement MassDOT "Standard Specifications for Highways and Bridges" and Special Provisions for additional items, supplementing the City's standard "General Terms and Conditions" for construction contracts.

### Deliverables

- 75% plans
- 75% specifications, estimate
- Documentation of City comments and resolution on 75% design
- 100% plans, specifications, estimate
- Documentation of City comments and resolution on 100% design
- Final stamped PS&E bid documents

### 9.2 Bid Phase Services

The CONSULTANT will attend a Pre-bid Conference and will prepare visuals to assist in the facilitation of the meeting and prepare up to two addenda. The addenda may include revisions to the Plans, revisions to the Specifications, pre-bid conference meeting minutes, and answers to bidder's questions. CONSULTANT shall print and distribute the bid documents on behalf of the City.

### Deliverables

- Visuals for Pre-bid Conferences
- Up to two (2) addenda