CITY OF LOWELL

LOWELL, MASSACHUSETTS

DEPARTMENT OF PLANNING AND DEVELOPMENT

50 ARCAND DRIVE, LOWELL, MA 01852

REOUEST FOR PROPOSALS

DESIGN OF INTERESECTION RECONSTRUCTION

VARIOUS LOCATIONS

The CITY OF LOWELL is requesting proposals from qualified engineering firms to conduct transportation engineering studies, design plans, prepare bid contract documents (specifications and cost estimates), and prepare funding applications for four proposed intersection and corridor improvement projects. The four proposed project locations include:

1) Merrimack Street Corridor from Dutton Street to Decatur Street;
2) Bridge Street at French Street Intersection;
3) Green Street and Church Street from Gorham Street to George Street;
4) Signalization of one intersection to be selected from analysis of four currently un-signalized intersections.

Copies of the Requests for Proposals, questions or additional information may be obtained by contacting the City of Lowell, Procurement Division at (978) 970-4110. The CITY reserves the right to reject any and all proposals and to waive any informality if deemed to be in the City's best interest. The CITY OF LOWELL, as an equal opportunity employer, encourages proposals from minority and women owned businesses.

The Purchasing Department, 375 Merrimack Street, Lowell must receive the proposals, no later than 11:00 A.M. on Wednesday, November 30, 2016.

NOTE:
All firms shall be pre-qualified by the Massachusetts Department of Transportation and shall include evidence of their pre-qualification with their proposal.

CITY OF LOWELL

LOWELL, MASSACHUSETTS

DEPARTMENT OF PLANNING AND DEVELOPMENT

50 ARCAND DRIVE, LOWELL, MA 01852

REOUEST FOR PROPOSALS

DESIGN OF INTERSECTION RECONSTRUCTION

VARIOUS LOCATIONS

Introduction:

The CITY OF LOWELL is requesting proposals from qualified civil engineering firms to conduct transportation engineering study, survey and design services with deliverables including preparation of bid contract documents (plans, specifications and cost estimates) for the following three separate street improvement projects: (Figure 1 below)

1) Merrimack Street Corridor from Dutton Street to Decatur Street
2) Bridge Street at French Street Intersection
3) Green Street and Church Street intersections from Gorham Street to George Street

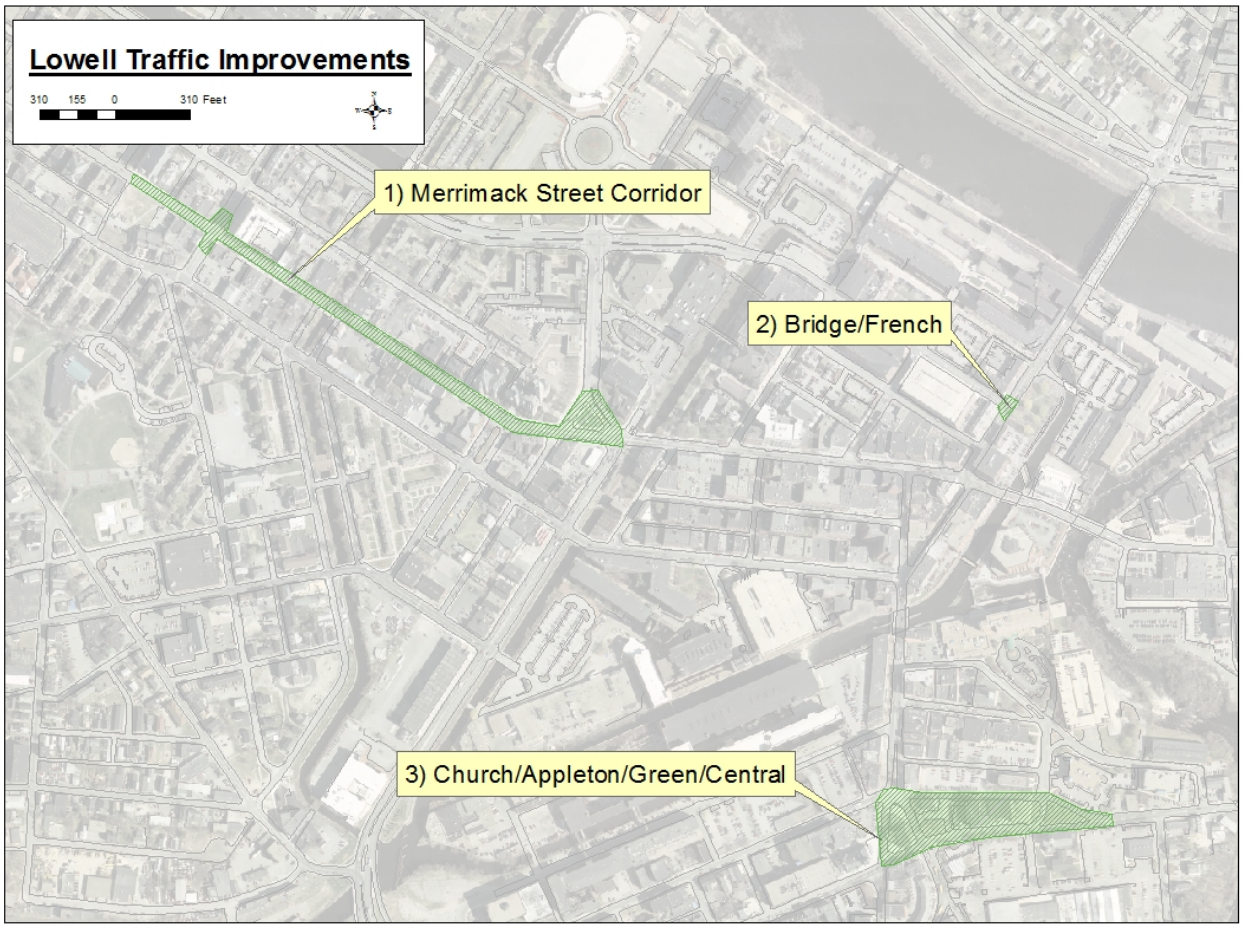
These three project areas are within the City's urban core and therefore experience heavy volumes of vehicular, pedestrian, transit and bicycle traffic. The City of Lowell has a Complete Streets Policy which states a vision and commitment to build a multi-modal transportation system which serves and accommodates all users regardless of ability, income, or mode choice. To that end it is the purpose of these proposed improvements to increase the safety, mobility, and accessibility of the traveling public to the City's many economic and cultural opportunities.

The City further seeks to build a modern transportation system which uses the latest innovations in traffic signal communications, detection, and coordination technologies to increase the efficiency and adaptability of the transportation system.

A further four un-signalized intersections will be studied to determine whether they meet warrants for signalization and to prioritize them according to congestion and safety needs. The intersection ranked as a top priority will be progressed to design stage:

4) Mammoth Road at E. Meadow Road;
5) Stedman Street at Westford Street;
6) Westford Street at Wilder Street;
7) Middlesex Street at Baldwin Street.

Figure 1 - Intersection Improvements

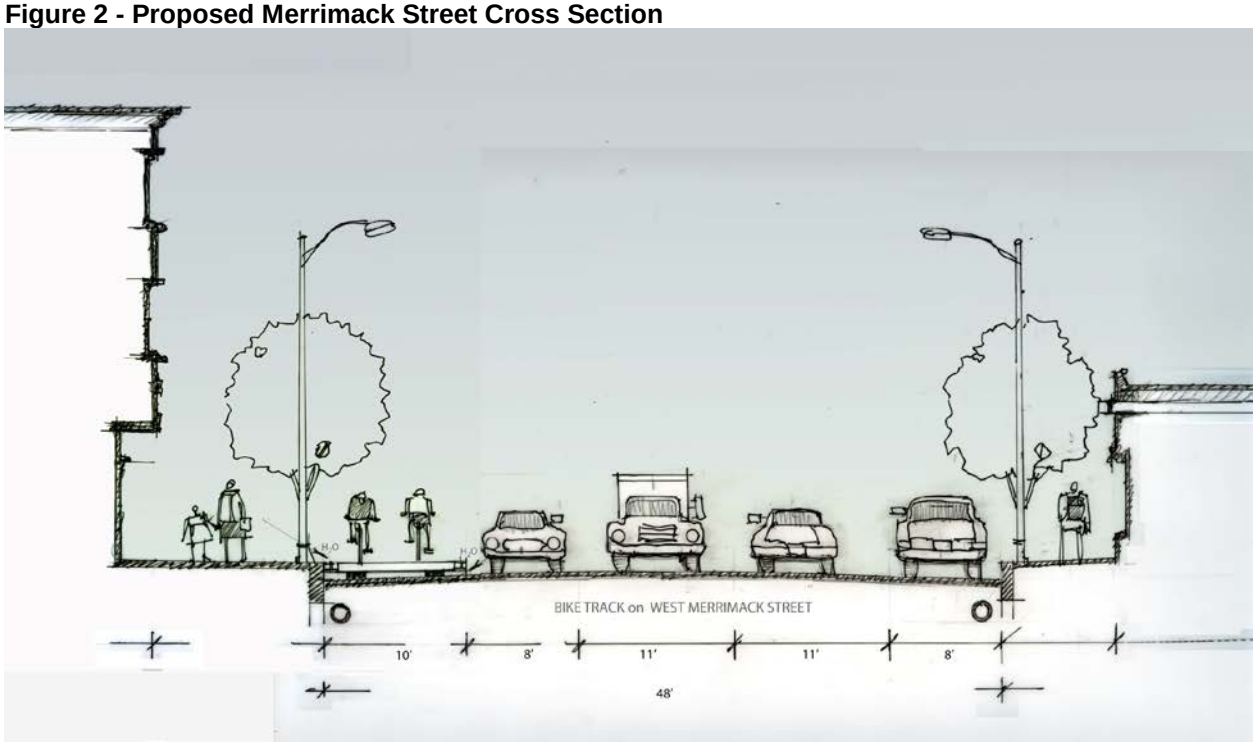


Statement of Problem and Need:

1. Merrimack Street Corridor:

Merrimack Street is an urban minor arterial that serves as one of the main entry points into the city and links the UML campus with the CBD. This corridor is anchored at the east end by City Hall and at its west end by the University Crossing building. Between these two institutions lies a blighted corridor at the cusp of economic revitalization. The stimulant needed to spur this redevelopment is the foot and bike traffic of college students traveling between the campus and the CBD and frequenting the businesses along the corridor. The city planners wish to retrofit the Merrimack Street corridor from Decatur Street to Dutton Street with separated bicycle accommodations. This cycle track would be included as part of the sidewalk improvements in coordination with the planned Merrimack Street corridor improvements. (see Figure 2 below) A major stormwater project has just been completed by the city which transformed Decatur Way into a multi-use path from Decatur Street to University Crossing and the city wishes to continue this corridor.

Figure 2 - Proposed Merrimack Street Cross Section



There are three signalized intersections along this corridor. The first intersection is at Dutton Street which is signalized with a split phase for the Dutton/Arcand Drive approaches and an exclusive pedestrian phase, which makes for a very long cycle length. The second signalized intersection is at Worthen Street which is a one way street and intersects with Merrimack Street about 200' to the west of Dutton Street and is also signalized. Both signal systems are operated from a single controller, meaning the minimal Worthen Street traffic has a very long cycle length also. The City is in the process of procuring ATC controller and single point video detection to modernize this intersection and to increase the pedestrian and vehicular level of service by removing the split phase timing. It may also be beneficial to place the Worthen Street signal on flash to make it a stop controlled situation for Worthern Street traffic.

The unsignalized intersection at Merrimack Street and Cardinal O'Connell Parkway is located in front of City Hall. It has been proposed to turn the northern section of the Parkway into a two way street to minimize the size of the intersections at Merrimack Street and Market Streets to facilitate pedestrian and automobile movements.

The third signalized intersection is at Merrimack Street and Cabot Street. The existing equipment is damaged and in poor condition. Due to its location near the Civic Center it sees a lot of emergency vehicle traffic and needs updating to OPTICOM system to help emergency response times.

2. Bridge/French Street

The intersection of Bridge Street and French Street is a signalized T-intersection which lacks appropriate pedestrian and ADA accommodations. New pedestrian signal pedestals with push buttons would be needed to be installed in at least two corners of the intersection. This intersection also should perhaps be coordinated with MassDOT's signal at VFW and Bridge Street to alleviate the traffic snarls during PM peak hours. Traffic analysis should include possible leading/lagging protected left turns for traffic on Bridge Street accessing the public parking garage during the morning peak.

3. Church and Green Streets from Central Street to George Street

Back in the 1972, the Major Streets Plan called for "the conversion of [Green and Church Streets] in one-way-pairs." Shortly thereafter in 1974, the State's Department of Public Works initiated an environmental assessment report which outlined the creation of the "Central City Circulator" – a project which converted Appleton Street, Church Street, Green Street and Middlesex Street into one-way streets circulating counterclockwise to feed into the Lord Overpass traffic pattern. This project also converted the yield-controlled rotary at the upper level of the Lord Overpass into four signalized intersections.

In the last decade Middlesex Street and Appleton Street have been converted back to two-way traffic from the Lord Overpass to Gorham Street. The Lord Overpass itself is being planned for demolition and filling in to create at grade intersections. Keeping the current traffic pattern would force all Andover Street traffic to use the Middlesex Street intersection at the newly configured Lord Overpass project, which would cause unbalance in the closely spaced intersections. The last remnant of the "Central City Circulator" would therefore be the subject of this project to convert Church Street and 'Little Appleton' back to two-way traffic.

The selected firm would be responsible for analyzing possible alternatives for Green Street and George Street, including realignments and removal of the signalized intersection. The sections of Central Street and Gorham Street between Middlesex and Appleton Streets should also be analyzed for possible reduction from three to two lanes.

4. Un-signalized Intersection Upgrade

The City seeks to have the following four un-signalized intersections analyzed to determine the need for signalization improvements:

a) Mammoth Road at E. Meadow Road;
b) Stedman Street at Westford Street;
c) Westford Street at Wilder Street;
d) Middlesex Street at Baldwin Street.

The intersections, if they meet warrants, would then be prioritized based on congestion and safety needs. The intersection ranked as in most need of signalization would proceed to design under this contract, including RSA if necessary.

Scope of Work

The Design Team shall provide transportation planning and design services involved in the preparation of preliminary through final design plans, specifications, construction cost estimates, and bid packages for roadway and signalization improvement in the following locations in Lowell, Massachusetts:

- Merrimack Street Multi-Modal Corridor Improvements from Dutton Street to Decatur Street;
- Bridge/French Street Intersection Improvements;
- Church/Appleton Street 2-way conversion and related intersections at Green Street, George Street, Church Street, Appleton Street and Central/Middlesex Streets;
- Signalization of one of the following intersections:
    - Option 1 – Mammoth Road at E. Meadow Road;
    - Option 2 - Stedman Street at Westford Street;
    - Option 3 - Westford Street at Wilder Street;
    - Option 4 - Middlesex Street at Baldwin Street.

The City's current conceptual plan preserves or adds on-street parking in most areas as this is important to local merchants and their patrons. The Design Team will support the City with advancing these conceptual plans through final design and supply the City with all necessary project documentation to solicit bids for construction and grant funding. The services associated with construction monitoring and inspection will be covered within a separate amendment.

DESCRIPTION OF TASKS

The planning and design services will concentrate on the following:

- Traffic data collection
- Field review of existing traffic operations
- Field Survey
- Analysis of signalized and un-signalized intersections
- Technical memorandum to document findings and recommendations
- Preparation of Roadway Safety Audit
- Preparation of preliminary design plans
- Preparation of final design plans, specifications and estimate

The services described in this contract will be performed in four tasks, which are described in detail on the following pages.

1.0 TASK 1: TRAFFIC ANALYSIS & PRELIMINARY DESIGN

1.1 Traffic Data Collection: At the City's request, the Design Team will assist the City with data collection and will perform Turning Movement Counts (TMCs) during the weekday and weekends at the following intersections or pedestrian crossings only:

- Merrimack Street at Cabot Street;
- Father O'Connell Parkway at Merrimack Street and Market Streets;
- Bridge Street at French Street;
- George Street at Green Street;
- Mammoth Road at E. Meadow Road;

- Stedman Street at Westford Street;
- Westford Street at Wilder Street;
- Middlesex Street at Baldwin Street.

Additional data sources for traffic data will include:

- The City will give the Design Team access to the GridSmart video detection and data collection system located at Green/Middlesex Streets and Central/Gorham Streets for TMC data;
- Traffic Counts conducted by NMCOG;
- Traffic Counts from previous projects – including TMC data collected at Dutton Street at Merrimack Street and at Worthen Street during 2016;
- Upper Merrimack Street/Pawtucket Street Land Use and Zoning Analysis prepared for the City of Lowell contains information about the Merrimack Street corridor;
- Field survey on Merrimack Street from the TIGER bridges project.
- Corridor Study and Feasibility Analysis – Rourke Bridge, Wood Street, Westford Street, and Drum Hill Road – prepared for NMCOG in 2012 contains intersection data on Stedman Street at Westford Street and Baldwin Street at Middlesex Street.
- Intersection of Mammoth Road and East/West Meadow Road Traffic Study – prepared by City of Lowell.
- Downtown Parking Study currently being conducted for the City of Lowell;
- Traffic Data from Verizon SmartCities pilot project.

Additional data collection will be approved based on need.

The City understands that the scope of work will not include origin-destination data to fully quantify the travel trends throughout study areas. The projections used to support the analysis for two-way flow will be approximated at an order-of-magnitude level based on engineering judgment from existing turning movements at key intersections.

1.2 Field Investigation & Observations: The Design Team will perform an inventory of lane use, signs, pavement markings, and signals at the study area intersections. The City will provide the Design Team with copies of all existing base plans, prior field surveys, and traffic signal plans. The Design Team shall be responsible for conducting all necessary field surveys and subsurface utility exploration (SUE) to create a base map adequate to design the proposed improvements and detect conflicts. The preliminary and final design plans will be developed on the aforementioned survey base plans and shall include the location of proposed signs, pavement markings, and traffic signal features. The locations of these improvements will need to be confirmed by the Design Team and the City's contractor in the field during construction activities. The Design Team will use any City-provided files and associated data with the understanding that they have the rights to use the information from the prior consultant and the accuracy of the documents has been confirmed by others.

1.3 Traffic Analysis: In order to compare the impacts of the proposed improvements to the no-build condition, it will be necessary to perform traffic projections and analyses to show the approximate differences in intersection delay. The Design Team will prepare capacity

analyses for both unsignalized and signalized intersections using Synchro software. The input parameters will be reviewed against the field operations observed in Task 1.2.

It will be necessary to utilize engineering judgment to redistribute traffic based on the proposed two-way conversion. This effort will provide a qualitative analysis of the potential reversal of the one-way flow of Church Street and Green Street.

1.4 Technical Memorandum: A brief technical memorandum will be prepared to address the following traffic engineering issues:

1.4.1 Graphical presentation of existing and proposed traffic volumes.

1.4.2 Capacity and level-of-service analyses of each intersection affected by the proposed improvements.

1.4.3 Queuing analysis for peak periods.

1.4.5 Geometric/lane configuration analysis.

1.4.6 A conclusive recommendation, including concept plans, regarding the extent to which Church Street and Green Street can be converted to two-way operation.

1.4.7 A conclusive recommendation regarding the need to signalize the four (4) unsignalized intersections, citing specific traffic, safety and cost/benefits for each. The recommendations should also identify one (1) unsignalized intersection to proceed to the design stage.

1.4.8 A conclusive recommendation regarding the conversion of Merrimack Street and Worthen Street intersection into a stop controlled intersection.

1.4.9 A conclusive recommendation regarding the construction of a cycle track along Merrimack Street from Decatur Street to Dutton Street.

1.4.10 A conclusive recommendation regarding the conversion of Father O'Connell Parkway into two-way traffic between Merrimack Street and Market Street.

1.5 Road Safety Audit: A Road Safety Audit (RSA) will be conducted for each location which is rated as a high-crash cluster by MassDOT. The RSA shall include the following tasks:

1.5.1 Identify locations and acquire crash data for each location.

1.5.2 Conduct one meeting with a multi-disciplinary team of stakeholders, including a site visit to each site, in order to gather institutional knowledge on the safety deficiencies of each location.

1.5.3 Prepare RSA document which complies with MassDOT standards and identifies short, medium, and long term solutions for each location.

1.6 Preliminary Design Plans (25%-50% Level): The Design Team will prepare a preliminary traffic and roadway design plans based on the City's chosen concept plans, and the

information gathered from tasks 1.1 through 1.5. The Design Team shall perform the following services:

1.6.1 Prepare preliminary geometrics/curbing of roadway and intersection alignment.

1.6.2 Design signalized intersection including lanes, basic signal layout, and timing.

1.6.3 Prepare a signing / striping plan for the project area.

1.6.4 Define project limits, construction materials, and conceptual details.

1.6.5 Prepare preliminary drainage report for locations where changes in curbing is required.

1.6.6 Prepare preliminary construction cost estimates for the proposed improvements.

1.7 Deliverables: The deliverables of this task will be the unstamped drawings and documents together with any assumptions, addenda, or revisions, upon which design efforts will be based. For informational purposes, AutoCAD based plans will also be provided. Plans will be produced in US Customary format at a scale of 1-inch = 20 feet or 1-inch = 40 feet. Plans shall conform to MassDOT standards. Also, traffic data will be provided in tabular and graphical formats.

2.0 TASK 2: FINAL DESIGN (100% and PS&E Design)

2.1 Final Plans: The Design Team will prepare final design plans for the project areas described above. This will be performed after the City has reviewed the Preliminary Design and any comments will be integrated and/or responded to. The final design plans will be submitted electronically and via plotted copies on 24x36 sheets. The plans will show the intent of lane use and/or traffic control changes proposed as part of the project at each intersection and along each roadway corridor. It will also include standard traffic control details for construction and preliminary estimate. It is assumed that one (1) review of the 100% design plans will occur prior to submission of PS&E plans.

2.2 Bid Documents and Assistance: The Design Team will prepare stamped bidding documents for the City's use in soliciting public bids for construction and assist the City in evaluating the bids received. This will also include clarification for Requests for Information as part of the bidding process.

2.3 Grant Funding Assistance: The Design Team will aid the City in preparing grant requests by providing the necessary data, analysis, cost estimates, graphics and narratives. Anticipated funding sources will include CMAQ, HSIP, or other TIP funding.

3.0 TASK 3: PROJECT MEETINGS

Various meetings are likely to be required throughout the design process. The meetings anticipated for this project are outlined below for the purpose of developing a budget.

3.1 Project Meetings: The Design Team will attend project team meetings and other public meetings with the City. Services include preparation, attendance, supporting graphics (when required) and documentation in the form of meeting notes.

For the purposes of this scope, the Design Team should assumed attendance will be necessary for no more than two team members at four (4) meetings with City staff to discuss the results of the analyses and development/progress of the design plans.

3.2 Public Meetings: The Design Team will attend one (1) public meeting with City representatives to discuss the findings, recommendations, and preliminary design elements. Services include preparation, travel, attendance, supporting graphics (when required) and documentation in the form of meeting notes. The Design Team will also attend one (1) public input session, arranged by the City, which may be in the form of a business stakeholders meeting or door-to-door interviews on a weekday morning.

3.2 RSA Meetings: As described in Task 1.5 above the Design Team will be required to set up and attend one (1) public meeting per high-crash location for purposes of conducting a Road Safety Audit.

4.0 CONSTRUCTION PHASE SERVICES

If requested by the City, the Consultant agrees to provide construction phase services that may include: attendance at construction meetings, site inspections, preparation of field reports, responses to requests for information, review and approval of submittals and payment requisitions, review and approval of change orders, preparation of a punch list, and approval of the work upon substantial completion.

Technical Proposal Instructions

Bidders must submit a definitive work plan indicating how the project will be accomplished. The technical proposal should reflect a clear understanding of the nature of the work being undertaken. The technical proposal must include detailed information on how the project is to be organized, staffed and managed. The technical proposal shall be limited to 20 double sided pages plus any additional pages for resumes, schedules, prequalifications, certifications, and audit/financial documentation.

A. Work Plan and Capabilities

Describe the firms understanding of the project requirements and objectives, and its plans and capabilities for accomplishing the tasks listed in the Scope of Work. Identify any anticipated difficulties and problem areas, together with potential or recommended approaches for their resolution. The proposal shall also discuss any interpretations, qualifications or assumptions being made to the address the Scope of Work.

B. Schedule

Provide a schedule for completion of the work and delivery of items specified in the Scope of Work. Schedules shall be shown in terms of calendar days from the date of authorization to proceed, presumably January 2, 2017. All plans and specifications will be reviewed by the Department of Planning and Development and the Department of Public Works for project compatibility and will be returned to the Consultant for correction.

C. Personnel

Describe the experience, expertise, and technical qualifications of personnel who will be assigned for direct work on this project. Include current resumes of key personnel. Describe their design, layout and presentation capabilities, as appropriate. State the estimated time each will spend on this project, as well as their proposed duties and the areas or phases for which each will be responsible.

The qualifications of the bidder's Project Manager are especially important. The bidder shall present details of his or her project management experience, current responsibilities, and technical qualifications to initiate and manage the project. In addition, information about the Project Manager's proposed project responsibilities must be described.

Additional personnel, such as subcontractors, who may participate in this project shall be identified and qualified, as stated above.

D. **Additional information**

A specific, technical response is required. Proposals that merely offer to conduct a project in accordance with the requirements of the City's Scope of Work will be considered unacceptable. Each bidder must submit a definitive statement of work for the end product proposed in compliance with the City's requirements. Cost will be a factor influencing Consultant selection.

Project Manager and Coordination

The CITY OF LOWELL has designated the Transportation Engineer to be responsible for overall direction of the work. The Consultant shall keep the Transportation Engineer fully informed of the project's status, via frequent communication and staff progress meetings. The City's Engineering Division will also review 25-50 percent design plans and draft final plans and specifications for accuracy and conformance with the specifications. Inaccuracies or incomplete work shall be promptly corrected by the Consultant and returned to the CITY for final approval.

Period of Performance

The anticipated period of performance, including receipt by the CITY OF LOWELL of the final deliverables, is 40 weeks, commencing on or about January 2, 2017. The bidder may propose and justify an alternate period of performance.

Cost

The bidder shall submit a cost breakdown by tasks and a total bid price. The price proposal shall be submitted with the technical response in a separate, sealed enveloped, clearly marked as the Price Proposal. The bidder may also provide a price for Alternate Items not specified in the Price Proposal, but should be duly noted and not included as part of the base bid price.

Subcontractors

Bidders may elect to subcontract some of the work to other qualified firms or individuals. If such arrangements are proposed, the areas of subcontracted work shall be clearly identified in conjunction with the bidder's response. Bidders must perform a minimum of 60% of the work in-house. If elected, a description of the subcontractors work requirements and percentage of the total project must be submitted with the proposal.

Schedule of Deliverables

Bidders shall submit a projected schedule, which includes key dates for plan review, meetings, reports and deliverables. It is expected that the awarded Consultant shall keep up with the schedule and promptly notify the Engineer of any delays or problems, which may prevent the project from being completed on time.

All plans, specifications, documents and other products created in performing the assignments shall be delivered to the CITY in the appropriate form and shall remain the property of the CITY OF LOWELL.

Insurance

The awarded Consultant shall furnish insurance certificates to the CITY OF LOWELL in the minimum listed amounts. Such certificates shall be kept current throughout the length of this contract. The Consultant and/or any subcontractors shall not commence work under this contract until all insurance requirements have been submitted and approved by the CITY OF LOWELL. The insurance shall provide adequate protection for the Consultant and his subcontractors against any claims, which may arise from work under this contract, whether such work is by the insured or by anyone employed by the Consultant. The CITY OF LOWELL is to be named as an additional insured.

INSURANCE REQUIREMENTS

Professional Service Liability/Errors & Omissions $ 1,000,000
Comprehensive General Liability $ 1,000,000/$ 3,000,000
Auto Liability: Property Damage $ 500,000/$ 500,000
Personal Injury $ 1,000,000/$ 3,000,000
Workmen's Compensation as required by the Commonwealth of Massachusetts

Interview of prospective consultants by the CITY OF LOWELL

Upon receipt of consultants' proposals, a three member panel consisting of staff from the City's engineering and planning departments will review the materials for completeness and rate the proposals based on the evaluation criteria set forth below. The City may invite the firms with the top proposals for interviews to further evaluate the proposals.

Evaluation Criteria to be used by the CITY OF LOWELL

The City will use the criteria listed below to evaluate proposals submitted in response to this RFP. Bidders should not minimize the importance of an adequate response in any area, as all the criteria listed will be considered in determining the City's selection of a Consultant. A comparative rating will be given to all submitted proposals, ranging from Unacceptable, Not Advantageous, Advantageous, and Highly Advantageous, using the following evaluation criteria:

- Bidders' understanding of the project requirements, the technical approach and proposed schedule to complete the project.
- Bidders' organization and management plan.
- Qualifications of the Project Manager and other key personnel.
- Corporate or company resources, including registered personnel, equipment, and other project related resources.

- Bidders' experience and past performance on similar projects, including waiver submittals to Mass Highway.
- References from recent projects of similar size and responsibility.
- Price proposal

PROPOSAL SUBMISSION REOUIREMENTS

Each envelope must be clearly marked **"DESIGN OF INTERESECTION RECONSTRUCTION - VARIOUS LOCATIONS"** with the proposing firm's name and address. The non-price (or technical) proposal must be submitted in a separate, sealed envelope additionally labeled **"Technical Proposal."** All technical proposals shall include as a minimum the following information

1. Name of firm.
2. Address of firm.
3. Name of contact person.
4. Names and addresses of all partners, officers, and directors and any other person with an ownership interest greater than 5%.
5. Names of any City officials or employees who are related to any of the partners, officials or directors of the firm or have any ownership interest in the firm.
6. Names and resumes of personnel who may be assigned to work on the project including any registrations and required certifications.
7. A list of recent projects including names, location, cost for services, date, name of owner, name and phone number of owner's representative for which services were provided within New England during the last two years. Identify projects as completed or underway.
8. A description of the general skills of the firm, and any specific skills to be brought to this proposal. Any laboratory or field certifications/licenses shall be provided.
9. If a joint venture proposal, provide the information for all parties to the joint venture.
10. The Consultant shall furnish a financial statement or other evidence of financial stability.
11. Other information which will document the firm's capabilities and qualifications for. the project.
12. Appropriately completed certifications from Appendices A, B, and C.
13. Price proposal (sealed separately)

The price proposal must be submitted in a separate, sealed envelope additionally labeled **"Price Proposal."** Price proposals shall be compared using the total price submitted for the services listed.