



CITY OF CEDAR RAPIDS
CEDAR RIVER FLOOD CONTROL SYSTEM (FCS)
8TH AVENUE BRIDGE REPLACEMENT OVER THE CEDAR RIVER
REQUEST FOR QUALIFICATIONS - DESIGN
CIP 3316400

December 12, 2017

The City of Cedar Rapids (herein after referred to as City) is interested in entering into a Professional Services Contract with a consulting firm (hereinafter referred to as Consultant) to design and implement a signature bridge crossing the Cedar River at 8th Avenue in downtown Cedar Rapids. This bridge will replace the existing 1937 structure, which was closed during the 2008 and 2016 floods. The new bridge will be raised to provide uninterrupted transportation across the Cedar River during floods to at least the 2008 flood volume of record, thus requiring reconstruction of bridge approaches.

The City recognizes that a desired signature bridge will be a specialty structure and the Consultant selected during this process shall demonstrate expertise in design of the community's preferred replacement structure type, a cable stayed structure no more than two bridge piers in the river. An extradosed design was selected, due to its unique look and to have a height in scale with the City's downtown. The bridge approaches will also require a certain level of expertise due to constraints of adjacent development, and the possibility the project may include a roundabout on the west side. Services to be provided generally include preliminary planning, design development, public involvement, bidding assistance and coordination with all members of the Flood Control System (herein referred to as FCS) Design Team. The City's Flood Control Program Manager, Robert Davis, oversees the overall FCS, including this project.

The City currently has 3 prime consultants comprising the FCS Design Team:

- East Side FCS – Stanley Consultants Incorporated (SCI)
- West Side FCS – Howard R. Green Company (HRG)
- 8th Avenue Bridge Corridor – Shoemaker and Haaland Professional Engineers (SHPE)

The Consultant, will join the other firms under contract as part of the FCS management team with the City's Flood Control Program Manager. The Consultant is welcome to propose a teaming with any consultants, including those mentioned above.



SHPE is currently coordinating concepts for the 8th Avenue bridge corridor from 1st Street West to 2nd Street East, coordinating planning efforts for development in conjunction with the future pump station at the NW corner of the new 8th Avenue bridge and the Cedar River, assisting with public outreach, and designing utility relocation to accommodate the new bridge. A bridge replacement feasibility report was completed by HDR, Inc., as a subconsultant to SHPE (document attached). A conceptual traffic study performed through SHPE recommended a roundabout at the intersections of 1st Street SW, Diagonal Drive SW and 8th Avenue SW (graphical representation on attached alignment drawing). SHPE may continue to perform local coordination efforts with the bridge design consultant(s) for the 8th Avenue corridor.

The City has completed hydraulic modeling of the Cedar River both with and without the proposed flood control components and will provide the model to the selected Consultant. Currently HRG maintains the master hydraulic river model and may continue to do so, as required for the 8th Avenue bridge project.

The City will work with the selected Consultant to determine the exact north-south project limit of floodwall beyond the proposed bridge abutments. The east project limit is generally 2nd Street SE and the west project limit is generally 1st Street SW.

Current activities near the bridge on the west side include concept planning of a pump station, retail/recreational development, new trail, levee and floodwall layout between the bridge and McGrath Amphitheater, and final design for relocated water main and sanitary sewer to accommodate the new bridge. The City's Traffic Engineering Division of Public Works is currently performing a more detailed geometric analysis of the aforementioned potential roundabout for possible consolidation with the 8th Avenue Bridge replacement project. The pump station and potential adjoining development are not part of the 8th Avenue bridge project, but preliminary design details are desired to determine project limits between those projects and the 8th Avenue bridge project and also to ensure functional and aesthetic compatibility between projects.

Current activities near the bridge site on the east side include environmental clearance and levee/ redevelopment concepts for Parking Lot 44. Levee design may begin in Parking Lot 44 within the next few years. Floodwall extension south to the Parking Lot 44 levee and north along the Federal Courthouse may be considered with this Project.

Both the East and West Side consultant contracts currently have scope to coordinate the design of future FCS walls and levees with the new Consultant for the 8th Avenue Bridge.



QUALIFICATIONS SUBMITTAL REQUIREMENTS

- **Submittal Deadline:** February 1, 2018 before 4:30 P.M. CST
- **Submittal Location:** Public Works Department
City Services Center
500 15th Avenue SW
Cedar Rapids, IA 52404
- **Submittal Contact:** Robert Davis – P.E., ENVSP
Flood Control Program Manager
319-286-5808
r.davis@cedar-rapids.org
- **Submittal Copies:** Ten copies are required.
- **Content:** Maximum length of 50 pages (25 pages double sided)

QUALIFICATIONS SUBMITTAL CONTENT

The following items shall be addressed by the Consultant. *Do not include cost information for professional design fees:*

- Name, address (including e-mail), telephone numbers of the engineering firm
- Name of individual to serve as contact person
- Summary of recent experience with similar bridge design projects, roundabout projects, and floodwall projects, including references, addressing the following:
 - Design components of bridges similar to an extradosed bridge
 - Design of bridge abutments, also serving as floodwalls.
 - Initial schedule of design services and time required for completion
 - Initial project construction budget and final contract amount
 - The involvement of the proposed project team in the similar projects listed
 - Examples of public feedback and aesthetics implementation
- Firm's analysis, preparation, and level of interest.
- Sub-consultants on team to complete the work.
- Qualifications and experience of project manager and other key personnel and their availability to work on this project

- Compatibility between design professional and FCS Design Team, general attitude and ability to communicate.
- Familiarity with local government and regulatory agencies.
- Funding opportunities other than State's Flood Mitigation Program
- Project Specific / Discussion items:
 - Cost effective alternatives within the cable supported bridge type that can offer an iconic look in alignment with the preliminary selection of an extradosed bridge.
 - Feasibility, fitting with site constraints, constructability, construction estimate, etc.
 - Service life of structure
 - Construction materials, coatings, corrosion protection
 - Aesthetic enhancement options
 - Future maintenance and inspection considerations
 - Project limits
 - Permitting and bidding strategy
 - Public involvement
 - Proposed project schedule and cost controls
- Other items deemed relevant by the Consultant.

PROFESSIONAL QUALIFICATIONS AND CERTIFICATIONS

The engineering services to be provided shall be completed under the direction of a Professional Engineer licensed in the State of Iowa, experienced in the planning and design of major bridge replacement projects for municipalities.

PROJECT OBJECTIVE

The objective of the project is to replace the existing 8th Avenue Bridge over the Cedar River at an elevation above the proposed Flood Control System (FCS). The new crossing shall consist of four travel lanes, shoulders, one sidewalk and one shared use path at a minimum. The bridge is anticipated to be built integrally with a floodwall abutment on each side, and have an overall span between 650 feet and 700 feet, with fewer bridge piers in the river than the existing bridge.



PROJECT BACKGROUND

The Cedar River Flood of 2008 inundated 13% of Cedar Rapids and forced closure of 9 out of 10 area bridges crossings of the Cedar River. The Cedar River crested 11.12 feet above its previous peak. All City-controlled bridges were closed and only the upper deck of the Interstate 380 Bridge served as a crossing of the Cedar River. The City, in conjunction with the US Army Corps of Engineers and the State of Iowa Flood Mitigation Board, developed a plan to protect the core of Cedar Rapids from Cedar River flooding to the 500 year storm, plus 3-feet of freeboard. This equates to approximately the 2008 flood volume, and consists of levees, walls, gates and pump stations. The project is currently partially funded with local and state funds, and the City has begun construction of certain segments of protection.

In late 2015, the City advanced the concept of replacing and raising the 80-year old 8th Avenue bridge above the 2008 flood elevation, as opposed to undertaking a major rehabilitation. 8th Avenue was seen as a good candidate for bridge raising due to its high usage, key connection points, available area for raised bridge approaches, and proposed flood walls to serve as future bridge abutments. In spring 2016, without providing additional funds, the Iowa Flood Mitigation Board, concurred with the City's request to make the bridge replacement an eligible project component. This means the project could be funded through the State Flood Mitigation Program and the City would have to look for savings from the balance of the FCS project or find other grant sources to help fund this endeavor. The federal government has not yet funded its portion of the FCS and the value engineering savings within the FCS are limited. Thus, additional funding toward the new 8th Avenue bridge is desired.

The Cedar River again flooded in September 2016, again closing all downtown bridges, except the top deck of the I-380 Bridge. In November 2016, the new Iowa Highway 100 Bridge over the Cedar River opened approximately 5 miles upstream of downtown. This bridge is the second regional bridge that would remain open during an event the magnitude of the 2008 Cedar River flood. Still no bridges operated by the City would be able to remain open for critical access, flood fighting, etc. near the City's downtown.

The FCS Team completed a bridge and alignment study to replace the 8th Avenue Bridge. The bridge replacement is to provide local means of access to the downtown area during a flood event, which includes emergency services, medical services, and local commerce. The new alignment and profile will be roughly 13'-14' higher at the abutments and at a skew to the existing structure to accommodate adjacent property owners. The final bridge alignment is subject to small changes, but these are not anticipated to be more than 1'-2' vertically or 5 degrees of skew.



Subsequent to the bridge and alignment study and gaining State Flood Mitigation Program eligibility in 2016, the City Council formally adopted the 8th Avenue Bridge replacement into the FCS Master Plan. The City Council desires a signature bridge, highlighting the vibrancy and significant comeback of downtown Cedar Rapids after the 2008 flood. Public Works desires a functional, long lasting, and maintainable structure. The FCS Team used various polls, panels, and public input surveys to narrow the type of preferred bridges. The leading candidate was a cable supported extradosed structure. A preliminary engineering study was completed in spring 2017 on both an arch type bridge and extradosed bridge. The engineering report validated and recommended the cable supported extradosed bridge.

Expectation is the existing 8th Avenue Bridge and roadway will be closed for the duration of the demolition and reconstruction. If a 1st Street SW roundabout is ultimately funded and added to the City's capital improvement program, construction would be desired when the 8th Avenue Bridge is closed. Construction began in summer 2017 to relocate fiber optics off of the existing 8th Avenue bridge. Design has begun on relocation of sanitary sewer, water main and storm sewer away from the 8th Avenue bridge corridor, in order to accommodate a new bridge. Those projects are planned for construction beginning in late 2018 and continuing into 2019.

For the new structure, the specifics of the aesthetics will be a function of the final design, and additional public involvement to create a signature bridge is expected. A minimum service life of 100 years is required for non-replaceable components. Strategy to ensure such a design life will be an important part of the design.

PROJECT SCHEDULE

Design for this project is projected to begin in summer 2018. Construction can begin as early as 2020, under the current schedule to relocate existing utilities. However, the current 5 –year plan does not show any local funding allocation until fiscal year 2022. Grant funding is desired to leverage the State of Iowa Flood Mitigation funding for this project and depending upon grant opportunities, the Project schedule may be affected.

PUBLIC INVOLVEMENT

The Consultant shall work with the FCS Team to perform different public involvement tasks. These include, but are not limited to, providing visuals and text to City to be used in the FCS website, providing visuals and text to be used in online surveys, and providing visuals and text to be used in public open house settings.



ROLE OF SHPE MAY CONTINUE WITH PROJECT MANAGEMENT

As mentioned in the introduction, Shoemaker & Haaland Professional Engineers has been retained currently as the project manager for this 8th Avenue corridor, assisting the City's Flood Control Program Manager in structural, roadway, utility and site planning design and coordination, along with coordination with the East and West side FCS design teams. SHPE may or may not continue in this role. Prospective Consultants for the design of the bridge are not obligated to include SHPE, HRG, or SCI on their proposed team, but are welcome to do so.

SCOPE OF SERVICES

The Scope of Services to be performed by the Consultant shall be completed in accordance with generally accepted standards of practice. Consultant may outline key tasks they expect will be required. The specific Scope of Services and associated consultant fees will be negotiated upon selection of a Consultant. The key tasks will include, but are not limited to the following:

- Study on cost effective yet useful materials and coatings
- Study on specific bridge aesthetics utilizing panels and public involvement
- Bridge Corrosion Protection Plan
- Bridge Operations and Maintenance Manual to include inspection techniques
- 30%/60%/90%/Bid Plans, Contract Manual, and Cost Opinions
- Grant Identification and Solicitation
- Bid Assistance
- Construction Management assistance on specialty items outside of the City's expertise.
- Coordination with the FCS Design Team
- Public Involvement
- Regular meetings, reports, project management items with City's Flood Control Program Manager

SELECTION AND EVALUATION PROCESS

Consultant will be selected on the basis of qualifications as demonstrated in the response to this request and any subsequent interviews. The selection committee will consist of City and other FCS implementation staff. Consultants shall utilize the City's Flood Control Program Manager for inquiries. Qualifications will be evaluated on the basis of the following criteria:

- 1) Demonstrate expertise and experience in bridge design of similar type and size, in traffic analysis and roundabout design, and in floodwall design.
- 2) Demonstrate expertise and experience in the successful and timely completion of bridge design projects of similar type and size.



- 3) Demonstrate the possession of adequate staff and resources to complete the design and construction contract in the time allotted.
- 4) Show commitment and include quality and experienced staff members on the project.
- 5) The completeness and quality of project approach, including project specific items.
- 6) Familiarity and experience with the City of Cedar Rapids Public Works Department and FCS Team.
- 7) Office/personnel location that will be managing/overseeing the bridge design.
- 8) Client references and contact information.

Note: No costs incurred prior to Consultant contract execution are eligible for reimbursement.

Attachments:

- 8th Avenue Bridge Replacement Validation Study - May 2017 (by HDR)
- 8th Avenue Bridge Corridor Proposed Alignment Drawing (including roundabout schematic option) - Dec 2017
- Downtown Cedar Rapids existing and proposed trail schematic - Dec 2017

END OF REQUEST FOR QUALIFICATIONS