

City of Cedar Rapids' Flood Mitigation Program Application Executive Summary

Cedar Rapids' Flood Mitigation Program Grant Request

The City of Cedar Rapids is requesting approval of a grant in the amount of \$263,773,000 to provide 46% of our \$570,430,000 total project cost for flood mitigation on both sides of the Cedar River in Cedar Rapids. The goal of the proposed system when completed is to reduce or eliminate the future flood damages resulting from flood events similar or less than the event that occurred in June of 2008. The proposed mitigation system includes construction of 6.24 miles of levee and floodwalls (permanent and removable), 11 pump stations, 21 roadway and railroad gate closures, improvements to a flood prone bridge (elevation of approaches), and design on a second river crossing. While the City believes that, based on 2.5% growth in sales tax, it would reach the maximum amount of sales tax increment allowed under state law in FY19 it is asking for the sales tax increment generated each year up to the allowable 70% or \$15 million.

The City is also requesting approval to allow necessary adjustments to the schedule for construction of the individual phases of the proposed mitigation system as well as make necessary modifications to the alignments of the project elements in conformance with final design recommendations. This project will be aggressively implemented in segments to match the availability of funding, to respond to economic development opportunities and/or public feedback, and to achieve the most cost effective and efficient system when complete. The City will conduct extensive public engagement as the design development process is initiated for various segments to help achieve a flood mitigation system that best serves the citizens.

Additionally, we request approval to include one or more of the flood mitigation activities noted below as eligible activities should the construction and/or inflation costs throughout the course of the project noted above are lower than estimated. These activities would remain eligible for grant funding assistance until the total grant funding amount of \$263,773,000 is expended. The contingent flood mitigation activities and estimated costs (based on 2013 cost opinions) are:

- May's Island protection - \$23,000,000
- Water Plant protection - \$30,000,000
- Extending the line of protection north from Quaker Oats - \$50,000,000
- New SE Bridge Crossing over Cedar River (C Street SW bridge) - \$31,000,000

Cedar Rapids' Flood Management Project

The City is requesting sales tax increment to aid in the construction of the City's proposed flood management system, which is comprised of 6.24 miles of levee and floodwalls (permanent and removable). Included as part of the proposed flood management system are 11 pump stations and 21 roadway and railroad gate closures. The City does envision using removable floodwalls in some locations. The USACE has conducted a risk assessment for their eastside project that determined the City has the ability to successfully install planned removable floodwalls and gate closures as part of their flood mitigation project. This risk assessment evaluation was based on flood warning time, available City resources, and the City's plan to construct removable floodwalls and closure gates on both sides of

the Cedar River. The City is also proposing improvements to the southern (flood prone) and northern approaches of the Edgewood Road bridge. This is being proposed to mitigate the access issue in 2008, when the flood closed 9 out of ten bridges over the Cedar River and left I-380 as the only way to access both sides of the metro area, which resulted in local and regional delays for citizens and businesses as well as limiting access to both hospitals from the west side of the city.

As mentioned above, if cost and financing conditions are favorable, one of the additional projects the City will complete within the stated project cost is the construction of a new SE Cedar River bridge connecting C Street SW to Otis Road SE, which will allow for another river crossing.

This project includes structural flood protection and infrastructure improvements totaling \$570,430,000. The funding in place includes a total of \$175,882,000 in federal funds (Community Development Block Grant, Federal Highway Administration, USACE, Water Resources and Reform Development Act) and \$20,650,000 in local (city, private, and state) funding. The request for sales tax is \$263,773,000, which is 46% of the project total.

The key and crucial portion of the City's project is structural flood protection on both sides of the river based on plan adopted by the City Council in November of 2008. The development of this plan, including redevelopment of flood impacted areas, involved the input of 4,000 people over three open houses and 8 workshops. Recent redevelopment plans adopted in 2013 (Downtown Area Plan, Kingston Village Plan, Ellis Boulevard Area Plan) for areas along the river and the downtown included property owner and neighborhood association involvement and have reaffirmed the City's commitment to flood protection.

Extensive cooperation with the USACE has led to the completion of a feasibility study, review and approval of a federal mitigation project on one side of the river by the Civil Works Review Board, approval by the Office of Management and Budget for inclusion in the President's budget, and inclusion in both the Senate and House versions of the new Water Resources and Development Act, now titled the Water Resources and Reform Development Act of 2013 (WRRDA) by the House. WRRDA was passed by the Senate on May 15th, 2013, the House on October 23rd, 2013, and will now go to conference committee. USACE, in coordination with the City, is currently designing this portion on the east side of the river, which is called 4C.

The City has completed or is in progress on other elements of its overall flood protection project including:

- Construction of the Amphitheater levee
- Water Pollution Control (WPC) protection system
- Elevation of mechanicals and utilities in City facilities
- Improvements to the Utility Systems (Water, Storm Sewer, Sanitary Sewer)
- Acquisition of private property to remove citizens and businesses from future risk
- Area specific flood response manuals
- Participation in the Community Rating System
- Bridge improvements

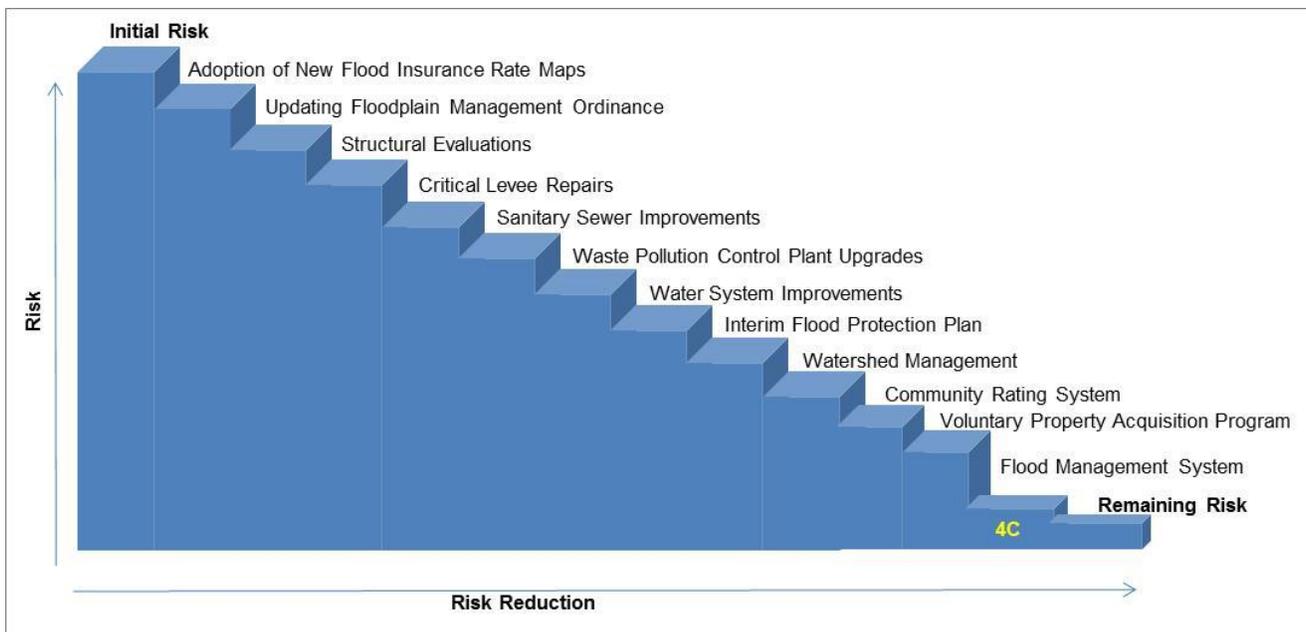
- Coordination on protection built by the Private sector (Alliant Energy levee and Quaker Oats floodwall)

Although not all of these efforts and their funding are included in this application (due to the application requirement to exclude Stafford Act funding), the City has directed \$304,674,000 in federal funding, \$38,034,000 in city funding, \$11,278,000 in private funding, and \$50,711,000 in state funding towards its overall flood mitigation project.

It is important to note that, since the flood, there has already been more than \$373,000,000 million invested by the private sector in a combination of commercial, industrial, and residential projects. This has all been predicated on the City’s plan and is expected to grow during the 20 year time period of the grant.

Cedar Rapids’ Multi-Strategic Approach to Flood Management

The City of Cedar Rapids recognizes that the responsibility for flood risk reduction is shared among the federal, state, and local governments as well as among the citizens of the community. Cedar Rapids has made a full scale effort to identify and act on every risk reduction tool that has been brought to its attention. The City is collaborating with entities at the local, state, and federal levels to employ multiple strategies for flood risk management. The graphic below outlines the multiple approaches the City is taking to mitigate the damages from the June 2008 flood. The vertical spectrum represents the amount of risk from future flooding. The horizontal spectrum represents the reduction in risk each time a strategy is put in place. The amount of risk is reduced as the City implements or utilizes a strategy. Some strategies have a larger impact than others. For example, the City’s proposed flood management system has a greater impact on reducing risk than improving the Community Rating System. Each time the City implements a strategy the amount of risk is reduced until there is only a residual or Remaining Risk that remains.



Voluntary Property Acquisition Program

The City, with input from the US Army Corps of Engineers, developed a preliminary alignment area in late 2008 to identify properties that would have the greatest likelihood of being impacted as a result of constructing a flood management system (either from construction or relocation of infrastructure). This area is essentially a buffer around the City's proposed flood management system. The purpose of creating this area prior to final design of a system was threefold:

- Provide some clarity to property owners deciding whether to rebuild.
- Preserve property that would be needed by the City for the flood management system.
- Allow for flexibility of the alignment during final design

City adopted a Voluntary Acquisition Plan in December of 2008, which outlined the strategy for acquisition of flood damaged properties. The main focus of this plan was the acquisition of properties within the preliminary alignment area and the area between the preliminary alignment area and the river.

For this project the City has acquired a total of 556 properties for a total of \$56,731,000. 58 properties using local option sales tax for a total of \$2,327,000, 405 properties using Community Development Block Grant funds for a total of \$48,208,000, and 93 properties using Hazard Mitigation Grant Program funds for a total of \$6,196,000 (these funds are not included in the project total).

Community Rating System

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the program's three goals:

- Reduce flood damage to insurable property
- Strengthen and support the insurance aspects of the NFIP
- Encourage a comprehensive approach to floodplain management

For CRS participating communities, flood insurance premium rates are discounted in increments of 5% (i.e., a Class 1 community would receive a 45% premium discount, while a Class 9 community would receive a 5% discount (a Class 10 is not participating in the CRS and receives no discount)). The CRS classes for local communities are based on 18 creditable activities, organized under four categories:

- Public Information
- Mapping and Regulations
- Flood Damage Reduction
- Flood Preparedness

The City of Cedar Rapids began participating in the Community Rating System in May 2010 and was initially classified as a Class 8 community. This classification equates to a 10% discount off flood insurance premiums for policies within the Special Flood Hazard Area commonly referred to as the 100-year flood plain.

Since 2010 the City of Cedar Rapids has taken additional steps to reduce flood risk within our community. These steps include the removal of nearly 700 structures from the 100 year floodplain; a number of public information events; increased floodplain mapping information; and restrictions on redevelopment within the floodplain.

With these additional floodplain management actions by the City, it is our hope that in May 2014 the City of Cedar Rapids will become a Class 6 CRS community. This will make Cedar Rapids the highest rated CRS community within the State and provide residents with a 20% discount on flood insurance premiums.

Adoption of New FIRM

The City of Cedar Rapids adopted new Flood Insurance Rate Maps (FIRM) on April 5th, 2010, which had an impact on the flood hazard location of approximately 1,900 properties on both sides of the river. These new digitized maps help provide more information to the city and property owners about their location in the Cedar River floodplains.

Structural Evaluations

Immediately after the flood, the City performed inspections of the levees, floodwalls, and bridges that were impacted by flood waters. This included the use of divers to inspect bridge piers and substructures and visual inspections of earthen structures.

Critical Levee Repairs

Since the flood, the City has performed five critical repairs of existing east and west side levees using funding through the Emergency Watershed Protection Program in addition to numerous river bank repair and restoration projects for stabilization.

Sanitary Sewer System Improvements

After the flood, the City video-inspected the sanitary sewers in the flood impacted area and visually inspected sanitary sewer manholes to evaluate their condition. Most of the sanitary sewer collection system was found to be damaged and in poor condition. The City began its plan to have all damages repaired within five years. The damages to the sanitary sewer system led to excessive flows resulting in basement backups and sanitary sewer overflows during wet weather. Basement backups are a health hazard and a nuisance to property owners while sanitary sewer overflows are detrimental to the environment. The City also implemented a backwater valve reimbursement program that provides property owners with up to \$800 towards installation of a backwater valve. A backwater valve provides protection against basement backups. 30 property owners have taken advantage of this program since its inception. Although not included in the project total, the City also made \$58,618,000 in improvements to the sanitary sewer system by replacing damaged infrastructure with more flood resilient materials.

WPC Plant Upgrades

The City's Water Pollution Control plant (WPC) provides wastewater treatment services for not only Cedar Rapids citizens and businesses but also the communities of Marion, Hiawatha, Robins, and Palo. The key part of that service, especially for new or expanding industrial customers, is reliability or the continuous availability of wastewater treatment. WPC receives waste from about 180,000 customers

but it treats the population equivalent of 1,800,000 people due to the high biochemical oxygen demand of the waste, which is a result of the number of food processing and bio-tech grain based industries located in Cedar Rapids.

The City has elevated control and electrical equipment above the flood of record and has made, or has funded, \$49,918,000 in improvements to the WPC facility including structural flood protection (ring levee), which is not included in the project total.

Water System Improvements

As with wastewater treatment, Cedar Rapids is a metro provider of water. The City provides water to Robins and the Poweshiek Water Association for a total of 130,968 people. The large number of aforementioned bio-tech and food processing industries are heavy users of the water system and depend on its reliability. The City has raised all of its vertical well platforms ten feet so they are above the flood of record. Recently installed collector wells have been designed to account for the flood of record. These mitigation efforts, although not included in the project total, equal \$4,401,000.

Interim Flood Protection Plan

Storm Sewer Modifications: The City installed two storm water pumping stations and retrofitted six outlets with check valves to reduce river backflow and improve the performance of the City's storm sewer system during a flooding event.

Improved Flood Forecasting: The City has funded the installation of three additional flood gauges to provide more accurate forecasting of flood stages.

Flood Response Manual: The City updated its flood response manual to reflect lessons learned during the 2008 flood event. This has led to an increased level of efficiency for staff and equipment that are part of a response to flooding.

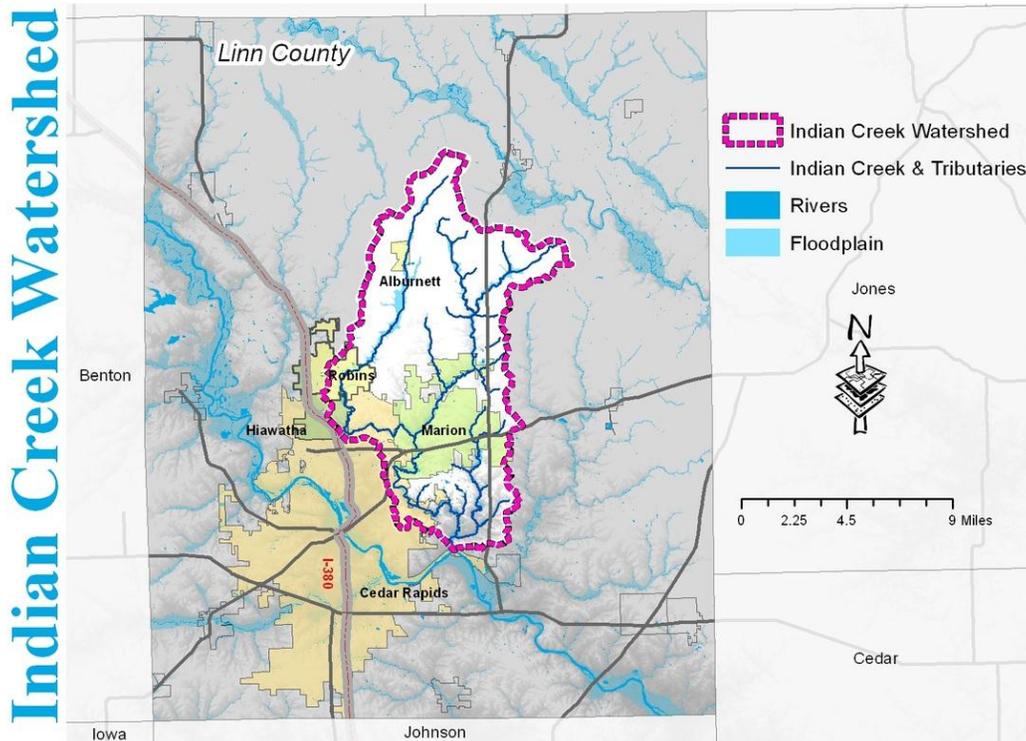
Watershed Management

As can be seen in the graphic, the City understands the importance of watershed management as part of its overall strategy but also understands that this is a multi-jurisdictional issue that takes coordination with multiple cities, counties, and states. The City initiated watershed investigations as part of the Corridor MPO (Metropolitan Planning Organization for the Cedar Rapids metro area) in 2003. This led to two Continuing Authorities Program Section 205-Flood Control (CAP) Studies by the US Army Corps of Engineers. One was on the Cedar River in the Time Check neighborhood area (on the west side between Ellis Park and I-380), which was a precursor to the feasibility study that was in May of 2008 and was expanded post flood. The second was on the 93 square mile Indian Creek watershed. In 2013, the Indian Creek Watershed Management Authority (ICWMA) was created and is comprised of the following:

- Cedar Rapids
- Marion
- Robins
- Hiawatha
- Linn County

- East Central Iowa Council of Governments
- Linn Soil & Water Conservation District

The ICWMA is a cooperative agreement among the jurisdictions within the watershed to provide a framework for watershed level planning and management. The ICWMA has the ability to conduct watershed assessments, implement watershed improvement projects, and educate communities about flood risk and water quality concerns. ICWMA’s goal is to increase communication and coordination within the Indian Creek Watershed to reduce flood risk and improve water quality. The ICWMA recently received a state grant to develop a comprehensive watershed management plan. A map of the watershed is below.



On an even larger regional level, the City is also participating in the Iowa-Cedar Watershed Interagency Coordination Team. This multi-agency watershed team is collaborating on the development of a watershed based plan that will coordinate on-going watershed planning efforts in the Iowa-Cedar Rivers Basin. This planning effort will focus on creating a collaborative process that will identify resource problems and identify which entity is best suited to address this concern through their authority or charter. Within this collaborative framework entities may study a single aspect of a larger watershed plan without being dependent on other entities funding mechanisms.