

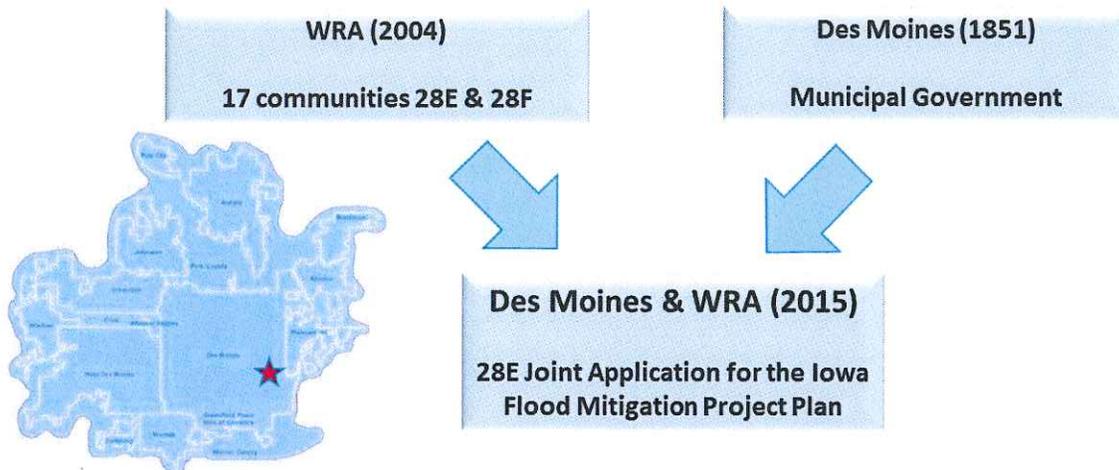
Iowa Flood Mitigation Program



CITY OF DES MOINES & DES MOINES METROPOLITAN
WASTEWATER RECLAMATION AUTHORITY
APPLICATION FOR SALES TAX INCREMENT FUNDING
JUNE 2015

- In 2008, 270 homes and businesses were inundated with floodwaters when the Birdland levee breached.
- The Des Moines Metropolitan Wastewater Reclamation Facility was severely impacted in both 2008 and 2010. Even though the WRF was able to continue to provide service to the 17 participating communities, the conditions created a situation in which the facility was extremely close to being incapacitated.

Des Moines & WRA Flood Protection Plan



- The WRA is located within the city limits of Des Moines and is bounded on the south by the Des Moines River. Any flooding in Des Moines has a direct impact on the WRA's ability to provide uninterrupted wastewater treatment service to its customers.
- The City of Des Moines and the WRA have entered into a 28E Agreement for the joint application and responsibilities to administer and fund the Iowa Flood Mitigation Project Plan.
- The WRA, organized under Chapters 28E and 28F of the Iowa Code, is currently comprised of seventeen participating communities.
- The Flood Protection Plan includes a balanced approach to flood mitigation and provides improvements that lower the water surface elevation and raises the level of flood protection along the Des Moines River and the WRA.

Flooding Risk

- ❑ Major floods 1993, 2008, 2010
- ❑ 2011 U.S. Army Corps of Engineers study predicted significantly higher discharges
 - 1975 – 100 year flow rate = 59,000 cfs at SE 6th
 - 2002 – 100 year flow rate = 87,000 cfs at SE 6th
 - 2011 – 100 year flow rate = 107,500 cfs at SE 6th
- ❑ Economic Engine of Central Iowa Threatened
 - Downtown at risk – 80,000 workers
 - WRF at risk, serves 460,000 metro area users
 - Home & Businesses - \$42 billion annual GDP



- In January 2011, the Corps of Engineers released their Des Moines River Regulated Flow Frequency Study.
- This was the third study in the last 25 years that showed flood flow frequencies have increased.
- 80,000 people work in downtown Des Moines.
- The WRA provides reliable wastewater treatment to 460,000 metro area users in 17 communities.
- Gross Domestic Product for the Des Moines metro area is \$42 billion annually or \$115 million daily.
- In addition to the higher risk of flooding, the study showed that the levees in downtown Des Moines do not provide the required freeboard for a 100-year flood, thus affecting accreditation of the levees and FEMA flood hazard mapping.

Des Moines & WRA Flood Protection Plan

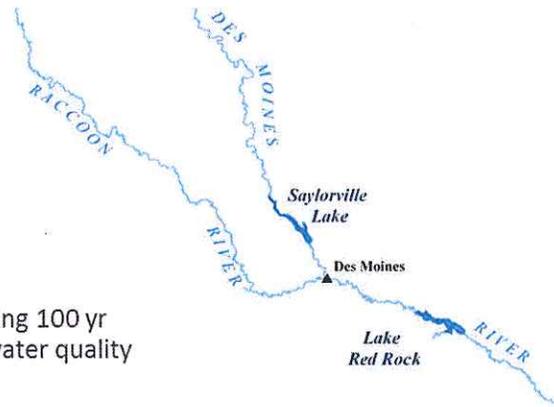


□ Builds upon improvements totaling \$264 million since 1993

□ Part of integrated approach

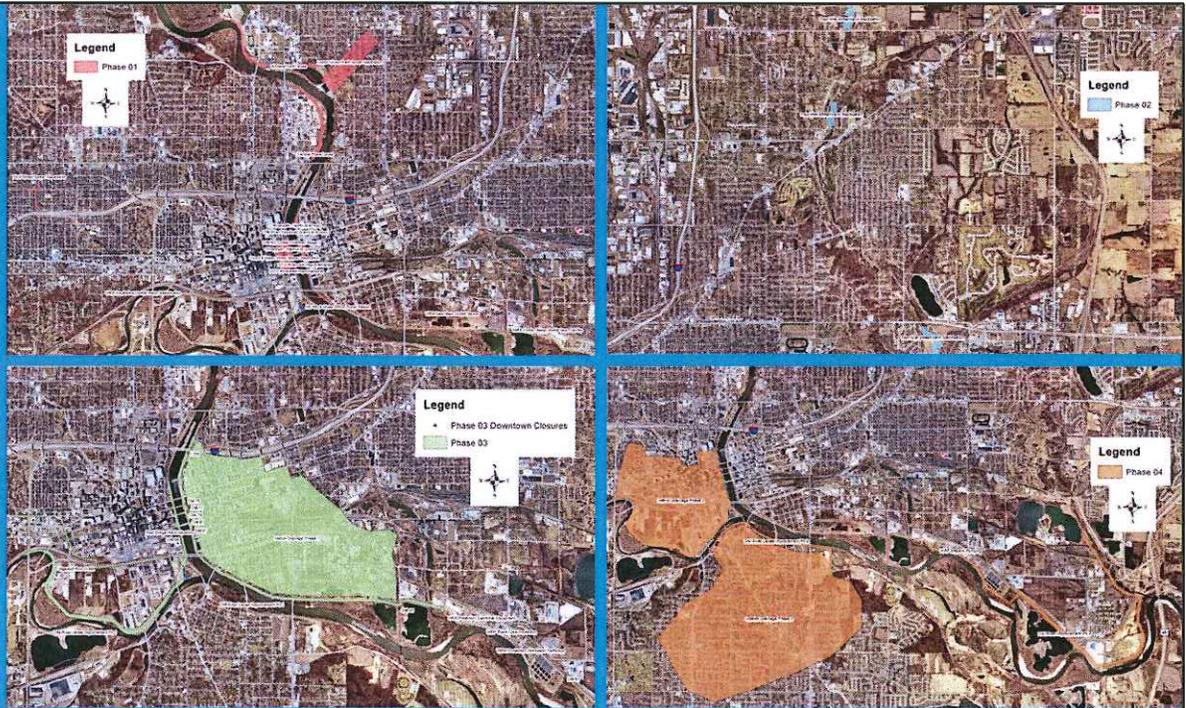
- Reservoirs (Saylorville & Red Rock)
- Levees (21 miles)
- Pump Stations (32)
- Buyouts (200 since 2008)
- Wetlands
- Floodplain Management
- Flood fighting

□ Goal is to be a flood resistant community, achieving 100 yr accreditation based on new estimates, improved water quality



- Since 1993, \$264 million of improvements have been made to reduce flood risk, including 339 property buyouts.
- Since 2008, the City and WRA have made over \$178 million in improvements to prevent future damage due to flooding.
- The City of Des Moines has 21 miles of levees and 32 pump stations.

Des Moines & WRA Flood Protection Plan



The proposed Flood Protection Plan consists of 4 phases of comprehensive flood protection improvements for the City of Des Moines and the WRA.

- Phase 1 – Completed projects.
- Phase 2 – Projects that are currently underway.
- Phase 3 and Phase 4 – Projects identified to provide the most effective and a higher level of flood protection for the City of Des Moines and WRA.

Completed & Current Projects

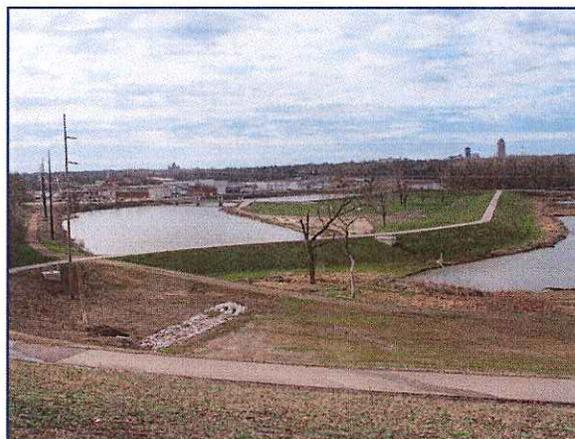


Phase 1 – Completed Projects (\$178,350,700)

- Birdland & Central Place Levee Reconstruction
- Des Moines River Outfall & Overflow - Stage 2
- Court Ave. & Water St. Storm Water Pump Station
- WRA Combined Sewer Solids Separation Facility
- WRA New Main Outfall Sewer

Phase 2 – Current Projects (\$2,568,000)

- Stantec Consultant Services
- Fourmile Sponsored Project



Phase 1 – consists of over \$178 million of improvements completed since 2008 – including the following:

- Birdland and Central Place levee reconstruction
- Court Avenue Pump Station
- Riverwalk flood improvements
- Des Moines River Outfall & Overflow, and
- Sewer separation projects.
- WRA Combined Sewer Solids Separation Facility (CSSSF) is located at the Wastewater Reclamation Facility (WRF)
- The facility is designed to pump up to 390 million gallons per day of flow conveyed by the WRA Main Outfall to the Des Moines River. The purpose is to protect the WRF and downtown Des Moines from internal flooding.
- WRA New Main Outfall will convey flow between the downtown Des Moines area and the WRA Combined Sewer Solids Separation Facility (12,800 feet).

Phase 2 – Stantec Consultant Services: Stantec Consultants are currently providing professional services to address the gaps identified between existing City information and the FEMA requirements. With this information, the City will ultimately be able to certify the levees along the Des Moines and Raccoon Rivers and obtain FEMA accreditation. The first phase includes performing the engineering assessment and alternatives analysis. This will result in the development of a master plan for the City of Des Moines' levee systems. The geotechnical exploration, testing, and analysis are a significant portion of the services required to satisfy the requirements along with other tasks, such as a seepage analysis, erosive velocity analysis, etc.

Phase 2 - Fourmile Sponsored Project: The project has the dual benefit of providing protection from high floodwater levels sanitary sewers in multiple areas along the bank of Fourmile Creek, and will also help prevent further erosion of the banks by floodwaters. The project will reduce the likelihood of pipeline failures and serve to protect the capacity and performance of the WRA system.

Future Projects



Phase 3 – Future Projects, 1-5 Years (\$56,410,712)

- DM River Levee Improvement Phase 1
- Upstream Mitigation Study
- Red Bridge Re-Elevation
- WRA Ingersoll Run Outlet
- WRF Plant Core Protection

Phase 4 – Future Projects, 6-20 Years (\$71,280,308)

- DM River Levee Improvement Phase 2
- DM River Levee Improvement Phase 3
- WRF Effluent Pumping



- Phase 3 and Phase 4 – Projects identified to provide the most efficient and cost effective and a higher level of flood protection for the City of Des Moines and the WRA.
- The Upstream Mitigation Study will examine and recommend mitigation strategies that could be implemented upstream of Des Moines that would reduce the flood risk and improve the reliability of flood protection and risk reduction measures. Affecting the quantity and frequency of flow through the City will reduce flood risk long term to both the City and downstream communities.
- Projects to reduce constrictions, such as raising the Red Bridge, help lower the water surface elevation.
- The proposed projects are consistent with work that has been done to date and work that is underway, specifically the Iowa DOT over flow bridges on US Hwy 65. The UPRR has removed their structure over the Des Moines River just south of downtown. These efforts reduce the water surface elevation.
- Proposed projects to flood harden and protect the WRF operations are critical to the community. If the WRF were to be inundated by flood water, the emergency repairs and permanent repairs necessary to return the facility to operating condition are estimated to exceed \$44 million. Service interruption would vary from thirty days (30) to restore minimal operation, to six (6) months for full operation.

Budget



Total Project - \$308.6 million

Federal Funding – \$130.3 million (42%)

Local Funding – \$59.0 million (19%)

Sales Tax Increment - \$111.2 million (36%)

Operations & Maintenance is funded by storm water fees and WRA participating communities.

The total project is estimated to cost \$308.6 million. This includes \$130.3 million of federal dollars from a variety of sources, including:

- US Army Corps of Engineers
- Federal Highway Administration
- Environmental Protection Agency (SRF)
- CDBG

Local funds total \$59 million, including just over \$8 million of State funds through the Iowa DOT (State Rec Trails) and I-Jobs.

Operations & Maintenance - annual funding to perform routine levee maintenance and inspections surrounding the WRF:

- \$12.4 million of the \$22.5 million of stormwater fees collected
- \$21.5 million collected from participating communities

Sales Tax Increment Request



Estimated Sales Tax Growth

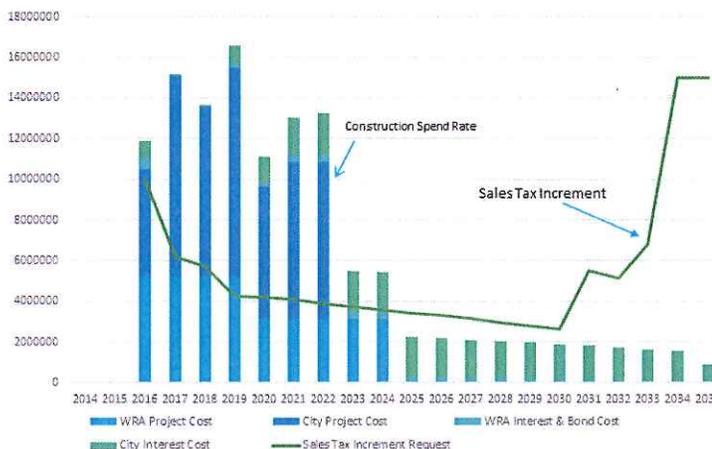
- 2.71% annually over the last 10 yrs
- \$9.1 Million annual growth at 70%

City & WRA Request

- 0.125% annual growth to satisfy request
- \$111.2 Million total request



City of Des Moines and WRA Sales Tax Increment Yearly Breakdown



The Department of Revenue provided an annual sales tax increment for the area of \$15.8 million. The graph shows an increment of this amount annually with no projected increase.

Retail Sales @ 5% - Does not include Hotel/motel room rental, or the construction rental tax

2013 \$384,434,561
 2014 \$399,594,927
 Increment \$15,160,366

The City of Des Moines/WRA calculated a conservative projection of annual sales tax increment of \$9.1 million based on a 10-yr average that includes down years during the recession. The projection includes an average growth of 2.71 and 70% discount (as required).

The Flood Mitigation Project proposed by the City of Des Moines and WRA, requests a small amount of the sales tax increment generated in the metro area. A growth rate of only 0.125% is needed to satisfy the requested amount.

Results

Decreased Flood Risk

- Removal of constrictions to lower water elevation
- Increase elevation of flood protection

Strengthen Existing Infrastructure

- Embankment protection
- Closure devices at penetrations
- Seepage and stability features
- Improvements to Interior Drainage

Water Quantity and Quality

- Project development / permitting
- Upstream mitigation strategies

The comprehensive Flood Protection Plan provides a balanced flood mitigation approach.

- Protecting high value areas (downtown, WRF, etc.) with levees
- Reducing water elevation by removing constrictions
- Providing additional flood water storage

This approach includes analyzing the impacts of upstream and downstream impacts. The US Army Corps of Engineers Section 408 requirements include review of risks within the project area, as well as upstream and downstream. Negative impacts, if any, will have to be addressed to obtain the US Army Corps of Engineers approval for the project improvements.

Protects and prevents the impacts of floodwaters upstream by conveying, partially treating, and removing the water from the combined sewer system and returning the water back to the regulated floodway. This protects the WRF from inundation and allows the WRA to continue to convey and process wastewater from the 17 participating communities.

City will be targeting improvements to the drainage system within the levee protected areas. These improvements will help to reduce flood risk to properties resulting from locally heavy rainfall including while river levels are above flood stage. As required by FEMA, the design of the interior drainage improvements will take into account the joint probabilities of local runoff from within the levee protected areas as well as river levels to provide a comprehensive approach to flood risk reduction. Improvements will include new or rebuilt pump stations and storm sewers to reduce potential interior flood hazard areas within levee protected areas.

Study to examine and recommend mitigation strategies that could be implemented upstream of Des Moines that would reduce the flood risk and improve the reliability of flood protection and risk reduction measures. In the long term, the City will not be able to address water quantity by continuing to build infrastructure in the City. In addition to the significant cost, there are physical and practical limitations to how large the floodway and flood protection facilities can be without drastically altering the built environment of the City, including downtown Des Moines. Affecting the quantity and frequency of flow through the City will reduce flood risk long term.

Levee Certification

- No development restrictions related to flood plain
- Flood Insurance not mandatory