March 2, 2015

To: **Mayor Bemrich and City Council**

From: **David Fierke, City Manager**

Subject: **Clean Water State Revolving Funds**
2015 Water Resource Restoration Sponsored Project Program
Authorizing Grant Application

ACTION: **For vote Monday, March 9, 2015**

Brief History

During the 2009 Iowa General Assembly session, legislation was passed to allow a new method of funding water quality protection. SF 339 amended the Iowa Code to add a new category of projects that can be financed with sewer revenues. The new category, called "water resource restoration sponsored projects', includes locally directed, watershed-based projects to address water quality problems. With this legislation, wastewater utilities can also finance and pay for projects, within or outside corporate limits, that cover best management practices for nonpoint source pollution control.

On a typical Clean Water State Revolving Fund (CWSRF) loan, the utility borrows principal and repays principal plus interest and fees. On a CWSRF loan with a sponsored project, the utility borrows for both the wastewater improvement project and the sponsored project. However, through an overall interest rate reduction, the utility's ratepayers do not pay any more than they would have for just the wastewater improvements. Instead, 2 water quality projects are completed for the cost of 1.

The project must improve water quality in the watershed in which the publicly owned utility in located.

In early 2013, the Iowa Department of Natural Resources (IDNR) announced this new program. City Staff attended a training session in late March regarding eligibility requirements for utilities that have an existing loan or a proposed loan, eligible projects, application process, financial arrangements, etc. Staff then met, by phone and in person, with several IDNR departments over the last month to determine project eligibilities, project scopes, and get a feel for what the IDNR staff was really looking for from an application and final project standpoint.

In July of 2013, the City applied for and received a grant for two projects:
Soldier Creek – Bridge to Bridge Improvements – Planning and implementation of water quality measures in Snell-Crawford Park between the 2 railroad bridges.

Activities could include bank stabilization, fish hides, bioswales, native vegetation, erosion protection.

Badger Lake Watershed Improvement Plan – Webster County Conservation has already completed considerable study and planning work to protect the Badger Lake watershed. The improvements could include property acquisition, streambank stabilization, bioreactor, and a series of weirs to pool, slow, and clean-up water.

The third project that was included in the application did not receive any funding. That project was the:

Des Moines River Improvements – Hydroelectric Dam Removal / Improvements – Planning and construction efforts to modify or remove the dam to reduce sediment storage, remove the existing sedimentation accumulation, allow fish passage, improve safety on the river, restore the health of the river by encouraging and educating the public about improved farming practices.

Analysis of Issue

The Iowa Department of Natural Resources (IDNR) is continuing this program. Staff met, by phone, with several IDNR departments over the last month to determine project eligibilities, project scopes, and gets a feel for what the IDNR staff was really looking for from an application and final project standpoint. Staff learned that the Des Moines River Improvements – Hydroelectric Dam Removal/Improvements project was rejected because of lack of water quality benefits that were presented in the application. The IDNR personnel indicated that the project would have been funded if those water quality benefits were defined.

Currently, the City of Fort Dodge has a $30 million CWSRF loan fort the Phase I of the findings from the Sanitary Sewer Evaluation Study (SSES). Therefore, through an interest rate reduction on both loans, the City of Fort Dodge is eligible to apply for $3,000,000 in grant funding from this program.

The Sponsored Projects Program is intended to design and construct a water quality beneficial project concurrently with the CWSRF loan. The grant application has outlined two potential projects:

Hydroelectric Dam Removal – Removal of the powerhouse gate section and ogee crest spillway with off-site disposal of material has been identified. This improvement will have the following water quality benefits: Increased dissolved oxygen, restoration of natural water temperatures, decreased sedimentation, stabilization of pH, decrease in toxic substances and nutrient loading.

Loomis Park Stormwater Run-Off – Determine if control structures could be utilized to reduce erosion, review green and blue infrastructure practices such as bioretention cell, rain gardens and others, stabilize the steep slopes where erosion is occurring and introduction of amended soils.

Because the duration of the SSES projects will extend multiple years, the application schedule included time to meet with local and State stakeholders and determine the best path forward. This application is intended to make improvements to the Des Moines River watershed located within the City limits. The two projects listed above were examples of projects that we will look into.

Budget Impact

The grant is intended to cover all of the cost of the improvements. Costs and funding, as well as additional funding sources (if needed), will be determined as projects and scopes are identified after the grant is awarded and through the planning process.

Strategic Plan Impact

Policy D.4.2: Advanced planning for all infrastructure facilities shall be supported and routinely updated. Facilities benefited by advanced planning shall include, at minimum, schools, health care, residential areas, roads, water, sewer, storm water management, parks, recreation, and greenways.

Policy D.4.1: Recognizing that infrastructure has a powerful influence on growth and development, the availability of infrastructure (along with other factors) should determine where development will occur in the city, rather than the other way around.

Impact on Existing Plans

None. Grant has the potential to fund projects that are currently unfunded.

Committee Review / Recommendation

None.

Staff Conclusions / Recommendations

It is Staff's recommendation to authorize this Clean Water State Revolving Fund Water Resource Restoration Sponsored Project grant application.

Alternatives

None.

Implementation and Accountability

The Engineering Department will be responsible for overseeing this project.

Signed

Tony Trotter P.E.
Project Engineer

Approved

David Fierke
City Manager

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE SUBMITTAL OF AN APPLICATION FOR CLEAN WATER STATE REVOLVING FUNDS THROUGH THE WATER RESOURCE RESTORATION SPONSORED PROJECT PROGRAM.

WHEREAS, the Iowa Department of Natural Resources has established Clean Water State Revolving Funds through the Water Resources Restoration Sponsored Project Program and provides funding for locally directed, watershed based projects to address water quality problems.

WHEREAS, improvements to the following areas have been identified for potential funding through this grant program:

- Des Moines River Improvements – Hydroelectric Dam Removal / Improvements - River bank stabilization, natural channel design technique implementation, in-stream habitat enhancements, and dam removal.

WHEREAS, the improvements as described above will improve water quality by using best management practices for nonpoint source pollution control within the Des Moines River Watershed.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FORT DODGE, IOWA, that:

1. The City Council supports and approves the application for Clean Water State Revolving Funds through the Water Resource Restoration Sponsored Project Program.

2. The Mayor is hereby authorized to execute the application and resolution on behalf of the City.

PASSED AND APPROVED by the City Council of the City of Fort Dodge this _____ day of _____, 2015.

Ayes: _____
Nays: _____
Other: _____

City of Fort Dodge

By: _____
Matt Bemrich, Mayor

Attest:

_____
Jeff Nemmers, City Clerk

Clean Water SRF

WATER RESOURCE RESTORATION

Sponsored Project Application

Application Instructions:

- Please print or type the information on the form.
- Sign the application.
- Attach supporting documentation.
- Submit ONE original hard copy, with original signatures, to the following address:

  State Revolving Fund
  Iowa Department of Natural Resources
  Wallace State Office Building, 502 E. 9th Street
  Des Moines, IA 50319-0034

  Must be postmarked by March 2, 2015

- Scan and submit the entire application, with attachments, in PDF form to patti.cale-finnegan@dnr.iowa.gov. OR, if attachments are too large to transmit, e-mail the application only and include the attachments on a CD with the hard copy.

  Application must be e-mailed by 4:00 p.m. on March 2, 2015

Section 1: Applicant Information

(This information relates to the wastewater utility that will be the Clean Water SRF borrower.)

Applicant Name:	City of Fort Dodge
Mailing Address:	819 1st Ave South
City, State, Zip + 4	Fort Dodge, Iowa 50501-4739
Authorized Representative:	David Fierke
Signature:	
Title:	City Manager
Telephone Number:	515-573-7144
E-mail:	dfierke@fortdodgeiowa.org

Section 2: SRF Project Status

Choose One	☒ The project is on the CWSRF Intended Use Plan and is in the "Planning" phase, SRF Number CS1920 72801
	☐ We are submitting this sponsored project application in conjunction with our CWSRF Intended Use Plan application for DNR Project Number S -

Section 3: Information on the Identified Watershed and Water Quality Issues
(Summarize the information here and expand or add documentation, maps, monitoring data, and other data in the project conceptual plan attached to this application as shown in Section 7.)

Name of Waterbody:	Des Moines River
HUC Number and Name (where both wastewater utility and waterbody are located)**:**	07100004 Middle Des Moines River
Uses for the Waterbody (e.g. recreation, drinking water, other):	Drinking water, recreation
Water Quality Concerns (e.g. sediment, bacteria, nutrients):	Sediment, nutrients, reduction in flora and fauna
Sources of Water Quality Data (e.g. DNR water monitoring, IOWATER, US Geological Survey, utilities, other):	EPA STORET Warehouse
Nonpoint Source Contributions to Water Quality Concerns (e.g. urban stormwater, soil erosion, livestock operations, other):	Urban stormwater, soil erosion
Primary Water Quality Goal of the Sponsored Project:	Reduce sedimentation

Section 4: Brief Summary of Proposed Water Resource Restoration Sponsored Project

Describe the scope of the proposed project (i.e., specific solution to the water quality problem). Summarize the process of analyzing and selecting the most appropriate nonpoint source practices relating to the unique issues and characteristics of the identified waterbody and planning area. Provide additional detail in the attachments to this application.
Because the City of Fort Dodge's SRF Loan projects will take multiple years to complete, the City would like to work with local and State stakeholder and perform analysis that will identify projects that have a large impact on water quality in the Des Moines River within the City of Fort Dodge. The City has preliminarily identified two possible projects proposed for water quality improvements in the Des Moines River watershed in Fort Dodge, Iowa. Both projects are located in proximity to each other. The first project entails stormwater improvements from residences located along 10th Avenue North, which are adjacent to Loomis Park and the Des Moines River. This project includes a storm sewer study, identification of best management practices (BMPs), construction of the BMPs, and follow-up water quality monitoring. The second project includes full or partial removal of the Hydroelectric Dam. This is an inoperable dam that has been the cause of sedimentation above and below the dam. Removal of the dam will improve water quality and the overall ecological health of the river and watershed.

Section 5: Qualified Entity Information

Is the applicant proposing to enter into an agreement with a qualified third party entity to implement the sponsored project?

☒ No		
☐ Yes	Organization:	
	Mailing Address:	
	City, State, Zip + 4	
	Contact Person:	
	Title:	
	Phone Number:	
	E-Mail:	

Section 6: Sponsored Project Cost

Cost Category	Total Estimated Project Costs	Costs to be Covered from Other Funds	Costs to be Allocated from Up to 1% of SRF Loan Interest
Land and Easements	--------	--------	--------
Relocation Expenses	--------	--------	--------
Professional Planning Fees	$100,000	--------	$100,000
Professional Design Fees	$215,000	--------	$215,000
Professional Construction Fees	$100,000	--------	$100,000
Construction	$2,155,000	--------	$2,155,000
Equipment	--------	--------	--------
Miscellaneous	--------	--------	--------
Bond Counsel Fees	--------	--------	--------
Contingencies	$430,000		$430,000
		TOTAL	**$3,000,000**

Section 7: Attachments

Attachments must be submitted with the application. Applications will not be considered complete unless all required attachments are submitted.

- Authorizing resolution passed by the wastewater utility's governing board for the sponsored project application;
- If there is a third-party entity involved, the 28E agreement between the utility and the qualified entity;
- Letter of endorsement from the appropriate water quality organization, outlining the organization's participation in project design, selection, and implementation
- Letters of support from other project partners;
- Letter from the wastewater utility's bond counsel indicating concurrence with the sponsored project concept;
- Project conceptual plans, including:
- Assessment of the impacted waterbody and its watershed with data that supports the identification of the water quality problems to be addressed
- Discussion of project goals and objectives
- Evaluation of possible water quality practices that could be implemented, considering the unique demographic, topographic, hydrologic, and institutional characteristics of the planning area
- Description of practices to be implemented with the expected water quality outcomes
- Discussion of project locations, land ownership, and any plans for acquiring properties or easements
- Identification of any other organizations or resources to be involved in the project and their expected contributions
- Proposed project schedule with major milestones, along with a discussion of how the sponsored project construction schedule coordinates with the infrastructure project schedule
- Proposed evaluation procedures and measures
- Explanation of the proposed budget, including other planned funding sources and flexibility to adjust budget according to final amount available through sponsored project mechanism

Section 8: Acquisition of Property – Required Form

U.S. ENVIRONMENTAL PROTECTION AGENCY
ASSURANCE WITH RESPECT TO REAL PROPERTY ACQUISITION
OF TITLE III OF THE UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970 AS AMENDED

The City of Fort Dodge (Applicant) hereby assures that it has authority under applicable State and local law to comply with Section 213 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, 84 Stat. 1894 (42 U.S.C. 4601) as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256 (42 U.S.C. 4601 note) and 49 CFR 1.48(cc); and certifies, assures and agrees that, notwithstanding any other provision set forth in the application.

1. For projects resulting in the displacement of any person:
a. It will adequately inform the public of the relocation payments and services which will be available as set forth in Subparts A, C, D and E of 49 CFR 24.
b. It will provide fair and reasonable relocation payments to displaced persons as

required by Subparts D and E of 49 CFR 24.
c. It will provide a relocation assistance program for displaced persons offering services described in Subpart C of 49 CFR 24.
d. Comparable replacement dwellings will be available pursuant to Subpart F of 49 CFR 24, or provided if necessary, a reasonable period in advance of the time any person is displaced.
e. In acquiring real property, it will provide at least 90 days written notice to each lawful occupant of real property acquired, stating the date such occupant is required to move from a dwelling or to move his business or farm operation.

2. For projects resulting in the acquisition of real property:
a. It will fully comply with the requirements of Subpart B of 49 CFR 24.
b. It will adequately inform the public of the acquisition policies, requirements and payments which apply to the project.
c. It will make every effort to acquire real property expeditiously through negotiation.
d. Before the initiation of negotiations it will have the real property appraised and give the owner or his representative an opportunity to accompany the appraiser during inspection of the property, except as provided in 49 CFR 24.102(c)(2).
e. Before the initiation of negotiations it will establish an amount which it believes to be just compensation for the real property, and make a prompt offer to acquire the property for that amount; and at the same time it will provide the owner a written statement of the basis for such amount in accordance with 49 CFR 24.102.
f. Before requiring any owner to surrender possession of real property it will pay the agreed purchase price; or deposit with the court, for the benefit of the owner, an amount not less than the approved appraisal of the fair market value of the property; or pay the amount of the award of compensation in a condemnation proceeding for the property.
g. If interest in real property is to be acquired by exercise of the power of eminent domain, it will institute formal condemnation proceedings and not intentionally make it necessary for an owner to institute legal proceedings to prove the fact of the taking of this real property; and
h. It will offer to acquire the entire property, if acquisition of only part of a property would leave its owner with an uneconomic remnant.

References to 49 CFR are citations to Title 49, Code of Federal Regulations, Part 24, published in the Federal Register Vol. 54, No. 40, March 2, 1989.

This document is hereby made part of and incorporated in any contract or agreement, or any supplements and amendments thereto, relating to the above-identified application and shall be deemed to supersede any provision therein to the extent that such provisions conflict with the assurances or agreements provided therein.

David Fierke
(Legal Name of Applicant)

By _____ 3/2/2015
(Signature of Authorized Representative) (Date)

February 27, 2015

VIA ELECTRONIC MAIL

State Revolving Fund
Iowa Department of Natural Resources
c/o Patti Cale-Finnegan
401 SW 7th Street, Suite M
Des Moines, IA 50309

Re: Water Resource Restoration Project/City of Fort Dodge, Iowa
Our File No. 419414-94

To the Iowa Department of Natural Resources:

Dorsey & Whitney LLP serves as bond counsel to the City of Fort Dodge, Iowa and we have been asked to submit this correspondence to you as an accompaniment to the City's Water Resource Restoration Sponsored Project Application. As bond counsel, we have reviewed the application and the provisions of Chapter 384 of the Code of Iowa related to the financing of water resource restoration projects.

For purposes of our review, we have assumed that the project (the "Project") described by the City in the application, meets the statutory definition of "water resource restoration project" as set forth in Section 384.80(15). Based upon our review, we concur that the City will have legal authority to approve financing for the Project either through the issuance or modification of general obligation debt or sewer utility revenue debt. As is typical, in order to become vested with the legal authority to borrow money, the City will need to follow the procedures set forth in Chapter 384.

We hope that you will contact us if you have any questions regarding our correspondence. We are looking forward to working with you on the City's behalf to complete the proposed financing transaction.

Sincerely,

John P. Danos

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

Bill Northey, Secretary of Agriculture

February 25, 2015

Clean Water SRF Sponsored Projects Review Committee
Iowa Department of Natural Resources
Wallace State Office Building
502 E 9th St
Des Moines, Iowa 50319

Review Committee:

After speaking with Tony Trotter with the City of Fort Dodge and reviewing project goals and objectives, I am in support of the proposed urban conservation practices that are outlined in their SRF Sponsored Project Application. I will work with the IDALS Urban Conservation team to assist the city in selecting and implementing urban practices that are designed according to the Iowa Storm Water Management Manual. I am confident that any propose practices that filter and infiltrate stormwater runoff will result in beneficial impacts towards water quality in the Des Moines River.

Please feel free to contact me if you have any questions about the urban practices that have been described in this application.

Sincerely,

Derek Namanny
Urban Conservationist
IDALS-DSC
c/o Dickinson County Soil and Water Conservation District
3302 18th Street, Suite 2
Spirit Lake, Iowa 51360
712-336-3782 Ext. 108

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

Bill Northey, Secretary of Agriculture

February 25, 2015

Clean Water SRF Sponsored Projects Review Committee
Iowa Department of Natural Resources
Wallace State Office Building
502 E 9th St
Des Moines, Iowa 50319

Review Committee:

I recently received a call from Tony Trotter with the City of Fort Dodge requesting technical assistance for watershed planning in the Des Moines River. Although plans have not yet been solidified, I would be happy to assist them in their planning efforts or work with the appropriate individual within our partnership to ensure that the City of Fort Dodge receives the help they need. I look forward to working with the City of Fort Dodge to help them implement meaningful watershed practices that will improve water quality conditions within the Des Moines River.

Please feel free to contact me if you have any questions as to how the goals and activities described in this application would benefit watershed projects throughout Western Iowa.

Sincerely,

Bob Waters

Bob Waters
Regional Coordinator
IDALS-DSC Water Resources Bureau
c/o NRCS
3302 18th St, Suite 2
Spirit Lake, IA 51360
712-336-3782 Ext 113
515-306-7012 Cell

1415 Nelson Avenue, Fort Dodge, Iowa 50501
(515) 576-4258
www.webstercountyia.org

February 26, 2015

Patti Cale-Finnegan
DNR State Revolving Loan Fund Coordinator
Iowa Department of Natural Resources
401 SW 7th Street, Suite M
Des Moines, IA 50309

OFFICIAL ENDORSEMENT

Dear Patti & Grant Selection Committee:

On behalf of the Webster County Board of Supervisors, I offer my support for the State Revolving Loan Fund Sponsored Project Grant Application that was submitted by the City of Fort Dodge for watershed improvements on the Middle Des Moines River in Webster County, Iowa.

The Webster County, in partnership with the City of Fort Dodge is working to improve the water quality in the Des Moines River. In 2009, the Conservation Board partnered with the City of Fort Dodge and the Iowa DNR to designate the Des Moines River as a State Water Trail. The designation has encouraged more water-based activities and tourism. The city's application will improve water quality, allow natural fish & aquatic life passage, and create a safe and user-friendly paddling experience on the two designated water trails that converge in Fort Dodge.

The city, county, and IDNR are currently working on a comprehensive river and riverfront master plan for the Des Moines River in Fort Dodge and throughout Webster County. The group has completed the public outreach portion of the planning process and is working with a consultant to shape the future plans for the river including: recreational opportunities, green space, protected corridors, economic development, and cultural attractions.

Webster County understands the importance of providing safe and clean water for the citizens and visitors of Iowa. The board is committed to enhancing the quality of life of our communities for social and economic growth and to promote healthy, active living. I encourage you to join the board in support of this exciting partnership and consider funding the City of Fort Dodge Application.

Sincerely,

Matt Cosgrove, Director
Webster County Conservation Board

Fields of Opportunities

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

Feb. 26, 2015

Tony Trotter PE / Project Manager
City of Fort Dodge
819 1st Ave South
Fort Dodge, IA 50501

Dear Mr. Trotter:

Thanks for contacting me about the opportunity to provide technical assistance with future SRF sponsored projects in the vicinity of Fort Dodge. Iowa DNR river programs have been partnering and coordinating with both the City of Fort Dodge and Webster County Conservation on several related projects, including:

- Participating with Fort Dodge's planning and development and providing $90,000 toward the City's comprehensive planning effort, including waterfront master planning, river corridor stewardship management planning, and water trail development throughout the county.
- Technical assistance related to the future of Fort Dodge's Hydroelectric Dam, including upstream sediment movement studies and community consensus facilitation.
- Partnership with the City of Fort Dodge and Webster County Conservation for joint management and maintenance of the Des Moines River and Lizard Creek water trails.
- Iowa DNR has two state parks in Webster County on the Des Moines River that connect via the river to Fort Dodge, and education using a shared Webster County Conservation / DNR naturalist position is a possibility.

Other elements of what may become integral to your plan, such as in-channel stream restoration, natural bank stabilization, riparian corridor restoration / protection, and alternatives to dams are elements where my team is presently advising multiple agencies and communities. As you identify project elements, we can discuss those needs further. We can make Scope recommendations or provide examples, supply appropriate stream restoration consultant lists for solicitations, review and comment on plans, and provide connections to other resources, such as Iowa Learning Farm.

Sincerely,

Nate Hoogeveen
River Programs Coordinator

Webster County Soil and Water Conservation District
1898 Kountry Lane, Ste 1
Fort Dodge, IA 50501-8722

March 2, 2015

Dear City of Fort Dodge:

We are writing to express our support and to endorse the City of Fort Dodge's application for clean water initiatives on the Des Moines River. While the soil and water conservation district's mission focuses on agricultural land in the county to improve soil health and water quality, the SWCD does support your application to develop water quality initiatives in and around the Des Moines River.

The SWCD would be able to provide technical assistance to help identify projects that will provide water quality benefits to the watershed.

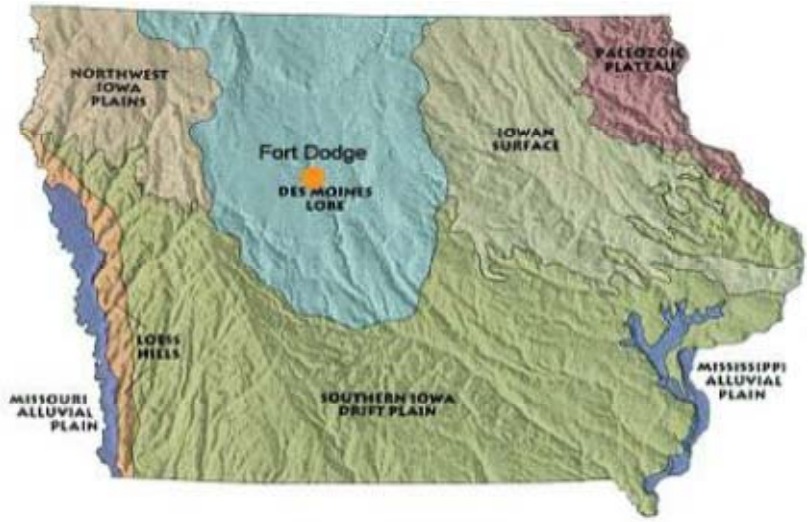
Thank you.

Dan Hansen, Chairperson
Webster County Soil and Water Conservation District

WATERSHED PROJECT PLANNING PROTOCOL

IDENTIFY WATER QUALITY CONCERNS, OPPORTUNITIES, AND INTEREST

The section of the Des Moines River that traverses Webster County is a Section 303(d) impaired water for bacteria as identified in Iowa's 2012 Integrated Report: Category 5: EPA-Approved Section 303(d) Impaired Waters. The Des Moines River is classified as a Class A1 (primary contact recreation), Class B (WW-1), and Class HH water. The Des Moines River is a primary source for drinking water, heavily used for recreation, and identified in the Iowa DNR Nonpoint Source Plan.



Geologic map of Iowa. Source: Iowa Geological Survey Bureau

Water quality of the Des Moines River is important both locally and regionally. It is used as a primary water source for many communities. The river is also a highly used recreation destination for water craft, anglers, hunters, and people who enjoy the beauties of a larger river.

Opportunities exist for bringing the river corridor back to its original beauty. The City of Fort Dodge has identified two projects that meet this goal: removal of an inoperable dam and reduction of sediment and nutrient laden stormwater entering the river.

DETERMINE REASONABLE, YET MEANINGFUL, WATER QUALITY OBJECTIVES

Water quality objectives include:

- Improve the integrity of the river by preventing future degradation
- Restore natural in-stream habitat conditions
- Meet the designated uses for the river
- Measurably increase recreational opportunities and economic benefits

INVENTORY WATERSHED

Physical
Extensive data has been collected within the HUC 8 Middle Des Moines River watershed by state and federal agencies for many years. In addition, Webster County Conservation, Iowa Soy Bean Association, and volunteers have collected water samples within the smaller watersheds of Badger Creek and Soldier Creek, tributaries of the Des Moines River.

Social
The City of Fort Dodge is currently updating their Comprehensive Plan. A significant part of the comprehensive plan is dedicated to the Des Moines River because the river has shaped the community both physically and socially. At a recent open house meeting specific to the Des Moines River, many citizens, City Council Members, and Webster County Board of Supervisors members expressed their concerns and desires for different aspects of the river. In general, everyone was concerned about the water quality, impacts to drinking water, as well as recreation activities such as fishing and boating. Many people voiced their concerns about the continued degradation of the river due to erosion, sedimentation, and stormwater discharge. There was an overall agreement that changes need to occur within the HUC 8 watershed and to the Des Moines River in order to improve the water quality.

Financial
Watershed improvements for the proposed projects are approximately $3,000,000. This project will be funded through the Water Resources and Restoration Program. The City will seek other sources of funding if the need arises during the analysis and design phases.

ANALYZE WATERSHED DATA

According to the Middle Des Moines River Rapid Watershed Assessment (RWA), completed by the Natural Resources Conservation Service (NRCS), the Middle Des Moines River Watershed HUC 8 watershed contains 1,203,644 acres (Figure 1). Approximately 32 percent of the watershed is located in Webster County. Four percent of the HUC 8 watershed is publicly owned while 96 percent is privately owned (USDA-NRCS, 2008). Land use within the watershed is dominated by agricultural practices. Several communities are located within the watershed (Figure 2).

FORMULATE ALTERNATIVES

As part of the planning process for each of the two proposed projects, multiple alternatives will be developed. As part of this process, data will be recorded within the project area so that a baseline for each constituent measured can be developed. The baseline readings will be used in the evaluation stage to determine the effectiveness of the BMPs.

EVALUATE ALTERNATIVES

Alternatives for the two proposed projects will be evaluated as part of the planning process.

MAKE DECISIONS AND COMPLETE THE PLANNING PROCESSS

Upon evaluation of the alternatives, preferred alternatives will be carried forward and the planning process will be concluded.

IMPLEMENT THE WATERSHED PLAN

Construction of BMPs will proceed.

EVALUATE THE PLAN

Upon construction of the BMPs, the City will complete analytical and visual assessments to determine if water quality has improved.

INFRASTRUCTURE AND SPONSORED PROJECTS SCHEDULE

The City of Fort Dodge has been actively planning for necessary improvements to significantly reduce or ultimately eliminate basement backups resulting in Inflow and Infiltration entering the sanitary sewer system. This process started over 40 years ago and most recently the scope has been updated through completion of a Sanitary Sewer Evaluation. The findings of this study resulting in recommendations for nearly $80 million worth of improvements.

The City approved an increase in sewer rates of a flat $15 (in three annual $5 increases) to fund the current SRF Loan of $30 million. This loan will enable the City to complete the first phase of four which improves hydraulic capacity of the collection system. Phase I has four parts:

- Part 01 – East Lawn Lift Station, Replacement and Relocation
- Part 02 – Main Lift Station, Replacement and Relocation
- Part 03 – Hydraulic Upgrades at three locations in the City
- Part 04 – Sewer Rehabilitation (CIPP lining and spot repairs)

These four parts of Phase I are at different stages of design with some of them scheduled to start construction the Spring of 2015. The last of the projects will not be completed until the fall of 2017 or later depending on weather and other variables. (See attached Schedule)

This schedule will enable the City, if awarded funds, to collaborate with local and State stakeholders along with a professional design team to plan and analyze different BMP's that will yield water quality benefits to the Des Moines River watershed. The Sponsored Projects schedule will run concurrently with the SRF Infrastructure Projects.

Proposed Time Schedules

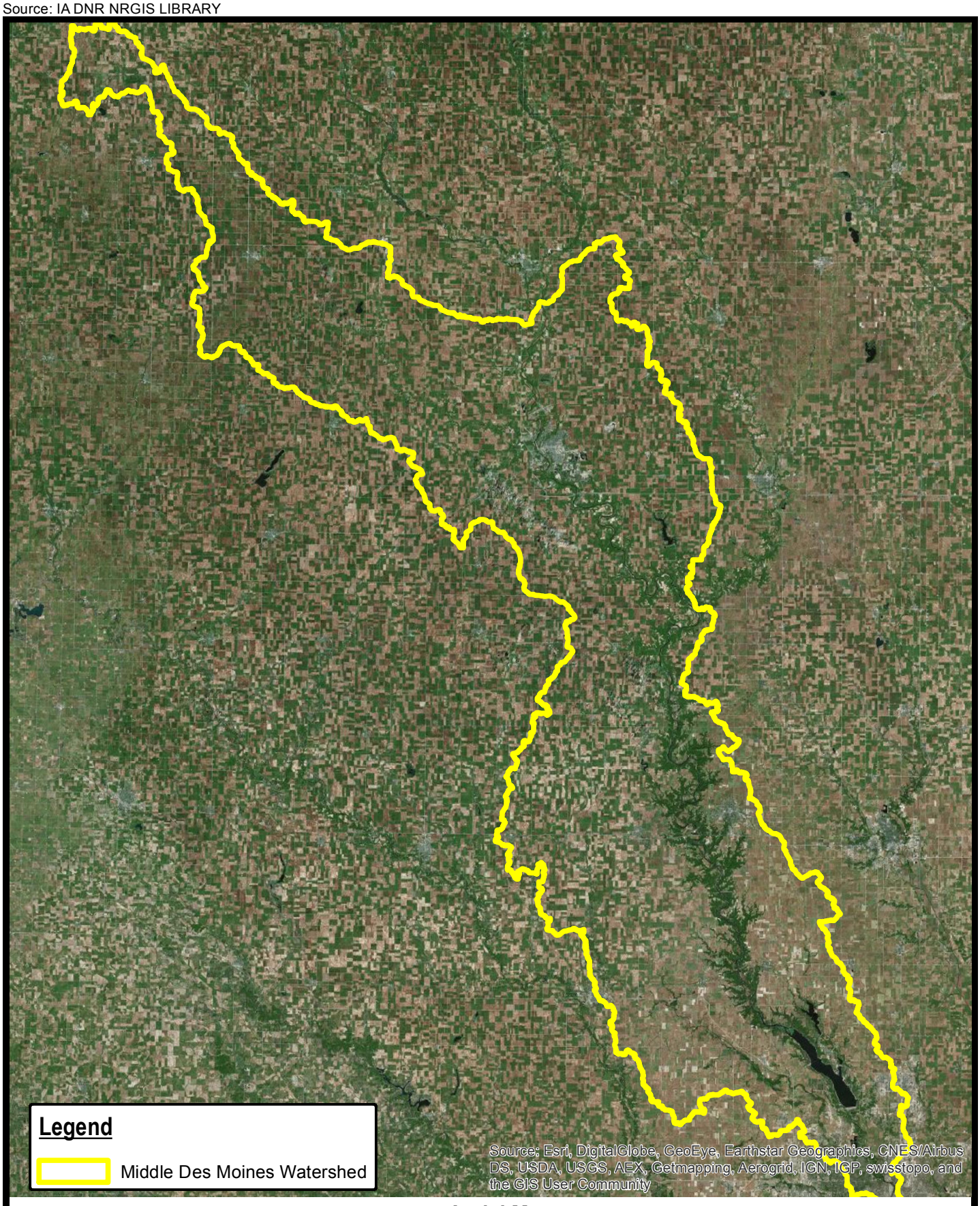
Des Moines River Watershed Projects

Description	Mar 2015	Apr 2015	May 2015	June 2015	July 2015	Aug 2015	Sept 2015	Oct 2016	Nov 2016	Dec 2016	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	June 2016	July 2016	Aug 2016	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017	Sept 2017	Oct 2017	Nov 2017
Consultant Selection																																
Consider Alternatives																																
Design & Permitting																																
Bid Letting																																
Construction																																
Project Completion																																
Evaluation																																

SRF Infrastructure Projects

Description	Mar 2015	Apr 2015	May 2015	June 2015	July 2015	Aug 2015	Sept 2015	Oct 2016	Nov 2016	Dec 2016	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	June 2016	July 2016	Aug 2016	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017	Sept 2017	Oct 2017	Nov 2017
Part 01 - East Lawn Lift Station																																
Design & Permitting																																
Construction																																
Part 02 - Main Lift Station																																
Design & Permitting																																
Construction																																
Part 03 - Hydraulic Upgrades																																
Design & Permitting																																
Construction																																
Part 04 - Sewer Rehabilitation																																
Design & Permitting																																
Construction																																

Source: IA DNR NRGIS LIBRARY



Aerial Map

Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

Snyder & Associates
Engineers and Planners

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Figure 1

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Date: 2/26/2015

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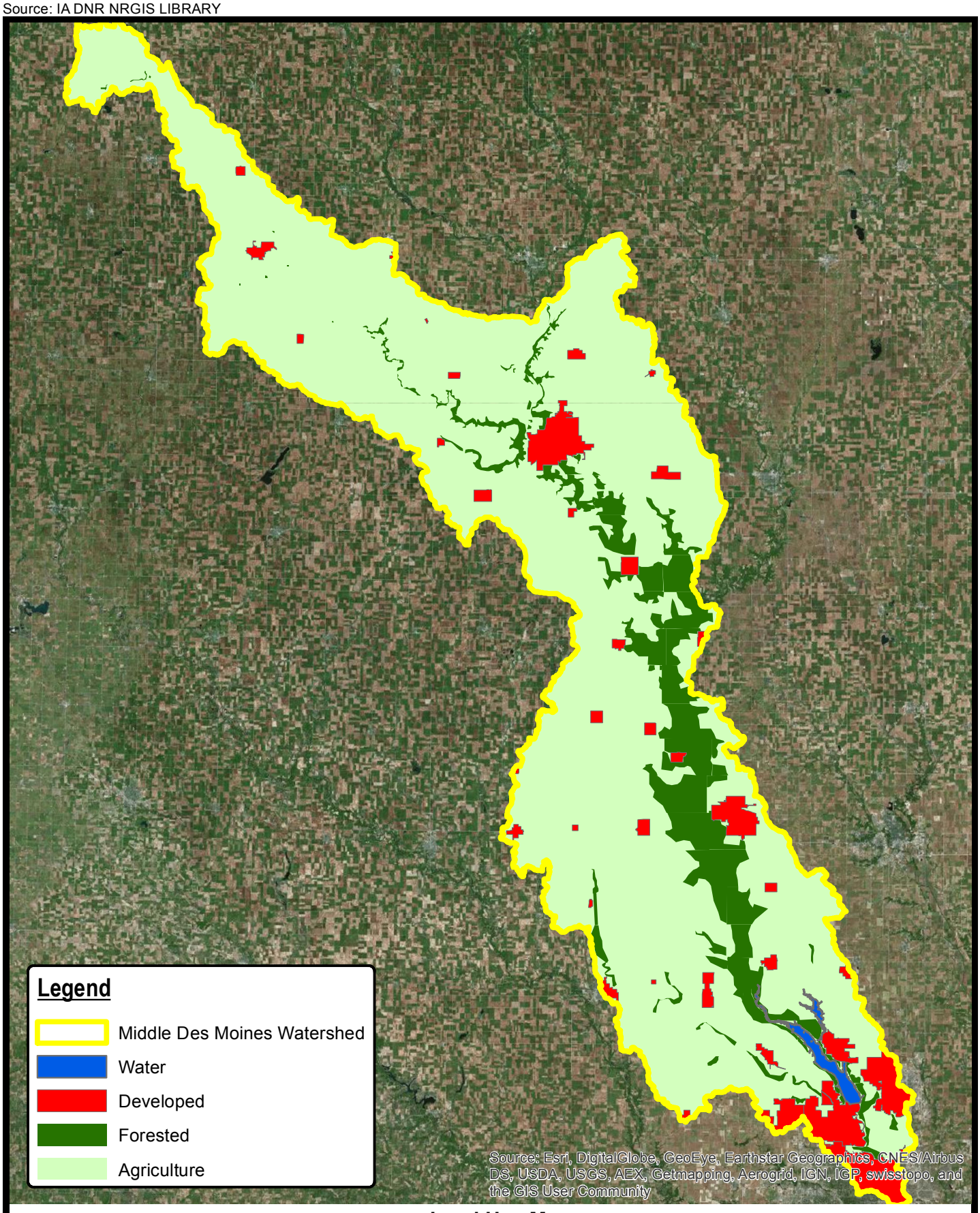

Land Use Map

Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

Snyder & Associates
Engineers and Planners

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Figure 2

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Date: 2/26/2015

HYDROELECTRIC DAM

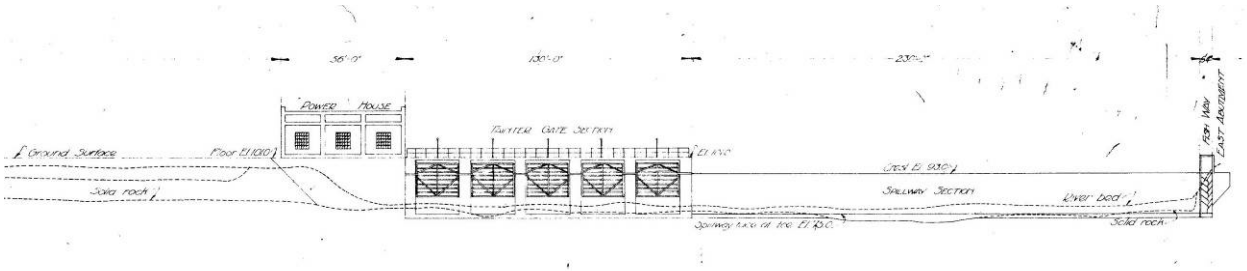
Project Location

The Fort Dodge hydroelectric dam is located in Fort Dodge, Iowa along the Des Moines River near river mile 300. The project area is situated in the SW ¼ of Section 18, T89N, R28W in Webster County.

View of the Hydroelectric Dam from the west bank of the Des Moines River.

Past Studies

The City of Fort Dodge currently operates and maintains the Fort Dodge Mill Dam, located within the City, on the Des Moines River. The dam and powerhouse were constructed in 1916 and generated power until its decommissioning in 1971.



Cross-sectional detail of the 1916 dam showing elevation of the dam with existing grade and bedrock indicated.

In 2001, the City began to re-investigate the feasibility of redeveloping hydroelectric power at the site. Hydro can be an attractive alternative source of energy as it is renewable, non-polluting, and may qualify for construction and/or generation incentives.

In 2005, the City entered into an agreement with Fort Dodge Hydroelectric Development Company (FDHDC) for the latter to prepare and file a Federal Energy Regulatory Commission (FERC) license application for the project. The license application was filed with the FERC on March 23, 2006.

A Reconnaissance Study Supplement (Stanley, 2006) was completed to determine if redeveloping the dam for hydroelectric power was feasible. The study concluded that the redevelopment of the dam as a power supply was not economically feasible.

An additional study was completed in 2010 to determine again if the dam could be used for hydroelectric power (McLaughlin, 2010). The study concluded that the redevelopment of the dam as a power supply was not economically feasible. The study also investigated the potential to reconstruct the dam to be used for boat, fish, and whitewater passages. Multiple alternatives were developed. The Full River Passage was the recommended alternative in the study. This alternative would require lowering the spillway by approximately 10 feet to match the elevation of the tainter bays. It would also require removing the powerhouse, or, if the powerhouse is to be preserved, would require a large fill zone downstream of the powerhouse to have land access to the whitewater passage.

Proposed Actions

The proposed action involves finalizing removal plans and the removal of the dam. Current plans include the removal of the following:

- Removal of the powerhouse
- Removal of gate section
- Removal of ogee crest spillway
- Off-site disposal of material

The 2014 cost estimate for dam removal is approximately $1,320,000.

View of the Ogee crest spillway

Water Quality and Ecological Goals

The proposed action provides a minor benefit to a very large watershed, however, these incremental steps provide a significant catalyst for improving water quality in the watershed**.** Dam removal can be effective in improving water quality and restoring fish and wildlife habitat in and around a river (American Rivers, 2002). Removal of dams can have several quantifiable water quality results, including:

- Increased dissolved oxygen
    - Dissolve oxygen concentrations increase during river movement and circulation. A dam can create stagnant reservoirs during drought or dry conditions. Reservoirs typically have lower dissolved oxygen than a free flowing river.
- Restoration of natural water temperatures
    - Rivers regulate temperatures naturally. Stagnant reservoirs at dams often have higher temperatures than their river counterparts. Stagnant reservoirs can also expose young fish to lethally high water temperatures.
- Decreased sedimentation
    - The sedimentation above and below the dam would be removed either through excavation or naturally flushed downstream. The decrease in sedimentation will allow the natural flow of the river to transport and disperse sediment.
- Increase the dilution of pollutants
    - Flow rates increase the effect of dilution.
- Stabilization of pH
    - Natural river movement would allow the pH to stabilize. Hydroelectric dams produce significant amounts of carbon dioxide and methane (New Scientist, 2005).
- Decrease in toxic substances
    - Metal, pesticides and oil attract to sediment particles. The removal of sediment above and below the dam could decrease toxic substances.
- Decrease in nutrient loading
    - Because sediment isn't allowed to build and the river will have improved flow, nutrient loading is expected to decrease.

Removal of part or all of the dam structure will also benefit the ecology of the river course and adjacent terrestrial habitat. In the case of the hydroelectric dam in question, sedimentation both up and downstream will be reduced. Aerial photography from 2012, a drier than normal year, clearly shows large quantities of sediment deposition on both sides of the dam. Some studies discussed a temporary increase in turbidity and re-suspended sediment during the removal of the dam and stabilization of the area impacted. However, these studies also noted this was a temporary effect and the rivers resumed natural flow and sediment transport conditions (American Rivers, 2002). The long-term visual benefits of dam removal include:

- Increased natural flow
    - The dam removal will allow the river to naturally form sandbars and wetlands.
- Decreased turbidity

    - The removal of the dam will decrease turbidity of the river and allow sediments to naturally drop to the river bottom during low velocity. This will increase water clarity.
- Increased bank stabilization and shoreline habitat
    - Submerged and emergent aquatic vegetation would likely establish along the banks due to the decrease in turbidity and increased natural flow and water clarity.
- Increased biodiversity of flora and fauna
    - Removal of the dam allows for fauna, in particular, to freely move up and down the river channel. As particular species increase in number within the area, so do to the fauna up and down the food chain. As a result, the biodiversity of fauna is expected to increase. Flora is also expected to increase.
- Re-establish fish passage up and downstream
    - Fish and other fauna have a difficult time navigating passed dams. Often times, fish ladders are used to promote fish passage and habitat connectivity. Since the dam at Fort Dodge does not have a fish ladder, the removal of the dam will re-establish fish passage.

LOOMIS PARK STORMWATER RUN-OFF

Project Location

Loomis Park is located in Fort Dodge, Iowa along the Des Moines River near river mile 300. The project area is situated in the SW ¼ of Section 18, T89N, R28W in Webster County. The Webster County Soil Survey indicates that the sideslopes range from 5 to 75 percent (Figure 3).

Loomis Park straddles the Des Moines River floodplain-upland. As a result, the area consists of steep forested slopes and relatively flat floodplains prior to reaching the banks of the Des Moines River (Figure 4). This area is located in HUC-8 Middle Des Moines River (07100004). It is located on the eastern side of the HUC10 Deer Creek-Des Moines River watershed (Figures 5 and 6). Water from this watershed, in particular Loomis Park, runs from east to west toward the Des Moines River. The upper reaches of the Deer Creek-Des Moines River watershed consist of established residential neighborhoods.

Stormwater run-off from an established residential neighborhood located adjacent to Loomis Park is causing significant erosion on steep slopes. Stormwater runoff is coming from the backyards as well as stormwater drains that outlet on to the steep slopes. The result is significant erosion along steep forested slopes lacking vegetation to adequately stabilize the sideslopes. Stormwater containing sediment has plugged numerous culverts under Loomis Park Drive and often times the stormwater is overtopping the roadway during rain events. The swiftly-moving water is dumping into the Des Moines River near the Hydroelectric Dam.

The primary causes of the erosion and sedimentation entering the Des Moines River are:

- Inadequate and aging stormwater system in the upper watershed
- Stormwater outlets discharging on steep slopes
- Lack of understory vegetation on forested steep slopes to stabilize soil
- Inadequate stormwater drainage system located within Loomis Park
- Overall lack of stormwater retention within the stormwater system

Proposed Actions

In order to reduce sediment from reaching the Des Moines River, a stormwater drainage study needs to be completed to identify best management practices (BMPs) within the watershed to reduce erosion:

- Determine if control structures such as drop structures, dissipaters, etc. could be utilized to reduce erosion.
- Review green and blue infrastructure practices such as bioretention cells, rain gardens, and vegetative swales should be considered given the natural setting of the park and river.
- Identify areas within the neighborhood that could benefit from green and blue infrastructure practices.
- Stabilize the steep slopes where erosion is occurring.

- Redesign the stormwater system within Loomis Park. Identify undersized culverts and roadside ditches.

Proposed construction BMPs include:

- Reconstruction of the storm sewer network
- Construction of new outlets, drop structures, and dissipaters at the outlets
- Construction of blue and green infrastructure such as bioswales and bioretention cells
- Soil quality restoration within the neighborhood and park
- Introduction of amended soils

Areas in both the upper and lower sections of the watershed need to be targeted to improve infiltration. Many of the aforementioned BMPs increase infiltration of stormwater and can be designed to treat water quality events, which equate to approximately 90% of rain events.

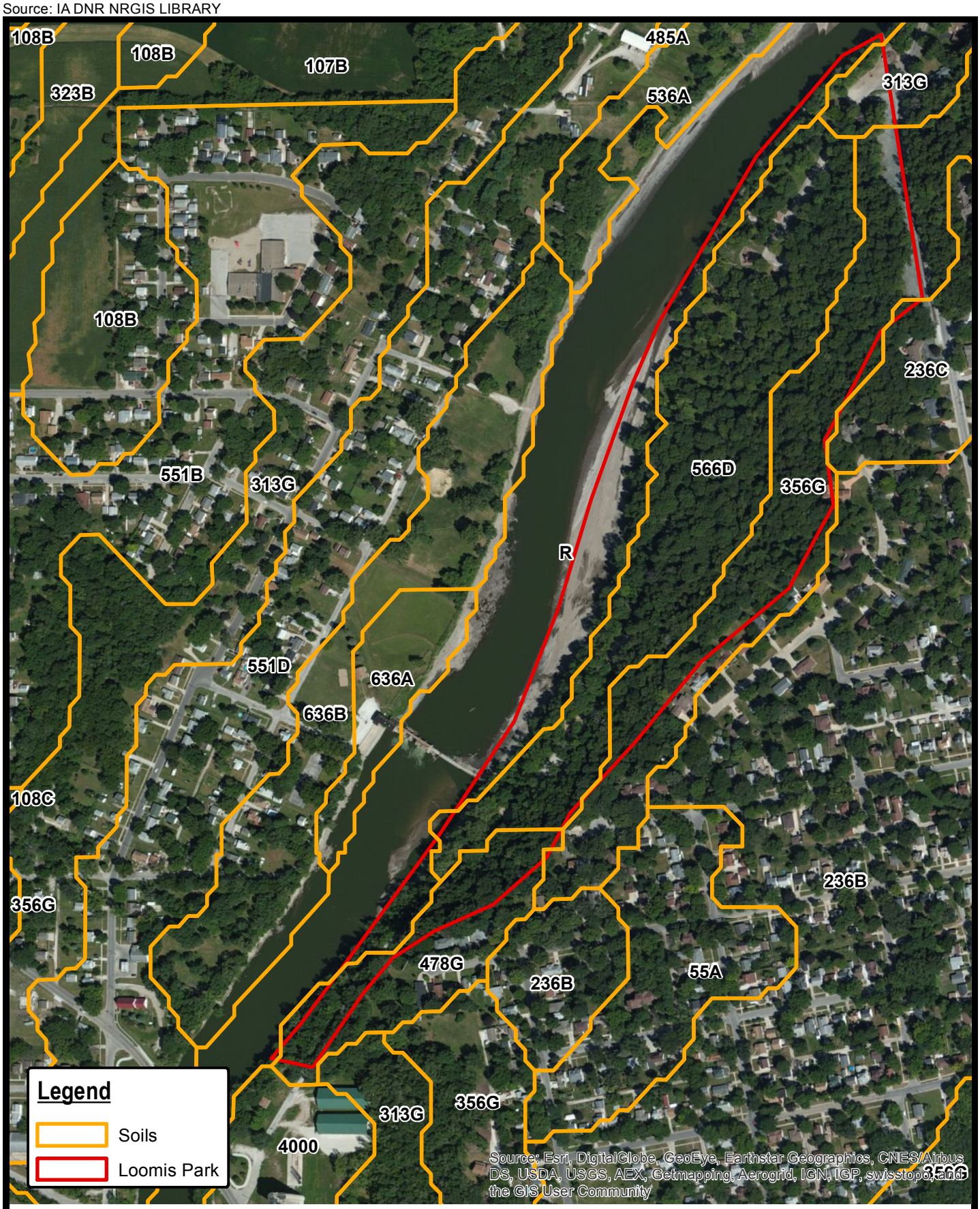
Estimated costs for this project is approximately $835,000.

Water Quality Benefits

The goal of this project is to implement water quality volume management practices to treat water quality events. Implementation of the BMPs will reduce erosion on the steep slopes which in turn reduces sediment loading into the river. Construction of bioswales and bioretention cells will aid in collecting nutrients and suspended solids.

Water quality improvements can be measured by sampling during rain events both prior to and after BMPs have been constructed. Samples taken prior to construction will provide baseline information for turbidity, total suspended solids, Nitrogen, Phosphorus, and other constituents found in lawn fertilizers and herbicides that attribute to a reduction in water quality.

Source: IA DNR NRGIS LIBRARY



Soils Map

Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

Snyder & Associates
Engineers and Planners

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Figure 3

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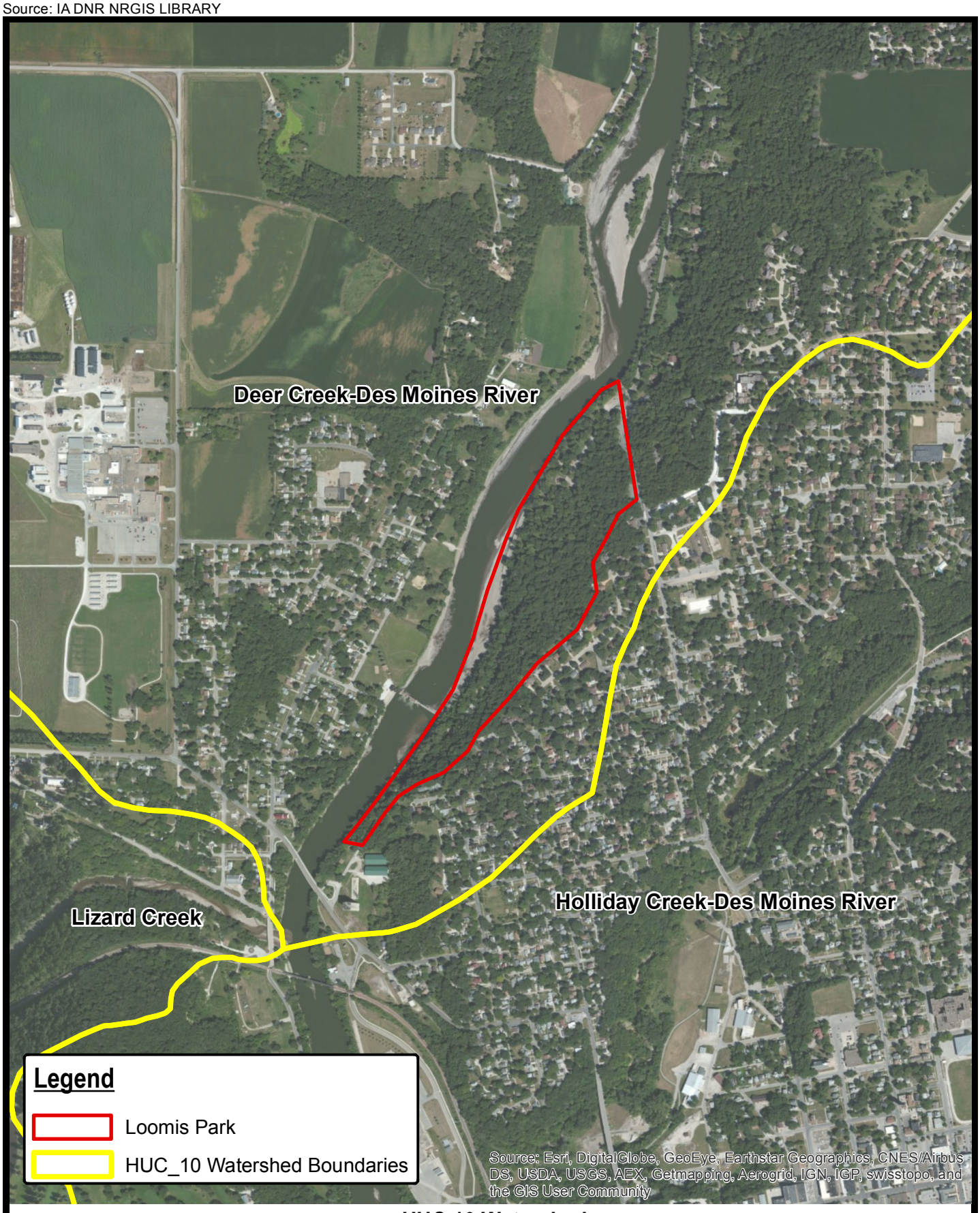

HUC 10 Watersheds
Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

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Figure 5

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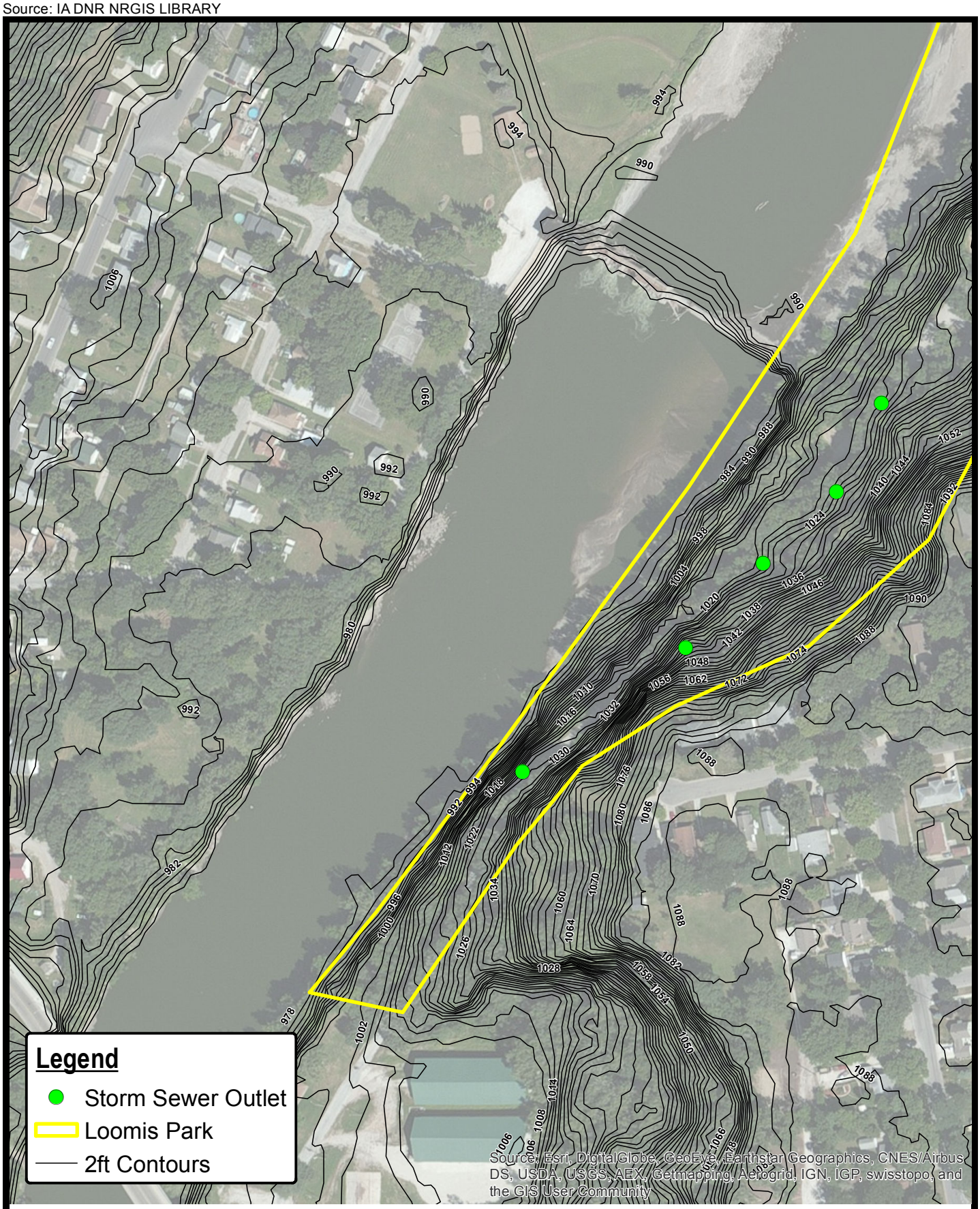

Loomis Park-Slope Map
Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

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Figure 4

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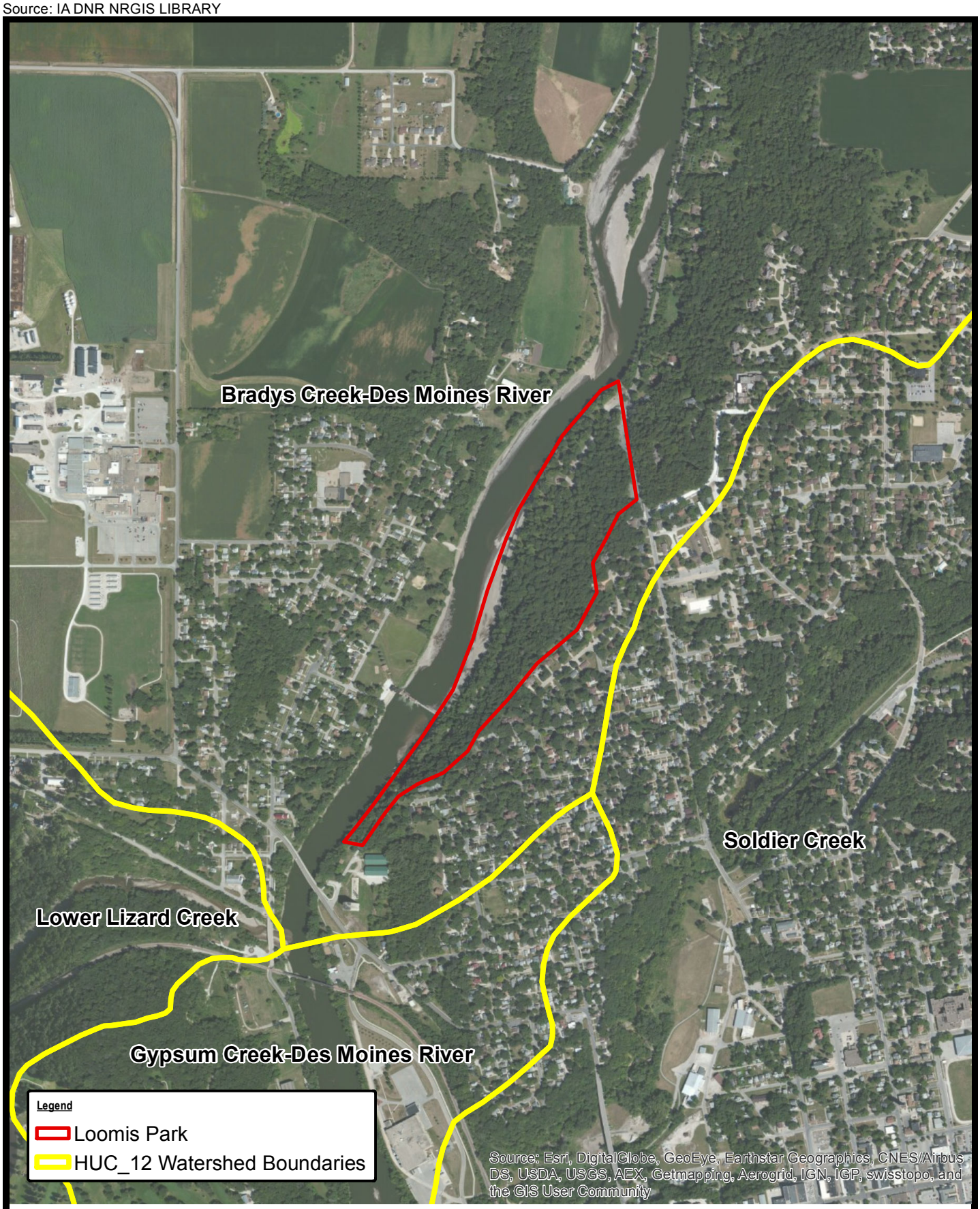

HUC 12 Watersheds
Clean Water SRF Water Resource Restoration
Des Moines River Watershed Improvements
Greater Fort Dodge, Iowa

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Figure 6

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Date: 2/26/2015

References

American Rivers. The Ecology of Dam Removal. February 2002.
http://www.michigandnr.com/PUBLICATIONS/PDFS/fishing/dams/ecologyofDamRemoval.pdf

Conserve-Energy-Future. Hydro Power. 2015.
http://www.conserve-energy-future.com/Disadvantages_HydroPower.php

Friends of the Earth, American Rivers, and Trout Unlimited. Dam Removal Success Stories. December 1999.
http://www.americanrivers.org/assets/pdfs/reports-and-publications/SuccessStoriesReport6f14.pdf?65c5e7

The H. John Heintz Center for Science, Economics and the Environment. Dam Removal: Science and Decision Making.

International Rivers. Dams and Water Quality. 2015.
http://www.internationalrivers.org/dams-and-water-quality

Latin American and the Caribbean Region. Sustainable Development Working Paper 16. Good Dams and Bad Dams: Environmental Criteria for Site Selection Hydroelectric Projects. November 2013.
http://siteresources.worldbank.org/LACEXT/Resources/258553-1123250606139/Good_and_Bad_Dams_WP16.pdf

McLaughlin Whitewater Design Group. Fort Dodge Hydroelectric Whitewater Passage Feasibility, Fort Dodge, Iowa. June, 2010.

New Scientist. Hydroelectric power's dirty secret revealed. February 2005.
http://www.newscientist.com/article/dn7046-hydroelectric-powers-dirty-secret-revealed.html#.VO-s4p3na70

Stanley Consultants. Fort Dodge Mill Dam Hydroelectric Project: Reconnaissance Study Supplement. November 2006.

U.S Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). Middle Des Moines River – 07100004 8-Digit Hydrologic Unit Profile, NRCS, 2008.

Union of Concerned Scientists. Environmental Impacts of Hydroelectric Power.
http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-hydroelectric-power.html#.VO-s5Z3na70