CITY OF WEST DES MOINES
CITY COUNCIL MEETING COMMUNICATION

DATE: January 26, 2016

ITEM: Resolution – Approval of Grant Application – Iowa Department of Agriculture and Land Stewardship Water Quality Initiative – Woodland Hills Park Water Quality Improvements

FINANCIAL IMPACT: Possible grant revenue of $65,500. The total project cost is estimated at $219,000 with a City match of $153,500. The City's match will be covered by $88,000 in CIP funds already budgeted in FY15/16 for the parking lot in Woodland Hills Park and $65,500 from the stormwater enterprise fund.

BACKGROUND: The Iowa Department of Agriculture and Land Stewardship (IDALS) has funding available for urban conservation projects that reduce nutrient loading to waters of Iowa. With the approval of City Manager Hadden, the Parks and Recreation Department submitted a pre-application for water quality improvements in Woodland Hills Park located at 1230 South 95th Street. The project was chosen as one of 15 out of 32 pre-applications to proceed to the next step of a full application.

The proposed project involves four components as follows:

1. Bioretention Cells – Three of the four existing stormwater detention basins on the park site will be converted into bioretention cells (biocells). Benefits of biocells include increased infiltration of rainwater and improved quality of water flowing through the biocells and outletting into a tributary to Sugar Creek. Native plantings in the biocells also have benefits, including increased aesthetics, improved wildlife habitat, less frequent mowing, lower fertilizer and herbicide use, and educational opportunities for the general public and the students at the adjacent Woodland Hills Elementary School. The estimated cost of this component is $81,000 with 50% being part of the grant request.

2. Soil Quality Restoration & Native Seeding – Soil quality restoration (SQR) is planned to be done on approximately 4 acres of the 7.8 acre park site. Two of the four acres will be seeded in a native short-grass prairie mix. Benefits of these practices include all those listed above for native plantings along with improved water infiltration which will decrease runoff and erosion. The addition of organic matter to the soil will also benefit the establishment of the fairly new turf and native plantings, increase turf quality, and may reduce fertilizer and pesticide applications. The estimated cost of this component is $17,000 with 50% potentially covered by grant funds.

3. Permeable Pavement – A new parking lot is budgeted in FY 15/16 for Woodland Hills Park. The grant application includes funding for permeable pavement to be installed in a portion of the parking lot. Permeable pavement allows rainwater to flow through it and the drainage system below it rather than running off directly into storm sewers. Benefits of doing this include additional stormwater storage, increased infiltration, and cleaning of water that falls on the parking lot. The estimated total cost of the parking lot is $118,000 with approximately $30,000 of this being costs associated with the permeable pavement

component. Grant funds will potentially cover 50% of the permeable pavement portion of the project. The remaining amount not related to the permeable pavement will be covered by budgeted CIP funds.

4. Education & Outreach – The Parks and Recreation Department Green Team made up of staff from all areas of the department will lead educational efforts related to the above projects and watershed improvements in general. Planned efforts include mailings to property owners within the watershed, promotion of best management practices on the City's website and social media, neighborhood events, signage, and children's programming. The cost of educational efforts is estimated to be $3,000 with 50% potentially covered by grant funds.

A draft full application is attached for review.

OUTSTANDING ISSUES: None

RECOMMENDATION: That the Council approve the Resolution.

Lead Staff Member: Sally Ortgies

STAFF REVIEWS

Department Director	
Appropriations/Finance	
Legal	
Agenda Acceptance	RTJ

PUBLICATION(S) (if applicable)

Published In	
Dates(s) Published	

SUBCOMMITTEE REVIEW (if applicable)

Committee	N/A		
Date Reviewed			
Recommendation	Yes	No	Split

RESOLUTION OF THE WEST DES MOINES CITY COUNCIL APPROVING THE APPLICATION FOR THE PURPOSE OF RECEIVING AN IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP WATER QUALITY INITIATIVE TARGETED DEMONSTRATION WATERSHED PROJECTS GRANT

WHEREAS, the Iowa Department of Agriculture and Land Stewardship has grant funds available for water quality improvement projects; and

WHEREAS, the City of West Des Moines City Council is supportive of this application; and

WHEREAS, the application from the City of West Des Moines will be submitted to the the Iowa Department of Agriculture and Land Stewardship by the February 2, 2016 deadline;

NOW THEREFORE BE IT RESOLVED by the City Council of the City of West Des Moines that the following grant application be submitted to the Iowa Department of Agriculture and Land Stewardship by the February 2, 2016 application deadline:

PROJECT NAME	REQUEST AMOUNT
Woodland Hills Park Water Quality Improvements	$65,500

Passed and adopted this 26th day of January, 2016.

_____
Steven K. Gaer, Mayor

_____
Ryan Jacobson, City Clerk

Iowa Department of Agriculture & Land Stewardship

WATER QUALITY INITIATIVE
TARGETED DEMONSTRATION WATERSHED PROJECTS
APPLICATION FOR FUNDING ASSISTANCE

Project Title: Woodland Hills Park Water Quality Improvements
Applicant Entity: City of West Des Moines
Contact Person: Sally Ortgies, Superintendent of Parks
Address: P.O. Box 65320, West Des Moines, IA 50265
Phone: 515-222-3447
E-mail: sally.ortgies@wdm.iowa.gov
Authorizing Signature: _____ ***Date:*** _____
Tom Hadden, City Manager

Surface Water: Primary – Sugar Creek Tributary 2 (West Des Moines) / Secondary – Sugar Creek (West Des Moines) / Tertiary - Raccoon River (West Des Moines)

Woodland Hills Park is a new neighborhood park owned by the City of West Des Moines and located at 1230 South 95th Street in a rapidly growing area of West Des Moines. The park is 7.8 acres in size and is currently in the very beginning stages of development. The proposed grant project focuses on practices within the park to improve water quality. A map showing the park location and the Sugar Creek Tributary 2 watershed is attached. Directly north of the park, but just outside the watershed, is Woodland Hills Elementary School in the Waukee Community School District. Adjacent to the park on the south is the City-owned Woodland Hills Greenway encompassing a total of 22 acres. The greenway contains several tributaries to Sugar Creek which is located west of the project site. Other land use is primarily residential with some proposed office and commercial land use planned along Mills Civic Parkway in the northwest corner of the watershed. Approximately 143 acres of the 330 acre watershed are still undeveloped at this time. A land use map is attached.

Project Partners: City of West Des Moines (property owner/manager/user)

- City Manager's Office
- Parks & Recreation Department
- Public Works Department
- Engineering Department
- Waukee Community School District (adjacent property owner/user)
- Watershed Property Owners (single-family residents/Edgewater Senior Living residents/owners of undeveloped property)

Budget Summary:

	IDALS Request	Partner Contributions	Landowner Contributions	Total Budget
4/15/16-6/30/16	$6,000(1)	$18,000(1)	$0	$24,000
7/1/16-6/30/17	$58,000(2) $1,500(3)	$134,000(2) $1,500(3)	$0	$192,000 $3,000
Overall	$65,500	$153,500	$0	$219,000

(1) Engineering costs related to biocells and parking lot components
(2) Construction costs related to biocells, soil restoration, native seeding, and parking lot components
(3) Costs related to education efforts

Narrative

Primary Components/Practices & Benefits

The proposed project includes improvements to Woodland Hills Park with the goals of enhancing water quality within the Sugar Creek Tributary 2 watershed and providing an example of best management practices. A plan showing the park and the locations of each component is attached.

1. **Bioretention Cells** – The park site was graded in 2014-15 and includes several basins for stormwater detention. Three of the four basins are proposed to be converted into bioretention cells (biocells) utilizing best practices as identified in the Iowa Stormwater Manual. This will include the excavation of existing soil in each basin with installation of 18 to 24 inches of amended soil, a rock layer, subdrains, erosion control structures, and native plant plugs. The estimated cost of this component is $81,000 ($72,000 construction + $9,000 engineering). The estimated cost of $4,000 associated with erosion control plans, SWPPP, and submittal of the NPDES permit is included in the cost of this component.

   Benefits of the biocells include increased infiltration of rainwater and improved quality of water flowing through the three biocells and outletting into the Sugar Creek Tributary. There will also be benefits from the native plantings in each biocell, including increased aesthetics, improved wildlife habitat, less frequent mowing, lower fertilizer and herbicide use, and educational opportunities for the general public and the students at the adjacent Woodland Hills Elementary School.

   Status

   City staff has discussed this component with the original engineer for the park site plan, Civil Design Advantage, and they are prepared to provide engineering services. The City plans to contract with Civil Design Advantage to prepare preliminary plans for the bioretention cells and update the existing stormwater management plan for the park. Since it is anticipated that this planning work will be completed prior to the April 1 start date for grant projects, the cost to prepare the preliminary plans and to update the existing stormwater management plan will be funded entirely by the City.

   Anticipated Timeline

   As mentioned above, preliminary plans and an update to the stormwater management plant will be completed by April. Final construction plans, erosion control plans, and SWPPP will be completed in early summer, a NPDES General Permit No. 2 will be submitted, bidding will occur in July, and a contract will be awarded in early August 2016. Construction will begin in August, and the project will be completed in the spring of 2017.

2. **Soil Quality Restoration (SQR) & Native Seeding** – The soil in Woodland Hills Park is fairly compacted following grading operations and the main soil type is Ladoga silty clay loam that has a slow infiltration rate when wet. The proposed project involves restoring the soil over an area approximately 4 acres in size. About 2 acres was seeded in turfgrass last spring and, once established, will serve as an open space for sports practices and general use. The remaining 2 acres of the SQR area was seeded in native grasses and forbs which unfortunately were poorly established due to weather conditions following seeding. The proposed project will involve aerating the site with a plug or deep-tine aerator to a depth of approximately 4 inches and then applying ¾ inch of compost (according to Method 8 as outlined in Section 2E-6 of the Iowa Stormwater Management Manual). The native areas will be re-seeded by City staff with a short-grass mix. The estimated cost of this component is $17,000.

The main benefit of the soil quality restoration component is improved water infiltration which will decrease runoff. The addition of organic matter will also benefit the establishment of the fairly new turf and native plantings, increase turf quality, and may reduce fertilizer and pesticide applications.

Status
This component will be included in the updated stormwater management plan being prepared by Civil Design Advantage in March.

Anticipated Timeline
Plans and specifications will be prepared by City staff. No costs related to these plans are included in the grant request. The work related to this component will be bid and contracted during the summer of 2016 and would occur in the fall of 2016 with native seeding taking place in the winter of 2016 or late spring of 2017.

3. **Permeable Pavement** – This component involves the installation of areas of permeable pavement in the new parking lot to be installed in the park. Plans are to utilize the PaveDrain system on one side of the lot and across the driveway off S. 95th Street to collect as much rainwater as possible before it enters the intake located in the driveway. The cost of the entire parking lot project is estimated to be $118,000 with approximately $30,000 ($27,000 construction + $3,000 engineering) of this being costs associated with the permeable pavement component.

   Benefits of the permeable pavement component will include stormwater storage, increased infiltration, and cleaning of water that falls on the parking lot prior to it entering the rest of the stormwater system in the park.

   Status
   City staff has discussed this component with the original engineer for the park site plan, Civil Design Advantage, and they are prepared to provide engineering services. Along with the bioretention cells, the City will be contracting with Civil Design Advantage to prepare preliminary plans for the parking lot and permeable pavement. Since it is anticipated that this planning work will be completed prior to the April 1 start date for grant projects, the cost to prepare the preliminary plans and to update the existing stormwater management plan will be funded entirely by the City.

   Timeline
   As mentioned above, preliminary plans and an update to the stormwater management plant will be completed by April. Final construction plans, erosion control plans, and SWPPP will be completed in early summer, a NPDES General Permit No. 2 will be submitted, bidding will occur in July, and a contract will be awarded in early August 2016. Construction will begin in August, and the project will be completed in the spring of 2017.

<u>Permits</u>
Prior to implementation of any of the above components, an erosion control plan and SWPPP will be completed. A NPDES General Permit No. 2 will be submitted for approval. All required erosion control measures will also be put in place and monitoring will occur as required.

Partners/Funding

Since the proposed project is taking place entirely on City property, the City will contribute all non-grant funds. Funds for the parking lot portion of the project are mostly coming from budgeted funds in the City's Capital Improvement Program. The City's 50% match for the permeable pavement portion of the parking lot will be funded out of the City's stormwater enterprise fund. All matching funds for the bioretention cells and soil quality restoration are from the stormwater enterprise fund. The native seeding, education, and outreach will include some City in-kind contributions for staff time, printing, and mailing.

Other / Future Phases

The first phase of the Woodland Hills Park & Greenway project was completed in 2015 and included planting approximately 4.5 acres of native grasses and forbs. The Parks and Recreation Department includes native seeding in nearly every new park project because of the many benefits natives provide including increased infiltration, improved soil, decreased runoff, increased aesthetics, improved wildlife habitat, less frequent mowing, lower fertilizer and herbicide use, and educational opportunities. In addition, a master plan for the 22 acre Woodland Hills Greenway is currently being prepared by the City and LT Leon Associates Inc. to guide future efforts throughout the entire watershed. The first steps of the master plan have been completed, including a preliminary study of the watershed hydrology and hydraulics, a field assessment by the project engineer and an ecologist, and analysis of trail alignments. A technical memorandum was submitted to the City on November 25, 2015 and presented to City staff and Jennifer Welch, Urban Conservationist on November 30, 2015. A copy of the technical memorandum can be made available upon request. Many sections of the streams that run through the greenway are highly unstable due to excessive runoff over recent years. Following the completion of the proposed projects within the park, the City will continue water quality improvements by implementing best management practices throughout the greenway.

Project Evaluation

Several evaluation methods will be utilized including tests of water quality at the discharge point into the Sugar Creek Tributary before and after the project is completed, soil permeability tests, and surveys of the watershed property owners to gauge increased awareness. In addition, the stormwater management plan previously prepared for the park will be updated and any changes due to the proposed practices will be noted.

Education / Information Program

Although the above practices are all taking place on public park property, an important part of the project is providing education to private property owners within the watershed. City staff along with our partnering agencies will provide educational programs and materials to the various property owners. The Parks and Recreation Department Green Team made up of staff from all areas of the department will lead the educational efforts. In other efforts over the past year, West Des Moines residents have shown great interest in watersheds, and this will likely be the case in the Woodland Hills neighborhood. The cost of educational efforts is estimated to be $3,000. The City will match 50% of this through its stormwater enterprise fund.

Timeframe	Educational Effort	Potential Reach
May 2016	Introductory mailing to residents of the watershed to inform them of the project and to provide them with simple ideas to implement on their own	161 property owners
June 2016	Distribute information about the project at Parks & Recreation Night at the Valley Junction Farmers Market	200 to 300 participants

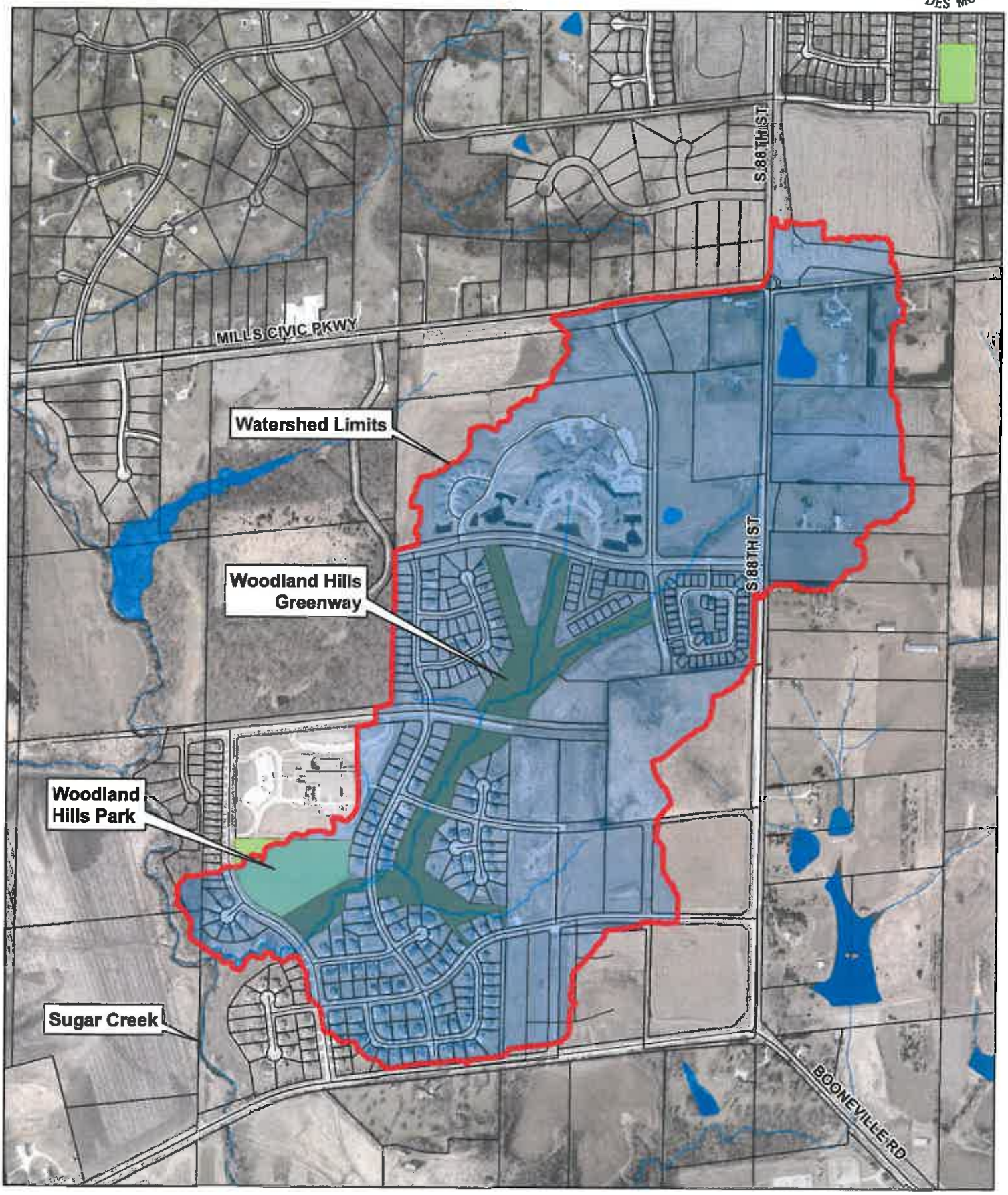
June 2016	Place project information on the Environmental Efforts page of the City's website & post on social media	4,000 followers
August 2016	Place signs on the park site with information about the project	50 - 100 visitors per month
August 2016	Include article on the project in the WDM Magazine	31,000 homes & businesses
September 2016	Mail information packet to residents in the watershed including flyers about rainscaping, native turf, and soil quality restoration	161 property owners
October 2016	Hold neighborhood informational event "Meet Your Watershed"	50 participants
October 2016	Place project update on the City's website & post on social media	4,000 followers
February 2017	Include article with project update in the WDM Magazine	31,000 homes & businesses
May 2017	Place a sign or signs with QR code linking to information on each practice	50 – 100 visitors per month
June 2017	Hold a "Watershed Fun" day camp for children living in the watershed	20 – 30 participants

Practice Description / Budget

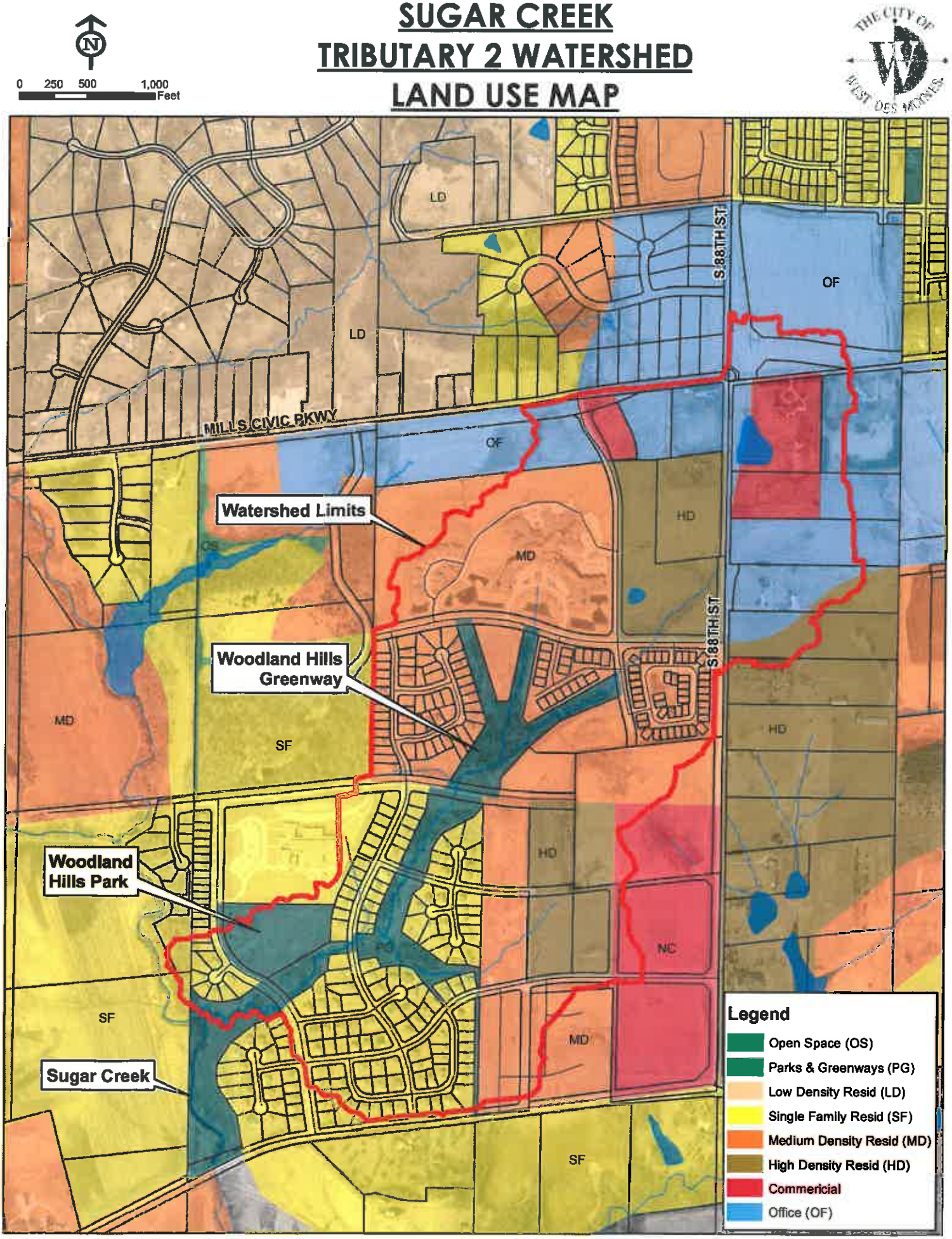
Practice #1: Bioretention Cells Three existing detention basins will be converted into bioretention cells (biocells)	**IDALS:** $40,500 **TOTAL:** $81,000
Practice Details: Biocells are proposed in three locations within the park where standard detention basins currently exist. Each basin has its own drainage area, but all are connected by pipes with water draining through the basins from the west to the east. The easternmost basin drains directly into the Sugar Creek Tributary. Since the basins already exist, the stormwater management plan will simply need to be updated and the biocells will need to be designed. City staff has already discussed this work with the original engineer for the project, Civil Design Advantage, and they are prepared to assist. This practice will involve excavating the existing soil in the three basins as shown on the attached plans. However, due to the additional stormwater capacity created with the projects being proposed, excavation may not be necessary in all of the basins. A rock layer and subdrains will be installed and native plugs will be planted. An erosion control plan, SWPPP, and permit submittal for the entire site are included in this practice.	
Practice #2: Soil Quality Restoration / Native Seeding Soil restoration will take place on approximately 2 acres of area currently planted in turfgrass and 2 acres previously planted in native grasses and forbs. Native area will be re-seeded.	**IDALS:** $8,500 **TOTAL:** $17,000
Practice Details: This will involve deep aerating to a depth of approximately 4 inches and applying ¾" of compost to the area. Native areas will be seeded with a short-grass mix. City staff will manage this portion of the project. There will be no additional permits required for this practice.	
Practice #3: Permeable Pavement The PaveDrain system or equal will be installed for stormwater storage and to improve quality of water draining off the parking lot and driveway.	**IDALS:** $15,000 **TOTAL:** $118,000
Practice Details: Approximately 1,800 SF of the 10,000 SF parking lot and driveway will be installed using the PaveDrain system of permeable pavers or equal. The remainder of the parking lot and driveway will be concrete with concrete curb and gutter. Preliminary plans have been developed for the parking lot by City staff in consultation with the Specifications Engineer for PaveDrain. Construction documents will be prepared by Civil Design Advantage (CDA) in conjunction with the biocells. The stormwater management plan for the park site will also be updated by CDA. There will be no additional permits required for this practice.	
Education / Outreach	**IDALS:** $1,500 **TOTAL:** $3,000

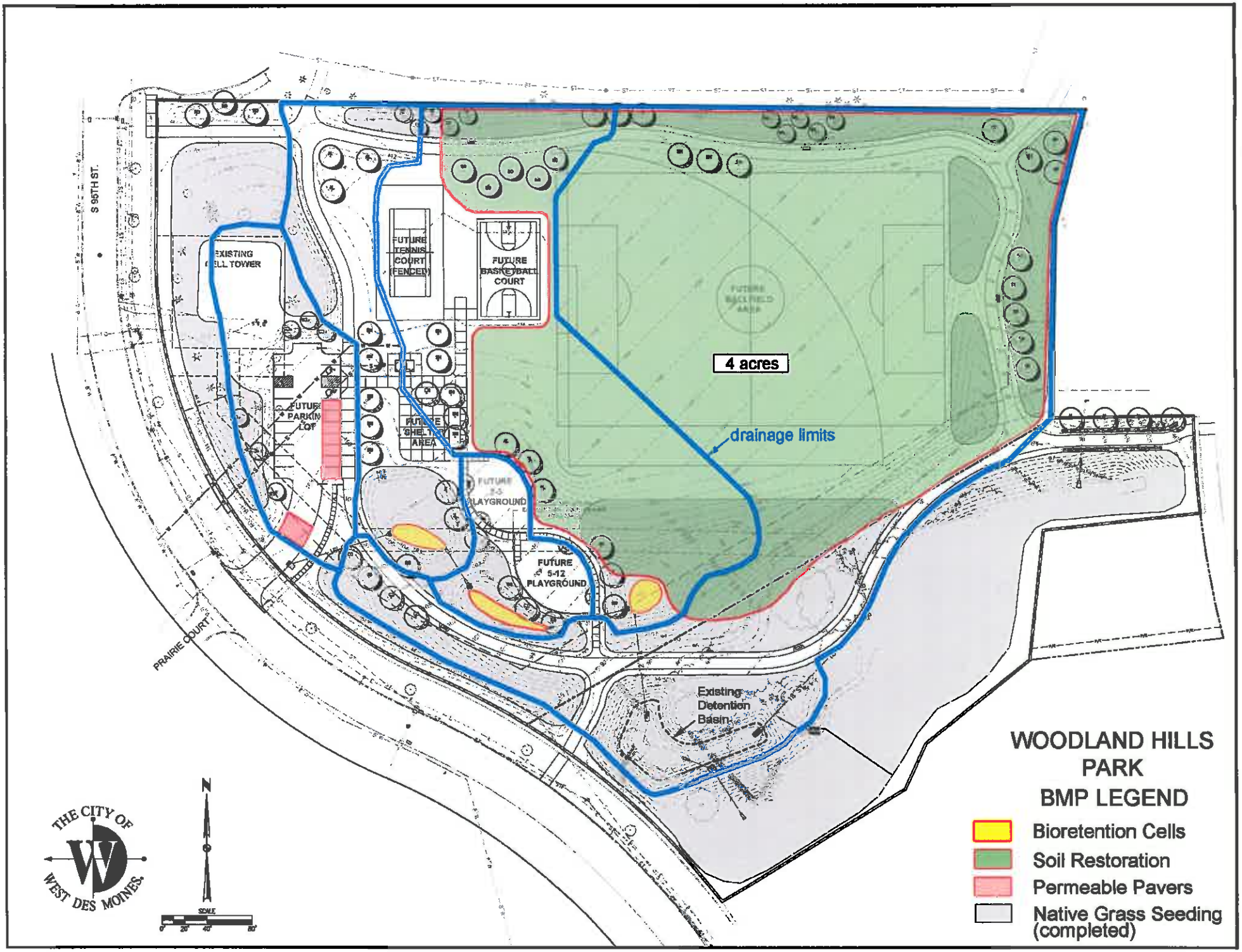
SUGAR CREEK
TRIBUTARY 2 WATERSHED

0 250 500 1,000 Feet



SUGAR CREEK
TRIBUTARY 2 WATERSHED
LAND USE MAP




WOODLAND HILLS PARK
BMP LEGEND
Bioretention Cells
Soil Restoration
Permeable Pavers
Native Grass Seeding (completed)
4 acres
drainage limits
Existing Detention Basin
FUTURE TENNIS COURT (FENCED)
FUTURE BASKETBALL COURT
FUTURE 5-12 PLAYGROUND
S 95TH ST.
PRAIRIE COURT
THE CITY OF WEST DES MOINES
N
SCALE