Annual Stormwater Program Report

April 1, 2019 – March 31, 2020

NPDES Phase II MS4 General Permit

City of Ames, IA: Permit Number 85-03-0-03

Public Works Department

SMARTWATERSHEDS
FOR CLEAN RIVERS AND STREAMS

CITY OF
Ames™

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The City of Ames was issued its first NPDES Stormwater MS-4 permit from the Iowa Department of Natural Resources in 2003. The permit serves as the stormwater management plan for the City of Ames and summarizes progress made towards permit compliance during April 1, 2019 through March 31, 2020 during the fourth permit cycle. As required, the City addresses the following six minimum storm water control measures as an overall stormwater management plan:

1. Public education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-construction Storm Water Management
6. Pollution Prevention and Good Housekeeping

STORMWATER PROGRAM STAFF

Public Works Staff		
John Joiner	Public Works Director	Directs Public Works programs
Tracy Warner	Municipal Engineer	Oversees implementation of MS4 program; program and Public Works CIP budgets; education and outreach; post construction plan review
Jake Moore	Stormwater Specialist	Construction site erosion and sediment control program; SWPPP review, quarterly inspections, tracking and enforcement; education and outreach; illicit discharge response and follow up
Liz Calhoun	Stormwater Analyst	Post construction stormwater management plan review and ordinance implementation; education and outreach, public participation activities; website updates; inspection and maintenance of post construction BMPs
Nate Willey	Civil Engineer II	Stormwater management plan review
Justin Clausen	Operations Manager	Manages staff that conduct intake and outfall inspections and maintenance; street sweeping and maintenance; tree inventory; post construction BMP maintenance; facility good housekeeping and pollution prevention
Corey Milles	Fleet Services Director	Oversees fertilizer and pesticide use at city facilities; maintenance of post construction BMPs at the Community Center; facility good housekeeping and pollution prevention
Damion Pregitzer	Traffic Engineer	Oversees Ames Municipal Airport General Permit No. 3 SWPPP implementation

Pat Sauer	Consultant	Staff pollution prevention training, post construction BMP maintenance, education and outreach, reporting
Parks and Recreation Staff		
Joshua Thompson	Parks Superintendent	Oversees park and natural area maintenance, post construction BMP maintenance; park fertilizer and pesticide use
Resource Recovery Plant Staff		
Bill Schmidt	Superintendent	Oversees the solid and hazardous waste management program and Trash Cleanups for the City.

STORMWATER PROGRAM EXPENSES

Program	Expense
Education and Outreach	
ISWEP Membership	$5,455
Ames Homebuilder Association Membership	$235
Ames on the Go reporting App	$16,748
Staff, Consultant, Training, Materials and Advertising including Smart Watershed & Smart Trash Programs	$50,551
Public Involvement and Participation	
Staff, consultant, equipment and material costs	$24,813
City's Annual EcoFair (MS4 portion) and STEM nights at elementary schools	$11,001
Resource Recovery handling and disposal of wastes from stream/river, Stash-the-Trash, and Project Aware cleanup events	$140
Illicit Discharge	
Staff, consultant, equipment and material costs	$21,653
Resource Recovery Plant operations	$3,693,139
Food Waste Diversion program	$12,000
Public Household Hazardous Material disposal program	$80,824
Sanitary sewer hydraulic model update (Inflow/Infiltration (I&I) reduction)	$34,700

Construction Site Program	
Staff, consultant, equipment and material costs	$57,447
Post Construction Program	
Staff, consultant, equipment and material costs	$49,296
Smart Watershed Cost Share Programs	$5,741
Somerset Storm Water Facility Rehabilitation project	$312,174
Storm Water Erosion Control Program (S. Skunk River Stabilization Project)	$311,871
Kinyon-Clark Subdivision channel stabilization project	$193,380
Teagarden Area Drainage Improvements project	$309,950
Pollution Prevention and Good Housekeeping	
Staff, consultant, equipment and material costs	$36,823
Street, median, and sidewalk sweeping (staff time, equipment, and contractor)	$266,309
MS4 system inspections and maintenance	$26,298
Sanitary Sewer repairs and rehabilitation (found with SSSE to remove I&I)	$3,522,393
Landfill erosion control and testing/monitoring	$24,635
Emergency and maintenance infrastructure repairs	$211,767
Drainage, storm sewer, and other MS4 infrastructure improvements	$521,359
Municipal Staff Training	$1,203
Special Conditions	
Geographic Information System (GIS) (storm water portion only)	$60,582
Total	$9,862,487

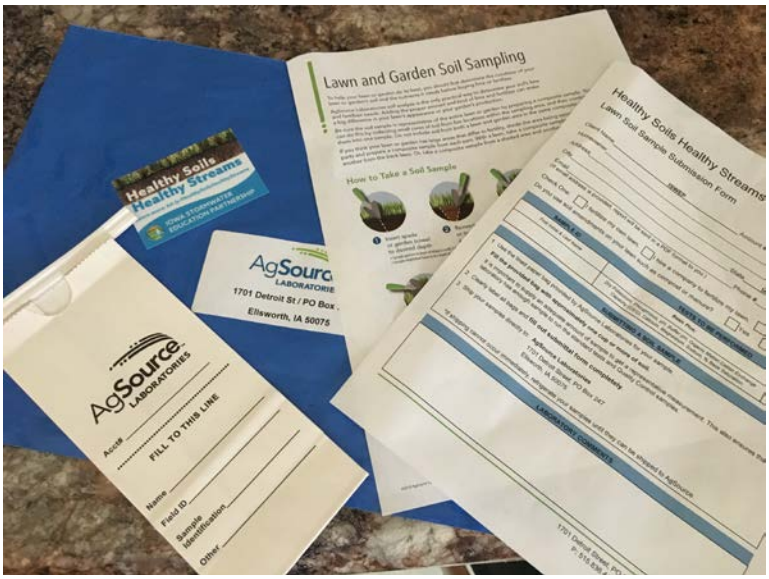
PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS

Stormwater Educational Literature

The City is a member of ISWEP and utilizes the provided resources such as numerous brochures and handouts that address pollution prevention, sustainable lawn care, Rainscaping rain gardens, soil quality restoration, rain barrels, and native landscaping, household hazardous waste management and the Smart Watershed Program to educate targeted audiences. Literature is available online, at Public Works office and distributed by Public Works, Resource Recovery Plant and Public Relations staff at numerous citizen events. Monthly stormwater tips and household waste management tips are placed in CitySide, which is a city newsletter distributed to approximately **30,000 Ames utility customers**. The newsletter includes a section that highlights the City contact information for spills and stream concerns. Smart Watershed rebate information was provided in several issues.

Healthy Soils Healthy Streams Campaign

An ISWEP campaign for healthy soils and healthy streams was used in Ames. Soil sampling kits were provided to residents. Samples were collected by residents and submitted to AgSource Labs. City facilities were also sampled. The results are being used to educate residents and city departments on fertilizer use.



A summary sheet was provided to residents with an interpretation of the results and recommendations for types of fertilizers to best suit the soil fertility to help minimize excess use of nutrients.

City of Ames Cable TV Network

The City's Media Production Services ran several EcoFair spotlights that highlighted the Smart Watershed program and the rebates for BMPs. Several commercials were also run that highlighted the EcoFair, which included Smart Watershed displays and information on what residents can do to prevent stormwater pollution. Four public service announcements were run throughout the year, as shown in the table below.

2019 Cable Video Summary	Total Aired since 3/2/16	Aired this report cycle
Yard Care PSA (ISWEP)	300	5
Storm Water PSA (ISWEP)	303	7
Car Wash PSA (ISWEP)	298	4
Oil Change PSA (ISWEP)	298	4

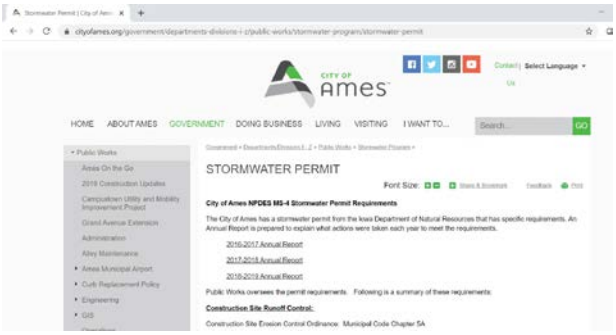
Facebook Used for Social Media

The City uses Facebook to promote many City activities including stormwater education and outreach events. Following is a summary of pertinent Facebook announcements:

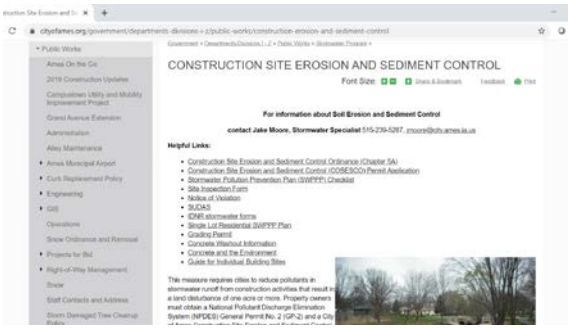
2019 Facebook Post Summary	# shares	# likes	# comments
Arbor Day Tree Planting	4	49	
May 20 -Ames Foundation Tree Planting		41	
May 24 AHS students planting @ City Hall	6	83	
June 11 Watershed Awareness Month	4	39	

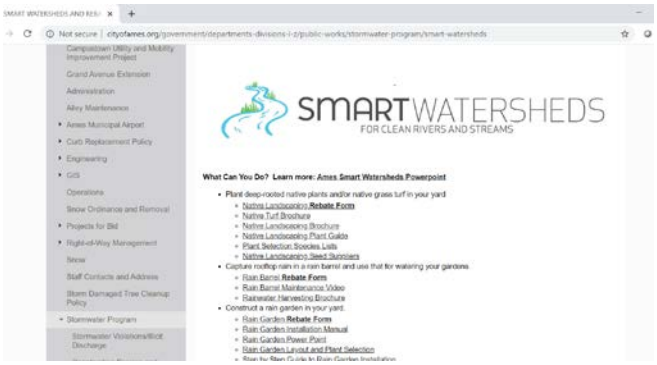
June 26 Native planting at FG 1	3	34	2
July 22 Illicit Discharge awareness	1	10	
July 26 Rummage Rampage announcement	19	34	3
August 2 Last day of Rummage Rampage	4	20	2
August 7 Welch Ave construction presentation	2	21	
Agusut 28 ISU WelcomeFest	3	32	1
Sep 5 SQR Rebate Promotion	3	14	5
Oct 9 How to Winterize Your Rain Barrel	3	12	
Nov 5 PRI share-planting natives/free seed bank	3	19	1
Nov 7 Yard Waste Days	2	6	
Nov 11 Yard Waste Days	2	5	
Nov 13 Yard Waste Days		3	
Nov 14 Yard Waste Days		2	
Nov 17 Ada Hayden Heritage Park	11	148	3
Nov 24 Prairie Burn	4	26	
Nov 30 Yard Waste Day	1	8	
Dec 6 and Jan 28 EcoChats Announcement	2	7	
Dec 8 EcoFair Save the Date	3	14	
Dec 16 EcoChats	2	9	1
Jan 12 EcoChats		6	
Jan 23 Smart Business Lunch	1	5	
Jan 27 Chad Pregracke Lecture Announcement		6	
Feb 19 & 23 EcoChat Annoucements	1	4	
Feb 26 EcoChat-Water	1	16	1
Feb 28 EcoFair		12	
Mar 6 Watersheds and Waterways-Winter/Spring (PRI share)		3	
TOTAL = 792	**85**	**688**	**19**

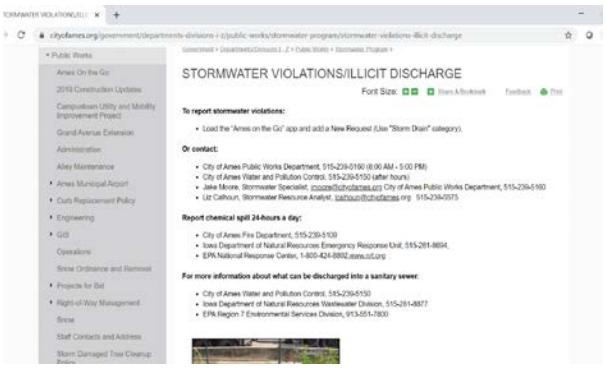
City of Ames Stormwater Website



The City's Public Works Department continues to expand the stormwater portion of the City's website https://www.cityofames.org/government/departments-divisions-i-z/public-works/stormwater-program/stormwater-permit . The website has pages that address each of the permit requirements, an illicit discharge and spill reporting page and Smart Watershed Program portion of the City's website continues to provide highlights of all local watershed projects that the City has been involved with in the past years. It also includes information on the Rain Garden, Rain Barrel, Soil Quality Improvement, and Native Landscaping Cost Share Programs as well as public education information on what residents can do for stormwater pollution prevention. Watershed maps are also available along with links to local watershed groups and public education information. There is video on pollution prevent. The illegal discharge and spill reporting website is found here: https://www.cityofames.org/government/departments-divisions-i-z/public-works/stormwater-program/stormwater-violations-illicit-discharge







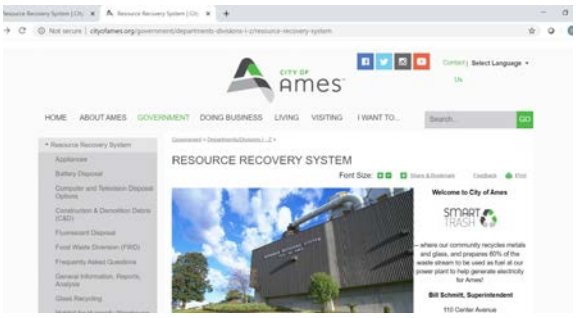
ISWEP Website

The City of Ames supports the Iowa Storm Water Education Program (ISWEP) website through its membership. The website includes a warehouse of stormwater information for educating the public, contractors, developers, and design professionals. There is a link to the ISWEP website www.iowastormwater.org on the City's webpage. The new ISWEP website was launched this year and there were 14,000 hits on the site during the first few months of publishing the new website.

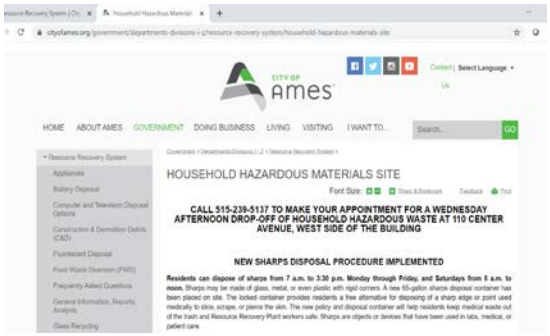
Resource Recovery Plant

The Public Works Department also includes the Resource Recovery Plant and Smart Trash Program. The following website: http://www.cityofames.org/smarttrash provides information on waste handling and disposal. Brochures are distributed to the public on stormwater management and the Smart Watershed Program during tours.

Resource Recovery Plant staff conducted regular public tours. Proper disposal of household hazardous materials was discussed as well as proper waste management. Stormwater pollution prevention brochures are handed out during the tours. The website provides additional information on waste handling.



Stash-The-Trash, a cooperative event with Iowa State University, was held in April 2019. The Resource Recovery Plant regularly advertises proper handling and disposal of wastes in the Ames Tribune, the weekly free paper, Story City Herald, and Nevada Journal. Program information is run on the local cable Channel 12 regularly as well as advertising through Mediacom. Ads are run at least one ad per year for Household Hazardous Materials collection and 2-3 times per year for yard waste collection. Resource Recovery staff were also present at the EcoFair, Water and Pollution Control Plant Open House, and ISU WelcomeFest for **>2,000 total attendees**.



Resource Recovery Plant Program

Resource Recovery Tours	# Participants/# Events	Waste Collected
Tours are conducted throughout the year and attract local residents, scout groups, scientists, and other interested groups.	1072	
Stash-the-Trash City and ISU Partnership		
An event is held each year in April	280	2.7 tons
Local Stream Cleanups City and ISU Partnership		
A local partnership. The Resource Recovery Plant picks up the wastes that are collected and appropriately disposes.	1 Event	1.2 tons
Household Hazardous Water Collection		
There are specific collection events where residents can drop off their wastes every Wednesday afternoon after arrangements are made with Resource Recovery.		29, 846 lbs

EcoFair is Major Educational Event of the Year

A major educational event for the entire community was the **EcoFair held on April 20, 2019**. The event attracts about **1,000 attendees** and highlights the City's Smart Programs that include green rebates and household options for residents. The Public Work's Smart Watersheds Program provided **200 native prairie plants to attendees at the fair along with stormwater pollution prevention information**. The plants were raised by Ames High School students. Watershed models were used to educate kids and adults on the street to stream connection. Numerous educational displays such as Smart Watersheds, Smart Trash and Smart Water were present. Other displays included city departments, community educational and resource groups and vendors that provide green products or services. The City Parks and Recreation Department gave away **200 trees** to attendees.

In celebration of the 10th anniversary of the City of Ames EcoFair, the City in partnership with the Ames Public Library planned three EcoChats from January-March 2020, that were based on the following presentations: energy home audit tips for residents, electric cars, geothermal, and solar power systems; water conservation tips, Ames drinking water, watershed practices at Lost Lake Farms, and stormwater BMPs that included native turf; and reduce, reuse, recycle, zero-waste lifestyle, and composting. Local experts shared information on these important topics. Educational displays and resource experts were available throughout the events. These well attended events attracted 64 residents in January and 84 in February. Unfortunately, due to COVID-19 pandemic, the March EcoChat has been postponed, which is Reduce, Reuse, Recycle.

Cellular Telephone Application

The City of Ames now has an App where residents and visitors of our community can report complaints and violations, including storm water related concerns. The App is titled Ames on the Go and is available through iTunes and Google Play stores as well as www.cityofames.org.

Ames On The Go App	Total Downloads
Total Downloads from the iTunes App store	785
# of storm water intake reports	77
# of street sweeping reports	42

PUBLIC INVOLVEMENT AND PARTICIPATION

Educational Displays

The following table lists all additional stormwater program educational activities that involved public participation during the reporting period.

Event(E)/ Distribution(D), Public Participation (P)		Date	Staff	Audience	Number of Attendees
E	Stash The Trash at Brookside Park	6-Apr	Liz, Kahner, Pat	Friends of Brookside Park	20
E	Reiman Gardens	9-Apr	Liz	Rain Garden Class	11
E	Story County Trailgate	14-Apr	Liz	Story County Residences	Approx 40
E	Sawyer School Science Night	16-Apr	Tracy,Jake, Liz, Pat, Ben	Sawyer School students and parents	200
E	ISU Students Meet on Construction Sites	18-Apr	Jake	ISU students	15
E	Kate Mitchell Science Night	18-Apr	Jake, Liz	Kate Mitchell School students and parents	120
E	Ecofair	4/20/2019	Tracy, Jake, Pat, Liz, Kahner	Ames residents	Approx. 1500
E	Wheatsfield Coop Earth Week Event	4/27/2019	Liz, Jake, Laura	Wheatsfield Customers	Approx 100
D	Nutrient Reduction Strategy	April and May, 2019	Liz, Kahner	Ada Hayden Watershed	300 homes
E	Iiowa River Restoration Toolbox	5/1/2019	Jake	Practioners, Agency staff	30
E	ISWEP Webinar Serier	2019	PW Staff	COA staff	5 ave
P	Healthy Soils Campaign	April and May, 2019	Liz, Kahner	Ames residents	18
E/P	Tree Rebate - Ames Trees Forever	5/4/2019	Tracy, Liz	Ames residents	70
E	Squaw Creek Coalition	5/7/2019	Liz	Ames residents	20
E	Edwards School 3rd Graders	5/29/2019	Liz	3rd Graders	53 stud. 2 teach.
E/P	College Creek ISU cleanup	6/15/2019	Liz	volunteers	25
D	Pet Poop Campaign	6/18/2019	Kahner	Ames residents	1000
D	Letter to Carpet Cleaners	6/19/2019	Jake	Carpet Cleaner Businesses	17
D/E	Letter to Lawn Care Companies	6/19/2019	Jake	Lawn Care Businesses	38
E	ISU Welcomefest	8/24/2019	Tracy,Jake, Liz,Kahner	ISU Students	500
D/E	Letter to Lawn Care Companies	8/30/2019	Liz	Lawn Care Businesses	42
E	ISU's Climate Change Theater Action	Oct 4,5,6,10 and 13	Tracy, Jake, Liz	ISU students, Primary School students, Ames Residents	550
E/P	Brookside Park -Trash Cleanup	10/19/2020	Friends of Brookside	ISU Students	200
E	Edwards School Science Night	11/11/2019	Tracy, Jake, Liz, Kahner	Elementary school students and parents	Approx 100
E/P	Nov 2019-Porous Pavers and Uptown Girls LegoLeague Teams	Nov-Feb	Tracy, Liz	Middle school students	15
E/P	The Crawford Condominiums Community Engagement	Nov 18/Feb 28	Liz	The Crawford Residents	20
D/E	Letter to Developers, Builders, and Contractors	1/24/2020	Jake	Developer, Builders and Contractors	45
E	Smart Business Luncheon	1/24/2020	Jake, Liz	Ames Businesses	30
E	Somerset Homeowners Association	1/27/2020	Jake	Somerset Homeowners	20
E	EcoChat- Energy	1/29/2020	Tracy, Liz, Pat	Ames residents	60
E	ISU Sustainapoolza	2/25/2020	Jake, Kahner	ISU students & Ames residents	200
E/P	EcoChat- Water	2/26/2020	Tracy, Liz, Pat	Ames residents	84
E	Meeker School STEAM Night	2/27/2020	Jake, Liz, Ben	students and parents	150
	Fellow School Science Night	2/28/2020	Tracy, Jake, Liz, Kahner	students and parents	300

Storm Water Pollution Hotline

Telephone numbers continue to be available for stormwater inquiries to the City, during office hours (515-239-5160) and after hours (515-239-5150), and a 24-hour number for reporting spills. These numbers, along with contacts for IDNR and US EPA, are published in the educational brochure, Cityside monthly utility mailings, and the City website.
http://www.cityofames.org/index.aspx?page=910

The City of Ames also has a cellular telephone app where mobile users can report storm water violations. As reported above, 785 users have downloaded the app.

This information is also published in the City's newsletter, CitySide that is provided to more than 30,000 households through utility bills and is posted on the City's website.

Annual Stream Cleanup Event

On April 6, 2019, the annual Stash the Trash cleanup event was held as various locations throughout the community which benefited the S Skunk River and Squaw Creek Watersheds.

During Spring and Fall 2019, the Friends of Emma McCarthy Lee and Munn Woods volunteers cleaned up these park areas where Clear Creek meanders.

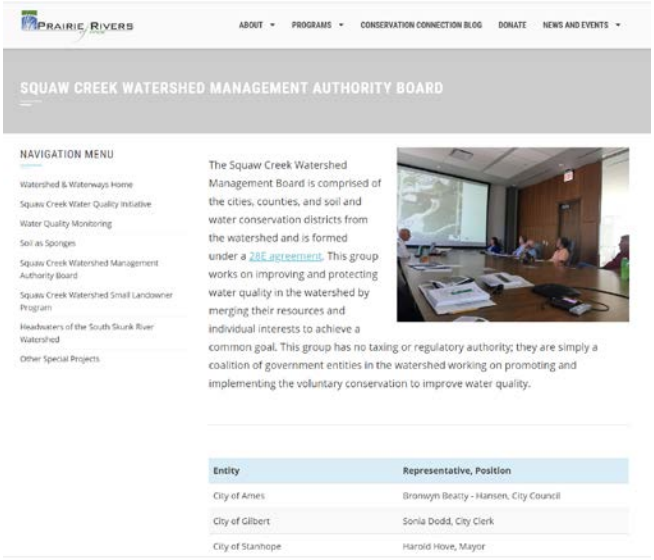
In partnership with Iowa State University, City residents, volunteers, and staff participated in a stream clean-up event on June 15, 2019. Trash and debris was picked up along College Creek west of the confluence with Squaw Creek in Ames.

During summer 2019, the Friends of Brookside Park held a volunteer cleanup. Squaw Creek flow through Brookside Park.

Over 1300 Iowa State University students picked up trash from Brookside Park (Squaw Creek), Moore Memorial Park (Squaw Creek), Gateway Park (, and Stuart Smith Park in October 2019.

Storm Water Management Team

The City of Ames is one of the founding members of two watershed authorities: Squaw Creek Watershed Management Authority and Headwaters of the S. Skunk River Watershed. These WMAs were formed through 28E agreements. An Ames City Council member is appointed to the boards. The Squaw Creek Watershed WMA Board met on July 18, 2019 at the Stratford Fire and Rescue, April 20, 2019 at Gustafson Farm / Boone County USDA Office, and on October 17, 2019 in Ames at S. Grand Avenue Extension project site / Practical Farmers of Iowa Office.



Civic engagement is extremely important to the City of Ames organization as we serve the customers of Ames. Information about capital infrastructure projects such as roadway, water system improvements, sanitary sewer rehabilitation, drainage, stream stabilization, storm water facility rehabilitation, and flood mitigation projects are on the City's website under Construction Updates. Virtual or Open House project informational meetings are held during the design phase to gather public input prior to finalizing the construction documents. During the past year, project information meetings were held in person using the Open House format. For those who cannot attend the meeting, staff reached out to them in person or on the phone.

The following is a list of storm water related projects which meetings that were held about:

- Campustown Public Improvements (Welch Avenue) including Secretary of Agriculture presentation of WQI grant award from Fire Station #2 on Welch Avenue
- Ironwood Court drainage improvements
- S. Grand Avenue and S 5th Street Extension projects including new stormwater wetland
- Somerset Subdivision storm water facility rehabilitation
- Little Bluestem storm water facility rehabilitation
- Kinyon Clarke drainage channel stabilization
- Spring Valley Subdivision drainage improvements
- S. Skunk River bank stabilization
- Westbrook Terrace erosion stabilization
- Homewood Golf Course slope stabilization
- Teagarden Drainage Improvements

- Fletcher Blvd drainage improvements
- Gateway Hotel storm water facility rehabilitation
- 1310 S Duff Avenue drainage
- Met with Ames Homebuilder Association members to discuss post construction and erosion control requirements to achieve occupancy permits
- Flood map updates through Iowa DNR by FEMA
- Teagarden Subdivision FEMA Letter of Map Revision
- Co-hosted Iowa River Restoration Toolbox training in Ames
- Story County's Post Construction SWM Ordinance changes public input meetings
- Bird Friendly Community – City of Ames application development
- Collaborations meetings more than quarterly between City of Ames, Prairie Rivers of Iowa, and Story County Conservation
- Working with State Hygienic Lab to establish protocol for fecal coliform source identification
- Worked with numerous First Lego League middle school-aged teams, including nutrients/BMPS, porous pavements, Grand Avenue drainage, and solid waste
- Established team and continue to meet collaboratively with City of Ames, Story County Conservation and Prairie Rivers of Iowa to implement a 10-year water quality monitoring plan

Public Notice Requirements

The City of Ames complies with all state and local public notice requirements.

ILLICIT DISCHARGE DETECTION AND ELIMINATION

Illicit Discharge Prohibition Ordinance

The Illicit Discharge Ordinance was presented to the Ames City Council and became part of the Municipal Code (Ord. 3819) on February 22, 2005.

Illicit Discharge Detection and Elimination Program

The City of Ames Public Works Department – Operations Division has been responsible for implementing this program. Program schedule, checklist, and mapping have been developed with the procedures that are documented in a manual. Records are kept for all program activities. Violations were reported during this period and are summarized below. IDNR is notified when necessary and discharges were eliminated.

Annual dry weather flow inspections of outfalls which discharge to non-intermittent waterways or water bodies have been conducted. The program also includes dry weather flow inspections of approximately 20% of all outfalls that discharge to Waters of the State that are intermittent waterways or water bodies with all these outfalls being inspected during the duration of the permit.

- Spill kits at the Operations Facility and Fleet Facility were inspected and restocked when necessary.

- Spill response plans are reposted on bulletin boards each year at major City facilities such as Operations and Fleet, Parks and Recreation and the airport.
- During street projects a vac-tron is used to vacuum concrete cutting slurry before it reaches intakes and is then land applied in City yard to dry out. An absorbent gel was provided to staff to experiment with as well.


SPILL RESPONSE GUIDE

STEP 1: ASSESS RISK

STEP 2: NOTIFY & STOP WORK

STEP 3: STOP SOURCE

STEP 4: CLEAN UP & DECONTAMINATE

STEP 5: COMPLETE POST-SPILL REPORTS

SPILL RESPONSE TEAM

Following is an example of a Spill Response Plan poster that is posted on bulletin boards at PW Operations, Fleet, Parks and Recreation and Airport facilities.

Reports of four illicit discharges occurred during this reporting period and are summarized in the following table.

Illicit Discharges	**Staff Responder**
Date / IDNR Notified/ COA Staff Responder/ Location/ Impacted water/ Pollutants/ Response, clean up	
April 26, 2019, Diesel Spill at 2720 E. 13th Street Doc Stop (east 13th Street) Gas Station , Fire Responded and cleaned up with Quick Dry. Public works checked storm sewer, no signs of discharge. Reported to DNR	Jake Moore
Aug 9, 2019 - Appeared to be soap In detention basin with fountain. No water discharged. Set up camera to record if it happened again. Never reappeared. Reported to DNR	Jake Moore
July 8, 2019, Dye for Concrete was dropped on ground. Swept up and placed in concrete truck. The remaining dye on the ground was washed with a hose. Contacted manufacturer, non-hazardous material. Contacted DNR.	Jake Moore
March 4, 2020, Carpet cleaning company discharge out of lawn onto sidewalk. Company was contacted to stop discharge. DNR said its okay to discharge to lawn but not street. Checking into additional regulation on carpet cleaners. Soap used was classified as non-hazardous.	Jake Moore

Resource Recovery Plant

The City of Ames Resource Recovery Plant continues to accept household hazardous materials every Wednesday and during special collection events. During 2019/20 household hazardous materials were collected from residents during several collection events. Department staff gave presentations to schools and other groups and provided tours of their facilities to build awareness of proper disposal of household hazardous and solid wastes. An itemization of wastes collected is provided under the Public Education and Outreach section of this report.

CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

Construction Site Runoff Control Ordinance

The Construction Site Erosion and Sediment Control Ordinance was presented to the Ames City Council and passed on (Ord. 3875) February 14, 2006.

Construction Site Review and Inspection Program

A full-time staff person (Stormwater Specialist) is designated for Storm Water Pollution Prevention Plan (SWPPP) review, inspection and enforcement activities for this program which includes residential, commercial and industrial developments as well as the city's construction projects.

A City Construction Site Erosion and Sediment Control (COSESCO) permit is issued with evidence of an NOI General Permit Number 2 and after the SWPPP has been reviewed and approved. Inspections are conducted quarterly or as needed for compliance. A database is used to track the status of each project.

Staff regularly correspond with local builders and developers. The attached Construction Site brochure is shared with this target audience.

The following table summarizes the City's construction site runoff control program activities.

Construction Site Runoff Control Program Tracking

SWPPP Reviews/Approved	**Number**
Number of Single Family Homes	59
Number of Commercial Reviews	13
Number of Preliminary Plats	1
Number of Plat additions with Public Improvements	2
City Project SWPPP Reviews	10
NOIs Filed for GP #2	
Total NOIs Ames area	24
City Projects (Including 2 DOT city projects and 3 Drainage improvement project)	5
Iowa State	6
Story County	1
School District	1
Private (Soccer field, Gas Stations, Subdivision, Apartments, Hotels, Building Additions, Commercial Businesses)	11
Weekly (City Project) and Quarterly Inspections (Private Sites)	
Total Conducted	471
City Projects	248
Private Projects (Commercial)	161
Single Family Inspections (Home Lots)	62
Enforcement Actions	
Number of Compliance Issues (Private Projects)	165
Types of Issues and Enforcement Actions (Notice sent by email to site contact to have BMP's installed)	
1. Apply Temp Stabilization site has become inactive	
2. Sediment Controls required to be installed or require maintenance	
3. Remove sediment from street.	
4. Install a stabilzed drive / Provide maintenance to stabilzied drive	
5. Concrete Washout, Install/clean up/repair	
6. Restore vegetatIon on neighboring lots. Add sediment controls to neighboring lots.	
7. Seed/mulch stockpile	
8. Secure Porta potty with stakes	
9. Pick up Trash	
10. Store Chemicals in covered areas or secure containment	
11. Install rock check in Channel	
12. Protect intakes	
13. Standpipe at basin outlet required, install control to withdraw water from the surface per IDRN GP#2	
14. Move dirt piles away from Street	

15. Install sediment controls around stockpile	
16. Permit Expired - Renew Permit	
17. Clean out storm sewer/manhole.	
18. Not enough controls, add additional. Try to cach this during the SWPPP design.	
19. Water site to prevent dust from blowing.	
Topsoil Requirements	
Number of Sites Where Decompaction Occurred and Topsoil Placed (final occupancy including single family and commercial lots)	Approximately 100
Describe Methods Used and Amount of Topsoil - Scrape/stockpile/backfill with onsite topsoil (amended soil only used on one City Project - Had settlement problems) Some sites hauled in soil on commercial lots.	
8" of topsoil is typically placed on all sites. Decompaction methods used include: Chisel Plow, Box Blade Teeth, Tiller, Farm Disc, Land Leveler/Planer teeth	

Topsoil Requirements in GP#2:

The City of Ames code references SUDAS in chapter 5A of our Construction Site Erosion and Sediment Control Ordinance. Therefore, any site which has a COSESCO permit which includes all NPDES GP#2 sites are required to meet SUDAS standard specifications of section 2010. SUDAS calls out 8" of topsoil in section 2010-3.02.

POST-CONSTRUCTION STORM WATER MANAGEMENT

Post-Construction Runoff Control Policy Ordinance

A comprehensive post construction ordinance was approved by City Council on April 22, 2014 Earth Day. In 2019, Ames City Council adopted revisions to the post-construction ordinance. Following is a direct link to the ordinance in Chapter 5B:
http://www.cityofames.org/modules/showdocument.aspx?documentid=17750

Site Plan or Grading Permit Review Procedures

Construction is not allowed until stormwater plans are reviewed and approved. Site plan review procedures are conducted by and implemented by the City through the Development Review Committee process and will be updated and upon approval of the post construction ordinance. This committee consists of representatives from public works, housing and city administration departments. Stormwater management calculations are required and are reviewed for approval by the Public Work Engineering Division.

New practices were installed and include detention and retention ponds, below grade detention systems with water quality components, and native landscaping, and stream buffers based on stream category. Post construction controls are often designed with multi-stage outlets to meet Iowa Storm Water Management Manual Unified Sizing Criteria based on hydrologic soil group B soils in meadow condition. Sites require follow up after construction is completed to have the

site engineer verify the controls are installed per plan design. The following tables list the plan reviews and BMPs installed.

Post Construction Program Plan Review Summary

Type of Development	Development Projects
New Development	There were 5 plans reviewed and approved for development projects. The approved plans are new development private commercial developments and public facilities. Development requiring post construction practices for Stormwater management on lots meeting City Municipal Code Section 5B. These requirements affect new developments disturbing one acre or more and creating greater than 10,000 square feet of impervious area.
Redevelopment	For redeveloped sites the required threshold for stormwater controls is a minimum disturbance of one acre of impervious cover. The Stormwater Ordinance was revised on April 1, 2019 to add this criteria for redevelopment applications. This ordinance change has resulted in fewer Stormwater Management applications.

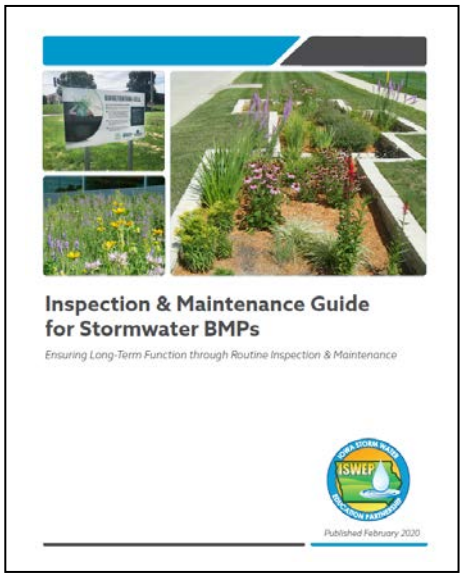
Post Construction Program BMP Installations and WQv

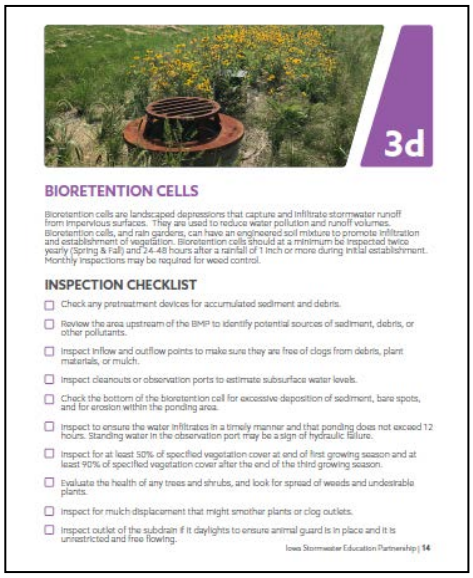
BMP	Number
Detention basins	17
Underground detention with water quality controls	2
Water Quality Benefits	**Ft^3**
Total WQv Managed	315,638

Inspection of Runoff Control Devices

A program that meets the required schedule has been developed along with a checklist and GIS mapping. The Public Works Operations Division conducts the site inspections. In areas where these devices are on private property, the landowner signs an agreement with the City that details the requirements and responsibilities in maintaining these facilities. Letters are sent to these owners each year to remind them to conduct inspections of their permanent stormwater practices and maintain them as well. Staff inspect and maintain all green infrastructure practices on City properties. Staff that are conducting these inspections are certified under the ISWEP program: Iowa Certified Inspection and Maintenance Program for Stormwater Practices.

The City will be using the new Post Construction Inspection and Maintenance Guide that was completed by ISWEP in March 2020 for all members. There is guidance for each practice in the Iowa Stormwater Management Manual and a sample inspection form.





Following is a summary of inspection and maintenance activities for the City's post construction and storm sewer infrastructure and outfalls.

Post Construction Municipal Inspections and Maintenance

Outfalls	**Unit**	**Issues Reported**
Dry weather inspections of outfalls	198	32
Issues: sediment, debris, and brush removal needed		
Outfall repairs		25-30
Intakes		
Inspections	740	
Region inspected = "I"		
Maintenance performed: debris removal and repair	740	
Amount of debris removed	27 tons	
Detention and Retention Basins		
Inspections 2x/year	137	
Public Works Green Infrastructure		
Inspected annually and maintained at least annually	Inspections	
Rain gardens	1	
Biocells	13	
Porous paver areas	1	
Pervious concrete alleys	2	
Native Turf	1	
Parks Green Infrastructure		
Inspected annually and maintained at least annually	Inspections	
Biocells	4	
Prairie filter strip	1	
Native Prairie areas	10	
Woodland areas	6	
Stream greenbelt corridors	2	

Watershed Projects and Assessment Program

The City has developed a watershed assessment program and action plan that is used for the following South Skunk River subwatersheds: Squaw Creek, Onion Creek, Clear Creek, Worle, Creek, South Skunk River and Ada Hayden. The program is utilizing GIS mapping tools to evaluate areas and determine strategies for improvement. The City has had a comprehensive land use plan in place since 1997, which is reviewed and updated as needed.

A land use/watershed action plan has been developed and is being implemented and includes all of the permit required items in addition to specific watershed goals and action items.

The Squaw Creek Watershed Authority has a watershed management plan that includes the City of Ames. Details can be found: http://www.prrcd.org/tag/squaw-creek. The City of Ames in collaboration with Prairie Rivers of Iowa and Story County Conservation are creating a 10-year water quality monitoring plan. The testing is being completed by a combination of City staff and volunteers in coordination with the Squaw Creek Watershed Coalition.

Watershed Projects:

Smart Watershed Rebate and Tree Voucher Information	Number Funded
Rain Barrels	16
Composters	47
Soil Quality (including homeowners association)	3
Native Landscaping (1 Active)	1
Rain Gardens (one currently active)	2
Tree Voucher Program Partnership with Trees Forever	100

Watershed Projects:

Projects and Assessment Activities: Several noteworthy Watershed Projects were constructed during 2019:

- The Kinyon-Clark bank and channel stabilization project stabilized 250 feet of channel and 10,000 square feet of banks of a tributary of Ada Hayden Lake. The tributary passes through a residential neighborhood and discharges into the water quality basins of the park 1500 feet downstream. Proper and diligent maintenance of the park and its watershed is essential as the lake serves as a secondary water source and a major recreation facility for the City of Ames.

- The Teagarden Neighborhood Drainage Improvements involved channel improvements of an existing drainage channel in an residential neighborhood in the southeast section of the City. It included sediment removal from 650' of the existing concrete cunette, and a proposed 750 foot seeded turf channel. It also included the construction of a new retention basin with a volume of approximately 75,000 cubic feet. This basin provides water quality management in an older neighborhood that didn't have other stormwater management facilities. Native grasses and forbes will be planted along much of the cunette later this spring.

- Somerset Subdivision Pond Improvements project improved the functioning of an existing retention pond in an established neighborhood in north Ames. Approximately 54,000 cubic feet of sediment was removed from the basin, eroded basin banks were stabilized, and the outlet structure was lowered 3 feet to increase pond capacity and functioning of the facility.

- Staff worked with property owner of a steep slope at an apartment complex where rains and wind continued to erode away the soil. The area was reworked with removal of rock piles and dead plant material, graded and re-vegetated.

- In addition, supplemental native plants were installed at the Community Center to fully establish the beds and bio-retention cells that were constructed in 2017. Ames High students aided in this effort by growing the plugs in the school's greenhouse and then planting them around the site.

- Native plants were also planted at Fire House #1 as part of the parking lot reconstruction in 2019.

- The City has a comprehensive tree planting program overseen by a staff forester. There were 257 trees planted in public areas with an estimated 250 planted by developers.

POLLUTION PREVENTION/GOOD HOUSEKEEPING

Operation and Maintenance Program for MS4

The Public Works Operations Division has been inspecting the MS4 components in accordance with the implementation schedule. A street sweeping program is in place that meets the requirements noted in the permit. A program, and corresponding mapping, has been developed to assure inspection and maintenance of all storm sewer facilities on a ten-year schedule. Following are specific activities that were completed this permit year and amount of sediment as a pollutant removed:

Good Housekeeping and Pollution Prevention Activity	Unit	Sediment and Debris Collected
Street sweeping	7163 miles swept	2507 tons
Biocell sumps on 24th St. and Operations	3 times/year	165 lbs
Intake maintenance	740 intakes	27 tons

Pesticide and Fertilizer Management Program

A program has been developed by the Public Works Department. The Public Works and Parks & Recreation Departments and their subcontractors have developed individual application records, site logs, summary logs for tracking pesticide and fertilizer use. These have been distributed to all City Departments that engage in this activity along with a discussion of the permit requirements. Departments are taking steps to minimize chemical use

and are exploring Integrated Pest Management BMPs. Phosphorus-free fertilizers are used at most public facilities. Spreadsheets are used to track fertilizer and pesticide use at City facilities. Tracking sheets list chemical use, application rates, applicator and type of IDALS certification and certification number. Best management practices include the use of Phosphorus-free fertilizers and acceptable cultural practices for the use of fertilizers. Mosquito control is also used throughout the city during mosquito breeding periods.

The airport and operations facilities do not use fertilizers and spot spray weeds using pesticides.

Following is a list of the City Department and facilities that track annual fertilizer and pesticide use:

Parks Department Parks: Northridge Heights, Carr, Teagarden, Country Gables, Lloyd Kuertz, O'Neil, Franklin, Oakland, Hutchinson, Little Moore, Green Briar, Stuart Smith, Duff, Parkview, Roosevelt, Gateway, Gartner, Bandshell, Ada Hayden, Brookside, Calhoun, Christopherson, Daly, Dog Park Emma McCarthy, Furman Pool, Homewood Gulf, Inis, Moore, Patio Homes, River Valley,

Additional Facilities: Operations on Edison, Municipal Cemetery, Airport, Community Center, Fire Departments, Electric Services

New this year is a summation of the total quantities of fertilizers and herbicides that are tracked at these facilities if they are used. This is being done to evaluate annually the changes in amount used and number of products. Mosquito spraying on community properties was included. Fertilizers and herbicides were not used at the Community Center.

All Parks Pesticide and Fertilizer Use

Products Used	Units
	Pounds
Barricade	21.75
	Bags
Mesa 25-0-0	75
	Gallons
Threesome	42.77
Merit	1.5
Triclopyr	6.73
Imitator & CropSmart	73.64

ROW Pesticide Use

Products Used	Units
	Pounds
Barricade	13
	Gallons
Threesome	1
480oz Glyphosate	13.13
Sureguard	0.88

Mosquito Spraying

Amount	Unit
73.64	Gallons

Cemetery Products Used

Products Used	Units
Herbicide	**Pounds**
Barricade	10
Fertilizer	**Bags**
Mesa 25-0-5	3
Herbicide	**Pounds**
Threesome 2 gal	19
Herbicide	**Gallons**
Triclopyr	1.6

Airport Herbicide Use

Products Used	Units
	Gallons
Volley	1.02
Callisto	7.9
RoundUp	22.5

Homewood Golf Course

Products Used	Units
Fertilizers	**Gallons**
Fertilizer 12-0-0	2.25
Fertilizer 0-0-28	0.5
Fertilizer 18-3-6 3gal	3
Fertilizers	**Bags**
Mesa 25-0-5 2 bags	**30**
Herbicides and Pesticides	**Gallons**
Alloft 32oz	0.44
Aneuw 12oz	0.1
Astron	1.5
Astrong.75gal	0.75
AT44 3.5gal	3.5
CT750 Chlorothalonil	2.5
DacAction	11.04
Dimension - 32oz	0.25
Glycofuse	3
Knife.5gal	0.5
Knife Plus.5gal	1
Menace 45oz	0.35
Merit 2.5gal	2.5
NatureCure.5gal	0.5
Penecal 32oz	0.97
Perk Up 1gal	2
PKFight1gal	2
Power23.5gal	305
PowerK1gal	1
PowerN.5gal	1
Pplus .5gal	2.75
Primo 10oz	0.81
Propistar 1 gal	1
Protesyn	2.5
RxGreen 1gal	3
RxSupreme1gal	1
Sevin 32oz	0.5
Spectator 100oz	1.72
Spotrete 128oz	128
Stellar 32oz	0.25
Teb360 40oz	0.31
Thiram 60oz	0.94
Threesome - 3.5 gallons	3.5
TMI 2020 2.5gal	7
Herbicides and Pesticides	**Pounds**
Barricade	12
Heritage Action 1lb	3
Mencozeb 12lbs	20
Herbicides and Pesticides	**Packs**
Floratine Fert Pack	4

Electric Services Herbicide and Fertilizer Use

Product	Amount	Unit
Fertilizer		**Pounds**
24-0-8 30% XCU (fertilizer)	2659	
Pro 19-0-0 (0.164% Dimension)	605	
Herbicide		**Gallons**
Cornbelt Locktite (Surfactant)	0.15	ounces
Escort	0.01	ounces
Esplanade	0.42	ounces
Frequency	0.22	ounces
Mec Amine-D LPI (herbicide)	6.21	ounces
Method	0.81	ounces
Milestone	0.24	ounces
Plateau	0.36	ounces
Ranger Pro by Monsanto (Glyphosate)	0.86	ounces
Tribune by Syngenta (Herbicide)	0.09	ounces

Training Program for Municipal Employees

City staff have been attending related seminars and conferences sponsored by ISWEP, Forester, and APWA. They attend ISWEP meetings held three times per year. There often are speakers at these meetings. Public works staff also attended several webinars. Staff will attend future continuing education programs as opportunities arise. Listed below are more specific training events that staff have attended. **Stormwater Pollution Prevention training** for Operations, Parks, and other Maintenance staff was conducted in the winter. Approximately **25 staff** attended the training.

Highlights of training that staff participated in April 2019-March 2020 include the following:

Ames Staff Stormwater Training

Event	Number of Staff
2019 Iowa Water Conference March 12-13	2
ISWEP SW Series Webinars	1-5
Airport Staff Pollution Prevention	3
Stormwater Summit December	5
Central IA Green Infrastructure Conference	4
3 ISWEP meetings	1-3

SPECIAL CONDITIONS

A construction site inspection program has been developed and implemented for construction projects, owned or operated by the City, that include areas of soil disturbance for which NPDES permits are required. The inspection program ensures that contractors are correctly implementing BMPs that have been approved in the pollution prevention plan and any additional necessary measures. The program requires inspections by the City at least every 7 days and ensures compliance by contractors with the storm water General Permit Number 2. Construction site inspection checklists and logs have also been created.

A complete map of the MS4, including outfalls, has been created and integrated with the City-wide GIS mapping. The Public Works Engineering Division continues to maintain this system map.

All salt and brine used by the Public Works Operations Division during winter street maintenance and clearing is kept in fully enclosed, permanent storage structures.

MONITORING DATA

WPC Stream E Coli Monitoring

The City of Ames Water and Pollution Control Department conducts bacteriological monitoring of all tributaries of Squaw Creek during April-October. Following is a plot of 2019 E.Coli bacteriological monitoring data collected by Water and Pollution Control laboratory staff. If obvious signs of pollution are discovered, or if significant degradation is observed, City staff will conduct more detailed water quality investigations. Monitoring trends indicate periodic spikes in some streams in July and August. This typically coincides with low stream flow conditions.

E. Coli monitoring conducted by City of Ames Water Pollution Control

SAMPLE DATE	SKUNK RIVER	SQUAW CREEK	CLEAR CREEK	COLLEGE CREEK	WORLE CREEK
4/9/2019	122	158	85	2909	448
5/16/2019	63	231	189	265	384
6/11/2019	173	374	414	583	594
7/16/2019	839	5172	24196	>24,196	2098
8/6/2019	122	2909	6867	8664	3448
09/24/19	1764	1446	320	904	1024
10/11/2019	558	758	268	1024	378

IDNR Monitoring

The Iowa DNR has been monitoring the water quality at Ada Hayden Heritage Park over the past 16 years. The lake is a back-up drinking water supply for the city of Ames. Highlights of the report follow. A detailed report of studies conducted 2017-2019 by Water and Pollution Control was provided in the City's 2018-19 annual report.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home/showdocument?id=50422

STATE HYGIENIC LABORATORY
Iowa's Environmental and Public Health Laboratory
EST. 1904
THE UNIVERSITY OF IOWA

Water Quality Sampling at Ada Hayden Heritage Park
May 18, 2017 to October 11, 2017
and
April 5, 2018 to September 27, 2018

Prepared by the State Hygienic Laboratory at the University of Iowa
Limnology Section

Squaw Creek Watershed Coalition Snapshot Stream Monitoring

The Squaw Creek Watershed Coalition has been conducting snapshot stream sampling following IOWATER protocol for more than 10 years. Following is a table that summarizes E. Coli monitoring data:

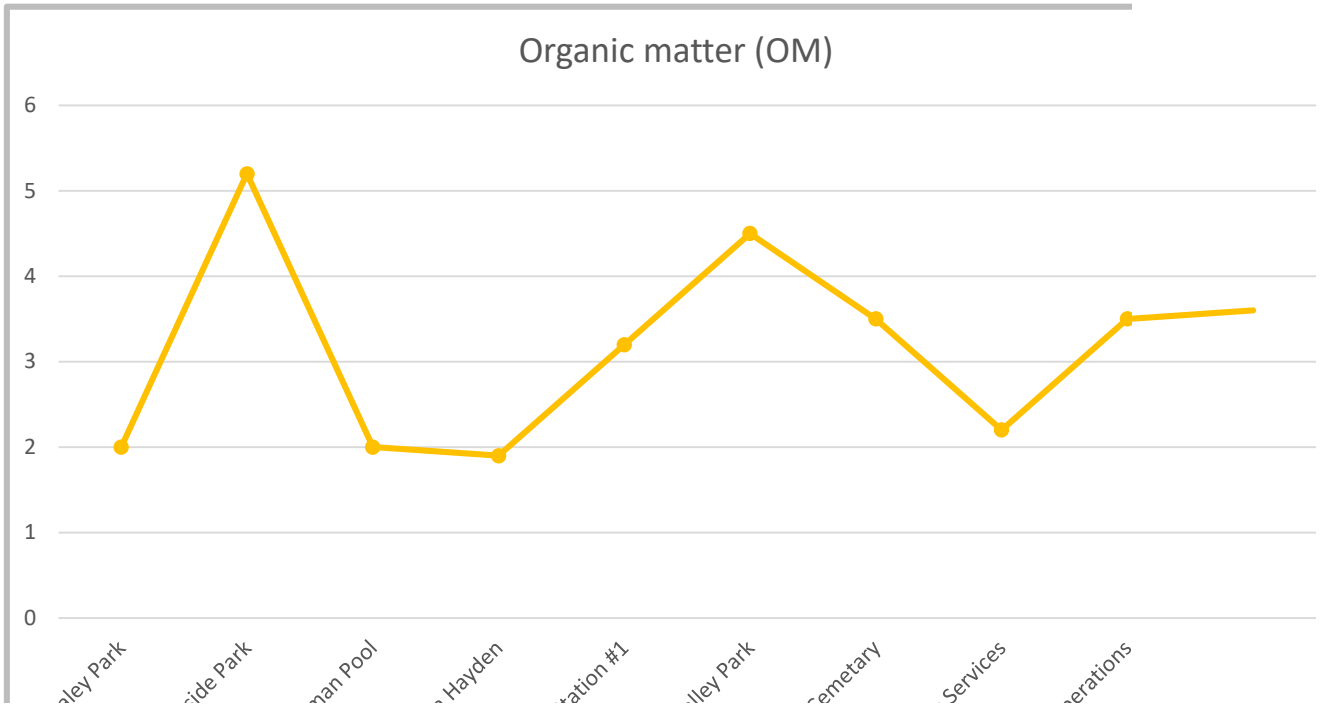
E. coli Bacteria Results
Squaw Creek Watershed Snapshots

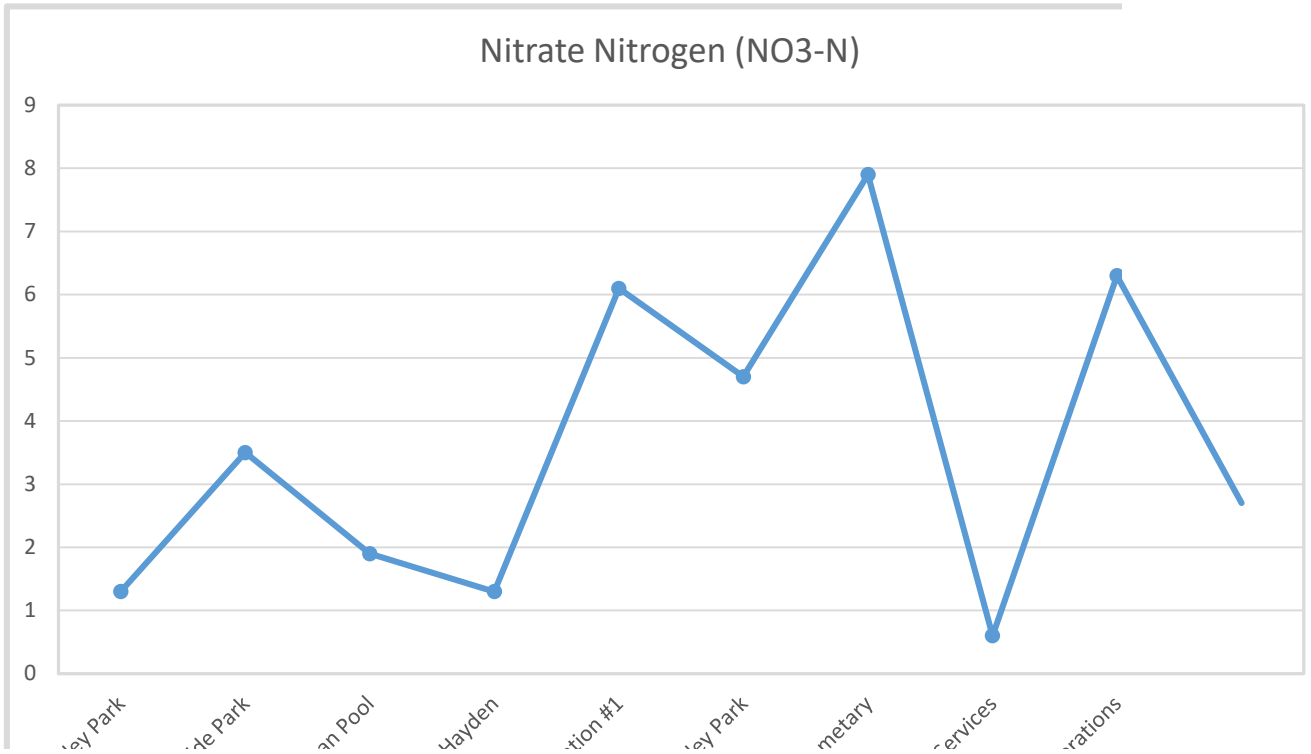
Site #	Location	May 2007 CFU/100 ml	Oct 2007 MPN/100 ml	May 2008 MPN/100 ml	Oct 2008 MPN/100 ml	May 2009 MPN/100 ml	Oct 2009 MPN/100 ml	May 2010 MPN/100 ml	Oct 2010 MPN/100 ml	May 2011 MPN/100 ml	Oct 2011 MPN/100 ml	May 2012 MPN/100 ml	Oct 2012 MPN/100 ml	May 2013 MPN/100 ml	Oct 2013 MPN/100 ml	May 2014 CFU/100 ml	Oct 2014 CFU/100 ml	May 2015 CFU/100 ml	Oct 2015 CFU/100 ml	Oct 2016 CFU/100 ml	May 2019 CFU/100 ml	Oct 2019 CFU/100 mL	Number of samples	Number exceeding 235	Geomean
SC1	Squaw Creek at Hwy 175	40	170	80	960	400	20	180															7	2	131
SC45	Crooked Creek, N branch	90	350	100	250	1600	220	430															7	4	275
SC46	Crooked Creek, S branch	120	190	120	570	620	170	100															7	2	207
SC2	Squaw Creek at 390th Street	10	1400	230	930		630	490	260	310	250	300				267	133	167	333	400	2040	150	16	12	301
SC3	Squaw Creek - 110th St & U Ave.	81	1400	110	750	230	210	500	160	710	86	52				267		100	400			170	14	6	226
SC4	Glacial Creek (trib to Squaw Creek; U Ave south of 110th St)	20	770	70	560	790	160	170	260	860	130	62			130			33	167			90	14	5	163
SC5	Talynn's North Sample Site (V Ave north of 130th)Talynn's North Sample I	120	420	60	520	5200	840	300	450	530		430		710	190	567	433	33					15	11	361
SC6	No Name Creek - (V Ave south of 120th)No Name Creek - (V Ave sout	30	160	550	720	2500	90	50															7	3	215
SC7	Beard/Mackie (Squaw Creek at E16)	110	1400	130	1700	1700	250	400	290	490		170		920	360	167	133	67	333	934	2390	230	16	12	306
SC10	Squaw Creek at 180th St.	300	1100	110	650	2500	320	700	250	650	110	330		3000		200	133	33	933			170	16	11	365
SC8	Montgomery Creek 1	140	1200	240	2500	360	1100	220					stagnant	1300	1200		567	67	500			130	12	9	453
SC11	Montgomery Creek 2	160	960	160	960	440	360	500	190	1600	160	860	790	1000	340		567	200	900	800	1700	230	19	14	469
SC12	Prairie Creek 1	220	1100	460	1300	570	500	310						74	75		467	133	300			110	12	8	396
SC13	Prairie Creek 2	430	2200	710	1800	5500	660	1100	450	6500	280	440	stagnant	810	20		433	467	1100	1000	11700	550	16	16	845
SC9	Bluestem Creek (trib to Squaw Creek; 160th St East of X Ave)	320	1600	360	1900	1500	1100	3900			dry											220	7	7	916
SC14	Squaw Creek @ 170th St. Bridge	270	1600	360	810	5500	620	640	360	2500	-	96		1200	10	367	333	200	633			200	16	13	442
SC16	Squaw Creek above Gilbert Creek	240	1300	220	930	4600	100	1000	200	790	-	41		660		433	Empty vial	267	633		1160		15	11	467
SC15	Gilbert Creek above Squaw Creek	470	320	280	490	790	110	130	260	370	-	140		96		1967	433	133	567		5700	180	16	11	352
SC66	Squaw Creek at Cameron School Rd																				1500	390	1	2	765
SC67	Tributary at Cameron School Rd																				610	210	1	1	358
SC17	Onion Creek (North Branch at V Avenue Bridge)	40	630	200	430		280	410															6	4	251
SC21	Onion Creek (North fork of the South Branch at V Ave and 210th)	45	500	120	290		6100	110															6	3	284
SC20	Onion Creek (South fork of the South Branch at V Ave)	81	370	70	1900		DRY	490															5	3	267
SC19	Onion Creek at R-38 (Co. Line Rd)	60	740	120	530	2100	490	210	220	750	1500	330	dry	150		800	533	133	567			110	16	10	359
SC22	Onion Creek (Reactor Woods)	90	680	170	400	4400		910	50	270	10	200	dry	200		300	567	233	167	133	5500	170	17	8	274
SC18	Moore Park (Squaw Creek)	240	1100	260	430	1400	180	960	190	720	110	150		460	340	467	367	333	167	300	10300	230	19	14	407
SC25	Clear Creek Boone (site north 25 feet)	30	180	20	100	80	40	50														50	8	0	56
SC27	Clear Creek at Emma McCarthy Lee bridge	90	860	120	300	100	130	170	200	200	dry	86	dry	96		133	933	67	500				15	4	183
SC48	Clear Creek (Hyland Avenue)	160	1500	310	960	340	290	90															7	5	351
SC28	Clear Creek Pammel Woods	170	960	230	720	290	10	120	990	10	10	110	100000	310		200	367	200	433	267		270	16	10	236
SC60	Squaw Creek at Stange	190	1500	420	550		360	1000															6	5	536
SC23	AHS Tributary of Squaw Creek	30	10000	4400	1000	50	560	120	5200	30000	10	150		500		10	10	10	10	267	220	4620	16	9	238
SC24	Squaw Creek 13th Street	190	1200	170	600	2600		960	240	520	650	230	dry	500	300	300	300	333	233				16	12	431
SC26	Brookside Park (6th St.)	260	1200	260	530	2000	560	1000	210	1400	-	250	dry	330	710	733	333	133	367	200	12000	170	16	15	522
SC56	College Creek at Wilder	150	860	350	240	190	3400	2400	4600	1400	270	31	2400	110	63	2433	133	200	33			80	16	10	356
SC34	College Creek at South Dakota/Clemens	890	730	1400	250	530	550	540															7	7	621
SC36	Ames Middle School Site 2 (west site)	130	350	1900	260	510	310	520	200	280	(empty vial)	350	1700		1100	3333	167	67	133				16	11	394
SC37	Ames Middle School Site 3	190	570	4400	-			410															4	3	665
SC32	College Creek (at State Ave.)	620	1500	1000	290	650	930	360															7	7	672
SC49	College Creek ISU Arboretum	290	3300	3300	960		1500	820	720	300	85	440	dry	240	1300		contaminate	300	1033	167	1200	630	16	15	624
SC53	College Creek near Ash Avenue	370	9800	1400	580	640	1200	350															7	7	967
SC55	College Creek (near Elwood Drive)	270	7700	1900	1000	990	1000	290	930	360	580	340	26000	2200		2600	1200	733	333		1220	780	18	19	1063
SC64	Pammel Creek above 6th Street	170		250	530	7700	120	50	(empty vial)	160	6700	85		330	4400	1133	100	10	233	233			16	7	318
SC65	CyRide Creek above Elwood	10		1100	120	610	3100	250	5500	110	410	300		20		567	67	10	100				15	8	201
SC29	Tributary to College Creek (Elwood Dr. & 6th St.)	390		660	1500	4400	930																5	5	1096
SC68	South Stuart Smith Park (stormwater drainage)	30	8200	450	50		160	110															6	2	215
SC33	Squaw Creek at Fourth St. bridge in Ames	220	1700	330	660	570	320	960	190	200	2300	150	dry	320		467	367	100	767	433		260	17	13	412
SC42	Worrell Creek (County Line Road)		2100	130	1400	400	10	440															6	4	396
SC44	Komar Creek (tributary to Worrell)	140	1600	1600	1500	110	60	620	270	85	dry	180	dry	190		333	300	133	200		1160	120	16	8	288
SC43	Worle Creek (near Meadow Glenn Rd)	240	2800	470	2400	200	190	710	240	190	370	820	dry	31		100	67	667	133		2290	160	17	10	327
SC58	Squaw Creek near South Maple	170	1400	330	960	1700																	5	4	649
SC62	Worrel Creek above Elwood	420	1900	10	420	170	100	810															7	4	240
SC40	Worrell Creek (South 16th Street)	240	1300	240	3300	250	50	830	190	410		380	dry	110		100	100	33	33	100	11100	570	17	10	270
SC41	South Branch Worrell Creek (below Creekside Dr)	27	1900	560	360	320	360	160	230	1300	820	1600		210		10	100	33	500		450	210	17	10	257
SC57	Near Squaw Creek Drive (stormwater drainage)	170	9800	1000	660	90	2900	20	980	63	6700	10	10	10	10	10	10	10	33	10			19	6	68
SC39	Squaw Creek at Duff Avenue in Ames	240	1000	270	940	440	310	960	(empty vial)	360	660	130		410		7133	333	167	267	300	9600	310	17	16	523

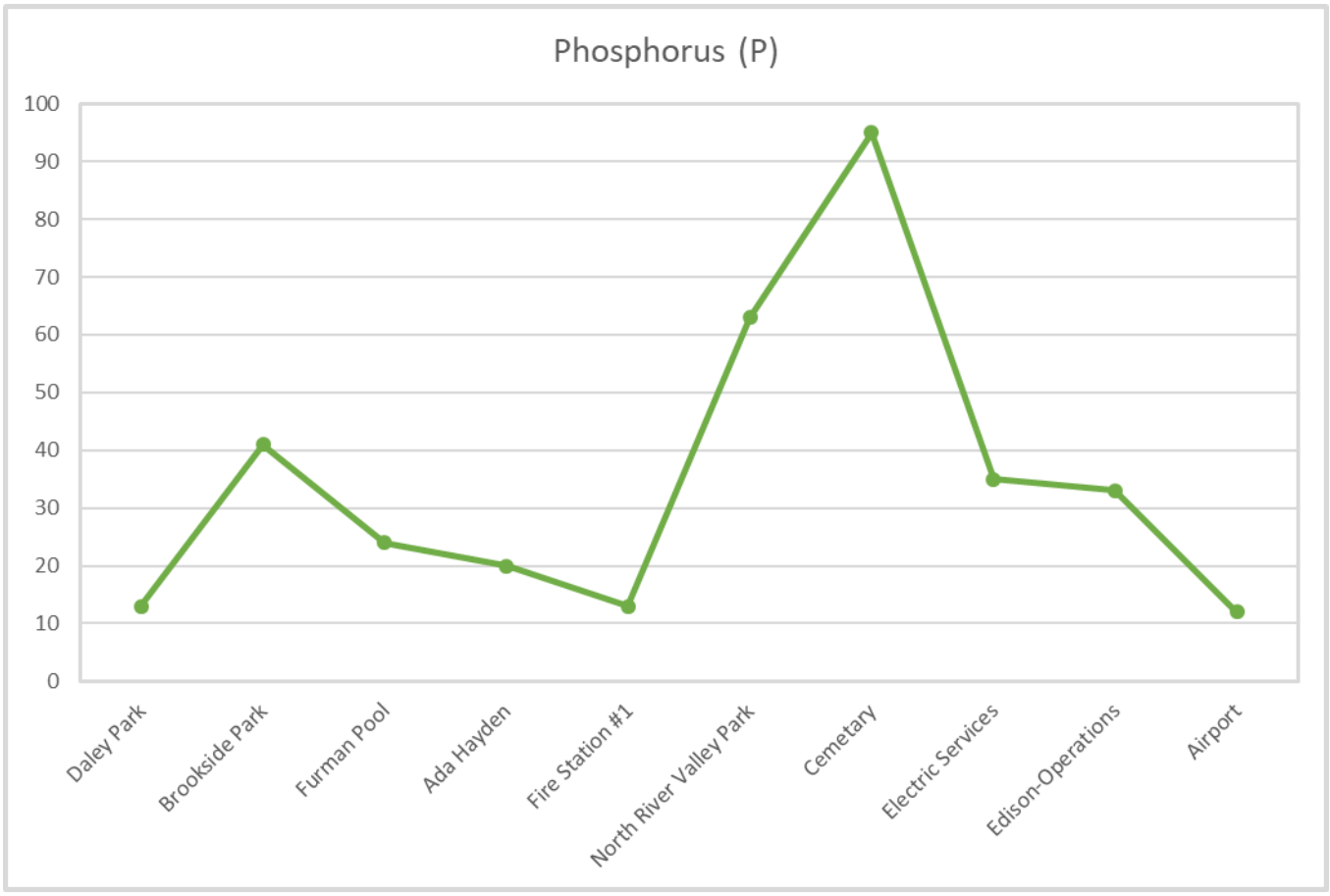
Meets A1-A2 Primary Contact standard of 235 cfu/100 ml
Exceeds A2 Secondary Contact standard of 2000 cfu/100 ml
Squaw Creek, main branch, designated A1 below Glacial Creek
Below detection limit: Reported as "10"

The geometric mean is used instead of the mean when data have a lognormal distribution (vary by factors of ten).
The primary contact standard is 126 CFU/100mL, but is meant to be applied to the geomean of 7 monthly samples collected during a single season.

Parks and Other City Facilities Soil Sampling Data:






Phosphorus (P)
100
90
80
70
60
50
40
30
20
10
0
Daley Park
Brookside Park
Furman Pool
Ada Hayden
Fire Station #1
North River Valley Park
Cemetary
Electric Services
Edison-Operations
Airport