

CITY COUNCIL MEETING NOTICE TUESDAY APRIL 13, 2021 6:00 P.M.

CITY COUNCIL CHAMBERS

AGENDA

1. ROLL CALL

2. APPROVE AGENDA AS PRESENTED AND/OR AMENDED

3. PRESENTATION/RECOGNITION

- a. Story County 10 Year Water Monitoring Plan
 - i. Discuss \$5000 City Contribution to Story County Water 10 Year Water Monitoring Plan

4. PUBLIC COMMENT (5 MINUTE TIME LIMIT FOR ITEMS NOT ON THIS AGENDA)

5. PUBLIC HEARINGS

6. CONSENT AGENDA – These are routine business items and will be acted upon by one Roll Call Vote without separate discussion unless a Councilmember or citizen requests an item to be removed or considered separately.

- a. Approve Minutes from March 23, 2021 Regular Meeting
- b. Approve Payment of Bills
- c. Approve Alcohol Permit for Fareway
- d. Motion to Approve Appointment of David Eastman to Huxley Fire and Rescue Department
- e. Motion to Approve Deputy EMS Chief Novana Brown and Residency Requirement Waiver
- f. Motion to Approve Appointment of Amber Pedersen to Parks & Recreation Board
- g. Motion to Approve Appointments of Cheryl Patterson, Gordy Mosher and Shelby Ebel to the Planning & Zoning Commission
- h. Approve Items Related to the East 1st Street Project
 - 1. Approve Resolution No. 21-027 Plans, Specifications and Form of Contract for the East First Street Project
 - 2. Approve Resolution No. 21-028 Award of Contract for the East 1st Street Project to Concrete Technologies
- i. Approve Resolution No. 21-029 Engineering Services Agreement for Street Rehabilitation Projects FY 2021 CIP
- j. Approve Resolution No. 21-030 Set hearing for Rezoning A-1 and M-1 to R-1 Blue Sky Residential
- k. Approve Resolution No. 21-031 Set hearing for Rezoning R-1 to M-1 Toy Box Storage

7. BUSINESS ITEMS

- a. Review and Discussion with Continental Manufacturing Chemist (CMC)
- b. First Reading Ordinance No. 512 Fire and Rescue Department
- c. First Reading Ordinance No. 513 Traffic Signage
- d. First Reading Ordinance No. 514 Parking Regulations
- e. Consideration of Kreg Tool Community Donation and Resolution No.21-032
- f. Reviewing Preliminary Terms of Development Agreement with Meadow Lane, LLC
- g. Reviewing Preliminary Terms of Development Agreement with Innovative Technologies

8. INFORMATIONAL ITEMS

- a. Discuss Potential Project (s) for Story County Urban Renewal Fund, Story County Economic Development Grant and Covid 19 Recreation Trails Relief Program
- b. Review Construction Site Erosion Control Ordinance Development Information
- c. Update on Purchasing Policy
- d. Supplemental Specifications
- e. Upcoming Capital Improvement Plan (CIP) Meeting
- f. FY 2021 Audit FK & Co April 27 Council meeting

9. CITY ADMINISTRATOR AND DIRECTOR REPORTS

10. MAYOR AND COUNCIL REPORTS

11. ADJOURNMENT

12. WORKSESSION

UPCOMING WORK SESSION TOPICS

Capital Improvement Plan (CIP) Development Agreements and Tax Increment Economic Development Incentives-Priority Corridors and Programs Sanitary Sewer Service Area Study Cambridge Police Contract-Future Years Ongoing Integration of Council Goals Other Topics of Interest to Mayor and Council

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Monday morning preceding Tuesday's council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.

CITY COUNCIL COMMUNICATION

AGENDA HEADING:

Presentation Story County 10 Year Water Monitoring Plan and Discuss City Contribution

SUBMITTED BY

Rita Conner, City Administrator

SYNOPSIS:

Prairie Rivers of Iowa (Penny Brown Huber, Executive Director, 2335 230th Street Suite 101 Ames, Iowa 50014) will provide a presentation to City Council on the planning work done in 2020-21 to develop a 10-year water quality monitoring program for Story County, the first of its kind in Iowa. A multi-jurisdictional team including Story County, Cities of Ames, Huxley, Gilbert and Nevada, Izaak Walton League, Story County Community Foundation, and the Leopold Center for Sustainable Agriculture met over the last year to develop the data collection metrics, framework, and narrative to align water quality monitoring efforts with watershed improvement projects, recreation, and environmental education.

The planning work has moved into releasing the information to the public and moving forward with the project. The City of Huxley and the other municipal partners are being requested to contribute \$5,000 to support the ongoing work of Prairie Rivers of Iowa on this project.

Additional information is below and in the attachments.

FISCAL IMPACT: YES

<u>Amount</u>: \$5,000

<u>Funding Source:</u> City of Huxley, FY 2021 or FY 2022 General Fund, Stormwater (would be a budget amendment in whichever fiscal year chosen, if Council approves the contribution)

ADDITIONAL INFORMATION:

- The team is focusing on establishing a ten-year plan to create a pathway for data collection for use towards education and guiding water quality improvements throughout the county.
- Residents can be actively engaged in the work, including participation in data gathering, sampling, and learning about the creeks and streams that run through our public areas and backyards countywide.
- Ballard Creek in Huxley, West Indian Creek in Nevada, and Minerva Creek in Zearing can benefit from this data collection process.

RECOMMENDATION: Approval

BOARD, COMMISSION OR COUNCIL PRIOR ACTIONS: NO

CITY COUNCIL COMMUNICATION

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS: YES

- April 27 Council Agenda Motion to Approve \$5,000 Contribution
- Ongoing staff participation in future efforts of the planning team.
- Data collection updates and reports
- Public Education opportunities and alignment with City stormwater management and water quality efforts.

STORY COUNTY WATER MONITORING & INTERPRETATION PLAN, 2021-2030



PURPOSE OF THE PLAN

To collect and analyze water sampling data, to increase *residents'* knowledge and *understandings* and identify problems in our watersheds, to *support and improve* water quality.

ACKNOWLEDGEMENTS

This final report was achieved through the commitment of the Story County Water Monitoring Planning Team assembled during 2020. Despite the disruption of a global pandemic, the planning team met monthly between April and December by utilizing ZOOM conferencing. In addition, the planning team broke into small topical areas to complete work necessary for the plan. It was an effort of discussions and identifying solutions; and it was an effort of good will and future thinking.

We wish to recognize those who served on the Planning Team from: Story County (Mike Cox, Jerry Keys and Margaret Jaynes), the City of Ames (Tracy Peterson, Liz Calhoun, Neil Weiss, Dustin Albrecht, Maryann Ryan and Ashley Geesman), the City of Nevada (Jordan Cook and Jeremy Rydl), the City of Gilbert (Sonia Arellano Sundberg, the City of Huxley (Rita Connor and Mark Kahler), Iowa State University Leopold Center for Sustainable Agriculture (Mark Rasmussen), Izaak Walton League (Zack Moss and Paul Readhead), Story County Soil and Water Conservation District (Kayla Bergman), and the Story County Community Foundation (Jennifer Dieter).

The Board and staff of Prairie Rivers of Iowa are grateful for the commitment of time and support each organization and its representatives provided to this planning.

AUTHORS

Prairie Rivers of Iowa is 501(c)(3) non-profit based in Ames, Iowa. Penny Brown Huber, Executive Director, facilitated meetings and the development of the Goals and Strategies by the Planning Team. The supporting chapters of the report were prepared by Daniel Haug, Watershed Educator, including maps and data analysis. Unless otherwise acknowledged, photos were provided by Prairie Rivers of Iowa staff including Mike Kellner and Daniel Haug. Graphic design by Katie Sailer.

JANUARY, 2021



FOREWARD

Planning for a locally-led water monitoring program in Story County was a process of discovery that began before 2020 (see Chapter 1) and will continue to unfold over the next 10 years (see Chapter 6). We discovered:

• There are many stakeholders with an interest in improving water quality in lakes and rivers and managing water to make our communities more resilient to extremes of weather. By getting to know one another, we have opened up exciting new possibilities for collaborating on projects and sharing knowledge and resources—both for understanding water quality and improving it.

• More data was available than anyone had realized (Chapter 3). The City of Ames has been monitoring the South Skunk River on a weekly basis for 18 years, a rich dataset that we are already using to understand long-term and seasonal trends. The US Geological Survey took over 3,700 measurements at a tributary of East Indian Creek near Zearing, giving us a complete scorecard of the pressures on fish and other aquatic life. Over 61,000 measurements were collected from Walnut Creek near Kelley by the USDA Agricultural Research Service as part of a study that can help us isolate and understand the influence of specific land management practices in our part of Iowa.

• Guidelines for interpreting and using water quality data are sorely lacking (Chapters 2 and 4). State standards and criteria have not been developed for many of the pollutants we monitor and issues we are concerned with. Where criteria exist, there are inconsistencies in the databases and exceptions in the law that make it difficult to understand what designated uses apply to a given water body, which criteria to refer to when evaluating the data, and what can be done if water quality is impaired.

• Most rivers and streams in Story County either do not meet the recreation standard or have not been officially assessed (Chapter 2). Based on the data collected by local partners, there is widespread fecal bacteria contamination of our rivers.

• Using water quality monitoring to track short-term progress toward the Iowa Nutrient Reduction Strategy goals is virtually impossible (Chapter 4). While all of us had heard the term "statistical significance" it was easy to dismiss it as an academic concern until we saw a practical demonstration—sampling on a different day of the week or week of the month can lead to different conclusions unless the trends are very large or we are diligent in quantifying the uncertainty associated with water quality averages. This finding also underscores the importance of sustaining water monitoring for the long-term.

Testing water quality is the easy part. Story County has a proud history of stream monitoring by both volunteers and certified labs, and many people stepped up in 2020 to ensure that it continued (Chapter 5).

Correctly interpreting the data is a challenge, as is using the data to guide conservation efforts and evaluate their effectiveness. However the information and relationships we have assembled through this effort put the government of Story County and its many partners in as a good a position to tackle this challenge as anyone in Iowa.

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WHY DO WE WANT DATA?



In December 2019, a cooperative agreement between Story County Conservation, the City of Ames, and Prairie Rivers of Iowa (PRI) secured PRI's services for conducting water quality monitoring and outreach throughout the county. Additional funding for the project was provided by Story County Community Foundation, the Iowa State University Leopold Center for Sustainable Agriculture, Outdoor Alliance of Story County, and the Renewable Energy Group. Additional partners—the Izaak Walton League, City of Gilbert, City of Nevada, City of Huxley, and Story County Soil & Water Conservation District—joined the planning team by spring of 2020.

The results of that work are described in the report that follows: both the collaborative work of building partnerships and setting goals, and the technical work necessary to understand existing data and collect additional samples.

However, 2020 was by no means the first year that local partners had worked together on water monitoring. The history and needs that motivated the development of this plan are described next.

Need for Local Leadership for Volunteer Water Monitoring

The need for local leadership in water monitoring became apparent with the ending of the IOWATER program. The IOWATER program, created by the Iowa Department of Natural Resources in 1998, had provided volunteers with training and supplies to test water chemistry and survey invertebrates, as well as managing an online database. The program was formally discontinued in January 2016, the database was shut down in 2017, and departmental support for supplies were gradually scaled back over the next few years. Reasons cited for the decision include budget cuts and a hiring freeze, declining participation, and security concerns with the database—the site had been hacked in 2012 and was not compatible with new IT projects in the Department.

While the loss of state support presented a serious challenge to continued volunteer monitoring, it also presented an opportunity for tighter feedback between water quality data and conservation efforts. As the DNR put it:

Volunteer water monitoring is best able to inform local water quality goals if the decision-making and coordination is locally-led. With the help of the DNR to get started, interested communities, watersheds, counties, and regions have an opportunity to take ownership and derive more value from their locally-led volunteer water monitoring programs.¹

Who would provide local leadership for volunteer monitoring in Story County?

Prairie Rivers of Iowa was approached in 2018 by the Ioway (Squaw) Creek Watershed Coalition (SCWC), an experienced and active group of IOWATER volunteers, for help in ordering supplies and recruiting volunteers to support annual snapshot events in May and October, a tradition since 2006. The Outdoor Alliance of Story County provided short-term funding to also support this. A formal M.O.U. between SCWC and PRI was proposed but never completed.

Other than loway (Squaw) Creek watershed, volunteer monitoring across the county has fallen off in the last decade. Story County Conservation (SCC) expressed interest in taking on a leadership role in order to support assessments and new projects in other watersheds, beginning with mapping and scouting of potential volunteer sites in 2017 by Environmental Education Coordinator Jerry Keys and volunteers John and Gregg Hadish as part of the Master River Stewards Program. Story County Conservation staff have experience managing volunteers and planning environmental education programming. SCC also considered training and supplying staff to adopt a site for monthly or twice monthly monitoring, following the approach taken by Polk County Conservation².

At the state level, the Izaak Walton League organized an Iowa Water Quality Summit on July 20, 2019 to bring together various groups interested in water monitoring and discuss the role that both Iocal chapters and the national organization could play.

¹ <u>https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Volunteer-Water-Monitoring</u>

² <u>https://www.polkcountyiowa.gov/conservation/water-quality/</u>

Laura Merrick (Iowa State University) monitoring at S. Branch Worrell Creek

The Izaak Walton League's Save Our Streams program for volunteer stream monitoring was a major influence on the IOWATER program and uses almost identical protocols. The Izaak Walton League of America hired an Iowa coordinator, Zach Moss, to train and support volunteers. It also developed a web portal (The Clean Water Hub) that volunteers can use for data entry. Story County and Prairie Rivers of Iowa also approached the Ames Chapter of the Izaak Walton League in 2019 to organize local training events.

lowa State University (ISU) also has supported volunteer monitoring. The University Translational Research Network (U-TuRN) funded two mini-grants for an interdisciplinary research project that included regular monitoring of the south branch of Worrell Creek by Laura Merrick, a faculty member in the agronomy department and long-term volunteer with the Ioway (Squaw) Creek Watershed Coalition. Story County Conservation restored this stream as part of a new county park within the City of Ames and ISU Research Park, the Tedesco Environmental Learning Corridor. County-University partnerships continued with water monitoring, with Story County Conservation and Iowa DNR providing supplies and reimbursing the University for laboratory services, and the University covering staff time. Merrick often recruited neighbors, high school students, and college students to become involved with the project. The project is a good model for how lab testing, volunteer monitoring, research, education, and outreach can be combined. While some of the monitoring was conducted using field kits, samples collected by volunteers and processed by a certified lab narrowed down sources of *E. coli* bacteria in the watershed and revealed phosphorus releases by an aging stormwater pond.

As these discussions evolved, we saw a need to bring in additional partners and discuss how volunteer monitoring could be paired with lab testing and sensor technology.



This Plan has a countywide scope because Story County is pursuing multiple watershed projects.

The Story County Board of Supervisors is an active participant in two watershed management authorities, loway (formerly Squaw) Creek WMA and Fourmile Creek WMA, and took the lead in submitting a 28E agreement to form the Headwaters of the South Skunk River WMA, approved in October of 2018.

Ballard Cree

In order to take a more comprehensive approach to water resources and lay the groundwork for future watershed projects, the County commissioned an assessment of all its 12-digit hydrologic units. (Abbreviated as HUC12s, these are small watersheds or parts of watersheds, on the order of 10,000-40,000 acres in size). Completed by Emmons & Olivier Resources in June 2018, the assessment included GIS mapping, identification of suitable sites for best management practices using the Agricultural Conservation Planning Framework and analysis of how these could be combined to meet nutrient reduction goals, a watershed prioritization framework, and recommendations for changes to county ordinances and operations to better protect water quality. The assessment did not include any collection or analysis of water quality data, but did make recommendations for future monitoring.

Following this assessment, county staff from multiple departments (Board of Supervisors, Conservation, Planning and Development, Secondary Roads, Environmental Health, etc.) began meeting to discuss how to implement the recommendations in the report, including water quality monitoring. The assessment was intended to be a living document and reviewed periodically to reassess its priorities and findings. Story County developed an implementation plan to accompany the assessment. The implementation plan calls for development of a water quality monitoring program.

Four participants in the Planning Team are active members of the loway (Squaw) Creek Watershed Management Authority: the Story County Supervisors, the City of Ames, the City of Gilbert, and the Story County Soil and Water Conservation District. Those who participated in either the development or implementation of that watershed plan see the experience as a model for how water quality can be improved in other rivers and lakes. Water quality monitoring plays an essential role in this conceptual model, which looks something like this:

- 1. Water monitoring by volunteers raises awareness and public support to address water quality issues in a local stream or lake, and strengthens grant applications for watershed planning.
- 2. The watershed plan identifies the best opportunities for conservation in the watershed that can lead to water quality improvement, brings together the stakeholders needed to address the problem (formalized through a WMA), and supports grant applications for funding to hire a watershed coordinator and make additional cost share available to farmers and landowners in the watershed.
- 3. A watershed coordinator provides outreach and technical support to encourage adoption of conservation practices by farmers and landowners in the watershed.
- 4. Water monitoring is used to track progress, as conservation practices in the watershed gradually lead to water quality improvements.

Need for Better Planning and Coordination of Monitoring to Support Existing Watershed Projects

In reality, the pathway for water quality improvement is not as straightforward as we imagined it to be.

"An intense monitoring effort over several years is recommended to adequately assess pollutant loading and to detect trends."

- Squaw Creek Watershed Management Plan, 2014

"It is very unlikely that nutrient reduction in a watershed of this size will be detected within a few year period, especially when BMPs implementation is limited and gradual." - Law and Soupir, 2019

In the loway Creek Watershed (formerly Squaw Creek) volunteer monitoring did lead to successful grant applications, and the data was included in the Watershed Management Plan. However, the data to date has not influenced goal-setting or prioritization of conservation practices, and were not considered to be of sufficiently high quality to characterize baseline nutrient loads. Ultimately, the nutrient reduction goals in the watershed plan were taken directly from the lowa Nutrient Reduction Strategy (41% nitrogen reduction, 29% phosphorus reduction) per guidance from the Iowa Department of Agriculture at that time. In order to determine when those goals have been met, Chapter 7 of the plan recommended we start monitoring from scratch: at least 25 samples a year at a gaged site, including flow-paced samples during storm events using an automated sampler, to be tested by a certified lab for total phosphorus soluble reactive phosphorus, total suspended solids, and nitrate-nitrogen.

This monitoring plan was put into effect once conservation efforts were underway. A Water Quality Initiative (WQI) grant from the Iowa Department of Agriculture and Land Stewardship (IDALS) made available additional cost share and funded a watershed coordinator, watershed educator, and outreach efforts by Prairie Rivers of Iowa and partners in the Ioway (Squaw) Creek Watershed from April of 2015 to March of 2019. A second watershed, East Indian Creek, was included in the original grant application but was not funded. Ioway Creek and East Indian Creek were monitored 2016, 2017, and 2018. The City of Ames and Story County each purchased a Teledyne ISCO automated sampler for the project, which was programmed to collect time-paced composite samples during storm events. The samplers were usually deployed in the stream from April or May thru November. City and county staff retrieve the storm samples and collected biweekly grab samples during that period, which were then processed by the City of Ames Water and Pollution Control Laboratory.

However, even this level of effort proved to be insufficient to accurately estimate baseline phosphorus loads. This was one conclusion of a March 2019 report³ by Michelle Soupir (ISU Professor of Ag and Biosystems Engineering) and Ji Yeow Law. The report was commissioned by Prairie Rivers of Iowa at the end of the grant period to provide an independent review of the data collected and the monitoring design. For detecting changes over a shorter time-frame, the report recommended monitoring at the catchment (small watershed) scale, using a paired watershed design. For detection of nitrogen trends in loway Creek over the long-term, it recommended instead using the data from the nitrate sensor installed by IIHR Hydroscience and Engineering in 2016. Short of an entirely different monitoring program, it recommended collecting flow-weighted (rather than time-paced) composite samples during and extending the monitoring season from March to November, but characterized the benefit of this as more accurate loading estimate rather than detection of trends. A parallel analysis by PRI's Dan Haug found that continued monitoring at these sites may not be able to detect statistically significant trends until goals are close to being met (see Chapter 4).

The monitoring from 2016-2018 did provide valuable information, revealing that *E. coli* levels are consistently high. Based on our data, in the 2018 assessment cycle, Iowa DNR reclassified both streams as "potentially impaired" waters "in need of further investigation." The report does include a calculation of nitrate load in Ioway Creek and discussion of seasonal and flow patterns in both creeks. However water quality monitoring was not effective in achieving its stated goal of assessing pollutant load during the grant period, and may not be effective for interim progress tracking or demonstration purposes.

Learning from this experience, local partners saw the need to clarify goals, set realistic expectations and timelines, and coordinate with other groups doing water monitoring prior to launching new monitoring activities.

³ <u>https://www.prrcd.org/wp-content/uploads/2020/07/Monitoring-Report-March-2019.pdf</u>

Need for Reuse of Existing Data

"Data should not be in search of a problem, but a problem should be in search of data." - from Building an Internet of Water⁴

In 2016, IIHR Hydroscience and Engineering (a research institute at the University of Iowa) installed a nitrate sensor in Ioway (Squaw) Creek at Moore Park in Ames, capable of testing nitrate every 15 minutes. It tested nitrate from April or May through November during the same field seasons that our local partnership was conducting biweekly grab samples at a nearby location. Had we been aware of this earlier, we might have opted not to test for nitrate as part of our biweekly sampling. At the very least, we could have coordinated our efforts, perhaps allowing IIHR to use our data for calibration and making better use of IIHR's data for education and outreach.

Water quality data is often collected for a specific purpose. The Iowa DNR monitors 51 streams across the state, including the South Skunk River, as part of a statewide ambient stream network. The City of Ames monitors above and below its wastewater treatment plant in order to meet its permit conditions and ensure that treated wastewater is not causing problems in the stream. This can lead to duplication—both agencies are monitoring the South Skunk River at the same location, just below the wastewater treatment plant on 280th Street. It's unclear whether this duplication is avoidable. The City of Ames monitors weekly for fewer parameters, while the DNR monitors monthly for more parameters.

"Wow this is such a treasure trove! Somehow I did not comprehend that you have 20 years of almost weekly nitrate data!"

"Tell me about it. I've always thought it was a shame more use wasn't made of all this data."

- email exchange between Dan Haug, Prairie Rivers of Iowa, and Maryann Ryan, City of Ames Water and Pollution Control

However, we can certainly make sure to find out what data is available and reuse it for other purposes. As part of this project, Prairie Rivers of Iowa has been analyzing the nitrate and phosphorus data collected in the South Skunk River by the City of Ames, and finding it extremely useful for understanding seasonal patterns and long-term trends.

⁴ Patterson, Lauren, Martin Doyle, and Greg Gerhuny. 2019. Building an Internet of Water - A Report from the 2017 to 2019 Internet of Water Roundtables. <u>https://www.aspeninstitute.org/publications/internet-of-water-revisited</u>

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WHERE DO WE WANT DATA?



"The map is not the territory." - Alfred Korzybski

How many lakes and streams are there in Story County? Which streams usually flow year-round (perennial) and which are dry for part of the year (intermittent)? Which streams have enough water to float a kayak or host some good-sized fish? These are the types of questions we'd like to answer in order to review and prioritize monitoring sites.

These types of questions should be answerable by looking at the Designated Uses for each water body in DNR or EPA databases. Under the Clean Water Act, state agencies determine what activities should be possible in a lake or stream, if water quality were protected. Criteria for interpreting water quality data are also linked to Designated Uses. Unfortunately, there are enough special rules and missing data to prevent straightforward interpretation of these categories.

Looking to GIS maps is equally complicated, because lowa is still in the process of updating and reconciling various maps of hydrography (water features). At present, our maps do not reliably show where streams begin or which streams flow year round.

Local Importance of Water Bodies

Fortunately, our local stakeholders have an abundance of experience and good sense that can help us to understand and prioritize local lakes and streams for monitoring. The preliminary site selections in Chapter 5 are based on discussions from the meetings as summarized below.

- Hickory Grove Lake is a "Significant Publicly Owned Lake" that is monitored by DNR and is currently being improved under a cleanup plan, or Total Maximum Daily Load (TMDL). However, Peterson Park Lake, Dakins Lake, Ada Hayden Lake, and McFarland Lake are also valued for fishing, swimming, or boating and will need local leadership to ensure continued monitoring.
- The distinction between perennial and intermittent streams is not clear-cut. Even our largest rivers in Story County often go dry. However, it is clear that as watershed size and streamflow increases, streams can support more kinds of recreation and a greater variety of aquatic life.
- To protect recreation and fisheries in rivers, the focus should be on the South Skunk River, which is a state water trail and supports a smallmouth bass fishery. Paddling and fishing are common and encouraged. Swimming is also commonplace.
- Ioway (Squaw) Creek in Ames and lower Indian Creek near Maxwell have less flow and more limited public access than the South Skunk River, but are used for paddling, tubing, fishing, and children's play.
- Tributary streams in Story County that can influence water quality and flows on the water trail portion of the South Skunk River include Ballard Creek, Walnut Creek, Ioway Creek, Keigley Branch, Bear Creek, and Long Dick Creek.
- Smaller streams might not have much potential for fishing or recreation, but monitoring or learning about a backyard stream is a great way to educate and engage local stakeholders in our larger water quality and conservation challenges, especially when streams have public access and interpretive features, such as the South Branch of Worrell Creek. Story County Conservation is guiding volunteers and staff to monitor streams in almost every HUC12 watershed (see Chapter 5). This will ensure good coverage of the county and tie into the county watershed assessment.
- Monitoring nitrogen and phosphorus at any scale—from tile outlets, to ditches, to large rivers—can inform and support local implementation of Iowa's Nutrient Reduction Strategy.
- Water quality in Story County lakes and rivers is only tangentially connected to drinking water. However, sourcewater protection around wells can tie into a watershed-scale conservation effort.

Maps of Lakes



Figure 1: Priority lakes, reproduced from Story Countywide Watershed Assessment (2018)

Five high-priority lakes were discussed in the Countywide Watershed Assessment and will be the focus of future monitoring. The map used in the assessment (Figure 1) was based on the National Wetland Inventory, because Iowa does not have a current and complete GIS coverage showing lake shores.

- Ada Hayden Lake
- Dakins Lake
- Hickory Grove Lake
- McFarland Lake
- Peterson Park West Lake

The lowa portion of the National Hydrographic Dataset in Iowa (Figure 2) is based on topographic maps from the 1990s and early 2000s, so this map does not show the current shoreline or correct names for Ada Hayden Lake or Peterson Park Lake, former gravel pits that are now valued for recreation. Ada Hayden, Dakins, and Hickory Grove lakes are represented as points of interest in Iowa DNR's fishing atlas. McFarland, Dakins, and Hickory Grove lakes are represented as points of interest in DNR's Assessment Database, ADBNet, along with five Story County wetlands.



Figure 2: National Hydrographic Dataset lakes map

Hickory Grove Lake, during renovation in 2020. Photo courtesy of Story County Conservation

Maps of Streams



Figure 3: Iowa has multiple stream maps with major differences. A) LiDAR based stream centerlines, B) National Hydrographic Dataset streams, perennial and intermittent, C) subset of NHD flowlines included in Iowa DNR's assessment database, D) subset of NHD flowlines for which a Use Attainability Analysis has been completed

(Figure 3A) The most accurate stream maps are based on LiDAR, flown across Iowa between 2006 and 2010. As part of Iowa's Statewide Flood Plain Mapping Project, Iowa DNR used high resolution digital elevation models to map stream centerlines⁵, or both banks of stream channels wider than 7 meters⁶. While the shapes on the map are complete, DNR is still in the process of adding the codes and other attributes that allow various kinds of water data—designated uses, reports of spills, monitoring

⁵ Search for "Stream Centerlines" on <u>geodata.iowa.gov</u>

 $^{^{\}rm 6}$ Search for "Stream Channels" on $\underline{{\sf geodata.iowa.gov}}$

stations, permitted facilities, watersheds, etc.—to be matched to the appropriate section of stream. These attributes will come from the National Hydrographic Dataset.

Together with the Watershed Boundary Dataset, the National Hydrographic Dataset (NHD) provides a consistent framework for relating environmental data to the stream network. NHD started out as a digital representation of the blue lines on a USGS topo map but has evolved into something more. Applications built around the NHD have been used to identify water monitoring stations downstream from spills, estimate streamflow at ungaged sites, and estimate nutrient loads⁷.

(Figure 3B) In Iowa, the NHD flowlines are currently based on 1:100,000 scale maps from the late 1990s and early 2000s. At this mapping scale, 90% of well-defined features are within 167 feet of their true geographic position⁸. This is good enough for many purposes but there are large enough discrepancies between the NHD and higher resolution aerial photos and LiDAR to cause problems for some kinds of analysis—like the identification of riparian buffer opportunities using the Agricultural Conservation Planning Framework (ACPF).

DO NOT use National Hydrography Datasets (e.g., NHD+) to forcibly assign stream locations. This is strongly discouraged for several reasons; the age (circa 1950s) and coarser scales from which those datasets originate will negatively impact the accuracy of flow routing, which will consequently impact results of the ACPF, particularly the riparian assessment.

-ACPF User Manual, version 3.0

There is also a lot of inconsistency between GIS coverages as to where streams start and which streams are treated as perennial or intermittent⁹. This poses a challenge for selecting monitoring sites and interpreting the data, but also for any project where GIS is used to inventory or analyze streams. For example, as part of Story County's ambitious watershed and creek sign project¹⁰, Prairie Rivers of lowa used the NHD to identify locations where named creeks crossed a paved county road. One pair of road signs that were ordered went unused when it became apparent that Mud Creek is not a perennial stream where it crosses County Road E63, but rather a grassed waterway that is usually dry and has no defined bed and banks (See Figure 4). The mapping error has been corrected in the most recent version of the NHD but also appears in DNR's assessment database and led to two conflicting sets of recommendations for stream buffers in the Story County Watershed Assessment. Now that we are aware of the issue, we can be sure to verify stream locations using aerial photos or field visits at an early stage of future projects.

⁷ Moore, Richard B., and Thomas G. Dewald. 2016. "The Road to NHDPlus – Advancements in Digital Stream Networks and Associated Catchments." JAWRA Journal of the American Water Resources Association 52 (4): 890-900. https://doi.org/10.1111/1752-1688.12389.

⁸ <u>https://www.usgs.gov/faqs/what-positional-accuracy-national-hydrography-dataset-nhd?qt-news_science_products=0#qt-news_science_products</u>

⁹ Note that topographic maps in lowa do not include a category for ephemeral streams, which flow only after rain and are no longer considered jurisdiction Waters of the United States. It is unclear whether the concept is limited to arid regions.

¹⁰ <u>https://www.prrcd.org/signage/</u> for more details on the project



Figure 4: Inconsistency in stream mapping can affect road signs and stream buffer recommendations. A) Mud Creek was mapped as a perennial stream in some versions of NHD, B) but there is no channel visible on the ground or aerial photos, C) buffers were recommended for this section of Mud Creek based on GIS analysis of NHD lines and interpretation of DNR databases, D) but buffers were not recommended for Mud Creek based on the Agricultural Conservation Planning Framework, which used LiDAR and aerial photos.

lowa DNR plans to use the drainage area of each stream segment to classify new LiDAR based stream centerlines in a consistent way¹¹. Until this dataset is released, we can use a similar map prepared by Prairie Rivers of lowa using NHDPlus¹² version 2.0, which combines NHD stream lines with watershed information derived from medium-resolution elevation and landcover data from 2011. Prairie Rivers of lowa proposed adapting the categories and thresholds used by the lowa DNR biological monitoring program¹³ to help select monitoring sites and interpret data. The only streams for which benchmarks have been developed for assessing fish and invertebrate surveys are "wadeable" streams draining a watershed of between 10 and 700 square miles, as distinct from "headwater" streams sampled with a slightly different protocol, or "non-wadeable" streams sampled with a boat. When Iowa DNR proposed draft nutrient criteria in 2013, they were limited to "wadeable" streams which had clear biological monitoring data for comparison.

Figure 5 and Table 1 show this classification. Headwater streams are less likely to sustain flow year round and have sufficient water and habitat to sustain a large variety of aquatic life. A distinction is not made between natural streams and drainage ditches. Place names aside, the distinction is not always clear. For example, the lower part of Grant Ditch 5 is mapped as a creek on General Land Office surveys from the nineteenth century, and the lower section still retains its natural meanders. The headwater reaches of many named streams have been channelized. The legal distinction between ditches and streams is also unclear. Numbered ditches have appeared in 305(b) assessments and on the 303(d) Impaired Waters List. Even after changes by the Trump administration, many ditches are still considered jurisdictional Waters of the United States.

"The term 'tributary' includes a ditch that either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch is perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year."

-Federal Register¹⁴, vol. 85, April 2020

¹¹ Personal communication from Samuel McDeid, IDNR. Nov 21, 2019

- ¹³ <u>https://programs.iowadnr.gov/bionet/docs/about</u>
- ¹⁴ https://www.epa.gov/sites/production/files/2020-01/documents/navigable_waters_protection_rule_prepbulication.pdf



¹² https://www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus





Figure 5: Prairie Rivers of Iowa proposed stream classification, based on NHDPlus and watershed area. "Headwater streams" (light blue) drain less than 10 square miles of land, and are less likely to flow year-round.

Table 1: Prairie Rivers of Iowa proposed stream classification based on watershed area

Large Wadeable Streams (part of creek has a watershed area between 10 and 700 square miles)	Headwater Streams (watershed area less than 10 square miles)
South Skunk River Walnut Creek Ioway (Squaw) Creek Worrell Creek Clear Creek (near Ames) Onion Creek Keigley Branch and an unnamed tributary Bear Creek Long Dick Creek Indian Creek Calamus Creek Rock Creek West Indian Creek Grant Creek (Drainage Ditch 5) Drainage Ditch 32 East Indian Creek Drainage Ditch 81 Drainage Ditch 91 Dye Creek Wolf Creek Middle Minerva Creek Minerva Creek Ditch 1	College Creek "South Branch of Worrell Creek" "Komar Creek" "Gilbert Creek" Dry Creek Rupple Creek Story County portions of: Linn Creek Fourmile Creek South Minerva Creek Clear Creek (near Colo) Willow Creek Mud Creek

The Iowa DNR uses subsets of the NHD to organize assessments and map impaired waters (Figure 3C) and to keep track of waters for which a Use Attainability Assessment have been completed (Figure 3D). These are described in the following section.

DNR Assessments and Impaired Waters List

Every two years, as required by Section 305(b) of the Clean Water Act, the Iowa DNR reviews available data to assess whether Iowa waters are supporting their designated uses and report its findings to the EPA. The data used is 2-4 years old for rivers, and 2-5 years old for lakes. Under Section 303d of the Clean Water Act, waters that do not support their designated uses are added to the Impaired Waters List. As time and resources allow, the DNR works through this list to prepare cleanup plans.

(Figure 3C) Iowa DNR's Assessment Database¹⁵ includes all streams that were mapped as perennial in a 1993 version of the NHD. As described above, these categories are not always reliable. Linn Creek is

¹⁵ ADBNet is DNR's Assessment database. <u>https://programs.iowadnr.gov/adbnet/</u>

mapped as extending into Story County even though closer inspection of aerial photos shows that the stream channel begins in Marshall County. The database does not include several streams that have since been reclassified as perennial, either through corrections in subsequent editions of the NHD (i.e. Middle Minerva Creek near Zearing, Grant Ditch near Nevada) or by completion of a Use Attainability Analysis (i.e. Gilbert Creek). It also excludes former gravel pits like Peterson Park Lake and Ada Hayden Lake that are valued for recreation.

Keigley Branch



Figure 6: Stream segments in ADBNet

The stream segments and designated uses in ABDNet are generally not split apart and updated to match lowa's official Surface Water Classification document, described in the next section. For example, West Indian Creek is designated A2 (Secondary contact recreation) downstream Nevada Wastewater Treatment Plant, but in ABDNet, the entire stream is treated as presumed A1 (primary contact recreation). However DNR's Assessment Database is still an essential starting point for understanding water quality in Story County, and finding information about fish kills, water quality monitoring, and biological monitoring for that water body. Table 2 summarizes the designated uses and 2020 assessment results. Segment numbers can be referenced to the map (Figure 6).

- 3 lakes and 34 streams segments in Story County are included in ADBNet. Most have never been monitored or assessed.
- Only 5 streams and 1 lake were assessed for recreational uses in 2020. None were fully supporting.
- 18 streams and 2 lakes were assessed for aquatic life uses in 2020. Only 4 were fully supporting.
- 6 stream segments were placed on Impaired Waters List in 2018 or previous cycles. The 2020 draft Impaired Waters List did not include any additions or removals.
- 1 lake (Hickory Grove Lake) is impaired but a Total Maximum Daily Load (TMDL) was completed to address algae and bacteria.
- 21 streams segments are only presumed to be capable of supporting gamefish and primary contact recreation¹⁶. Since these are small streams, it is likely that the designated use would be changed to A2 and B-WW2 when and if a Use Attainability Analysis is completed.
- 8 headwater stream segments were placed on the Waters In Need of Further Investigation list because of low invertebrate or fish scores. DNR has not calibrated metrics for headwater streams with less than 10 square miles of drainage area, so is not able to evaluate if these streams are supporting aquatic life to their full potential.
- As described in Chapter 4 and Chapter 5, local partners tested E. coli in two streams between 2016 and 2018. After public comment by Prairie Rivers of Iowa, these were placed on the Waters In Need of Further Investigation list.
- Hickory Grove Lake fully supports fish consumption (HH) use based on testing of fish tissue for mercury, PCBs, and other chemicals. In previous cycles, the South Skunk River supported fish consumption use, but the data is now over 10 years old. Other priority lakes have not been tested.

¹⁶ See IDNR publication Assessing Iowa Stream Uses for an explanation of the "rebuttable presumption": <u>http://www.iowadnr.</u> gov/Portals/idnr/uploads/water/standards/files/UAA_factsheet_20132014_FINAL_ContactUDate.pdf

Table 2: Story County lakes and streams in ADBNet, designated use and 2020 assessment resultsFully Supporting (◊), Partially Supporting (!), Not Supporting (!!)

	ABDNet		D		A		Fi	sh	303d
HUC12	Segment	Geographic Name	Recre	ation ¹⁷	Aquatic	Life ¹⁸	Consur	nption	List
070801050305	6295	Onion Creek	*		*	!			
070801050307	6286	Worrell Creek	*		*	ļ			
	954	Squaw Creek	A1	!!	BWW2	!			
	955	College Creek	*		*	!!			
	956	Clear Creek	*		*				
070801050401	960	Long Dick Creek	*		BWW2	ļ			ļ
070801050403	958	Bear Creek (lower)	A2		BWW2	♦			
	959	Bear Creek	*		*	ļ			
070801050405	957	Keigley Branch (lower)	*		BWW2				
	1791	Keigley Branch	*		BWW2				
070801050406	933	South Skunk River	*		BWW2				
	934	South Skunk River	A1	ļ	BWW1	ļ	HH		i
	939	McFarland's Pond	-		BLW		HH		
070801050502	949	West Indian Creek	A2		BWW2				
070801050602	6298	Drainage Ditch #81	*		*	ļ			
	6629	Unnamed Tributary	*		*	♦			
		to East Branch							
		Indian Creek							
070801050603	6249	Unnamed Tributary	*		*				
		to Dye Creek							
	6466	Dye Creek	*		*				
	948	Dye Creek (lower)	A1		BWW2				
070801050604	947	East Indian Creek	A1	!	BWW2				
	950	Hickory Grove Lake	A1	!	BLW	♦	HH	♦	ļ
070801050701	6502	Clear Creek	*		*				
	6503	Willow Creek	*		*				
	6504	Unnamed Tributary	*		*	!			
		to Willow Creek							
070801050702	946	Mud Creek	*		*	♦			
070801050801	943	Indian Creek	A1	!	BWW2	!			İ
070801050802	6626	Wolf Creek	*		*	!			i
070801050901	953	Walnut Creek	*		BWW2	ļ			İ
070801050902	952	Ballard Creek (lower)	A3		BWW2	ļ			
	3053	Ballard Creek	A2		BWW2	!			i
070801050903	932	South Skunk River	A1		BWW2				
	931	South Skunk River	A1	!	BWW2	!			İ
070802070802	6284	South Minerva Creek	*		*	!			
070802070803	740	Dakin Lake	-		BLW		НН		
070802070804	739	Minerva Creek	A2		BWW2				
070802080101	733	Linn Creek	*		*				
071000080101	3031	Fourmile Creek	A2		BWW2	!			
					—	<u> </u>			

¹⁷ A1 - Primary contact recreation, A2-Secondary contact recreation, A3- Children's recreation, * Presumed A1

¹⁸ BWW1 - Warmwater streams supporting gamefish, BWW2 Warmwater streams lacking flow and habitat for gamefish, BLW -Lakes and wetlands, HH - Human Health / Fish Consumpion, * Presumed BWW1

Designated Uses

(Figure 3D) Another subset of NHD flowlines was used to prioritize streams for the Story Countywide Watershed Assessment. The source for this map was DNR's Stream Use Assessment and Attainability GIS coverage, sometimes called "Designated Streams." This GIS coverage is used to keep track of streams for which a Use Attainability Analysis (UAA) has been completed¹⁹. However, it is important to understand that many other waters in Story County also have a presumed Designated Use and would be subject to water quality standards that are the same, or stronger. Not all of them are mapped.

"All perennial rivers and streams as identified by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) or intermittent streams with perennial pools in Iowa not specifically listed in the surface water classification of 61.3(5) are designated as Class B(WW-1) [...and] Class A1 waters."

Iowa Administrative Code 567–61.3 (455B) Surface water quality criteria.

A Use Attainability Analysis is necessary to reclassify designated uses. This often occurs as part of the permitting process for sewage treatment plants and industry that discharge wastewater. DNR staff evaluates the waters receiving the effluent, conducts fish surveys, and solicits public comment to determine how the stream is being used and what uses it could potentially support, which then affects water quality criteria are referred to in preparing the National Pollution Discharge Elimination System (NPDES) permit. These determinations are subject to public comment and approval by the EPA.²⁰



Figure 7: Electroshocking at "Gilbert Creek" for a Use Attainability Analysis, source: Iowa DNR

¹⁹ Search for "Stream Use Assessment and Attainability" on <u>geodata.iowa.gov</u>

²⁰ For a complete explanation of the process, see "Assessing Iowa Stream Uses", a DNR factsheet. <u>http://www.iowadnr.gov/</u> <u>Portals/idnr/uploads/water/standards/files/UAA_factsheet_20132014_FINAL_ContactUDate.pdf</u>

The following examples serve to illustrate the difficulty in interpreting UAAs and designated uses outside of the context of permit applications for wastewater treatment plants (WWTPs) and industry.

- Sometimes called Gilbert Creek, an officially unnamed tributary of Ioway Creek was surveyed below the Gilbert WWTP in 2016. While it is mapped as intermittent in the NHD, DNR determined through field investigations that it was actually perennial. Because water was shallow, access was limited and only non-game fish were captured, DNR assigned it the lowest possible designated use: A2 (secondary contact recreation) and B-WW2 (non-game fish and aquatic life).
- Middle Minerva Creek was surveyed at three locations below the Zearing WWTP in 2016. DNR staff found a variety of non-game fish and water deep enough to support full contact recreation at the lower two locations, and designated part of the stream as A1 and part as A2. The portion of Middle Minerva Creek that flows through Zearing is undoubtedly perennial and shallow, but does not appear on the Designated Waters Map or ADBNet, as it was mistakenly miscoded as intermittent in the 1993 NHD.
- College Creek is a tributary of Ioway Creek. Only a 46-foot length of the creek downstream of the ISU Heating Plant and the unnamed tributary²¹ that connects it were analyzed. DNR assigned this small segment a designated use of A3 (Children's Recreation), based on the possibility that children could wade in from Squaw Creek. The remainder of the creek, which flows through the ISU campus and several city parks, remains unassessed with a presumptive A1 (primary contact recreation) and B-WW1 (gamefish) uses.
- West Indian Creek was surveyed below the Nevada WWTP in 2006. DNR concluded that although "West Indian Creek is too shallow to support primary contact recreational uses, it does possess the potential of attracting Class A2 Secondary Contact recreational uses particularly associated with recreational canoeing and kayaking, fishing, trapping or hunting." The portion of West Indian Creek upstream of the WWTP that flows through the City of Nevada was not assessed, and remains presumptively designated Class A1 for "full body immersion with prolonged and direct contact with the water, such as swimming and water skiing." The 160-foot long "effluent dominated ditch" leading from the WWTP to the creek was designated A3—Children's Recreational Use based on the fact that it was in town and within walking distance of schools and playing fields. Of the three designated recreational uses, Class A2 has the most permissive *E. coli* criteria. The public may have difficulty understanding the difference between these categories or why they were assigned.

Ultimately, Designated Uses may be an unnecessary complication for local partners when selecting sites or interpreting data for non-regulatory purposes. When presenting *E. coli* data, it may be simplest to reference both primary and secondary contact recreation criteria (See Chapter 4). The South Skunk River is the only stream in Story County designated B-WW1 for warmwater game fish, but DNR Fisheries Management Biologist Ben Dodd pointed out that Ioway Creek, Indian Creek, East Indian Creek, and West Indian Creek have some limited potential to sustain a fishery and could be included in monitoring focused on aquatic life.

²¹ This tributary of College Creek was monitored as part of Squaw Creek Watershed Coalition snapshots, where it as referred to as Cyride Creek.

WHAT DATA IS ALREADY AVAILABLE?



"Your query [Story County, Iowa] returns 244,787 records from 428 stations."

-Query results from the Water Quality Portal

Types of Data

Tens of thousands of water quality measurements have been collected in Story County. Making use of this data can improve our understanding of Story County lakes and rivers while saving us time and money. However, the data is scattered across at least six different databases. Categorizing water data by method of collection helps for understanding the types of data availailable and how it is structured.

- Water quality, tested in the field
- Water quality, tested in the laboratory
- Water quality, measured continuously in the field
- Biological monitoring
- Water quantity (flow) measured continuously at a gage

We will use nitrate as an example. Nitrate can be measured in the field with a test strip, recorded on a clipboard, and entered in a database designed specifically for the volunteer program. Since there's a set protocol with a limited number of characteristics being measured, it's easy enough to fit all the results for one date on a single row.

Table 3:	Fxample	volunteer	data i	in	"wide"	format.	from	the	former	IOWATER	database
Tubic 5.	Example	vorunteer	uutui		what	ionnut,	110111	unc	TOTTICI	10 WHER	uatabase

Date	Nitrate-N (mg/L)	Orthophosphate (mg/L)	Transparency (cm)	Chloride (mg/L)
2010-06-11	10	0.2	50	<30

A volunteer could also deliver a water sample to a certified laboratory, which will test for nitrate at a higher level of precision using different equipment. The lab may test for hundreds of different chemicals²² and will use a database built to accommodate that, with each measurement on a separate row. This format has additional columns to accommodate details about detection limits, laboratory methods, and quality control.

Table 4: Same data in "long" for	nat, it would appear in the EPA	Water Quality Exchange
----------------------------------	---------------------------------	------------------------

Date	Analyte	Result	Units	Detection Limit
2010-06-11	Nitrate + Nitrite as N	10	mg/L	0.1
2010-06-11	Orthophosphate	0.2	mg/L	0.1
2010-06-11	Transparency measured in field with secchi tube	50	cm	
2010-06-11	2010-6-11	30	mg/L	30

Nitrate (and a handful of other parameters) can also be measured continuously with a probe, and recorded with a data logger every hour or 15 minutes. This can generate large amounts of data, which generally can't be accommodated in databases designed for lab samples, but are being hosted in custom built applications like the Iowa Water Quality Information System²³.

²² In the South Skunk River alone, the Iowa DNR has tested for 265 different chemical or physical characteristics.

²³ https://iwqis.iowawis.org/

Date	Time	Nitrate-N (mg/L)
2010-06-11	08:00	10
2010-06-11	09:00	9.9
2010-06-11	10:00	9.8

Table 5: Example of continuous data from a probe, on the Iowa Water Quality Information System

In order to calculate how many pounds or tons of nitrogen is making its way to downstream waters, we would need to combine water quality data with water *quantity* data. Streamflow data is readily available from the US Geological Survey for gages they monitor.

Table 6: Example of combining water quality data with water quantity (flow) data from the USGS

Date	Nitrate as Nitrogen (mg/L)	Discharge (cfs)	Nitrogen Load (pounds/day)
2018-06-14	3.0	3,330	53,893
2017-05-24	17	509	46,680
2018-09-28	8	476	22,597

In order to determine how nutrients are affecting aquatic life in the stream, we might do a biological survey, with counts of different groups of organisms.

Table 7: Example of biological monitoring data

Date	Mayflies	Stoneflies	Caddisflies
2010-06-11	12	3	56

Software for Data Analysis

In order to make better use of the data we have and handle new data coming in, Prairie Rivers of Iowa has been using the computer programming language R^{24} and the integrated development environment R Studio²⁵.

R is a programming language and software environment for statistical computing and graphics. Unlike point and click spreadsheet and database applications, it involves typing up a series of commands—a script. Scripts can be embedded in a text document using a lightweight markup language (R Markdown) and exported as a print (PDF) or web (HTML) document, so that a graph or table can be presented alongside a discussion of the findings and the code used to produce it.

²⁴ https://www.r-project.org/

²⁵ https://rstudio.com/

This approach has a steep learning curve when doing an analysis for the first time, but offers a number of benefits moving forward.

- When new data becomes available or a mistake needs to be corrected, a report containing multiple graphs or tables can be updated in minutes just by running the script.
- There is potential to quickly produce multiple reports customized for a monitoring station or date range.
- If there are questions about how the analysis was done, all the steps used in the analysis are documented in the code.
- Since the software is free, anyone can reproduce and build on the results given the source data and the script, a concept called reproducible research.
- Since R is used by scientists at the US Geological Survey, there are scripts and packages available for retrieving flow data from USGS gages, and water quality data from EPA databases.
- It can replace some of the functions of database software, manipulating and combining large data tables.
- Since R is widely used for data science and statistics, there are scripts and packages available for a number of advanced methods that are helpful for interpreting water quality data, such as boxplots, trend analysis, power analysis, and tests for statistical significance.
- It opens up the possibility of creating interactive web applications using R Shiny platform (free for limited usage, with paid plans for higher traffic).

Sources of Data

AQuIA

The Iowa DNR maintains a public information portal²⁶, AQuIA, for retrieving the results of water monitoring conducted by the Water Quality Monitoring and Assessment section of Iowa DNR²⁷ or one of its designees. The website includes tools for searching and downloading data by county, watershed, program, and characteristics measured. Each monitoring station has a summary page with location details and widgets for generating graphs. Data is typically uploaded within a month of collection.

²⁶ <u>https://programs.iowadnr.gov/aquia/</u>

²⁷ https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring
Table 8: Story County data available on Iowa DNR AQuiA database, as of Dec 6, 2020

Facility (Program)	Records	Sites	Analytes	Date Range
lowa DNR surface water monitoring data	23,0539	39 33 2!		10/1998 - 10/2020
lowa DNR groundwater monitoring data	998	8	173	08/2002 - 11/2019
lowa snapshots	538	33	4	10/2006 - 05/2013
Fish tissue monitoring	983	5	165	08/1983 - 9/2013

(9376 records) Many of the records for Story County come from a single site, the South Skunk River near Cambridge²⁸. It is one of 60 sites in the Iowa DNR's ambient stream monitoring network²⁹ that help to evaluate water quality status and trends statewide. This stream has been monitored monthly since October 1998 for a wide variety of parameters, including:

- Field measurements, such as dissolved oxygen and flow
- Fecal indicator bacteria, such as E. coli
- Inorganic chemicals (naturally occurring but influenced by humans) such as chloride
- Nutrients, such as nitrogen
- Pesticides, such as carbonyl
- Volatile organic compounds such as trihalomethanes
- Metals, such as lead

Some additional sites in the ambient stream monitoring network are located outside the county, but may be helpful for interpreting data from their tributaries in Story County (Figure 7). The nearest downstream station from Indian Creek, Wolf Creek, and Clear Creek (draining the central and southeast part of the county) is on Indian Creek near Colfax³⁰. The nearest downstream station from Ballard Creek (in the southwest) is the South Skunk River near Oskaloosa³¹. The nearest downstream station from Minerva Creek (in northeast part of the county) is the Iowa River downstream of Marshalltown³².

²⁹ <u>https://www.iowadnr.gov/environmental-protection/water-quality/water-monitoring/streams</u> The 2016-2021 ambient water monitoring strategy is described here. <u>http://publications.iowa.gov/23682/</u>

²⁸ <u>https://programs.iowadnr.gov/aquia/Sites/10850002</u>

³⁰ <u>https://programs.iowadnr.gov/aquia/sites/10500001</u>

³¹ <u>https://programs.iowadnr.gov/aquia/sites/10620001</u>

³² https://programs.iowadnr.gov/aquia/sites/10640002



Figure 8: Examples of 1999-2000 water quality data from ambient stream monitoring sites. Data from these sites can be compared to tributaries monitored by local partners.

(8068 records) A second site on the South Skunk³³, at Sleepy Hollow Access north of Ames, was formerly part of the ambient stream monitoring network and a study on urban impacts to water quality, but is no longer being monitored by the DNR. Sampled monthly from October 1999 to September 2014, it will be a rich source of data to support the Headwaters of the South Skunk River WMA in watershed planning.

(1500 records) Hickory Grove Lake is one of 138 publicly owned lakes in the Ambient Lake Monitoring Program. Lakes are tested three times a year between May and September for dozens of indicators of trophic state and lake health, including nutrients, secchi depth, and chlorophyll (excluding the past few years when the lake was drained for restoration). Additional testing of Hickory Grove Lake has been done as part of Total Maximum Daily Load study.

33 https://programs.iowadnr.gov/aquia/Sites/10850003

A screenshot of DNR's interactive map of AQuIA sites is shown below. Some sites around the county have been monitored once or infrequently for various purposes.

- Surface water is tested following reported fish kills to determine whether the stream should be placed on the Impaired Waters List. For example, Long Dick Creek was tested biweekly for the first half of 2009, while Walnut Creek was tested once in 2011.
- When fish or invertebrates are surveyed as part of the ambient biological monitoring program, water quality is also tested, on that day only. For example, sites on Walnut Creek, Ditch 81, Dye Creek, Bear Creek, Worrell Creek, Onion Creek, and Ballard Creek each were tested once or twice for over 20 parameters as part of this program.
- Lab testing (*E. coli*, nitrate, phosphate, and ammonia) to support volunteer snapshot events in the loway (Squaw) Creek watershed. This was done between 2006-2013 as a partnership between the lowa DNR's IOWATER program, the Squaw Creek Watershed Coalition, and the lowa Geological Survey.
- Monitoring of fish tissue for mercury and other persistent contaminants. Despite other water quality concerns, fish caught in most lowa waters (including the South Skunk River and Hickory Grove Lake in Story County) are safe to eat.³⁴



Figure 9: Map of DNR monitoring sites from AQuIA database

³⁴ https://iowadnr.gov/environmental-protection/water-quality/water-monitoring/fish-tissue

Water Quality Portal

The Water Quality Portal³⁵ is a cooperative service that integrates data from the Environmental Protection Agency (EPA), the United States Geological Survey (USGS) and the Agricultural Research Service (USDA-ARS).

State and local organizations can also submit water quality data to the EPA and make it available via the Portal using the Water Quality Exchange³⁶. WQX is both a consistent way of structuring the data, and a set of tools for submitting data to the EPA. For example, Polk County Conservation uses a spreadsheet template and a web portal to upload data collected by staff and volunteers twice a month.

As a result of these submissions, the Water Quality Portal is the nation's largest source for water quality monitoring data, using the WQX format to share over 380 million data records from 900 federal, state, tribal and other partners.

Unfortunately, the Water Quality Portal cannot be our only stop for data, as state and local entities that monitor water may not have uploaded data, or only upload data every 2 years as part of required reporting. For example, the most recent data from Iowa DNR's surface water monitoring program is from September 2018, while the most recent volunteer data from the IOWATER program is from November 2011.

"Hubs that open data without any community engagement will struggle with attracting end users to create value from the data. Indeed, public agencies that have tried this approach found that the "if you build it, they will come" mentality does not work for water data. These agencies have found that they must develop analytics and information services with the data to create value to their citizens."

-from The Internet of Water Revisited³⁷

The portal is an indispensable source of information, but is challenging to use for the first time. As such, we no longer consider it as our primary means to share data with the public, though we do hope to periodically upload some of our data³⁸. A web application allows users to query the database and download a spreadsheet, but given the number of records in Story County alone, it's important to further narrow down the location, sampling parameters, or site parameters. There is a map view, but it does not consistently zoom to the right state. Once downloaded, the spreadsheets require some processing to be easily read, graphed, or summarized. Aside from the site number, all the location information is stored in a separate table from the results. Each measurement is a separate row, and each row contains 35 columns of metadata in addition to the numeric result, most of it blank. An abbreviated example of the WQX data format is shown on the next page.

³⁵ <u>https://www.waterqualitydata.us/wqp_description/</u>

³⁶ <u>https://www.epa.gov/waterdata/water-quality-data-wqx</u>

³⁷ Patterson, Lauren, Martin Doyle, and Greg Gerhuny. 2019. Building an Internet of Water - A Report from the 2017 to 2019 Internet of Water Roundtables. <u>https://www.aspeninstitute.org/publications/internet-of-water-revisited</u>

³⁸ For example, the Izaak Walton League plans to eventually upload data from the Clean Water Hub to the Water Quality Exchange

Table 9: Example of WQX data format (5 of 35 columns, water quality results table)

Monitoring Location Identifier	Activity Start Date	Characteristic Name	CharacteristicResult MeasureNameValue	
ARS-IAWC-IAWC122	1992-09-16	Nitrate-N	15.9	mg/L
ARS-IAWC-IAWC122	1992-09-16	Orthophosphate	0.03	mg/L

A desktop application based on R, the WQP Data Discovery Tool³⁹, can streamline the process of querying the database and dealing with non-detects and duplicates. R users can import data with the "dataRetrieval" package⁴⁰.

As of December 2020, Water Quality Portal includes the following surface water⁴¹ data for Story County.

Agency	Records (measurements)	Stations (sites)	Characteristics (analytes)	Date Range
Agricultural Research Service	l Research 70,045 6 10		10	06/1990 - 05/2015
Agricultural Research Service	ural Research 19,750 16 2		240	10/1999 - 09/2018*
Iowa Volunteer Water Monitoring Program	10,097	78	14	05/2000 - 11/2011*
USGS Iowa Water Science Center	7,513	16	421	12/1955 - 07/2019
Iowa Geological Survey ⁴²	368	33	4	10/2006 - 05/2009*

Table 10: Story County data available on the Water Quality Portal, as of December 6, 2020

*More recent data is available from other sources.

Prairie Rivers of Iowa prepared an interactive map⁴³ showing the location of monitoring stations included in the Water Quality Portal. Screenshots are shown on the next page. Darker red indicates sites with more records.

³⁹ <u>https://www.epa.gov/waterdata/water-quality-portal-data-discovery-tool</u>

⁴⁰ https://cran.r-project.org/web/packages/dataRetrieval/vignettes/dataRetrieval.html

⁴¹ The portal results for Story County also include 17,327 records of water quality in wells, and 263 samples of chemicals in lake/ river sediment, and small number of records for other types of data

⁴² The Geological Survey did lab testing (E. coli, nitrate, phosphate, and ammonia) to supplement volunteer monitoring at watershed snapshot events (in this case, Squaw Creek watershed)

⁴³ <u>https://rpubs.com/dhaugprrcd/WQP</u>



Figure 10: Locations of streams with data on the Water Quality Portal, collected by government agencies (left) and volunteers (right).

Not including monitoring by the Iowa DNR described under AQuIA, the sites with the most data include:

- (Over 61,000 records) 4 locations on Walnut Creek⁴⁴ were monitored by the USDA-ARS for nutrients, sediment, and selected pesticides as part of the Conservation Effects Assessment Project (CEAP)⁴⁵.
- (over 8,000 records) As part of the same study, two locations on the South Skunk River (above and below the confluence with Walnut Creek) were also monitored.
- (3765 records) An unnamed tributary of East Indian Creek near Zearing was included in the Midwest Regional Stream Quality Assessment⁴⁶. The site was monitored 33 times in 2013 and 2016 for a variety of parameters including nutrients and pesticides.
- (over 3000 records) The USGS takes regular measurements of temperature, flow, and specific conductance to calibrate gaging stations, and sometimes measures other parameters. Three stations are located on the South Skunk River (at E18, S Riverside Rd, and S. 16th St) and one on loway (Squaw) Creek at Lincoln Way. This dataset includes nitrate measurements from the 1950s, which could be useful for historic comparisons.
- (1225 records) Squaw Creek at Duff Ave, monitored by volunteers with the IOWATER program.

⁴⁴ <u>https://www.ars.usda.gov/anrds/ceap/iowa-walnutcreek/</u>

⁴⁵ <u>https://www.ars.usda.gov/anrds/ceap/ceap-home/</u>

⁴⁶ <u>https://webapps.usgs.gov/rsqa/#!/region/MSQA</u>



Volunteer Monitoring Data

The DNR shut down the IOWATER database shortly after the program was discontinued. Data collected from 2012-2017 was never added to the EPA's Water Quality Exchange. DNR has provided data formerly stored in the database on request, which Prairie Rivers of Iowa used to analyze the number and timing of sites in Story County.

Between May 2000 and May 2017, over 90 sites in Story County were monitored by volunteers with the IOWATER program, for a total of over 2770 records⁴⁷. Intensity of monitoring varied and dropped off in the later years of the program: two sites on Squaw Creek were tested over 100 times, 7 sites were tested at least 50 times, and 45 sites were tested at least 10 times. While much of the effort has focused on the Ioway (Squaw) Creek watershed, some other sites were monitored monthly for several years, including the South Skunk River at 190th St, Bear Creek, Keigley Branch, and Long Dick Creek (See Figure 11). A full list of sites and charts showing the timing of sampling has been published online⁴⁸.

⁴⁷ Give or take a few. In some of my analysis, I have focused on the South Skunk River basin (HUC8: 07080105) and omitted a stream inflow to Dakins Lake (monitored 3 times) and site at the start of Fourmile Creek in Slater (monitored over 26 times) that is included in the Polk County Snapshot

48 https://rpubs.com/dhaugprrcd/iowater_overview



Figure 11: Frequency of sampling at IOWATER sites in Story County monitored at least 6 times, excluding Squaw Creek Watershed

"Locally-led programs have the freedom to store and use their volunteer-generated water monitoring data as they see fit." - Iowa DNR^{49}

Some local programs, like Polk County Conservation, have made use of the EPA's Water Quality Portal, described above.

Prairie Rivers of Iowa set up an ArcGIS webmap in 2018 to maintain access to IOWATER data⁵⁰, but it was not well-publicized and there was not a good way to allow volunteers to enter new data. For water quality snapshot events, Prairie Rivers of Iowa and the Squaw Creek Watershed Coalition used paper data sheets and spreadsheets.

To provide a platform for data entry moving forward, the University of Northern Iowa's GEOTREE program received a grant to develop a mobile app, which has been used by some local groups, but it did not provide a way to access historic data.

The most successful effort so far has been the Izaak Walton League's Clean Water Hub⁵¹, which now hosts all the chemical monitoring data collected by the IOWATER program from 1998-2017. As described in Chapter 5, volunteers with Story County Conservation will be using this platform moving forward.

⁴⁹ https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Volunteer-Water-Monitoring

⁵⁰ https://arcg.is/4DC9q

⁵¹ <u>https://www.cleanwaterhub.org/community</u>



It may take some time to incorporate all the following loose ends into the Clean Water Hub.

- Biological (invertebrate) monitoring results that were formerly stored in the IOWATER database.
- Data collected by the Squaw Creek Watershed Coalition⁵² at snapshot events in October 2017, May 2019, Oct 2019, May 2020, and Oct 2020.
- Data collected by schools since 2017. For example, Cara Rinehart's Gilbert High School biology class did biological and chemical monitoring of College Creek and Keigley Branch in 2017.

While the platform is a good home for the data from the IOWATER program and a user-friendly way for volunteers to enter data moving forward, it is currently missing some features we might like for summarizing and analyzing data.

- Query and download capabilities are limited to administrators
- No ability to search sites by county or watershed
- Not currently able to store lab results
- A maximum 100 records are displayed (we have two sites in Story County with more!)
- No summary statistics to allow for comparisons between sites
- Graphs become unreadable with a large number of records
- Auto-scaling of graphs that make it difficult to spot gaps in the record or changes in sampling schedule that could influence interpretation of seasonal patterns or trends

Unfortunately, there is no single database that can manage or view all the data that is relevant to water quality in Story County. We will need to get comfortable working with and summarizing data from multiple sources.

⁵² http://www.squawcreekwatershed.org/watershed.html for tables, maps, and summaries of snapshot events dating back to 2006



Figure 12: Example graph of volunteer data from the IWLA Clean Water Hub

National Water Information System

The National Water Information System provides access to stage and discharge (flow) data from stream gages maintained by the US Geological Survey.

- 05471000 South Skunk River below Squaw Creek near Ames, IA
- 05470500 loway (Squaw) Creek at Ames
- 05470000 South Skunk River near Ames
- 05469990 Keigley Branch near Story City (stage only)



Figure 13: Example of flow data from a USGS gage

Iowa Flood Information System

The Iowa Flood Information System (IFIS) is a web platform developed by the Iowa Flood Center (IFC) at the University of Iowa. While primarily focused on helping Iowa communities forecast flooding and visualize flood-related data, it also is a source to understand current weather and flow conditions that can be helpful for interpreting water quality data. In addition to the USGS flow gages mentioned above, and weather data from various sources, the site provides access to real-time stage data from sensors installed by the Iowa Flood Center or local partners. Mounted on bridges, the solar-powered sensors measure water level (stream stage) using a sonar signal⁵³. Converting this information to flow would require additional measurements and surveys to develop a rating curve.

10 stream sensors are located in Story County or on the county line. 8 are currently active.



Figure 14: Bridge-mounted stage sensor (City of Ames) on loway Creek

Iowa Water Quality Information System

The Iowa Water Quality Information System (IWQIS) offers access to real-time water quality data from sensors that measure nitrate, pH, dissolved oxygen, or temperature. The sensors are maintained by IIHR—Hydroscience & Engineering (IIHR) at the University of Iowa, the Agricultural Research Service (USDA-ARS) and United States Geological Survey (USGS).

⁵³ <u>https://iowafloodcenter.org/projects/iowa-watershed-approach-hydrologic-network-4-3/</u>

⁵⁴ https://iwqis.iowawis.org/

Three nitrate sensors are located in Story County. Nitrate-N concentrations are logged every hour, but there can be gaps when equipment needs maintenance or is removed for the winter to prevent damage.

- WQS0038. Ioway (Squaw) Creek, located at Moore Park in Ames. IIHR water quality gage: nitrate concentrations and loads. 2016 to present, generally removed from Dec thru March or April.
- WQS0054. Drainage tile of Walnut Creek, located on 270th St near Kelley. USDA water quality gage. Nitrate concentrations. Jun 2016 to present, sometimes deployed all winter.
- WQS0053. Walnut Creek, located at 530th Ave, near Kelley. Sept 2016 to present, sometimes deployed all winter.

In addition, a set of three nitrate sensors in neighboring Hardin County have been useful for understanding nitrate movement from tile to creek to river in watersheds with similar characteristics⁵⁵.



Figure 15: Example of real-time nitrate data from IWQIS, showing hourly water quality changes

IWQIS is built on a similar platform to the Iowa Flood Information System and includes much of the same information about weather and water quantity. There are several ways to view nitrate data from a given site, including as a "widget" on your own website. Administrators will supply data in a spreadsheet form on request.

⁵⁵ A PRI blog post used data from IWQIS. <u>https://www.prrcd.org/may-showers-bring-awesome-graphs/</u>

BioNet

BioNet⁵⁶ provides access to fish and benthic macroinvertebrate surveys collected by the Iowa DNR and State Hygienic Laboratory in rivers and streams. Biological assessments are an important part of the 305(b) water quality reporting process, to determine whether streams are meeting their designated uses. IDNR uses 12 metrics to calculate an index for both fish and macroinvertebrates, which are then compared to index values from relatively good quality reference sites in the same ecoregion.

- 40 sites in Story County have been surveyed since 1994, some multiple times.
- The South Skunk River near Soper's Mill is one of several reference sites that are used to benchmark and interpret assessments done in other streams in the ecoregion. Due to the greenbelt and lack of known sources of pollution, it represents a healthy aquatic community. It has been surveyed five times, most recently in 2017.
- Other recent surveys include Bear Creek at the Skunk River Greenbelt (2017), Dye Creek at Twin Anchors Golf Course (2019), Onion Creek in Ames (2018), and the South Skunk River near Cambridge (2016), Ioway (Squaw) Creek in Ames (2017).
- Downstream sites in neighboring counties include Minerva Creek near St. Anthony, South Minerva Creek near St. Anthony, Indian Creek near Colfax, and the Iowa River near Marshalltown.

Local Data, Not Available from Online Databases

For evaluating long-term trends in the South Skunk River, our best source of data does not appear in any public database but has been provided by a local partner.

The City of Ames has monitored water quality in the South Skunk River above and below the Water Pollution Control facility (WPC) on an almost weekly basis for 18 years. Three locations are monitored.

- Upstream of the WPC (at 265th St, same as short-term former DNR monitoring site)
- 0.3 Downstream of the WPC (at 280th St, same as long term DNR monitoring site)
- 1.3 Downstream of the WPC(at 580th Ave, below the confluence with Walnut Creek)

Parameters measured weekly include nitrate, total phosphorus, ammonia, biological oxygen demand, temperature, and total suspended solids. A smaller subset of parameters (including orthophosphate and *E. coli*) are measured quarterly or yearly.

The City of Ames has also monitored fecal indicator bacteria in 5 urban streams since 2001, as described in Chapter 5.

⁵⁶ <u>https://programs.iowadnr.gov/bionet/Docs/About</u>



Figure 16: Stream and effluent monitoring by the City of Ames show how the Water Pollution Control Facility can influence phosphorus concentrations in the South Skunk River when water levels are low. Figure by Andrew Curtis, Ames Water & Pollution Control.

Several streams have been monitored as part of research projects by faculty at Iowa State University. If monitoring at these locations resumes, this data could help reveal trends.

- Onion Creek⁵⁷ was monitored at multiple locations from 2016-2019 to study the role of streambank erosion on sediment and phosphorus export.
- Bear Creek⁵⁸ has been a site of pioneering research on riparian buffers and saturated buffers since the 1990s. Extensive nitrate data was collected from shallow wells to assess the effectiveness of the practices, but data may also be available from the stream.
- A tributary of Worrell Creek at the new Tedesco Environmental Learning Corridor in Ames was monitored monthly May 2017 through October 2020 with a combination of IOWATER field tests and lab tests for nutrients and bacteria. The project involved a partnership between ISU faculty, Story County Conservation, Iowa DNR, and Prairie Rivers of Iowa.

⁵⁷ https://www.cals.iastate.edu/inrc/phosphorus-contributions-eroding-streambanks

⁵⁸ https://www.extension.iastate.edu/news/explore-bear-creek-saturated-buffer-during-learning-farms-field-day



"Stream and lake monitoring provides information to compare monitored conditions to stream and lake standards and criteria, detect changes over time, and support future watershed rehabilitation efforts. The ability of a monitoring program to detect such changes and the reliability of the comparisons depend upon the nature and design of the monitoring program." -Story Countywide Watershed Assessment, p 142

The mere presence of water quality data is helpful for grant applications, because it demonstrates that there are committed local stakeholders who have studied the issues. But what does that data actually tell us? There are three kinds of comparisons we can make, once we have a complete season of data from a given site.

- 1. Compare to state standards and criteria, to determine if the lake or stream is supporting recreation and aquatic life
- 2. Compare to the same site across time, to determine if water quality has changed
- 3. Compare to other sites measured during the same period, to understand how land management and other influences in the watershed affect water quality

Once the data has been compiled it can be compared to the state standards and criteria, to determine if the water body supports its designated uses. For example, Figure 17 shows *E. coli* data for streams monitored by local partners in 2020. Of the ten sites with sufficient data to evaluate⁵⁹, nine exceeded the primary contract recreation criteria of 126 colonies per 100 mL.



Figure 17: E. coli bacteria in Story County streams in 2020, as compared to recreational criteria

In some cases, as with the nitrate data in Figure 18, there is no relevant standard. While a 10 mg/L criteria is used to evaluate nitrate in drinking water, these streams are not used to supply drinking water. However, by comparing water quality data from streams with different land use or land management in the watershed, we can begin to understand and test our assumptions about what factors influence water quality. For example, here we can see that the lowest nitrate concentrations are found in College Creek, which has a mostly urban watershed. Bear Creek has slightly lower nitrate levels than nearby Long Dick Creek; riparian buffers could be a factor. These kinds of comparisons can help us educate the public and direct outreach and conservation efforts to areas where it can be most effective.

⁵⁹ Fifteen streams were monitored in 2020, but because of dry conditions, only ten had enough data to compare to this criteria. A complete report on the 2020 monitoring season can be found here. <u>https://rpubs.com/dhaugprrcd/newsletter-2020-09</u>



Figure 18: Nitrate data from Story County streams, 2020

With nitrogen and phosphorus, often our primary concern is not their effect on aquatic life in a local stream, but the consequences for the Gulf of Mexico. In this case, it does not much matter whether nitrate is above or below 10 mg/L, but whether we can reduce it from the levels that were seen in 1980-1992 (when the Hypoxia Action Plan was developed) or relative to 2006-2010 (when the lowa Nutrient Reduction Strategy was developed). With a long enough data record, it is possible to detect trends.





However, the length of data collection is only one piece of the puzzle. If the magnitude of the trend is small, it can be washed out by short-term variation. Figure 20 illustrates sampling error by showing four different subsets of a weekly phosphorus dataset. Depending on which week of month sampling occured, phosphorus concentrations could appear to have tripled or to have remained constant over the six year period. Quantifying the uncertainty associated with trends and averages⁶⁰ can help us be confident in our conclusions and can help set realistic expectations for monitoring.



Figure 20: Phosphorus trends in the South Skunk River, depending on which week of the month was sampled, 2003-2008

By paying more attention to how data will be interpreted, and working to interpret the data that we already have, we can ensure that the data we collect over the next 10 years will meet our objectives.

Compare to Standards and Criteria

The Clean Water Act required that states establish water quality standards to ensure that rivers and lakes are swimmable and fishable. Standards have three parts⁶¹: a designated use, criteria to determine whether that use is fully supported, and anti-degradation policy to protect existing uses. For example, Squaw Creek in Story County designated for Primary Contact Recreation. In assessing whether that use is supported, we can compare *E. coli* data to two numeric criteria: 235 colonies per 100 mL for a single sample, or 126 colonies per 100 mL for a seasonal geometric mean. Antidegradation policy comes into play when a wastewater permit is reviewed—for example, the City of Gilbert and Squaw Valley Homeowners Association have both recently installed UV disinfection systems to protect recreational use of loway (Squaw) Creek as a condition of their permits.

Iowa DNR conducts monitoring to support assessments, but does not have the resources to monitor and assess about half the water bodies in Story County (see Table 13). In principle, locally-led monitoring could help fill the gap in understanding whether these waters are supporting aquatic life and recreation.

⁶⁰ In Figures 19 and 20, while the red trendlines measured with once-a-month subsets vary, the gray bands (90 percent confidence intervals) include the 0.14 mg/L trend found in the full once-a-week dataset.

⁶¹ Killam, Gayle. 2005. The Clean Water Act Owner's Manual (second edition), Chapter 1. The River Network.

Data is not credible data unless the data originates from studies and samples collected by the department, a professional designee of the department, or a qualified volunteer.

-Section 455B.193 of Iowa Code

In practice, Iowa DNR is unlikely to use data collected by our locally-led water monitoring program to assess whether waters are meeting their designated uses⁶². Iowa's Credible Data Law⁶³ requires that data used for regulatory purposes be collected by the DNR or its designees. While there is an exception for data collected by trained volunteers under a DNR-approved quality assurance plan, the Department has been reluctant to make use of this provision. As recently as December of 2019, DNR's assessment database described recreational uses of Squaw Creek in Story County as "not assessed." This despite the following data being available:

- 80 samples collected at South Duff Ave from 2004 to 2013 by IOWATER volunteer Erv Klaas, tested using IOWATER's E. coli protocol (EasyGel Coliscan kits) .
- An incident in which raw sewage had been detected leaking into loway (Squaw) Creek, leading to the fix of a flood-damaged sanitary sewer trunk main.
- Summaries of volunteer data in the Squaw Creek Watershed Management Plan (2014), stating that E. coli in Squaw Creek was "well above" the standard.
- Samples collected by volunteers from multiple sites at 12 Ioway (Squaw) Creek Watershed Snapshot events between 2008-2013, and tested by a certified lab.
- 47 samples collected by the City of Ames and partners from 2016-2018, and tested by a certified lab.

After a comment from Prairie Rivers of Iowa on the draft 2018 Assessment this was changed to "Use potentially impaired based on an evaluated assessment", and our lab results from 2016 are now included in the Assessment Database⁶⁴. Adding a creek to the "Waters in Need of Further Investigation" list does not guarantee it will be investigated, but it does provide the public with better information.

Regardless of what DNR does with the information, our locally-led monitoring project could still refer to lowa water quality standards and criteria to help interpret the data for our own purposes, such as education. DNR documents and updates its ambient water monitoring strategy every 5 years⁶⁵. It updates its assessment methodology every 2 years⁶⁶.

⁶⁴ See <u>https://programs.iowadnr.gov/adbnet/Segments/954/Assessment/2018</u> for Squaw Creek and <u>https://programs.iowadnr.gov/</u>

⁶⁵ Ambient Water Monitoring Strategy for Iowa: 2016-2021. <u>http://publications.iowa.gov/23682/</u>

⁶² Assessment in this context means reporting to the EPA every two years under section 305b of the Clean Water Act and development of an Impaired Waters List under section 303d

⁶³ Section 455B.193 thru 455B.195 of the 2001 Iowa Code. See <u>https://programs.iowadnr.gov/adbnet/Docs/Codex/credible%20</u> <u>data%20law</u>

adbnet/Segments/947/Assessment/2020 for East Indian Creek. Note that the 2018 assessment for streams is based on 2016-2018 data.

⁶⁶ Draft Methodology for Iowa's 2020 Water Quality Assessment. <u>https://programs.iowadnr.gov/adbnet/Docs/Publications</u>

Recreational Uses

E. coli, a bacteria present in the guts of warm-blooded animals, is an indicator of fecal contamination from human waste, wildlife, or livestock manure. *E. coli* in the water is linked to a risk of waterborne illnesses. For evaluating whether recreational uses of lakes and rivers are impaired by fecal contamination, the following criteria are used (Table 11). The geometric mean is calculated to represent typical conditions across the recreational season. A separate criteria is used for evaluating a single sample.

	Class A1: primary contact recreational use	Class A2: secondary contact recreational use	Class A3: children's recreational use
Geometric Mean (No. of <i>E. coli</i> organisms/100 ml of water)	126	630	126
Sample Maximum (No. of <i>E. coli</i> organisms/100 ml of water)	235	2,880	235

Table 11: Water quality criteria for indicator bacteria, from Iowa DNR (2020 draft methodology)

Secondary contact recreation involves incidental or accidental contact with water, where the risk of ingesting water is minimal. In addition to waters used for fishing and shoreline activities, this designated use has been applied to rivers that are used for canoeing and kayaking if the water is too shallow for sustained contact with water. Secondary contact recreation is the most permissive designated use that can be applied to a perennial stream. Stricter criteria are applied to waters designated for primary contact recreation such as swimming and water skiing, and waters used for recreation by children.

The same criteria can apply to both rivers and lakes, however the amount of data required varies (Table 12): beaches are monitored weekly, while rivers and non-beach parts of lakes only need to be monitored monthly. DNR and EPA has data completeness guidelines for determining whether there is sufficient data to make an impaired waters determination. If water quality does not meet the criteria, but there is insufficient data to make a determination, or data is not considered "credible," the water body may be placed on the Waters In Need of Further Investigation (WINOFI) list. It's unclear whether a locally-led water monitoring effort should expect to acquire this much data before interpreting results for non-regulatory purposes.

As shown in Table 12, recreational use of lakes is also assessed using trophic state index, an indicator of excessive algae growth. Recreational use of both rivers and lakes can be impaired by extremely acidic or alkaline water, as measured by pH in excess 9 or below 6.5. Both of these criteria are also used to evaluate aquatic life and are described in more detail in the next section.

Table 12: Data completeness guidelines for evaluating recreational uses, from Iowa DNR (2020 draft methodology)

	Designated Use	Type of Information	Data Required
		Data for levels of indicator bacteria (<i>E. coli</i>) from river waterbodies or non-beach areas of publicly-owned lakes or flood control reservoirs	Data collected monthly or more frequently during recreation seasons (March 15 through November 15); at least 7 temporally independent samples need to be collected per recreation season.
	Primary Contact Recreation	Data for levels of indicator bacteria (<i>E. coli</i>) from beach areas of publicly- owned lakes and flood control reservoirs	Data collected approximately weekly during recreation seasons (March 15 through November 15).
		Data from the Iowa DNR-sponsored statewide lake surveys for chlorophyll a and Secchi depth	Data collected at least 3 times per summer for at least 3 years (minimum of 9 samples).
		Data from Iowa DNR-sponsored snapshot monitoring	Data from at least 10 recreation season sampling events (i.e., 10 independent samples) over a five-year period.

Two lakes in Story County have public swimming beaches.

- Hickory Grove Lake
- Peterson Park Lake

Hickory Grove Lake is on the Impaired Waters List due to high bacteria and algal growth. After completion of restoration work, monitoring by Iowa DNR will resume to evaluate progress toward its Total Maximum Daily Load (cleanup plan). Peterson Park Lake was last monitored in 2007, but this was discontinued because *E. coli* counts were quite low. This lake is mostly fed by groundwater rather than surface runoff, which may explain the good water quality. In order to meet the same data completeness guidelines as the Iowa DNR, we would need to monitor weekly. However, even infrequent monitoring might be reassuring for the public, and preferable to no monitoring.

For rivers and lakes without a swimming beach, to evaluate recreational uses with the same completeness guidelines as the Iowa DNR, we would need to collect 7 monthly samples between March 15 and November 15 of a given year.

Up until the 2018 Impaired Waters List, the Iowa DNR had monitored and assessed *E. coli* in only three Story County water bodies. As of December 2020, local partners have collected enough *E. coli* data to evaluate recreational use in 9 additional stream reaches that were never previously assessed (Table 13). All 9 exceed the criteria for primary contact recreation.

loway (Squaw) Creek and East Indian Creek were monitored biweekly in 2016, 2017, and 2018. This data was submitted to DNR for incorporation into the 2018 and 2020 assessment cycles. The City of Ames collected 7 monthly samples in 2019 for Clear Creek, College Creek, and Worrell Creek⁶⁷. In 2020, local partners collected 7 monthly samples for Keigley Branch, Bear Creek, Long Dick Creek, and two locations on West Indian Creek⁶⁸. Results are shown in Figure 17. Fewer than seven samples were collected from Ballard Creek, Clear Creek, and Worrell Creek in 2020 due to dry conditions, but single samples did sometimes exceed the primary contact recreation criteria. This data can be submitted to DNR for inclusion in the 2022 Integrated Report. More importantly, it can be used by local partners to educate the public and inform conservation efforts.

⁶⁷ <u>https://www.cityofames.org/government/departments-divisions-i-z/water-pollution-control/urban-stream-monitoring</u>
⁶⁸ <u>https://rpubs.com/dhaugprrcd/newsletter-2020-09</u>



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	ABDNet		Designated	Monitored and	Monitored by
HUC12	Segment	Geographic Name	Use ⁶⁹	assessed by DNR	local partners
070801050305	6295	Onion Creek	*		
070801050307	6286	Worrell Creek	*		2019
	954	Squaw Creek	A1		2016-2020
	955	College Creek	*		2019-2020
	956	Clear Creek	*		2019
070801050401	960	Long Dick Creek	*		2020
070801050403	958	Bear Creek (lower)	A2		
	959	Bear Creek	*		2020
070801050405	957	Keigley Branch (lower)	*		2020
	1791	Keigley Branch	*		
070801050406	933	South Skunk River	*		
	934	South Skunk River	A1	2012-2014	
	939	McFarland's Pond	-		
070801050502	949	West Indian Creek	A2		2020
070801050602	6298	Drainage Ditch #81	*		
	6629	Unnamed Tributary	*		
		to East Branch			
		Indian Creek			
070801050603	6249	Unnamed Tributary	*		
	6466	to Dye Creek			
		Dye Creek	*		
	948	Dye Creek (lower)	A1		
070801050604	947	East Indian Creek	A1		2016-2020
	950	Hickory Grove Lake	A1	2014-2018	
070801050701	6502	Clear Creek	*		
	6503	Willow Creek	*		
	6504	Unnamed Tributary	*		
		to Willow Creek			
070801050702	946	Mud Creek	*		
070801050801	943	Indian Creek	A1		
070801050802	6626	Wolf Creek	*		
070801050901	953	Walnut Creek	*		
070801050902	952	Ballard Creek (lower)	A3		2020*
	3053	Ballard Creek	A2		
070801050903	932	South Skunk River	A1		
	931	South Skunk River	A1	2016-2020	
070802070802	6284	South Minerva Creek	*		
070802070803	740	Dakin Lake	-		
070802070804	739	Minerva Creek	A2		
070802080101	733	Linn Creek	*		
071000080101	3031	Fourmile Creek	A2		

⁶⁹ A1 - Primary contact recreation, A2-Secondary contact recreation, A3- Children's recreation, * presumed A1

Aquatic Life Uses

The following categories of information are used to evaluate aquatic life in lakes or streams (Table 14).

Designated Use	Type of Information	Data Required
	Data for toxic parameters in waterbodies	A minimum of 10 samples is needed for Fully Supported. A minimum of 2 samples is needed for Not Supported.
Aquatic Life	Data for conventional parameters (DO, pH, temp., ammonia)	A minimum of 10 samples is needed.
	Data from Iowa biological sampling	At least two valid fish index of biotic integrity (IBI) or macroinvertebrate IBI's for calibrated segments sampled during the most recent 5 complete calendar years (see Attachment 2 for more information).
	Data from Iowa DNR-sponsored statewide lake survey	Data collected at least 3 times per summer for at least 3 years (minimum of 10 samples).

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DNR primarily assesses aquatic life directly by surveying fish and aquatic macroinvertebrates, calculating an index, and then comparing the index to high quality reference sites in the same region⁷⁰. The procedures and indexes used are more complicated than the volunteer invertebrate sampling protocol used by the Save Our Streams programs, but the principle is the same. Note that DNR has not yet set guidelines and benchmarks for interpreting data from headwaters streams—defined as having a watershed area of less than 10 square miles, and small enough to sample with one backpack shocker— and so aquatic life uses for many of these streams are categorized as "potentially impaired, based on an uncalibrated index." Regardless of water quality, small streams tend to support a more limited variety of fish and aquatic life due to lack of habitat or limited flow for at least part of the year.

There are aquatic life criteria for several of the water quality parameters routinely monitored by volunteers (Table 15). The thresholds generally represent levels that are chronically or acutely toxic for aquatic life, and are rarely encountered in the field. Dissolved oxygen is the parameter that most commonly falls below the criteria. However, it is important to understand that dissolved oxygen has a daily and seasonal cycle—problems are only likely to be detected if monitoring occurs in the morning during the late summer and fall. While volunteers do measure water temperature, the criteria deal with temperature changes caused by effluent, and so would require a special monitoring setup to evaluate.

⁷⁰ <u>https://programs.iowadnr.gov/bionet/Docs/About</u>

Parameter	Criteria	Number of Story County samples in IOWATER database not meeting criteria
pH (acidity/alkalinity)	< 6.5 or > 9	5 of 2778 have a pH of 4 or 5 45 of 2778 have pH of 6
Dissolved oxygen	<= 4 mg/L (B-WW2)	29 of 2362
(24 nour minimum)	<= 5 mg/L (B-WW1 and BLW)	61 Of 2362
Chloride	389 mg/L	5 of 2203

Table 15: Aquatic life criteria for water quality parameters included in Save Our Streams protocol

The secchi tubes used by volunteers to monitor water clarity in streams are not linked to any formal water quality criteria. However, water clarity in lakes (as measured with a secchi disk) and total suspended solids (a laboratory measure of sediment load) are used in combination with other factors to evaluate aquatic life in lakes.

Toxicity criteria for aquatic life include 10 metals (such as copper) and 5 banned pesticides (such as DDT).

Ammonia criteria are dependent on the pH and temperature of the water body and will not be reproduced here. Ammonia and biological oxygen demand are associated with wastewater and often monitoring by wastewater treatment plants as a condition of permits. High levels of ammonia and biological oxygen demand can also be associated with manure, but spills and runoff-producing events are typically short-lived and difficult to monitor.



Algae blooms and algal toxins caused by nutrient enrichment are a concern in many lakes. Iowa has not established numeric criteria for either phosphorus (a cause of algae blooms) or microcystin (a toxin produced by cyanobacteria). However, criteria have been developed for trophic state index (TSI), to evaluate whether excessive algae growth is limiting A1 (primary contact recreation) and BLW (Lake Aquatic Life) uses in shallow lakes. Trophic state index incorporates *chlorophyll a* (a measure of algae growth), total phosphorus (a plant nutrient that leads to algae growth) and secchi depth (a measure of water clarity). This data is already being collected for Hickory Grove Lake as part of the Ambient Lake Monitoring Program. Detailed studies have also been conducted at Ada Hayden Lake. In order to calculate and evaluate trophic state for McFarland Lake, Peterson Lake, or Dakins Lake using the same data completeness guidelines as the DNR, we would need to measure *chlorophyll a*, total phosphorus, and secchi depth at the deepest point in the lake at least 3 times a year for three years.

The threshold levels at which plant nutrients cause problems in lowa's surface waters have not yet been identified. Thus, the lowa Water Quality Standards does not contain water quality criteria for either levels of phosphorus or nitrogen related to protection for primary contact recreation (Class A) or for aquatic life (Class B) beneficial uses.

- Iowa DNR, 2020 Draft Assessment Methodology, p. 93

The 10 mg/L nitrate criteria only applies to surface waters that are used as a source of drinking water. The South Skunk River and other surface waters in Story County are not used for drinking water. Iowa has not established numeric nutrient criteria to evaluate aquatic life and recreational uses in lakes and streams. This has been a controversial topic, in part because the science questions about the biological relevance of the criteria are mixed up with policy questions about how criteria can and should be enforced.

There is good science showing the connection between nutrients and algal growth in lakes, but the situation in streams is more complicated.

- Algae growth in streams is not well correlated to nutrient concentrations in part because light and temperature are usually the limiting factors, in part because algae use up nutrients in the stream as they grow. The Nutrient-Algal Biomass Conceptual Model can help explain this variation⁷¹.
- Fish and invertebrate diversity in streams is only weakly correlated to nutrient concentrations, in part because habitat, sediment, and pesticides can be a greater influence⁷².
- EPA proposed draft criteria⁷³ in 2000 for nutrients in rivers and streams, by ecoregion. Criteria are based on the 25th percentile of all waters and years monitored. This is intended to represent "conditions in surface waters that are minimally impacted by human activities and are protective of aquatic life and recreational uses." They are not necessarily a threshold at which something changes, or a goal that could be realistically achieved in a heavily developed or agricultural watershed.
- In 2013, the Iowa DNR studied the connections between nutrient enrichment and aquatic life in Iowa streams and found several factors that, in combination, indicated nutrient enrichment and a degraded aquatic community. Draft criteria⁷⁴ were proposed for several classes of streams. These were rejected for official use, but could still be useful for reference. No criteria were proposed for headwater streams (with a watershed of less than 10 square miles) because biological indexes have not yet been set for comparison.

⁷¹ USGS Circular 1437. Understanding the influence of nutrients on stream ecosystems in agricultural landscapes. <u>https://pubs.</u> <u>er.usgs.gov/publication/cir1437</u>

⁷² The Midwest Stream Quality Assessment, 2012. <u>https://pubs.er.usgs.gov/publication/fs20123124</u>

⁷³ For the ecoregion including central lowa, these are found at

https://www.epa.gov/sites/production/files/documents/rivers6.pdf

⁷⁴ https://www.iaenvironment.org/webres/File/Appendix%20B(1).pdf

- Both DNR and EPA draft criteria were based on total phosphorus. Volunteers typically measure only orthophosphate, so could check whether a stream exceeds the criteria, but not whether streams met the criteria, as they would not be measuring organic-bound or sediment-bound forms. A similar situation exists for nitrate vs total nitrogen⁷⁵. Given the high levels of nitrate and phosphorus in our area, this may not be an issue, at least in the next 10 years.
- DNR proposed that a combination of nutrients (i.e. total phosphorus) and response variables (i.e. algae coverage) be assessed using the median of monthly samples collected from June 15 to October 15. EPA did not include guidelines for number or frequency of samples, as they intended that States or Tribes would fill in these gaps.

Stream Designation	Parameter	Acceptable Level	Season
B(WW1), B(WW2),	Total Kjeldahl Nitrogen (TKN)	Median sample value < 0.80 mg/L	June 15 – Oct. 15
(Watershed Area 10-700	Total Phosphorus (TP)	Median sample value < 0.10 mg/L	June 15 – Oct. 15
mi ²)	Dissolved Oxygen Diel Range	Median daily range (maxima-minima) ≤5 mg/L	July 1 – Sept. 15
	Filamentous Algae Coverage Rating	Median rating \leq 3 (50-75%)	June 15 – Oct. 15
	Seston Algal Chlorophyll A	Median sample value: ≤ 5.0 μg/L (Watershed Area ≥10-25 mi ²) ≤ 10.0 μg/L (WA >25-100 mi ²) ≤ 15.0 μg/L (WA >100-300 mi ²) ≤ 20.0 μg/L (WA >300-700 mi ²)	June 15 – Oct. 15

Figure 21: Draft nutrient enrichment criteria⁷⁶ for wadeable warmwater streams

However, there are related metrics that can be compared to state standards.

• In streams, swings in dissolved oxygen can be measured by sampling multiple times in a day, or by deploying a continuous sensor. Aquatic life uses are not fully supported if the daily swings are greater than 5 mg/L, or dissolved oxygen drops below 5 mg/L.

Our best understanding of how water quality influences aquatic life in streams comes from the Midwest Regional Stream Quality Assessment⁷⁷. This detailed study by the USGS and EPA examined dozens of different metrics in 100 streams across the Midwest (including one stream in Story County) to determine which best predicted the composition of the fish, invertebrate, and algae communities.

⁷⁵ EPA included reference criteria for total nitrogen, inorganic nitrogen (nitrate + nitrite), and total kjeldahl nitrogen. DNR draft criteria focused on Total Kjeldahl Nitrogen (organic nitrogen plus ammonia).

⁷⁶ Iowa DNR drafted recommendations for numeric nutrient criteria in August 2013 that were not adopted. <u>https://www.iaenvironment.org/webres/File/Appendix%20B(1).pdf</u>

⁷⁷ https://webapps.usgs.gov/rsqa/img/region/MSQA/factsheet2.pdf

- Fish species loss was best predicted by total nitrogen and fine sediment covering the streambed.
- Invertebrate species loss was best predicted by habitat degradation (including fine sediment, riparian condition, and channel shape), ammonia, and pesticides (in particular bifenthrin, a pyrethroid insecticide).
- Sensitive algae species were lost in streams with more fine sediment, warmer water, and herbicides like atrazine.

For educating the public or improving fisheries, a scorecard approach that looks at multiple factors might be better than trying to interpret single metrics in isolation. We can certainly use the scorecard from the Story County stream included in the study to help educate the public (Figure 22). However, we would need to consult with USGS scientists to determine if and how their complex methods could be adapted for use by a locally-led monitoring program in evaluating other streams.

	Site Score	card		
Ur	nnamed Trib To East B Zearing	r India , IA	an Creek n	ear
	Site Sampled May 20	013 - Oct 2	2013	
	Metric	Value	Unit	Score
Water - N	utrients and Dissolved Oxygen			
Info	Total Nitrogen	19.35	mg/L	High
Info	Total Phosphorus	0.25	mg/L	High
Info	Daytime Dissolved Oxygen Minimum	4.85	mg/L	Low
Water - C	ontaminants			
Info	Predicted pesticide toxicity to invertebrates/cladocerans (PTI)	0.05	Normalized toxicity units	Low
Sediment	- Contaminants			
Info	Benchmark quotient (BQ5)	0.69	Normalized toxicity units	Medium
Info	Pyrethroid pesticides	Medium	See Info	Medium
Habitat				
Info	Riparian Developed	22%	Percentage of riparian buffer	Medium
Info	Percent Fine Sediment	73%	Percentage of ecological reach	High
Ecology				
Info	Macroinvertebrate MMI	39.27	Scaled 1 to 100	Fair
Info	Fish MMI	46.06	Scaled 1 to 100	Poor

Other Uses

Figure 22: Scorecard for a Story County stream in the Midwest Stream Quality Assessment

Iowa DNR assesses the safety of fish consumption by testing fish tissue for mercury, PCBs, and other harmful chemicals that have the potential to accumulate⁷⁸. Bacteria in the water does not pose a risk if fish are properly handled and cooked. Nitrate in the water is not a concern for fish consumption. Of the three water bodies in Story County designated Human Health (HH) for regular fish consumption, only one (Hickory Grove Lake) has recently been monitored. Fish in the South Skunk River were safe the last time they were tested, but the data is now over 10 years old. Fish have not been tested in Dakins Lake.

Additional water quality criteria are used to evaluate lakes and rivers that supply drinking water, but no water bodies in Story County have this designated use (Class C).

⁷⁸https://www.iowadnr.gov/environmental-protection/water-quality/water-monitoring/fish-tissue

Detecting Changes Over Time

Measuring Changes in Water Quality

In order to determine whether water quality is improving, we need a baseline measure of water quality. However, since water quality monitoring typically involves small samples (12-24 measurements per year) that baseline may not be very precise⁷⁹.

The margin of error associated with most water quality averages after 2-5 years of monitoring exceeds 10 percent. As a result, we cannot reasonably expect to detect changes in water quality unless those changes are very large, monitoring is sustained over a long period, or both.

For example, based on 43 samples collected from 2016-2018, nitrate in East Indian Creek averaged 6.7 mg/L from 2016-2018, plus or minus 15%. If we monitor for another three years and measure an average of 6.0 mg/L nitrate, we cannot be certain there has been any improvement. Phosphorus and total suspended solids are even more variable, so have higher margins of error (Figure 23). Total phosphorus in East Indian Creek averaged 0.23 mg/L, plus or minus 25%. Total suspended solids in East Indian Creek is 177 mg/L, plus or minus 50%.



Figure 23: Precision of 2016-2018 water quality baseline, at 90% confidence level

⁷⁹ For a polling analogy that explains the statistical concepts involved, see <u>https://www.prrcd.org/too-close-to-call/</u>

The same statistical logic applies to detection of gradual trends. If we were on track to reduce nitrate in the South Skunk River by 40% in 10 years⁸⁰, it's unlikely we'd be able to measure a statistically significant improvement after 5 years, even with weekly sampling (see Figure 24). At best, we can distinguish between a large improvement and no improvement after 8-10 years. While this will disappoint stakeholders who expect quicker and more conclusive results, long-term monitoring is still worth doing.



Figure 24: Power curve for nitrate in the South Skunk River. Chance of detecting a 0.36 mg/L per year trend (40% nitrate reduction in 10 years) at 90% confidence.

The statistical approach used here, called "power analysis," is mostly used to plan medical trials but has been adapted for water quality monitoring programs⁸¹. If trend detection becomes a priority for local partners, we can use this approach to evaluate the feasibility of site-specific monitoring proposals with one of two methods:

- A. Determine what monitoring schedule (number of samples) is needed to reliably determine if water quality has improved, given some thresholds for trend size and certainty.
- B. Determine how large a trend we can detect or how precisely we can measure a trend, given some monitoring schedule.

Water trends can be detected in less than a decade if the changes are large enough. For example, based on data collected by the City of Ames, nitrate in the South Skunk River has declined by 5.8 mg/L in the past 7 years. The trend is large enough to be statistically significant with monthly sampling. Unlike the phosphorus example in Figure 20, no matter which day of the week we happen to sample, a decline can be observed (Figure 25).

⁸⁰ At current rates of progress, we would not expect to meet Iowa Nutrient Reduction Strategy goals in 10 years. See Iowa Environmental Council. 2019. "The Slow Reality of the NRS." <u>https://www.iaenvironment.org/newsroom/water-and-land-news/iec-analysis-the-slow-reality-of-the-nrs</u>

⁸¹ Jon B. Harcum and Steven A. Dressing. 2015. Technical Memorandum #3: Minimum Detectable Change and Power Analysis, October 2015. Developed for U.S. Environmental Protection Agency by Tetra Tech, Inc., Fairfax, VA, 10 p. Available online at <u>https://www.epa.gov/nps/nonpoint-source-monitoring-technotes</u>



Figure 25: A decline in nitrate in South Skunk River, 2013-2020, holds up after accounting for sampling error

If trends are large enough, they can also be detected by volunteer monitoring. The IOWATER and Save Our Streams programs used test kits with coarse measurement scales—for example, Hach nitrate strips measure at increments of 1, 2, 5, 10, and 20 mg/L. In principle, this could further limit the ability to detect subtle trends—as a strip could not distinguish between 10 and 8 mg/L. However, after reviewing data from sites that volunteers with the Ioway (Squaw) Creek Watershed Coalition monitored monthly for at least 5 years, we found trends similar to those observed in the South Skunk River with lab tests (Figure 26). Trends from three of the six sites were statistically significant, at the 90% confidence level.



Figure 26: Nitrate trends and 90% confidence intervals, 2002-2008, as measured by IOWATER volunteers

Attribution of Changes in Water Quality

If water quality improves, is it because of conservation practices in the watershed, the weather, or some other factor?

Statistical analysis can help to isolate different influences. Prairie Rivers of Iowa used a multiple linear regression model to explain over half the variation in nitrate concentrations in the South Skunk River using the current year's weather, last year's weather, and season⁸². Nitrate concentrations are lowest in a drought (such as occurred in summer of 2012) and highest in a wet spring following a drought (such as spring of 2013). After accounting for those factors, there is still a 2.5 mg/L decline since the peak in 2013, but the longer-term trend disappears (Figure 27).



Figure 27: Attribution of trends in the South Skunk River using multiple linear regression

The gold standard for tracking changes and attributing them to conservation is a paired watershed study⁸³. Much like a medical trial, water quality is measured in both a treatment watershed (which receives conservation practices) and a control watershed (which does not). If both watersheds get similar weather, and water quality in the treatment watershed improves more (or worsens less) than the control watershed, we can attribute that improvement to the conservation practices. This is not without challenges—for Lyon's Creek watershed in Hamilton County, baseline data from three drain tiles were collected, but the study could not be completed because so few conservation practices were installed. Iowa State University is completing a study of cover crops in paired watersheds of 500 to 1300 acres in size (Figure 28), including two sites in Story County⁸⁴.



Figure 28: Preliminary results from paired watershed study by Iowa State University Conservation Learning Labs

⁸² Blog Post: "Weather Whiplash." <u>https://www.prrcd.org/weather-whiplash/</u>

⁸³ Steven A. Dressing and Donald W. Meals. 2005. Designing water quality monitoring programs for watershed projects, Tech Notes 2, July 2005. Developed for U.S. Environmental Protection Agency by Tetra Tech, Inc., Fairfax, VA, 20 p. Available online at <u>https://www.epa.gov/nps/nonpoint-source-monitoring-technotes</u>.

⁸⁴ https://www.iowalearningfarms.org/conservation-learning-labs

The difficulty in using water monitoring to track progress is acknowledged in planning documents for the Iowa Nutrient Reduction Strategy, but is still not widely appreciated. A water monitoring framework released with the Iowa Nutrient Reduction Strategy⁸⁵ suggests that measuring changes at the scale of HUC12 or larger watersheds will take decades. The paper cites the following challenges to watershed-scale assessments of management practices:

- "Legacy nutrients" accumulated in soils and groundwater
- · Lag time between conservation practice adoption and water quality improvement
- · Limited data on extent of conservation practices in the watershed
- Extreme weather events, exacerbated by climate change
- Selection of appropriate locations for monitoring in a watershed
- Variable precipitation and streamflow
- Sustaining long-term data collection

Understand the Influence of Land Use and Land Management

Comparing water quality at multiple sites can help us prioritize focus areas within a larger watershed conservation effort. Total Maximum Data Load (TMDL) studies are a good example of how this can be done. A TMDL is a cleanup plan that usually involves some combination of modeling and monitoring to narrow down sources of pollutants and determine how water quality goals could be achieved⁸⁶.

Computer models such as SWAT and SPARROW are helpful in formalizing our expectations for water quality based on the results of previous studies about the effects of land use, soils, and other influences in the watershed. Water monitoring can then test our expectations and reveal additional influences not captured in the model.

⁸⁵ Stream Water-Quality Monitoring in Support of the Iowa Nutrient Reduction Strategy. Aug 2016. Iowa DNR, IDALS, ISU, and IIHR.

http://www.nutrientstrategy.iastate.edu/sites/default/files/documents/Water%20Monitoring%20and%20the%20NRS%20_%20Final%20 8-24-16.pdf

⁸⁶ <u>https://www.epa.gov/waterdata/surface-water-quality-modeling</u>

For example, in the scientific literature, agricultural land has been found to release much more nitrogen and phosphorus to streams than urban land or woodland. Using landcoverbased nutrient coefficients, as was done in the Story Countywide Watershed Assessment, we would expect a stream like Long Dick Creek with an intensively-farmed watershed to have higher nitrate and phosphorus concentrations than streams like College Creek and Worrell Creek with a more urban watershed (Figure 30). To some extent, the pattern in the water monitoring data from spring⁸⁷ of 2020 matches our expectations (Table 16).



Figure 30: Modeled nitrogen loads based on landcover coefficients, reproduced from Story Countywide Watershed Assessment

Site	% watershed in cropland	% watershed impervious surfaces	Nitrate Apr-Jun 2020	Phosphorus Apr-Jun 2020	
Long Dick Creek @ 567th St	90	<1	15.0	0.14	
West Indian Creek @ Jennett Heritage Area	83	2	11.0	0.34	
loway Creek @ Brookside Park	83	83 1		0.18	
Worrell Creek @ S 16th St	73	3	9.4	0.10	
Clear Creek @ Emma McCarthy Lee Park	71	5	11.5	0.11	
College Creek @ Sheldon Ave	24	23	5.3	0.10	

Table 1	6: Monitorino	a data from	sprina 2020	, compared	l to 2011	landcover	in the	watershed	(usina	NHDPlus
	0	<i>j</i> aata o	001 119 2020	,		101100101		matoronou	(aong	

However, West Indian Creek has much higher phosphorus concentrations than would be expected based on landcover alone—possibly because of the influence of treated effluent from the Nevada Wastewater Treatment Plant, bank erosion, or untreated stormwater. Water monitoring data helped to support a successful grant application by the City of Nevada in 2020 that could address some of these issues.

⁸⁷ In summer and fall of 2020, many streams dried up or were very low, so we have focused on the April to June period.

It is also important to recognize that HUC12 hydrologic units (while convenient for GIS mapping) are not always complete watersheds, and do not always match up with monitoring locations. Ioway (Squaw) Creek at Brookside Park drains about 140,000 acres which includes 6 upstream HUC12 units. Clear Creek, College Creek, and Worrell Creek are also located in the Worrell-Squaw Creek HUC12, but College Creek is a much more urban watershed and has much lower nitrate concentrations than the other two creeks (See Table 16). Fortunately, there are applications available that can analyze landcover, soils, and other information for a custom watershed that better matches a monitoring site⁸⁸.

A pitfall to avoid is making uncorrected comparisons between sites that were monitored on different schedules. While the streams in Table 16 were monitored during the same year and no more than a week apart, larger data sets can include streams that were monitored more or less often during certain seasons or weather conditions. For example, the Ioway (Squaw) Creek Watershed Management Plan included a table of all the volunteer data collected between 2000 and 2013. Some streams, especially those in the lower part of the watershed, were monitored regularly for the whole period. Other streams, especially those in the upper part of the watershed, were monitored for a shorter period, which happened to include years with lower-than-average nitrate concentrations. This apples-to-oranges comparison skewed the overall averages for some sites (See Figure 31) and perhaps explains why water monitoring results did not match the SWAT model, which predicted high nutrient loads in the upper part of the watershed.



Figure 31: Comparisons between sites sampled on different schedules can be misleading. A) SC1 was monitored less often than SC33, and only during a period when nitrate concentrations were lower than average B) which makes both mean (triangle) and median (centerline of box) nitrate concentrations at SC1 appear lower than SC33 if we average all available data, C) but there is no difference if we look at only those months when both sites were monitored.

⁸⁸ https://modelmywatershed.org/ and https://www.epa.gov/national-aquatic-resource-surveys/streamcat-dataset-0


Water quality monitoring can shed light on how particular land management practices within urban or rural areas can influence water quality. The planning committee felt that it was important that monitoring not be used to point fingers at individual landowners or businesses, as this could discourage participation in voluntary monitoring and conservation programs. However comparisons between urban and rural watersheds, or watersheds with more or less cover crops, streams with and without buffers, or watersheds with more or less livestock can help us to understand how the role of these factors in aggregate.

For example, a recent study found that differences in livestock populations and overall nitrogen application rates between the Floyd River and North Raccoon River watersheds could explain differences in water quality, as measured with 19 years of monthly nitrate samples⁸⁹. Some of the streams we are monitoring (i.e. Long Dick Creek, Keigley Branch, West Indian Creek) have higher livestock populations in their watersheds than others (i.e. Grant Creek, Dye Creek) so it will be possible to make similar water quality comparisons to answer questions about the role of concentrated animal feeding operations without singling out individual farms. We may already have relevant data. Walnut Creek watershed in Story County was the subject of long-term monitoring for multiple research projects as part of the Conservation Effects Assessment Project by the USDA-ARS⁹⁰. The watershed is intensively farmed but has almost no livestock. Another watershed in the research project, the South Fork of the lowa River in neighboring Hardin County, is also located in the Des Moines Lobe but has a high concentration of swine facilities. One study comparing these two watersheds found higher concentrations of both indicator bacteria and pathogens in the South Fork⁹¹. The CEAP also has information about the impact of conservation practices in these watersheds.

⁸⁹ Jones, Christopher, Philip Gassman, and Keith Schilling. 2019. "The Urgent Need to Address Nutrient Imbalance Problems in Iowa's High-Density Livestock Regions." Agricultural Policy Review 2019 (3). <u>https://lib.dr.iastate.edu/agpolicyreview/vol2019/iss3/3.</u>
<u>90 https://www.ars.usda.gov/anrds/ceap/ceap-home/</u>.

⁹¹ Givens, Carrie E., Dana W. Kolpin, Mark A. Borchardt, Joseph W. Duris, Thomas B. Moorman, and Susan K. Spencer. 2016. "Detection of Hepatitis E Virus and Other Livestock-Related Pathogens in Iowa Streams." Science of the Total Environment. <u>https://doi.org/10.1016/j.scitotenv.2016.05.123</u>.



While there is plenty of research on the benefits of cover crops and other conservation practices at the field scale, there are fewer examples of success at the watershed-scale⁹². It is easy to understand why. Locally, despite four years of outreach efforts and several thousand acres of cost-shared cover crops and no-till, conservation projects were applied to less than 2% of the cropland in the loway (Squaw) Creek watershed, so any change in water quality would be too small to detect against background variation. However, an lowa State University study in Story County is currently monitoring very small watersheds (500 to 1400 acres) where it was possible to plant the majority of the treatment watershed to cover crops⁹³.

In urban areas, golf courses are often assumed to be a major contributor of nitrogen. In Story County, there are few streams where golf courses make up more than a fraction of a percent of the watershed, which would make it difficult to assess their influence without monitoring ditches or shallow groundwater in an individual golf course. This has been done: a study of six randomly selected lowa golf courses⁹⁴ found that shallow groundwater below golf courses had low nitrate concentrations compared to streams.

Finally, as an example of how volunteer monitoring and water quality snapshots can be used to educate the public about the role of weather, land use, and land management on water quality, see Prairie Rivers' "Watershed Matchup" series of blog posts⁹⁵, released for Watershed Awareness Month in 2019. A key message of the series is that all land uses have some influence on water quality and everyone can be part of the solution.

⁹² Water Quality Targeting Success Stories. 2019. World Resources Institute. <u>https://farmlandinfo.org/publications/water-</u> <u>quality-targeting-success-stories-how-to-achieve-measurably-cleaner-water-through-u-s-farm-conservation-watershed-projects/</u> <u>92 https://www.iowalearningfarms.org/conservation-learning-labs.</u>

 ⁹⁴ Schilling, Keith E., and Matthew T. Streeter. 2018. "Groundwater Nutrient Concentrations and Mass Loading Rates at Iowa Golf Courses." JAWRA Journal of the American Water Resources Association 54 (1): 211-24. <u>https://doi.org/10.1111/1752-1688.12604</u>.
 ⁹⁵ <u>https://www.prrcd.org/watershed-matchups/</u>

HOW CAN WE COLLECT

South Skunk River at Story City

"Volunteer monitoring, lab testing, and data management all have to be part of the water monitoring program. It's like building a house, before you can hang the drywall, you've got to bring in subcontractors to lay the foundation and do the framing."

-Jerry Keys, Environmental Education Coordinator, Story Conservation

Monitoring by Conservation Agencies and Universities

As described in Chapter 3, the following sites are being monitored by other agencies. So long as this continues, our local efforts can focus elsewhere.

- South Skunk River at 280th Street is being monitored monthly by Iowa DNR for a large range of parameters as part of the Ambient Stream Monitoring Network.
- Walnut Creek has continuous nitrate sensors at two locations maintained by the USDA-ARS.
- Ioway (Squaw) Creek has a continuous nitrate sensor at Moore Park in Ames, maintained by IIHR—Hydroscience and Engineering.

Lake Monitoring

There are three elements to lake monitoring.

Beaches

To evaluate recreational safety at public swimming beaches, *E. coli* bacteria (an indicator of fecal contamination) is measured weekly during the recreational season (March 15 to November 15). Hickory Grove is monitored by Story County Conservation in partnership with the Iowa DNR. Story County Conservation will resume monitoring of Peterson Park Lake.

Trophic State

Hickory Grove Lake is monitored 3 times between May and September by Iowa State University on behalf of the DNR as part of the Ambient Lake Monitoring Program⁹⁶. The Countywide Watershed Assessment called for monitoring other priority lakes using this same protocol.

The protocol includes the following three measurements at the deepest point in the lake. These are used to to calculate a trophic state index, which indicates whether recreational and aquatic life uses of lakes could be threatened by nuisance algae blooms.

- Secchi depth (a field measurement)
- Chlorophyll a (measured in the lab)
- Total phosphorus (measured in the lab)

⁹⁶ https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Ambient-Lake-Monitoring



The City of Ames has commissioned detailed 2-year studies of the Ada Hayden Lake on a 5 year cycle⁹⁷. The most recent study included biweekly water testing of both lake cells and three constructed wetlands from May thru October of 2017 and April thru September of 2018. Up to 26 water quality parameters were measured. Depth profiles were constructed for nutrients, temperature, and dissolved oxygen. Phytoplankton and zooplankton were also sampled and classified.

Streams Flowing to Lakes

Monitoring of streams, drainage systems, groundwater, and ditches flowing to lakes can reveal sources of pollution and opportunities for improvement to protect the lake. Intermittent streams flow to Dakins Lake, Ada Hayden Lake, Hickory Grove Lake, and McFarland Lake and all have been previously monitored by volunteers with the IOWATER program. Inflows to Hickory Grove Lake have also been monitored as part of the Total Maximum Daily Load study. Constructed wetlands that flow into Ada Hayden Lake have been monitored as part of studies commissioned by the City of Ames.

Volunteer monitoring of these lake inflows could resume with the support of Story County Conservation and other local partners. The Friends of Ada Hayden have already expressed interest in regular volunteer monitoring of wetland inflows and outflows at Ada Hayden Lake. If *E. coli* is a concern, lake inflows could be included in monthly monitoring routes for lab testing.

However, the timing and transport mechanism for pollutants needs further consideration. While nitrogen is commonly transported in baseflow, nitrogen is rarely the limiting nutrient in lakes. Phosphorus, sediment, and bacteria are usually carried in runoff. To effectively measure pollutants in runoff, it would be necessary to sample during rain events, or make use of samplers that can be retrieved after a storm.

In the case of Ada Hayden Lake, a previous study⁹⁸ found that a major source of phosphorus is dissolved phosphorus (orthophosphate) leaking into shallow groundwater. Shallow monitoring wells installed by Dr. Bill Simpkins at Iowa State University are still present. If there is interest, volunteers could be trained to collect water samples using a bailer, and either test for orthophosphate in the field, or deliver samples to a certified lab.

⁹⁷ https://www.cityofames.org/government/departments-divisions-i-z/water-pollution-control/ada-hayden-water-quality-monitoring

⁹⁸ Ada Hayden Heritage Park Water Quality Monitoring, 2009-2010. Iowa State University Limnology Laboratory.

Monthly Volunteer Testing Organized by Story County Conservation

The new Story County Water Quality Monitoring Program is a volunteer water quality monitoring program whose goals are to provide a balanced approach for citizens to become involved in protecting and improving water resources. Story County Conservation assembled 17 kits for water quality testing in the summer of 2020. As of December 2020, 16 volunteers have expressed interest in adopting a stream for regular monitoring, and 18 sites have been assigned to volunteers.

The following parameters will be tested, following the chemical monitoring instructions in the Izaak Walton League of America's Save Our Streams program. A Quality Assurance Plan is being developed.

- Dissolved oxygen, measured with a CHEMetrics dissolved oxygen test kit
- pH (acidity), measured with a Hach pH test strip
- Chloride, measured with a Hach Chloride Quantab titration strip
- Orthophosphate, measured with a CHEMetrics phosphate test kit
- Nitrate and nitrite, measured with a Hach nitrate-N/nitrite-N test strip
- Transparency, measured with a transparency tube
- Water temperature, measured with a thermometer

Volunteers will use the Izaak Walton League of America's Clean Water Hub to enter data.



Story County Conservation and Prairie Rivers of Iowa worked together on a web map that is being used by the planning team⁹⁹ to select sites in each HUC12 watershed with safe access for volunteer monitoring, and will keep track of sites that have been assigned to volunteers. Sites have been assigned to volunteers in each of the high priority HUC12 watersheds identified in the County-wide Watershed Assessment (Figure 32).



Figure 32: Sites assigned to volunteers are indicated in black

⁹⁹ Since login or security features would require that all participants own an ArcGIS license, at present, it cannot be shared publicly without risk of data loss.

Continued Volunteer Events for Ioway Creek and its Tributaries Organized by Prairie Rivers of Iowa

Water quality snapshot events involve the testing of multiple sites during the same weekend. As the name suggests, this is a "snapshot in time" of water quality that may not be representative of water quality over the whole year. However, snapshot events allow dozens of sites to be tested on the same day or two-day period, giving a better picture of where in the watershed pollutant concentrations are highest and lowest. Snapshots are also a good entry point for volunteers who have not previously done water monitoring or who cannot commit to more regular monitoring. Squaw Creek Watershed Coalition has been holding watershed snapshots in May and October since 2006. Up until 2016, this was done with equipment and training from the lowa DNR through the IOWATER program.

To continue this tradition, Prairie Rivers of Iowa organized two socially-distanced water quality snapshots¹⁰⁰ in 2020.

- In May 2020, 28 volunteers tested water quality at 43 sites.
- In October 2020, 13 volunteers tested water quality at 16 sites, and surveyed invertebrates in Ioway (Squaw) Creek.

Recent snapshot events have used instructional videos and protocols from the Izaak Walton League of America's Save Our Streams program. Save Our Streams uses the same equipment as the IOWATER program. There are only minor differences in data sheets and instructions; the Save Our Streams data sheets omit nitrate, include a lookup table to calculate percent saturation for dissolved oxygen, and report weather differently. A Quality Assurance Plan is being developed.

E. coli monitoring was originally part of the IOWATER program. Volunteers applied stream water to Coliscan Easygel plates, cultured the plates in a homemade incubator, and counted colonies. This method had some notable successes—regular monitoring of Ioway (Squaw) Creek by Erv Klaas lead to the detection and fixing of a sewer leak. However, Iowa DNR found that inexperienced volunteers had difficulty achieving consistent results, and removed *E. coli* testing from the IOWATER protocol. In the October 2019 snapshot, volunteers collected water samples which were processed by a certified lab at Iowa State University, thanks to a partnership with ISU faculty member (Laura Merrick) and a mini-grant for translational research and community engagement¹⁰¹. As this shows, there is potential for overlap between volunteer monitoring and laboratory methods.

Samples Tested by City of Ames's Certified Lab

As described in Chapter 3, the City of Ames Water and Pollution Control Department continues to monitor the following sites on the South Skunk River on a weekly basis for nitrate, total phosphorus, total suspended solids, and several other parameters.

¹⁰⁰ <u>https://www.prrcd.org/fall-2020-snapshot/ and https://www.prrcd.org/2020-spring-water-quality-snapshot/</u>

¹⁰¹ https://www.uturn.iastate.edu/project/coalition-building-in-an-urban-rural-watershed

- Upstream of the Water Pollution Control facility (at 265th St)
- 0.3 Downstream of the WPC (at 280th St)
- 1.3 Downstream of the WPC (at 580th Ave)

For 2020, the City of Ames Water and Pollution Control Lab agreed to process monthly samples from up to 15 sites for nitrate-N, total phosphorus, *E. coli* bacteria, and total suspended solids. We selected a preliminary list of sites to monitor, but this can be adapted to better meet our objectives in subsequent years. A Qualtity Assurance will also be developed.

City of Ames staff already test five streams in Ames for fecal indicator bacteria¹⁰². Monitoring began in 2001 following community concerns about poor water quality in College Creek and the discovery of illegal sewage discharges from two local businesses. Monitoring is done monthly during the warm weather months of April thru October. Fecal coliform was tested from 2001-2018, *E. coli* since August 14, 2018. As part of this project, these water samples were also tested for nitrate-N, total phosphorus, and total suspended solids in 2020.

- Ioway (Squaw) Creek @ 6th St (Brookside Park)
- College Creek @ Sheldon Ave (ISU Arboretum)
- Clear Creek @ Emma McCarthy Lee Park
- South Skunk River @ 13th St (River Valley Park)
- Worrell Creek @ S. 16th St

Ten additional sites were added around the county (Figure 33). Several streams were chosen because they flow through city or county parks that might see fishing or children's play. *E. coli* data can help inform us if these streams are safe for recreation. In addition to having public access, the South Skunk River at Sleep Holow Access was chosen because it has a stream gage and extensive baseline data, as it was a former DNR ambient monitoring site.

- Bear Creek @ W. Maple St, in Roland
- West Indian Creek @ Lincoln Hwy, in Nevada
- Ballard Creek @ 4th St, in Cambridge
- West Indian Creek @ 280th St (Jennett Heritage Area)
- South Skunk River @ Broad St, in Story City
- South Skunk River @ W. Riverside Rd (Sleepy Hollow Access)

Additional streams were chosen that could be covered as part of the same route. Currently we have two routes that can each be covered in about two hours.

- Keigley Branch @ 170th Street
- Long Dick Creek @ 567th St
- Grant Creek @ 280th St (Jennett Heritage Area)
- East Indian Creek @ S27

Prairie Rivers of Iowa has been using the software package "R Studio" to analyze the lab results, publish findings to the web, and update the graphs monthly¹⁰³.

¹⁰² <u>https://www.cityofames.org/government/departments-divisions-i-z/water-pollution-control/urban-stream-monitoring</u>
 ¹⁰³ https://rpubs.com/dhaugprrcd/newsletter-2020-09



Figure 33: Locations of monitoring sites with lab testing or sensors, 2020



Storm Sampling

In the loway (Squaw) Creek Watershed Management Plan and in the Countywide Watershed Assessment, the consultant recommended biweekly monitoring with automated samplers at sites with a USGS gage. There's some sense to this. Flow monitoring is necessary to calculate loads. Storms account for the majority of phosphorus and sediment load. An auto-sampler makes it easier to get a sample when it's raining overnight, and makes it possible to collect a flow-weighted composite sample that is more representative when water quality is changing rapidly. However, as described in Chapter 4, even with storm sampling in Squaw Creek, it was not possible to estimate phosphorus and sediment loads precisely enough to detect trends of less than 20 percent.

Story County Conservation and City of Ames each have Teledyne ISCO 6712 portable samplers that can be deployed for monitoring. These could best be used in a small paired-watershed study or a field-scale assessment of wetlands or other conservation practices, where changes can be detected in a reasonable timeframe.



An alternative way to measure pollutants in runoff is to use a single-stage sampler that fills with water and seals shut when the water in a stream exceeds a certain level (stage). These can be retrieved the next day for analysis. While not suitable for trend monitoring and estimation of pollutant loads across a storm, they can characterize pollutant concentrations in runoff generated during the first part of a storm. Since they are inexpensive, they can be widely deployed to compare water quality in multiple streams, ditches, or drainage systems during storms. This could be useful for educating the public about pollutants carried in runoff, characterizing sources of phosphorus and sediment to a river or lake, or prioritizing watersheds for conservation.

Prairie Rivers of Iowa was given 30 Nalgene Storm Water Samplers¹⁰⁴ and 20 mounting kits from the South Fork Watershed Alliance. These can be mounted in a stream, in a ditch, in a drain tile intake, or suspended below a storm sewer grate (Figure 34). Each of these applications was tested by Prairie Rivers of Iowa and students at Ames High School in 2019, but they have not yet been used countywide.



Stream Mount

Ditch Mount

Figure 34: Diagram of single-stage samplers, reproduced from Nalgene

¹⁰⁴ <u>https://www.thermofisher.com/order/catalog/product/1100-1000</u>

Optical Brighteners

Given widespread *E. coli* impairments in central lowa waters, there is a need for methods to narrow down potential sources of fecal contamination, especially human waste, so that problems can be addressed. In 2019, local partners were working with the State Hygienic Lab to pilot new laboratory protocols for microbial source tracking—using a gene from human *Bacteriodes* (fecal bacteria) to confirm human sources of waste. However, the Covid-19 pandemic demanded the full attention of the State Hygienic Lab, so this project has been postponed until further notice.

Optical brighteners found in laundry detergent are an indicator of wastewater contamination. Dr. Jacob Petrich, Iowa State University Department of Chemistry, will be using spectroscopy to test the sensitivity and longevity of these brighteners to better interpret data from the field. The project will get underway in early 2021, with financial support from the Leopold Center for Sustainable Agriculture and water samples submitted by Story County Environmental Health and City of Ames Public Works. We anticipate this will be a cost-effective way for local partners to narrow down locations of improperly maintained septic systems, illicit discharges, or leaking sewer lines.



GOALS & STRATEGIES FOR YEARS 2021 - 2030

Goal 1: To increase awareness of water quality in Indian Creek and South Skunk River, recognize progress, and engage stakeholders who can positively impact those watersheds.

Strategy 1: Promote and expand the Story County volunteer water monitoring program with at least 120 active volunteers participating over ten years.

Action 1:	Once a year, bring all current and interested water monitoring volunteers together for additional education, updates, and celebration.
Action 2:	Develop and publish a public-facing monitoring report during Watershed Awareness Month, highlighting work accomplished during each year and key findings.
Action 3:	Promote training events so that at least 15 volunteers become certified to identify benthic macro-invertebrates through the Save Our Streams program.

Strategy 2: Educate our targeted audiences at least twelve times/year.

		Action 1:	Promote annually Izaak Walton League and other stream monitoring efforts including the programs of "Snap a Stream Selfie", Winter Salt Watch and Creek Critters.
		Action 2:	Publish semi-annually for ten years, water monitoring articles and updates from data sampling activities, highlighting differences in watersheds that may explain differences in water quality.
		Action 3:	Create opportunities for partners to promote the water monitoring efforts and reports on websites and in social media at least four/year.
		Action 4:	Identify opportunities to educate Story County and upstream landowners on practices that can improve water quality.
		Action 5:	Identify at least three separate opportunities to present to community groups within our targeted watersheds each year, on what the plan is about and how we are doing.
		Action 6:	Connect and engage with educators at our local schools and community organizations to engage youth in water monitoring with at least one class or youth group participating each year.
		Action 7:	Share real time monitoring data from Story County stream sites.
Stra Cou	ite int	gy 3: Develop y to share kno	a water quality manager network for all communities in Story welledge and ideas promoting Source Water Protection.
		Action 1:	Hold a joint meeting once per year for $\frac{1}{2}$ a day that involves learning, sharing, and networking.
		Action 2:	Apply for CEU credit from Iowa DNR to receive credit at this yearly joint meeting.

Strategy 4: Increase the public's engagement with our outdoor water recreation opportunities to enhance the quality of life.

Action 1:	Identify and promote the connections between water quality and healthy fisheries.
Action 2:	Identify and promote the connections between water quality and safe recreation.
Action 3:	Identify at least one family activity/year to encourage connections to our public waters.

Goal 2: Expand monitoring efforts to cover more of the county.

Strategy 1: Support volunteers in regular monitoring of streams using the Izaak Walton League's (IWLA) Save Our Streams protocols for chemical and biological monitoring.

Action 1:	Direct volunteers to stream sites with safe access and that will ensure good coverage of streams and watersheds around the county, using a shared web map to track site assignments.
Action 2:	Help volunteers use the Izaak Walton League's Clean Water Hub to record their data, and work with IWLA to retrieve data in bulk to analyze and incorporate into annual reports.
Action 3:	Monitor benthic macroinvertebrates in streams around the county (taking care not to disturb a site too often) as part of education and outreach events and enter data into the Clean Water Hub.
Action 4:	Continue twice yearly water quality snapshot events to engage the public.

Strategy 2: Collect monthly grab samples from streams around the county for analysis by the City of Ames Water and Pollution Control Laboratory.

Action 1:	In 2021, continue monitoring 15 sites around the county, prioritizing streams with public parks or relevance to the South Skunk River Water Trail.
Action 2:	Review the site list each year to ensure that it reflects current priorities.
Action 3:	Meet with City of Ames staff annually to ensure that the number and timing of samples received is manageable for the lab.
Action 4:	Continue to analyze results of lab testing and publish it to the web.
Action 5:	In 2022, consider adding to or amending the list of sites to include streams feeding into the five priority lakes of McFarland Park, Peterson Lake, Ada Hayden, Dakins Lake, and Hickory Grove Lake.
Action 6:	Consider developing a Quality Assurance Project Plan (QAPP).

- Strate Peter years	egy 3: Coord i son Lake, Ad	inate regular monitoring of five priority lakes: McFarland Lake, la Hayden Lake, Dakins Lake and Hickory Grove Lake over ten
	Action 1:	Story County Conservation will continue to coordinate monitoring of swimming beaches for E. coli with Iowa DNR.
	Action 2:	Monitor trophic state (algae blooms) in all priority lakes either through special projects (Story County and/or City of Ames) or by local monitoring.
– Strate Iakes	egy 4: Launcl and streams	h special monitoring projects to follow up on known issues in
	Action 1:	After a pilot project by Iowa State University, scale up testing of optical brighteners to narrow down sources of untreated wastewater in stream reaches with known <i>E. coli</i> problems.
	Action 2:	Connect volunteers participating in IWLA's Winter Salt Watch with public works staff in Ames and other communities.
	Action 3:	Beginning in 2021, work with volunteers to deploy passive samplers in developed streams to test for pollutants in the first flush of stormwater.
	Action 4:	Look into real-time sensors and data loggers for dissolved oxygen and turbidity for follow-up monitoring of streams with poor biological scores.
	Action 5:	Work with Iowa State University on projects related to Lake LaVerne.
Goa sust and Strate our w	I 3: To ide ain the wa rivers thr egy 1: To ide vatersheds ar	entify and promote actions that improve and ater quality and system resiliency of the lakes rough which water travels. ntify and promote best management practices (BMPs) to stabilize and to achieve a more resilient system.
	Action 1:	Promote the use of Agricultural Conservation Planning Framework (ACPF)
		maps to prioritize potential sites for wetlands and basins based on modeled flood storage and nutrient reduction.
	Action 2:	Actively identify opportunities to install five wetlands and basins over ten years.
	Action 3:	Identify and assist partners in implementation of river restoration toolbox methods for stabilizing 3500 of linear feet over ten years.

Action 4: Identify at least four oxbow restoration projects on either public or private land in Story County.

Strategy 2: To impact long term water quality improvements by evaluating the efficiency of implemented practices and engaging decision makers in our findings.

Action 1:	Analyze and report yearly impacts of soil health restorations on flood reduction capacity and water quality.
Action 2:	Identify at least five urban BMPs and stream stabilization sites to monitor nutrient reduction efficiency.
Action 3:	Share with local, regional, and state decision makers monitoring information to build their awareness for developing policies and regulations related to water quality.

Goal 4: Strengthen the working relationships between current and future partners as we implement the monitoring plan.

Strategy 1: The planning team will meet quarterly to receive and provide updates on the progress of the plan and new ideas that are emerging over the ten years.

Action 1:	Develop a management process for the plan.
Action 2:	On the fifth year of plan, do a substantial review and update all goals and strategies.
Action 3:	Report annual progress on ten-year plan to all audiences including holding a press conference and develop press releases for our partners to announce annual progress on ten-year plan.

Strategy 2: Approve a working budget for the planning team every three years.

Action 1: Budget will be reviewed yearly by the planning team for progress based on a fiscal year July 1 through June 30.

 Strategy 3: Discuss and identify investments to the plan from organizations in the county, and state and federal grants.

Action 1: Apply for new monies to support the plan and new monitoring needs at least once/year.



COOPERATIVE AGREEMENT BETWEEN

CITY OF HUXLEY AND PRAIRIE RIVERS OF IOWA RC&D

This Agreement is made effective on ______ by and between <u>City of Huxley</u>, 515 N. Main Avenue, Huxley, IA 50124 hereinafter referred to as 'CH', and <u>Prairie Rivers of Iowa RC&D</u>, 2335 230th Street, Suite 101, Ames, Iowa 50014, hereinafter referred to as 'PRI' for this agreement.

The parties have agreed and do hereby enter into this agreement according to the provisions set out herein:

A. Description of Services

PRI will work with City of Huxley to implement the 10-year Story County-wide water monitoring plan including:

- Monthly monitoring activities including sampling, data collection, interpretation, and reporting of at least 15 sites in Story County.
- Overseeing two snapshots in 2021, one in May and the other in October. Activities involved are signing up at least 20 volunteers to monitor up to 45 sites including nitrate, orthophosphate, pH, chloride, transparency, and dissolved oxygen.
- Facilitating the water monitoring planning team during their quarterly meetings and in their small group meetings.
- Public relations and communication activities exploring the challenges and promoting the successes through monthly social media posts, six website/blog stories, multiple radio, and newspaper promotions of activities about the monitoring program and identifying ways for the public to get involved.
- A yearly report published reviewing all activities and any trends identified during the year to be published by all partners.
- Coordination with all water monitoring planning team partners for at least two activities during Watershed Awareness Month.
- And other activities that arise to support the ten-year water monitoring implementation plan.

B. Scope of Work Timeline

This contract is in effect from the date of signing through December 31, 2021.

C. Reimbursement

These services will be invoiced and reimbursed for a total of \$______. No greater amount shall be paid without written amendment.

D. Suspension/Termination

Either party may terminate this Agreement by giving written notice to the other, at least 30 days before the effective date of termination. Either party may suspend this agreement. Notification of suspension shall be in writing. In the event of termination by either party, PRI will be paid for compliant services through the date of termination.

E. Entire Agreement

This Agreement contains the entire Agreement of the parties and there are no other promises or conditions in any other Agreement whether oral or written.

F. Amendment

This Agreement may be modified or amended by written order with mutual agreement by both parties.

G. Applicable Laws

The terms and provisions of this Agreement are to be construed in accordance with the State of Iowa and applicable Federal laws, and the Contractor agrees to perform obligations under this Agreement in accordance with said laws including applicable audit requirements.

H. Independent Contractor Status

PRI agrees that the relationship between PRI and CH is that of an independent contractor for employment tax purposes. PRI shall be solely responsible for all taxes relating to payments made under this agreement.

I. Laws

This agreement is governed by the law of the State of Iowa with venue in Story County District Court.

Prairie Rivers of Iowa Contract Page Three

J. Assignment

This agreement may not be assigned or transferred by PRI without the prior written consent of the CH.

IN WITNESS WHEREOF, the parties have executed this Agreement in duplicate and each copy shall constitute an executed counterpart original.

PRAIRIE RIVERS OF IOWA RC&D

Date:

By:_____ Penny L. Brown Huber **Executive Director**

CITY OF HUXLEY

By:_____

Date:

Exhibit #1

PRI Contract Budget

What	How Many		¢	Total
EXPENSES	wiany		Ŷ	lota
Salaries and Fringe				
Watershed Coordinator, Dan Haug	416	Hrs	\$45.00	\$18,720.00
Executive Director, Penny Brown Huber	96	Hrs	\$55.00	<u>\$ 5,280.00</u>
SUBTOTAL				\$24,000.00

	А	В	1	C
1	VENDOR NAME	DESCRIPTION	GRO	DSS AMOUNT
2	519 WELCH LLC	BUILDING PERMIT DEPOSIT REFUNDS	\$	2,000.00
3	ACCUJET LLC	VAC BRINE TANK	\$	1,236.52
4	AFLAC	AFLAC	\$	216.96
5	ALLIANT ENERGY	GAS AND ELECTRIC	\$	12,211.31
6	ANKENY SANITATION	CITY BUILDING TRASH PICKUP	\$	440.58
7	ARNOLD MOTOR SUPPLY	OIL & FILTERS	\$	246.79
8	AUTOMATIC SYSTEMS CO.	WORK ON DIGESTER & TROUBLESHOOT	\$	1,167.75
9	BOLAND RECREATION	INSTALL OF EQUIPMENT	\$	8,900.00
10	BOOK SYSTEMS, INC.	OPAC SNAPSHOT	\$	350.00
11	BOUND TREE MEDICAL	MEDICAL SUPPLIES	\$	156.51
12	BRICK GENTRY P.C.	LEGAL FEES	\$	3,962.50
13	BROWN SUPPLY CO. INC.	CURBKEY, TS, COUPLERS, ETC	\$	115.32
14	BULBGUY LIGHTING	FLAG POLE LIGHTS	\$	106.88
15	CAIDEN HILL	MEMBERSHIP CHANGE REFUND	\$	66.87
16	CATHY VANMAANEN	REIMBURSEMENT FOR POSTAGE	\$	6.17
17	CENTRAL DISTRIBUTORS, INC.	JANITORIAL SUPPLIES	\$	415.00
18	CENTRAL IOWA DISTRIBUTING	FOAM GERMACIDAL	\$	288.60
19	COMPASS MINERALS AMERICA	COARSE ROCK SALT	\$	3,765.65
20	CONSUMERS ENERGY	INSTALL STREET LIGHTS	\$	4,500.00
21	DANKO EMERGENCY EQUIPMENT	FIRE GLOVES & ACCESSORIES	\$	1,342.61
22	DELTA DENTAL PLAN OF IOWA	DENTAL INSURANCE	\$	1,529.08
23	EBS	MEDICAL INSURANCE	\$	17,590.70
24	EDWARD JONES	IRA	\$	250.00
25	EMC INSURANCE COMPANIES	DEDUCTIBLE FOR DEFENSE	\$	2,000.00
26	EMERGENCY MEDICAL PRODUCTS	AMBULANCE SUPPLIES	\$	645.39
27	FIDELITY SECURITY LIFE	VISION INS	\$	318.49
28	GALLS, LLC- DBA CARPENTER	UNIFORM PARTS	\$	67.77
29	HACH COMPANY	BOD STANDARD SOLUTION	\$	91.16
30	HAWKINS, INC.	WATER TREATMENT CHEMICALS	\$	167.12
31	HOKEL MACHINE SUPPLY	CYLINDER RENTAL	\$	60.00
32	HUXLEY COMMUNICATIONS COOP	PHONE, INTERNET, CABLE	\$	1,861.29
33	INTERNAL REVENUE SERVICE	PAYROLL TAXES	\$	24,841.31
34	INTERSTATE BATTERIES	BATTERIES FOR MOWER & PUMP	\$	60.95
35	IOWA ASSN. MUN. UTILITIES	WATER MEMBER DUES	\$	832.00
36	IOWA DEPARTMENT OF PUBLIC	TERMINAL BILLING-JAN TO MAR	\$	300.00
37	IOWA DOT	JANITORIAL SUPPLIES	\$	264.58
38	IOWA FIRE CHIEFS' ASSOCIAT	MEMBERSHIP DUES	\$	75.00
39	IOWA ONE CALL	EMAIL LOCATES	\$	24.30
40	IOWA PRISON INDUSTRIES	STREET SIGNS	\$	136.18
41	IPERS	IPERS	\$	16,771.87
42	JAKE REGENSBURGER	REFUND FOR MEMBERSHIP CHANGE	\$	160.50
43	JEREMY HILLEBRAND	REFUND RENTAL OF FIELDS	\$	550.00
44	JOHNSTONE SUPPLY	PRESSURE SWITCH	\$	48.54
45	KEMPKER'S TRUE VALUE AND R	SEE ATTACHED	\$	284.22
46	LINCOLN FINANCIAL GROUP	DISABILITY & LIFE INSURANCE	\$	1,286.86

1.0	А	В		С
47	MARCO, INC.	COLOR AND B/W COPIES	\$	374.97
48	MARTIN MARIETTA MATERIALS	ROAD STONE & 1" CLEAN ROCK	\$	767.86
49	MASS MUTUAL RETIREMENT SER	DEFERRED COMPENSATION	\$	250.00
50	MENARDS - AMES	RAILWAY BRIDGE REPAIRS	\$	164.85
51	MID-IOWA OCCUPATIONAL TEST	RANDOM DRUG & ANNUAL FEE	\$	260.00
52	MID-IOWA SOLID WASTE EQUIP	RETERMINATION FOR CAMERA	\$	1,183.19
53	MIDWEST AUTOMATIC FIRE SPR	BACKFLOW TESTING	\$	332.25
54	MISCELLANEOUS VENDOR	UTILITY DEPOSIT REFUNDS	\$	648.23
55	MUNICIPAL SUPPLY	METER SPUDS AND MARKING FLAGS	\$	383.25
56	OXEN TECHNOLOGY	REMOTE LABOR	\$	382.00
57	POSTMASTER	BULK POSTAGE	\$	448.00
58	PPG ARCHITECTURAL FINISHES	PAINT FOR WWTP	\$	309.60
59	RODNEY NORRIS	MEMBERSHIP REFUND	\$	200.63
60	SAFE BUILDING COMPLIANCE &	BUILDING INSPECTIONS	\$	7,334.58
61	SIRIACO GARCIA	MURAL FOR FIRE DEPT	\$	950.00
62	STAPLES BUSINESS CREDIT	OFFICE & JANITORIAL SUPPLIES	\$	715.54
63	STAR EQUIPMENT LTD.	VIRNIG LAND LEVELER & HOSE	\$	2,967.72
64	STORY COUNTY TREASURER	JAN PARKING TICKET STOPS	\$	10.00
65	TASC	FLEX BENEFIT PLANS	\$	1,154.10
66	TASC - CLIENT INVOICES	MAY FLEX PLAN ADMIN FEES	\$	69.82
67	TRANE U.S. INC.	HP MOTOR REPLACEMENT	\$	2,044.00
68	TREASURER, STATE OF IOWA	STATE WITHHOLDING	\$	4,007.00
69	U.S. CELLULAR	AMBULANCE CELL PHONES	\$	89.53
70	UTILITY EQUIPMENT COMPANY	FLAGS AND SPUDS	\$	107.26
71	VALLEY ENVIRONMENTAL SERVI	USED OIL DISPOSAL	\$	64.40
72	VAN WERT COMPANY	NEPTUNE METER	\$	2,736.00
73	VAN-WALL EQUIPMENT INC.	BUSHING	\$	15.03
74	VEENSTRA & KIMM, INC.	ENGINEERING FEES	\$	3,388.96
75	VERIZON WIRELESS	PD CELL PHONES MDTS	\$	230.13
76	Payroll Expense		\$	112,718.62
77	GRAND TOTAL		\$	256,020.85
78				
79		FUND TOTALS		
80	001 GENERAL FUND	\$ 56,530.66		
81	002 LIBRARY	\$ 5,980.04		
82	003 RECREATION	\$ 6,417.63		
83	004 FIRE AND RESCUE	\$ 4,161.99	-	
84	014 AMBULANCE	\$ 2,537.62		
85	110 ROAD USE TAX	\$ 14,534.60		
86	339 560TH AVENUE PAVING	\$ 4,500.00		
87	398 DEREUCHE STORM	\$ 11,745.40		
88	600 WATER UTILITY	\$ 20,092.27		
89	610 SEWER UTILITY	\$ 16,802.02		
90	01 PAYROLL EXPENSE	\$ 112,718.62		
91	GRAND TOTAL	\$ 256,020.85		
92				

4-13-21 Council Claims

	A	В	1	С
93				
94	TRUE VALUE BREAK DOWN			
95	P&R	nuts & bolts	\$	0.30
96	Water	gorilla tape, car wash, drill bits, elec. tape, snap off knife,	\$	47.53
97	Parks	spark plug	\$	7.27
98	PD	key	\$	2.49
99	Wastewater	bleach, chip brush, toggle hook, acetone, masking tape, plastic film	\$	118.02
100	Streets	cut wheels, nuts & bolts, wire connector, elec. tape, nipple, coupling, hex wash, steel tube	\$	108.61
101	Total		\$	284.22

	Huxley RECAP March, 2021		
Account No.	Account Name	Statement No.	Balance Due
15398.000	Municipal	347746	\$3,575.00
15398.001	Prosecutions		
15398.002	Fire and Rescue		
15398.003	Prairie Ridge		
15398.005	Litigation		
15398.006	Bond Claims		
15398.011	Planning & Zoning		
15398.012	Public Works	347749	\$37.50
15398.013	Police	347748	\$25.00
15398.014	Parks		
15398.015	Nuisance Abatement	347747	\$325.00
15398.016	HDC		
15398.017	Library		
15398.018	Development		

Total:

\$3,962.50

	Huxley RECAP March, 2021		
Account No.	Account Name	Statement No.	Balance Due
15398.000	Municipal	347746	\$3,575.00
15398.001	Prosecutions		
15398.002	Fire and Rescue		
15398.003	Prairie Ridge		
15398.005	Litigation		
15398.006	Bond Claims		
15398.011	Planning & Zoning		
15398.012	Public Works	347749	\$37.50
15398.013	Police	347748	\$25.00
15398.014	Parks		
15398.015	Nuisance Abatement	347747	\$325.00
15398.016	HDC		
15398.017	Library		
15398.018	Development		

Total:

\$3,962.50



	City of	Huxley	,	Statement Date: Statement No. Account No.	March 25, 2021 347746 15398.000
	Attn: 515 N Huxley	Rita Co orth Ma /, IA 50	nner in Street 0124		Page: 1
	Re:	Μι	unicipal		
			ASB		
			Fees		
02/26/2	2021	ASB	Review of correspondence regarding Nobling Subdivision.		12.50
		ASB	Review of correspondence from Rita Conner regarding COVID Vaccine matters.		25.00
03/01/2	2021	ASB	Review of correspondence and documentation from Rita Conner regarding Nobling Subdivision Plat. Correspondence regarding same.		62.50
03/02/2	2021	ASB	Review of correspondence from Lisa Wheeler regarding insurance matters. Correspondence with her. Review of correspondence from Mike Schoenhorst regarding same. Phone conference with Office Manager regarding requested document. Correspondence regarding same.		62.50
03/03/2	2021	ASB	Review of correspondence from Rita Conner regarding HDC meeting. Correspondence regarding same.		37.50
		MSB	Correspondence with Rita Conner regarding open records issue.		62.50
03/04/2	021	ASB	Calls from and to Rita Conner regarding Nobling Subdivision. Review of correspondence regarding same.		37.50
		ASB	Work on requested Petition and Waiver.		125.00
		MSB	Correspondence with Rita Conner regarding open records issue.		37.50
03/08/2	021	ASB	Review of correspondence from attorney Joe Wallace regarding DZ Flex Space Condo. Legal research regarding same. Correspondence to him.		62.50
03/09/2	021	ASB	Call from Rita Conner regarding Nobling Subdivision.		25.00
		ASB	Completed Petition and Waiver.		100.00
		ASB	Correspondence regarding same.		12.50



Ci	ity of Huxley	,	Statement Date: Statement No. Account No.	March 25, 2 347 15398.0	021 746 000
At 51 Hu	ttn: Rita Co 15 North Ma uxley, IA 5	nner in Street 0124		Page:	2
Re	e: Mu	ınicipal			
	ASB	Review of correspondence from Rita Conner. Review of correspondence from Dave Kuhn.			12.50
	ASB	Review of correspondence and Resolution from Rita Conner. Revisions to Resolution. Correspondence regarding same.			37.50
	ASB	Review of correspondence regarding DZ Flex Space Condo. Response to same.			25.00
	MSB	Correspondence with Rita Conner regarding open records issue.			37.50
03/10/202	1 ASB	Review of correspondence from Rita Conner regarding status of Nobling Subdivision matter.			12.50
	ASB	Review of correspondence from Rita Conner regarding Lakeside and documentation. Response to her.			37.50
03/12/202	1 ASB	Review of correspondence from Rita Conner regarding DZ Flex Space Condos. Review of correspondence from Forrest Aldrich. Legal research regarding Site Plan Submittal. Correspondence regarding same.			75.00
	ASB	Review of correspondence from Rita Conner.			12.50
03/15/202	1 ASB	Review of correspondence and Declaration and other documents for DZ Flex Space Condominiums. Correspondence regarding same.			100.00
03/16/202	1 ASB	Calls from and to Brian Torresi, Nobling attorney. Correspondence to him regarding Petition & Waiver.			50.00
03/18/202 ⁻	1 ASB	Review of correspondence and diagram regarding Plat of Survey for Scooters. Legal research regarding same. Correspondence regarding same.			87.50
	ASB	Review of correspondence from Forrest Aldrich. Review of correspondence from Rita Conner. Review of correspondence from Scott Catron.			25.00
	MSB	Correspondence with Rita Conner regarding same; review of correspondence regarding same.			62.50



City of	Huxley		Statement Date: Statement No. Account No.	М	arch 25, 20 347 15398.0	021 746 000
Attn: F 515 No Huxley	Rita Col orth Ma /, IA 50	nner in Street 0124			Page:	3
Re:	Mu	inicipal				
03/19/2021	ASB	Review of correspondence regarding Scooter's Plat of Survey matters.				25.00
	ASB	Review of correspondence from Rita Conner regarding Kreg Tool. Correspondence regarding same.				25.00
03/22/2021	ASB	Phone conference with Rita Conner and Mayor Deaton regarding various matters.				37.50
	MSB	Correspondence with Rita Conner regarding open records issue.				37.50
	EMC	Review of correspondence from Rita Conner regarding covid vaccine questions/ review of EEOC guidance and recommendations regarding same				100.00
03/25/2021	ASB	Review of correspondence and Fire Department Ordinance information from Rita Conner.				62.50
	ASB	Phone conference with Rita Conner and others regarding various matters.				50.00
	MSB	Correspondence with Rita Conner and Fire Chief regarding medical records issues.			-	75.00
		For Current Services Rendered			ſ	,650.00
<u>Timekeeper</u> Amy Beattie Matt Brick Erin Clantor	- - -	Recapitulation <u>Title</u> <u>H</u> Attorney Attorney Attorney	<u>Hours</u> 9.90 \$12 2.50 12 0.80 12	<u>Rate</u> 5.00 5.00 5.00	<u>1</u> \$1,237 312 100	otal 1.50 2.50 0.00
		Total Current Work			1	,650.00
		Previous Balance			\$1	,925.00
		Balance Due			<u>\$3</u>	,575.00

Thank you.



City of Hux	xley		Statement Da Statement I Account	ate: No. No.	March 25, 34 34 15398	2021 7747 .015
515 North Huxley, IA	Mair 50	ner n Street 124			Page:	1
Re	Nuis	sance Abatement ASB				
		Fees				
03/02/2021 As	SB	Phone conference with City Staff.				87.50
AS	SB	Phone conference with Matt O'Hollearn regarding various nuisance matters.				37.50
M	RO	Telephone conference with Rita regarding nuisance properties.				87.50
03/09/2021 As	SB	Review of correspondence from Rita Conner.				37.50
03/12/2021 AS	SB	Review of correspondence and documentation regarding Forther Building on Main. For Current Services Rendered				<u>37.50</u> 287.50
<u>Timekeeper</u> Amy Beattie Matt O'Hollearn		Recapitulation <u>Title</u> Attorney Attorney	<u>Hours</u> 1.60 0.70	<u>Rate</u> \$125.00 125.00	\$20 8	<u>Total</u> 0.00 7.50
		Total Current Work				287.50
		Previous Balance				\$37.50
		Balance Due				\$325.00



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City of Huxley		Statement Date: Statement No. Account No.	March 25, 2021 347748 15398.013			
Attn: 515 N Huxley	Rita Conner orth Main Street y, IA 50124		Page: 1			
Re:	Police ASB					
	Previous Balance		\$2	5.00		
	Balance Due		\$2	5.00		



City of	Huxley		Statemen Stateme Acco	t Date: ent No. unt No.	March 25, ∷ 34 15398	2021 7749 .012
Attn: H 515 No Huxley	rth Mai , IA 50	nner n Street 124			Page:	1
Re:	Pul	blic Works				
		ASB				
		Fees				
03/05/2021	ASB	Review of correspondence from Jeff Peterson regarding I Correspondence regarding same.	HF 658.			37.50
		For Current Services Rendered				37.50
		Recapitulation				
<u>Timekeeper</u> Amy Beattie		<u>Title</u> Attorney	<u>Hours</u> 0.30	<u>Rate</u> \$125.00	\$3	<u>l otal</u> 37.50
		Total Current Work				37.50
		Balance Due				\$37.50

Thank you.

Applicant	License Application (LE0002598)				
Name of Appli	cant: Fareway Stores, Inc.					
Name of Business (DBA): Fareway Stores, Inc. #155						
Address of Pre	emises: <u>911 Highway 69</u>					
City <u>Huxley</u>	County: Story	Zip: <u>50124</u>				
Business	<u>(515) 597-3663</u>					
Mailing	2300 Industrial Park Road					
City Boone	State <u>IA</u>	Zip: <u>50036</u>				

Contact Person

Name Tracey L. Wilson		
Phone: (515) 433-5336	Email	twilson@farewaystores.com

Classification Class E Liquor License (LE)

Term: 12 months

Effective Date: <u>06/01/2020</u>

Expiration Date: 05/31/2021

Privileges:

Class B Wine Permit

Class C Beer Permit (Carryout Beer)

Class E Liquor License (LE)

Status of Business

BusinessType	<u>Privat</u>	ely Held Corporat	tion			
Corporate ID N	lumber:	<u>XXXXXXXXXX</u>	Federal Emp	bloyer ID XXXXXXX	<u>(XX</u>	
Ownership						
Fred E. Vitt Cont	Fred E. Vitt Control Trust					
First Name:	Fred E.		Last Name:	Vitt Control Trust		
City:	<u>Boone</u>		State:	<u>lowa</u>	Zip:	<u>50036</u>
Position:	<u>Trust</u>					
% of Ownership:	<u>10.87%</u>		U.S. Citizen: Y	es		
Garrett S Piklapp	ט					
First Name:	Garrett S		Last Name:	<u>Piklapp</u>		
City:	<u>Huxley</u>		State:	<u>lowa</u>	Zip:	<u>50124</u>
Position:	Secretary					
% of Ownership:	<u>0.00%</u>		U.S. Citizen: Y	es		
Fareway Control	Trust					
First Name:	<u>Fareway</u>		Last Name:	Control Trust		
City:	<u>Boone</u>		State:	<u>lowa</u>	Zip:	<u>50036</u>

Position:	Trust				
% of Ownership:	<u>55.88%</u>	U.S. Citizen: Yes			
Various Individua holding less than First Name:	als & Trust each 5% Various Individuals & Trust	Last Name:	each holding less th	<u>an 5%</u>	<u>)</u>
City:	<u>Unknown</u>	State:	<u>lowa</u>	Zip:	<u>55555</u>
Position:	Stockholders				
% of Ownership:	<u>33.25%</u>	U.S. Citizen: Y	es		

Insurance Company Information

Insurance Company:	Merchants Bonding Company		
Policy Effective Date:	06/01/2020	Policy Expiration	<u>01/01/1900</u>
Bond Effective	<u>2</u>	Dram Cancel Date:	
Outdoor Service Effective		Outdoor Service Expiration	
Temp Transfer Effective		Temp Transfer Expiration Date:	



Huxley Fire and Rescue

104 Railway Huxley, Iowa 50124

3 February 2019

Council:

Please consider the approval of **David Eastman** for membership to the Huxley Fire Department. He is certified as a Firefighter/Paramedic and has 7 years of experience.

Todd Moomaw Fire Chief
COUNCIL COMMUNICATION

AGENDA HEADING:

Approval for Novana Brown as Huxley Fire & Rescue Emergency Medical Services Deputy Chief and grant a waiver for her to live outside Huxley City limits.

SUBMITTED BY: Rita Conner, City Administrator; Chief Todd Moomaw, Huxley Fire Rescue Department

SYNOPSIS:

Approve Novana Brown as Huxley Fire & Rescue Emergency Medical Services Deputy Chief and grant a waiver for her to live outside Huxley City limits.

ADDITIONAL INFORMATION:

Novana Brown is an Ames resident and her approval of D.C. EMS would require a waiver, since she resides outside of Huxley City limits.

PREVIOUS COUNCIL ACTION(S):

Previous votes by City Council

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS: NONE

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Friday afternoon preceding Monday's Council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.



The City of Huxley appreciates your interest in serving the community and welcomes your application. Please complete all sections of this application. If you have any questions, please contact the City Clerk's Office at (515) 597-2561. Additional information may be found on the city website at <u>www.huxleyiowa.org</u>. The City of Huxley is committed to providing equal opportunity for citizen involvement.

Please indicate those Boards and/or Commissions on which you would be willing to serve by checking below:

Library Board of Trustees Zoning Board Of Adjustments Planning & Zoning Commission

____Tree Board _<u>x</u>_Parks and Recreation Board ___Huxley Volunteer Fire Department

Name [.]	Pedersen	Amber	Dawn	Date: 4/4/2021	
	Last	Last First			
Address	601 Meadow	wbrook Place	Huxley	IA	50124
1144105	Street		City	State	Zip
Occupa	tion: Stay at ho	ome parent FT; Cor	ntract with Girl Scouts	s of Utah PT	
Employ	er's Name & A	ddress:			
Girl S	couts of Utah,	445 East 4500 Sou	th, Suite 125, Salt Lak	te City, UT 84107	
Work T	elephone No:		Hours which you c	can be reached at this nur	nber:
Home T	elephone No:_		Hours which you c	an be reached at this nur	nber:
Cell Ph	one No. <u>319-23</u>	39-0440	_ Hours which you c	an be reached at this nur	nber: Anytime
Email:_	amber.dawn.pe	edersen@gmail.com	m		
How lo	ng have you res	ided in Huxley?	years (June 2016)		
Please l service:	ist any previous I have not ser	s Board membersh ved on a board bef	ip positions (City, Chu	urch, School, Professiona	l, etc.) and dates

Please indicate below the reasons why you would like to be appointed to a Board or Commission and any specific skills or experience that you believe support your application:

We moved to Huxley in 2016 to be close to family after we had our first child (my parents are in Huxley, sister's family is in Polk City). I would like to become involved more in our community. With my background in youth programming I think the park and rec board would be a good fit. I have a major in Leisure, Youth, and Human Services from the University of Northern Iowa (2006). I have worked with various organizations over the past 20 years from Mountain Trail Outdoor School (Outdoor Education Instructor), Mississippi Gulf Coast Community College (Ropes Course and Campus Recreation Coordinator), Girl Scouts of Utah (past --> Camp Director and Outdoor Program Manager; currently --> outdoor program registrar and project specialist). I also have worked as a park and recreation program supervisor in Waverly, IA while in college (youth sports, adult basketball leagues) and worked 8 years at summer camp in Iowa while in high school and college. I feel my background could be an asset to the board.

Please list two references other than a family member:

Name: Mindy Harmon Relationship: Co-worker at Girl Scouts of Utah Phone: 801-209-4670 Name: Cathy Van Maanen Relationship: Know from participating in the library programming. Phone: 515-597-2552

Do you sell to, or are you in any manner a part to, any contract to furnish supplies, material, or labor to the City of Huxley? <u>No</u> If so, please list dates of employment and positions held.

Have you ever been employed by the City? _No_____ If so, please list dates of employment and

Position(s) held._____

Do you have relatives working for the City? <u>No</u> If so, please give name and relationship.

Please mail completed application to the office of the City Clerk at the following address:

City of Huxley 515 N. Main Ave. Huxley, IA 50124 Attn: City Clerk

Mayor Approval:_____

Council Approval Date:_____

Term Start Date:_____ Expiration Date:_____



CITY OF HUXLEY

APPLICATION FOR APPOINTMENT TO BOARDS & COMMISSIONS

The City of Huxley appreciates your interest in serving the community and welcomes your application. Please complete all sections of this application. If you have any questions, please contact the City Clerk's Office at (515) 597-2561. Additional information may be found on the city web site at <u>www.huxleyiowa.org</u>. The City of Huxley is committed to providing equal opportunity for citizen involvement.

Please indicate those Boards and/or Commissions on which you would be willing to serve by checking below:

_	Library Board of Trustees	
	Zoning Board Of Adjustments	
X	Planning & Zoning Commission	

Tree Board Parks and Recreation Board Huxley Volunteer Fire Department

Lypn Date: 4 tterson Name: 10 Address: 203 Sycamore Blud Hurby Street City State Occupation: Dom make Employer's Name & Address: Work Telephone No: Hours which you can be reached at this number: _Hours which you can be reached at this number: Home Telephone No: Cell Phone No. 515 - 291 - 299D Hours which you can be reached at this number: all Cpatters 3D @ gmail.com Email: How long have you resided in Huxley? 21 years Please list any previous Board membership positions (City, Church, School, Professional, etc.) and dates of service: Huxley Planning and Zoning Commission 2016 - present

Please indicate below the reasons why you would like to be appointed to a Board or Commission and any specific skills or experience that you believe support your application:

I have greatly enjoyed learning the planning and 20ning process and look for word to experiencing it with thekky's current proactive approach. Please list two references other than a family member: Name: Rachel Noland Relationship: 02-Vollunteer Phone Number: 515-451-6087 why Van Maanun Relationship: friend Phone Number: 515-979-6429 Name: Do you sell to, or are you in any manner a part to, any contract to furnish supplies, material, or labor to the If so, please list dates of employment and positions held. City of Huxley? ND Have you ever been employed by the City? <u>ND</u> If so, please list dates of employment and Position(s) held. Do you have relatives working for the City? ND If so, please give name and relationship. Please mail completed application to the office of the City Clerk at the following address: City of Huxley 515 N. Main Ave. Huxley, IA 50124 ATTN: Jolene Lettow Mayor Approval: Council Approval Date: Term Start Date:_____ Expiration Date:_____



CITY OF HUXLEY APPLICATION FOR APPOINTMENT TO BOARDS & COMMISSIONS

The City of Huxley appreciates your interest in serving the community and welcomes your application. Please complete all sections of this application. If you have any questions, please contact the City Clerk's Office at (515) 597-2561. Additional information may be found on the city web site at . The City of Huxley is committed to providing equal opportunity for citizen involvement.

Please indicate those Boards and/or Commissions on which you would be willing to serve by checking below:

Library Board of Trustees Zoning Board Of Adjustments Planning & Zoning Commission	Tree Board Parks and Recreation Board Huxley Volunteer Fire Department		
Name: Mosher Goil	Dav/ 1 Dute: 04-07-2021		
Address: 7 16 Della Y 15 Street Occupation: <u>Refaver</u> Employer's Name & Address: Tre	City State Zip		
Work Telephone No: NA	Hours which you can be reached at this number:		
Home Telephone No: NA	Hours which you can be reached at this number:		
Cell Phone No. 515-291-9564	Hours which you can be reached at this number:		
Email: gordym	oner@gmil.com_		
How long have you resided in Huxley?	31 YRS		

Please list any previous Board membership positions (City, Church, School, Professional, etc.) and dates of

rice: mincipale: uncili FA Assoc Huxley Approx 10 yes to date



CITY OF HUXLEY APPLICATION FOR APPOINTMENT TO BOARDS & COMMISSIONS

The City of Huxley appreciates your interest in serving the community and welcomes your application. Please complete all sections of this application. If you have any questions, please contact the City Clerk's Office at (515) 597-2561. Additional information may be found on the city web site at www.huxleyiowa.org. The City of Huxley is committed to providing equal opportunity for citizen involvement.

Please indicate those Boards and/or Commissions on which you would be willing to serve by checking below:

Library Board of Trustees Zoning Board Of Adjustments Planning & Zoning Commission

Tree Board Parks and Recreation Board Huxley Volunteer Fire Department

Name: E	Ebel, Shelby Anne		Date: 4/8/21	
	Last First	Middle		
Address:	924 Ballard Dr, Huxley I	A 50124		
-	Street	City	State	Zip
Occupatio	Transportation Plann	er - Program Manage	ment	
Employer	's Name & Address:			
lowa D	OT - 800 Lincoln Way, A	Ames IA 50010		
Work Tel	ephone No: 515-239-1351	Hours which you can	n be reached at this num	ber: 8am-3p
Home Te	lephone No:	Hours which you car	n be reached at this num	ber:
Cell Phon	e No. 515-450-6186	Hours which you car	n be reached at this num	ber: anytime
cł	nelby.ebel@gmail.com			

Please list any previous Board membership positions (City, Church, School, Professional, etc.) and dates of service:

City of Ames, Zoning Board of Adjustment - Sept 2012-April 2018

Please indicate below the reasons why you would like to be appointed to a Board or Commission and any specific skills or experience that you believe support your application:

I began my career as a City Planner for the City of Fresno, CA and worked there for 7 years until we moved to Ames, Iowa in 2007. I have
worked as a planner with the lowa Dept of Transportation for more than 8 years. I just really love planning and being involved
in the planning and development process whether at work or as a volunteer board member in my community. I have my AICP
certification from the American Planning Association and feel I could contribute greatly to Huxley with my education and work experience.
Please list two references other than a family member:
Name: Amelia Schoeneman Relationship: Personal Phone Number: 515-382-7251
Name: DeeAnn Newell Relationship: Personal/Business Phone Number: 515-239-1364
Do you sell to, or are you in any manner a part to, any contract to furnish supplies, material, or labor to the City of Huxley? <u>No</u> If so, please list dates of employment and positions held.
Have you ever been employed by the City? <u>No</u> If so, please list dates of employment and
Position(s) held.
Do you have relatives working for the City? No If so, please give name and relationship.

Please mail completed application to the office of the City Clerk at the following address:

City of Huxley 515 N. Main Ave. Huxley, IA 50124 ATTN: Jolene Lettow

Mayor Approval:_____

Council Approval Date:_____

Term Start Date:_____ Expiration Date:_____

COUNCIL COMMUNICATION

AGENDA HEADING:

Approve Items Related to the East 1st Street Project

SUBMITTED BY: Rita Conner, City Administrator

SYNOPSIS:

On March 23, 2021, Council held a public hearing on the plans, specifications and form on contract for the East 1st Street project.

The East 1st Street project is the reconstruction of East 1St off Highway 69 as identified in the plans that accompany this Council communication. The existing roadway will be removed and a new 8" PCC street will be constructed. Storm sewers, intakes and driveways will be removed and replaced. The project will be initiated after July 1, 2021 as part of the FY 2022 Capital Improvement Plan (CIP).

On Tuesday, March 16, 2021 the Iowa Department of Transportation held a bid letting for the project Five bids were received ranging from \$621,536 to \$799,501

At this meeting, Council is requested to:

- Approve the project plans, specifications and form of contract for the East 1st Street Project
- Approve Award of the Contract to Concrete Technologies ((Brian Blackford, President, 1001S. E. 37th Street Grimes, Iowa 50011) in the amount of \$621,536

FISCAL IMPACT: YES

Amount: \$621,536.00

<u>Funding Source</u>: Surface Transportation Block Grant (STBG) Swap Funding Awards, 2020 Bond Proceeds. Org and Fund code for the East 1St Street Project to be established by City Clerk/Finance Officer

ADDITIONAL INFORMATION:

- Original engineer's project cost estimate \$724, 349
- The project was originally contemplated to be undertaken in two phases; the phases were combined into one project in 2020 in effort minimize inconvenience to the adjacent owners and traveling public.
- Staff, consulting engineers and the project contractor will prioritize communication with the public for access and logistics during the construction process.

RECOMMENDATION: APPROVAL

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS: YES

COUNCIL COMMUNICATION

- Authorize Mayor to Execute Contract
- Public information process and ongoing communication
- Initiation of work after July 1, 2021

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Friday afternoon preceding Monday's Council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.

RESOLUTION NO. 21-027

RESOLUTION APPROVING PLANS, SPECIFICATIONS AND FORM OF CONTRACT FOR THE EAST 1ST STREET PROJECT

WHEREAS, the plans, specifications and form of contract for the East 1st Street Project ("Project") are on file for review in the City of Huxley's City Clerk's Office and;

WHEREAS, required Notice of Hearing was published in the Ames Tribune on March 9, 2021 and the Public Hearing was held March 23, 2021.

NOW, THEREFORE, IT IS RESOLVED by the City Council of the City of Huxley, Iowa, as follows:

Approve plans, specifications and form of contract as presented

Roll Call	Aye	Nay	Absent
Nate Easter			
David Kuhn			
Greg Mulder			
Rick Peterson			
Tracey Roberts			

PASSED, ADOPTED AND APPROVED this 13th day of April 2021.

APPROVAL BY MAYOR

I hereby approve the foregoing <u>Resolution No. 21-027</u>by affixing below my official signature as Mayor of the City of Huxley, Iowa, this 13th day of April 2021.

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk

RESOLUTION NO. 21-028

RESOLUTION AWARDING CONTRACT FOR THE EAST 1ST STREET PROJECT TO CONCRETE TECHNOLOGIES

WHEREAS, the Iowa Department of Transportation held a bid letting for the East 1st Street Project on March 16, 2021 and;

WHEREAS, five bids were received ranging from \$621, 536 to \$799,501

WHEREAS, Concrete Technologies was the low bid for the project in the amount of \$621,536.

NOW, THEREFORE, IT IS RESOLVED by the City Council of the City of Huxley, Iowa, as follows:

Award contract to Concrete Technologies in the amount of \$621,536

Roll Call	Aye	Nay	Absent
Nate Easter			
David Kuhn			
Greg Mulder			
Rick Peterson			
Tracey Roberts			

PASSED, ADOPTED AND APPROVED this 13th day of April 2021.

APPROVAL BY MAYOR

I hereby approve the foregoing <u>Resolution No. 21-028</u> by affixing below my official signature as Mayor of the City of Huxley, Iowa, this 13^{th} day of April 2021.

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk

CONTRACT

Letting Date: Mar 16, 2021

Contract ID: 85-3630-606

Project Engineer: VEENSTRA & KIMM INC. (WEST DES

MOINES)

Call Order No.: 108

Cost Center: 631000

County: STORY

Object Code: 890

DBE Commitment: \$0.00

Contract Work Type: PCC PAVEMENT - REPLACE

This agreement made and entered by and between the Contracting Authority,

CITY OF HUXLEY

and Contractor,

CONCRETE TECHNOLOGIES, INC. Vendor ID: CO415 City: GRIMES State: IA

State: IA

It is agreed that the notice and instructions to bidders, the proposal filed by the Contractor, the specifications, the plan, if any, for project(s) listed herein, together with Contractor's performance bond, are made a part hereof and together with this instrument constitute the contract. This contract contains all of the terms and conditions agreed upon by the parties hereto.

Contractor, for and in considerations of <u>621,536.85</u> payable as set forth in the specifications constituting a part of this contract, agrees to construct various items of work and/or provide various materials or supplies in accordance with the plans and specifications therefore, and in the locations designated in the Notice to Bidders.

Contractor certifies by signature on this contract, under pain of penalties for false certification, that the Contractor has complied with Iowa Code Section 452A.17(8) as amended, if applicable, and Iowa Code Section 91C.5 (Public Registration Number), if applicable.

In consideration of the foregoing, Contracting authority hereby agrees to pay the Contractor promptly and according to the requirements of the specifications the amounts set fourth, subject to the conditions as set forth in the specifications.

It is further understood and agreed that the above work shall also be commenced or completed in accordance with Contract Time of this Contract and assigned Notes.

To accomplish the purpose herein expressed, the Contracting authority and Contractor have signed this and one other identical instrument.

For Federal-Aid Contracts the Contractor certifies that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the contract.



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Page 1 of 4

Contract Project(s)						
Contract ID: 85-3630-606	Call Order No.: 108 Letting Date: Mar 16, 2021					
Project Number: 51BG-5WAP-3630(607)3	G-85 County: STORY					
Project Work Type: PCC PAVEMENT - REPLA	CE Accounting ID: 37632					
Location: In the City of Huxley on East 1st Street from approx. 100 f eet east of Hwy 69 to approx. 240 feet east of Parkridge Ave						
Route: EATS 1ST ST						
Non-Federal Aid - Predetermined Wages ar	e not in Effect					
Project Number: STBG-SWAP-3630(606)S	G-85 County: STORY					
Project Work Type: PCC PAVEMENT - REPLA	CE Accounting ID: 37631					
Location: In the city of Huxley East 1 Ave east approx. 650'?	st Street Rec Phase 1- From ap prox. 240' east of Parkridge					
Route: EAST 1ST ST						
Non-Federal Aid - Predetermined Wages ar	e not in Effect					



.

03/18/2021 13:46:29

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Page 2 of 4

Contract Time						
	Contract ID:	85-3630-606	Ca L	II Order No.: .etting Date:	108 Mar 16, 2021	
				_		
Site ID			Site Details			Liquidated Damages
00	Late Start Date	e 08/09/2021	4	5 WORK DAYS	5	\$1,000.00

(*) - Indicates Cost Plus Time Site. See Schedule of Items for Cost Per Unit



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Page 3 of 4

		Notes		- 5 -
Contracts ID:	85-3630-606	Call Order No.:	108	
		Letting Date:	Mar 16. 2021	

Notes :

There are no notes for this contract.



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Page 4 of 4

Contract Addenda					
Contract ID:	85-3630-606	Call Order No.: Letting Date:	108 Mar 16, 2021		

No Addenda for this Contract.



Contract Specifications List Page 1 of						
Contract ID:	85-3630-606	Call Order No.: Letting Date:	108 March	16, 2021		
Note		Description				
001.2015	*** STANDARD SPECIFIC The Iowa Department of Tr HIGHWAY AND BRIDGE (Supplemental Specification Specifications AND Specia	ATIONS SERIES 2015 ** ransportation STANDARD S CONSTRUCTION, SERIES ns, Developmental Specifica Il Provisions shall apply to c	AND SPECIFIC 2015, plu ations, Su construction	ATIONS FOR us applicable General pplemental on work on this contract.		



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Contract Specifications List

Page 2 of 3

Contract ID: 85-3630-606

Call Order No.: 108 Letting Date: March 16, 2021

005.15011.01 *** REVISIONS TO GS-15011 ***

1102.01, D, 1, b.

Replace the Article:

When an Individually Prepared Statement is submitted to the Department, the maximum prequalification amount will be \$400,000.

1102.01, D, 2, b.

Replace the Article:

When a CPA Reviewed Statement is submitted to the Department, an experience factor (F) ranging from 0.0 to 12.5, depending on the prospective bidder's past performance with projects let by the Department, will be used in the

prequalification formula. A prospective bidder, who has been qualified to submit proposals with this type of statement, shall be limited to individual proposal sizes that do not exceed the lesser of \$2 million or the maximum

prequalification amount minus the bidder's amount of uncompleted work currently under contract. Any combination of proposals, however, may total more than \$2 million - as long as that total does not exceed the maximum

prequalification amount minus the currently uncompleted work.

1102.01, Competency and Qualification of Bidders.

Add Article E and renumber following Articles:

E. The maximum prequalification amount may be increased for a CPA Reviewed or CPA Audited Statement by providing an Authorization to Loan form and/or by obtaining an equipment appraisal. The Authorization to Loan form

and equipment appraisal would be subject to the following respective restrictions;

1. The Authorization to Loan shall not exceed \$1 million. The Authorization to Loan shall be signed by a duly authorized officer of a banking institution.

2. The equipment appraisal shall be cross-referenced with the depreciation schedule and shall be accompanied by a signed certification letter on the appraisal company's letterhead.



	Contract Specifications List				Page 3 of 3
Contract ID:	85-3630-606	Call Order No.: Letting Date:	108 March	16, 2021	
500.01	*** WINTER WORK *** The free time allowed be project. The Contractor Article 1101.03 'Working	* etween November 15 and Apri shall work during the winter or g Day'.	l 1 will no n all work	t be permitt ing days as	ed on this defined in
GS-15011	GENERAL SUPPLEME CONSTRUCTION	NTAL SPECIFICATIONS FOR	R HIGHW	AY AND BR	IDGE



Sm	ANTER ESIMPLENT COSTOMEN UNIVEN		,	
	Conti	act Schedule		Page 1 of 6
Contrac	t ID: 85-3630-606			
Awa	arded Vendor: CO415	CONCRETE TECH	NOLOGIES, INC.	
SECTION Alt Set ID:	0001 ROADWAY ITEMS - ST Alt Mbr ID:	BG-SWAP-3630(600	6)SG-85	\$309,565.35
Contract Line	Item Number	Item Quantity	Unit Price	Bid Amount
Number	item Description	and Units	Dollars Cer	nts Dollars Cents
0010	2107-0875000 COMPACTION WITH MOISTURE AND DENSITY CONTROL	870.000 CY	8.50	7,395.00
0020	2115-0100000 MODIFIED SUBBASE	435.000 CY	47.25	20,553.75
0030	2123-7450000 SHOULDER CONSTRUCTION, EARTH	13.400 STA	284.00	3,805.60
0040	2301-1033080 STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.	2,310.000 SY	54.00	124,740.00
0050	2301-6911722 PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LUMP SUM		5,275.00
0060	2315-8275025 SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	50.000 TON	42.00	2,100.00
0070	2435-0250600 INTAKE, SW-506	2.000 EACH	9,715.00	19,430.00
0080	2502-6745952 REMOVAL OF SUBDRAIN	450.000 LF	7.50	3,375.00
0090	2502-8212306 SUBDRAIN, STANDARD, PERFORATED, 6 IN., AS PER PLAN	1,340.000 LF	18.00	24,120.00
0100	2502-8221006 SUBDRAIN RISER, 6 IN., AS PER PLAN	4.000 EACH	510.00	2,040.00
0110	2503-0114224 STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN.	31.000 LF	152.00	4,712.00

2,625.00



REPAIR

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SM	ARTER I SIMPLER I CUSTOMER DF	RIVEN	AASF	1 Ovvare Projec	ct'm vers	SION 4.3 Rev	ISION 023
		Cont	ract Schedule			Pa	ge 2 of 6
Contrac	t ID: 85-3630-6	606					
Awa	arded Vendor:	CO415	CONCRETE TECH	INOLOGIES, INC	D.		
SECTION Alt Set ID:	0001	ROADWAY ITEMS - S ⁻ Alt Mbr ID:	FBG-SWAP-3630(60	96)SG-85		\$3(09,565.35
Contract Line	lt	em Number	Item Quantity	Unit Prie	ce	Bid An	nount
Number	Iter	n Description	and Units	Dollars	Cents	Dollars	Cents
0120	2503-0200036 REMOVE STO THAN OR EQU	DRM SEWER PIPE LESS JAL TO 36 IN.	31.000 LF	21.00			651.00
0130	2510-6745850 REMOVAL OF	PAVEMENT	2,310.000 SY	8.75		:	20,212.50
0140	2510-6750600 REMOVAL OF ACCESSES	INTAKES AND UTILITY	2.000 EACH	525.00			1,050.00
0150	2515-2475006 DRIVEWAY, P	.C. CONCRETE, 6 IN.	192.000 SY	81.50			15,648.00
0160	2515-6745600 REMOVAL OF	PAVED DRIVEWAY	121.000 SY	8.50			1,028.50
0170	2526-8285000 CONSTRUCTI	ON SURVEY	LUMP SUM				2,525.00
0180	2528-2518000 SAFETY CLOS	SURE	10.000 EACH	105.00			1,050.00
0190	2528-8445110 TRAFFIC CON	ITROL	LUMP SUM				2,365.00
0200	2533-4980005 MOBILIZATIOI	N	LUMP SUM				19,980.00
0210	2554-0204000 WATER SERV	ICE STUB, PVC 4 IN.	1.000 EACH	9,200.0	0		9,200.00
0220	2554-0204110 WATER SERV IN.	ICE STUB, COPPER, 1	3.000 EACH	3,675.0	D		11,025.00
0230	2599-9999009		50.000				

('LINEAR FEET' ITEM) TILE LINE LF 52.50



	Cont	ract Schedule			Pa	ge 3 of 6
Contrac	t ID: 85-3630-606					
Awa	arded Vendor: CO415	CONCRETE TECH	NOLOGIES, I	NC.		
SECTION Alt Set ID:	0001 ROADWAY ITEMS - S Alt Mbr ID:	TBG-SWAP-3630(60	6)SG-85		\$3	09,565.35
Contract	Item Number	Item Quantity	Unit P	rice	Bid An	nount
Number	Item Description	and Units	Dollars	Cents	Dollars	Cents
0240	2599-9999010 ('LUMP SUM' ITEM) EXISTING WATER MAIN ABANDON IN PLACE	LUMP SUM				3,150.00
0250	2601-2636044 SEEDING AND FERTILIZING (URBAN)	0.300 ACRE	5,030	.00		1,509.00



500	Cor	tract Schedule		Page 4 of 6
Contrac	t ID: 85-3630-606			
00111100 Awr	arded Vender: CO415			
AWG				
Alt Set ID:	Alt Mbr ID:	STBG-SWAP-3630(60	/)SG-85	\$311,971.50
	7			
Contract Line	Item Number	Item Quantity	Unit Price	Bid Amount
Number	Rein Description		Dollars Cen	ts Dollars Cents
0260	2107-0875000	850.000		
	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CY	8.50	7,225.00
0270	2115-0100000	411.000		
	MODIFIED SUBBASE	CY	47.50	19,522.50
0280	2123-7450000	11.000		
	SHOULDER CONSTRUCTION, EARTH	I STA	285.00	3,135.00
0290	2213-7100400	2.000		
	RELOCATION OF MAIL BOXES	EACH	525.00	1,050.00
0300	2301-1033070	83.000		
	PORTLAND OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 7 IN.	SY	77.00	6,391.00
0310	2301-1033080	2,126.000		
	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.	SY	54.00	114,804.00
0320	2301-6911722			
	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LUMP SUM		5,325.00
0330	2435-0250600	2.000		
	INTAKE, SW-506	EACH	9,725.00	19,450.00
0340	2435-0600010 MANHOLE ADJUSTMENT, MINOR	1.000 EACH	1,240.00	1,240.00
0350	2502-6745952	630.000		
	REMOVAL OF SUBDRAIN	LF	7.50	4,725.00
0360	2502-8212306 SUBDRAIN, STANDARD, PERFORATED, 6 IN., AS PER PLAN	535.000 LF	18.00	9,630.00



SM	IARTER I SIMPLER I CUSTOMER DRIVEN	701011		
	Con	tract Schedule		Page 5 of 6
Contrac	t ID: 85-3630-606			
Awa	arded Vendor: CO415	CONCRETE TECH	NOLOGIES, INC.	
SECTION Alt Set ID:	0002 ROADWAY ITEMS - S Alt Mbr ID:	STBG-SWAP-3630(60)	7)SG-85	\$311,971.50
Contract Line	Item Number	Item Quantity	Unit Price	Bid Amount
Number	Item Description	and Units	Dollars Cents	s Dollars Cents
0370	2502-8221006 SUBDRAIN RISER, 6 IN., AS PER PLAN	3.000 N EACH	510.00	1,530.00
0380	2503-0114218 STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 18 IN.	96.000 LF	120.00	11,520.00
0390	2503-0200036 REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	96.000 LF	21.00	2,016.00
0400	2510-6745850 REMOVAL OF PAVEMENT	2,209.000 SY	9.50	20,985.50
0410	2510-6750600 REMOVAL OF INTAKES AND UTILITY ACCESSES	2.000 EACH	525.00	1,050.00
0420	2511-6745900 REMOVAL OF SIDEWALK	22.000 SY	8.50	187.00
0430	2511-7526006 SIDEWALK, P.C. CONCRETE, 6 IN.	22.000 SY	165.00	3,630.00
0440	2515-2475006 DRIVEWAY, P.C. CONCRETE, 6 IN.	388.000 SY	66.75	25,899.00
0450	2515-6745600 REMOVAL OF PAVED DRIVEWAY	388.000 SY	8.50	3,298.00
0460	2526-8285000 CONSTRUCTION SURVEY	LUMP SUM		2,525.00
0470	2527-9263117 PAINTED PAVEMENT MARKINGS, DURABLE	1.150 STA	2,150.00	2,472.50
0480	2528-2518000 SAFETY CLOSURE	10.000 EACH	105.00	1,050.00



0550

2601-2636044

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SM.	AKTER I SIMPLEK I CUSTOMER DI	(IVEN			,		
		Con	tract Schedule			Pa	ge 6 of 6
Contrac	t ID: 85-3630-	606					
Awa	arded Vendor:	CO415	CONCRETE TECH	NOLOGIES,	INC.		
SECTION Alt Set ID:	0002	ROADWAY ITEMS - S Alt Mbr ID:	60°37BG-SWAP-3630	7)SG-85		\$3	11,971.50
Contract	lt	em Number	Item Quantity		Price	Bid Amount	
Number	Iter	n Description	and Units	Dollars	Cents	Dollars	Cents
0490	2528-8445110 TRAFFIC CON	ITROL	LUMP SUM				2,365.00
0500	2533-4980005 MOBILIZATIO	N	LUMP SUM				18,675.00
0510	2554-0204110 WATER SERV IN.	ICE STUB, COPPER, 1	3.000 EACH	3,675	5.00		11,025.00
0520	2599-9999005 ('EACH' ITEM) ADJUSTMENT	VALVE BOX	2.000 EACH	315.	.00		630.00
0530	2599-9999009 ('LINEAR FEE' REPAIR	T' ITEM) TILE LINE	50.000 LF	52.8	50		2,625.00
0540	2599-9999010 ('LUMP SUM' I MAIN ABANDO	TEM) EXISTING WATER DN IN PLACE	LUMP SUM				6,565.00

SEEDING AND FERTILIZING (URBAN) ACRE 7,130.00 1,426.00

0.200

Total Bid:

\$621,536.85

Doc Express® Document Signing History Contract: 85-3630-606 Document: BO 108 85-3630-606 210316 CONTRACT

This document is in the process of being signed by all required signatories using the Doc Express® service. Following are the signatures that have occurred so far.

Date	Signed By
	(Signed by Contractor)
	(Local Public Agency View and Sign Performance Bond)
	(Local Public Agency Signed Contract (by Authorized Signatory))
	(Check by Contracts and Specifications Bureau (DOT))
	(Signed by Contracts and Specifications Bureau (DOT))
	(Signed by Contracts and Specifications Bureau (DOT))
	(Marked Completed by Contracts and Specifications Bureau (DOT))
	(

COUNCIL COMMUNICATION

AGENDA HEADING:

Approve Resolution for Engineering Services for FY 2021 CIP Street Rehabilitation Projects

SUBMITTED BY: Rita Conner - City Administrator; Jeff Peterson, Public Works Director

SYNOPSIS:

Staff has evaluated proposals from three engineering firm to engineer and design the street and watermain projects for the city.

Recommend approval of of Bolton and Menk for the design and engineering services as detailed in the accompanying information.

FISCAL IMPACT:

Amount: \$21,963.00 to Bolton & Menk

<u>Funding Source</u>: FY 20/21 CIP City of Huxley Roadway Use Tax, City of Huxley Water FY 20/21 CIP: Org and Fund code to be provided by the City Clerk/Finance Officer

ADDITIONAL INFORMATION: YES

- Three bids were collected by the Street Superintendent and are included with packet information.
- A brief memo from Street Superintendent is included for recommendation
- Note-the projects that will be designed are in the FY 20/21 CIP. Work will carry over FY 2022 and budget will be amended accordingly.
- As the City continues an annual set of CIP street rehabilitation projects, future processes will have engineering contract bids conducted in the fall/winter for the spring construction season.

PREVIOUS COUNCIL ACTION(S): YES

• Approval of FY 2021 CIP

RECOMMENDATION: APPROVAL

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS:

- Plan development
- Bid process for work to be conducted

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Friday afternoon preceding Monday's Council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.

RESOLUTION NO. 21-029

APPROVING ENGINEERING SERVICES AGREEMENT FOR STREET REHABILITATION PROJECTS FY 2021 CAPITAL IMPROVEMENT PLAN

WHEREAS, the FY 2021 Capital Improvement Plan includes street rehabilitation projects and water main work that will need engineering design and;

WHEREAS, bids have been taken for the engineering work and Bolton Menk is the low bid in the amount of \$21,963.

NOW, THEREFORE, IT IS RESOLVED by the City Council of the City of Huxley, Iowa, as follows:

Approve agreement for engineering services with Bolton Menk for the FY 2021 CIP Street rehabilitation projects.

Roll Call	Aye	Nay	Absent
Nate Easter			
David Kuhn			
Greg Mulder			
Rick Peterson			
Tracey Koberts			

PASSED, ADOPTED AND APPROVED this 13th day of April 2021.

APPROVAL BY MAYOR

I hereby approve the foregoing **<u>Resolution No. 21-029</u>** by affixing below my official signature as Mayor of the City of Huxley, Iowa, this 13th day of April 2021.

ATTEST:

Kevin Deaton, Mayor

Jolene Lettow, City Clerk

2021 Street and Watermain Project Memo

Dear Council,

I have gotten three proposals to do the engineering services for our upcoming street and watermain projects. All three proposals are great and detailed, out lining the services that each company will provide for the city.

I recommend that we go with Bolton & Menk, they are very reputable Engineering Firm and gave the lowest bid to do the services the city is seeking for the up coming projects.

Thanks,

Mat Kahler

Street Superintendent



VEENSTRA & KIMM, INC.

3000 Westown Parkway • West Des Moines, Iowa 50266-1320 515-225-8000 • 515-225-7848 (FAX) • 800-241-8000 (WATS)

March 18, 2021

Mat Kahler City of Huxley 515 N. Main Avenue Huxley, Iowa 50124

CITY OF HUXLEY, IOWA 2021 STREET AND WATER MAIN IMPROVEMENTS ENGINEERING SERVICES

This letter sets forth our proposal for engineering services to be provided for the design of the 2021 Street and Water Main Improvements in Huxley, Iowa. It also includes information on additional engineering services the City may elect to have Veenstra & Kimm, Inc. perform during construction of the project.

PROJECT SCOPE

We understand that the project consists of the following proposed improvements:

- 1. Placement of an asphalt overlay over several streets within the City. Streets to be overlaid include:
 - North 4th Avenue between West 3rd Street and West 5th Street
 - East 4th Street between Highway 69 and North 2nd Street
 - Cedar Lane from Centennial Drive to the end of the cul-de-sac
 - East 5th Street between Parkridge Street and Berhow Park
 - Cypress Drive from Hickory Drive to the end of the cul-de-sac

It is understood that the above streets may need to be milled, patched, or repaired prior to being overlaid.

- 2. Replacement of the existing 4-inch water main with a new 8-inch water main on the following streets:
 - North 4th Avenue between West 4th Street and West 5th Street
 - East 4th Street between Highway 69 and North 2nd Street

SCOPE OF SERVICES

We propose the following engineering services be provided for the design and construction of the project:

- 1. **Topographic Survey.** The Engineers shall complete all topographic surveys necessary for the design of the project and preparation of the plans and specifications. The Engineers shall use aerial photography for the development of plans.
- 2. **Final Design and Plans.** Prepare final drawings and specifications indicating the scope, extent and character of the work to be performed and furnished by the contractor. Revise drawings and specifications as needed in response to review by Owner and applicable City officials. Provide Owner with opinion of probable construction costs. Prepare and furnish bidding documents for review by Owner, its legal counsel and other advisors, and revise bidding documents as needed.
- 3. **Permitting.** Prepare and furnish necessary permit application schedules for the lowa Department of Natural Resources for replacement of the water main as described under Project Scope. Permit fees will be the responsibility of the Owner.
- 4. **Bidding.** Deliver assistance with bid solicitation through notification and invitation of contractors, answer questions of the contractors and Owner, issuance of the addenda as necessary, attendance at the bid opening, preparation of recommendation of award letter and contract preparation.
- 5. **Construction Staking.** Provide construction staking as necessary to include the establishment of required benchmarks and baselines for locations, elevations and grades of construction for the water main replacement work.
- 6. **Construction Administration.** The general services portion of the construction management services shall include the following:
 - a. Arrange for and attend a preconstruction conference to be attended by the successful bidder, his subcontractors, members of government agencies, utility representatives and representatives of the City.
 - b. Consult with and advise the City on problems that arise during construction.
 - c. Process and certify payment estimates of the contractor to the City.

- d. Consult with and advise the City and prepare routine change orders as required.
- e. Coordinate work of testing laboratories.
- f. Assist in the interpretation of plans and specifications.
- g. Review shop drawings and data of manufacturers.
- h. Make final review after construction is completed to determine if the construction complies with the plans and specifications, and certify the reviews were made and that, to the best of the knowledge and belief of the Engineers, the work under the contract has been substantially completed in accordance with the plans and specifications.
- i. Provide the City with plans showing the final as-built construction.

ELECTIVE ADDITIONAL SERVICES

Below is information on additional services the City of Huxley may elect to have Veenstra & Kimm, Inc. perform during construction of the project.

1. **Construction Observation.** Provide resident review services understood to include the detailed observation and review of work of the contractors and materials to assure compliance with the plans and specifications.

The Engineers shall provide resident review services by assigning resident engineers and/or engineering technicians to the project for such periods reasonably required to ensure proper review of the construction work.

COMPENSATION SCHEDULE

Below is a compensation schedule for the engineering services described in this correspondence:

Service	Compensation 1)
Topographic Survey	\$ 2,200
Final Design	29,200
Permitting	900
Bid Administration	1,200
Construction Services including	12,400
As-built Plans	
Total	\$45,900
Elective Additional Services	
On-Site Resident Observation	\$28,700 ²⁾
Total	\$28,700

¹⁾ Anticipated reimbursable expenses such as travel time, mileage expense, printing costs and recording fees are included in the compensation schedule.

²⁾ On-site resident review observation is based upon 350 hours of review at an hourly rate of \$82/hour. Hours can be reduced or increased as needed by the City.

ADDITIONAL SERVICES

If any unforeseen circumstances are discovered as a result of the survey and engineering work as described above and if any additional fees will apply in the event that this situation arises, the Owner will be notified immediately prior to proceeding with any additional necessary work.

If you have any questions or comments, please contact us at 225-8000.

This letter may be made an agreement by affixing the proper date and signatures in the spaces below and returning one copy to us.

VEENSTRA & KIMM, INC.

Fores Allin

Forrest S. Aldrich

0-03

Accepted this _____ day of _____, 2021.

CITY OF HUXLEY, IOWA

ATTEST:

By _____ Mayor

By_____City Clerk

RE: PROFESSIONAL ENGINEERING SERVICES PROPOSAL - 2021 WATER MAIN AND STREET IMPROVEMENTS - HUXLEY, IOWA

Jeff,

Thank you for the opportunity to submit this proposal to assist the City of Huxley (City) with their 2021 streets and water main improvements. ISG enjoyed working with the City of Huxley on the 2020 streets and water main improvements and is excited for the opportunity to continue to partner with the City. It is ISG's understanding that the 2021 streets and water main improvements will include the following:

- Mill and overlay with patching, new water main, and new curb and gutter along North 4th Avenue between West 3rd Street and West 5th Street.
- Mill and overlay with necessary patching and curb and gutter repairs, and water main replacement along East 4th Street between Highway 69 and North 2nd Street.
- Cedar Lane mill and overlay with patching.
- East 5th Street mill and overlay with necessary patching and curb and gutter repairs between Parkridge Street and Berhow Park.
- Cypress Drive mill and overlay with necessary patching and curb and gutter repairs.

The following scope of services will be provided to meet your needs.

SCOPE OF WORK

TOPOGRAPHIC SURVEY

Perform a detailed topographic survey of the existing roadway, parking, sidewalk, curb and gutter, water main infrastructure, and known utilities.

FINAL DESIGN

Prepare final drawings and specifications indicating the scope, extent, and character of the Work to be performed and furnished by the Contractor. Revise drawings and specifications as needed in response to review by Owner and applicable City officials. Provide Owner with opinion of probable construction cost. Prepare and furnish bidding documents for review by Owner, its legal counsel, and other advisors, as revise bidding documents as needed.

PERMITTING

Prepare and furnish necessary permits for Agency clearances, including the Iowa Department of Natural Resources for the new water main on North 4th Avenue between West 3rd Street and West 5th Street, as well as East 4th Street between Highway 69 and North 2nd Street. Includes necessary permitting schedules for review of final design by City and Agency representatives. Permit fees will be the responsibility of the Owner.

BID ADMINISTRATION

Deliver assistance with bid solicitation through notification and invitation of contractors, answer questions of the contractors and Owner, issuance of addenda as necessary, attendance at the bid opening, preparation of recommendation of award letter, and contract preparation.


CONTRUCTION SERVICES

Provide construction administration, resident observation and construction staking as requested by the City during construction of the project. This includes but is not limited too coordinating and holding a preconstruction meeting, review of shop drawings, preparation of pay application, change orders, or other construction related documents, construction staking of utilities, onsite inspection as requested by the City, project closeout and preparation of construction As-Built Plans. All construction services will be on an hourly basis.

COMPENSATION + SCHEDULE

ISG proposes to provide the scope of services described within this proposal for compensation according to the following schedule:

Service	Туре	Compensation
Topographic Survey	Lump Sum	\$3,300.00
Final Design	Lump Sum	\$28,500.00
Permitting	Lump Sum	\$1,500.00
Bid Administration	Lump Sum	\$1,500.00
Construction Services	T&M	\$20,000.00 Not to Exceed

We are prepared to dedicate the resources necessary to submit have construction documents to the ready to bid no later June, 2021, provided ISG receives the requested information and authorization from the City to perform the necessary site visit.

REIMBURSABLE EXPENSES

Anticipated reimbursable expenses such as mileage expenses and printing costs are included within the compensation listed above.

Thank you again for allowing ISG to provide you with a proposal for the City of Huxley's 2021 Streets and Water Main Improvements program. If you have any questions, please contact us. To provide ISG with authorization to proceed, please acknowledge receipt and acceptance of this proposal by signing and dating the acceptance box below. We look forward to the opportunity to assist you with this project.

Sincerely,

Lenny Larson, PE Civil Engineer Lenny.Larson@ISGinc.com

ACKNOWLEDGEMENT OF ACCEPT	ANCE
Accepted this day of, 202:	1
For:	_
Ву:	_
Title:	_
This proposal is valid for 30 days.	



Real People. Real Solutions.

1519 Baltimore Drive Ames, IA 50010-8783

Ph: (515) 233-6100 Fax: (515) 233-4430 Bolton-Menk.com

April 8, 2021

Mat Kahler City of Huxley Street Superintendent 515 N Main Avenue Huxley, Iowa 50124

RE: Engineering Services for the City of Huxley Street and Water Main Projects - 2021

Dear Mat,

Bolton & Menk, Inc. is pleased to present a proposal to provide engineering services related to your upcoming work described above/for the proposed fee of \$21,963.00 in anticipation of a July bid letting to allow for construction to be complete in calendar year 2021.

We propose to perform the field work with survey staff in our Ames office. All work will be completed in Ames and managed by a licensed professional engineer.

Bolton & Menk puts a high priority on ensuring that our company's efforts are consistent with our clients' needs.

If you have any questions or comments please contact me at 515-233-6100 Ext. 3564 or email at eric.cowles@bolton-menk.com

Sincerely, **BOLTON & MENK, INC.**

20 Cowles

Eric Cowles, P.E. Project Manager

Cc: Greg Broussard

1

SCOPE OF SERVICES

The following pages include a description of the tasks necessary to provide civil engineering services required for multiple asphalt overlays around the City of Huxley, Iowa. The project includes design services for all areas listed below:

North 4th Avenue – Mill and overlay with patching, new curb and gutter and new water main.

East 4th Street from US Highway 69, west to North 2nd Avenue – Mill and overlay with patching, curb and gutter repairs and new water main.

Cedar Lane – Mill and overlay with patching.

East 5th Street from Parkridge Avenue, east to the **PCC pavement** – Mill and overlay with patching, curb and gutter repairs.

Cypress Drive from Pine Valley Drive east – Mill and overlay with patching, curb and gutter repairs.

TASK 1 – PROJECT KICK OFF/STREET INVENTORY

Description: The Bolton & Menk will facilitate a project kick-off meeting with City staff to accomplish the following:

- Review and confirm the scope and nature of the proposed improvements
- Review and special conditions regarding project staging during construction
- Prepare and distribute a notification to property owners of the proposed work
- Conduct a field review of project area by project team members and City staff

Deliverables

• Minutes of kick-off meeting

TASK 2 – DATA COLLECTION/TOPOGRAPHIC SURVEY:

Description: Bolton & Menk will complete a topographic survey of the proposed streets including the following items:

- Establish horizontal and vertical survey control, based on City of Huxley coordinate system and NAVD 88
- Ground contours (1 foot) and spot elevations; with spot elevations at important points including building corners, curbs, culverts, walks, road centerlines, and all manhole inverts.
- Types and locations of surfaces (gravel, concrete, bituminous)
- Sidewalk, driveways, and parking areas will be located up to the face of the main structures adjacent to the right-of-ways
- Buildings (if any) and any other significant structures
 - Location of downspouts, rain leaders, stoops and steps
 - Exterior building lines will be shown on the survey at the point of intersection of the most exterior façade at the ground level
 - The building lines and corners will have a horizontal accuracy of ±0.03 feet
 - Interior finished floor elevations will be obtained to a vertical accuracy of ± 0.01 feet at designated locations
 - Building addresses
- Street signs, fences, retaining walls, landscaping and any other permanent site features
- Landscaping and individual trees with diameters over 6 inches will be located and identified on the survey map
 - Trees with diameters under 6 inches will be located, but the diameter will not be included
 - Areas that include multiple small trees will be clustered together and only the exterior limits will be displayed (tree lines)
- Utility Information
- Place an Iowa One Call request for field markings and maps prior to fieldwork beginning; utilities shown will be based on visual observation, utility company marking, or from plans made available to Bolton & Menk; private utilities and those not visible or marked by utility companies will not be shown
 - Upon the completion of the initial design drawing Bolton & Menk will distribute a review copy to all the utility companies identified through

the Iowa One Call process requesting review and comments; after comments are received, we will make appropriate revisions and provide a final CAD file and hard copy

- Storm Sewer, Watermain and Sanitary Sewer
 - Marked and/or visible structures and service lines
 - Intakes and Manholes
 - Hydrants
 - Water valves and curb stops
 - o Structure inventories
 - Rim elevations
 - Pipe sizes
 - Pipe inverts and direction of flow
 - Natural Gas, Communication (Phone/Cable) and Electric
 - Meters, transformers, and pedestals
 - Marked and/or visible service lines
- Set two site benchmarks for each corridor
- Any other significant topographic features visible to survey crew

TASK 3 – PROJECT DEVELOPMENT AND FINAL DESIGN:

Subtask 3.1: Final Plan Preparation

Description: Complete preliminary and final plans. Major design components to include the following:

- Plan view layout of all surface improvements: aerial view, curb lines and other improvements
- Miscellaneous plan sheets, including: Title sheet, tabulations, quantities, typical sections, details, and other required information.
- Preparation and submittal of all required Iowa DNR permits
- Preparation and submittal of all required Iowa DOT permits

Final design and plans will conform to the requirements of the City of Huxley, SUDAS Specification requirements and the City of Huxley's Supplemental Specifications to SUDAS. Plans will be reviewed with City staff at the 50%, and 95% complete stages. The project Manual will be reviewed with the City staff at the 95% complete stage.

Deliverables

• Plans at 50% and 95% complete stages

Subtask 3.2-3.3: QA/QC Review, Final Plans & Specifications

Description: Receive final review from the City. Prepare final plans and specifications for the City.

Deliverables

• Copies of all final plans and specifications.

TASK 3 – PROJECT BID LETTING:

Description: Provide the following services during the bidding phase:

- Prepare advertisement for bids and submit to the City Clerk for publications
- Provide copies of the contract/bidding documents
- Address questions from prospective bidders, subcontractors and suppliers, and prepare and issue addenda as required
- Attend Bid Opening with City Staff
- Review Bids and prepare bid tabulation
- Prepare letter of recommendation for award

Deliverables

- Notes from bidder conversations
- Addenda (if issued)
- Bid Tabulation
- Letter of Recommendation

ADDITIONAL SERVICES

Consulting services performed other than those authorized under Tasks 1-4. shall not be considered part of the Basic Services and may be authorized by the Client as Additional Services. Additional Services consist of those services, which are not generally considered to be Basic Services; or exceed the requirements of the Basic Services; or are not definable prior to the commencement of the project; or vary depending on the technique, procedures or schedule of the project contractor. Additional services may consist of the following:

- 1. Construction administration
- 2. Construction observation
- 3. Construction staking
- 4. All other services not specifically identified in the Proposal.

FEES

Bolton & Menk, Inc's proposed fee for the described Scope of Services is as follows:

	Scope of Services							
	TASK PRICE							
1	Project Kick Off/Street Inventory	\$ 2,072.00						
2	Data Collection/Survey	\$ 3,207.00						
3	Project Development and Design	\$ 14,280.00						
4	Bid Letting	\$ 2,404.00						
	BASE FEE	\$ 21,963.00						

These rates include labor, general business and other normal and customary expenses associated with operating a professional business. Unless otherwise agreed, the above rates include vehicle and personal expenses, mileage, telephone, survey equipment, survey stakes and routine expendable supplies; and no separate charges will be made for these activities and materials.

This scope of work will be completed and invoiced monthly at Standard Hourly Rates with an hourly not to exceed estimated fee listed above. Any changes to the area encompassed by the site plan (on-site or off-site) initiated by the Owner or developer after initial submittal to the City may require an additional fee. Any plan updates or revisions after receiving City of Huxley approved plans will require an additional fee.

The following fee schedule is based upon competent, responsible professional services and is the minimum, below which adequate professional standards cannot be maintained.

It is, therefore, to the advantage of both the professional and the client that fees be commensurate with the service rendered.

Charges are based on hours spent at hourly rates in effect for the individuals performing the work. The hourly rates for principals and members of the staff vary according to skill and experience. The current specific billing rate for any individual can be provided upon request.

Items provided by the Client

• Access to the site as needed

SCHEDULE

Bolton & Menk, Inc. has the staff to deliver bidding documents to the City in anticipation of a July 2021 bid letting.

2021 SCHEDULE OF FEES

The following fee schedule is based upon competent, responsible professional services and is the minimum, below which adequate professional standards cannot be maintained. It is, therefore, to the advantage of both the professional and the client that fees be commensurate with the service rendered. Charges are based on hours spent at hourly rates in effect for the individuals performing the work. The hourly rates for principals and members of the staff vary according to skill and experience. The current specific billing rate for any individual can be provided upon request.

The fee schedule shall apply for the period through December 31, 2021. These rates may be adjusted annually thereafter to account for changed labor costs, inflation, or changed overhead conditions.

These rates include labor, general business, and other normal and customary expenses associated with operating a professional business. Unless otherwise agreed, the above rates include vehicle and personal expenses, mileage, telephone, survey stakes, and routine expendable supplies; no separate charges will be made for these activities and materials. Expenses beyond the agreed scope of services and non-routine expenses, such as large quantities of prints, extra report copies, outsourced graphics and photographic reproductions, document recording fees, outside professional and technical assistance, and other items of this general nature will be invoiced separately. Rates and charges do not include sales tax, if applicable.

Employee Classification	Hourly Billing Rates
Senior Principal	\$230-290/Hour
Principal Engineer/Surveyor/Planner/GIS/Landscape Architect	\$150-225
Senior Engineer/Surveyor/Planner/GIS/Landscape Architect	\$130-220
Project Manager (Inc. Survey, GIS, Landscape Architect)	\$130-215
Project Engineer/Surveyor/Planner/Landscape Architect	\$70-185
Design Engineer/Landscape Designer/Graduate Engineer/Surveyor	\$90-190
Specialist (Nat. Resources; GIS; Traffic; Graphics; Other)	\$70-175
Senior Technician (Inc. Construction, GIS, Survey ¹)	\$90-180
Technician (Inc. Construction, GIS, Survey ¹)	\$65-160
Administrative/Corporate Specialists	\$60-140
Structural/Electrical/Mechanical/Architect	\$120-175
GPS/Robotic Survey Equipment	NO CHARGE
CAD/Computer Usage	NO CHARGE
Routine Office Supplies	NO CHARGE
Routine Photo Copying/Reproduction	NO CHARGE
Field Supplies/Survey Stakes & Equipment	NO CHARGE
Mileage	NO CHARGE

¹No separate charges will be made for GPS or robotic total stations on Bolton & Menk,

Inc. survey assignments; the cost of this equipment is included in the rates for Survey Technicians.

RESOLUTION NO. 21-030

Resolution Setting the Date of Public Hearing for the Blue Sky Residential Rezoning from A-1 and M-1 to R-1

WHEREAS, Van Houweling, CD II has submitted application for the rezoning of approximately 33.17 acres of land in the Blue Sky Commons area; and

WHEREAS, the City is required to conduct a public hearing on the proposed rezoning to allow for public comment; and

WHEREAS, Van Houweling , CD II has submitted materials demonstrating the area proposed for rezoning from A-1 and M-1 to R-I and provided information on property owners within 200'; and

WHEREAS, the City Clerk shall publish the notice of hearing no less than ten (10) days and no more than twenty (20) days prior to the date of the hearing.

WHEREAS, information on the proposed rezoning will be made available for public review no less than ten (10) days and no more than twenty (20) days prior to the date of the hearing.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF HUXLEY, IOWA, that the Huxley City Council sets the date of April 27, 2021 at 6:00 p.m. for the public hearing on the Proposed Blue Sky Residential Rezoning and directs the City Clerk to prepare and publish notice of said hearing.

PASSED AND APPROVED this 13th day of April 2021.

Roll Call	Ауе	Nay	Absent
Nate Easter			
David Kuhn			
Greg Mulder			
Rick Peterson			
Tracey Roberts			

PASSED, ADOPTED AND APPROVED this 13th day of April 2021.

APPROVAL BY MAYOR

I hereby approve the foregoing **Resolution No. 21-030** by affixing below my official signature as Mayor of the City of Huxley, Iowa, this 13th day of April 2021

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk



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12 (Engineer: BKC	Checked By: BKC	Scale: 1" =20	00'
1.02				Technician:TLS	Date: 03/03/2021	T-R-S: TTN-F	RW-SS
211 00	ER	SNYDER & ASSOCIATES, INC. 515-964-1	2727 S.W. SNYDER BLVD ANKENY, IOWA 50023 2020 www.snyder-associates.com	Project No:121.0	211	Sheet C	100

RESOLUTION NO. 21-031

Resolution Setting the Date of Public Hearing for the Toy Box Industrial Rezoning from R-1 to M-1

WHEREAS, Philip and Kristina Brekke have submitted application for the rezoning of approximately 11.567 acres of land at 203 Campus Avenue; and

WHEREAS, the City is required to conduct a public hearing on the proposed rezoning to allow for public comment; and

WHEREAS, Philip and Kristina Brekke have submitted materials demonstrating the area proposed for rezoning from R-1 to M-1 and provided information on property owners within 200'; and

WHEREAS, the City Clerk shall publish the notice of hearing no less than ten (10) days and no more than twenty (20) days prior to the date of the hearing.

WHEREAS, information on the proposed rezoning will be made available for public review no less than ten (10) days and no more than twenty (20) days prior to the date of the hearing.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF HUXLEY, IOWA, that the Huxley City Council sets the date of April 27, 2021 at 6:00 p.m. for the public hearing on the Proposed Toy Box Rezoning and directs the City Clerk to prepare and publish notice of said hearing.

PASSED AND APPROVED this 13th day of April 2021.

Roll Call	Ауе	Nay	Absent
Nate Easter			
David Kuhn			
Greg Mulder			
Rick Peterson			
Tracey Roberts			

PASSED, ADOPTED AND APPROVED this 13th day of April 2021.

APPROVAL BY MAYOR

I hereby approve the foregoing **Resolution No. 21-031** by affixing below my official signature as Mayor of the City of Huxley, Iowa, this 13th day of April 2021

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk



REQUEST FOR REZONING

ADJACENT OWNERSHIP WITHIN 250'

- (1) COLLEGIATE CONCEPTS, INC. PO BOX 66 ANKENY, IA 50021-0066
- (2) HEDRICK COMMERCIAL PROPERTIES 104 CAMPUS DR HUXLEY, IA 50124-9724
- (3) IES UTILITIES INC PO BOX 77007 MADISON, WI 53707-1007
- (4) LAKESIDE CONTRACTORS, LLC 4850 TIMBER CREEK LN AMES, IA 50010
- (5) DZ FLEX SPACE, LLC 2404 PARK DR WEST DES MOINES, IA 50265
- (6) BONITA J & THOMAS R MENKEN, TRUSTEES 543 W TRACE DR POLK CITY, IA 50226
- (7) JAMES A & SUSAN E DEVIG 406 W 1ST ST HUXLEY, IA 50124-9740
- (8) TOY BOX STORAGE, LLC 203 CAMPUS AVE HUXLEY, IA 50124
- (9) MR STORAGE, LC 506 E 1ST ST HUXLEY, IA 50124
- (10) HUXLEY COOPERATIVE TELEPHONE CO 102 N MAIN ST HUXLEY, IA 50124
- (11) DENNIS W & SHARON M HEINEN 304 SYCAMORE BLVD HUXLEY, IA 50124

PARCELS WITHIN 250'

<u>Owner</u>	Acres within 250'	Area % within 250'	Consent % within 250'
1	0.150	1.30%	
2	0.055	0.48%	
3	3.740	32.33%	
4	0.021	0.18%	
5	0.149	1.29%	
6	2.997	25.91%	
7	0.876	7.57%	
8	2.274	19.66%	
9	0.486	4.20%	
10	0.255	2.20%	
11	0.564	4.88%	
Total	11.567	100.00%	

R REZONING (R-1 TO M-1)	FIELD WORK.:		01	
is Avenue, Huxley, Jowa 50124	DRAWN BY: BRC	1/5/2021	FILE #: RZ210	1
T E 220') Lots 1, 2 and N 49.2' on E line and N	REVISED BY:		SCALE	SHEET
. M. Johnson's Addition to the Town of Huxley.	REVISED BY:			1
Scott Renaud (Renaud Engineering, LLC)	REVISED BY:			
Philip & Kristina Brekke	REVISED BY:		HORIZ.: 1"=100'	Of <u>1</u>

AGENDA HEADING:

Review and Discussion with Continental Manufacturing Chemist (CMC)

SUBMITTED BY: Rita Conner, City Administrator; Jeff Peterson, Public Works Director

SYNOPSIS:

On June 12, 2018 by Resolution 18-049 the Huxley City Council approved an Amended Supplementary Agreement for Wastewater Services with Continental Manufacturing Chemist, Inc. (Steve DeMarcky, Vice President of Operations, 1501 Blue Sky Blvd Huxley, Iowa 50124) Subsequently, language was added to the original Agreement and approved on July 10, 2018, by Resolution No. 18-061.

In July 2020, the City of Huxley Wastewater Treatment Plant superintendent reported June 2020 usage levels exceeding the allowable amount of effluent permitted to be discharged into the City of Huxley Wastewater Treatment system per the agreement. CMC was notified of the overage and cost estimate for the additional treatment required, provided with test results, and directed to remediate the condition. CMC performed tank cleaning at the 1501 Blue Sky Blvd. facility and stated that the company's intent was to install an evaporator system that would correct the condition permanently. The City subsequently performed tank cleaning at the Wastewater Treatment system from impact of additional overage, were the condition not promptly remediated.

Phone meetings were conducted between CMC and City of Huxley staff on July 28, August 17, and September 14 to discuss monthly test results, advise that the surcharge under the agreement was in place and determine CMC's timing for the installation of the evaporator. Test results for July and August 2020 continued to show usage levels exceeding the allowable amounts in the agreement. A letter outlining the issue, costs to date and remediation expectation that had already been verbally conveyed was sent to CMC December 18, 2020 and another phone meeting between staff and the company was conducted December 22, 2020.

Staff met with CMC at the facility on March 8, 2021 to view the evaporator that had been installed and was near completion. Upon completion, the intent is that CMC will be taken offline from the City's plant with the exception of standard waste. At this time, CMC reports that 40' of pipe is all that remains for the completion of the evaporator system. The company has asked for consideration on reduction of the current amount of charges and will be in attendance to present to Council.

FISCAL IMPACT:

Amount: Total charges to date are \$1,866,830.29

ADDITIONAL INFORMATION: YES

• The City requested the installation of the evaporator system by January 31, 2021, prompt status on timing of the installation of a second evaporator system proposed for completion by March 2021, if warranted, and an engineer's formal report on the

performance intention of these systems to manage CMC effluent to the terms of the agreement. The City reserved the ability to cease provision of wastewater services to CMC if remediation steps were not taken, or the condition recurred, causing impact to the City of Huxley Wastewater Treatment system.

- The City also requested CMC to abide by Section 2 paragraph B in the pretreatment agreement if CMC plans to discharge any amount of "production waste" after evaporator system/ equalization tank. With the install of the evaporator system the flows should be minimal, but sampling is still required if any discharge is present. A sampling point for the sampler pickup tube was recommended to be placed in the event of a low flow, so sampling can be administered at any time of discharge.
- Cost breakdown consists of :
 - \$1,470,120 based on the surcharge fee of \$100 per pound of BOD (biochemical oxygen demand) above the monthly average limit of 34 pounds per day or the maximum daily limit of 46 pounds per day (March-October 2020)
 - \$57,400 based on the surcharge fee of \$100 per hundredth of a pound of zinc above the Pre-Treatment Agreement Limit for the monthly average limit of 0.31 pounds per day or the maximum daily limit of 0.43 pounds per day. (March October 2020)
 - o \$339,270.29 (November 2020-January 2021)

RECOMMENDATION: Review and discussion

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS:

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Friday afternoon preceding Monday's Council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.

Huxley Parks and Recreation Membership Rates

10% Rate Increase 7/1/21

		Reside	nt	w/Ta	X		Non-Re	esident	w/Ta	х	Daily Rates:		
	12M	\$	391.88	\$	419.31	12M	\$	412.50	\$	441.38	Adult 14 & Up	\$	5.00
Family	6M	\$	235.13	\$	251.59	6M	\$	247.50	\$	264.83	Student 8-13yrs	\$	2.00
	ACH			\$	36.94	ACH			\$	38.78	Senior	\$	2.00
	12M	\$	326.57	\$	349.43	12M	\$	343.75	\$	367.81	Walker	\$	2.00
Couple	6M	\$	196.08	\$	209.81	6M	\$	206.25	\$	220.69	Tot Time	\$	1.00
	ACH			\$	31.12	ACH			\$	32.65			
	12M	\$	241.66	\$	258.58	12M	\$	254.38	\$	272.19			
۸dult	6M	\$	163.28	\$	174.71	6M	\$	171.88	\$	183.91			
Addit		_				_							
	ACH			\$	23.55	ACH			\$	24.68			
	12M	\$	146.30	\$	156.54	12M	\$	154.00	\$	164.78			
Student	6M	\$	104.50	\$	111.82	6M	\$	110.00	\$	117.70			
Student													
	ACH			\$	15.05	ACH			\$	15.73	Prorated amounts sho	ould b	e entered in the initiation
	12M	\$	130.63	\$	139.77	12M	\$	137.50	\$	147.13	fee box in Gym Assista	ant ex	cept for ACH.
Senior Couple	6M	\$	84.91	\$	90.85	6M	\$	89.38	\$	95.64			
	ACH			\$	13.65	ACH			\$	14.26			
	12M	\$	91.44	\$	97.84	12M	\$	96.25	\$	102.99			
Senior	6M	\$	58.77	\$	62.88	6M	\$	52.97	\$	60.18	ACH details are or	n the	e ACH pages.
	ACH			\$	10.15	ACH			\$	10.58			
	12M	\$	97.97	\$	104.83	12M	\$	103.13	\$	110.35			
Walking	6M	\$	65.32	\$	69.89	6M	\$	68.75	\$	73.56			
waiking	3M	\$	45.72	\$	48.92	3M	\$	48.13	\$	51.50			
	ACH			\$	10.74	ACH			\$	11.20			
College Summer		\$	39.19	\$	41.93		\$	41.25	\$	44.14			
College Winter		\$	26.13	\$	27.96		\$	27.50	\$	29.43			
Silversneakers		FREE		FREE			FREE		FREE				



Huxley Parks and Recreation Membership Rates

New Rates as of 8-29-16

		Residen	t	w/Tax	(Non-Res	sident	w/Tax		Daily Rates:		
	12M	\$	356.25	\$	381.19	12M	\$	375.00	\$	401.25	Adult 14 & Up	\$	5.00
Family	6M	\$	213.75	\$	228.71	6M	\$	225.00	\$	240.75	Student 8-13yrs	\$	4.00
	ACH			\$	33.77	ACH			\$	35.44	Senior	\$	2.00
	12M	\$	296.88	\$	317.66	12M	\$	312.50	\$	334.38	Walker	\$	2.00
Couple	6M	\$	178.25	\$	190.73	6M	\$	187.50	\$	200.63	Tot Time	\$	1.00
	ACH			\$	28.47	ACH			\$	29.86			
	12M	\$	219.69	\$	235.07	12M	\$	231.25	\$	247.44			
Adult	6M	\$	148.44	\$	158.83	6M	\$	156.25	\$	167.19			
Audit													
	ACH			\$	21.59	ACH			\$	22.62			
	12M	\$	133.00	\$	142.31	12M	\$	140.00	\$	149.80			
Student	6M	\$	95.00	\$	101.65	6M	\$	100.00	\$	107.00			
Student													
	ACH			\$	13.86	ACH			\$	14.48	Prorated amounts sho	ould b	e entered in the initiation
	12M	\$	118.75	\$	127.06	12M	\$	125.00	\$	133.75	fee box in Gym Assista	ant ex	cept for ACH.
Senior Couple	6M	\$	77.19	\$	82.59	6M	\$	81.25	\$	86.94			
	ACH			\$	12.59	ACH			\$	13.15			
	12M	\$	83.13	\$	88.95	12M	\$	87.50	\$	93.63			
Senior	6M	\$	53.43	\$	57.17	6M	\$	48.15	\$	60.18	ACH details are or	n the	e ACH pages.
	ACH			\$	9.41	ACH			\$	9.80			
	12M	\$	89.06	\$	95.29	12M	\$	93.75	\$	100.31			
Walking	6M	\$	59.38	\$	63.54	6M	\$	62.50	\$	66.88			
waiking	3M	\$	41.56	\$	44.47	3M	\$	43.75	\$	46.81			
	ACH			\$	9.94	ACH			\$	10.36			
College Summer		\$	35.63	\$	38.12		\$	37.50	\$	40.13			
College Winter		\$	23.75	\$	25.41		\$	25.00	\$	26.75			
Silversneakers		FREE		FREE			FREE		FREE				





Huxley Fire and Rescue

104 Railway Huxley, Iowa 50124

March 2021 Report Huxley Fire Rescue

Promote Trust, Service Before Self, Positive Solutions

-In 2021 Huxley Fire & Rescue has responded to 122 calls for service, 44 of those were in the month of March.

-Huxley EMS First Responders were dispatched to 29 calls in March.

-Huxley Ambulance 731 responded to15 calls in March

-Huxley Fire responded to 7 calls in March

-Mutual Aid (included in totals above)

- 7 Slater/Sheldahl EMS/First Responder/Ambulance calls
 - -Tuesday, March 9, 800 South Carroll Street
 - -Thursday, March 11, 101 2nd Avenue
 - -Thursday, March 18, 107 Hubbell (Sheldahl)
 - -Friday, March 19, 700 Linn Street #3
 - -Thursday, March 25, NW 44th St. & NW 142nd Ave.
 - -Friday, March, 26 408 Willow St. (Sheldahl)
 - -Sunday, March 28, 312 First Avenue N.

- 3 Kelley EMS/First Responder calls -Wednesday, March 17, 597 Giddings Street

- -Tuesday, March 23, 27830 Timber Road -Saturday, March 27, 54801 280th Street
- -1 Ambulance call to Ames -Friday, March 12, 619 Burnett Ave. -Sunday, March 28, 3312 Opal Dr.
- -1 Ambulance call to Gilbert -Friday March 5, 55310 180 Street
- -1 Ambulance call to Story City -Tuesday, March 16, 1336 Park View Dr.

Elite iowa

Monthly Event/activities

03/01/2021 1 City Department Head Cabinet Meetin 03/02/2021 1 Parade for State Tournament send of 03/02/2021 1 Eire Department Officer Meeting	ng 1 ff 2 6
03/02/2021 1 Parade for State Tournament send of 03/02/2021 1 Fire Department Officer Meeting	ff 2 6
03/02/2021 1 Fire Department Officer Meeting	6
i i ne Department Oncer Meeting	
03/02/2021 2 Fire Monthly March Department Meet	ting 16
03/06/2021 0 Parade Activities	1
03/06/2021 0 Parade Activities	1
03/07/2021 4 EMS Continuing Education Hours 21	-1900-002 FE 6
03/08/2021 2 Huxley Cabinet Department Head Me	eting 1
03/09/2021 0 Fire Station Activities - Other	5
03/09/2021 2 City Council Meeting Zoom	1
03/09/2021 0 Safety Meeting- City Hall	2
03/12/2021 0 Parade Activities	3
03/16/2021 2 Basic Firefighter Skills Training	9
03/17/2021 1 Rescue 806 to Karl Chevrolet for Mai	intenance 2
03/22/2021 2 City Department Head Cabinet Meet	ting 1
03/23/2021 1 Huxley/Safe Buildings/V&K Meeting	1
03/23/2021 1 806 pick up from Karl Chevrolet, Mair Other	ntenance Activities - 2
03/23/2021 1 Huxley City Council Meeting	1
03/23/2021 2 EMS Continuing Education Hours	13
03/25/2021 1 Event, Interview, David Eastman	4
03/26/2021 Event Generator Contractor Meet	1
03/28/2021 1 Event - Interview Shannon Warren	6
03/29/2021 1 Event Cabinet City Department Head	Meeting 1
03/30/2021 Event Generator Contractor meet	1

Report Criteria

Activity/Training Start Actual Date: Is Between 3/1/2021 and 3/31/2021

March 2021 Public Works Report

- All of the snow and ice removal equipment has been removed from the trucks and tractors, end loaders and mowers and the dump trucks serviced for spring and summer use.
- Still working with Pitts Tree Service on the removals of the tress and stumps. I can finally see the light at the end of the tunnel. Should be completed in its entirety by the second week in April. They have done a great job. They also removed all of the chippings and added dirt and seeded which was above and beyond what the other bidders offered in their bids.
- > All of the mowers have been serviced and the mower decks have been installed.
- Still cleaning up parks from derecho and from winter layover. Most of the trees and branches that staff had to remove is completed.
- All the restrooms have been de-winterized in the parks and have the water back on but are not open to the public until the bac-t results get back with negative results. If all goes well we should have them open by April 13th.
- Met with ITRON representative on the updates of the meter reading hardware that we will need to read meters since our current vender will no longer be able to sell the equipment that is needed for our software reading equipment and billing.
- Reviewing and commenting on site plans when required.
- Reviewing updated plats with engineering.
- Continue to work with engineering on design and equipment for the water plant expansion.
- Working with the IDOT on the reconstruction of I35 and the additional lanes that will be added that are in conflict with some existing water mains and possible sewer mains. We will be providing the new design and relocation of the water mains that will need moved in the S.E. Annexation project area, the I35/Hwy 210 project crossing. HOI Trail crossing and the East first street crossing. I will be using the City engineer to help on the design and construction set to help accommodate the IDOT since this is out of their wheel house. We will be reimbursed for the cost associated with this on the project for providing the information to the IDOT to be placed on their construction plan set.
- Working on the sidewalk infill project.
- Started cleaning storm intakes, manholes and basins and surveying all the storm system for needed repairs.
- Installed a storm drain and intake along Railway by the fire station to drain the low spots that were accumulating water and flooding the right-of-way and sidewalks.
- Worked on this years CIP street projects and met with engineering firms to go over the streets and watermains that we are looking at repairing and replacing. We will have the bids and memo for councils review to award a contract with the engineering firm to help on the design and construction set.

- Graded and Seeded hill side at public works maintenance facility grounds for more parking and a cleaner site visual for us and the public.
- Still waiting for the streetlight fixtures that go over the traffic signals. These have been back ordered for quite some time due to COVID-19 and every week they have been telling is they will be arriving, but we have not received them yet. We tried to replace the current bulbs on the fixtures that are not working but the ballasts are fried from the derecho and we will have to wait for the new fixtures which I am hoping will be arriving soon.
- Held the Region 5 Iowa Water Environment Association Spring workshop in the safe room on March 31st. We had 40 attendees for the workshop. This was the last day that operators could get continuing education units for the renewal of their operator's license in wastewater treatment. Event went very well. Had everyone social distance and spacing was at least six to eight feet or more and wear facemasks. Used our local Comfort Foods who catered the box lunch meals for lunch.
- In the month of March the Huxley Water Plant treated 7,110,000 gallons of water up about 600,000 from last month. A maximum of 291,000 gallons of water per day, and a minimum of 188,000 gallons per day, and average daily treated water of 229,000 gallons per day.
- The pilot for the water plant has been delivered and it is up and running. We have been sampling the feed water, the permeate water, and the concentrate water daily for iron, manganese, and PH. There are approximately 30 other samples that need to be pulled from wells 5 and 6 monthly that will be sent to Keystone Labs for testing for pilot protocol. We will work with Desalitech and the IDNR to make sure we satisfy all the sampling and testing requirements needed for a successful pilot study.
- On April 13th we will have the IDNR and Desalitech staff on site to review the pilot and answer their questions and accommodate any other issues, concerns or needs that will need to be addressed for this pilot.
- We will begin hydrant flushing Monday the 12th. This will take about 2 weeks to complete weather permitting and will stir up the system but needs to be done to remove the accumulated sediments and stagnant water at the dead ends of the water mains and it also helps to prevent bacteria problems within the entire system.
- Keith and Jeff have been meeting with engineers from V&K and Desalitech weekly on the progress of the plant design and the pilot study.
- Water staff had to repair a water leak on the chlorine injection booster pump this past week, the water pressure on this line runs around 250 psi when it leaks it doesn't take long to make a mess or blow apart hopefully the plant expansion will eliminate this system.
- Josh Vance will be coming back this summer to work with the water and wastewater departments. He was an unpaid intern from DMACC that did a good job for us last summer. He is happy to know that he will get paid this time.

- New camera trailer has been ordered. We are waiting to hear from Mid-Iowa on a expected delivery date
- Most indoor maintenance has been completed over the winter.
- We are working on painting some of the piping in the buildings before the humidity comes up.
- Our old camera trailer has been repaired, it had two different issues that made it not work properly. We have been using it almost daily for the last two weeks and have had minimal issues.
- We have been in close communication with CMC. Their loadings have come down but continue to drive the BOD up more than normal. We are still waiting for their evaporator to be completely online. March marks a year since we initially started to have the huge jumps in treatment.
- We have been doing a lot of general maintenance and cleaning/organizing around the plant and building.
- We have been getting out and checking manholes and jetting lines when the weather permits.
- Plant has been performing well. Biosolids holding tanks seem to have some high content of solids so we are concerned we might have to haul sludge twice again this year.
- Jake Hermanson recently passed his Grade 1 water treatment exam. And signed up to take his grade 1 water distribution.
- AJ is hoping to retest for his grade 3 again as soon as the IDNR gives him the go ahead.
- Wastewater staff Jake will be out checking all the manholes for any issues within the coming weeks.
- Staff has been doing a lot of general housekeeping and checking things over.

City of Huxley Huxley Police Department Monthly Report for March 2021

March 1st, 2021 10:20 AM

Officer cited two Middle School student for possession of vaping products at the Middle School. Parents were contacted regarding the violation.

March 1st, 2021 11:58 AM

Officers were asked to locate and check the welfare of a St. Anthony, IA man who was possibly driving in the area. The man was located near 580th. He was transported to the hospital for treatment.

March 2nd, 2021 10:01 AM

Officer was called to the High School to assist with an investigation into Chromebook misuse that had become concerning to the student's parents. Ongoing.

March 4th, 2021 5:42 PM

Officer responded to an altercation at the 200 block of 4th Street. Both parties were separated, and the report was forwarded to the County Attorney for possible charges.

March 7th, 2021 2:27 AM

Officer stopped a vehicle for a traffic violation on the 500 block of Larson. The driver of the vehicle, a 19 year old Slater man, was cited and released for Possession of Alcohol Under the Legal Age.

March 8th, 2021 1:41 PM

Officer responded to the Middle School to check the welfare of a student. The student was located and turned over to her mother for possible attention / treatment.

March 9th, 2021 8:19 AM

Officer responded to a theft report at the 1100 block of Timberlane. A bike valued at approximately \$1200 left by a Juvenile at his friend's home and was taken from that property sometime between January and March.

March 9th, 2021 9:28 AM

Officer responded to a domestic altercation at the 500 block of E 1st Street. The altercation was verbal and both parties agreed that the male half would stay with a friend for a while.

March 9th, 2021 6:37 PM

Officer was called to assist with an out of control juvenile at the 600 block of E 4th. The officer was able to assist the parents until the child became compliant.

March 14th, 2021 3:27 PM

Officer responded to a domestic altercation at the 100 block of Deerwood. The altercation was verbal and both parties remained separated for the remainder of the night.

March 14th, 2021 8:24 PM

Officer stopped a vehicle for a traffic violation at the 100 block of highway 69. The driver of the vehicle, an Ames juvenile was charged with Possession of Alcohol Under the Legal Age, Possession of Tobacco under the legal age, and a traffic violation. He was released to a family member.

March 15th, 2021 3:31 PM

Officer received a violation of a no contact order complaint at the 600 block of Maple. A warrant for the arrest of a Des Moines man was generated.

March 16th, 2021 2:04 AM

Officer stopped a vehicle for a traffic violation on Highway 69 near Highway 210. The driver of the vehicle, a 60 year old Des Moines woman, was cited and released for OWI. Due to Covid concerns the woman was not transported to the Story County Jail.

March 16th, 2021 12:12 PM

Officer was called to the 500 block of E 1st Street for a complaint of two out of control juveniles. The officer was able to assist and calm the two until their mother could take over again.

March 16th, 2021 2:14 PM

Officer responded to a theft complaint at the 50000 block of 320th. Two catalytic converters were taken some time over the weekend from parked vehicles. Investigation ongoing and shared with Story County as several similar reports had been made in rural parts of the county.

March 19th, 2021 7:56 AM

Officer stopped a vehicle for a traffic violation on the 500 block of Timberlane. The driver of the vehicle, a 37 year old Ames man, was suspended from driving by the DOT. He was cited and released with a court date for Driving Under Suspension.

March 19th, 2021 4:24 PM

Officer responded to a car vs. deer accident on Highway 69 north of city limits. Vehicle had to be towed from the accident scene.

March 19th, 2021 9:28 PM

Officer responded to a hit and run accident on Interstate 35 north of Highway 210. An unknown vehicle struck a pull behind camper somewhere on the interstate near the 104 Mile Marker.

March 20th, 2021 10:45 AM

Officer responded to a two vehicle accident at the 100 block of Highway 69.

March 20th, 2021 12:40 PM

Officer responded to a domestic altercation at the 300 block of Larson. The altercation was verbal, and both agreed that they could cohabitate for the remainder of the day with no further problems. While on scene, the male half was cited and released for Possession of a controlled substance. Due to Covid concerns, the male was not taken the Story County Jail.

March 26th, 2021 8:09 AM

Officer stopped a vehicle for a traffic violation at the 500 block of E 1st Street. The driver of the vehicle was Barred from driving by the DOT. Due to Covid concerns at the Story County Jail the driver was cited and released for the violation.

March 26th, 2021 9:06 PM

Officer responded to a harassment complaint at the 500 block of E 1st Street. Several juveniles were involved in a minor disturbance. All were advised to go home and remain off the victim's property. Parents were also notified of the incident.

March 26th, 2021 10:28 PM

Officer stopped a vehicle for a traffic violation on Highway 69 near the Ballard Plaza. The driver of the vehicle was suspended by the DOT. He was cited and released with a court date for Driving under Suspension.

March 27th, 2021 9:22 PM

Officer stopped a vehicle for a traffic violation at the 500 block of E 1st Street. The driver of the vehicle had three warrants for her arrest out of Story County. She was transported to the Story County Jail in Nevada.

March 29th, 2021 9:13 AM

Officer was contacted by the Ballard Middle School for a truancy issue stemming from a student who resides at the 100 block of Deerwood. The officer transported the juvenile to school.

Gerry Stoll Chief of Police

Calls For Service by Nature Code

Huxley Police

3/01/21 to 3/31/21

ANIMAL CALL	Number of CFS:	12	Percentage of Total:	2.80%
ATTEMPT TO LOCATE	Number of CFS:	3	Percentage of Total:	0.70%
BURGLARY / ATTEMPTED BURGLARY	Number of CFS:	1	Percentage of Total:	0.23%
BUSINESS SECURITY CHECK	Number of CFS:	79	Percentage of Total:	18.41%
CHILD WELFARE CHECK	Number of CFS:	2	Percentage of Total:	0.47%
CITIZEN CONTACT	Number of CFS:	1	Percentage of Total:	0.23%
CITY CODE ENFORCEMENT	Number of CFS:	7	Percentage of Total:	1.63%
CIVIL MATTER	Number of CFS:	3	Percentage of Total:	0.70%
DISTURBANCE & NOISE PARTY	Number of CFS:	1	Percentage of Total:	0.23%
DOMESTIC DISPUTE	Number of CFS:	4	Percentage of Total:	0.93%
ESCORT BUSINESS/FUNERAL	Number of CFS:	1	Percentage of Total:	0.23%
FINGER PRINTING	Number of CFS:	6	Percentage of Total:	1.40%
FIRE ALARM	Number of CFS:	2	Percentage of Total:	0.47%
FIRE OTHER	Number of CFS:	1	Percentage of Total:	0.23%
FIRE STRUCTURE	Number of CFS:	1	Percentage of Total:	0.23%
FOLLOW UP	Number of CFS:	17	Percentage of Total:	3.96%
GENERAL ALARM BANK / RESIDENTI	Number of CFS:	3	Percentage of Total:	0.70%
GENERAL ASSAULT	Number of CFS:	2	Percentage of Total:	0.47%
GENERAL INFO/COMPLAINT/ASSIST	Number of CFS:	31	Percentage of Total:	7.23%
HARASSMENT	Number of CFS:	2	Percentage of Total:	0.47%
HIT & RUN PROPERTY DAMAGE	Number of CFS:	1	Percentage of Total:	0.23%
JUVENILE TROUBLE	Number of CFS:	8	Percentage of Total:	1.86%
LAW DEPARTMENT ASSIST	Number of CFS:	4	Percentage of Total:	0.93%
LOST OR FOUND PROPERTY	Number of CFS:	7	Percentage of Total:	1.63%
MEDICAL ASSIST/AMBULANCE CALL	Number of CFS:	17	Percentage of Total:	3.96%
MOTOR VEH CRASH / INJURY	Number of CFS:	1	Percentage of Total:	0.23%
MOTOR VEH CRASH/PROP DAMAGE	Number of CFS:	5	Percentage of Total:	1.17%
MOTORIST ASSISTANCE	Number of CFS:	6	Percentage of Total:	1.40%
PARKING ENFORCEMENT/COMPLAINT	Number of CFS:	11	Percentage of Total:	2.56%
RADIO TROUBLE	Number of CFS:	1	Percentage of Total:	0.23%
RECKLESS DRIVER	Number of CFS:	14	Percentage of Total:	3.26%
SALVAGE VEHICLE INSPECTION	Number of CFS:	24	Percentage of Total:	5.59%
SEXUAL ASSAULT	Number of CFS:	2	Percentage of Total:	0.47%
SUSPICIOUS PERSON/VEH/ACTIVITY	Number of CFS:	10	Percentage of Total:	2.33%
THEFT / FRAUD / FORGERY	Number of CFS:	2	Percentage of Total:	0.47%
TRAFFIC STOP / ENFORCEMENT	Number of CFS:	125	Percentage of Total:	29.14%
TRESPASS	Number of CFS:	1	Percentage of Total:	0.23%

TRUANCY	Number of CFS:	3	Percentage of Total:	0.70%
VIOLATION OF NO CONTACT ORDER	Number of CFS:	1	Percentage of Total:	0.23%
WARRANT SERVICE	Number of CFS:	2	Percentage of Total:	0.47%
WELFARE CHECK	Number of CFS:	5	Percentage of Total:	1.17%

Total CFS: 429)
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Percentage of CFS by Nature Code



 TRAFFIC STOP / ENFORCEMENT BUSINESS SECURITY CHECK GENERAL INFO/COMPLAINT/ASSIST Others 	29.1% 18.4% 7.2% 45.2%
Total:	100.0%

City of Cambridge Huxley Police Department Monthly Report for March 2021

March 1st, 2021 11:58 AM

Officers were asked to locate and check the welfare of a St. Anthony, IA man who was possibly driving in the area. The man was located near 580th. He was transported to the hospital for treatment.

March 4th, 2021 5:42 PM

Officer responded to an altercation at the 200 block of 4th Street. Both parties were separated, and the report was forwarded to the County Attorney for possible charges.

March 16th, 2021 2:14 PM

Officer responded to a theft complaint at the 50000 block of 320th. Two catalytic converters were taken some time over the weekend from parked vehicles. Investigation ongoing and shared with Story County as several similar reports had been made in rural parts of the county.

Gerry Stoll Chief of Police



P.O. Box 5 515 North Main Avenue Huxley, Iowa 50124

Phone 515/597-2552 Fax 515/597-2554

huxleylibrary@huxleyiowa.org huxleyiowa.org/public-library Library Report, April, 2021

- The Story Walk[®] is fully funded, ordered, and due to be delivered in the next couple of weeks. Cathy and Rocky have measured and marked the trail, so they are ready for the installation. Any donations over the cost of the initial project will go towards books that will be displayed in the future. Official ribbon cutting for the Walk is set for June 14 at 5:30pm. Please plan to attend.
- Two adult book clubs are meeting monthly in the library. We offer a zoom connection for those distancing and still wanting to participate.
- February 25, we offered a Starting from Seeds program presented by Heritage Hill Farms. Jessica Krupicka led the group of 26 in the library with 4 additionally on zoom. Each participant left with their own tiny garden of seeds. Zoom participants were able to pick up their kits in advance. I've had many comments since on the success of their starter plants and the appreciation of what they learned.
- We continue to offer curbside service for delivery of materials.
- We continue to offer take and make kits for kids and families. These are for anyone coming into the library – no registration required.
- March 23 Carolyn Mai started as our new Children's Director/Programmer. She will be leading in-person Know & Grow story times. The overwhelming "vote" from our families was to bring activities back into the library vs. the virtual format.
- Lynn Whisler is our newest Board of Trustees member. Thank you for approving her appointment.

bithy Van Maanen

Cathy Van Maanen Director of Library Services

ORDINANCE NO. 512

AN ORDINANCE AMENDING CHAPTER 35, FIRE AND RESCUE DEPARTMENT ORDINANCE

BE IT ORDAINED by the City Council of the City of Huxley, Iowa, that:

Section 1. Chapter 35, of the Huxley Code of Ordinances; Fire and Rescue Department Ordinance is hereby amended as follows:

Fire and Rescue Department to become Fire Department

35.06 ELECTION OF OFFICERS During the month of January each year, a Fire Chief and two Deputy Chiefs shall be elected officers of the department. Each officer The Fire Chief shall serve a term of one two years which shall commence on February 1 following such election and end on the last day of January in the next year. The Fire Chief shall be elected by a majority of all voting members of the department subject to the approval of the Council and shall appoint the Deputy Chief of the fire division and the Deputy Chief of the EMS division. The Deputy Chief of the fire division shall be elected by a majority of all voting members assigned to the fire division subject to the approval of the Council. The Deputy Chief of the EMS division shall be elected by a majority of all voting members of the department assigned to the EMS division subject to the approval of the Council. A vacancy in the office of Fire Chief or Deputy Chief for whatever reason, shall be filled by election in the same manner provided in this section within thirty days after the occurrence of such vacancy for the remaining unexpired term.

35.07 MEMBERSHIP QUALIFICATIONS Any person who is eighteen (18) years of age or older who permanently resides within the corporate limits of the City or who resides within three five miles of the corporate limits of the City or who is regularly employed within the corporate limits of the City and who is mentally competent and physically able to perform the duties of a firefighter or a first responder and who submits in writing to the Fire Chief an application for appointment as a member of the department in the position of firefighter or first responder shall qualify for appointment to the position designated in the written application upon the approval of the Fire Chief, the Deputy Chief of the of the designated division and the Council. An applicant who qualifies and requests to be appointed to both the position of firefighter and first responder may be appointed to serve in both positions at the same time. All approvals required for appointment as a member of the department shall be endorsed on the appointee's application form.

35.17 DEMOLITION OF BUILDINGS The Mayor, with the advice of the Council members present at any fire, or in the absence of the Mayor and any Council members, the Fire Chief may order the demolition of any building or other structure whenever it is deemed necessary to arrest the progress of a fire.

35.18 DUTIES OF PRIVATE CITIZENS Every person at a fire who is not a member of the department shall be subject and obedient to the orders of the Fire Chief, the Deputy Chiefs, the Mayor, Council members and the Police Chief, provided, such members first make their status known, in the extinguishing of the fire and the removal and protection of the property.

PASSED AND APPROVED this _____ day of ____ 2021.

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk

First Reading: Second Reading: Third Reading: Date Adopted: Date of Publication by posting:

ORDINANCE NO. 513

AN ORDINANCE AMENDING CHAPTER 65 STOP OR YIELD REQUIRED ORDINANCE

BE IT ORDAINED by the City Council of the City of Huxley, Iowa, that:

Section 1. Chapter 65, of the Huxley Code of Ordinances; Stop or Yield Required Ordinance is hereby amended as follows:

65.01 STOP REQUIRED

49. Sycamore Blvd and North Park Blvd northbound traffic

50. Hickory Drive and Sycamore Blvd. northbound traffic

51. Pince Valley Dr. and Sycamore Blvd northbound traffic

52. Pine Valley Dr and Cypress Dr southbound traffic

53. Hickory Drive and Cypress Drive southbound traffic

PASSED AND APPROVED this _____ day of ____ 2021.

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk

First Reading: Second Reading: Third Reading: Date Adopted: Date of Publication by posting:



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ORDINANCE NO. 514

AN ORDINANCE AMENDING CHAPTER 69 PARKING REGULATIONS

BE IT ORDAINED by the City Council of the City of Huxley, Iowa, that:

Section 1. Chapter 69, of the Huxley Code of Ordinances; Parking Regulations Ordinance is hereby amended as follows:

69.08 NO PARKING ZONES

28. Hickory Dr. Southbound from Cypress Drive to Oak Blvd.

PASSED AND APPROVED this _____ day of ____ 2021.

Kevin Deaton, Mayor

ATTEST:

Jolene Lettow, City Clerk

First Reading: Second Reading: Third Reading: Date Adopted: Date of Publication by posting:

AGENDA HEADING:

Consideration of Kreg Tool Community Donation and Resolution No. 21-032

SUBMITTED BY: Rita Conner, City Administrator

SYNOPSIS:

Kreg Tool (Todd Sommerfeld, President, 201 Campus Drive Huxley, Iowa 50124) and a committee of Kreg Tool employees have conducted a process to evaluate community betterment projects for the donation of a total of \$600,000 in company funds. The committee's work has focused on evaluating projects that will provide broad community benefit regardless of individual economic means, and to work with all benefitting entities to review projects that had been identified as impactful.

The City of Huxley will be the direct recipient of \$340,000 in funds to be utilized for the development of a splash pad in Centennial Park, \$10,000 in funds for the completion and continuation of the Story Walk project and computers for public use in the library, as well as \$100,000 in funds from the sale of land owned by Kreg Tool to Huxley Communications. The donation of these funds was proposed and agreed to by Kreg Tool and the City in 2019, and the company's commitment and contributions are greatly appreciated.

Kreg Tool also plans for the donation of \$150,000 to the Hillebrand Athletic Facility, which was reviewed and determined by the Kreg committee along with the City projects as providing overall community benefit. Discussion is underway between staff, legal counsel, Kreg Tool and non-profit community foundation to appropriately provide for the transference of funds to the benefitted entities of the City of Huxley and Hillebrand Athletic facility.

FISCAL IMPACT: YES

<u>Amount</u>: Revenue of \$340,000 designated for splash pad; \$10,000 designated for Story Walk and computers, and \$100,000 in land sale proceeds that will go into the General Fund as undesignated; consideration of this amount to be used for capital projects, operations, debt reduction or other uses will be determined by Council.

ADDITIONAL INFORMATION: YES

Comments from Kreg Tool Committee:

Splash Pad - \$340,000

- Splash pad located in Centennial Park
- Placemaking –capitalizes on a local community's assets, inspiration, and potential, with the intention of creating public spaces that promote people's health, happiness, and well-being.
- Free benefit for the community and can be used regardless of economic position
- Low monthly expense \sim \$50 due in part to recycling the water

- Centennial Park is being connected to the bike paths the City is in the process of building
- The splash pad would complement potential future projects of pool and restrooms while being fully functional as a stand-alone feature
- City would like to honor Kreg in color scheme / designs of splash park features

Library -- \$10,000

- Completion of the Story Walk along the trail system:
 - Series of stations along the Heart of Prairie with a different page from a story
 - o Stories rotated out to give readers fresh material at least monthly
 - Combines so many wonderful activities for individuals & families reading, exercise, nature, time away from screens, family time!
 - Free benefit for the community and can be used regardless of economic position
- New Computers
 - Fund six new computers needed at the library
 - Free benefit for the community and can be used regardless of economic position
 - Provides access to all community members who may not have a computer or access to internet
 - Can be used for schoolwork, job searching, etc.

Hillebrand's Athletic Facility - \$150,000

- Expanded athletic facility that serves a wide range of sports / training
- Provide opportunity for residents to stay in town for practices vs traveling to other communities
- Will use proceeds from allowing other communities to use it to help keep it affordable for Huxley families
- Non-profit status a requirement of the gift

RECOMMENDATION: Review and discussion, approval of Resolution No. 21-032 with Council concurrence

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS:

• Receipt of funds and application of funds to identified projects

For more information on this and other agenda items, please call the City Clerk's Office at 515-597-2561 or visit the Clerk's Office, City Administration Building at 515 N. Main Ave. Council agendas are available to the public at the City Clerk's Office on Friday afternoon preceding Monday's Council meeting. Citizens can also request to receive meeting notices and agendas by email by calling the Clerk's Office or sending their request via email.

AGENDA HEADING:

Reviewing Preliminary Terms of an Urban Renewal Development Agreement with Meadow Lane LLC

SUBMITTED BY:

Rita Conner, City Administrator

SYNOPSIS:

Meadow Lane LLC (Steve Quick P.O. Box 396 Huxley, Iowa 50124) has invested \$1,059,443 in public improvement construction to create 24 residential development lots in Plat 4 of the Meadow Lane development on Meadow Lane, East 4th Street and Prairie View Drive.

In 2019 and 202, City Council committed to enter into an urban renewal development agreement for partial reimbursement of up-front development costs for Meadow Lane Plat 4. The preliminary terms of agreement provide for 60% of the project generated TIF to go to Meadow Lane, LLC and for 40% to go to the City's Low to Moderate Income (LMI) fund.

Additional information is below.

FISCAL IMPACT:

Amount: Not to exceed \$560,000

Funding Source: Project generated tax increment

ADDITIONAL INFORMATION:

• Staff is working to complete cash flow table for the projected tax increment and will review with Council at the April 13th meeting.

ADMINISTRATOR RECOMMENDATION: Approval of preliminary terms and direct staff to complete any final negotiation and drafting of development agreement document.

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS:

- Development agreement draft prepared following Council input on Preliminary Terms of Agreement
- Council review of Final Development Agreement

AGENDA HEADING:

Reviewing Preliminary Terms of an Urban Renewal Development Agreement with Innovative Technologies

SUBMITTED BY:

Rita Conner, City Administrator

SYNOPSIS:

In November 2017, Council approved an urban renewal development agreement with Innovative Technologies (dba 3D Partners, LLC, Nick Skow, President 1545 Blue Sky Blvd. Huxley, Iowa 50124)) for the construction of an industrial manufacturing facility and office in the Blue Sky Commons Business Park. The original value of the land was \$69,300. The first building was completed in 2018 and the second in 2019. Current total assessed valuation for the improvements is \$2,209,700; total valuation is \$2,447,500 including land. In 2020, the company acquired the adjacent former Automed property valued at \$1,273,600 to provide for growth. Total private investment by Innovative Technologies to date is \$4,874,639.

The 2017 agreement provided a \$170,000 project generated tax increment rebate grant to the project, with the creation of a base workforce of ten employees and an additional workforce of seven employees within seven years. The company currently has 20 employees and will have a workforce of 24 by 2023. The total investment and job creation by Innovative Technologies has greatly exceeded the original parameters of the agreement.

Proposing an additional grant to the project in acknowledgment of the additional investment. Staff will review the TIF cash flow table for the project at the meeting and take Council questions.

Additional information is below.

FISCAL IMPACT:

Amount: \$170,000 is the amount under the current agreement

Funding Source: Project generated tax increment

ADDITIONAL INFORMATION:

- Innovative Technologies performs industrial mechanical work on centrifuges within the renewable energy industry. The company's location in the Blue Sky Business Park has offered a presence of innovation and continued investment.
- The additional investment and employment created is of benefit to the City and can help spur additional interest in the business park.
- The \$170,000 grant amount was calculated by a 2015 table based on the net new full-time jobs created by a project and a corresponding net increase in taxable valuation over a number of years that would be translated into grant dollar amounts using TIF tax rate. Staff has bene
COUNCIL COMMUNICATION

reviewing the formula and the actual cash flows for the project in today valuations to contribute to the information and verify that funds are available. Innovative Technologies is currently paying an estimated \$75,000 in annual taxes on just the 1545 Blue Sky Blvd property, or \$525,000 over the 7 years of the proposed assistance term.

- If Council approves moving forward, using the jobs generated and valuation created 2015 formula would appear to provide for the following:
 - o Original \$170,000 grant
 - Additional \$159,925 to be provided as a grant all or in part.
 - Not to exceed \$329,925 combined; or approximately 63% of the actual taxes paid.

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