



# *Chapter Eleven:* **[Infrastructure]**



# Infrastructure

## Overview

### Chapter Purpose

The intent of the Infrastructure Chapter is to provide an overview of how infrastructure will impact development and growth of Bondurant. It includes a review of the existing water, sanitary sewer and stormwater infrastructure systems.

As Bondurant grows towards the vision identified for 2050 it is important to make sure that the infrastructure and services provided by the City are ready to meet the growing needs of the City. In support of and in coordination with other plan chapters, the topics included in this chapter address the critical infrastructure needs for the City that exist today and into the future.

### Chapter Structure

The Infrastructure Chapter follows the following format:



Summary of water supply and distribution system



Summary of sanitary sewer system



Summary of stormwater system



Discussion of the Civic Campus Master Plan



Infrastructure Goals, Policies, & Action Items



# Water Infrastructure

## Water Supply

### Water Supply

The City currently purchases water from Des Moines Water Works (DMWW) through a feeder main that was connected in 1991. The supply of water from this source is limited due to the size of the feeder main and the overall supply from DMWW. The City will need to decide on a long-term supply solution and implement one of the following strategies:

#### **Continue purchase of water from DMWW**

This will require an investment in additional feeder main capacity, and is contingent upon DMWW being able to supply the desired capacity. This will require the City to participate in the regional water system.

#### **Construct well field and water treatment plant**

The city would construct and operate their own water supply system through the construction of a well field and treatment plant.



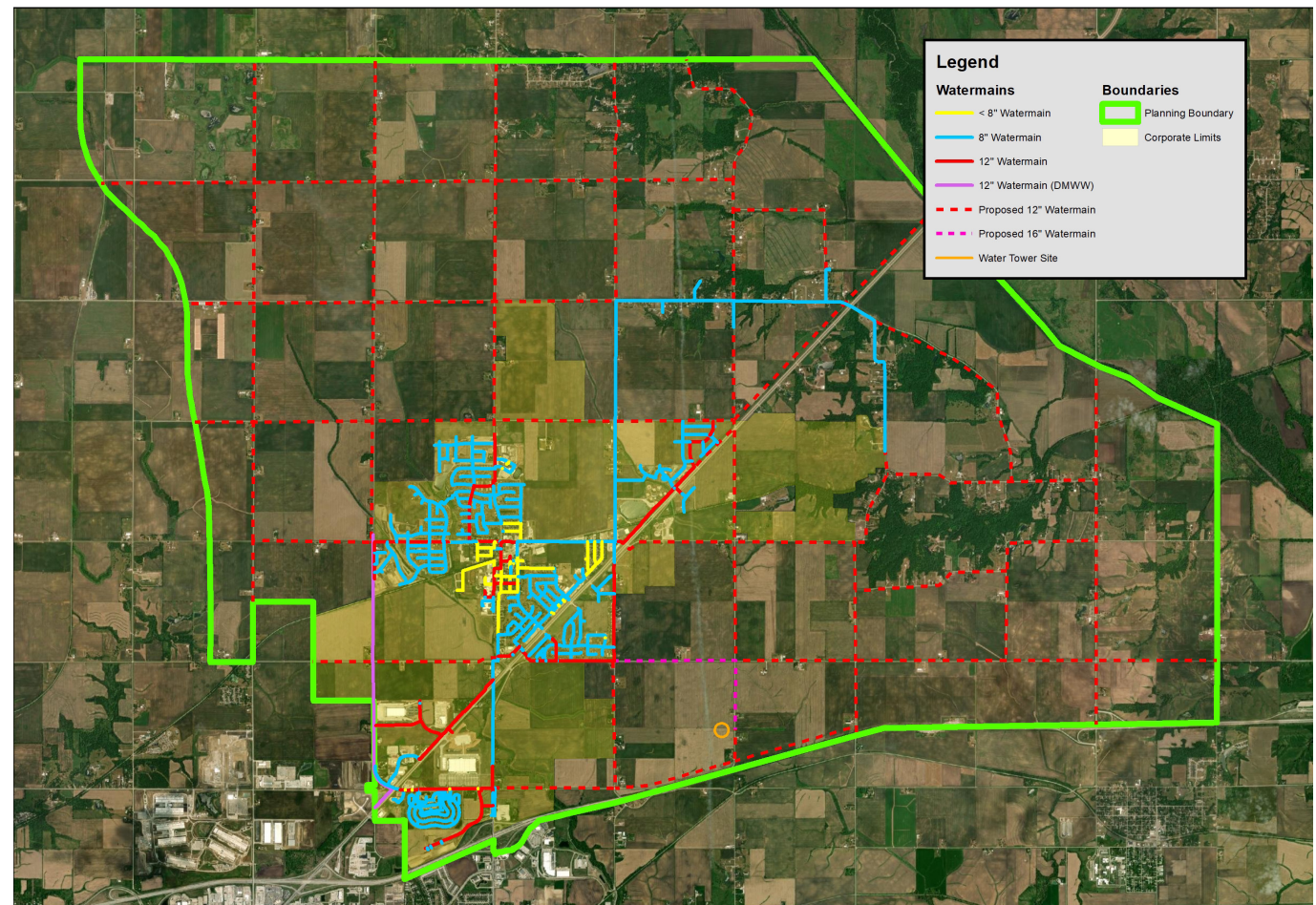
# Water Infrastructure

## Water Distribution

### Water Distribution

There are no identified limitations on growth from the standpoint of the water distribution system. The existing developed area of the City exists at the high point of the planning boundary and continued growth within the planning boundary can be serviced through extension of the existing network. As required to support future growth in the community, the City should complete construction of its own water tower, associated water mains, and provide for expansion of the 12" water main grid.

Figure 11.1 Water Distribution Map





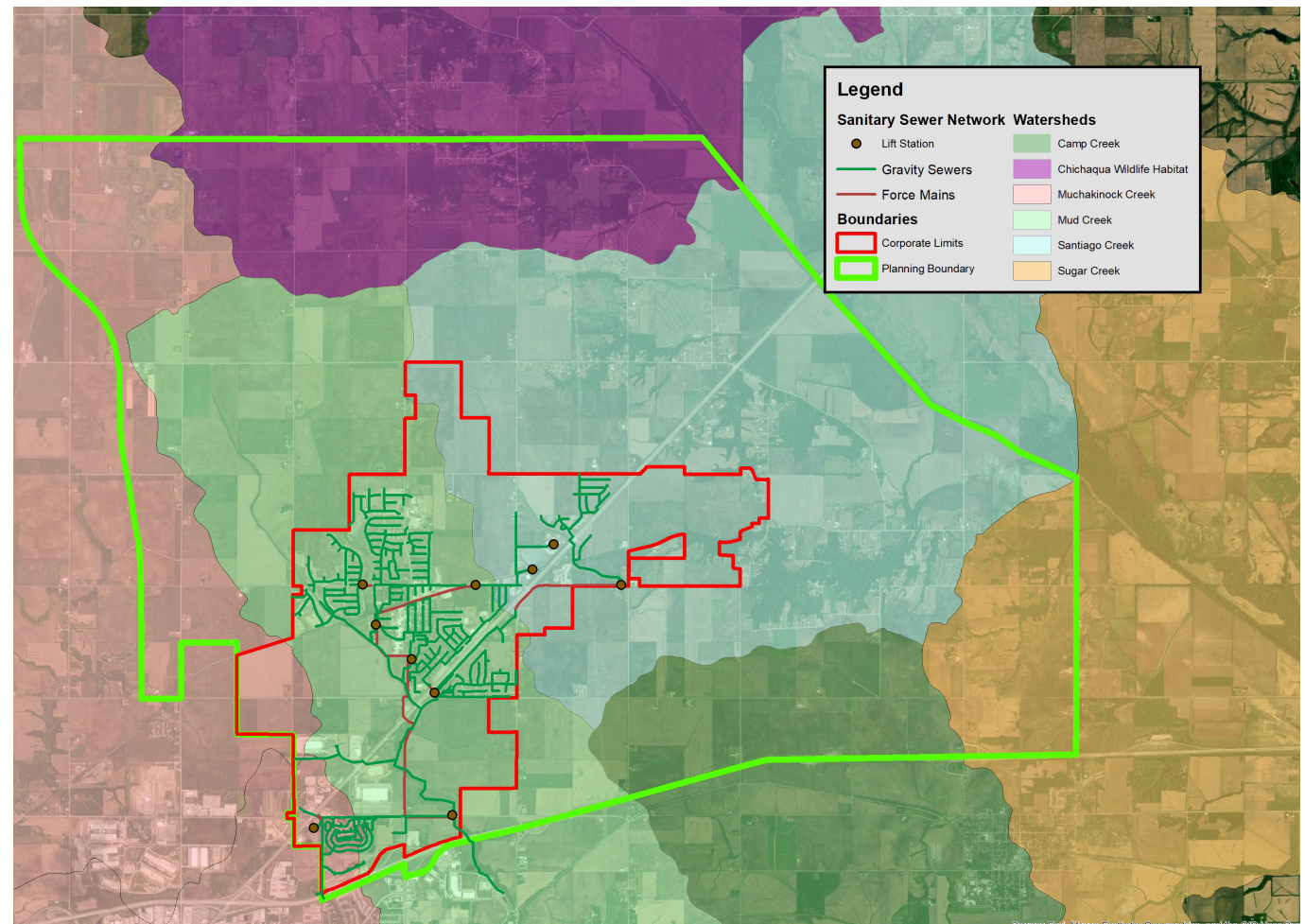
# Water Infrastructure

## Sanitary Sewer

### Sanitary Sewer

Development within the Mud Creek watershed and part of the Santiago Creek watershed can be connected by gravity sewer without the need for a pump station. Development within the Santiago, Camp, and Muchakinock basins would require investment in pumping solutions to service these areas. Development in the Muchakinock and Camp basins may be possible by gravity instead of requiring a pump station by coordinating sewer with other jurisdictions. The construction of the pump stations and force mains can be a significant expense, so the city should use caution on development within multiple watersheds requiring that investment at once.

Figure 11.2 Watersheds Map





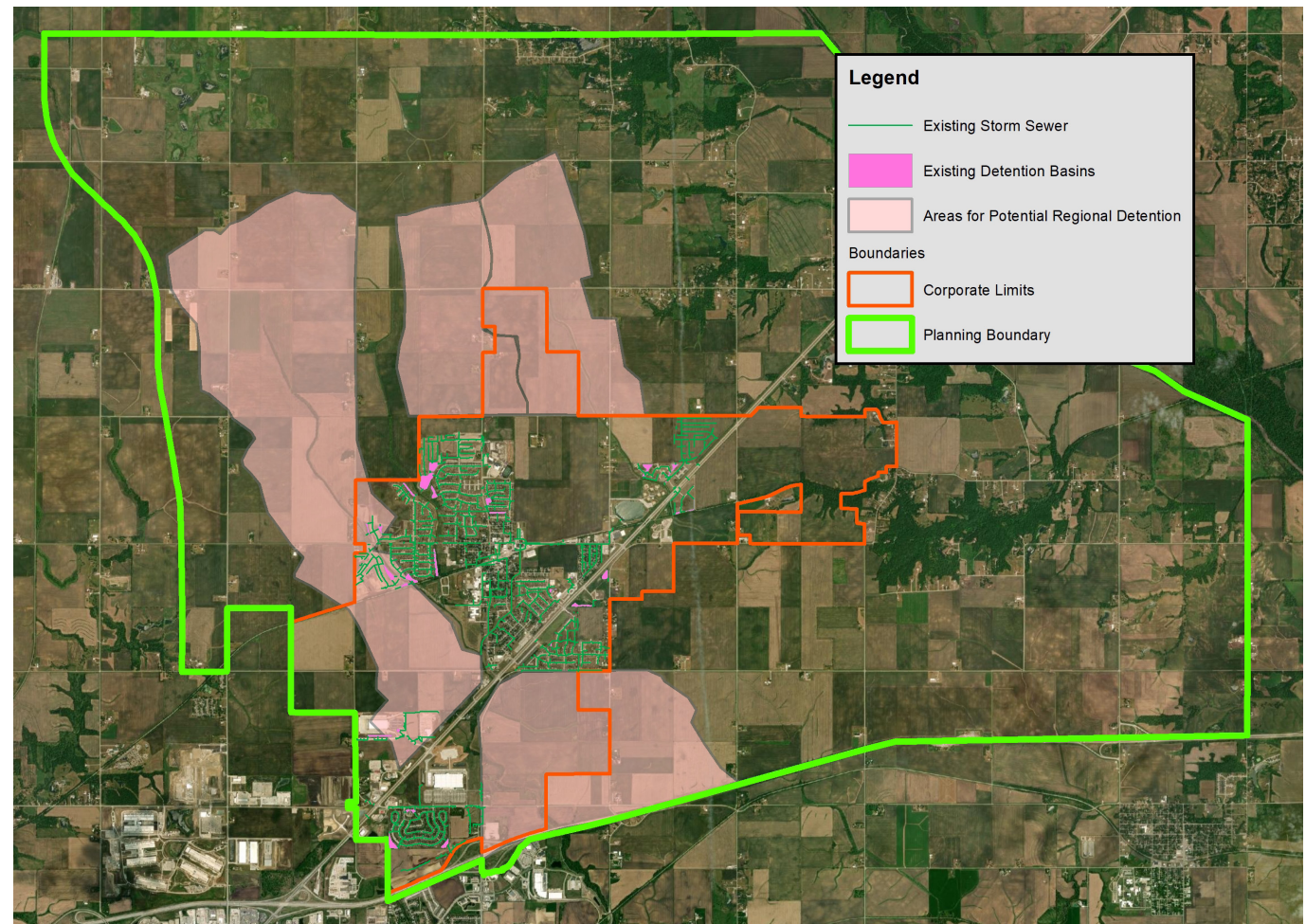
# Water Infrastructure

## Stormwater

### Regional Detention

Bondurant has experienced recent flooding issues that are in large part due to the surrounding undeveloped rural areas that drain through the City. The runoff from the undeveloped areas is currently uncontrolled and can overwhelm the city's stormwater systems. Areas identified in Figure 11.3 represent areas where regional detention solutions should be located to address the issues of uncontrolled runoff based on the City's Stormwater Master Plan. Construction of regional detention systems within the identified areas on the map would provide both a solution to the existing situation by capturing and slowing down the water before it enters the city, and attract future development to these areas with a regional stormwater solution already in place.

Figure 11.3 Regional Detention Map

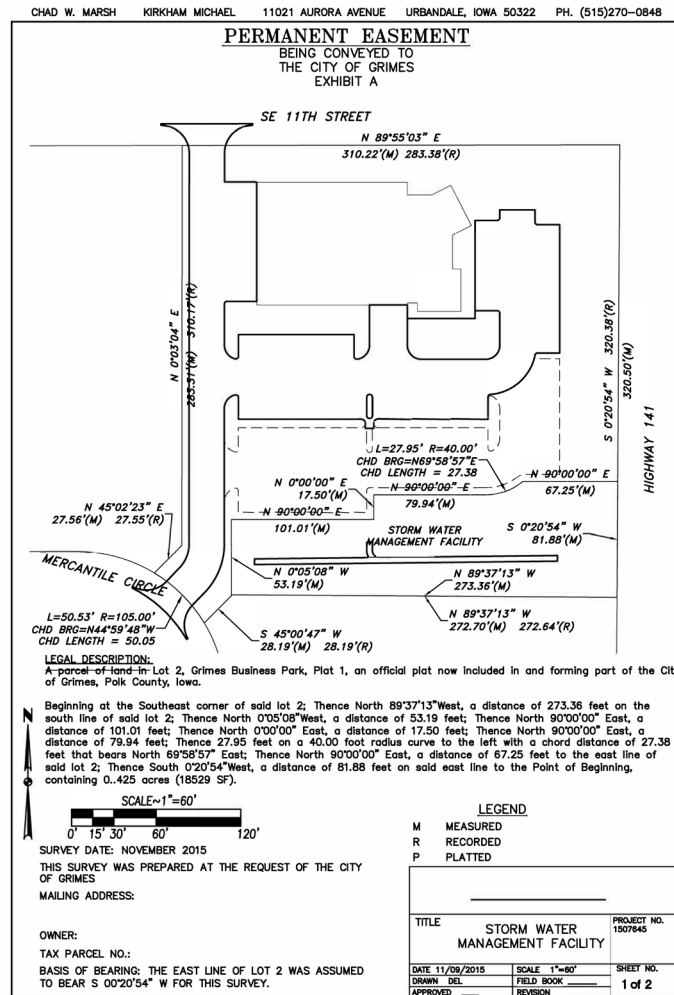


# Water Infrastructure

## Stormwater

### Detention Management / Maintenance

A lack of post construction maintenance and management for private detention facilities can lead to both an unsightly appearance and ineffective control of the stormwater runoff for the site. Regular maintenance and inspection of the stormwater facility is required to ensure it is operating as designed. The City should investigate implementing post-construction maintenance and inspection covenants as well as obtaining an easement covering the stormwater management facility to allow the City to complete inspection and maintenance if needed.





# Civic Campus Master Plan

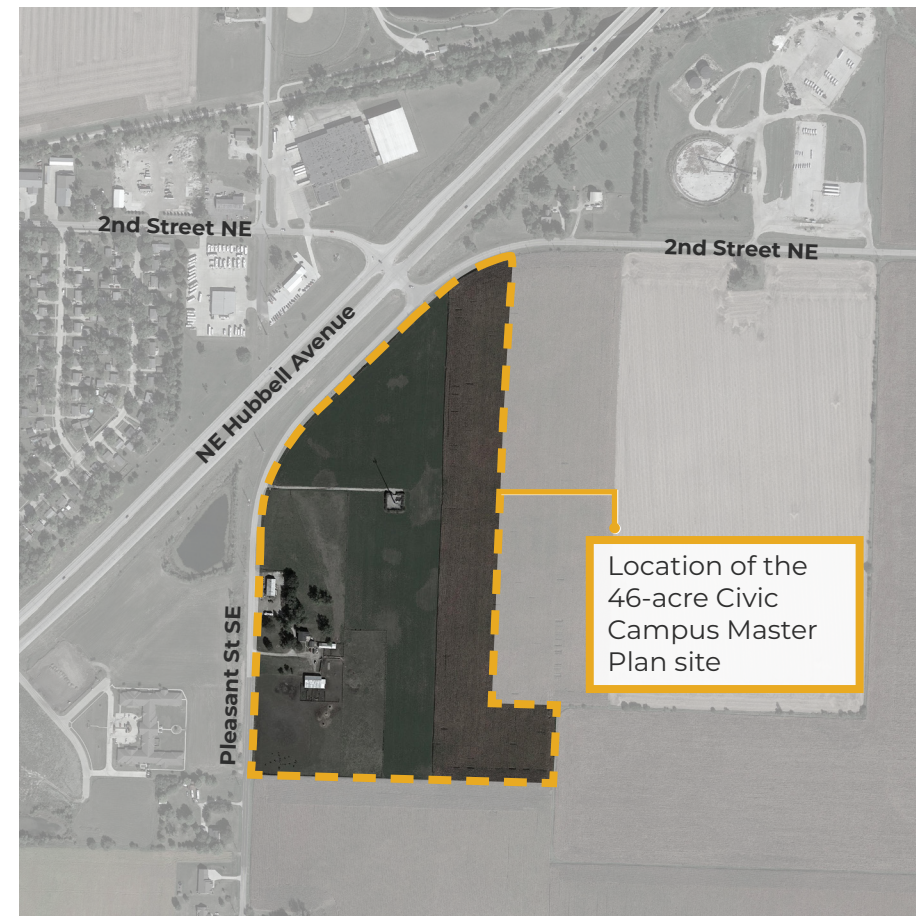
## Supporting Bondurant's Infrastructure

### Civic Campus Master Plan Overview

The Civic Campus Master Plan is an ongoing effort from the City of Bondurant working to master plan a 46-acre campus along Pleasant Street SE. This master plan will address short-term and long-term needs for City services, identifying a phased approach for the ultimate build-out of the site. This area would be home to the Emergency Services Department and Public Works Department, with plans that in the next thirty years, City Hall would be relocated here as well. Additional potential for partnerships and facilities will be considered in the overall Civic Campus Master Plan as it is completed.

Once completed, the master planned site will be a hub of centralized civic services supporting the operations within the City of Bondurant and maintaining the community's quality of life.

Figure 11.4 Civic Campus Master Plan Site





# Infrastructure Implementation

A series of goals, policies, and action items have been created for Chapter 11 - Infrastructure.

### Goal

Goals are objectives or aims which may be broad or specific.

### Policies

Policies represent on-going principles by which the City should adhere when approving new development or planning future investments.

### Action Items

Action items are specific steps and activities the City should take.

These goals, policies, and action items were created to further promote the guiding principles and vision statement of the Building Bondurant Comprehensive Plan.

In Chapter 12- Implementation, a series of matrices will be provided that include each chapter's goals, policies, and action items. In this later chapter, the guiding principle(s) being supported by each policy or action item will be highlighted. Additional items such as priority or potential partners will also be added.

**Figure 11.5** Building Bondurant Guiding Principles



# Infrastructure

## Implementation

### Goal 25

Infrastructure availability or readiness can be the deciding factor of where, when, and how development occurs within a community. Understanding the limitations and opportunities of the system can help provide guidance. Bondurant should be proactive in expanding infrastructure in the areas of identified growth as shown on the Future Land Use Plan.

**Provide a low-maintenance, cost-effective water system that meets the current and long-term needs of residents and businesses**

#### Policy 25A

**Meet or exceed all federal and state drinking water standards**

The City should maintain high standards for drinking water throughout the community.

#### Policy 25B

**Design and construct water system improvements that meet demand for fire protection and adequate system pressure for current and future growth areas**

There are current unmet needs in the water system that limit some development opportunities. These improvements would alleviate these obstacles.

#### Policy 25C

**Operate and maintain the water system to ensure its long-term function with equitable user charges**

The water system should be available and accessible to all Bondurant residents.

#### Action Item 25A

**Build out a water distribution system to include a grid of 12" water mains to provide redundancy and consistent service throughout the existing system and future expansion**

A grid of 12" watermain throughout the community will provide necessary water service and redundancy to provide a high level of service to residents and businessowners.



# Infrastructure

## Implementation

### Goal 25

Infrastructure availability or readiness can be the deciding factor of where, when, and how development occurs within a community. Understanding the limitations and opportunities of the system can help provide guidance. Bondurant should be proactive in expanding infrastructure in the areas of identified growth as shown on the Future Land Use Plan.

**Provide a low-maintenance, cost-effective water system that meets the current and long-term needs of residents and businesses**

#### Action Item 25B

**Establish water main connection fee districts associated with the 12" water mains identified in Action 25A**

Following the completion of the 12" water mains, the City should pursue fee districts to support the investment.

#### Action Item 25C

**Construct the water tower and associated water mains**

The City should continue in their efforts to construct a water tower and provide the necessary water main extensions in an effort to expand water services.

#### Action Item 25D

**Determine long term solution for water supply and identify the necessary timeline for implementation**

City leadership must make a decision on the long-term water supply issue by either continuing with regional water management or municipal water.

# Infrastructure

## Implementation

### Goal 26

All developments must consider sanitary sewerage a priority in the early stages of planning. Bondurant, while mostly flat, has some topographical features that will require extensive investment to meet sewerage requirements. The City should consider these investments and available partnerships when possible.

**Provide a low-maintenance, cost-effective sanitary sewer system that meets the current and long-term needs of residents and businesses**

#### Policy 26A

**Operate and maintain the sanitary sewer system to ensure its long-term function with equitable user fees**

The sanitary sewer system should grow and operate at a consistent level to provide an equal use experience. This should also be consistent across the community with fees.

#### Policy 26B

**Evaluate the potential for establishing a partnership or partnerships with other communities within the Muchakinock Basin to provide sanitary sewer to undeveloped properties within the basin**

Sanitary sewer extensions require great investment. The City should consider opportunities to partner with other communities, specifically in the Muchakinock Basin.

#### Policy 26C

**Consider managing development in watersheds that require a pumping solution for sanitary sewer service due to capital expenditure required to construct**

The investment required to install pump stations is high and should be considered from a feasibility lens as developments are proposed in watersheds that require them.

#### Policy 26D

**Continue to address infiltration/inflow of clear water into the sanitary sewer system**

The City should work to maintain high standards for water quality entering the sanitary sewer system.

#### Action Item 26A

**Adopt and implement a long-range Sanitary Sewer System Plan to support the City's Future Land Use Plan and establish sanitary sewer main connection fee districts associated with properties identified in the Sanitary Sewer System Plan**

The City should follow the Future Land Use recommendations to explore long-term sanitary sewer solutions.



# Infrastructure

## Implementation

### Goal 27

To ensure development is sustainably completed, stormwater management needs to be a priority and not an afterthought in the development and planning process. This can come through implementing and following SUDAS standards, regional detention, and requiring proper post-construction maintenance.

### Implement an effective, economical, and sustainable stormwater management system

#### Policy 27A

**Continue to implement the recommendations included in the Stormwater Master Plan to improve drainage, flooding, and water quality**

The City's Stormwater Master Plan outlines a strategic path forward and should be utilized as a tool in all future initiatives.

#### Policy 27B

**Investigate regional detention solutions identified in the Stormwater Master Plan and implement stormwater connection fee districts for the benefitted properties**

As development occurs around the areas identified within the Stormwater Master Plan, the City should consider opportunities to implement a fee district.

#### Policy 27C

**Continue to actively participate in current watershed management authorities and pursue additional opportunities for involvement as is made available**

It is imperative to remain a strategic partner in stormwater management to ensure Bondurant is involved in conversations as it impacts the community.

#### Policy 27D

**Continue to incorporate existing storm sewer infrastructure needs with new stormwater projects in the Capital Improvement Plan**

Following the proposed projects outlined in the CIP will support a steady path forward in maintaining an efficient storm sewer system.

#### Policy 27E

**Encourage stormwater best management practices on agricultural land whenever possible**

Because agricultural land impacts our water systems, it should be highly encouraged to utilize best management practices.

# Infrastructure

## Implementation

### Goal 27

### Implement an effective, economical, and sustainable stormwater management system

To ensure development is sustainably completed, stormwater management needs to be a priority and not an afterthought in the development and planning process. This can come through implementing and following SUDAS standards, regional detention, and requiring proper post-construction maintenance.

#### Action Item 27A

**Adopt the Iowa Stormwater Management Manual and Capital Crossroads Stormwater Management Manual as the required stormwater management criteria for development**

These two manuals are designed to provide proper stormwater management and should be adopted by the City of Bondurant.

#### Action Item 27B

**Update the City Code to require post-construction maintenance agreements and stormwater management facility easements for all new private stormwater ponds**

Ensuring that developments are maintained well past construction will assist in maintaining the long-term health of the land.

#### Action Item 27C

**Evaluate the advisability and feasibility of the City assuming ownership and/or operations and maintenance of localized stormwater ponds**

As Bondurant grows, it should consider what is best for operations long-term.



# Infrastructure

## Implementation

### Goal 28

Ensuring that maintenance of infrastructure is efficient and well-operating, the City should continue efforts in identifying opportunities to centralize and expand City-operated services.

### Support City-operated services and infrastructure through investment

#### Policy 28A

**Follow and implement the recommendations outlined in the Civic Campus Master Plan to help support City Departments in maintaining an efficient infrastructure system**

The ongoing efforts of the Civic Campus Master Plan will identify a phased approach in establishing a strong, long-term solution in centralizing services.

#### Policy 28B

**Consider ultimate build-out of the site during the planning process to identify other potential relocations of City services and departments**

The 46-acre site has potential to fit additional services and departments other than Emergency Services and Public Works.