

CITY OF BONDURANT  
RESOLUTION NO. 230821-170

RESOLUTION ADOPTING THE SANITARY SEWER MASTER PLAN

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BONDURANT, IOWA:

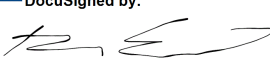
WHEREAS in September 2022 the Bondurant City Council approved a resolution entering into a professional services agreement with Veenstra & Kimm for Sanitary Sewer Master Planning services; AND

WHEREAS this Sanitary Sewer Master Plan is intended to provide guidance to the City in the development of sanitary sewers to serve growth areas of the city; AND

WHEREAS adoption of a Sanitary Sewer Master Plan is consistent with Action Item 26A of the Building Bondurant Comprehensive Plan, which reads: 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 the properties identified in the sanitary sewer system plan.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Bondurant hereby adopts the Sanitary Sewer Master Plan.

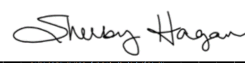
Passed and approved by the City Council of the City of Bondurant, Iowa, this 21<sup>st</sup> day of August 2023.

DocuSigned by:  
By:   
182C84659A50485...

Doug Elrod, Mayor

ATTEST: I, Shelby Hagan, City Clerk of Bondurant, hereby certify that at a meeting of the City Council held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand the day and year above written.

DocuSigned by:  
  
2609A3F42EF546A...

Shelby Hagan, City Clerk

Name	Yay	Nay	Abstain	Absent
Cox	X			
Driscoll	X			
McKenzie	X			
Peffer	X			
Sillanpaa	X			

## Bondurant Sanitary Sewer Master Plan

### INTRODUCTION

This report sets forth the sanitary sewer master plan for the City of Bondurant. The master plan is intended to provide guidance to the City in the development of sanitary sewers to serve growth areas of the City. The master plan evaluates the City's comprehensive planning area and identifies areas within the overall planning area where sewer service is considered viable in the near term and areas where sewer service is not considered likely in the near term.

### PLANNING OVERVIEW

The sanitary sewer master plan evaluated sanitary sewer service in the City's long range planning boundary. The long range planning area was divided into several service areas. The service areas are defined based on topography and the location of existing and future sewers. Figure 1 shows the overall planning area and the various service areas within the overall planning area. The service areas are identified as Area A through Area R.

The majority of sanitary sewers in the City are located in the Mud Creek basin and are tributary to the WRA Mud Creek Interceptor. The WRA Mud Creek Interceptor is located along Mud Creek from Interstate 80 northerly to the site of the City of Bondurant's former wastewater treatment facility.

The City has a limited sanitary sewer system located in the Santiago Creek basin. The sewers in the Santiago Creek basin are tributary to the Urban Service Area Lift Station located along 2<sup>nd</sup> Street NE. The Urban Service Area Lift Station pumps the flow westerly. The flow from the Urban Service Area Lift Station is tributary to the sewers tributary to the WRA Mud Creek Interceptor.

The City has a small area of sanitary sewers located along NE Hubbell Avenue near the south City limits. The sewers in this area are tributary to a sewer that connects to the City of Altoona's trunk sewer in the Little Four Mile Creek basin. As part of the creation of the Des Moines Metropolitan Wastewater Reclamation Authority (WRA) in 2004, the City of Bondurant and the City of Altoona proposed the construction of the WRA Mud Creek Interceptor to serve most of the City of Bondurant and the eastern part of the City of Altoona. The WRA Mud Creek Interceptor was proposed as an alternative to the original concept of providing sewer service to the City of Bondurant along a branch of Little Four Mile Creek.

The decision to construct the WRA Mud Creek Interceptor resulted in a small area in the City of Bondurant that would need to be pumped east to the WRA Mud Creek Interceptor or connected to the WRA system through the City of Altoona. The City of Bondurant and the City of Altoona reached an agreement under which the City of Bondurant can connect a limited service area to the Altoona trunk sewer near Ziegler Drive. The service area is limited and the maximum flow from the City of Bondurant that can be discharged to the City of Altoona is 0.25 mgd.

The City of Bondurant's long range planning boundary encompasses areas tributary to Mud Creek, Santiago Creek and Little Four Mile Creek where the City has some level of sewer service. The long range planning boundary encompasses areas tributary to Camp Creek, the Skunk River and Muchikinock Creek. The City current does not have sewer service available in any of these three basins.

There are no sanitary sewers in the general area of Bondurant in either the Camp Creek basin or the Skunk River basin. Limited sewer service owned by the City of Altoona is available in the Muchikinock Creek basin. Sewer service in the Muchikinock Creek basin is not currently located in close proximity to the City of Bondurant.

The first step in the development of the sanitary sewer master plan was to identify service areas where sewer service is available, or sewer service can reasonably be provided with logical extensions of the sanitary sewer system. Areas where sewer service can be reasonably provided are considered the core area for purposes of this sanitary sewer master plan. The areas where sewer service can reasonably be provided are adjacent to or in reasonably close proximity to the existing sanitary sewer system.

Areas that are more remote from the existing sanitary sewer system, especially areas in drainage basins not currently served by the City's sanitary sewer system, are considered less likely for sanitary sewer systems in the near future.

Each of the 19 service areas identified in the overall plan were evaluated to determine whether that service area falls within the category of reasonably providing sewer service in the near future or the category where sewer service is not anticipated in the near future.

Of the 19 service areas, 8 service areas were identified as areas the City could anticipate providing sewer service in the near future. The remaining 11 service areas are considered more remote from the City and much less likely to be provided sewer service.

The service area identified with potential for sewer service are service areas A through H. These 8 areas are shown on Figure 2.

The remaining areas, I through R, are not considered areas where sewer service would be anticipated in the near future. Service areas I and J slope westerly to Muchikinock Creek. The City of Altoona has extended sewer service to a portion of Muchikinock Creek. That sewer terminates just north of NE 62<sup>nd</sup> Avenue. If the Muchikinock Trunk Sewer is extended at a future date and capacity is available for service areas I and J, those areas may be considered as sewerable areas.

Service area K flows southeasterly to Camp Creek. This area slopes southeasterly toward the City of Mitchellville. Service area K could be sewerred to the Mitchellville wastewater treatment plant. For the City of Bondurant to provide sewer service in area K to its sewer system area it would be necessary to install a lift station along Interstate 80 and pump the flow westerly to Service Area H. That flow would then be pumped westerly to the WRA Mud Creek Interceptor.

Service Areas L, M, N, O, P, and Q all slope easterly toward the Skunk River basin. There is currently no sewer service available in the Skunk River basin and sewer service is not anticipated in the Skunk River basin in the foreseeable future. If sewer service is required in portions of service areas L, M, N, O, P, and Q, those areas would need to be served by a local lift station that would pump the flow to an adjacent location in the Bondurant sewer system.

Service Area R is an upland area with limited slope to the west. Service area R is located in the far northeasterly portion of the Muchikinock Creek basin. If sewer service becomes available in the northern portion of the Muchikinock Creek basin sewer service to area R could be considered.

While this master plan focuses on service areas A through H it is recognized sewer service to the balance of the areas, I through R, is possible by pumping the flow to an adjacent area in the City of Bondurant. Given the location of Service Areas I through R sewer service is not anticipated in the near future. This master plan does not include a more comprehensive evaluation of sewer service to these areas.

## SEWER MASTER PLAN

The sanitary sewer master plan focuses on providing sanitary sewer service to Service Areas A through H.

Service Areas A, B, and C are located in the natural drainage basin of Mud Creek and sewer service in these three areas is directly tributary to the WRA Mud Creek Interceptor.

Service area D located in the southwest corner of the City is located in the Little Four Mile Creek basin. Sewer service to this area is tributary to the Altoona sewer system.

Service area E slopes westerly and is located in the Muchikinock Creek basin. This area currently does not have sewer service.

Service area F can generally be tributary to the Urban Service Area Lift Station. This service area is located in an upland plateau between the Mud Creek, Camp Creek, and Santiago Creek. Although there are alternatives to provide sewer service to area F the logical outlet for sewer service is the existing Urban Service Area Lift Station.

Service Area G is located in the Santiago Creek basin and is tributary to the existing Urban Service Area Lift Station.

Service Area H is located in the westerly portions of the Camp Creek basin. This area currently does not have sewer service. Significant portions of Service Area H are located in an area identified as the Timmins certified site. This area will have water service available after the completion of the water mains and water tower in late 2024.

## SERVICE AREAS

In this section of the master plan a narrative overview of sewer service in each of Service Areas A through H is provided.

### SERVICE AREA A

Service Area A is located along Mud Creek from Interstate 80 northerly. Sewer service in area A is directly tributary to the WRA Mud Creek Interceptor.

Service Area A consists of two general areas. The southern portion of Service Area A includes limited sewer service including a sewer located along 32<sup>nd</sup> Street SE and the sanitary sewer that extends westerly toward Franklin Street SW in the area of Shiloh Rose Pkwy. The balance of the southern portion of Service Area A is currently unsewered.

Sewer service in the southern portion of Service Area A is anticipated to occur as development is experienced. If development occurs from the WRA Mud Creek Interceptor outward toward the boundaries of Service Area A the collector sewers can be constructed in a logical sequence from downstream to upstream. If development occurs first in areas not directly adjacent to the WRA Mud Creek Interceptor it may be necessary to construct collector sewers that would extend from the WRA Mud Creek Interceptor to serve various development areas.

Figure 3 shows the concept of potential sewers that would extend to various portions of Service Area A. These sewers are illustrations of the potential location of collector sewers. The exact location of the collector sewers will need to be determined at the time individual areas are developed.

The northern portion of Service Area A has a fairly extensive network of sanitary sewers. Limited future sewer construction is anticipated in these areas. For the most part future sewers in the northern part of Service Area A will be constructed as development occurs.

The one potential exception to development constructed sewers is in the area east of Grant Street N and south of 16<sup>th</sup> Street NE. As part of the Northwest Trunk Sewer project the City established a connection fee district. The connection fee district was originally established for the Northwest Trunk Sewer project that was constructed by the City. The connection fee district was expanded to include areas east of Grant Street N. The expanded connection fee district includes the construction of a reach of sewer in the northeast corner of Service Area A. At the time the connection fee district was expanded it was anticipated the sewer through the undeveloped area east of Grant Street N and south of 16<sup>th</sup> Street NE would be constructed as part of the development that was in progress. That development has not moved forward.

Under the connection fee district concept the City would be obligated to construct the sewers identified in the connection fee district. The yet to be constructed portion of the connection fee district sewer relies on the sewer through the undeveloped area that is not part of the connection fee district. Depending on the timing of development, the City may need to evaluate

the sequence and order of construction of the portion of the sewer remaining to be completed under the connection fee district.

## SERVICE AREA B

Service Area B is the area northwesterly of the City of Bondurant's Northwest Trunk Sewer at 2<sup>nd</sup> Street NW. Sewer service to Service Area B will be provided by an extension of the Northwest Trunk Sewer as shown on Figure 3. The sewer would eventually extend north to NE 94<sup>th</sup> Avenue. Figure 2 shows the invert elevation of the existing northwest trunk sewer at 2<sup>nd</sup> Street NW at 923.2. The trunk sewer should be constructed to maintain an invert elevation no higher than 950 at NE 94<sup>th</sup> Avenue.

If the trunk sewer is constructed along the west branch of Mud Creek the elevations of the trunk sewer should allow for sewer service to all of Service Area B. As development occurs it will be necessary to extend sewer from the trunk sewer outward to serve the outer parting of Service Area B both east and west of the trunk sewer.

If development occurs outward from the trunk sewer individual collector sewer can be constructed as part of the development. If development occurs starting more remotely from the trunk sewer the City may need to facilitate the extension of collector sewers.

## SERVICE AREA C

Service Area C is located in the area of the east branch of Mud Creek north of the existing Northwest Trunk Sewer. Service Area C is generally defined as the area tributary to the east branch of the Mud Creek northerly of the existing sewer system.

Figure 2 shows sewer service to Service Area C to be provided by a trunk sewer that would start at the existing Northwest Trunk Sewer and continue upstream to the north. The invert elevation of the Northwest Trunk Sewer at the downstream end of a future trunk sewer and Service Area D is shown to be elevation 931.9. The projected invert elevation of the trunk sewer at NE 94<sup>th</sup> Avenue is elevation 951.0.

If a trunk sewer is constructed along the east branch of Mud Creek as shown on Figure 2 the elevation of the trunk sewer should allow for sewer service to all of Service Area C. If development occurs from the trunk sewer outward the collector sewers can be constructed as part of individual development projects. If development starts more remote from the trunk sewer the City will need to evaluate whether it would need to become involved in the construction of collector sewers that would extend from the trunk sewer outward to the development.

For purposes of the master plan it is assumed the City's role would be primarily limited to the trunk sewer. The City will need to reevaluate its involvement in additional sewers based on the order of development.

## SERVICE AREA D

Service Area D is located in the southern part of the City. Service Area D is served by the Wolf Creek Trunk Sewer project constructed by the City of Bondurant. The sewers in Service Area D flow southerly and connect to the City of Altoona's sewer system near the west corporate limits at Ziegler Drive.

Service Area D is a relatively small area. It is not anticipated the City will need to construct additional trunk sewers in Service Area D. The City's capacity in Service Area D is limited to 0.25 mgd under the agreement with the City of Altoona.

## SERVICE AREA E

Service Area E is located in the City of Bondurant near the west corporate limits west of Franklin Street SW. Service Area E slopes westerly and is naturally tributary to Muchikinock Creek.

The City of Altoona has constructed a trunk sewer along Muchikinock Creek to just north of NW 62<sup>nd</sup> Avenue. Although Altoona constructed the trunk sewer it did so contemplating there would be a potential for the sewer to serve future areas in Ankeny and potentially in Bondurant.

The City does not have an agreement with the City of Altoona relative to capacity in the Muchikinock Creek Trunk Sewer.

The master plan shows sewer service in Service Area E to be provided by a lift station near the west corporate limits. The lift station would pump the flow easterly to a collector sewer that would be constructed in Service Area A.

If the City determines it necessary to provide sewer service to Service Area E before the collector sewer in Service Area A is constructed, the City may need to construct a collector sewer to serve as the outlet for the lift station in Service Area E.

If the City of Altoona extends the Muchikinock Creek trunk sewer prior to the City of Bondurant requiring sewer service in Service Area E, there is a possibility the City of Bondurant could provide service to Service Area E by gravity westerly to a trunk sewer along Muchikinock Creek.

## SERVICE AREA F

Service Area F is located south of 2<sup>nd</sup> Street NE, east of Pleasant Street, west of Eisenhower Drive and north of 15<sup>th</sup> Street SE. The eastern part of area F is located in the Santiago Creek basin. The western and southern portions of area F are located in an upland area between Santiago Creek, Mud Creek, and Camp Creek.

Service Area F is currently undeveloped. Service Area F has been identified by the City as a future development area including two certified sites.

The master plan shows sewer service to Service Area F to be tributary to the Urban Service Area Lift Station located on 2<sup>nd</sup> Street NE west of Eisenhower Drive NE. The master plan shows a potential trunk sewer extending west on 2<sup>nd</sup> Street NE and another trunk sewer extending southwesterly toward the central portion of Service Area F.

Although the master plan shows the location of sewers it is anticipated collector sewers in Service Area F will be developed based on the location and timing of individual development projects (depending upon the sequence of development).

## SERVICE AREA G

Service area G is located north of 2<sup>nd</sup> Street NE in the Santiago Creek basin in the portion of the Santiago Creek basin that could be tributary to the Urban Service Area Lift Station.

The Urban Service Area Trunk Sewer extends from the lift station northwesterly and currently terminates at the north end of the Macintosh Drive NE. The invert elevation at the north end of the existing trunk sewer is approximately 948.5.

The service area tributary to the Urban Service Area Lift Station in Service Area G extends as far north as NE 102<sup>nd</sup> Avenue. However, significant areas in the eastern part of service area G from 16<sup>th</sup> Street NE northerly to NE 94<sup>th</sup> Avenue are located in areas with ground elevations between 965 and the low 970s.

Figure 2 shows a potential extension of the trunk sewer along the upper reaches of the Santiago Creek to NE 94<sup>th</sup> Avenue. Based on the invert elevation of the existing trunk sewer, the trunk sewer extension at NE 94<sup>th</sup> Avenue would have an invert elevation of approximately 968. The invert elevation of the trunk sewer would be too high to provide sewer service to much of the service area north of 16<sup>th</sup> Street NE.

The Urban Service Area Lift Station and trunk sewer appear to have been designed primarily to focus on the portion of the Santiago Creek basin located south of 16<sup>th</sup> Street NE. The lift station and trunk sewer were not constructed deep enough to serve the northern portion of Service Area G.

The two options for providing sewer service to the northern portion of Service Area G are the construction of a supplemental lift station near 16<sup>th</sup> Street NE with the flow to be pumped westerly to Service Area C or to construct a deeper sewer parallel to the existing Urban Service Area Trunk Sewer and to reconstruct or replace the Urban Service Area Lift Station with a lower invert elevation.

Lowering the invert elevation of the existing lift station and reconstructing the existing trunk sewer do not provide any additional service area. Of the two options, the preferred option is a

new lift station located along Santiago Creek near 16<sup>th</sup> Street NE. The lift station would pump westerly through a force main that would connect to the trunk sewer in Service Area C.

It is quite likely the City will improve portions of 16<sup>th</sup> Street NE prior to the time the lift station to serve the northern portion of Service Area G would be required. If the 16<sup>th</sup> Street NE improvements are constructed prior to the lift station and the City should install a portion of the force main as part of the street improvement project or reserve a corridor for installation of the force main at a future date.

## SERVICE AREA H

Service Area H is located north of Interstate 80 on both the east and west side of Eisenhower Drive NE. Service Area H naturally slopes southeasterly and is in the upper reaches of the Camp Creek basin.

Service Area H is currently undeveloped. However, Service Area H has been identified as an area of future industrial development. The Timmins certified site is located on both the east and west side of Eisenhower Drive SE north of Interstate 80. The site certification along with the completion of the water main and water tower in late 2024, are anticipated to be a catalyst for development of this area.

Sewer service to Service Area H would be provided by a lift station located along the natural swale east of Eisenhower Drive SE on the north side of Interstate 80. A force main would extend southwesterly along Interstate 80 to Eisenhower Drive SE and continue southwesterly along Jorie Way and NE 62<sup>nd</sup> Ave (32<sup>nd</sup> Street SE) to the west side of Pleasant Street SE. The force main would discharge into a trunk sewer located along Interstate 80 that would continue westerly to the WRA Mud Creek Interceptor. The trunk sewer along the northerly side of Interstate 80 west of Pleasant Street SE would serve the G-Holds certified site. The trunk sewer would be located in Service Area F.

As part of the site certification process for the Timmins certified site the City made certain assurances regarding the timing of improvements. To meet those commitments this master plan suggests the City complete the planning and design of the improvements to serve Service Area H. The improvements would not be constructed until there is an identified project that requires the sanitary sewer service.

