



Public Works Utility Operations

DATE: May 14, 2024

FROM: Michelle Klose, Director Public Works Utilities

ITEM: Projects for ND Department of Water Resources Water Development Plan

REQUEST:

Receive update on proposed projects to be included in the Water Development Plan for the ND Department of Water Resource upcoming legislative budget.

BACKGROUND INFORMATION:

The Department of Water Resources has developed a Water Development Plan to be used for the next legislative session to support project funding. Utility Operations has provided the following projects to the ND Department of Water Resources:

Project	Budget	Grant
pH Stabilizer Storage	\$6,300,000	\$3,800,000
Lockport Reservoir	\$9,200,000	\$5,500,000
Cast Iron Water Main Replacement	\$13,200,000	\$7,900,000
South Bismarck Flood Protection	\$54,600,000	\$20,500,000
Total		\$37,700,000

Proposed projects must be submitted as part of the Water Development Plan for the 2025-2027 biennium to be considered for funding. There will be basin-wide meetings to discuss projects and provide sponsor support. The Lower Missouri Basin meeting will be held in Bismarck on June 24, 2024 at 3:00 pm at the Bank of North Dakota.

RECOMMENDED CITY COMMISSION ACTION:

Support proposed projects to be included in the Water Development Plan for the ND Department of Water Resource upcoming legislative budget

STAFF CONTACT INFORMATION:

Amber Araujo, Executive Assistant, 701-355-1739, aaraujo@bismarcknd.gov

ATTACHMENTS:

1. 2025 - 2027 Bismarck Lockport Project
2. 2025 to 2027 pH Stabilizer Storage

3. 2025 to 2027 South Bismarck Flood Protection
4. 2025 to 2027 Cast Iron Watermains

Project Information and Planning Submission

Received : 5/1/24

Project Name : Lockport Reservoir

Local Sponsor : City of Bismarck

Location : Bismarck, ND

Benefitting Basin : Lower Missouri

Type of Request : Project Study

Update Existing Project :

Project Type : Water Supply (Municipal)

Description : The City of Bismarck (City) is growing at a steady pace and is need of additional water infrastructure. The Growth Management Plan predicts that over the next 30-plus years, significant growth will occur north of I-94. Based on previous water distribution planning completed by the City, much of this growth area will be served by the existing Lockport Pump Station and proposed Ground Storage Reservoir.

The proposed reservoir and current pump station will provide water to a large portion of northern Bismarck and is a culmination of twenty-five years of water system planning. This current service area of the Lockport site is known as Zone 3 and Zone 4, and the addition of the reservoir will also provide storage for Zones 3 &4, along with Zone 2. Flows and water storage from Lockport will supplement the existing pump stations in Zones 2-4 by providing additional capacity and redundancy for the continued growth. The project is on a city-owned site at the intersection of 43rd Avenue and Highway 83.

The project will include a 2 MGD reservoir, finished with similar features as the existing pump station located on the site. The project will also include additional pumping capacity at the existing pump station, site grading, landscaping, installation of interconnection pipes, electrical service, and backup power.

Problem or Need

Addressed : The Lockport Reservoir and Pump Station will be a critical hub for distributing water to a large portion of northern Bismarck for decades into the future. The construction of the reservoir will allow expansion and full use of the current pump station.

Project Information and Planning Submission

Received : 5/1/24

Project Name : Lockport Reservoir

Local Sponsor : City of Bismarck

Location : Bismarck, ND

- Yes No N/A : Has a feasibility study been completed?
- Yes No N/A : Is this project federally authorized water supply or flood control with federal funding appropriations?
- Yes No N/A : Does this project mitigate low head dam roller effects?
- Yes No N/A : Does this project involve new connections between communities and rural/regional systems?
- Yes No N/A : Does this project correct a violation of a primary water quality condition in a water supply system?
- Yes No N/A : Does this project address supply shortages for domestic use in areas with rapid population growth?
- Yes No N/A : Does this project protect from flooding, or involve flood recovery property acquisitions?
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- Yes No N/A : Is this an irrigation system construction project?
- Yes No N/A : Is this a new rural flood control project?
- Yes No N/A : Is this a bank stabilization project?
- Yes No N/A : Is this a snagging and clearing project located in a population center?
- Yes No N/A : Is this a mainstreet-initiative related project?
- Yes No N/A : Is this project a study, report, analysis, survey, model, evaluation, mapping project, or engineering design?
- Yes No N/A : Is this project an improvement or extraordinary maintenance of a water supply system?
- Yes No N/A : Is this an improvement or extraordinary maintenance of a rural flood control project?
- Yes No N/A : Is this an individual rural or farmstead ring dike construction project?
- Yes No N/A : Is this project a replacement of existing infrastructure?
- Yes No N/A : Is this a snagging and clearing project in a sparsely populated area?

Project Information and Planning Submission

Received : 4/26/24

Project Name : Western ND WTP pH Stabilizer Storage Facility

Local Sponsor : City of Bismarck (Other municipalities and water systems listed below)

Location : Burleigh, Bismarck, ND; WTP Facility Site-River Road

Benefitting Basin : Lower Missouri

Type of Request : Project Study

Update Existing Project :

Project Type : Water Supply (Regional)

Description : The water systems in western ND have a common issue with the shortages in delivery of a pH stabilizer (food grade CO₂) that is required for production of safe drinking water. The water systems noted below have repeatedly shared concerns with the stability of delivery of CO₂ and thus have been working together to identify solutions to this shared issue. This proposed regional storage facility leverages a common need between communities and water systems to reduce costs through economy of scale. The proposed project is based on a joint CO₂ storage facility that could provide service to the rural and municipal facilities of Southwest Water Authority, Northwest Area Water Supply/Minot, Bismarck, Mandan, Jamestown and Western Area Water Supply/Williston. This submittal is based on a 60% Cost Share, due to the multiple water system's supporting and taking part in this project a blended rated cost share rate between 60% and 75% may requested based on the final storage capacity need agreed to by each system.

Problem or Need

Addressed : A joint CO₂ storage facility would be constructed on the City of Bismarck Water Treatment Plant facility site and would consist of the following: 400 ton storage vessel, vessel foundation, site grading improvements including retaining wall, delivery and hauling access road and approaches, facility fence and access control gates, electrical, and vessel control system. Preliminary site location would locate storage facility directly north of existing WTP on City of Bismarck property. Option to locate facility within the current City of Bismarck WTP facility site to be evaluated during design. An alternative location within the existing facility area also being considered is on the east side of the site, near the existing electrical substation.

Systems currently supporting this shared facility include:

Southwest Water Authority - CEO Jen Murray; Grace Rixen-Handford - WTP Manager; Perry Grammond, WTP Assistant Manager

City of Williston / Western Area Water Supply - Jeffrey Bryson, WTP Superintendent

City of Minot / Northwest Area Water Supply - Mark Paddock, WTP Superintendent; Jeff Sorenson, Utilities Director

City of Bismarck - Jason Tomanek, City Administrator; Michelle Klose, Director of Utilities; Jim Kershaw - WTP Superintendent, Current ND AWWA Section Chairman

City of Mandan - Duane Friesz, WTP Superintendent

Jamestown - Joe Rowell, WTP Superintendent

Project Information and Planning Submission

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Project Information and Planning Submission

Received : 4/29/24

Project Name : South Bismarck Flood Control Project

Local Sponsor : City of Bismarck

Location : Bismarck

Benefitting Basin : Lower Missouri

Type of Request : Project Study

Update Existing Project :

Project Type : Flood Control

Description : The city of Bismarck is in need of improvements to address pending changes to the Federal Emergency Management Agency (FEMA) regulatory floodplain determined as part of the ongoing Burleigh County, ND RiskMAP Project. Approximately 950 structures will be impacted by the pending changes to the regulatory floodplain.

The purpose of the project is to implement flood risk reduction measures that will provide FEMA-accredited flood protection. In order to provide FEMA-accredited protection under 44 CFR §65.10, the selected alternative must protect the properties against riverine flooding from the Missouri River and also interior flooding on the landside of the levee systems. To meet the requirements of 44 CFR §65.10 and remove the mandatory flood insurance requirements in the future, the interior drainage conveyance systems must also be able to reduce interior flooding and minimize structures affected.

Problem or Need

Addressed : The project will be designed to provide FEMA-accredited flood protection under 44 CFR §65.10. The primary project components of this project will generally consist of the following:

- South Washington Street Pump Station and Gate Structure
- Sertoma Park Pump Station and Gate Structure
- Sertoma Park detention pond - Conveyance improvements
- Sertoma Park River Outlet

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Local Sponsor : City of Bismarck

Location : Bismarck

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Project Information and Planning Submission

Received : 5/1/24

Project Name : Cast Iron Watermain Replacement

Local Sponsor : City of Bismarck

Location : BISMARCK

Benefitting Basin : Lower Missouri

Type of Request : Project Study

Update Existing Project :

Project Type : Water Supply (Municipal)

Description : The cast iron watermain in this project is mostly 6" with some 8", 10" & 12" watermains that are 75-100 years old and have deteriorated in inside diameter because of rust tubercles in some instances narrowing the inside diameter of the pipe to roughly a 2" opening, seriously effecting the ability to deliver the volume of water needed and lowering water pressure to residents during high volume usage. Also creating water quality issues in the form of rusty water being delivered to homes during these high volume timeframes.

Problem or Need

Addressed : By replacing the old deteriorating watermain pipes with the narrowed interior diameter with new PVC or HDPE pipe, this restores the water system in this area to the original design capacity needed to serve the homes in this area thus eliminating pressure drops and rusty water issues during high volume usage.

Project Information and Planning Submission

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Project Name : Cast Iron Watermain Replacement

Local Sponsor : City of Bismarck

Location : BISMARCK

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