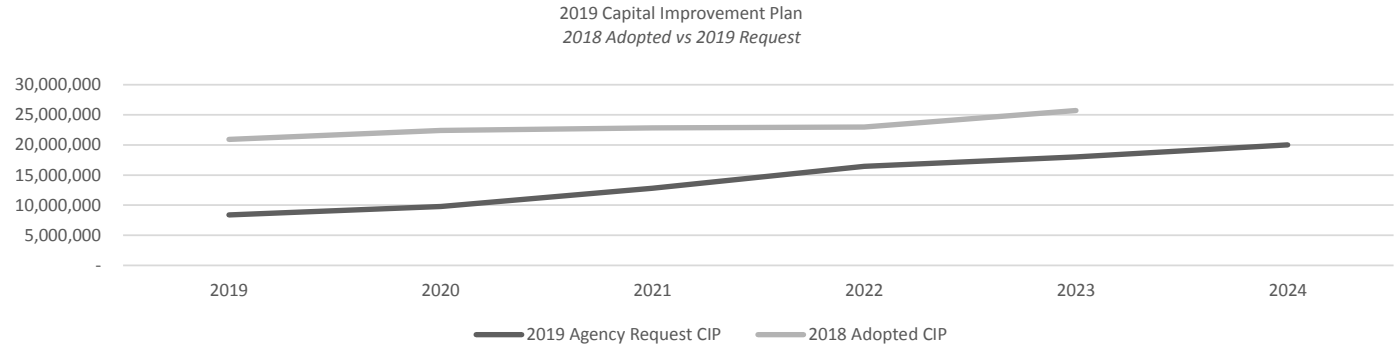
Water Utility

Capital Improvement Plan

Project Summary

	Agency Priority	2019	2020	2021	2022	2023	2024
Booster Pump Station 109 (Spaanem Ave)	8	-	-	-	-	345,000	2,873,000
Booster Pump Station 129 Reconstruction	7	-	-	-	384,240	4,330,000	-
Booster Station 106 Reconstruction	9	-	-	-	-	-	813,000
Far West Elevated Reservoir	10	-	-	-	-	-	1,355,000
Lakeview Reservoir Reconstruction	5	-	-	2,081,000	-	-	680,000
Unit Well 12 Conversion to a Two Zone Well	6	-	-	228,960	3,816,000	804,000	-
Water Mains - New	3	1,382,000	1,317,000	1,396,000	2,261,000	2,397,000	2,541,000
Water Mains Replace Rehab Improve - Paven	2	1,620,000	1,717,000	1,820,000	1,929,000	2,045,000	2,168,000
Water Mains Replace Rehab Improve - Pipe L	12	-	1,040,000	1,082,000	1,125,000	1,170,000	1,217,000
Water Mains Replace Rehab Improve - Recor	1	4,887,000	5,180,000	5,491,000	5,820,000	6,169,000	6,539,000
Water Utility Facility Improvements	4	491,000	512,000	704,000	1,132,000	768,000	1,158,100
Well 19 Iron and Manganese Filter	11	-	-	-	-	-	665,330
Total		**$ 8,380,000**	**$ 9,766,000**	**$ 12,802,960**	**$ 16,467,240**	**$ 18,028,000**	**$ 20,009,430**

Changes from 2018 CIP



Projects Adjustments

- Booster Pump Station 109 (Spaanem Ave): Project construction deferred from 2020 to 2024.
- Booster Pump Station 129 Reconstruction: Project construction deferred from 2019 to 2023.
- Booster Pump Station 106 Reconstruction: Project contruction deferred from 2020 to 2024.
- Far West Elevated Reservoir: Project construction deferred from 2021 to 2024.
- Lakeview Reservoir Reconstruction: Project construction deferred from 2020 to 2021.
- Unit Well 12 Conversion: project budget increased; Project construction advanced from 2023 to 2022 ($3.2m)
- VOC Air Stripper at Well 18: Project removed from CIP ($0.47m)
- Well 14 Mitigation: Project removed from CIP ($4.96m)
- Well 19 Iron/Manganese Filter: Planning deferred to 2024; project construction removed from CIP ($4.0m)
- Well 24 Iron/Manganese Filter: Project removed from CIP ($0.57m)
- Well 28 Iron/Manganese Filter: Project removed from CIP ($4.98m)
- Well 30 Iron/Manganese Filter: Project removed from CIP ($5.18m)
- Well 7 Area Hydraulic Improvements: Project removed from CIP ($0.87)
- Zone 4 Fire Flow Supply Augment: Project removed from CIP ($1.09m)
- Zones 7 & 8 Supply - Whitney Way: Project removed from CIP ($1.65m)

Program Adjustments

- Water Mains - New: Program budget decreased in out-years ($5.5m)
- Water Mains Replace Rehab Improve - Pavement Management: Program budget decreased in out-years ($15.65m)
- Water Mains Replace Rehab Improve - Pipe Lining: Program budget decreased in out-years ($1.22m)
- Water Mains Replace Rehab Improve - Reconstruction Streets: Program budget increased in out-years ($3.4m)
- Water Utility Facility Improvements: Program budget decreased in out-years ($4.15m)

Madison
Water Utility
119 East Olin Ave, Madison, WI 53713
608.266.4651 • madisonwater.org

Date: May 9, 2018

To: David Schmiedicke, Finance Department

From: Tom Heikkinen, Madison Water Utility

Subject: Madison Water Utility 2019 Capital Budget Requests

The Madison Water Utility 2019 capital budget reflects careful consideration of the Utility's rates, current financial situation, and debt ratio in the face of growing infrastructure needs. It results from a periodically updated long term Master Plan and Infrastructure Management Plan, as well as a continuing reassessment of our needs in light of changing conditions. The primary goal of our 2019 proposal is to replace failing infrastructure so as to continue to meet levels of service for water quality and reliability established by the Water Utility Board, while maintaining water rate affordability and management of our long term debt. Using the techniques of asset management, we are placing emphasis on our most critical infrastructure assets and prioritizing work based on business case evaluations.

The list below reflects how we believe that we can best meet this goal in accordance with the budget targets.

1. Pipeline Replacement/Rehab/Improvements

I look forward to further discussing our proposal in the coming weeks.

Sincerely,

Tom Heikkinen General Manager Madison Water Utility

Submitted

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Booster Pump Station 109 (S

Project Category

Utility

Project Number

11605

Proposal Description

This project will construct a booster pumping station at Spaanem Avenue on the City's east side. The goal of the project is to facilitate the movement of water from an area with excess supply to an area that is undersupplied. The project will improve overall system reliability, increase operational flexibility, and improve service to system consumers in the service area. Construction is planned for 2020.

Proposal Type

Project

Priority

8

Section 2: Project Budget

Total Project Budget $4,055,000

Prior Appropriation $81,000

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water					345,000	2,873,000
Total	$0	$0	$0	$0	$345,000	$2,873,000
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Building					345,000	2,873,000
Total	$0	$0	$0	$0	$345,000	$2,873,000

What is the methodology used to determine the budget for this project?

Per foot estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ Yes ◉ No

Have matching funds been secured for any projects within the program?

○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?

◉ Yes ○ No

Plan Name: Water Master Plan

Discuss how does the proposed project meet the project requirements as defined in the plan?

Maximizing use of existing facilities is critical to overall service and operations.

What is the desired outcome of the proposed project?

Additional operational flexibility, improved water system reliability and supply redundancy, fewer service interruptions, and firefighting capacity that meets current utility standards.

How will this outcome be measured?

Fewer service interruptions, increased supply capacity, optimized use of existing resources routine pressure monitoring, and hydrant fire flow capacity testing.

Section 4: Project Scope & Status

What is the scope of project?

This project will add a new 800 square foot addition to the Spaanem Avenue well house. The pumping station will be equipped with 2 each 2,100 gpm booster pumps. This project will also allow the Utility to abandon and demolish Unit Well 23 located at 4502 Leo Drive.

Can this project be mapped?

◉ Yes ○ No **What is the street address of the project?**

4724 Spaanem Avenue

Is this project on the Project's Portal?

○ Yes ◉ No

What is the total project timespan (all years for all phases)?

Start Year: 2022 **End Year:** 2026

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status	Planning	Planning	Planning	Schematic Design	Design Completion	Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $46,000

Personnel

# of FTEs	*Annual Cost*	*Description*
	9,000	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,000	Miscellaneous Supplies
Purchase...	35,000	Electricity/power

Notes

Notes:

Submitted

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Booster Pump Station 129 Re

Project Category

Utility

Project Number

17601

Proposal Description

This project will reconstruct and upgrade booster pump station 129 on the City's northeast side. The goal of the project is to increase water transfer capacity from Zone 6E to Zone 3 in that area. This project will replace the temporary pump station constructed on the Well 29 site in 1990, and provide additional water supply needed on the far east side of Madison. Construction is planned to begin in 2019 and be completed in 2021.

Proposal Type

Project

Priority

7

Section 2: Project Budget

Total Project Budget $5,749,240

Prior Appropriation $334,000

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water				384,240	4,330,000	
Total	$0	$0	$0	$384,240	$4,330,000	$0
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Building				384,240	3,202,000	
Water Network					1,121,000	
Other					7,000	
Total	$0	$0	$0	$384,240	$4,330,000	$0

What is the methodology used to determine the budget for this project?

Pipeline: Per foot estimate based on previous projects of similar size and scope.
Pumping Station: Estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ **Yes** ◉ **No**

Have matching funds been secured for any projects within the program?

○ **Yes** ◉ **No**

Section 3: Project Justification

Is this project called for in an approved master plan?

◉ **Yes** ○ **No** **Plan Name:** **Water Master Plan**

Discuss how does the proposed project meet the project requirements as defined in the plan?

Moving water from zone 6 to zone 3 is critical to system operations. BPS 129 is a critical component of that function. The current facility was constructed in 1990 and has limitied capacity. Locating the booster pumping station near the 6 million gallon Felland Road Reservoir will provide an excellent water supply resource to the east side of Madison.

What is the desired outcome of the proposed project?

Increased water supply to the far east side of the Madison water system service area, improved water system reliability, fewer service interruptions, and firefighting capacity that meets current standards.

How will this outcome be measured?

Water availability to growing areas, increased supply capacity, routine pressure monitoring, and hydrant fire flow capacity testing

Section 4: Project Scope & Status

What is the scope of project?

This project will demolish the existing pumping station located at 831 N. Thompson Drive and replace it with a new 1200 square foot addition to the Felland Reservoir control building. The pumping station will be equipped with 2 each 2,100 gpm booster pumps with room to add a third pump in the future if needed. 5,400 feet of new 16" and 12" diameter pipe will be installed on Felland Road from Bridle Lane to Lien Road.

Can this project be mapped?

(●) Yes ( ) No

What is the street address of the project?

1224 Felland Road

Is this project on the Project's Portal?

( ) Yes (●) No

What is the total project timespan (all years for all phases)?

Start Year: 2022 **End Year:** 2026

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status		Planning	Schematic Design	Design Completion	Construction	Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $43,000

Personnel

# of FTEs	*Annual Cost*	*Description*
	9,000	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,000	Operation of the pumping station will not change from current levels.
Purchase...	32,000	Pipeline improvements will reduce friction losses that will reduce energy costs.

Notes

Notes:

Submitted

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Booster Station 106 Reconstr

Project Category

Utility

Project Number

10444

Proposal Description

This project improves the piping network at Booster Station #106 near Tokay Blvd and Midvale Blvd. The goal of the project is to enhance system reliability, improve fire protection, and improve the hydraulic capacity in the Sunset Hills area. Booster pumping station 106 was reconstructed in 2013 and provides a key water supply point to the west side. Construction of the piping network improvements is planned for 2020.

Proposal Type

Project

Priority

9

Section 2: Project Budget

Total Project Budget $2,490,000

Prior Appropriation $1,266,020

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water						813,000
Total	$0	$0	$0	$0	$0	$813,000
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Water Network						813,000
Total	$0	$0	$0	$0	$0	$813,000

What is the methodology used to determine the budget for this project?

Per foot estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ Yes ◉ No

Have matching funds been secured for any projects within the program?

○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?

◉ Yes ○ No

Plan Name: Water Master Plan

Discuss how does the proposed project meet the project requirements as defined in the plan?

Excess water supply capacity is being pumped to an area of need.

What is the desired outcome of the proposed project?

Reduced risk of water main breaks and temporary loss of service.

How will this outcome be measured?

Water Main breaks per 100 miles. National recommendation is to be below 20 breaks per year per 100 miles

Section 4: Project Scope & Status

What is the scope of project?

Booster Pumping Station 106 was reconstructed in 2013 with a capacity of 2,100 gallons per minute. The facility pumps water from Pressure Zone 6W to Pressure Zone 7. BPS 106 is a key supply point to the area from Glenway to Whitney Water from University Avenue south to Mineral Point Road. 2024 Piping improvements in the Glenway area to improve hydraulics around Booster Pumping Station 106 allowing water to move from BPS 106 to the southwest.

Can this project be mapped?

◉ Yes ○ No **What is the street address of the project?**

3,500 feet of 6” Pipelines along Mineral Point Drive from Hillcrest Dr to Racine Road will be installed under this project.

Is this project on the Project's Portal?

○ Yes ◉ No

What is the total project timespan (all years for all phases)?

Start Year: 2015 **End Year:** 2028

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status						Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $43,000

Personnel

# of FTEs	*Annual Cost*	*Description*
	9,000	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,000	Miscellaneous supplies
Purchase...	32,000	Electricity/power.

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Water Utility Facility Improve

Project Category
Utility

Project Number
10440

Proposal Description
This program is for facility repairs and security upgrades at Water Utility facilities. The goal of the program is to maintain sound facilities to deploy reliable services and reduce the need for emergency repairs. Progress is measured by tracking the number of emergency calls, facility outages, and accidents each year. In 2018, planned projects include installing updated flow meters, and a conversion to variable frequency drive (VFD) controls.

Proposal Type
Program

Priority
4

Section 2: Program Budget

Prior Authorization

	Budget	*Actual*	*Difference*
2015	1,992,000	572,488	1,419,512
2016	1,292,900	591,785	701,115
2017	694,000	937,390	-243,390
2018	1,207,000	190,178	1,016,822
Total	**5,185,900**	**2,291,841**	2,894,059

Budget by Year

Funding Source	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Revenue Bonds-Water	491,000	512,000	704,000	1,132,000	768,000	1,158,100
Total	$491,000	$512,000	$704,000	$1,132,000	$768,000	$1,158,100
Expense Type	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Building	112,000	118,000	294,000	706,000	325,000	697,100
Machinery and Equipment	379,000	394,000	410,000	426,000	443,000	461,000
Total	$491,000	$512,000	$704,000	$1,132,000	$768,000	$1,158,100

Does this program have matching funds?
○ **Yes** ◉ **No**

Section 3: Minor Projects

2019

Planned Projects

Project	*Estimated Cost*	*Street Address*
SCADA System Upgrade & Expansion	$22,000	City-wide
FIber Optic System Installation & Upgrade	$20,000	City-wide
Various Facility Upgrade Projects	$50,000	City-wide
Meter & Fixed Network Program	$379,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$20,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*
Building	TBD	Square feet of building added on or rehabilitated.

Asset Type	Quantity	Description
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

2020

Planned Projects

Project	Estimated Cost	Street Address
SCADA System Upgrade & Expansion	$23,000	City-wide
FIber Optic System Installation & Upgrade	$20,000	City-wide
Various Facility Upgrade Projects	$53,000	City-wide
Meter & Fixed Network Program	$394,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$22,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Building	TBD	Square feet of building added on or rehabilitated.
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

2021

Planned Projects

Project	Estimated Cost	Street Address
SCADA System Upgrade & Expansion	$24,000	City-wide
FIber Optic System Installation & Upgrade	$20,000	City-wide
Various Facility Upgrade Projects	$200,000	City-wide
Meter & Fixed Network Program	$410,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$50,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Building	TBD	Square feet of building added on or rehabilitated.
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

2022

Planned Projects

Project	Estimated Cost	Street Address
SCADA System Upgrade & Expansion	$25,000	City-wide
FIber Optic System Installation & Upgrade	$20,000	City-wide
Addition of Separate Chemical Feed Rooms	$329,000	UW 6, UW 11, UW 13 and UW 14
Development of 2 PRV Sub Zones	$68,000	One near Pflaum Road and one in the Nakoma neighborhood.
Various Facility Upgrade Projects	$210,000	City-wide
Meter & Fixed Network Program	$426,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$54,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Building	TBD	Square feet of building added on or rehabilitated.
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

2023

Planned Projects

Project	*Estimated Cost*	*Street Address*
SCADA System Upgrade & Expansion	$26,000	City-wide
FIber Optic System Installation & Upgrade	$20,000	City-wide
Various Facility Upgrade Projects	$221,000	City-wide
Meter & Fixed Network Program	$443,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$58,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*
Building	TBD	Square feet of building added on or rehabilitated.
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

2024

Planned Projects

Project	*Estimated Cost*	*Street Address*
SCADA System Upgrade & Expansion	$26,700	City-wide
FIber Optic System Installation & Upgrade	$20,400	City-wide
Addition of Separate Chemical Feed Rooms	$356,000	UW 6, UW 11, UW 13 and UW 14
Various Facility Upgrade Projects	$232,000	City-wide
Meter & Fixed Network Program	$461,000	City-wide
Various Olin & Paterson Upgrades & Improvements	$62,000	119 E Olin Ave and 110 S Paterson St

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*
Building	TBD	Square feet of building added on or rehabilitiated.
Machinery and Equipment	TBD	Meters, endpoints, collectors and repeaters.

Section 4: Program Justification

What is the program's desired outcome for the customer?

The program goal is less maintenance and a safer work environment. By repairing and maintaining an average of 5 facilities per year the water system provides consistent reliable service and minimal emergency repairs.

How is the outcome currently being measured?

This outcome will be measured by reduced emergency maintenance calls, reduced equipment breakdowns and facility outages and fewer accidents.

Notes

Notes:

Submitted

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Far West Elevated Reservoir

Project Category

Utility

Project Number

10445

Proposal Description

This project will construct a reservoir on Madison's far west side also known as the Blackhawk Reservoir. The goal of the project is to add one million gallons of elevated water storage capacity to the far west side of Madison allowing for development to occur, improve system reliability, increase firefighting capacity, and increase emergency water reserves to the area. Planning will begin in 2018; construction is annticipated in 2021.

Proposal Type

Project

Priority

10

Section 2: Project Budget

Total Project Budget $3,013,000

Prior Appropriation $5,431,000

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water						1,355,000
Total	$0	$0	$0	$0	$0	$1,355,000
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Water Network						1,355,000
Total	$0	$0	$0	$0	$0	$1,355,000

What is the methodology used to determine the budget for this project?

Per foot estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ Yes ◉ No

Have matching funds been secured for any projects within the program?

○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?

◉ Yes ○ No

Plan Name: Water Master Plan

Discuss how does the proposed project meet the project requirements as defined in the plan?

Water storage is needed to provide emergency backup and system reliability as the area develops.

What is the desired outcome of the proposed project?

Water service to the far west side of the Madison water system, water service reliability, and firefighting capacity that meets current standards.

How will this outcome be measured?

Routine pressure monitoring, new services added to the system, and hydrant fire flow capacity testing.

Section 4: Project Scope & Status

What is the scope of project?

The Blackhawk Reservoir will be on line in the fall of 2018. The reservoir provides water storage and emergency reserves to the far west side of the Madison service area. As the area develops pipelines will be constructed to efficiently move water from north to south to meet established levels of service.

Can this project be mapped?

◉ Yes ○ No **What is the street address of the project?**

Pipeline: Locations will be determined by development plans as they develop.

Is this project on the Project's Portal?

○ Yes ◉ No

What is the total project timespan (all years for all phases)?

Start Year: 2024 **End Year:** 2029

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status						Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $16,000

Personnel

# of FTEs	*Annual Cost*	*Description*
	13,500	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,500	Miscellaneous Supplies

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Lakeview Reservoir Reconstr

Project Category
Utility

Project Number
10439

Proposal Description
This project will continue reconstruction efforts at Lakeview Reservoir at Lake View Avenue on the City's north side. The goal of the project is to upgrade the existing booster pumping station to improve efficiency, increase capacity, and provide reliability to the pumping system. Pipelines will be upgraded in the system to increase hydraulic capacity and improve fire protection capacity. Construction is planned for 2020.

Proposal Type
Project

Priority
5

Section 2: Project Budget

Total Project Budget $4,486,000 **Prior Appropriation** $8,330,000

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water			2,081,000			680,000
Total	$0	$0	$2,081,000	$0	$0	$680,000
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Building			1,456,000			
Water Network			620,000			680,000
Other			5,000			
Total	$0	$0	$2,081,000	$0	$0	$680,000

What is the methodology used to determine the budget for this project?
Pipeline: Per foot estimate based on previous projects of similar size and scope.
Pumping Station: Estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?
○ Yes ◉ No

Have matching funds been secured for any projects within the program?
○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?
◉ Yes ○ No **Plan Name:** Water Master Plan

Discuss how does the proposed project meet the project requirements as defined in the plan?
The Lake View Reservoir provides critical water storage to the north side of Madison. The booster pumping station is undersized and limits the size of Pressure Zone 5. Improving the station will allow the zone to be expanded and fire protection capacity improved. With additional capacity there is a need for improvement to the distribution system hydraulic capacity with new pipelines.

What is the desired outcome of the proposed project?
Improved water system reliability, fewer service interruptions, and firefighting capacity that meets current standards.

How will this outcome be measured?
Number of water main breaks per year, routine pressure monitoring, and hydrant fire flow capacity testing.

Section 4: Project Scope & Status

What is the scope of project?

Pump station work will involve replacing the existing two pumps with a repurposed pump skid taken from Booster Pumping Station 125. This work will replace all pumping equipment and electrical controls increasing station capacity from 300 gpm to 1,000 gpm. The pipeline work will replace existing 6" diameter pipe with 12" diameter pipe increasing hydraulic capacity and firefighting flow to bring it into compliance with Water Utility standards.

Can this project be mapped?

(●) **Yes** ( ) **No** **What is the street address of the project?** BPS 213 – 1314 Lake View Avenue; Pipeline: Lake View Avenue from West Lane to N. Sherman Avenue; and Esch Lane from Longview Str...

Is this project on the Project's Portal?

( ) **Yes** (●) **No**

What is the total project timespan (all years for all phases)?

Start Year: 2021 **End Year:** 2030

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status	Planning	Planning	Construction	Construction	Construction	Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $21,125

Personnel

# of FTEs	*Annual Cost*	*Description*
	9,125	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,000	Miscellaneous supplies.
Purchase...	10,000	Operation of the pumping station will not change from current levels. Pipeline improvements will reduce friction losses that will reduce pumping energy costs.

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Unit Well 12 Conversion to a

Project Category

Utility

Project Number

10452

Proposal Description

This project rebuilds and expands the pumping service capability of Well 12 located on South Whitney Way. The goal of the project is to provide water supply capacity to 5 existing pressure zones which represents the majority of the City's west side. The system flexibility provided by this project will improve service reliability and maximize water supply. Construction of the first phase is planned for 2018, construction of the final phase is planned for 2023.

Proposal Type

Project

Priority

6

Section 2: Project Budget

Total Project Budget $5,780,960

Prior Appropriation $4,751,100

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water			228,960	3,816,000	804,000	
Total	$0	$0	$228,960	$3,816,000	$804,000	$0
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Building			228,960	3,816,000		
Water Network					804,000	
Total	$0	$0	$228,960	$3,816,000	$804,000	$0

What is the methodology used to determine the budget for this project?

Pipeline: Per foot estimate based on previous projects of similar size and scope.
Pumping Station: Estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ Yes ◉ No

Have matching funds been secured for any projects within the program?

○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?

◉ Yes ○ No **Plan Name:** Water Master Plan

Discuss how does the proposed project meet the project requirements as defined in the plan?

Maximizing the use of existing sources of supply is critical to Utility operations. This well is situated on a pressure zone boundary and is ideal for a two zone facility. This conversion will improve the use of this facility and increase system reliability.

What is the desired outcome of the proposed project?

Improved water system reliability, greater operational flexibility, fewer service interruptions, and firefighting capacity that meets current standards.

How will this outcome be measured?

Operational records and reliability of service. A reduced number of water main breaks per year, routine pressure monitoring, and hydrant fire flow capacity testing.

Section 4: Project Scope & Status

What is the scope of project?

Reconstruction and upgrade of the well station will involve demolition of the existing structure and replace it with a new 1600 square foot building with the 2,200 gpm well and two 2,100 gpm pumps. The pipeline work will install new main on Whitney Way to fill in a gap in the system and improve north south water transmission capacity. The other section of main will replace the undersized existing 6" diameter pipe with 12" diameter pipe increasing hydraulic capacity and firefighting flow to bring it into compliance with Water Utility standards.

Can this project be mapped?

(●) **Yes** ( ) **No**

What is the street address of the project?

Unit Well 12 – 801 S. Whitney Way; Pipeline: 1700 feet of New 12" pipeline on Whitney Way from O'Dana to Tokay; Replace 3,500 feet o...

Is this project on the Project's Portal?

( ) **Yes** (●) **No**

What is the total project timespan (all years for all phases)?

Start Year: 2021 **End Year:** 2028

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status	Planning	Schematic Design	Design Completion	Construction	Construction	Construction

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $180,500

Personnel

# of FTEs	*Annual Cost*	*Description*
	11,000	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	2,000	Assuming that 10% of the well capacity will be pumped from Zone 7 to Zone 8, operating costs will increase $2,000 per year for chemicals and supplies. Overall operation of the pumping station will not change from current levels.
Purchase...	167,500	Pipeline improvements will reduce friction losses that will reduce energy costs.

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Water Mains Replace Rehab

Project Category
Utility

Project Number
11894

Proposal Description
This program replaces and upgrades existing water mains in conjunction with the repaving of roads as part of the City's Engineering-Major Streets Pavement Management program. The goal of the program is to update the water infrastructure to reduce the risk of pipe failure. The program aligns with the Water Utility's goal to replace or rehabilitate over 400 miles of aging pipe within the City over a 40-year period to renew and maintain the system.

Proposal Type
Program

Priority
2

Section 2: Program Budget

Prior Authorization

	Budget	*Actual*	*Difference*
2015	5,789,265	1,194,881	4,594,384
2016	2,356,764	1,365,901	990,863
2017	915,250	973,347	-58,097
2018	-2,830,107	0	-2,830,107
Total	**6,231,172**	**3,534,129**	2,697,043

Budget by Year

Funding Source	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Revenue Bonds-Water	1,620,000	1,717,000	1,820,000	1,929,000	2,045,000	2,168,000
Total	$1,620,000	$1,717,000	$1,820,000	$1,929,000	$2,045,000	$2,168,000
Expense Type	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Water Network	1,620,000	1,717,000	1,820,000	1,929,000	2,045,000	2,168,000
Total	$1,620,000	$1,717,000	$1,820,000	$1,929,000	$2,045,000	$2,168,000

Does this program have matching funds?
○ **Yes** ◉ **No**

Section 3: Minor Projects

2019

Planned Projects

Project	*Estimated Cost*	*Street Address*
S Stoughton Service Road (East)	$54,000	Buckeye Road to Pflaum Road
E Dayton Street	$162,000	N Blount Street to N Livingston Street
Holly Ave/Euclid Ave/Toepfer Ave/St. Clair St	$648,000	Paunack Ave to Birch Ave/ Holly Ave to Toepfer Ave/ Mineral Point Rd t...
W Dayton Street (State/UW)	$756,000	N Park Street to Charter Street

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*
Water Network	1.4	Renewed pipeline assets

2020

Planned Projects

Project	Estimated Cost	Street Address
Pavement Management Pipeline Projects	$1,717,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.4	Renewed pipeline assets

2021

Planned Projects

Project	Estimated Cost	Street Address
Pavement Management Pipeline Projects	$1,820,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.4	Renewed pipeline assets

2022

Planned Projects

Project	Estimated Cost	Street Address
Pavement Management Pipeline Projects	$1,929,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.4	Renewed pipeline assets

2023

Planned Projects

Project	Estimated Cost	Street Address
Pavement Management Pipeline Projects	$2,045,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.4	Renewed pipeline assets

2024

Planned Projects

Project	Estimated Cost	Street Address
Pavement Management Pipeline Projects	$2,168,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.4	Renewed pipeline assets

Section 4: Program Justification

What is the program's desired outcome for the customer?

Reduced risk of water main breaks and temporary loss of service.

How is the outcome currently being measured?

Water Main breaks per 100 miles. National recommendation is to be below 20 breaks per year per 100 miles

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Water Mains Replace Rehab

Project Category
Utility

Project Number
11892

Proposal Description
This program provides cured-in-place-pipe lining (CIPP) to improve the quality of existing pipes in the water network throughout the City. The goal of the program is to lengthen the useful life of the pipes at a lower cost than replacing the pipe. The program measures the miles of pipe that are rehabilitated using the lining method. Locations for CIPP lining are evaluated on an annual basis.

Proposal Type
Program

Priority
12

Section 2: Program Budget

Prior Authorization

	Budget	*Actual*	*Difference*
2015	0	0	0
2016	0	0	0
2017	0	0	0
2018	1,000,000	1,000	999,000
Total	**1,000,000**	**1,000**	999,000

Budget by Year

Funding Source	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Revenue Bonds-Water	0	1,040,000	1,082,000	1,125,000	1,170,000	1,217,000
Total	$0	$1,040,000	$1,082,000	$1,125,000	$1,170,000	$1,217,000
Expense Type	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Water Network	0	1,040,000	1,082,000	1,125,000	1,170,000	1,217,000
Total	$0	$1,040,000	$1,082,000	$1,125,000	$1,170,000	$1,217,000

Does this program have matching funds?
○ **Yes** ◉ **No**

Section 3: Minor Projects

2019

Planned Projects

Project	*Estimated Cost*	*Street Address*

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*

2020

Planned Projects

Project	*Estimated Cost*	*Street Address*
CIPP Project	$1,040,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.3	Renewed pipeline assets.

2021

Planned Projects

Project	Estimated Cost	Street Address
CIPP Project	$1,082,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.2	Renewed pipeline assets.

2022

Planned Projects

Project	Estimated Cost	Street Address
CIPP Project	$1,125,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.2	Renewed pipeline assets.

2023

Planned Projects

Project	Estimated Cost	Street Address
CIPP Project	$1,170,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.2	Renewed pipeline assets.

2024

Planned Projects

Project	Estimated Cost	Street Address
CIPP Project	$1,217,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.2	Renewed pipeline assets.

Section 4: Program Justification

What is the program's desired outcome for the customer?

Reduced risk of water main breaks and temporary loss of service.

How is the outcome currently being measured?

Water Main breaks per 100 miles. National recommendation is to be below 20 breaks per year per 100 miles

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Water Mains Replace Rehab

Project Category
Utility

Project Number
11893

Proposal Description
This program replaces and upgrades existing water mains in conjunction with the reconstruction of roads as part of the City's Engineering-Major Streets Reconstruct Streets program. The goal of the program is to update the water infrastructure to diminish the risk of pipe failure The program aligns with the Water Utility's goal to replace or rehabilitate over 400 miles of aging pipe within the City over a 40-year period to renew and maintain the system.

Proposal Type
Program

Priority
1

Section 2: Program Budget

Prior Authorization

	Budget	*Actual*	*Difference*
2015	0	0	0
2016	0	0	0
2017	0	0	0
2018	3,150,000	44,311	3,105,689
Total	**3,150,000**	**44,311**	3,105,689

Budget by Year

Funding Source	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Revenue Bonds-Water	4,887,000	5,180,000	5,491,000	5,820,000	6,169,000	6,539,000
Total	$4,887,000	$5,180,000	$5,491,000	$5,820,000	$6,169,000	$6,539,000
Expense Type	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Water Network	4,887,000	5,180,000	5,491,000	5,820,000	6,169,000	6,539,000
Total	$4,887,000	$5,180,000	$5,491,000	$5,820,000	$6,169,000	$6,539,000

Does this program have matching funds?
○ **Yes** ◉ **No**

Section 3: Minor Projects

2019

Planned Projects

Project	*Estimated Cost*	*Street Address*
Buckeye Road Improvements (DOT)	$1,296,000	Monona Drive to S Stoughton Road
E Johnson Street Improvements (DOT)	$756,000	N Baldwin Street to N 1st Street
N Ingersoll Street/Elizabeth Street	$324,000	E Gorham Street to Sherman Ave / N Ingersoll Street to N Few Street
Campbell Street/Vilas Avenue	$351,000	Vilas Ave to Drake Street/Campbell Street to Garfield Street
S Bryan Street/Daley Drive/James Street/Thorp Street	$756,000	Milwaukee St to Daley Dr / S Bryan St to W end / Daley Dr to S Fair Oaks...
Winnebago Street at Riverside Drive	$216,000	Intersection and Bike Path Improvements
Hammersley Avenue	$315,000	Westmorland Blvd to Larkin St
Davidson St/Park Ct/Dempsey St/Drexel Ave/Lake Edge Blv...	$729,000	Drexel Ave to Dempsey Rd/Maher Ave to Dempsey Rd/Davidson St to P...
Meier Road Extension	$108,000	Extend North to Bruce Court

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.1	Renewed pipeline assets

2020

Planned Projects

Project	Estimated Cost	Street Address
Street Reconstruction Mains	$5,180,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.2	Renewed pipeline assets

2021

Planned Projects

Project	Estimated Cost	Street Address
Street Reconstruction Mains	$5,491,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.2	Renewed pipeline assets

2022

Planned Projects

Project	Estimated Cost	Street Address
Street Reconstruction Mains	$5,820,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.2	Renewed pipeline assets

2023

Planned Projects

Project	Estimated Cost	Street Address
Street Reconstruction Mains	$6,169,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.3	Renewed pipeline assets

2024

Planned Projects

Project	Estimated Cost	Street Address
Street Reconstruction Mains	$6,539,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	4.3	Renwed pipeline assets

Section 4: Program Justification

What is the program's desired outcome for the customer?

Reduced risk of water main breaks and temporary loss of service

How is the outcome currently being measured?

Water Main breaks per 100 miles. National recommendation is to be below 20 breaks per year per 100 miles

Notes

Notes:

Capital Budget Proposals

Section 1: Identifying Information

Agency
Water Utility

Proposal Name
Water Mains - New

Project Category
Utility

Project Number
12507

Proposal Description
This program installs new water mains throughout the City. The goal of the program is to help strengthen and expand the existing distribution system, improve water pressure, improve fire protection, allow transfer of water between pressure zones, and to serve the growing areas of the City. Newly installed mains include hydraulic improvements consistent with the Water Utility Master Plan. Projects planned for 2018 include Cottage Grove Road at Interstate 39/94, and CTH M near Mckee Road.

Proposal Type
Program

Priority
3

Section 2: Program Budget

Prior Authorization

	Budget	*Actual*	*Difference*
2015	797,300	496,636	300,664
2016	917,678	0	917,678
2017	1,460,000	1,610,058	-150,058
2018	1,850,000	0	1,850,000
Total	**5,024,978**	**2,106,694**	2,918,284

Budget by Year

Funding Source	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Revenue Bonds-Water	1,382,000	1,317,000	1,396,000	2,261,000	2,397,000	2,541,000
Total	$1,382,000	$1,317,000	$1,396,000	$2,261,000	$2,397,000	$2,541,000
Expense Type	***2019***	***2020***	***2021***	***2022***	***2023***	***2024***
Water Network	1,382,000	1,317,000	1,396,000	2,261,000	2,397,000	2,541,000
Total	$1,382,000	$1,317,000	$1,396,000	$2,261,000	$2,397,000	$2,541,000

Does this program have matching funds?
○ **Yes** ◉ **No**

Section 3: Minor Projects

2019

Planned Projects

Project	*Estimated Cost*	*Street Address*
Pleasant View Road (Cth M)/Mid Town Road/Raymond Ro...	$648,000	McKee Rd to Prairie Hill Rd/Waterbend Dr to Jeffy Trl/Jeffy Trl to S End/...
Cottage Grove Road Interstate Crossing	$594,000	Cottage Grove Road at I-39/90/94
Cannonball Phase 6	$140,000	W end of North Ave to Fish Hatchery Road

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	*Quantity*	*Description*
Water Network	1.3	Renewed pipeline assets.

2020

Planned Projects

Project	Estimated Cost	Street Address
New Mains	$1,317,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.1	Renewed pipeline assets.

2021

Planned Projects

Project	Estimated Cost	Street Address
New Mains	$1,396,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.1	Renewed pipeline assets.

2022

Planned Projects

Project	Estimated Cost	Street Address
New Mains	$2,261,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.6	Renewed pipeline assets.

2023

Planned Projects

Project	Estimated Cost	Street Address
New Mains	$2,397,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.7	Renewed pipeline assets.

2024

Planned Projects

Project	Estimated Cost	Street Address
New Mains	$2,541,000	TBD

Service Level

What are the end products (asset or infrastructure type) provided by this program?

Asset Type	Quantity	Description
Water Network	1.7	Renewed pipeline assets.

Section 4: Program Justification

What is the program's desired outcome for the customer?

Reduced risk of water main breaks and temporary loss of service.

How is the outcome currently being measured?

Water Main breaks per 100 miles. National recommendation is to be below 20 breaks per year per 100 miles

Submitted

Capital Budget Proposals

Section 1: Identifying Information

Agency

Water Utility

Proposal Name

Well 19 Iron and Manganese

Project Category

Utility

Project Number

10448

Proposal Description

This project will construct an iron, manganese, and radium treatment system at Well 19 at Lake Mendota Drive on the City's west side. The goal of this project is to address existing water quality issues in the area. Progress will be measured by the change in iron, manganese, and radium concentrations, which currently do not meet Madison Water Utility standards. Construction is planned for 2019.

Proposal Type

Project

Priority

11

Section 2: Project Budget

Total Project Budget $6,668,330

Prior Appropriation $966,000

Budget by Year

Funding Source	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Revenue Bonds-Water	0	0	0	0	0	665,330
Total	$0	$0	$0	$0	$0	$665,330
Expense Type	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Building	0	0	0	0	0	665,330
Total	$0	$0	$0	$0	$0	$665,330

What is the methodology used to determine the budget for this project?

Per foot estimate based on previous projects of similar size and scope.

Are any fleet equipment or vehicles being purchased within this project budget?

○ Yes ◉ No

Have matching funds been secured for any projects within the program?

○ Yes ◉ No

Section 3: Project Justification

Is this project called for in an approved master plan?

○ Yes ◉ No

What is the desired outcome of the proposed project?

Reduction of iron and manganese in the system to reduce the risk of colored water complaints. Reduction in radium levels to well below the regulatory limit for consumer protection. Improved water quality through compliance with Water Utility Board Policy.

How will this outcome be measured?

Water quality testing results and reduction in customer complaints.

Section 4: Project Scope & Status

What is the scope of project?

Treatment system will involve construction of a 2500 square foot addition to the existing well house. The pressure filtration system will include 300 square feet of filter area in 24 each 4' diameter pressure vessels. A 140 square foot chemical feed room will be added in addition to a 120,000 gallon backwash tank. Engineering design will commence in 2024 with construction scheduled for 2025.

Can this project be mapped?

◉ Yes ○ No

What is the street address of the project?

2526 Lake Mendota Drive

Is this project on the Project's Portal?

○ Yes ◉ No

What is the total project timespan (all years for all phases)?

Start Year: 2024 **End Year:** 2025

What is the current status of the project?

Planning

Planned Schedule

	2019	*2020*	*2021*	*2022*	*2023*	*2024*
Project Status	Planning	Planning	Planning	Planning	Planning	Design Completion

Section 5: Operating Costs

What is the estimated annual operating costs associated with the project? $199,000

Personnel

# of FTEs	*Annual Cost*	*Description*
	25,000	No new positions will be created by this project.

Non-Personnel

Major	*Amount*	*Description*
Supplies	29,000	Chemicals and various supplies
Purchase...	145,000	Electricity/power and sewer

Notes

Notes: