

2022  
CAPITAL IMPROVEMENTS PLAN  
DRAFT July 15, 2021



# Topics

- Introduction
- Expenditures Overview
  - Cash spending for 2022
- What's New for 2022 CIP
- Capital Projects Summary
- Financing

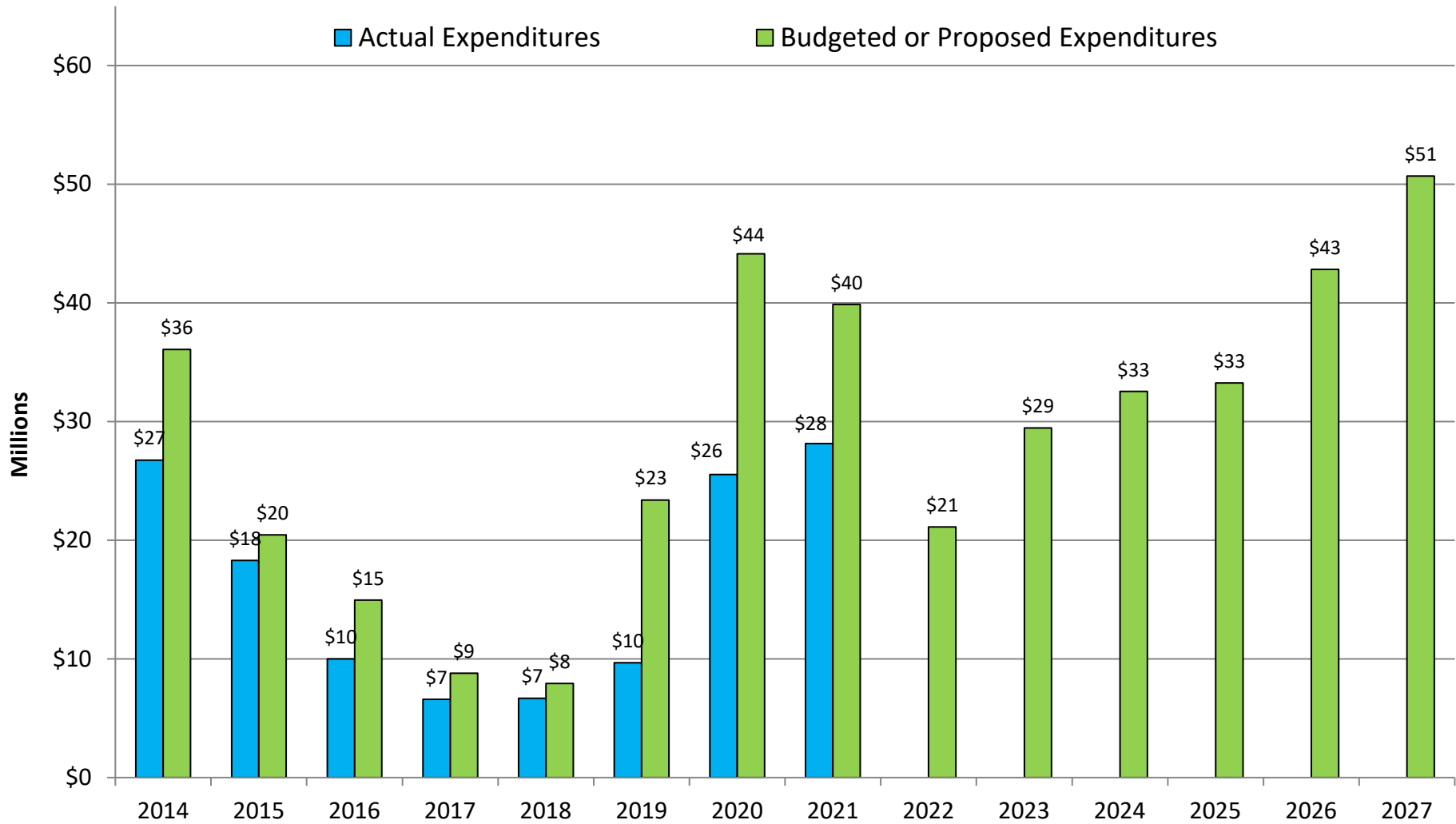


# Introduction to Draft CIP

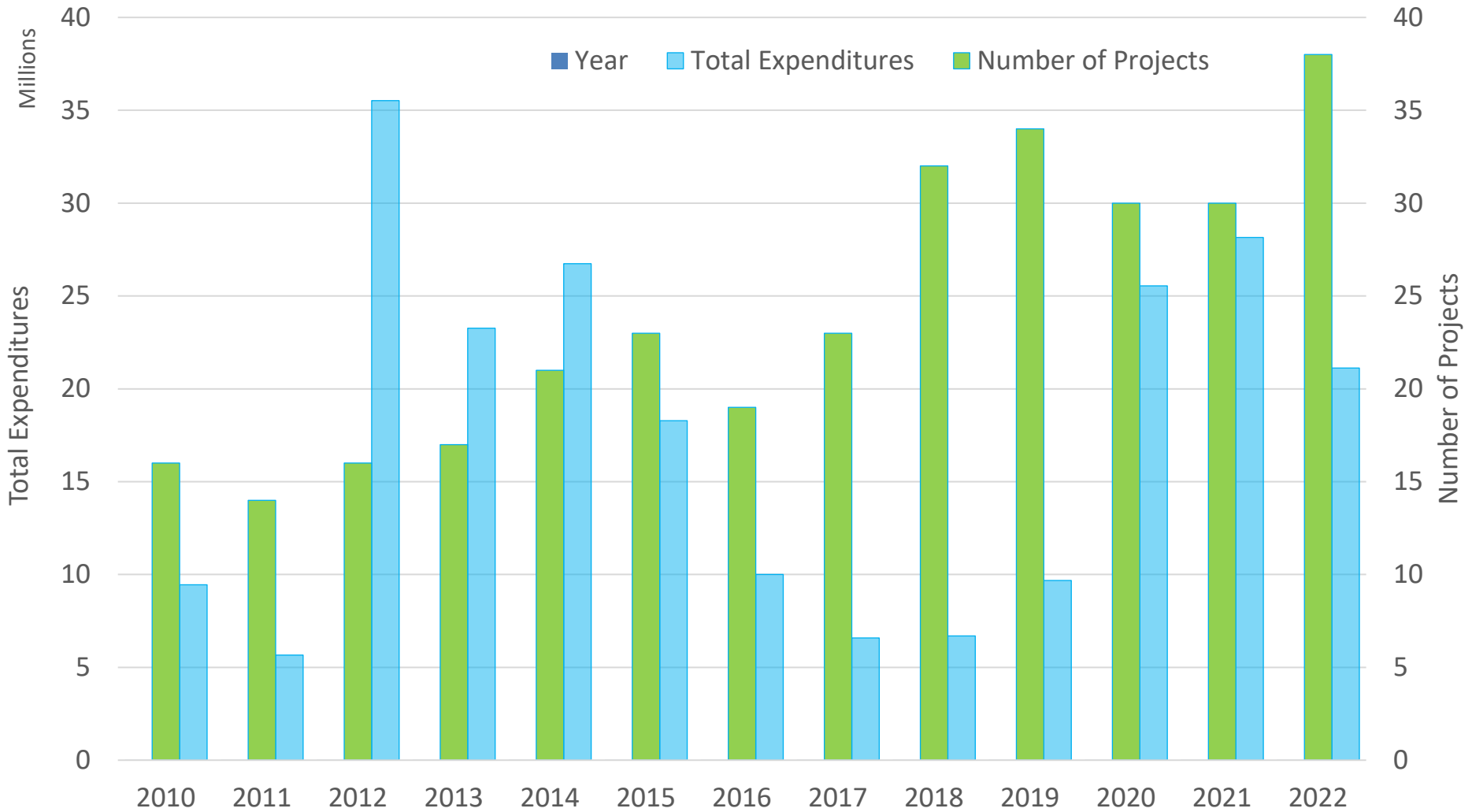
- Plan is required by commission policy ID ATT-2
- Six-year planning window
- Provides estimates of actual and future cash flows and debt service
- Draft CIP presented in summer
- Capital Budget approved in fall
- Actual spending only authorized for budget year



# Annual Expenditures

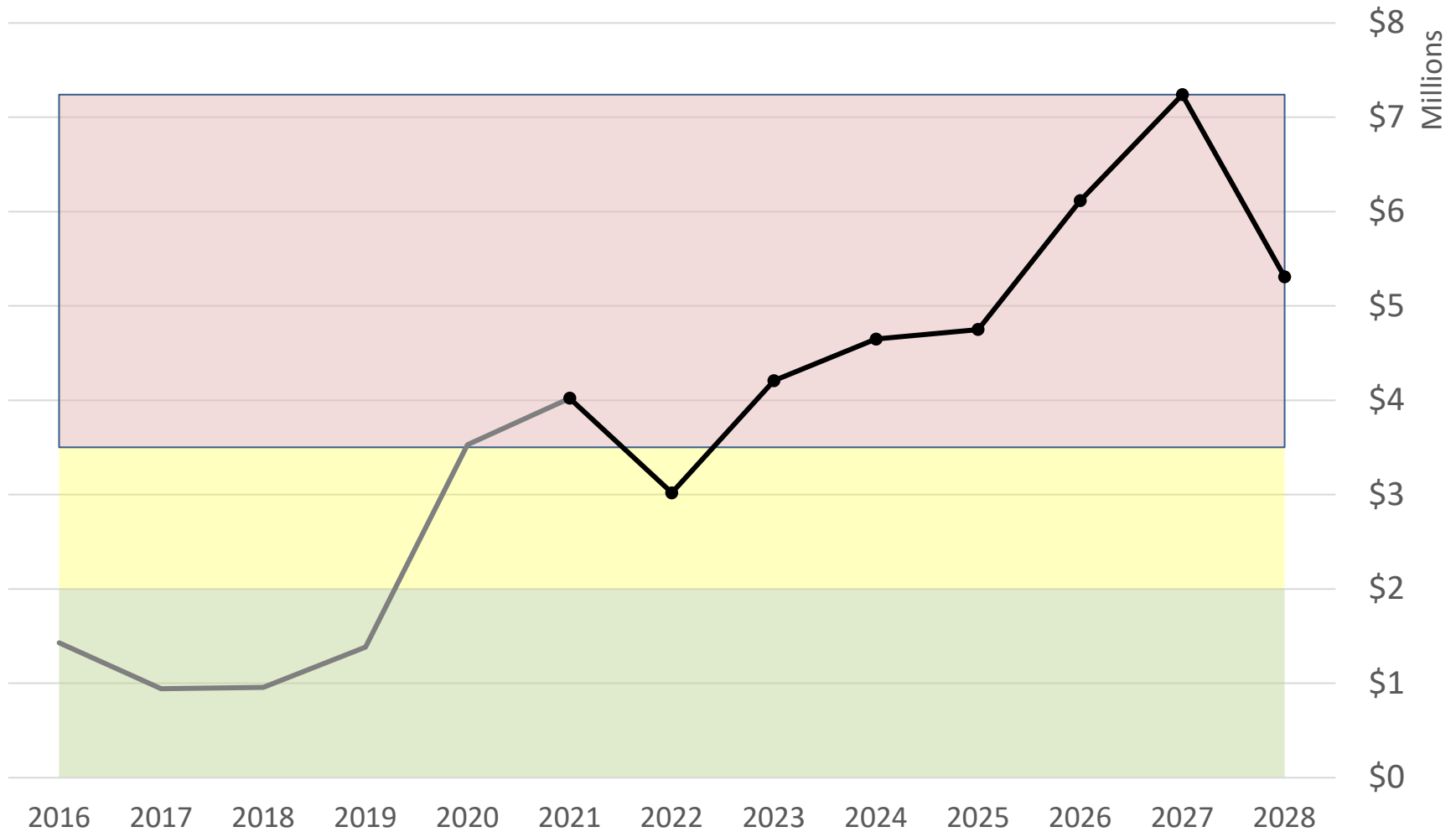


# Number of Projects in CIP



# Staffing

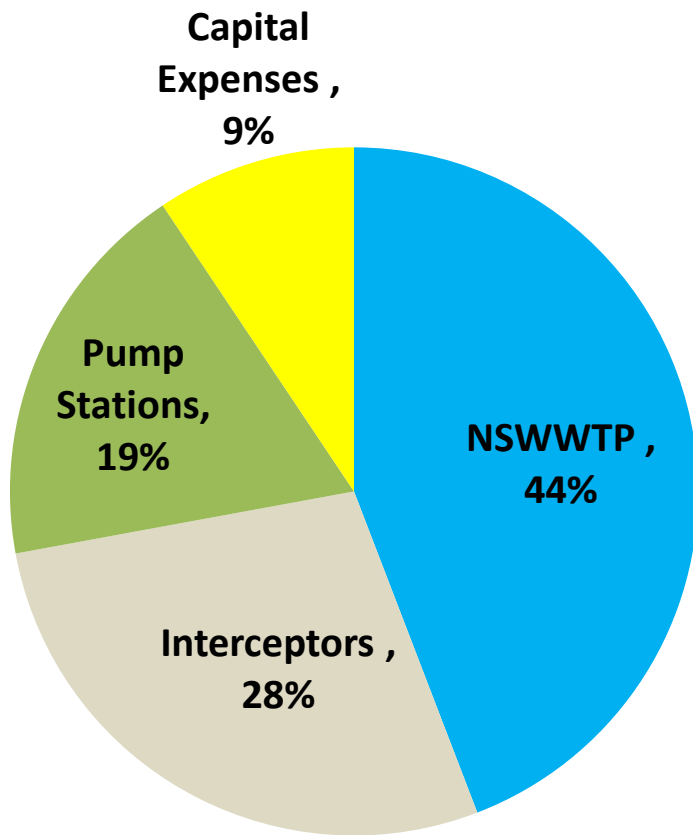
Ratio of Capital Expenditures to Available Project Engineers



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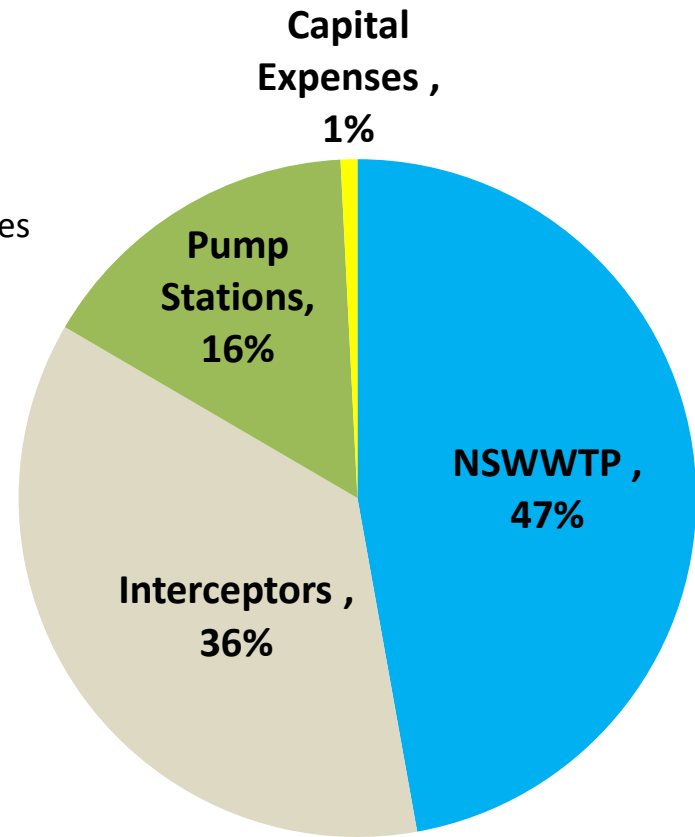


# Total Six-Year Expenditures (2022-2027)



2022 CIP = \$209.8M

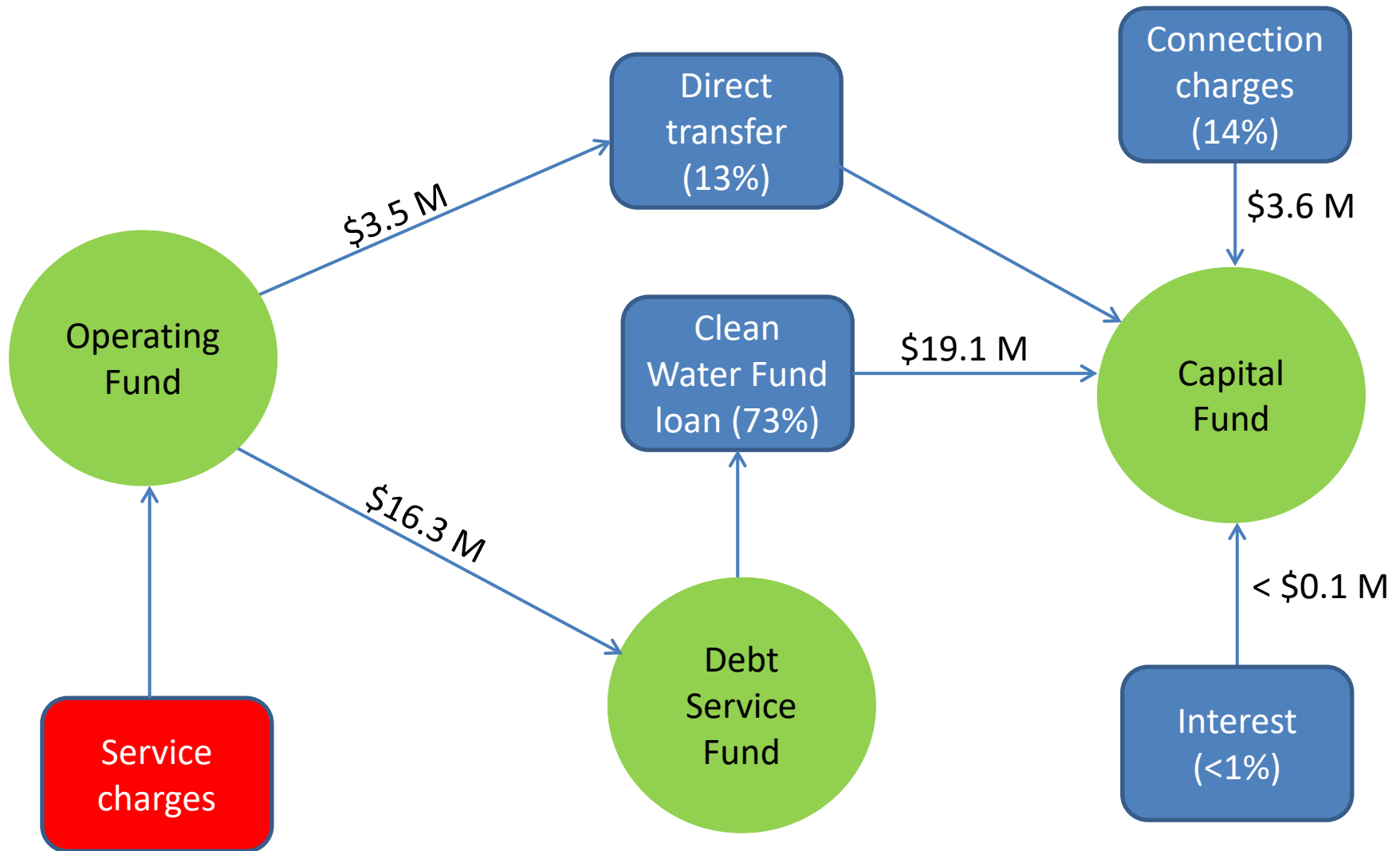
- NSWWTP
- Interceptors
- Pump Stations
- Capital Expenses



2021 Capital Budget = \$157.6M



# District Funds

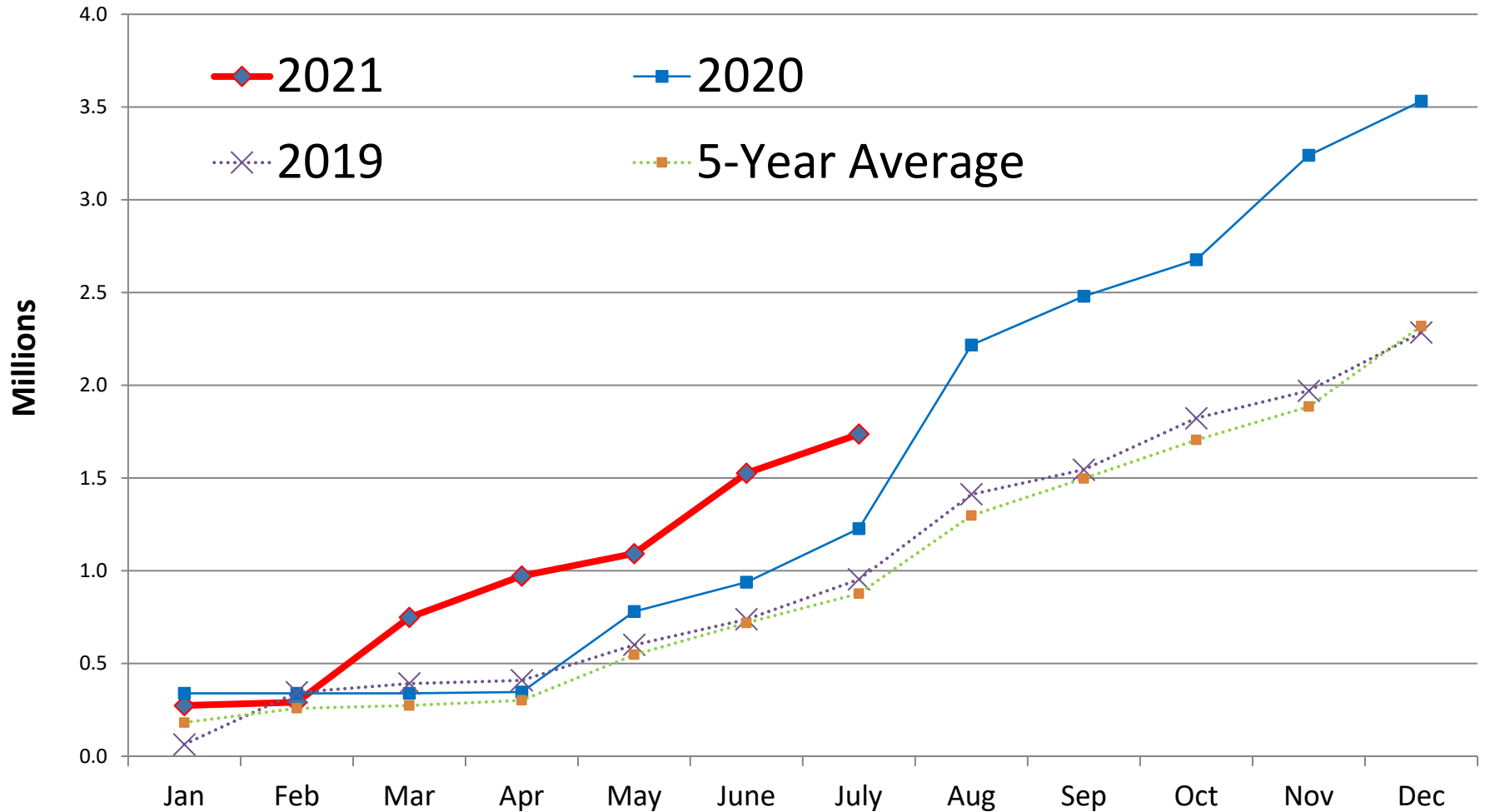




# Cash spending in 2022

Project	2022 Spending
Maintenance, Financial and HR Systems	\$501,000
Biosolids Processing	\$206,000
Miscellaneous Energy Projects	\$191,000
Northeast Interceptor Joint Grouting	\$242,000
Design of Lower Badger Mill Creek Interceptor	\$206,000
Grass Lake Dike Stabilization	\$345,000
Capital Budget Expenses	\$475,000
<b>TOTAL</b>	<b>\$2,166,000</b>

# Connection Charges





# New for 2022 CIP

1. New financial model
2. More capability for scenario modeling
3. New tables
4. Total project cost reporting

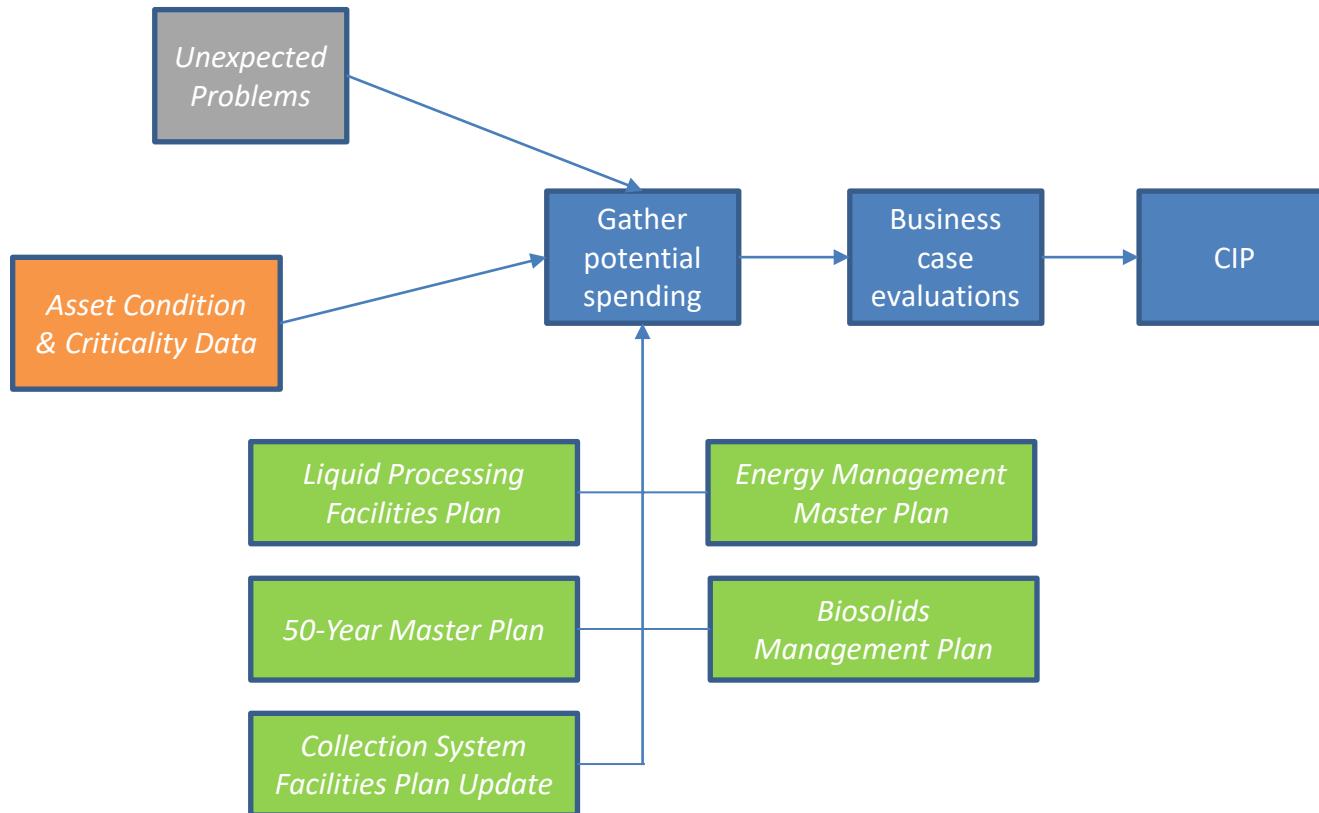


## TABLE CIP-1A | Total Project Cost Authorizations

<i>Subprojects shown in separate table as noted</i>		Has Subprojects	Authorization in 2021 Plan	Proposed Authorization in 2022 Plan	Change in Authorization	
<b>TREATMENT PLANT</b>			<b>\$90,721,000</b>	<b>\$202,857,000</b>	<b>\$112,136,000</b>	<b>124%</b>
A01	East Primary Influent Channel Air Piping Replacement			793,000		n/a
A02	Lagoon Dikes Improvements		2,109,000	2,046,000	(63,000)	-3%
A03	Flow Splitter Improvements			2,252,000		n/a
A04	Maintenance, Financial and HR Systems		4,373,000	5,660,000	1,287,000	29%
A05	Plant HVAC Improvements		838,000	4,367,000	3,529,000	421%
A06.1	Low Dissolved Oxygen (Partial Plant)		2,791,000	3,171,000	380,000	14%
A06.2	Low Dissolved Oxygen (Full Plant)		24,246,000	18,015,000	(6,231,000)	-26%
A07	West Blower Replacements		11,151,000	12,540,000	1,389,000	12%
A08.1	Heat and Power Improvements			40,405,000		n/a
A08.2	Biosolids Processing			57,755,000		n/a
A08.3	Miscellaneous Energy Projects			7,154,000		n/a
A09	Shop One Interior Renovations			105,000		n/a
A10	East and West Blower Switchgear		2,624,000	2,623,000	(1,000)	0%
A11	15 kV Electrical Service Replacement		3,093,000	3,098,000	5,000	0%
A12	Headworks Screening		4,109,000	4,246,000	137,000	3%
A13	Septage Receiving Modifications		3,502,000	3,832,000	330,000	9%
A14	Grit Processing Improvements			2,393,000		n/a
A15	Metrogro Applicators & Equipment		4,148,000	4,405,000	257,000	6%
A16	Annual Process Tank Coating and Repair		1,076,000	1,306,000	230,000	21%
A17	Annual Pavement Improvements		408,000	420,000	12,000	3%
A18	Minor Capital Improvements		726,000	746,000	20,000	3%
A19	Miscellaneous Treatment Plant Projects		562,000	560,000	(2,000)	0%



# Project development and selection



# Liquid Processing Facilities Plan

- 23 recommended projects, split into three time periods
- 12 projects completed in LPI – Phase 1

Table 10.02-1 Recommended Improvements and Phasing

Component	Near Term (2017-2022)	Mid Term (2020-2025)	Future (2024+)
<b>PEAK FLOW</b>			
Alternative PF10—Biological Contact	\$5,200,000 ✓		
<b>HEADWORKS</b>			
Alternative IFM5—Relocate Venturis to Lower Elevation	\$2,100,000 ✓		
Alternative S3—New Step Screens and Wash Presses		\$3,400,000	
Alternative G1—New Grit Washers			\$2,000,000
Alternative HW1—Drive-Through Hauled Waste Station	\$2,900,000		
<b>ACTIVATED SLUDGE</b>			
Nitrite Shunt Pilot Test and Polymer Feed System		\$2,280,000	
Other BNR System Maintenance Issues		\$420,000	
Full Plant Nitrite Shunt			\$17,860,000
Aeration Cross-connect Piping		\$2,160,000	
Two new west blowers		\$4,200,000	
One new west blower			\$2,100,000
RAS Pump Energy Efficiency Improvements		\$100,000	
Clarifier Stress Testing	\$130,000 ✓		
<b>DISINFECTION</b>			
Alternative D1/D2—Replace UV Equipment	\$3,800,000 ✓		
<b>ELECTRICAL</b>			
Alternative EBC No. 1—Replace East Blower Control Panel	\$390,000 ✓		
Alternative BMC No. 1—Replace East Blower Building Switchgear			\$1,140,000
Alternative BMC No. 2—Replace West Blower Building Switchgear			\$900,000
Alternative USUB No. 3—Replace Unit Substation U12 with One New Indoor Unit Substation and Eliminate Unit Substations U11 and U13 with Alternative USUB-XFMR No. 2—Outdoor, Liquid-Filled Unit Substation Transformers	\$3,100,000 ✓		
<b>MISCELLANEOUS</b>			
Primary Tanks 1 and 2 Rehabilitation	\$450,000 ✓		
54-inch Primary Influent	\$800,000 ✓		
East-West Plant Flow Metering	\$150,000 ✓		
Effluent Force Main Standpipe Revisions	\$100,000 ✓		
PCS Phase II Upgrades	\$1,500,000 ✓		
<b>TOTALS</b>	<b>\$20,620,000</b>	<b>\$12,540,000</b>	<b>\$24,000,000</b>

Note: All costs are in 2nd quarter 2017 values.





# Low Dissolved Oxygen (Partial Plant)

- Total Project Budget: \$3.2 M
- 2022 Spending: \$62,000
- Construction in 2024
- Testing in 2025-2026



# West Blower Replacements

- Total Project Budget: \$12.5 M
- Two new blowers and interconnect piping in 2024-2025
- One new blower in 2027

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# Energy & Biosolids Planning

- Biosolids Management Plan completed in March 2021
- Energy Management Plan to be completed in fall of 2021.  
Recommended projects:
  - Heat and power
  - Biosolids
  - Miscellaneous

Madison Metropolitan Sewerage District  
2020 Energy Management Master Plan

Technical Memorandum 1.1  
PROJECT VISION AND SCREENING  
CRITERIA

FINAL | June 2020



## BIOSOLIDS MANAGEMENT PLAN

Madison Metropolitan Sewerage District

DANE COUNTY, WISCONSIN  
MARCH 2021

PREPARED BY:  
MSA Professional Services, Inc.

PROJECT NUMBER: 01579025





# Heat & Power Improvements



- Total Project Budget: \$40.4M
- 2022 Spending: \$711,000
- Facility Planning in 2022-2023
- Design in 2024-2025
- Construction in 2026-2027







# Biosolids Processing

- Total Project Budget: \$57.8M
- 2022 Spending: \$206,000
- Design starting in 2030
- Construction complete by 2035



# Metrogro Applicators

- Total Project Budget: \$4.4M
- Includes two applicators in 2019 and 2021
- Three more applicators in 2023-25

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# Miscellaneous Energy Projects

- Total Project Budget: \$7.2M
- 2022 Spending: \$191,000
- Annual or biennial projects from 2022 to 2031







# Flow Splitter Improvements

- Total Project Budget: \$2.3M
- 2022 Spending: \$141,000
- Design in 2022
- Construction in 2023-2024



# East Primary Influent Channel Air Piping

- Total Project Budget: \$791,000
- 2022 Spending: \$77,000
- Design in 2022
- Construction in 2023

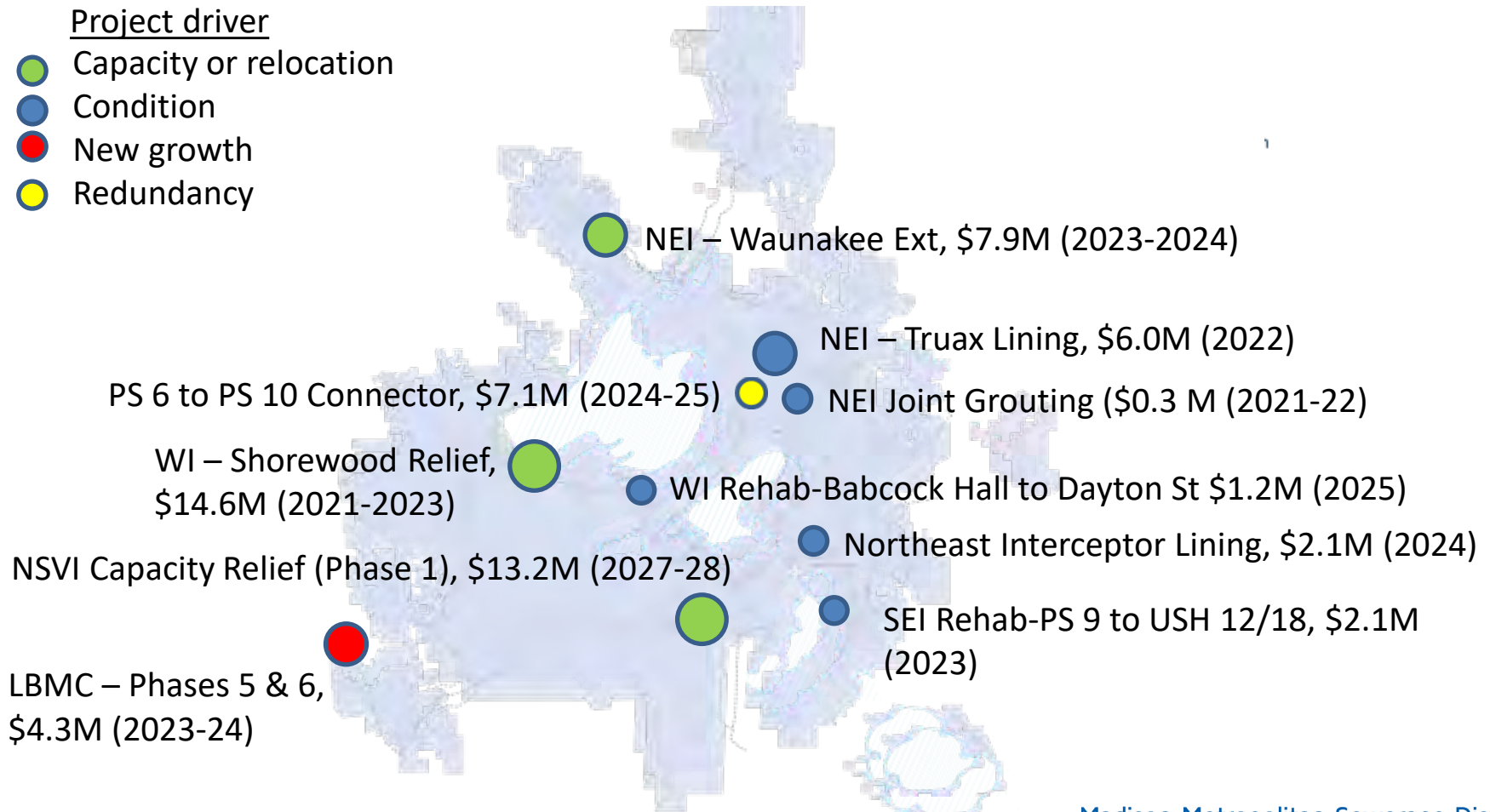
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# Interceptor Projects

## Project driver

- Capacity or relocation
- Condition
- New growth
- Redundancy





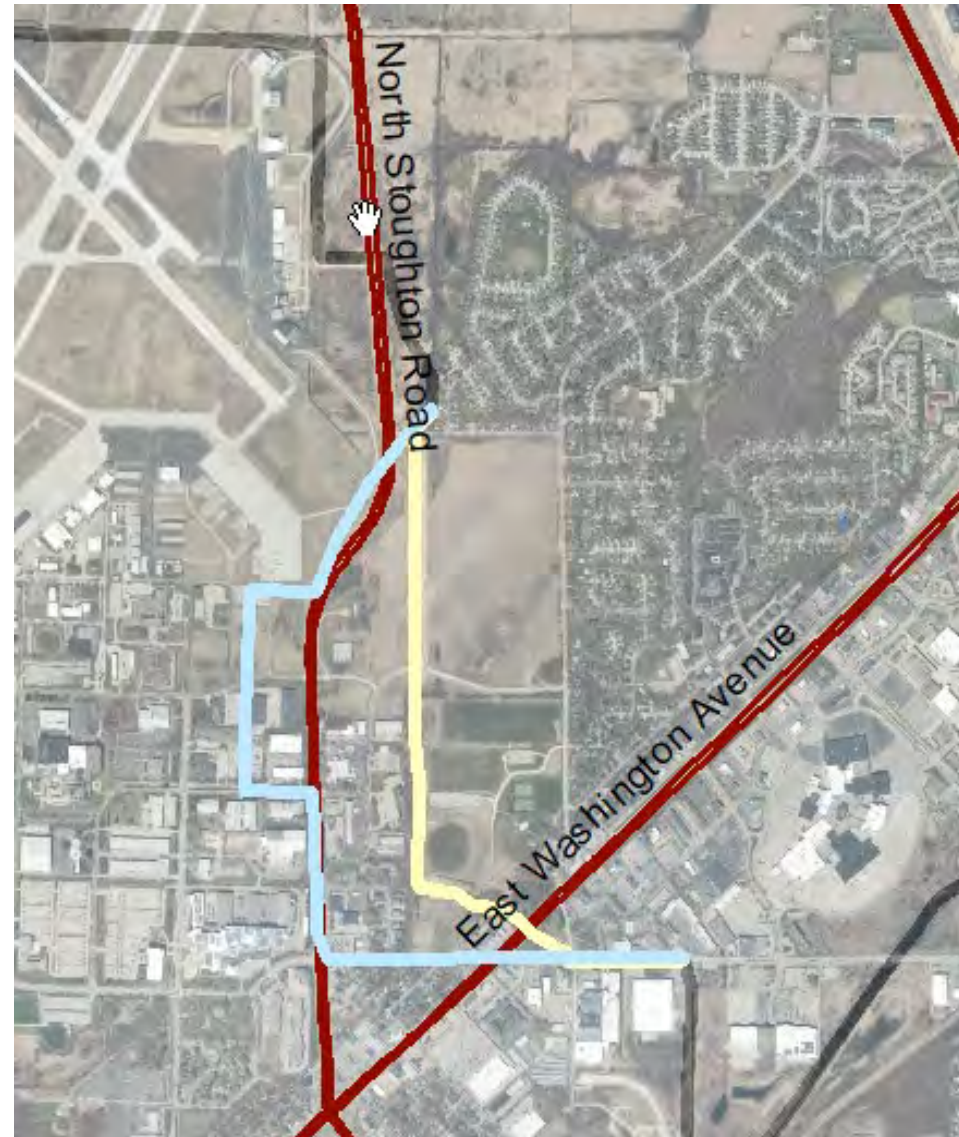
# West Interceptor (Shorewood Relief)



- Total Project Budget: \$14.6M
- 2021 Phase 2 Spending: \$1.8M
- To be built in three phases from 2021 to 2023

# NEI-Truax Extension Rehab

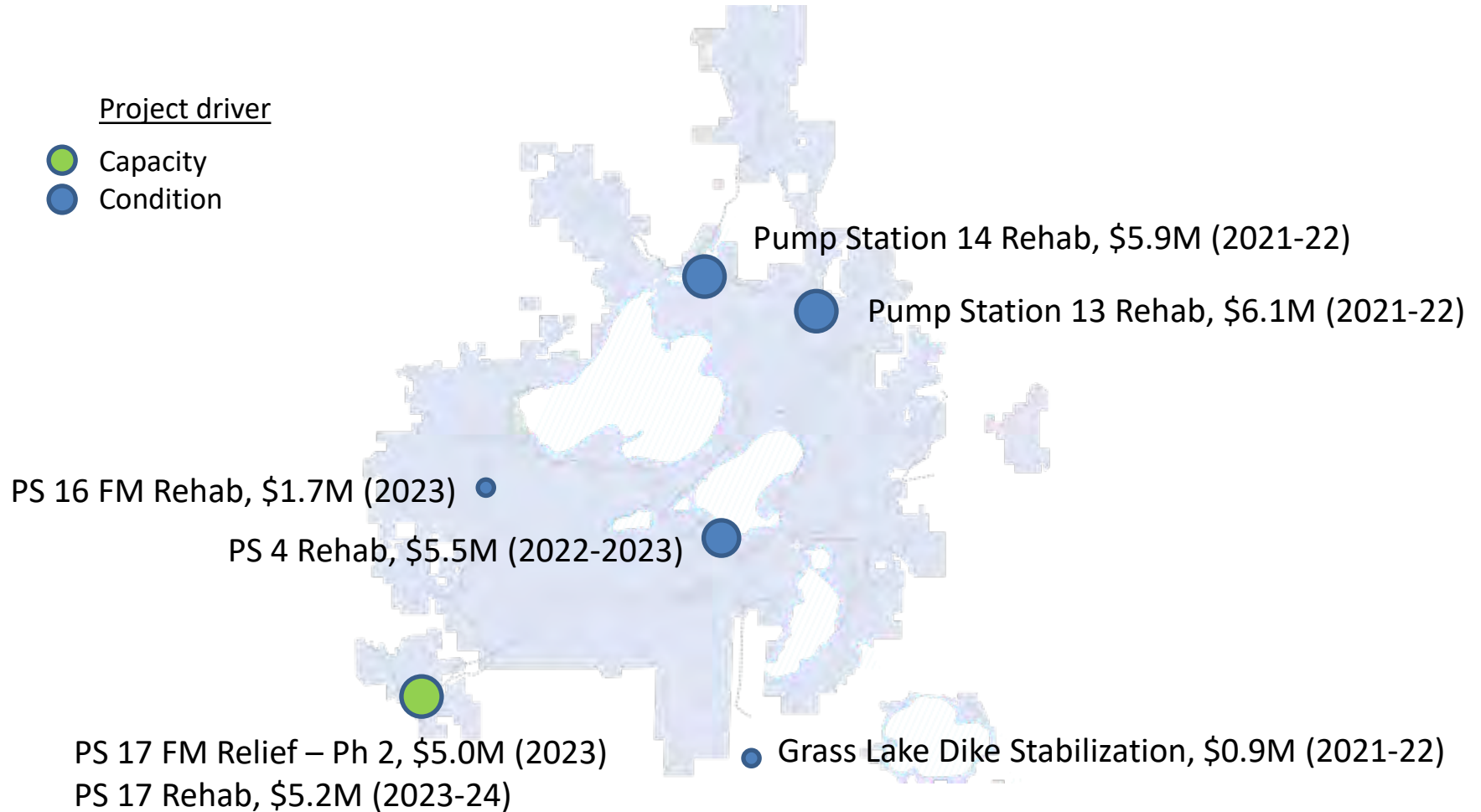
- Total Project Budget: \$6.0M
- 2022 Spending: \$6.0M
- Rehab 11,000 feet of 48" pipe along USH 51 between Rieder Road and Lien Road
- Design in 2021
- Line in 2022



# Pump Station & Force Main Projects

## Project driver

- Capacity
- Condition





# Lower Badger Mill Creek Interceptor & Pump Station 17 Projects

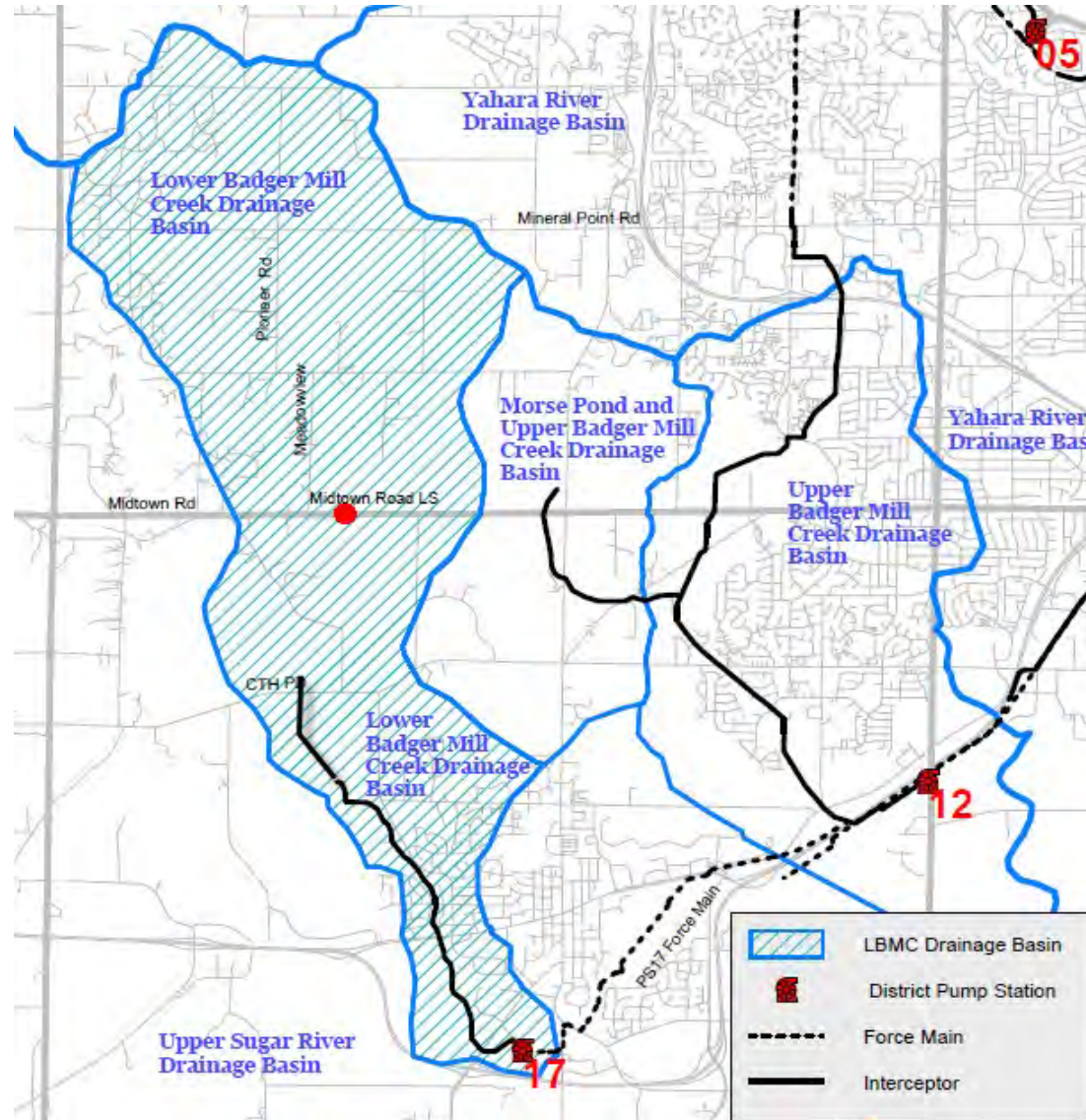
MADISON METROPOLITAN  
SEWERAGE DISTRICT



## *Lower Badger Mill Creek Sewer Service Report*

Lead Author: Jon Schellpfeffer

December 2004



# Lower Badger Mill Creek Interceptor & Pump Station 17 Projects

Project	Total Budget	Const. Year
PS 17 FM-Phase 1	\$3.3 M	2021
PS 17 Rehab	\$5.2 M	2023-2024
PS 17 FM-Phase 2	\$4.3 M	2023
LBMC Int – Phase 5	\$1.2 M	2023
LBMC Int – Phase 6	\$3.1 M	2024
Total	\$17.1 M	



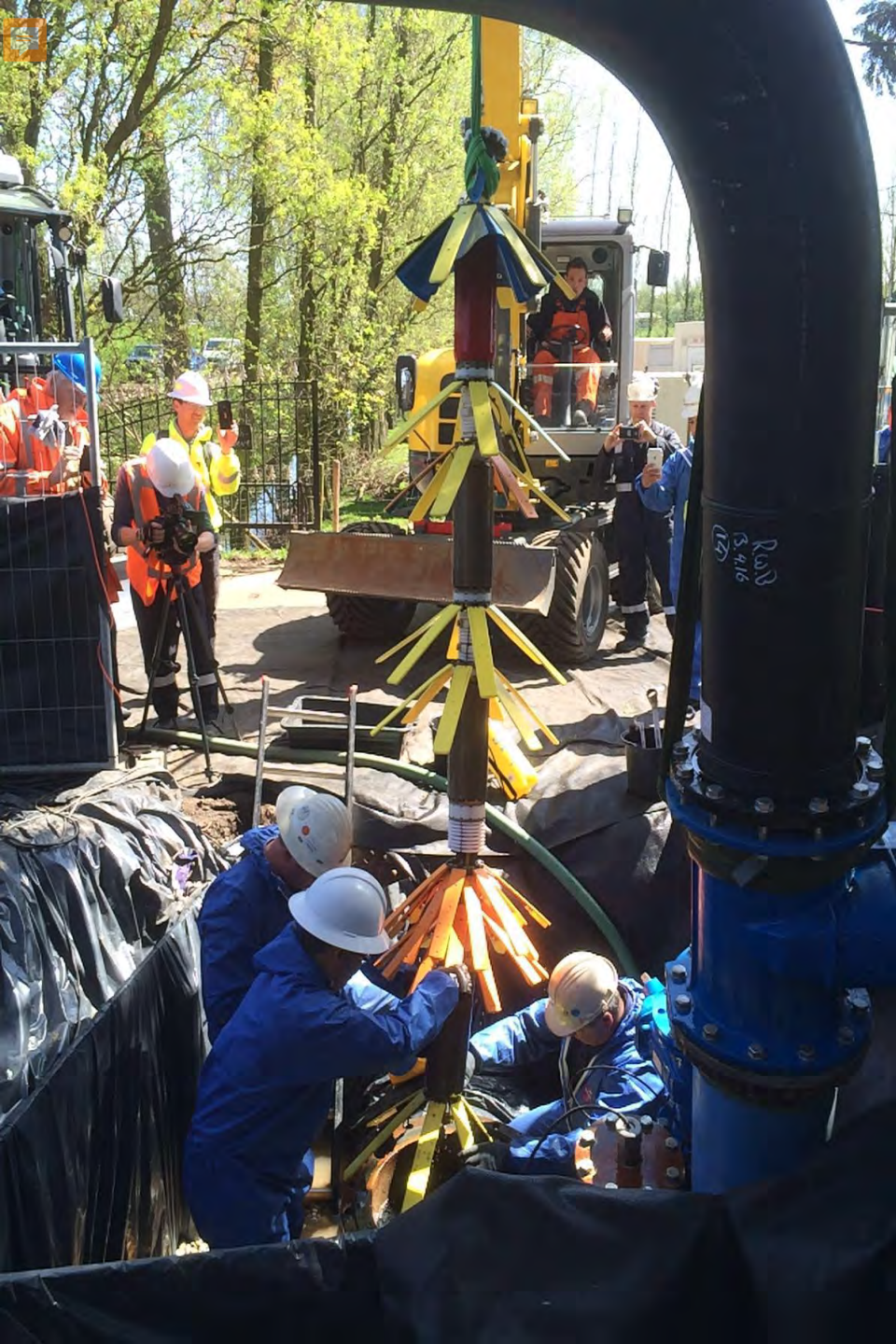
# Emergency Power Generation at Pump Stations



- Total Project Budget: \$8.4 M
- 2022 Spending: \$5,000
- Install standby diesel generators at 14 district pump stations
- Annual replacements beginning in 2025 and continuing through 2030







# Force Main Condition Assessment

- Total Project Budget: \$3.5 M
- 2022 Spending: \$0
- Annual allowance of \$500,000 for force main inspection
- Beginning in 2024, running through 2029





# Badger Mill Creek Phosphorus Compliance

- Total Project Budget: \$19.3 M
- 2022 Spending: \$206,000
- Prelim compliance plan: 2022
- Final compliance plan: 2023
- Final plans & specs: 2025
- Achieve compliance: 2028

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