GUC Board of Commissioners and City Council Joint Meeting

February 19, 2018

Greenville Utilities

Greenville NORTH CAROLINA

Joint Board Meeting

- Call to Order - Ascertain Quorum
- Acceptance of the Agenda

Greenville Utilities

Greenville NORTH CAROLINA

Joint Board Meeting

- **Public Comment Period**
- **Approval of Minutes – September 25, 2017**

"There is always an easy solution to every complex problem that is neat, plausible, and wrong.“

H.L. Mencken (1880 - 1956), American Journalist, Essayist, and Editor

Mission Statement

Greenville Utilities is dedicated to enhancing the quality of life for those we serve by safely providing reliable utility solutions at the lowest reasonable cost, with exceptional customer service in an environmentally responsible manner.

Vision Statement


To provide safe, innovative, and sustainable utility solutions that serve as the foundation of growth for the Greenville region.

Capital Improvements Funding Plan – Large Projects

Capital Improvements Funding Plan - Large Projects

Line #	Project	Prior to 2018	2018-2022		Beyond 2022		Total
			Cash *	Debt	Cash *	Debt	
1	New Operations Center	$7,242,000	$0	$37,800,000	$0	$0	$45,042,000
2	Advanced Metering Infrastructure	$0	$0	$20,000,000	$0	$5,000,000	$25,000,000
3	Water Treatment Plant Upgrade Phase 1	$1,272,000	$14,000,000	$19,000,000	$0	$0	$34,272,000
4	WWTP Expansion to 22.5 MGD	$0	$10,000,000	$0	$0	$18,160,000	$28,160,000
5	High-Pressure Multiple Gas Facilities Relocation Project			$9,500,000	$0	$0	$9,500,000
6	Total	$8,514,000	$24,000,000	$86,300,000	$0	$23,160,000	$141,974,000

** Includes cash on hand and future capital project transfers*

Water Fund - Long-term Financial Forecast

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Budgeted Revenue	$ 19,661,270	$ 20,955,018	$ 22,450,680	$ 23,716,904	$ 25,210,716
Budgeted Expenditures	(14,606,584)	(15,141,943)	(15,604,622)	(16,082,092)	(16,574,816)
Debt Service	(3,454,686)	(3,446,236)	(3,697,784)	(3,385,987)	(2,806,951)
Transfer to Capital Projects	(1,600,000)	(1,600,000)	(2,400,000)	(3,500,000)	(5,100,000)
Transfer to Designated Reserve	-	(600,000)	(600,000)	(600,000)	(600,000)
Projected Surplus (Deficit)	$ -	$ 166,839	$ 148,274	$ 148,825	$ 128,949
Proposed Debt Issuance	$ -	$ 2,284,500	$ 13,118,835	$ 1,620,750	$ -
Projected Debt Coverage Ratio	1.84x	2.03x	2.23x	2.64x	3.55x
Projected Fund Balance	23.4%	25.8%	26.9%	28.1%	28.7%
Projected Days Cash on Hand	174	185	199	212	223
Projected Equity/Capitalization	78%	78%	71%	72%	74%
Rate Adjustments					
Current Forecast	0.0%	6.4%	6.4%	6.4%	6.4%
Projected Typical Residential Bill[(1)]	$31.80	$33.82	$35.99	$38.28	$40.74
Last Year's Forecast	7.4%	8.6%	8.6%	8.6%	NA

[(1)] Based on usage of 6,000 gallons per month

Sewer Fund - Long-term Financial Forecast

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Budgeted Revenue	$ 22,543,042	$ 24,273,063	$ 26,191,651	$ 28,091,788	$ 30,201,828
Budgeted Expenditures	(15,148,429)	(15,370,167)	(15,849,365)	(16,344,034)	(16,854,664)
Debt Service	(6,394,613)	(6,246,446)	(6,025,287)	(5,669,911)	(5,462,692)
Transfer to Capital Projects	(1,000,000)	(1,600,000)	(3,300,000)	(5,000,000)	(6,800,000)
Transfer to Designated Reserve	-	(800,000)	(800,000)	(800,000)	(800,000)
Projected Surplus (Deficit)	$ -	$ 256,450	$ 216,999	$ 277,843	$ 284,472
Proposed Debt Issuance	$ -	$ 2,284,500	$ 8,965,030	$ 1,620,750	$ -
Projected Debt Coverage Ratio	1.38x	1.62x	1.94x	2.31x	2.69x
Projected Fund Balance	22.8%	26.1%	27.7%	29.4%	30.5%
Projected Days Cash on Hand	170	191	211	231	249
Projected Equity/Capitalization	70%	72%	70%	72%	75%
Rate Adjustments					
Current Forecast	0.0%	7.4%	7.4%	7.4%	7.4%
Projected Typical Residential Bill[(1)]	$43.45	$46.65	$50.12	$53.83	$57.81
Last Year's Forecast	8.4%	8.5%	8.5%	8.4%	NA

[(1)] Based on usage of 6,000 gallons of water per month

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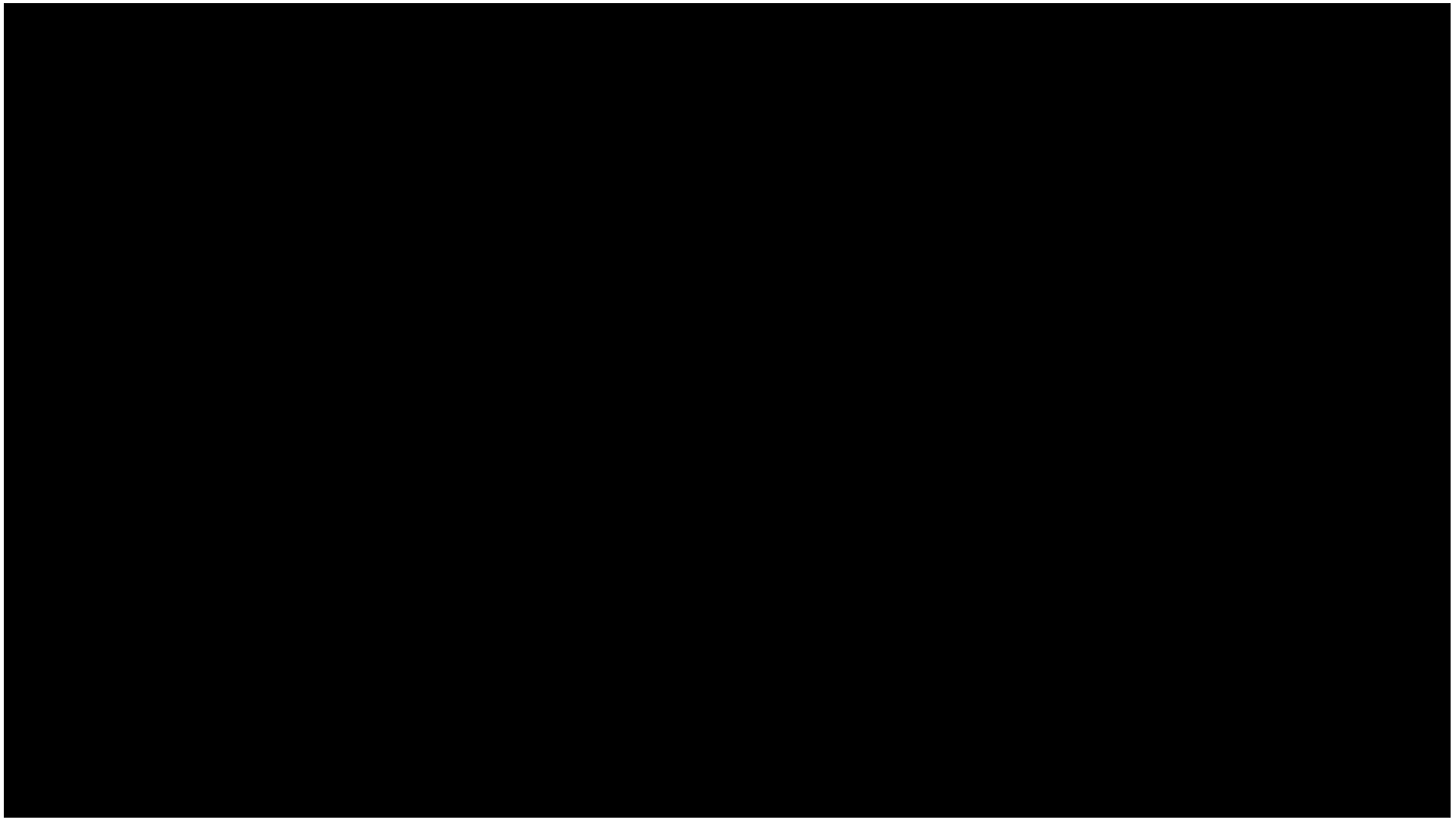
Agenda Item

Jason Manning

Review of Wastewater Treatment Plant Conservation Initiatives and Associated Budget Impacts



Greenville Utilities WWTP

- 17.5 MGD Plant Capacity
  - North Plant 1985
  - South Plant 1995
- Belt Filter Press - Biosolids are composted
- Effluent discharged into Tar River

WWTP Capital Projects

UV Equipment Replacement Project - $2.1M UV System 70% more energy efficient with increased capacity and safety. Annual O&M savings of $100k.

WWTP Capital Projects

Replacement of South Plant Air Piping – $2.2M Eliminating multiple air leaks along 800ft of pipe will conserve $150-200k lost power annually.

WWTP Conservation Initiatives

Biosolids Dewatering Upgrade - $6.8M deferred. Staff changed operational strategy and delayed the demand for this WWTP Master Plan Project.

WWTP Conservation Initiatives

South Plant Clarifier Performance Improvement Effort. Staff installed baffles at a cost of $80k. Clarifier in plant capacity increased by 3MG ($36M deferred).

WWTP Conservation Initiatives

The State regulatory trigger to expand the WWTP is flow greater than 80% of permitted capacity. When average monthly flows reach 14.0MGD GUC must be in process of expanding.

Unless there is a smarter way to “expand” without construction…

WWTP Conservation Initiatives

The UV Equipment upgrade project included a more accurate effluent flow meter. There is a ~10% volume reduction through the plant (evaporation, internal water usage).

GUC preserved 10% capacity by reporting effluent flow.

WWTP Conservation Initiatives

Deferred Capacity Demand has real value. The WWTP's capacity is calculated by effluent flow returned to the receiving stream.

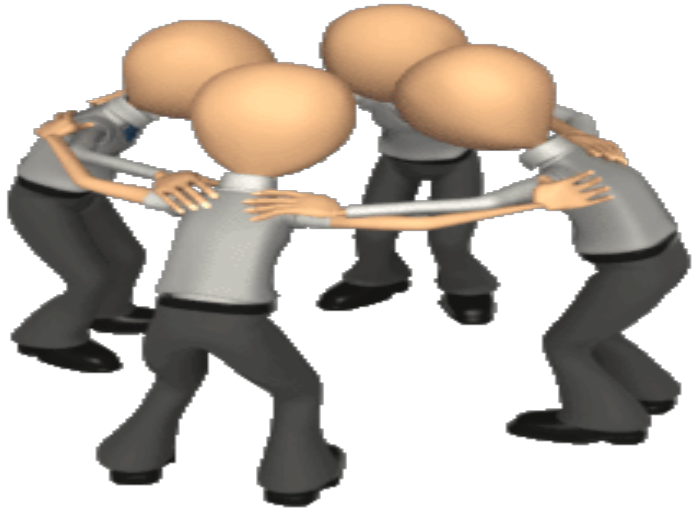
The cost to construct new treatment plant capacity is $12 per gallon.

The ability to report effluent flow has a deferred capacity value of $12 Million.

WWTP Conservation Initiatives

One of the largest assets GUC owns is the WWTP Farm. Originally used for land application of Biosolids, the 700 acre property has sat dormant since 2005.

How could Staff convert this asset from a “Cost Center” to a Benefit ?



WWTP Conservation Initiatives

WWTP Conservation Initiatives

Vegetative buffers are used to remove Nitrogen and Phosphorus from water run off.

The trees and plants remove pounds of Nitrogen and Phosphorus before they can get into the stream and cause harm.

These pounds of Nitrogen and Phosphorus conserved have real value.

WWTP Conservation Initiatives

A Stormwater Mitigation Bank is proposing to construct ~100 acres of vegetative buffers on the WWTP property.

This conservation project would be 200 ft. on either side of the ditches that run through the property.

Potential for up to 215,000 lbs of Nitrogen ($3.7M) and 14,000 lbs of Phosphorus ($3.9M) to be conserved and banked on GUC's WWTP property.

WWTP Conservation Initiatives

Three options for banked N&P credits:

- Allow the bank to sell credits on our behalf
- Use credits to offset our construction or allocation needs. GUC Electric recently purchased $63k to offset Substation construction.
- Use a portion of credits to incentivize new industry or expanding industry in GUC's service area.

WWTP Conservation Initiatives

Another way to generate additional Capacity without construction costs could be placing GUC's effluent somewhere other than the Tar River.

Discharging effluent beneficially someplace other than the Tar River will accomplish the goals of The Clean Water Act and EPA. This would be innovative stewardship.

WWTP Conservation Initiatives

WWTP Conservation Initiatives

Diverting treated wastewater from the Tar River would create a moist soil environment and reduce GUC's effluent flow.

Soil Aquifer Treatment has been used for many years to beneficially recharge unconfined groundwater.

Moist soil environment is a haven for wildlife and waterfowl that would help accomplish GUC's educational and stewardship goals.

WWTP Conservation Initiatives

WWTP Conservation Initiatives

Preliminary engineering estimates indicate that up to 2 Million Gallons per Day of treated effluent could be used in the Soil Aquifer Treatment area.

This deferred Capacity *(valued at expansion costs of $12/gallon)* has a worth of $24 Million.

WWTP Conservation Initiatives

WWTP Staff have conducted preliminary meetings with Pitt County Schools, East Carolina University and Pitt Community College to determine how this project could be best utilized to meet their educational needs.

WWTP Conservation Initiatives

The educational and stewardship opportunities are rich. Many potential partners such as NC Wildlife Resources, US Fish and Wildlife, Ducks Unlimited and National Wild Turkey Federation have offered to provide resources and support.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

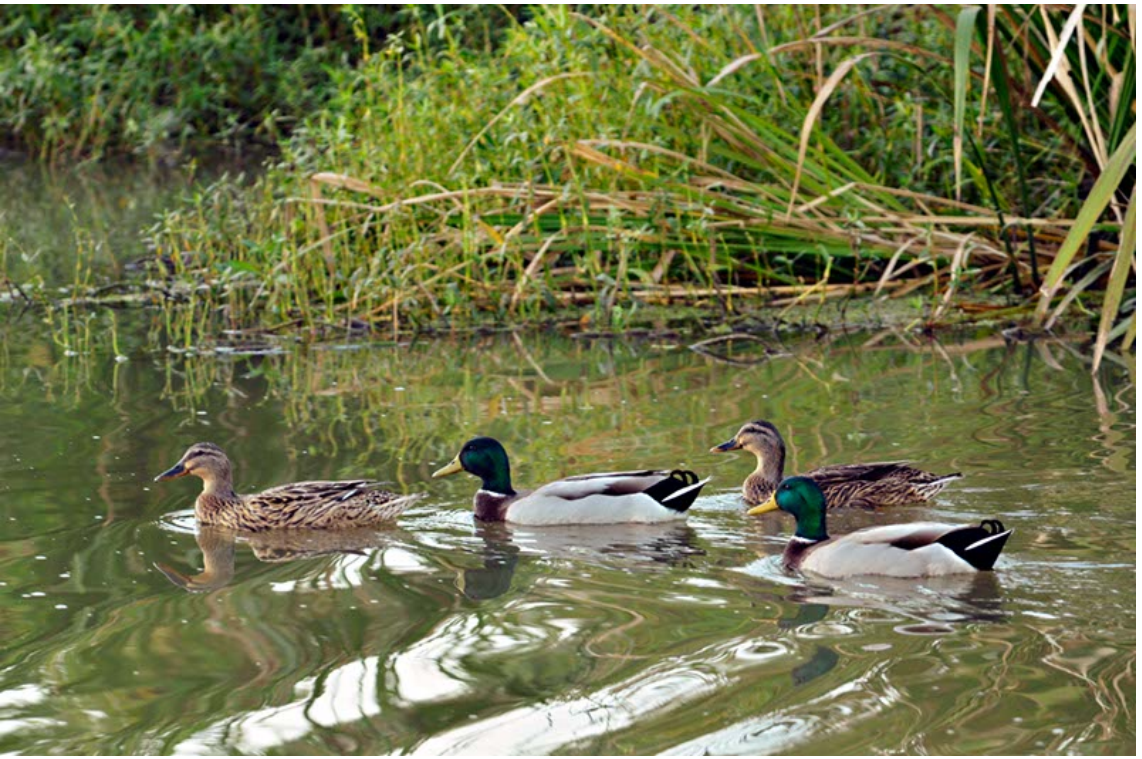
U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

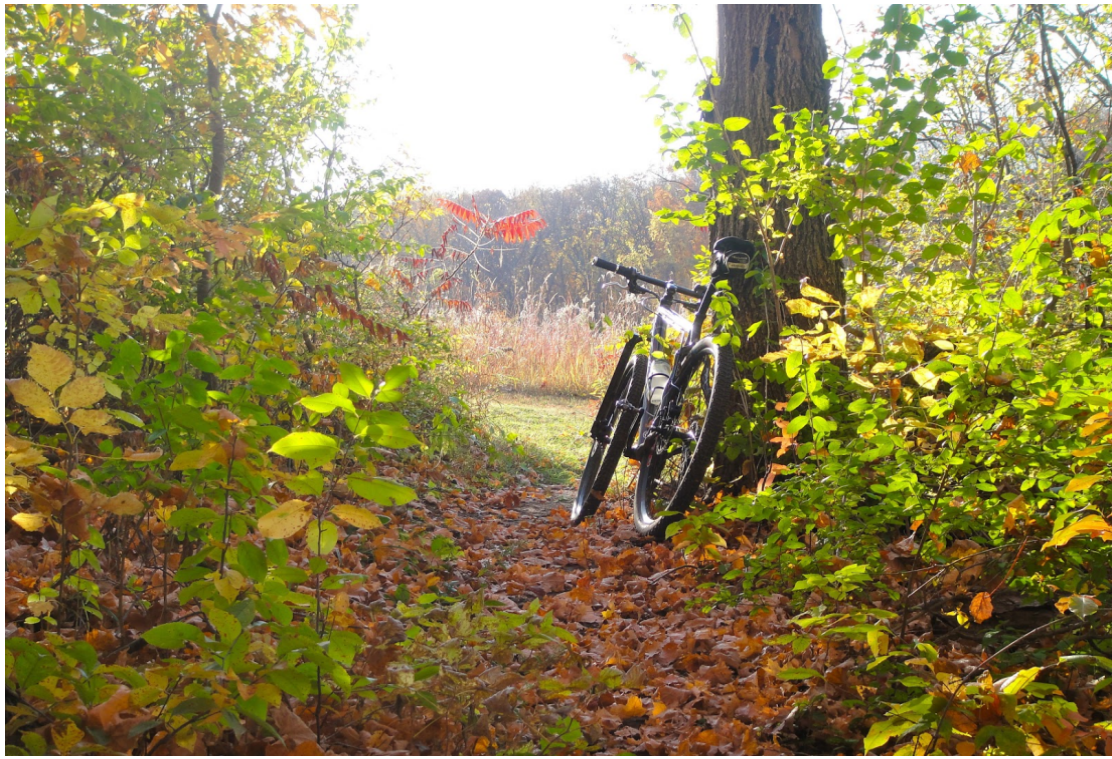
NATIONAL WILD TURKEY FEDERATION

DUCKS UNLIMITED

WWTP Conservation Initiatives

Once the conservation/sustainability projects have been implemented, walking and bike trails could be added to allow more people to enjoy this resource.





Wildlife

WWTP Conservation Initiatives

Total value of initiatives outlined:

$12 M	Effluent flow reporting
$7.6 M	Vegetative buffers N&P credits banked
$24 M	Effluent flow to Soil Aquifer Treatment

$43.6M **Value of WWTP Conservation Initiatives**

WWTP Conservation Initiatives

Total value of deferred Capital Projects:

$6.8 M Biosolids Project deferred

$10 M WWTP Expansion to 22.5 MGD

$16.8M Value of WWTP Capital Projects Deferred from 5 Year Plan

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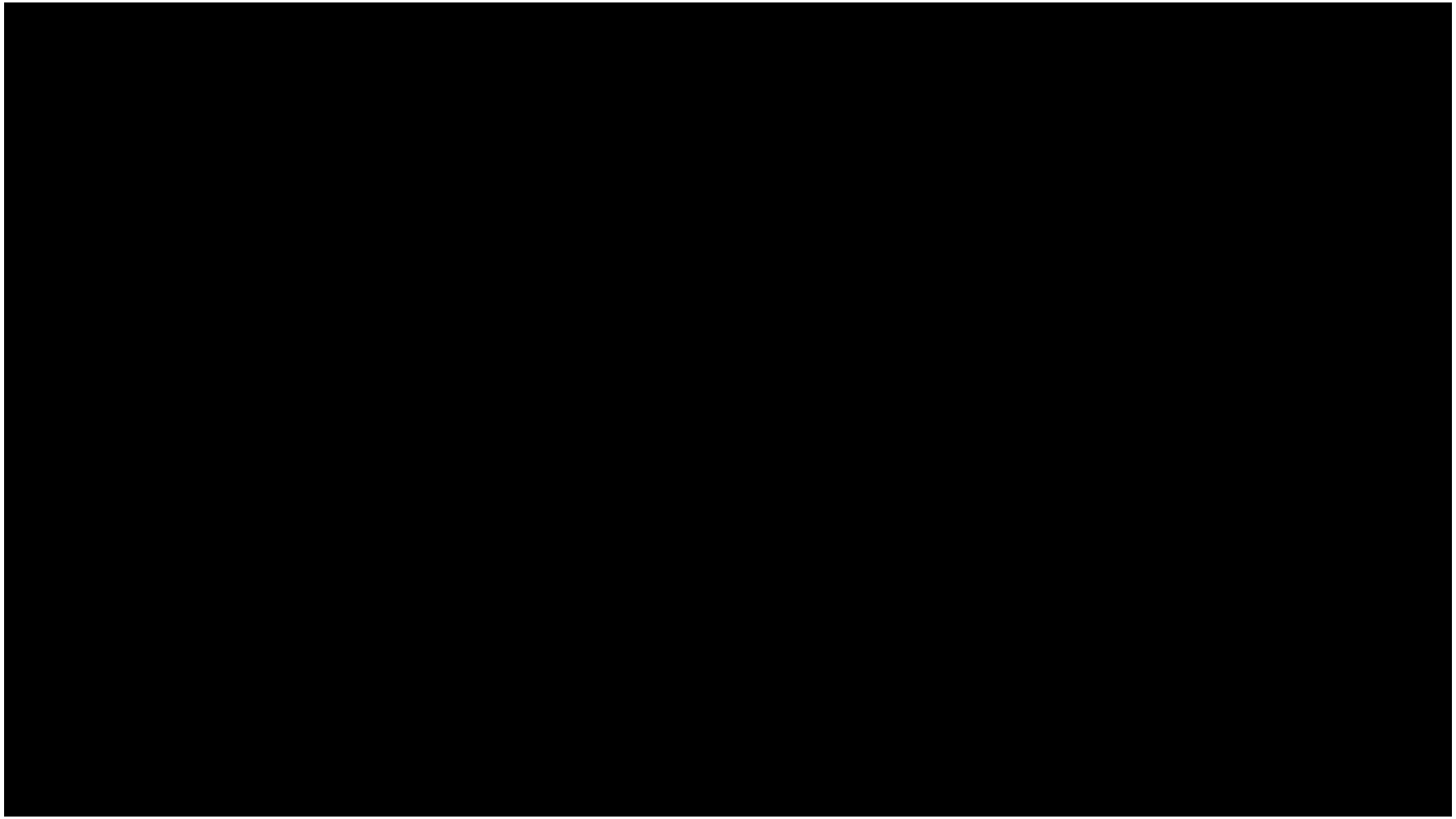
Agenda Item

David Springer

Review of Water Treatment Plant Preliminary Engineering Report Findings, Implementation Options and Associated Budget Impacts



Project Update

WCP-117 WTP Upgrade

- **Board Approved Project as Part of '14 – '15 Budget**
- **$1.9 Million Original Budget**
- **Contract with Hazen and Sawyer**
  - January 2016 - $1,311,100
  - Preliminary Engineering Services
- **Budget Amended as Part of '16 – '17 Budget**
  - $6.9 Million Total Budget
  - Anticipated Final Design and CMAR Services

Existing Water System

Water Treatment Plant

- Currently Rated at 22.5 MGD Production Capacity
- Conventional Surface Water Plant – Tar River

Groundwater Wells

- 8 Wells – Utilized as Emergency Supply

Storage

- 2 Elevated Tanks – 1 MG and 1.5 MG
- 2 Ground Storage Tanks – 3 MG Each

Distribution Mains

- Approximately 696 Miles
- Sizes from 2” – 36”

Demand Analysis

Current Conditions

- Plant Rated Capacity – 22.5 mgd
- Peak Day Demand Record – 17.8 mgd
  - **Approximately 80% of Rated Capacity**

Potential Dry Year Demand

- Projected Demand in a Dry Year – 19.4 mgd
  - **In excess of 86% of Rated Capacity**

Drivers – Water Demand and Supply

Demand

- Weather / Rainfall
- Main Breaks
- Growth
- Industry / Economic Development
- Fire Protection & Insurance Rates

Supply

- Regulations
- Weather
- Water Quality
- Operational Challenges

Recent Water Planning Efforts

Tar River Flow Study

- 2007 to 2012
- Identified Tar River as Long Term Water Supply
- No Impacts at 60 MGD Withdrawal (2050 Max. Day)
- Salt Water Does Not Reach Intakes During Drought
- Regulatory Agencies involved in the process

Water Distribution System Master Plan

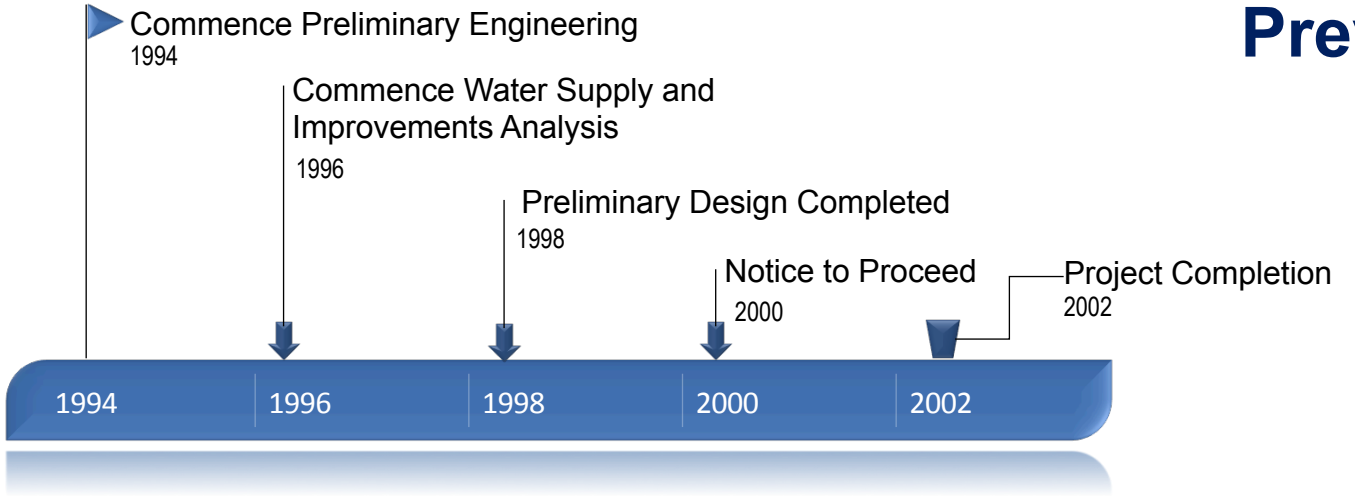
- Completed in August of 2013

WTP Master Plan

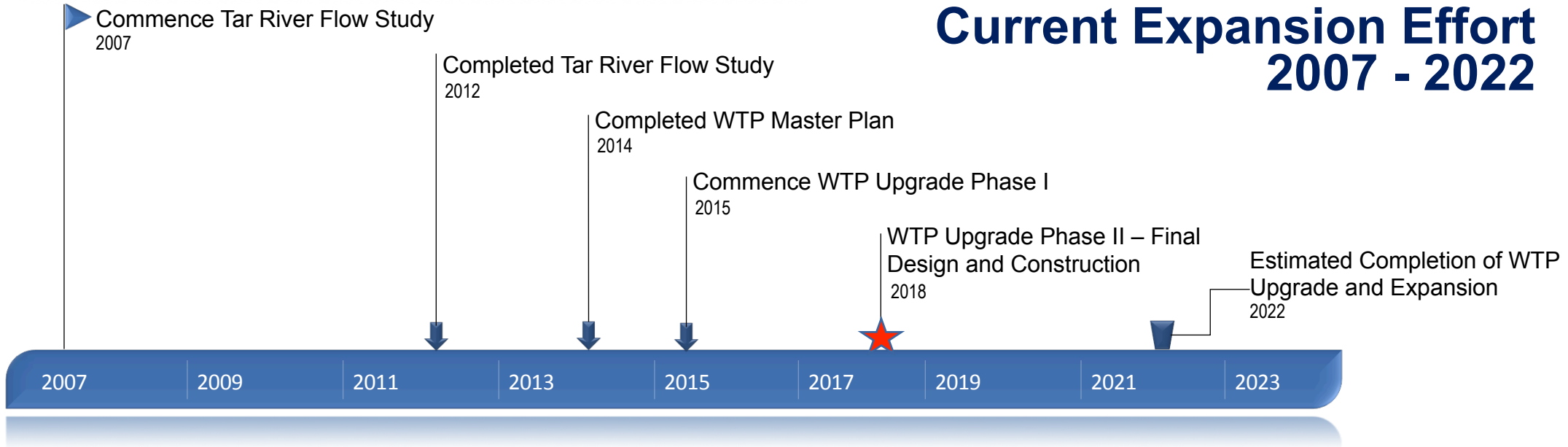
- Completed in March of 2014

Historical Timelines

Previous Expansion Effort 1994 - 2002



Current Expansion Effort 2007 - 2022



Current Planning Efforts

Hazen & Sawyer – Phase I Services

Comprehensive Evaluation of Entire System

- Production
- Transmission
- Storage
- Distribution

Recommendations & Preliminary Design for WTP Upgrade

- Extensive Engineering Process Evaluation
- Complex Water Treatment Analyses

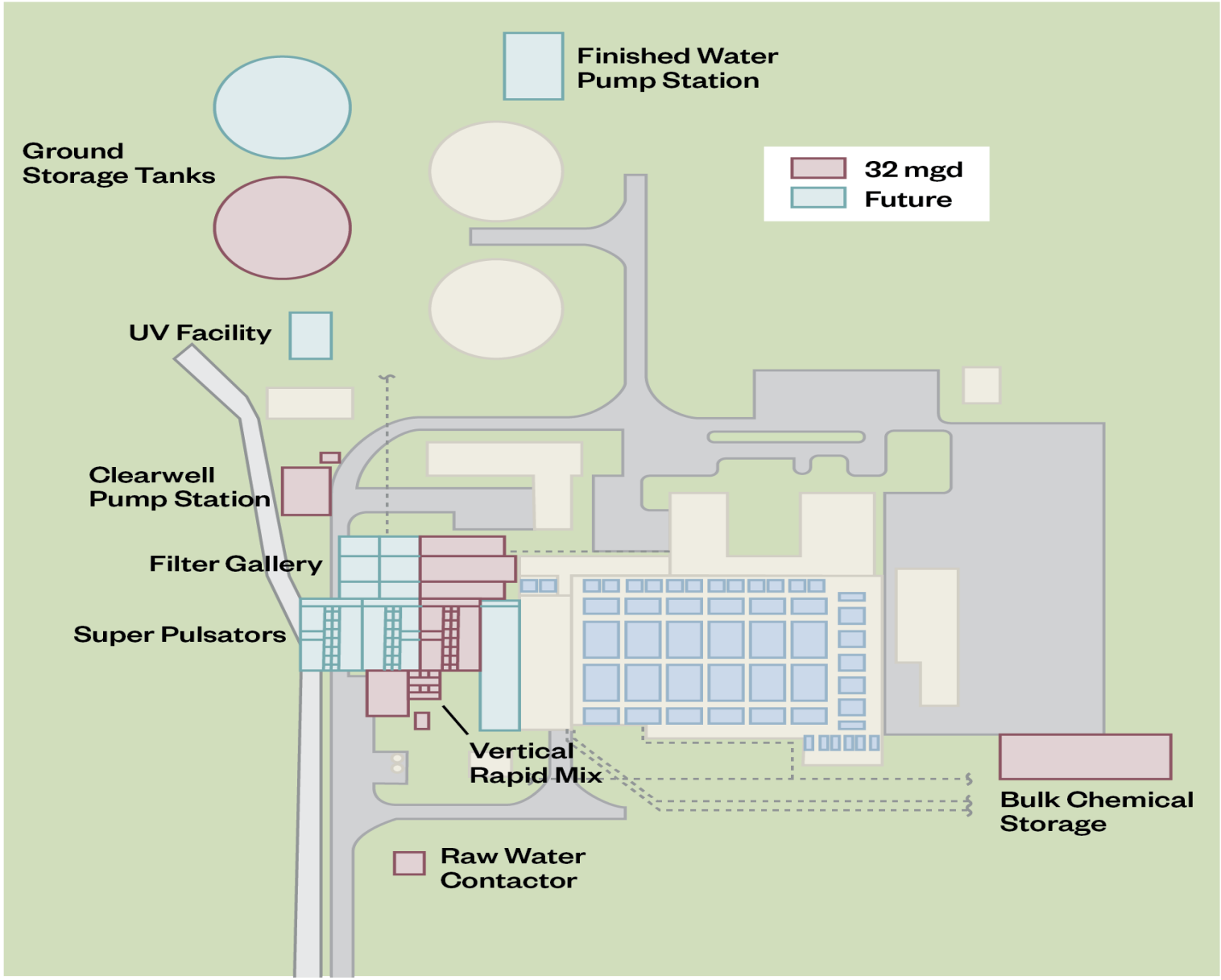
Recommendations for System Improvements

- Complex Hydraulic Analysis of Water Distribution System
- Tanks & Transmission Mains

Develop Preliminary Engineering Report

Engineer's Recommendations

Expand Water Treatment Plant to a Capacity of 32 MGD



Considerations – WTP Expansion

- Must Maintain Operation at All Times
- Must Maintain Water Quality At All Times
- Complex Project – **Construction Manager at Risk Delivery Method**

Project Plan – WTP Expansion

Final Design – WTP

- Amend Contract with Hazen & Sawyer
  - Board Approved Amendment at December 21, 2017 Mtg.
- CMAR – Preconstruction Phase Services
  - Qualification Packages Received November 3rd
  - Interviews & Selection in December
  - Board Action to Approve Contract anticipated at March 15, 2018 Mtg.
  - **GMP (Guaranteed Maximum Price) Prior to Construction**

Construction

- Board Action to Amend Engineer and CMAR Contract
- Anticipate 18 – 24 Month Construction Period

Benefits of CMAR Project Delivery

Construction Manager at Risk

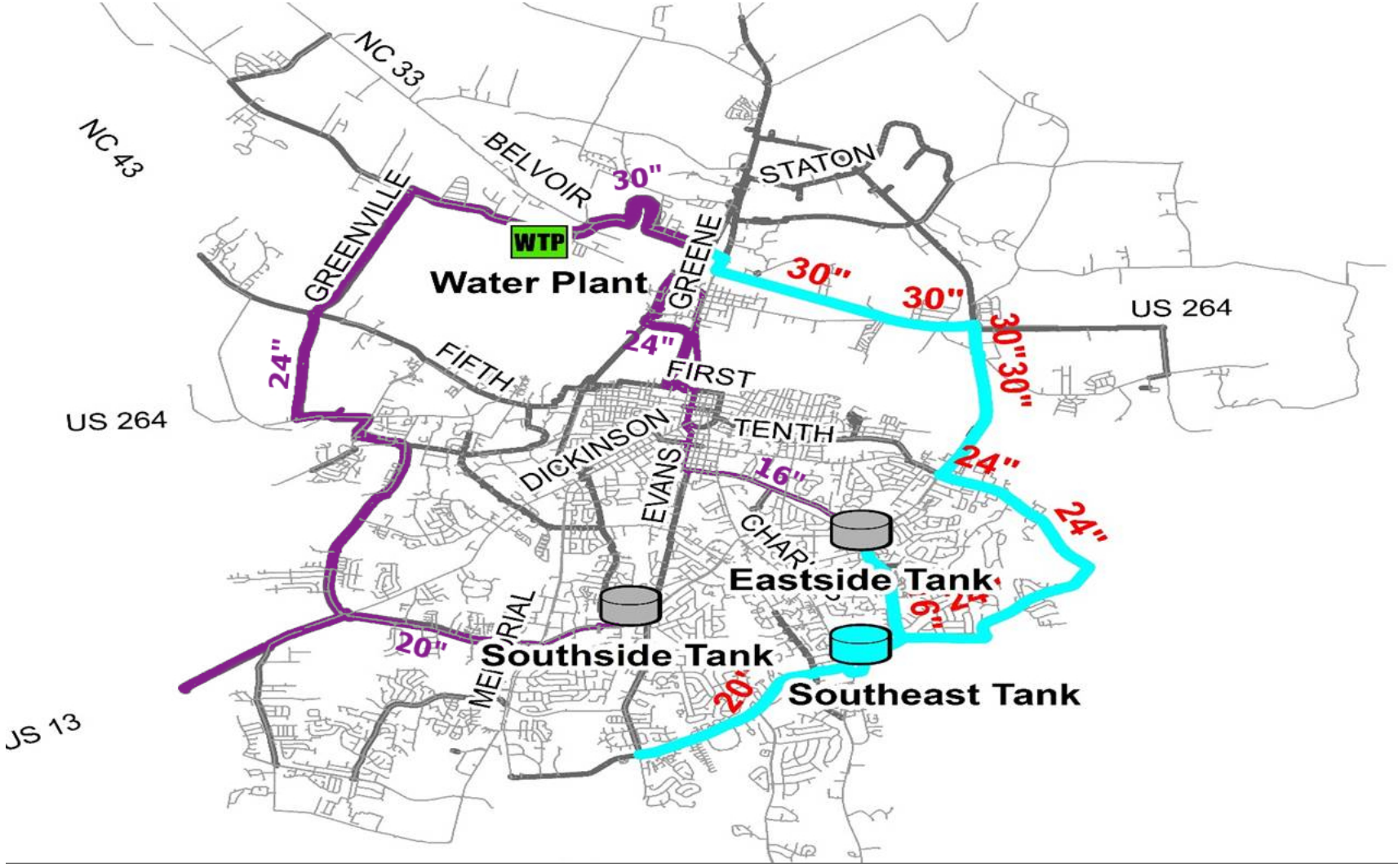
- Same Delivery Method as New Operations Center
- Qualification Based Selection
- Project Team Member During Final Design
  - Constructability Reviews
  - Value Engineering
- **GMP – Guaranteed Maximum Price**
  - Established Prior to Construction
  - Process that Allows you to “Work to a Budget”

Water Distribution System Improvements

Greenville Utilities

Engineer's Recommendations

Proposed Mains and New Elevated Tank



Considerations – Water System

Proposed Water Distribution System Improvements

69,150 LF (13 miles) of water transmission mains proposed

- 16” – 48” mains

Construction Required Along Major Thoroughfares

- Hwy. 33, Hwy. 264, Portertown Road, E. Firetower Road, 14th Street

Easement Acquisition will be a huge component

A lot of work!

- Preferred timeline – within the next 10 years

Project Plan – System Improvements

Preliminary Engineering

- Engage Firm for Preliminary Engineering
  - Routing Study & Project Packaging
  - Coordinate with Upcoming NCDOT Projects

Design and Construction

- Multiple Projects Over a Long Period of Time
  - Phased to Accommodate Budget
- Multiple Design Firms
- Traditional Design-Bid-Build Project Delivery
- Board Approval for Each Project

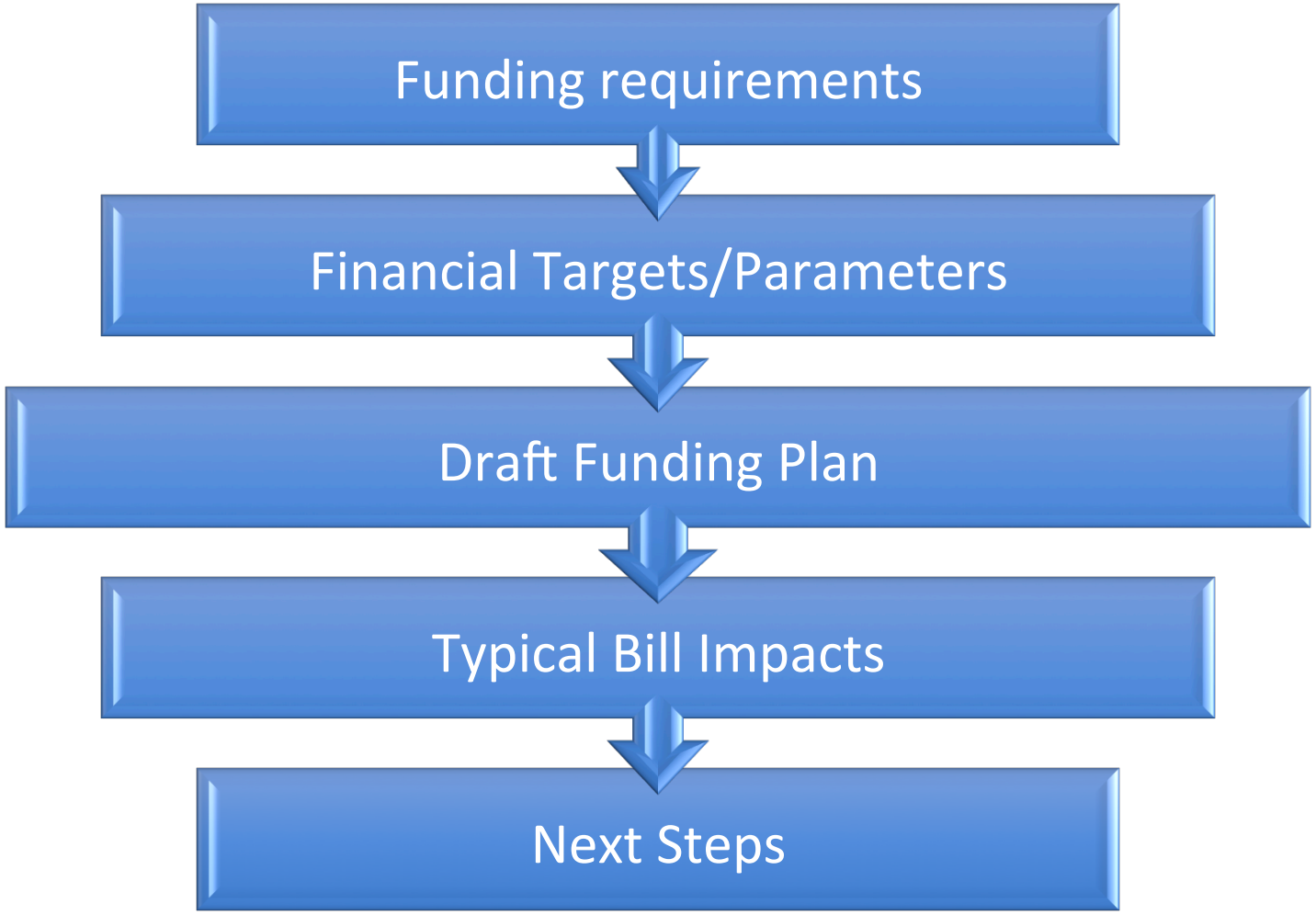
Project Costs

WTP Expansion to 32 MGD	$47.5 Million
Transmission Piping	$23.5 Million
2 MG Elevated Storage Tank	$6.5 Million
Total Projects	**$77.5 Million**

Bottom Line – Anticipated Expenditures of $77.5 M over the next 10 years.

Water Capital Improvements Funding

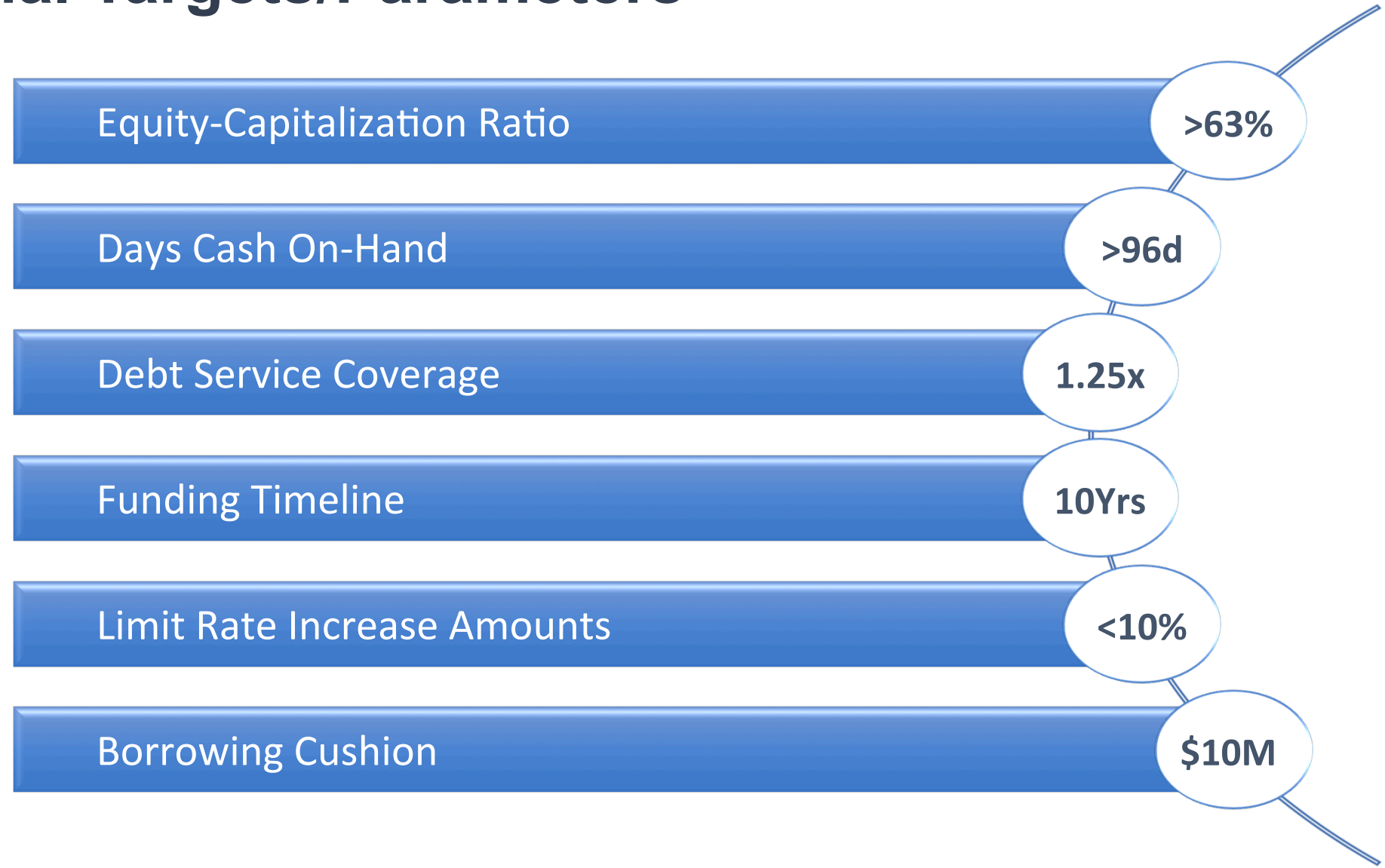
Water Capital Improvements Funding



Funding Requirements

Project	Total Cost
Water Treatment Plant Expansion	$47,500,000
Distribution System Improvements	$30,000,000
Total	**$77,500,000**

Financial Targets/Parameters



Draft Funding Plan

Water Rates (FY17 to FY18)

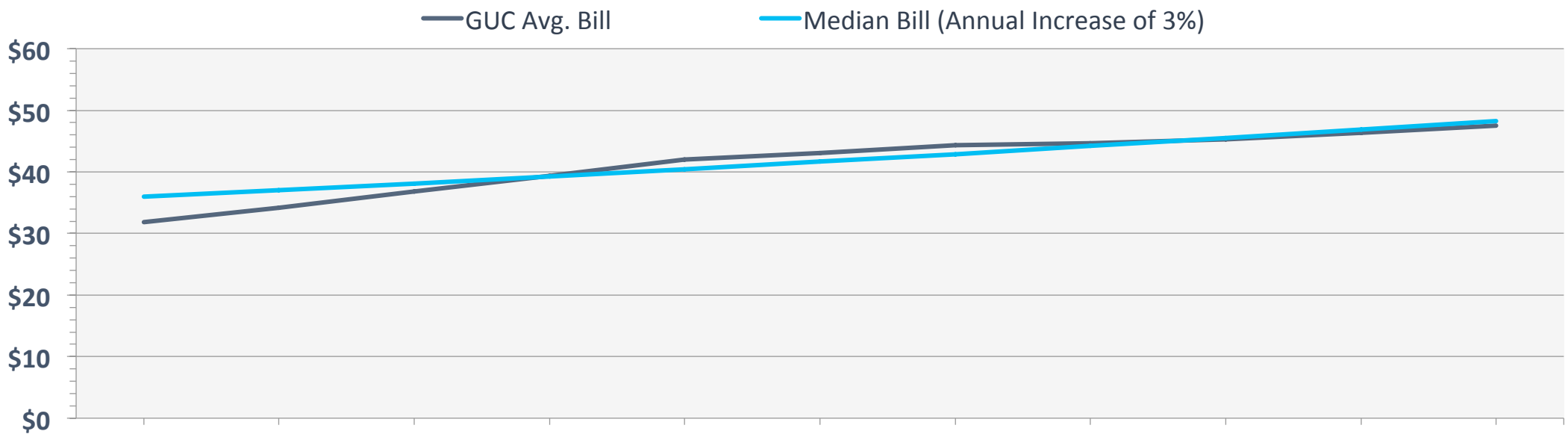
	FY18	FY19	FY20	FY21	FY22
17FY Rate Plan	0.0%	6.4%	6.4%	6.4%	6.4%

Revenue Sources *(in millions)*

Total	$12.95	$3.89	$4.79	$24.84	$6.13	$5.88	$5.48	$5.48	$5.48	$5.48	$80.40

Cumulative	$12.95	$16.84	$21.63	$46.47	$52.60	$58.48	$63.96	$69.44	$74.92	$80.40

Water Residential Typical Bill Comparison



	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
GUC Typ. Bill	$31.80	$34.22	$36.83	$39.35	$42.05	$43.02	$44.34	$44.61	$45.31	$46.38	$47.54
Median Bill (Annual Increase of 3%)	$35.98	$37.00	$38.11	$39.26	$40.44	$41.65	$42.90	$44.18	$45.51	$46.88	$48.28
Variance	($4.18)	($2.78)	($1.28)	$0.09	$1.61	$1.37	$1.44	$0.43	($0.20)	($0.50)	($0.74)

Note: Bill calculated for 6,000 gal usage

Water & Sewer Rates Forecasts

Water Rates

	FY18	FY19	FY20	FY21	FY22	FY23
17FY Rate Plan	0.0%	6.4%	6.4%	6.4%	6.4%	
Draft 18FY Rate Plan		7.6%	7.6%	6.8%	6.9%	2.3%

Sewer Rates

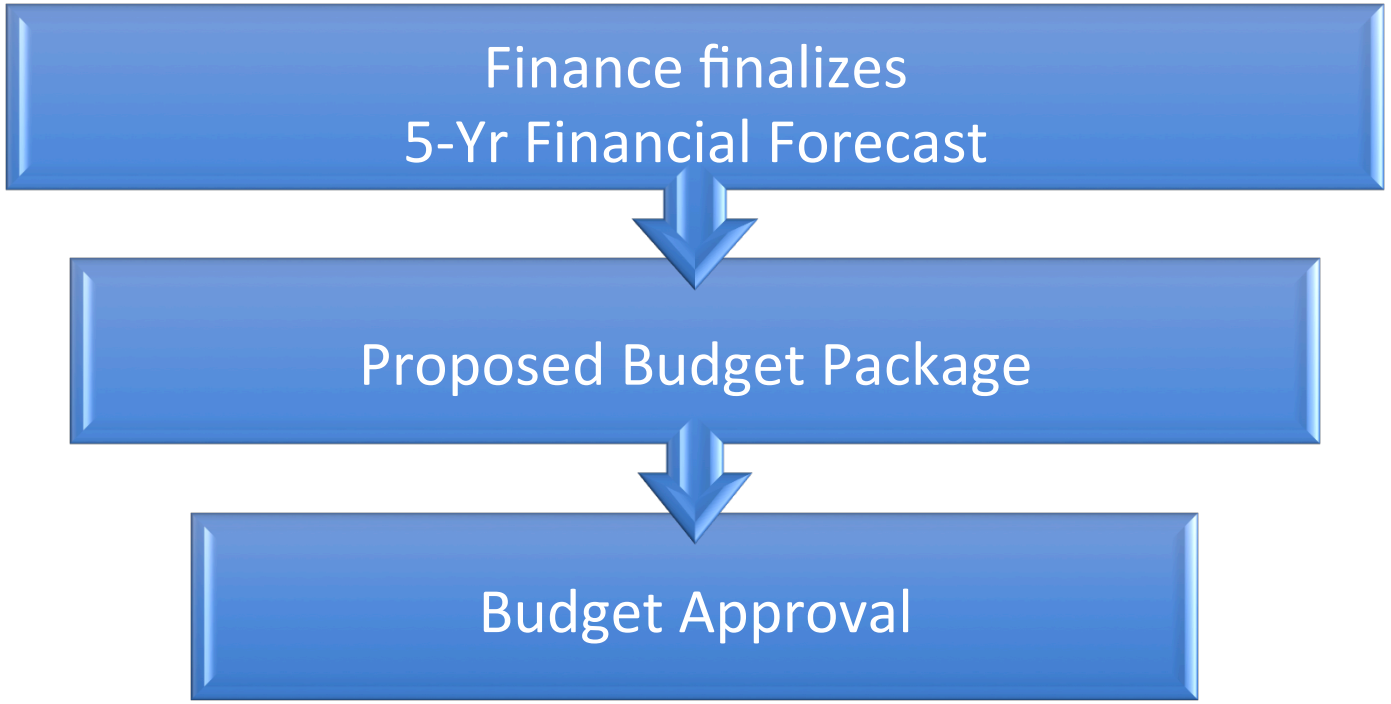
	FY18	FY19	FY20	FY21	FY22	FY23
17FY Rate Plan	0.0%	7.4%	7.4%	7.4%	7.4%	
Draft 18FY Rate Plan		3.1%	3.0%	3.3%	3.4%	3.5%

Combined Rates

	FY18	FY19	FY20	FY21	FY22	FY23
17FY Rate Plan	0.0%	6.9%	7.0%	7.0%	7.0%	
Draft 18FY Rate Plan		5.0%	5.0%	4.9%	5.0%	3.0%
Combined Bill Impact		$3.77	$3.96	$4.03	$4.33	$2.71

- Equity-Capitalization Ratio >63%
- Days Cash On-Hand >96d
- Debt Service Coverage 1.25x

Water Capital Improvements Funding
Next Steps



Water Capital Improvements Funding

QUESTIONS?

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Adjourn

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GUC Board of Commissioners and City Council Joint Meeting

February 19, 2018