

Notice of Meeting of the Water Utility Advisory Board of the City of Georgetown, Texas May 14, 2026

The Georgetown Water Utility Advisory Board will meet on May 14, 2026 at 2:00 PM at West Side Service Center, 5501 Williams Drive.

The City of Georgetown is committed to compliance with the Americans with Disabilities Act (ADA). If you require assistance in participating at a public meeting due to a disability, as defined under the ADA, reasonable assistance, adaptations, or accommodations will be provided upon request. Please contact the City Secretary's Office, at least three (3) days prior to the scheduled meeting date, at (512) 930-3652 or City Hall at 808 Martin Luther King Jr. Street, Georgetown, TX 78626 for additional information; TTY users route through Relay Texas at 711.

Public Wishing to Address the Board

On a subject that is posted on this agenda: Please fill out a speaker registration form which can be found on the table at the entrance to the meeting room. Clearly print your name and the letter of the item on which you wish to speak and present it to the Board Liaison prior to the start of the meeting. You will be called forward to speak when the Board considers that item. Only persons who have delivered the speaker form prior to the meeting being called to order may speak. Speakers will be allowed up to three minutes to speak. If you wish to speak for six minutes, it is permissible to use another requestor's granted time to speak. No more than six minutes for a speaker may be granted. The requestor granting time to another speaker must also submit a form and be present at the meeting.

On a subject not posted on the agenda: A request must be received by the Advisory Board or Commission Liaison prior to the day the agenda for this meeting is posted. Each speaker will be given three minutes to address the Board or Commission members. No action can be taken.

At the time of posting, no one signed up to speak.

Regular Session

1.A Call to Order

Call to Order -- Ron Garland, Chair

1.B Introduction of Board Members, Staff Members, and Visitors

Introduction of Board Members, Staff Members, and Visitors -- Ron Garland, Chair

1.C Minutes of the March 5, 2026 Meeting

Review and possible action to approve the minutes from the March 5, 2026 meeting of the Georgetown Water Utility Advisory Board -- Rebecca Fisher, Board Liaison

1.D Updates from Directors

Any updates will be highlighted at the meeting. The CIP updates and the Director's Report are attached. -- Chelsea Solomon, PE, Water Utility Director

1.E Cost of Service and Rate Model Updates for FY 2027

Consideration and possible action to recommend to Council the water and wastewater cost of service study and rate modeling for the FY2027 budget -- Chelsea Solomon,

Water Utilities Director; Leigh Wallace, Chief Financial Officer

1.F COG Water Reuse Assessment Report

Consideration and possible action to recommend to Council the City of Georgetown Water Reuse Assessment Report for adoption -- Chelsea Solomon, PE, Water Utility Director

1.G Construction contract with Austin Underground for Church Street Wastewater Improvements

Consideration and possible recommendation to City Council to approve a contract with Austin Underground, Inc of Lago Vista, TX for the base bid and Alternate A for the construction of Church Street Wastewater Improvements in the amount of \$1,277,814.00 -- Wesley Wright, P.E., Systems Engineering Director and David Herzog, CIP Manager

1.H Special Services Agreement with FilmTec (DuPont) for Three Forks and Northlands Membranes Supplier

Consideration and possible recommendation to City Council to approve a Special Services Agreement with FilmTec (DuPont) of Wilmington, Delaware, for membrane filtration system special services associated with Three Forks and Northlands Water Reclamation Facilities in the amount of \$300,000.00 -- Wesley Wright, P.E. Systems Engineering Director / David Herzog, CIP Manager

Executive Session

In compliance with the Open Meetings Act, Chapter 551, Texas Government Code, Vernon's Code, Annotated, the items listed below will be discussed in closed session and are subject to action in the regular session.

Cyber Security Update

Sec. 551.089 Deliberation Regarding Security Devices or Security Audits

Adjournment

Certificate of Posting

I, Robyn Densmore, City Secretary for the City of Georgetown, Texas, do hereby certify that this Notice of Meeting was posted at City Hall, 808 Martin Luther King Jr. Street, Georgetown, TX 78626, a place readily accessible to the general public as required by law, on the ____ day of _____, 2026, at _____, and remained so posted for at least three business days preceding the scheduled time of said meeting.

Robyn Densmore, City Secretary

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

At the time of posting, no one signed up to speak.

SUGGESTED ACTION:

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

N/A

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Call to Order

SUGGESTED ACTION:

Call to Order -- Ron Garland, Chair

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

N/A

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Introduction of Board Members, Staff Members, and Visitors

SUGGESTED ACTION:

Introduction of Board Members, Staff Members, and Visitors -- Ron Garland, Chair

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

N/A

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Minutes of the March 5, 2026 Meeting

SUGGESTED ACTION:

Review and possible action to approve the minutes from the March 5, 2026 meeting of the Georgetown Water Utility Advisory Board -- Rebecca Fisher, Board Liaison

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

[Water Board Meeting Minutes - March 5, 2026.pdf](#)

Minutes of the Water Utility Advisory Board City of Georgetown, Texas Thursday, March 5, 2026

The Georgetown Water Utility Advisory Board met on Thursday, March 5, 2026 at 2:00 PM at West Side Service Center, 5501 Williams Drive.

The City of Georgetown is committed to compliance with the Americans with Disabilities Act (ADA). If you require assistance in participating at a public meeting due to a disability, as defined under the ADA, reasonable assistance, adaptations, or accommodations will be provided upon request. Please contact the City Secretary's Office, at least three (3) days prior to the scheduled meeting date, at (512) 930-3652 or City Hall at 808 Martin Luther King, Jr Street for additional information; TTY users route through Relay Texas at 711.

The following Members were in attendance:

Present were: Brian Birdwell, Ron Garland, Kevin Pitts, Ercel Brashear, Randy Hartford

Public Wishing to Address the Board

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Hugh Prifogle, Water Utility customer, would like to address the Board regarding his billing.

Mr. Prifogle addressed the Board regarding the cost of paying residential rates for watering his three-acre residential lot.

1. Regular Session

1.A Call to Order

Call to Order -- Ron Garland, Chair

Chair Garland called the meeting to order at 2:00 p.m.

1.B **Introduction of Board Members, Staff Members, and Visitors**

Introduction of Board Members, Staff Members, and Visitors -- Ron Garland, Chair
Chair Garland led introductions of all present.

1.C **Minutes of the February 12, 2026 Meeting**

Review and possible action to approve the minutes from the February 12, 2026 meeting of the Georgetown Water Utility Advisory Board -- Rebecca Fisher, Board Liaison

Moved by Randy Hartford; seconded by Brian Birdwell to Approve .

Motion Approved: 5- 0

Voting For: Ron Garland, Kevin Pitts, Ercel Brashear, Brian Birdwell, Randy Hartford

Voting Against: None

1.D **Fixed Cost Recovery Policy Update for FY2027**

Consideration and possible action to recommend to Council the approval of changes to the water utility fixed cost recovery policy in the annual Fiscal and Budgetary Policies for FY2027 -- Leigh Wallace, Chief Financial Officer, and Chelsea Solomon, P.E., Water Utilities Director

Consultant, Matthew Garrett, Partner at NewGen Strategies & Solutions, presented the Fixed Cost Recovery Policy Update for FY2027.

Jennifer Ritter, Managing Director of Specialized Public Finance Inc., answered questions regarding the new policy impact on bond rating targets.

Moved by Brian Birdwell; seconded by Randy Hartford to Approve Recommendation to council to adopt the Fixed Cost Recovery Policy Update for FY2027 as presented..

Motion Approved: 4- 1

Voting For: Brian Birdwell, Ron Garland, Kevin Pitts, Randy Hartford

Voting Against: Ercel Brashear

1.E **Presentation - Proposed FY 2027 Water and Wastewater Capital Improvement Plan**

Presentation on the proposed FY27 Water and Wastewater Capital Improvement Plan -- David Herzog, Assistant CIP Manager (no action required)

Wesley Wright, Systems Engineering Director, presented the proposed FY 2027 Water and Wastewater Capital Improvement Plan.

Adjournment

Chair Garland adjourned the meeting at 3:30 p.m.

These minutes were approved at the meeting of _____

Chair

Attest

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Updates from Directors

SUGGESTED ACTION:

Any updates will be highlighted at the meeting. The CIP updates and the Director's Report are attached. -- Chelsea Solomon, PE, Water Utility Director

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

[May 2026 CIP Update - Water Wastewater_WB.pdf](#)

[05 Directors Report - GWUAB May 14 2026 - FINAL.pdf](#)

CIP UPDATE

Water & Wastewater

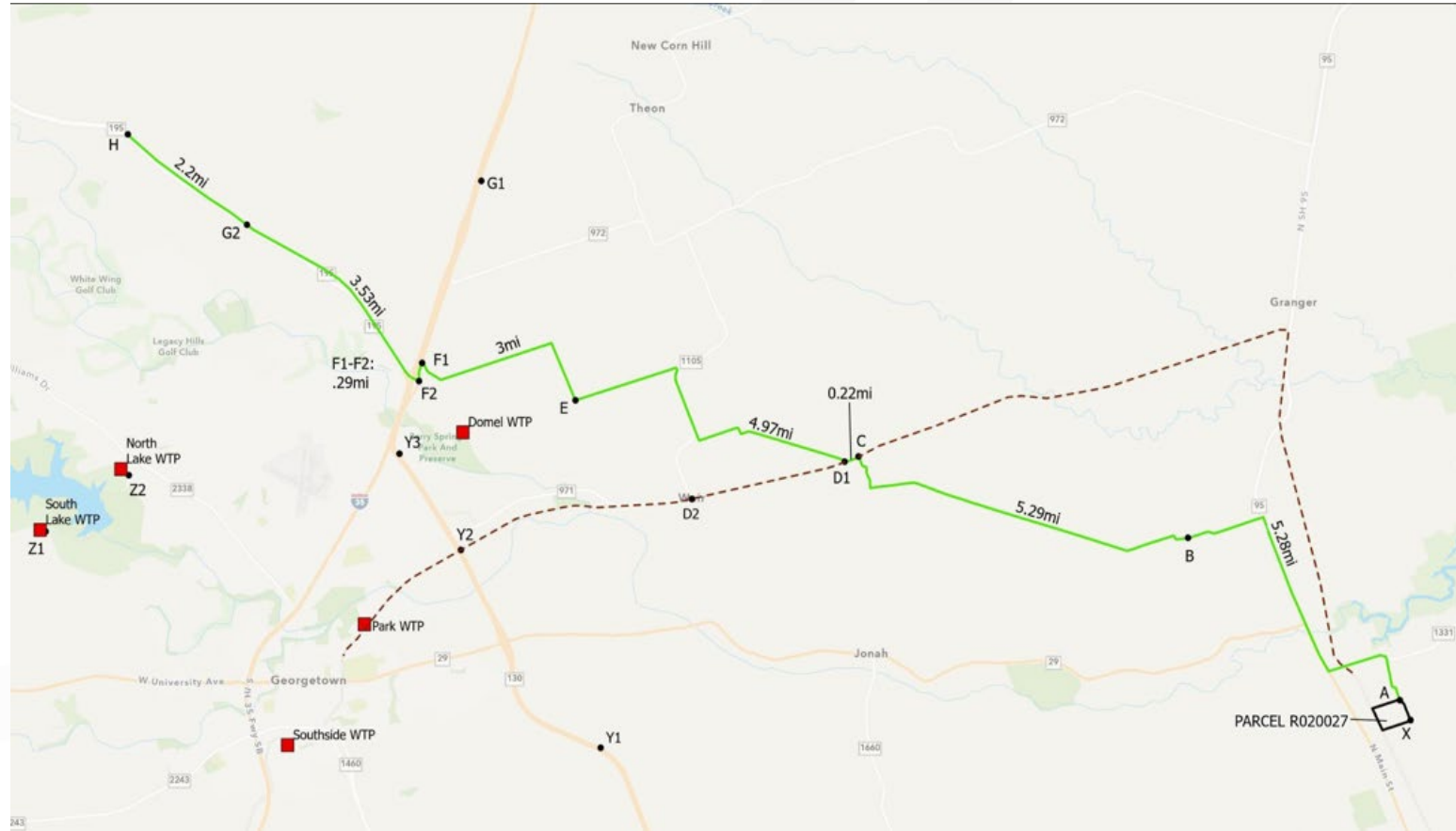
May 2026

In Design- Water

PRJ Budget	\$177,356,603
OPCC %	\$TBD
Construction EST	FY27

COG Regional Water Initiative

- East Site survey has been completed
- Initial site layout for East Plant has been reviewed
- Right of Entry (ROE) letters have started to be sent out to property owners along the proposed pipeline route
- Water Quality Blending samples have been completed, went over results with project team

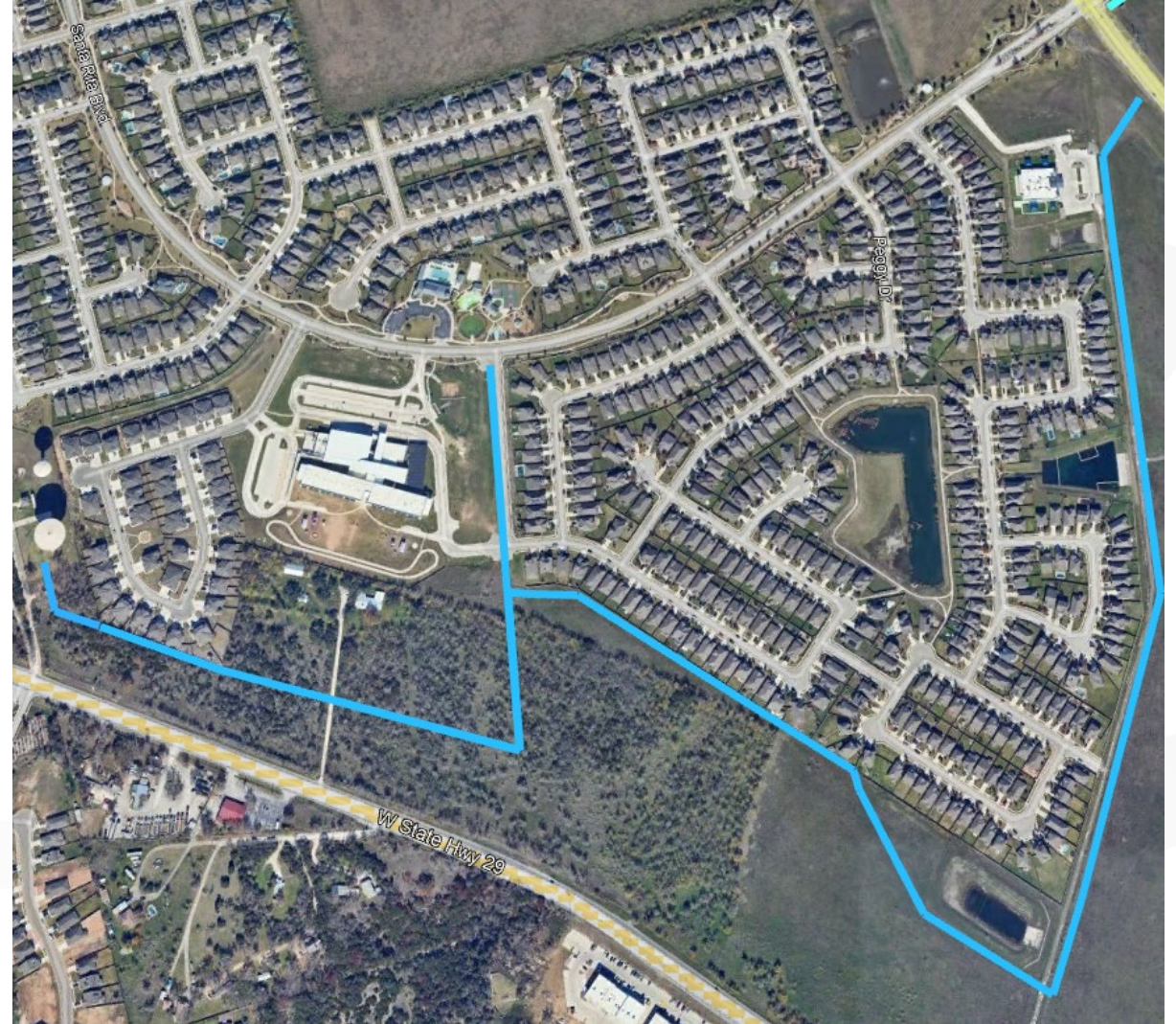


In Design- Water

Ronald Reagan to Braun Waterline

- Phase A plans are 100%
- Phase B plans are 100%
- Combining both phases to 1 set
- Phase A Metes and bounds have been received and shared with COG real estate, appraisals are being ordered
- Phase B Metes and bounds have been received and shared with COG real estate, appraisals are being ordered
- ACI is working on bird survey along route

PRJ Budget	\$8,803,636
OPCC 60%	\$6,500,000
Construction EST	2026



In Design- Water

PRJ Budget	\$2,000,000
OPCC 90%	1,390,370
Construction EST	Bid June 26

Carriage Oaks EST Rehab

- Kick off meeting with Engineer was held on 5/23
- 6/20 internal and external tank inspection was conducted
- Technical Memo has been reviewed and sent back to engineer
- 100% plans received
- Plan to bid in June, can't take tank offline until November

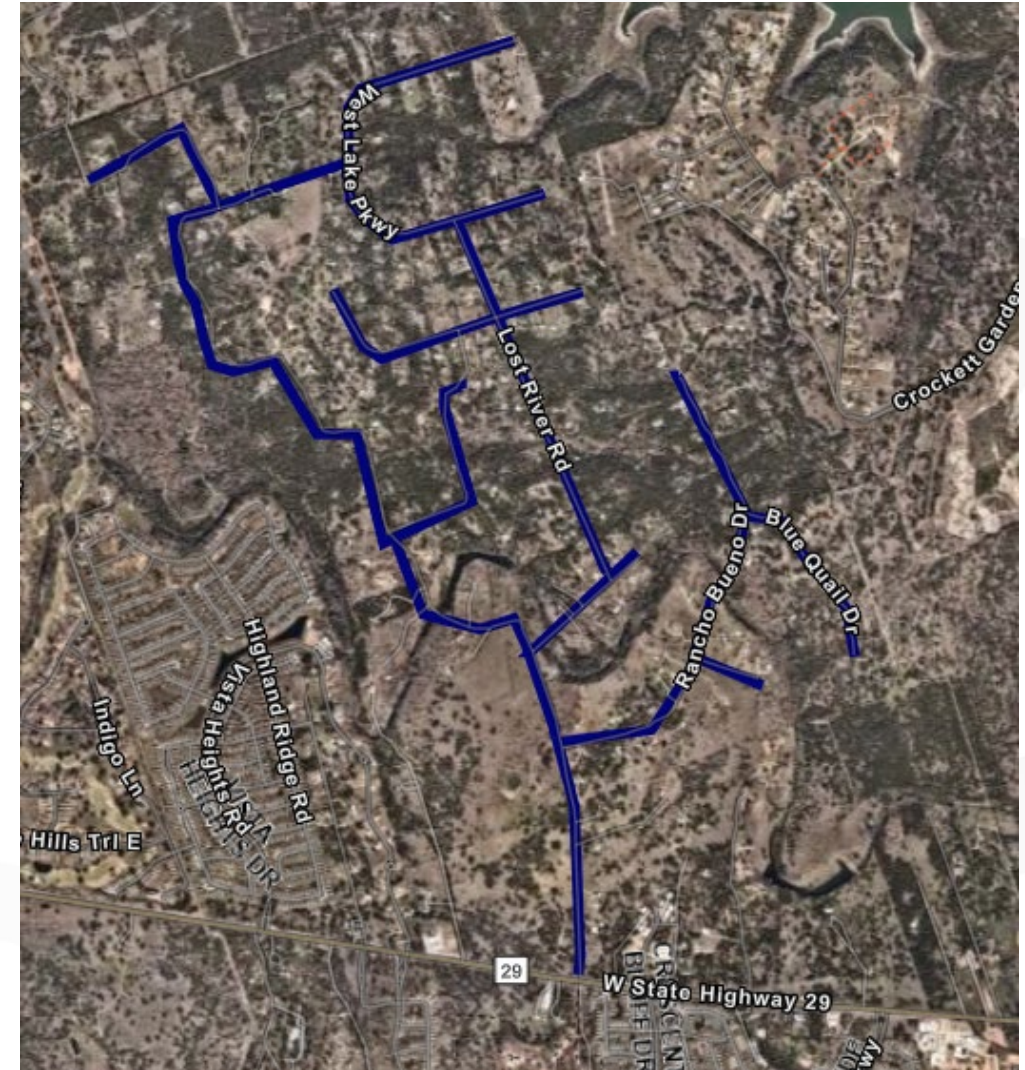


PRJ Budget	\$14,525,000
OPCC 60%	\$10,130,000
Construction EST	8/2/26 – 6/1/27

In Design- Water

Cedar Hollow WL Improvements

- Replacement of old, undersized lines that experience frequent breaks
- Drone and topographical survey has been completed
- 90% plans reviewed, comments sent back to engineer
- Engineer working towards 100% plans, expected end of May

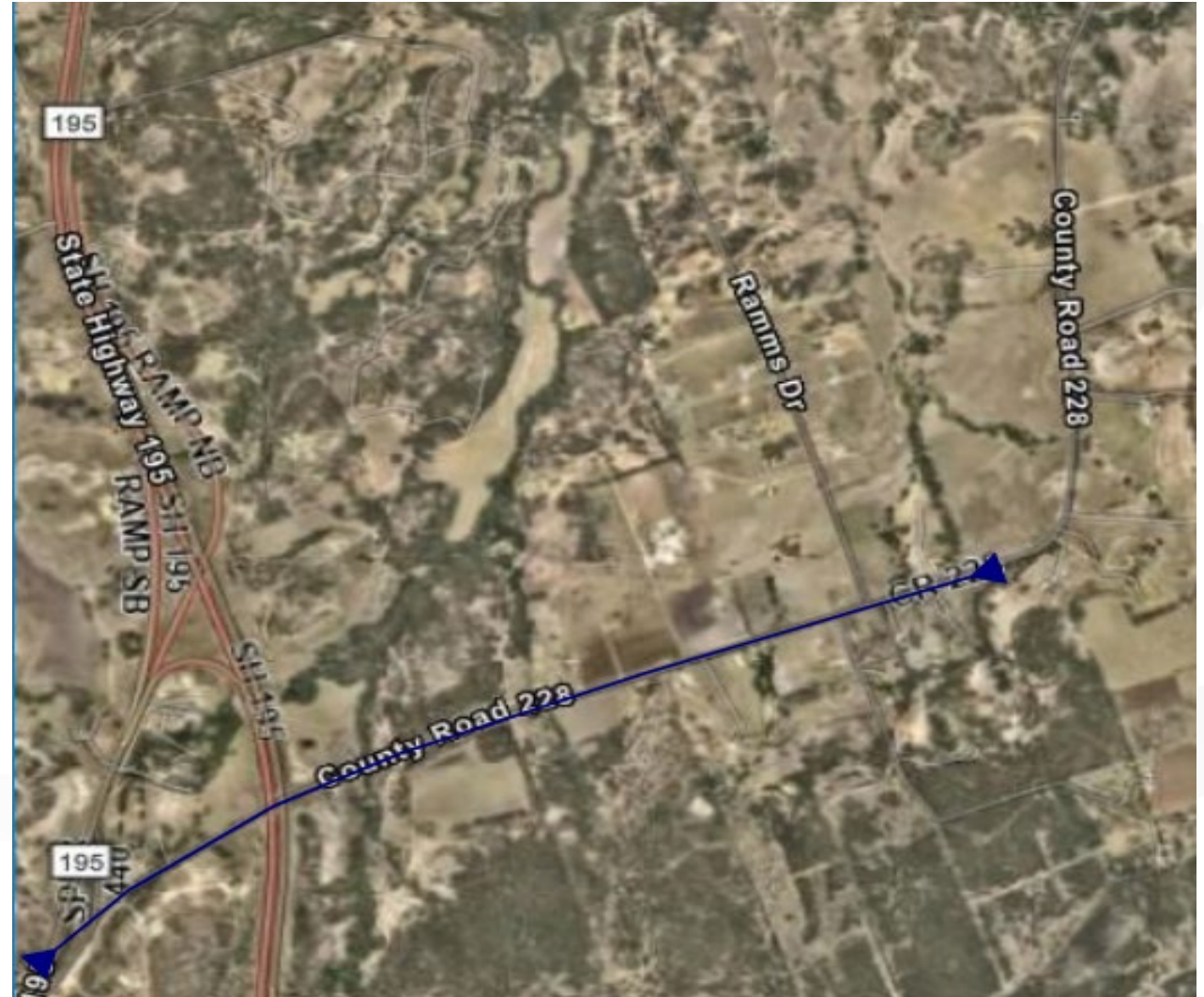


In Design- Water

PRJ Budget	\$1,253,200 + Cash Funding
OPCC 60%	\$4,410,000
Construction EST	FY27

CR 228 WL Improvements

- Replaces approximately 10,000 LF of existing undersized 6" waterline with a 12" waterline
- Engineer subcontractor is verifying existing waterline within the existing easement
- 100% Plans are scheduled to be ready in middle May



In Design - Water

Williamson County Regional Raw Waterline Phase III Pumps

- BRA driven project, cost participation only
- 60% notice to proceed issued for pump station and design of pipeline
- Notice to proceed issued for electrical procurement
- Working on ROE for pipeline
- Construction expected to begin June 2027 and be completed December 2029

In Design– Water Ops

Water Treatment Plants EOMIS/SOP

- Engineers field operational specialists have conducted several site visits to coordinate with operations staff
- Southside's OMIS and SOPs have been completed
- North Lake has been completed
- Domel is approximately 100% complete and Park Plant OMIS and SOP is 100% complete
- SOPs have been submitted to CDM Smith

In Bidding and Award

Lake Water Treatment Plant Zebra Mussel Mitigation

- Cooper Ion was the recommended choice by city treatment staff
- MacroTech(SLWTP) and ONG Cion are the manufactures used on price estimate
- 100% plans have been received and being reviewed
- Open bids 5/12

PRJ Budget \$2,609,514

OPCC 100% \$2,810,000

Construction EST 7/3/26 – 7/5/27



In Bidding and Award

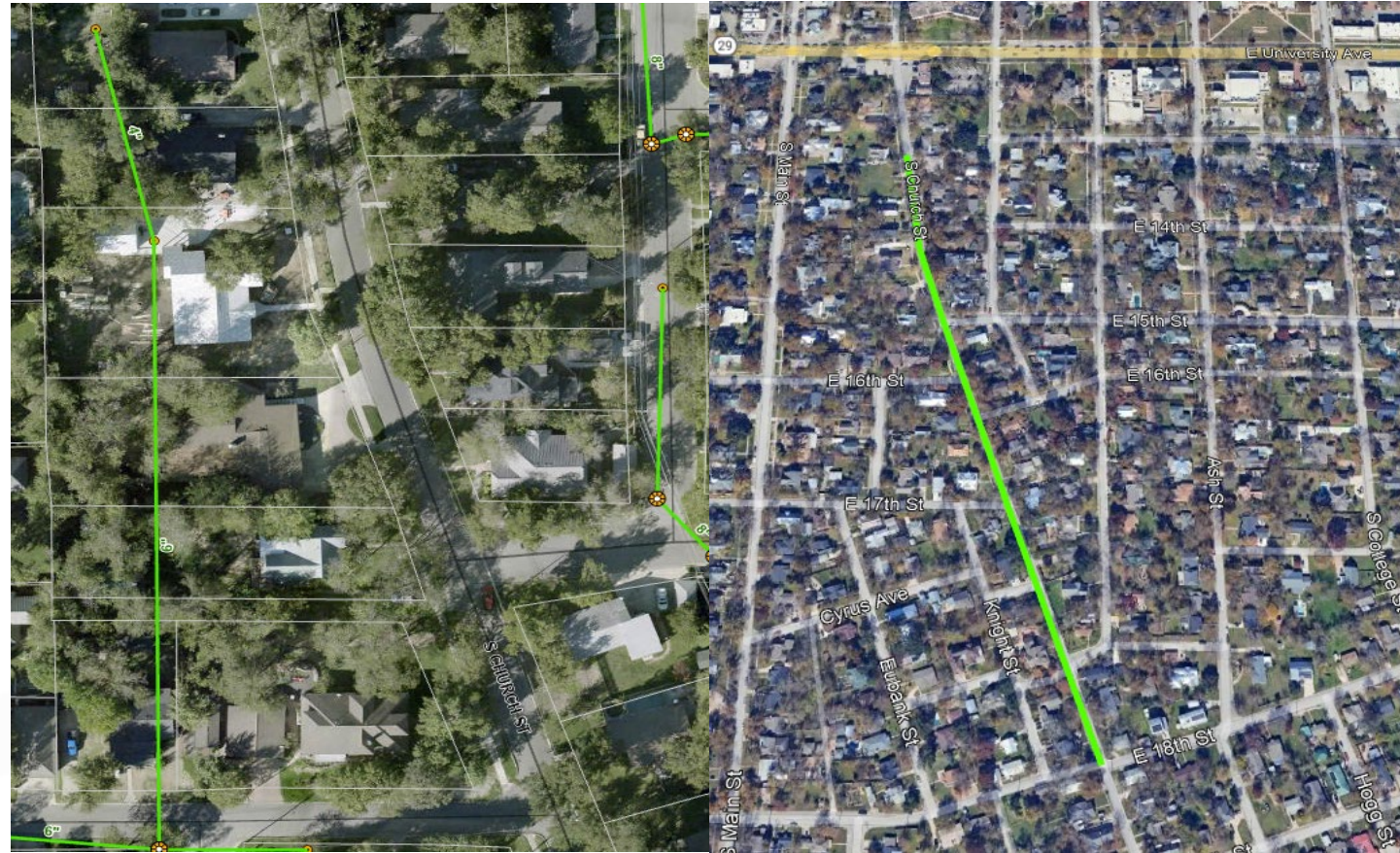
PRJ Budget	\$1,840,000
OPCC 100%	\$1,600,000
Construction EST	May 2026

Existing

Proposed

Church Street Wastewater Line Improvements

- Eliminates wastewater line running behind customers homes
- 100% plans have been received and reviewed
- Project Advertising begins on March 22nd
- Bids opened April 9th
- Going to May Water Board & Council

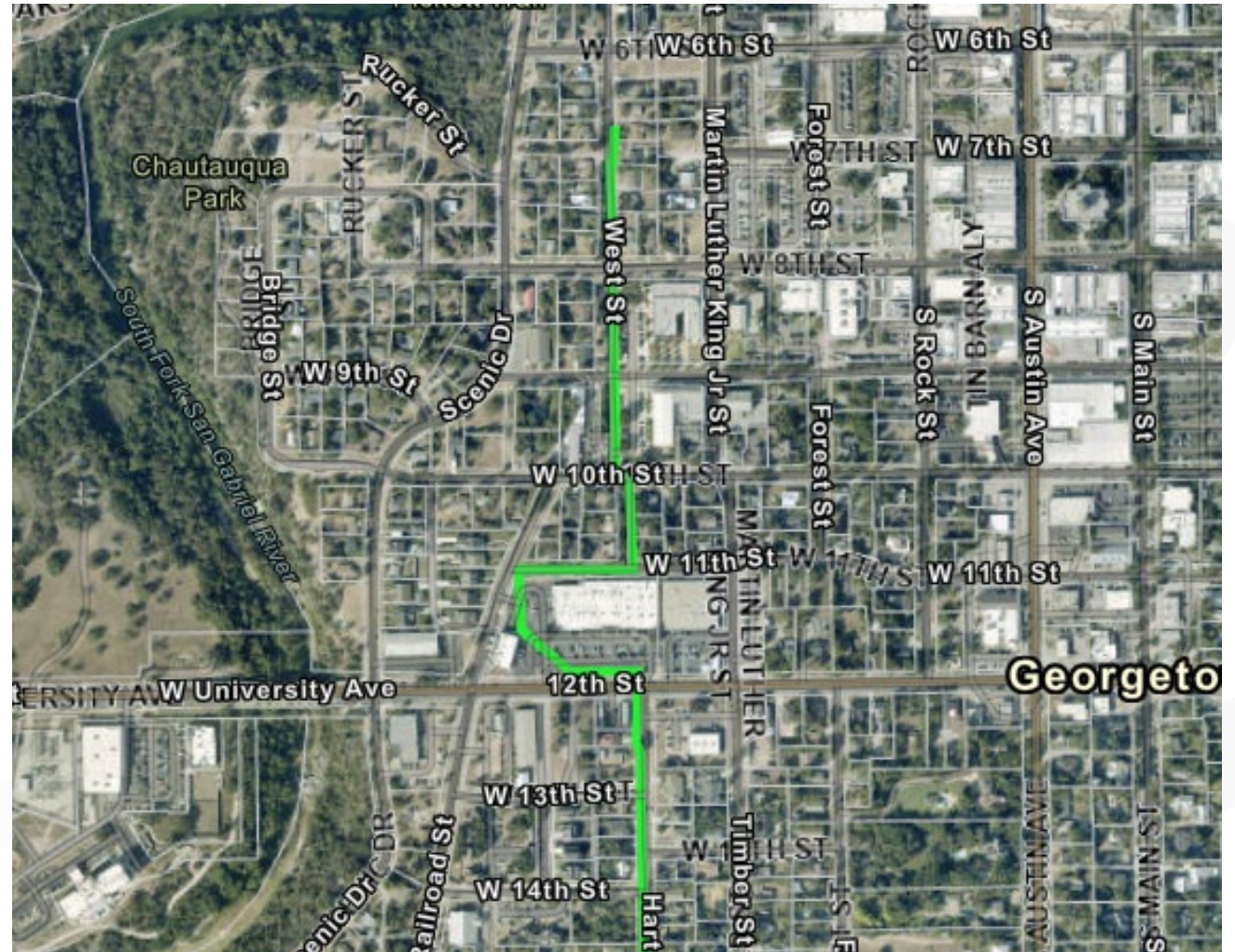


In Design- Wastewater

PRJ Budget	\$2.3M FY27
OPCC %	\$3,000,000
Construction EST	FY27

Hart and west Street Wastewater Line Improvements

- This project consist of upsizing the existing 10" WWL to a 15"
- Kickoff meeting was held in February
- Survey is being scheduled
- 30% plans were received on April 8th, plans are being reviewed



In Design- Wastewater

Dove Springs WWTP Rehab Phase 2

- The rehab project consist of improvements to the headworks facility, disinfection capabilities, and the overall site. All are needed to meet TCEQ Permit modifications from expanding the plant from 1MGD to 3.5MGD.
- Task order for design was approved at City Council on March 24th
- Kick Off meeting was held on April 8th
- Engineer working towards 30% plans

PRJ Budget	\$9,000,000
OPCC %	\$TBD
Construction EST	FY28



In Design- Wastewater

Wolf Ranch Lift Station Rehab and LS Assessment

- Received assessments for:
 - River Road LS's 1&2
 - Katy LS
 - Country Club LS
 - Lakeside LS
- Meeting was held with engineer and COG staff to discuss the results of the assessments
- 60% plan review meeting was held on 3/19
- Engineer working towards 90% plans, expected middle of May

PRJ Budget	\$
OPCC 60%	\$2,400,000
Construction EST	FY27

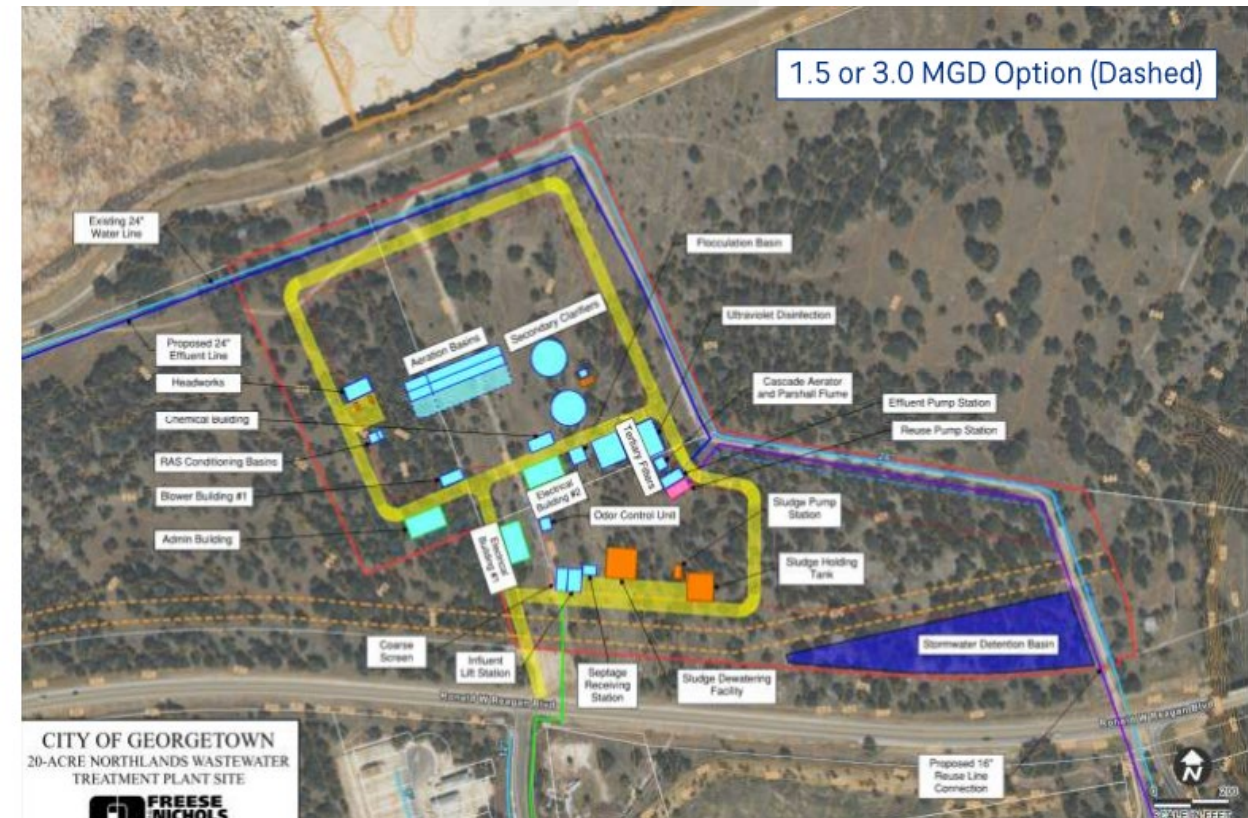


In Design - Wastewater

Northlands Wastewater Treatment Plant – 3MGD

- All ROE have been acquired for survey and environmental
- Environmental survey has been completed
- Design is underway
- Odor logger was installed at Sun City LS, to help on mitigation for the new Cowan Creek LS
- Working with facilities and city staff on administration building layout
- Full design kick off is scheduled for 2/6
- CMAR RFP interviews were held on 4/23
- RFP for equipment preselection was opened on 4/9

PRJ Budget	\$99,403,700
OPCC %	\$110,000,000
Construction EST	2027

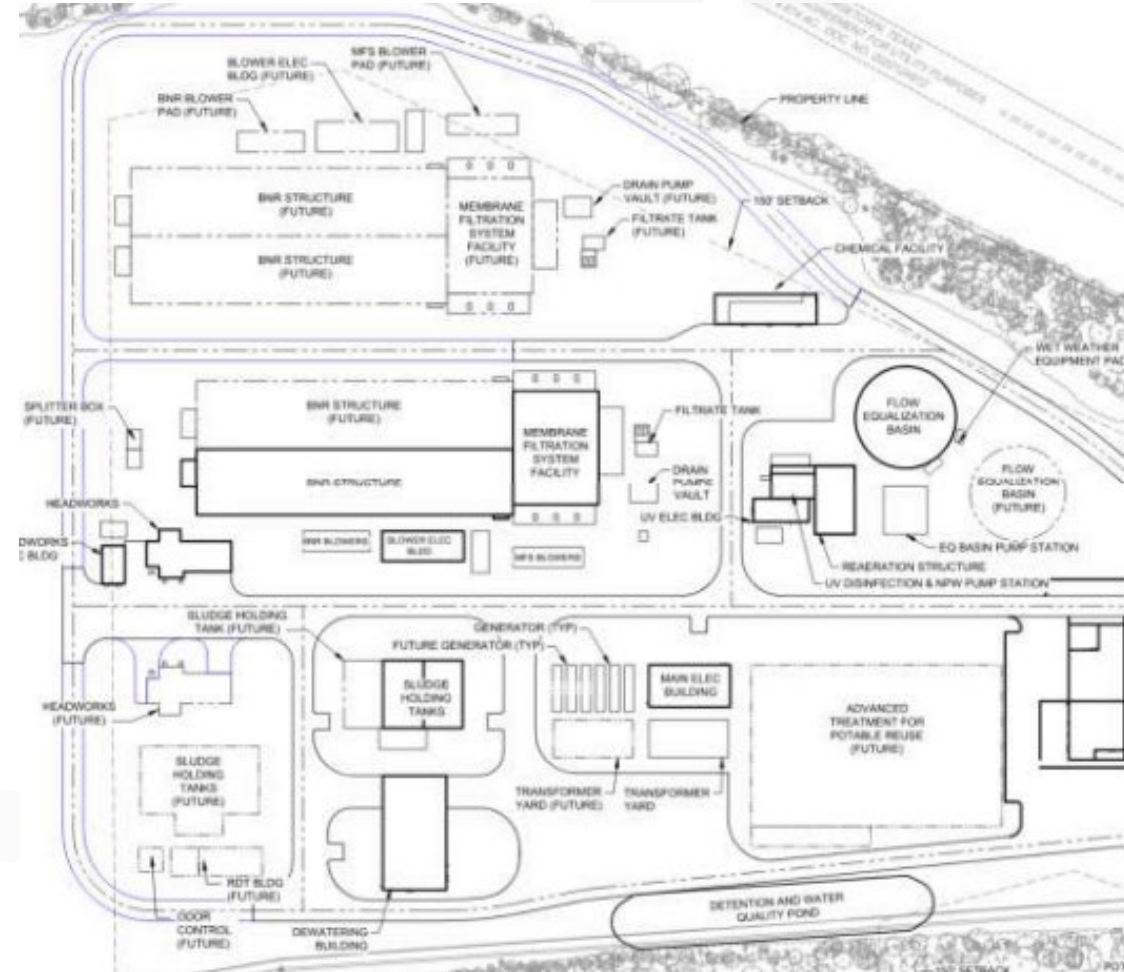


In Design- Wastewater

PRJ Budget	\$516,800,000
OPCC %	\$400,000,000
Construction EST	2027

Three Forks Wastewater Treatment Plant

- TCEQ Draft Permit has been received
- Geotech bores for the outfall and plant site have been completed
- Working on ROE and easements for the plant and effluent pipeline
- Working with facilities and city staff on administration building layout
- CMAR RFP interviews were held on 4/24
- RFP for equipment preselection closed on 4/9
- THC application was submitted for the plant site week of 4/6

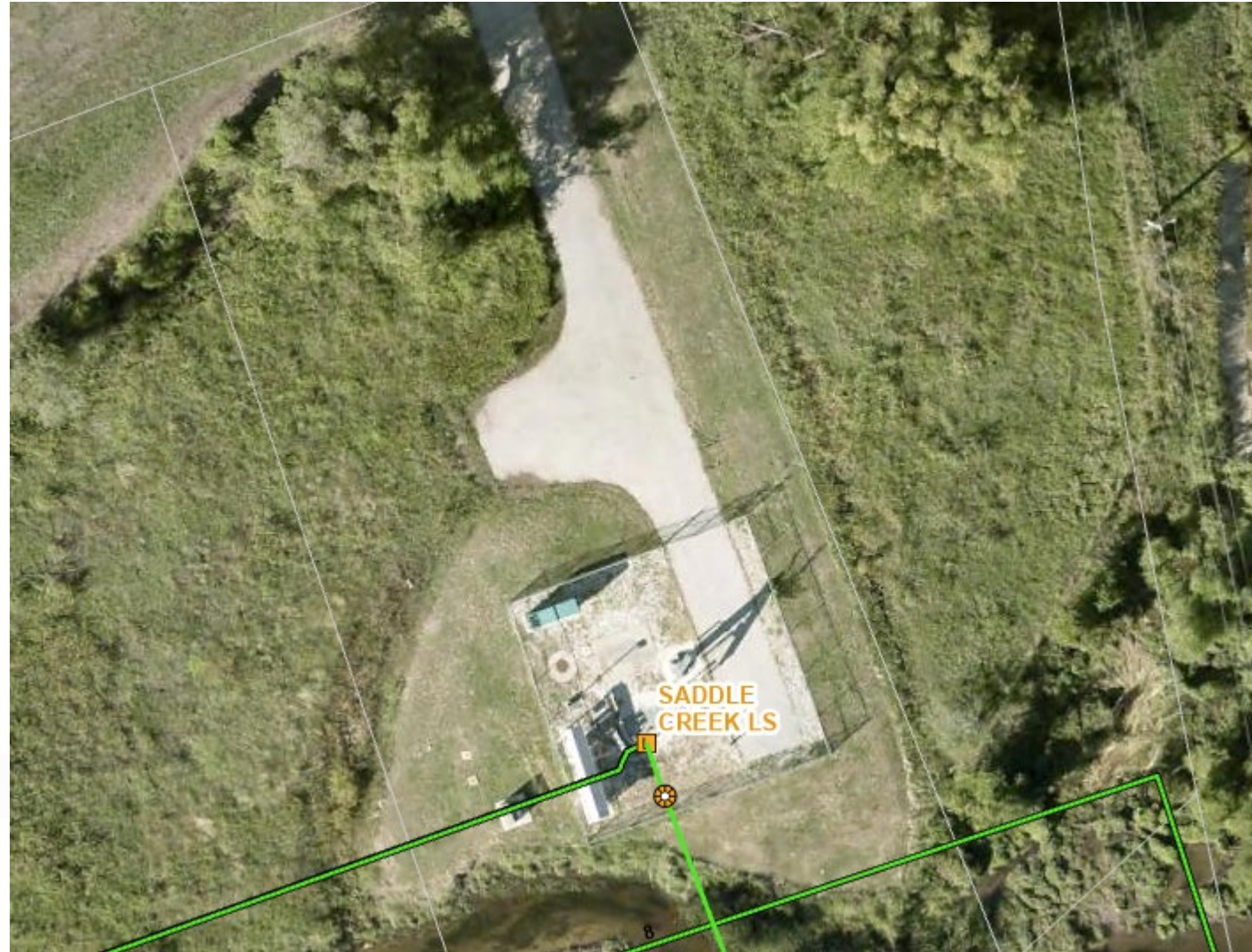


In Design- Wastewater

Saddle Creek Lift Station Expansion

- Adds third pump and associated electrical
- Increases firm pumping capacity
- Engineer completed pump design capacity
- Engineer has submitted the technical memo
- 100% plans have been received and comments sent back to engineer

PRJ Budget	\$1,635,000
OPCC 90%	\$394,500
Construction EST	FY26

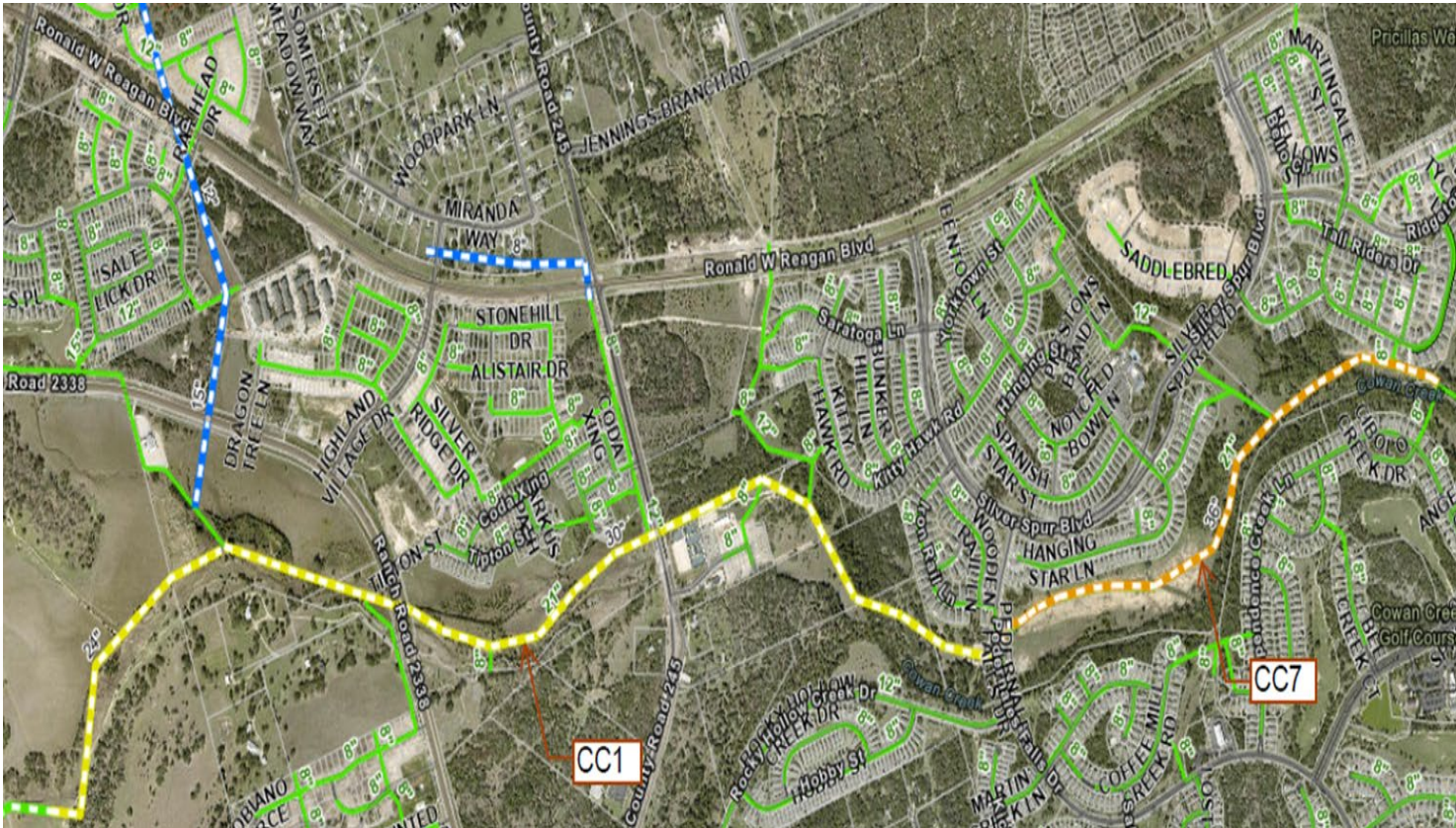


In Design- Wastewater

PRJ Budget	\$28,500,000
OPCC 100%	\$8,415,000
Construction EST	Late FY26

Cowan Creek Interceptors

- WW Interceptors (CC1 and CC7)
- North Lake, Williams/Reagan Area (parallel 21")
- Parallel line to be installed, design is underway
- Engineer is working on 100% plans for CC7
- 100% plans for CC1 received and are under review
- Metes & Bounds , Title Commitments are finalized sent over to Real Estate
- Chapter 26 process has begun
- Meeting with CDM & Steger held 5/1 to discuss master plan needs
- Need to discuss communication plan with Sun City before Bidding



In Design - Wastewater

PRJ Budget	\$52,751,055
OPCC %	\$54,600,000
Construction EST	FY27

San Gabriel Interceptor II

- Topographic and tree survey has been completed across the Southwestern property
- THC Permit has been approved
- Geotechnical work has been completed on all sites
- It has been identified that we will need permanent easements from 2 landowners
- Lift station appraisals are being ordered
- Pipeline route has been selected
- Southwestern Right-of-Entry has been received, and surveyor is working on getting the route surveyed for Metes and Bounds
- 60% plans for Lift Station received and in review



In Design - Wastewater

PRJ Budget	\$23,092,361
OPCC 90&90%	\$10,600,000
Construction EST	Late FY 26

Cimarron Hills WWTP / Lift Station

- Plant Rehab, new lift station, force and gravity main
- All ROE have been obtained
- Offers for easements are pending
- Utility Crossing Permit was submitted on 12/23/25
- TCEQ Permit will be submitted once all easements or Possession and Use Agreements(PUA) are obtained
- Potholing for Enterprise gas line has been completed
- Plans for the line work and lift station are at 100%
- Will begin advertising once all easements or PUAs are obtained



In Construction- Wastewater

Contract Amount	\$14,303,700
NTP	8/2025
Substantial Completion	12/12/26

Three Forks Package Plant (Pecan Branch)

- 2MGD package plant
- Erosion control is up and being maintained
- TMorales is onsite working on electrical duct banks
- Matous poured the concrete foundation for blowers and e-house and currently working on filter pads
- Influent piping is being installed
- AUC continuing to assemble the package plant



In Construction -Wastewater

Contract Amount	\$14,673,000.00
NTP	3/1/24
Final Completion	3/30/26

Dove Spring WWTP Rehab

- Package Plant is in operation
- Blower pads have been completed for treatment train #1 and #2
- Blowers have been placed
- Canopy installation has been completed
- Generator and E-house have been placed in operation
- Train 1 has been drained to fix diffuser grid
 - An unforeseen issue has occurred with the diffuser grid, once train 2 is back into operation, train 1 will be drained and repaired
- Train 2 is in service
- Substantial walk thru was held on 4/7
- Working on punchlist items



In Construction- Wastewater

Contract Amount	\$2,712,290.00
NTP	1/3/24
Final Completion	8/26/25

Smith Branch Lift Station

- Coated and new rails installed
- Lift station is off bypass and running off submersible pumps
- City staff removed wanted items from old electrical building
- Old electrical building has been demoed
- Contractor has removed the weir wall
- New entry gate has been installed
- Operational functions have been adjusted
- Gate stem and brackets have been ordered and are being manufactured



In Construction- Water

Daniels Mountain to Hoover WL

- Easement acquisition is on-going
- Erosion control has been installed and is being maintained
- Contractor continues to clear the pipeline route in preparation of trenching
- Approximately 13,500LF of 37,000LF of waterline has been installed

Contract Amount	\$16,891,148.50
NTP	12/10/25
Final Completion	11/2/2026



In Construction– Water

Contract Amount	\$12,840,889.37
NTP	11-10-25
Final Completion	11/2/26

SH138 Waterline

- Contractor continues to pothole the existing utilities
- Silt fence has been installed throughout and being maintained
- Contractor continues to clear the pipeline route in preparation of trenching
- Approximately 17,300 of 28,000LF of waterline has been installed



In Construction- Water

Contract Amount	\$8,740,000
NTP	12-8-25
Final Completion	3-31-27

West 1240 Elevated Storage Tank

- Erosion control has been placed
- Concrete for the pedestal foundation has been placed
- Contractor backfilled the foundation
- Continuing column pours, 13 out of 32 complete



In Construction- Water

Contract Amount	\$9,955,000.00
NTP	2/10/25
Final Completion	7/13/27



System Resiliency Ph II

- Erosion control has been installed and being maintained
- Contractor has duct banks and electrical manholes installed at Pastor PS, Domel GST, and Rabbit Hill GST
- Contractor has completed the generator pad at both Domel and Pastor
- All mobile generators have been delivered
- Contractor is currently working at Southside PS
- Domel generator delivered and set

In Construction - Water

Contract Amount	\$2,503,400.00
NTP	12/2/24
Final Completion	5/30/26

Rabbit Hill GST Rehabilitation

- Contractor has removed the existing roof
- Manways has been installed
- Contractor has completed the remove and replace the upper 4' of the tank shell
- Roof has been built and raised
- Water tightness test passed 5/4
- Painting crew expected to mobilize week of 5/11



In Construction -Water

Contract Amount	\$11,583,000.00
NTP	9/30/24
Final Completion	1/5/28

Daniels Mountain PS

- Contractor is maintaining erosion control
- Electrical and Chemical building structures have been completed
- Contractor has completed the pump pads and installed the pumps
- Contractor completed the chemical containment coating
- Generator has been placed
- Electrical duct banks have been completed
- Water shutdown complete, 24" valves installed



In Construction - Water

Contract Amount	\$175,284,946.00
NTP	3/24/22
Final Completion	9/10/26

Southlake WTP – 44MGD Plant

- Phase 1 went into operation on June 2nd
- Phase 1 substantial walk through was completed on July 22nd and engineer is sending in the punch list
- Phase 1 of the plant is running Auto
- Belt Filter Press startup has been completed and currently in operation
- Phase 2 filters are available have been tested and ready for use
- Topsoil and hydromulch is being applied throughout the site
- Phase 2 substantial walk through was held on 2/4 and the engineer is compiling the punchlist
- RAS inspection was completed on the Administration building, and contractor is working on addressing those punchlist items
- High Service Pump test at 100% has been completed



In Construction - Water

Contract Amount	\$16,184,876.00
NTP	7/11/23
Final Completion	1/17/26

System Resiliency - Lake WTP EPSS

- Electrical manholes have been installed
- VFDs are scheduled to arrive late-May 2026
- Fencing has been installed around the transformers at the raw water Electrical building
- All generators and enclosers have been placed
- E-House and gear has been delivered and placed
- All wire is pulled
- TMorales is working on medium voltage terminations
- Cummins will be onsite week of 5-4 to do control terminations in E-house



Substantially Complete -Water

Domel GST Rehabilitation

- Tank has been put back into service, and will be used if operations needs it

Contract Amount	\$2,503,400.00
NTP	12/2/24
Final Completion	5/30/26



Substantially Complete -Water

Contract Amount	\$4,509,116
NTP	5/13/25
Final Completion	3/10/26

Package 5 South Lake Finished Waterline

- All waterline has been installed, tested, and passed
- Waterline is in service
- Contractor is working on clean up and revegetation



Director's Report

May 14, 2026

Customer Service and Billing – Water Services 5/14/2026

Customer Statistics - Water

Average Water Bill	Feb-2025	Feb-2026
Residential	\$70.97	\$79.38
All Customers	\$91.38	\$104.81

- **Water Service Customer Account Breakdown:**

Water Customers	Jan-2026	Feb-2026
Residential	62,275	62,535
Non-Residential	2,341	2,366
Total Customers	64,616	64,901

- **Water Billing Collection:**

- Advanced Metering Infrastructure (AMI): 94% Usage transmitted automatically
- Automated Meter Reading (AMR): 6% Usage collected via “drive by” system

Customer Statistics - Sewer

Average Sewer Bill	Mar-2025	Mar-2026
Residential	\$56.00	\$62.12
All Customers	\$73.33	\$84.45

- Sewer Service Customer Account Breakdown:**

Sewer Customers	Feb-2026	Mar-2026
Residential	38,320	38,466
Residential Jonah SUD Billing	2,384	2,394
Non-Residential	1,344	1,351
Non-Residential Jonah SUD Billing	10	10
Total Customers	42,058	42,221

Customer Statistics - Sewer

Average Sewer Bill

	Apr-2025	Apr-2026
Residential	\$53.05	\$62.18
All Customers	\$70.21	\$82.25

- **Sewer Service Customer Account Breakdown:**

Sewer Customers	Mar-2026	Apr-2026
Residential	38,466	38,599
Residential Jonah SUD Billing	2,394	2,393
Non-Residential	1,351	1,353
Non-Residential Jonah SUD Billing	10	10
Total Customers	42,221	42,355

Aged Receivables Report - Sewer Compared to Previous Month

Sewer	Jan-26	Feb-26	Variance
31 – 60 Days	\$27,235.19	\$34,970.22	\$7,735.03
61 – 90 Days	\$21,792.70	\$8,396.96	(\$13,395.74)
91 – 120 Days	\$10,743.72	\$20,263.53	\$9,519.81
120 – 365 Days	\$26,079.65	\$28,745.51	\$2,665.86
> 365 Days	\$472.91	\$457.70	(\$15.21)
Total	\$86,324.17	\$92,833.92	\$6,509.75
<i>Customer Counts</i>	806	758	-48

Aged Receivables Report - Water Compared to Previous Month

Water	Feb-26	Mar-26	Variance
31 – 60 Days	\$77,687.99	\$75,825.22	(\$1,862.77)
61 – 90 Days	\$22,014.86	\$24,981.87	\$2,967.01
91 – 120 Days	\$41,177.73	\$18,125.63	(\$23,052.10)
120 – 365 Days	\$100,655.52	\$117,717.54	\$17,062.02
> 365 Days	\$6,052.71	\$4,961.35	(\$1,091.36)
Total	\$247,588.81	\$241,611.61	(\$5,977.20)
<i>Customer Counts</i>	1317	1165	-152

Aged Receivables Report - Sewer Compared to Previous Month

Sewer	Mar-26	Apr-26	Variance
31 – 60 Days	\$38,494.29	\$35,750.94	(\$2,743.35)
61 – 90 Days	\$14,641.54	\$20,307.91	\$5,666.37
91 – 120 Days	\$7,782.71	\$7,494.96	(\$287.75)
120 – 365 Days	\$41,372.45	\$36,767.47	(\$4,604.98)
> 365 Days	\$457.70	\$589.30	\$131.60
Total	\$102,748.69	\$100,910.58	(\$1,838.11)
<i>Customer Counts</i>	707	690	-17

Collection Agency Monthly Review

By Month	Dec 2025	Jan 2026
Number of Accounts sent to CSII	312	272
Balance of Accounts sent to CSII	\$152,322.86	\$147,038.48
Total Collected	\$6,317.76	\$9,369.47
5/1/2023 To Date	Dec 2025	Jan 2026
Number of Accounts sent to CSII	13,282	13,554
Balance of Accounts sent to CSII	\$6,743,192.95	\$6,890,231.43
Total Collected	\$1,952,350.75	\$1,961,720.22
Total Fee	\$368,616.21	\$370,370.63
Net Collected	\$1,583,734.54	\$1,591,349.59

Collection Agency Monthly Review

By Month	Jan 2026	Feb 2026
Number of Accounts sent to CSII	272	160
Balance of Accounts sent to CSII	\$147,038.48	\$71,515.53
Total Collected	\$9,369.47	\$12,489.47
5/1/2023 To Date	Jan 2026	Feb 2026
Number of Accounts sent to CSII	13,554	13,714
Balance of Accounts sent to CSII	\$6,890,231.43	\$6,961,746.96
Total Collected	\$1,961,720.22	\$1,974,209.69
Total Fee	\$370,370.63	\$372,653.44
Net Collected	\$1,591,349.59	\$1,601,556.25

Collection Agency Monthly Review

By Month	Feb 2026	Mar 2026
Number of Accounts sent to CSII	160	163
Balance of Accounts sent to CSII	\$71,515.53	\$85,673.89
Total Collected	\$12,489.47	\$12,759.78
5/1/2023 To Date	Feb 2026	Mar 2026
Number of Accounts sent to CSII	13,714	13,877
Balance of Accounts sent to CSII	\$6,961,746.96	\$7,047,420.85
Total Collected	\$1,974,209.69	\$1,986,969.47
Total Fee	\$372,653.44	\$374,966.20
Net Collected	\$1,601,556.25	\$1,612,003.27

Customer Rates

- Residential – Water

Rates – Effective 10-1-2025	
Base Charge (3/4” meter)	\$49.85 / \$60.00
Volumetric Charges:	
0 – 7 kgal	\$2.80
7,001 - 15 kgal	\$4.20
15,001 – 25 kgal	\$7.35
25,001 – 50 kgal	\$14.70
50,001+ kgal	\$18.40

- Residential – Sewer

Rates – Effective 10-1-2025	
Fixed Charge	\$60.85 / \$70.00

Financial

FY 2025 Year End Financial Report

Statement of Net Position

As of September 30, 2025

Water Fund As of Sept 30, 2025

Assets	2025
Current and other assets	\$522,190,215
Capital assets	1,023,282,315
Total assets	\$1,545,472,530
Deferred outflows	2,288,756
Total Assets and Deferred Outflows	\$1,547,761,286
Liabilities	
Current and other liabilities	\$58,644,501
Long-term liabilities	546,313,002
Total liabilities	\$604,957,503
Deferred inflows	350,208
Net Position	
Net investment in capital assets	\$715,721,964
Restricted	103,464,695
Unrestricted	123,266,916
Total net position	\$942,453,575
Total Liabilities, Net Position, and Deferred Inflows	\$1,547,761,286

Statement of Activities

As of September 30, 2025

Water Fund As of Sept 30, 2025

Operating Revenues	2025
Charges for services	\$123,780,168
Other Operating Revenues	9,381,957
Total Operating Revenues	\$133,162,125
Operating Expenses	
Water Operations	\$39,946,273
Wastewater Operations	\$2,935,790
Utility Contracts	17,567,418
Plant Management	11,410,519
Depreciation	17,744,833
Total Operating Expenses	\$89,604,833
Net Operating Income (Loss)	\$43,557,292
Non-Operating Revenues (Expenses)	
Investment Income	\$22,603,739
Donations and grants	-
Interest and fiscal charges	(24,270,329)
Gain/(Loss) on disposed assets	10,936
Other	48,426,560
Total Non-Operating Revenues (Expenses)	\$46,770,906
Income Before Contributions & Transfers	\$90,328,198
Contributions and Transfers	
Capital Contributions	\$56,557,158
Transfers In	9,703,753
Transfers Out	(11,207,137)
Total Contributions and Transfers	55,053,774
Change in net position	145,381,972
Net position - beginning of period	797,071,603
Net position - end of period	\$942,453,575

FY2025 Water Fund Highlights

As of September 30, 2025

- Utility Fleet assets transferred to utility funds' balance sheets
 - Resulting in an increase in assets of \$9 mill
- Increased Charges for Services of 8%
- Operating Gain of \$43.5 million
- Capital Contributions increase of \$9.9 million to \$26 million
- Increase in Net Position of \$145,381,972
- Ending Net Position \$942,453,575
- Increased Restricted Net Position \$103,464,695 for Impact Fees to be used on future capital projects

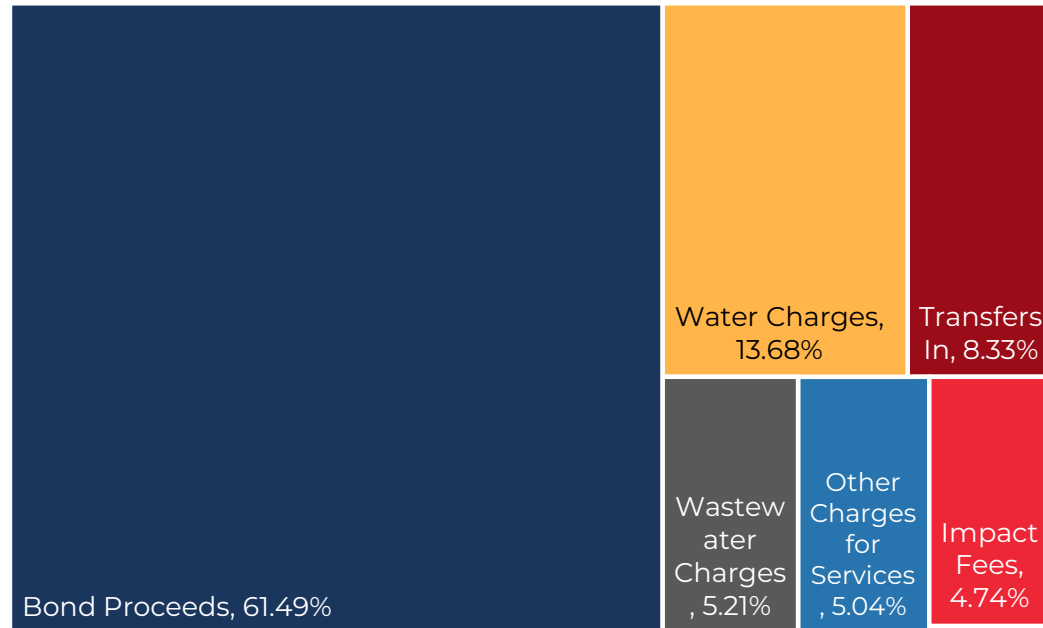
WATER FUND

QUARTERLY FINANCIAL REPORT

QUARTERLY FINANCIAL REPORT

WATER FUND

FY2026 Budget - Revenue



- Revenue Budget Sources
 - The FY2026 revenue budget for the Water Fund is \$732.7 million
 - 61.5% of budgeted revenues is from bond proceeds
 - Capital infrastructure for treatment and distribution
 - Water Charges
 - Water 13.7%
 - Wastewater 5.2%
 - Irrigation \$1.1 million
 - Impact fees total 4.7% of budgeted revenues

QUARTERLY FINANCIAL REPORT

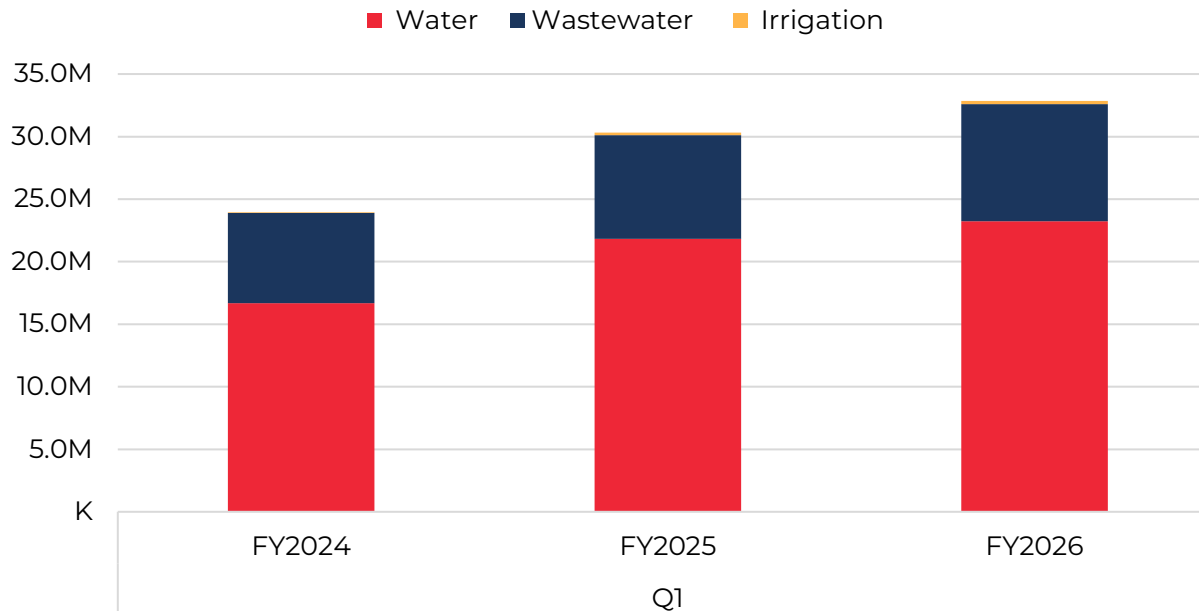
WATER FUND

Water							
Quarterly Comparison: Q1 FY26	Budget	FY2025	FY2026	FY2026 Year-to-date: Budget Vs. Actuals		Quarterly Comparison	
	FY2026	YTD Actuals: Q1 FY25	YTD Actuals: Q1 FY26	Variance	% of Budget	Variance	% Variance
Operating Revenue							
41002:Penalties	850,000	320,380	710,682	(139,318) ●	83.61%	390,302	121.82%
42001:Interest Income	26,581,883	6,017,149	5,096,127	(21,485,756) ●	19.17%	(921,021)	-15.31%
43001:Fees	6,502,911	1,537,989	1,507,645	(4,995,266) ●	23.18%	(30,344)	-1.97%
43005:Rental Revenue	25,000	6,296	8,395	(16,605) ●	33.58%	2,099	33.33%
43602:Water Charges	100,231,801	21,835,205	23,223,107	(77,008,694) ●	23.17%	1,387,902	6.36%
43603:Wastewater Charges	38,172,490	8,274,411	9,385,234	(28,787,256) ●	24.59%	1,110,823	13.42%
43604:Irrigation Charges	1,121,315	199,489	254,147	(867,168) ●	22.67%	54,659	27.40%
41602:Impact Fees	34,730,106	5,324,694	7,905,450	(26,824,656) ●	22.76%	2,580,756	48.47%
44502:Developer Contributions	535,000	45,509	66,925	(468,075) ●	12.51%	21,416	47.06%
Operating Revenue Total	208,750,506	43,561,122	48,157,713	(160,592,793) ●	23.07%	4,596,591	10.55%
Non-Operating Revenue							
45001:Misc Revenue	2,396,488	166,936	90,892	(2,305,596) ●	3.79%	(76,044)	-45.55%
45002:Insurance Proceeds	-	60,711	-	- ●	0.00%	(60,711)	-100.00%
45003:Misc Reimbursements	-	-	618,980	618,980 ●	0.00%	618,980	0.00%
44001:Grant Revenue	10,000,000	-	-	(10,000,000) ●	0.00%	-	0.00%
70001:Transfers In	61,000,000	775,000	61,000,000	- ●	100.00%	60,225,000	7770.97%
46001:Bond Proceeds	450,544,407	-	-	(450,544,407) ●	0.00%	-	0.00%
Non-Operating Revenue Total	523,940,895	1,002,647	61,709,872	(462,231,023) ●	11.78%	60,707,225	6054.70%
Revenue Total	732,691,401	44,563,768	109,867,584	(622,823,817) ●	15.00%	65,303,816	146.54%

QUARTERLY FINANCIAL REPORT

WATER FUND

Water Charges



- Water Charges
 - Water charges through the quarter total 23.2 million
 - Up 6.3% compared to Q1 of FY2025
- Wastewater Charges
 - Wastewater charges through the quarter total \$9.4 million
 - Up 13.4% compared to Q1 of FY2025
- Irrigation Charges
 - Irrigation charges through the quarter total \$254 thousand
 - An increase of 27.4% compared to Q1 of FY2025

QUARTERLY FINANCIAL REPORT

WATER FUND

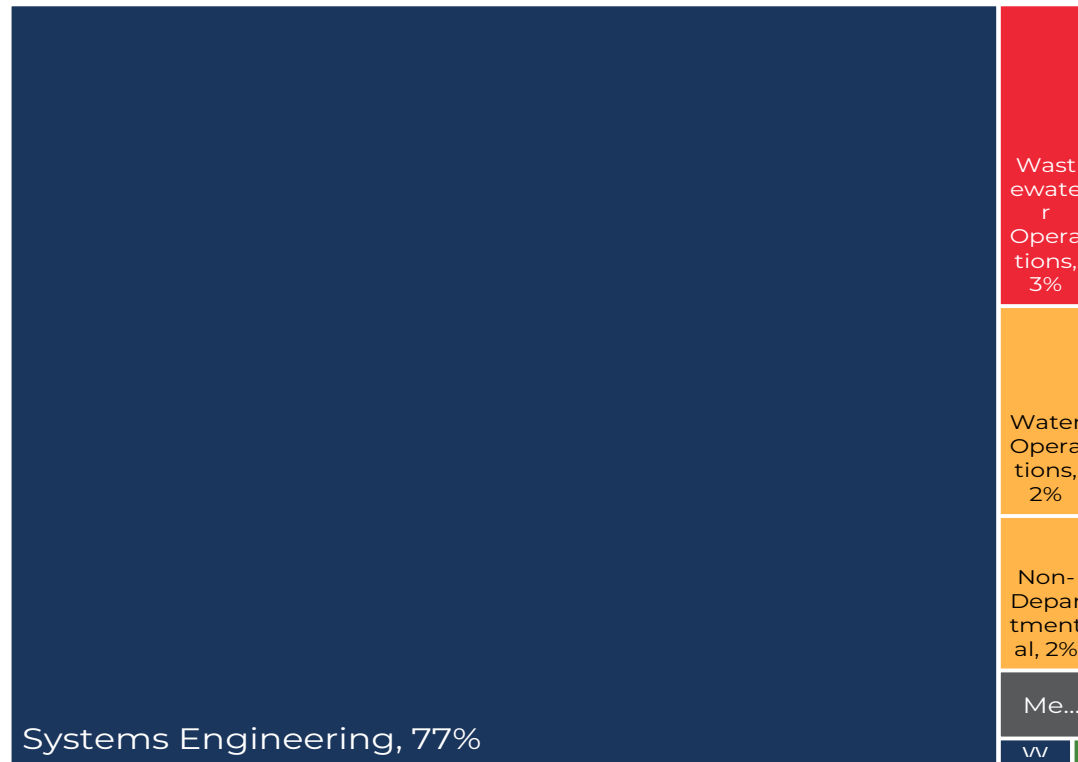
Impact Fee Revenues

- Water and wastewater impact fees are payments from developers to contribute towards capital infrastructure costs
- The fee revenue is used for both cash and debt service payments on eligible capital projects
- Water and wastewater impact fee revenue collection is higher in FY2026 compared to FY2025 largely due to timing of projects; and are conservatively modeled in cost of service and the 5-year forecast
- Staff keep the impact fees separate until they are reconciled at year-end and are ready to be used on active capital projects the following year
 - The fees are then transferred within the water fund mid-year
 - These are shown in the Transfers In revenue
 - There is a corresponding Transfers Out expense in the Water Distribution and Wastewater Operations cost centers

QUARTERLY FINANCIAL REPORT

WATER FUND

FY2026 Budget - Expense



- Expense Budget
 - The FY2025 expense budget for the Water Fund is \$1.01 billion
 - 77% of budgeted expenses is from CIP Expense for various capital projects (includes roll forward)
 - Water Distribution 8.7%
 - Water Operations
 - Water 2%
 - Wastewater 3%

QUARTERLY FINANCIAL REPORT

WATER FUND

Water Services Financial Report							
Quarterly Comparison: Q1 FY26	Budget	FY2025	FY2026	FY2026 Year-to-date: Budget Vs. Actuals		Quarterly Comparison	
	FY2026	YTD Actuals: Q1 FY25	YTD Actuals: Q1 FY26	Variance	% of Budget	Variance	% Variance
Operating Expense							
CC0001 Non-Departmental	625,000	281,018	95,437	529,563	● 15.27%	185,580	-66.04%
CC0514 Water Operational Technology	1,945,139	228,297	350,328	1,594,812	● 18.01%	(122,031)	53.45%
CC0524 Metering Services	3,782,380	366,955	1,124,700	2,657,680	● 29.74%	(757,745)	206.50%
CC0527 Water Services Administration	43,759,305	21,919,064	22,242,411	21,516,894	● 50.83%	(323,347)	1.48%
CC0528 Water Distribution	11,181,565	1,771,209	2,452,672	8,728,893	● 21.93%	(681,463)	38.47%
CC0529 Water Plant Management	9,682,282	2,608,016	2,526,533	7,155,749	● 26.09%	81,483	-3.12%
CC0530 Wastewater Operations	5,498,253	824,916	1,052,934	4,445,319	● 19.15%	(228,018)	27.64%
CC0531 Wastewater Plant Management	8,983,755	5,129,854	4,022,126	4,961,629	● 44.77%	1,107,728	-21.59%
CC0532 Irrigation Operations	589,171	215,838	263,788	325,383	● 44.77%	(47,950)	22.22%
CC0535 Water Conservation	2,483,321	231,706	267,931	2,215,390	● 10.79%	(36,225)	15.63%
CC0539 Regulatory Compliance	1,358,075	178,808	227,268	1,130,807	● 16.73%	(48,461)	27.10%
CC0553 Water Operations	99,451	273,787	85,691	13,759	● 86.16%	188,096	-68.70%
CC0554 Water Control Center	2,200,980	-	322,175	1,878,806	● 14.64%	(322,175)	0.00%
Operating Expense Total	92,188,678	34,034,518	35,033,995	57,154,684	● 38.00%	(999,476)	2.94%
Non-Operating Expense							
CC0001 Non-Departmental	14,863,636	2,503,593	2,383,227	12,480,409	● 16.03%	120,366	-4.81%
CC0514 Water Operational Technology	144,100	89,150	4,100	140,000	● 2.85%	85,050	-95.40%
CC0526 Systems Engineering	784,149,290	228,299,633	139,104,909	645,044,381	● 17.74%	89,194,724	-39.07%
CC0532 Irrigation Operations	43,305	-	-	43,305	● 0.00%	-	0.00%
CC0530 Wastewater Operations	24,696,236	335,487	11,018,333	13,677,903	● 44.62%	(10,682,847)	3184.28%
CC0531 Wastewater Plant Management	155,200	-	120,258	34,942	● 77.49%	(120,258)	0.00%
CC0527 Water Services Administration	1,622,745	775,886	1,301,555	321,189	● 80.21%	(525,669)	67.75%
CC0528 Water Distribution	77,415,581	1,116,995	50,856,590	26,558,991	● 65.69%	(49,739,595)	4452.98%
CC0529 Water Plant Management	-	269,000	-	-	● 0.00%	269,000	-100.00%
CC0535 Water Conservation	97,300	60,000	84,762	12,538	● 87.11%	(24,762)	41.27%
CC0539 Regulatory Compliance	211,200	-	121,155	90,045	● 57.37%	(121,155)	0.00%
CC0553 Water Operations	20,867,561	1,089,553	2,538,503	18,329,059	● 12.16%	(1,448,950)	132.99%
CC0554 Water Control Center	24,600	-	24,600	-	● 100.00%	(24,600)	0.00%
CC0524 Metering Services	3,002,564	5,113,643	557,802	2,444,762	● 18.58%	4,555,841	-89.09%
Non-Operating Expense Total	927,293,318	239,652,939	208,115,794	719,177,524	● 22.44%	31,537,145	-13.16%
Expense	1,019,481,996	273,687,457	243,149,788	776,332,208	● 23.85%	30,537,668	-11.16%

QUARTERLY FINANCIAL REPORT

WATER FUND

- Water Revenue
 - Operating revenue trending slightly under budget however a disproportionate amount of water charges revenue comes from the summer months
 - Water Charges are up 6.36% due to increased consumption and rate increases
 - Fees revenue increased 1.9% from FY2025
 - Impact fees from development are within conservative modeling
 - The penalties revenue is up 121.8% due to moving wrong day irrigation fines from water charges to the penalties revenue category.
- Water Operating Expense
 - Expenses in Water Services Administration are 1.5% greater than FY2025 Expenses in Water Distribution are 38.5% greater than FY2025 due to an increase in Rental and Lease of Equipment as well as the timing of new vehicle purchases
 - Expenses in Wastewater Operations are 27.6% greater than FY2025 due to the timing of maintenance related expenses
 - Expenses in Metering Services are 206.5% greater than FY2025 due to the timing of Water Meter expenses
 - Expenses in Water Operational Technology are 53.5% greater than FY2025 due to movement of personnel to better align with functions.
 - Meet fund balance reserve requirements

Operations

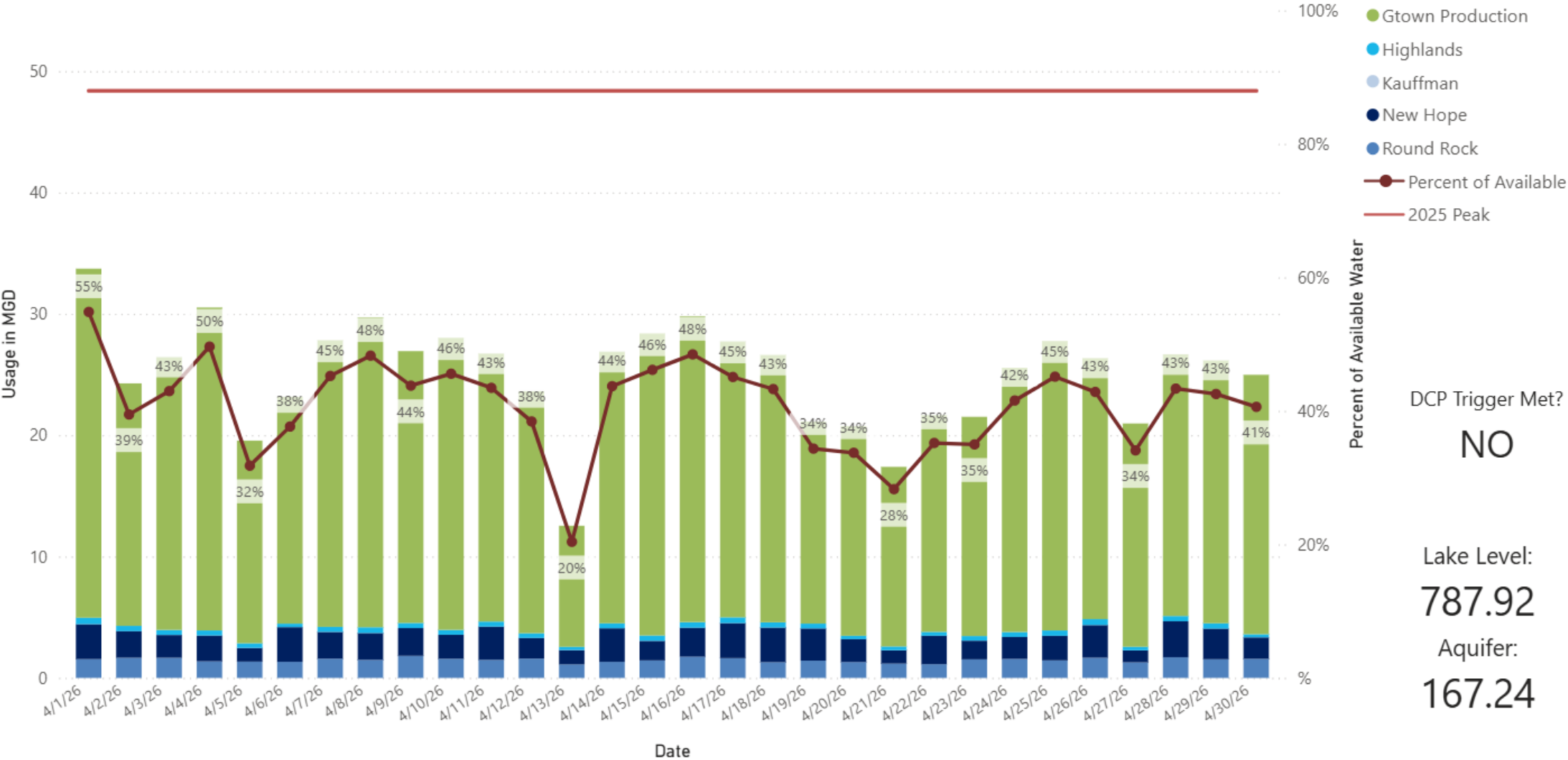
Operating Statistics - Water

April 2026

Rated Capacity / Available Capacity (Pipeline Project)	80.4 / 67.9 mgd
Average Annual Production (YTD)	24.20 mgd
Max Day 2026 YTD	38.80 mgd
Peak 2025	48.38 mgd
Peak 2024	44.90 mgd
Peak 2023 (SS offline, NL in Const, Reduced Leander)	46.41 mgd
Peak 2022 (reduced capacity SS)	45.69 (99%)
2021 Peak	38.42 (90%)
2020 Peak	42.87 (97%)
2019 Peak	41.70 (94%)

Usage Vs Available Water

Total Usage for 4/30/2026
29.9 MGD



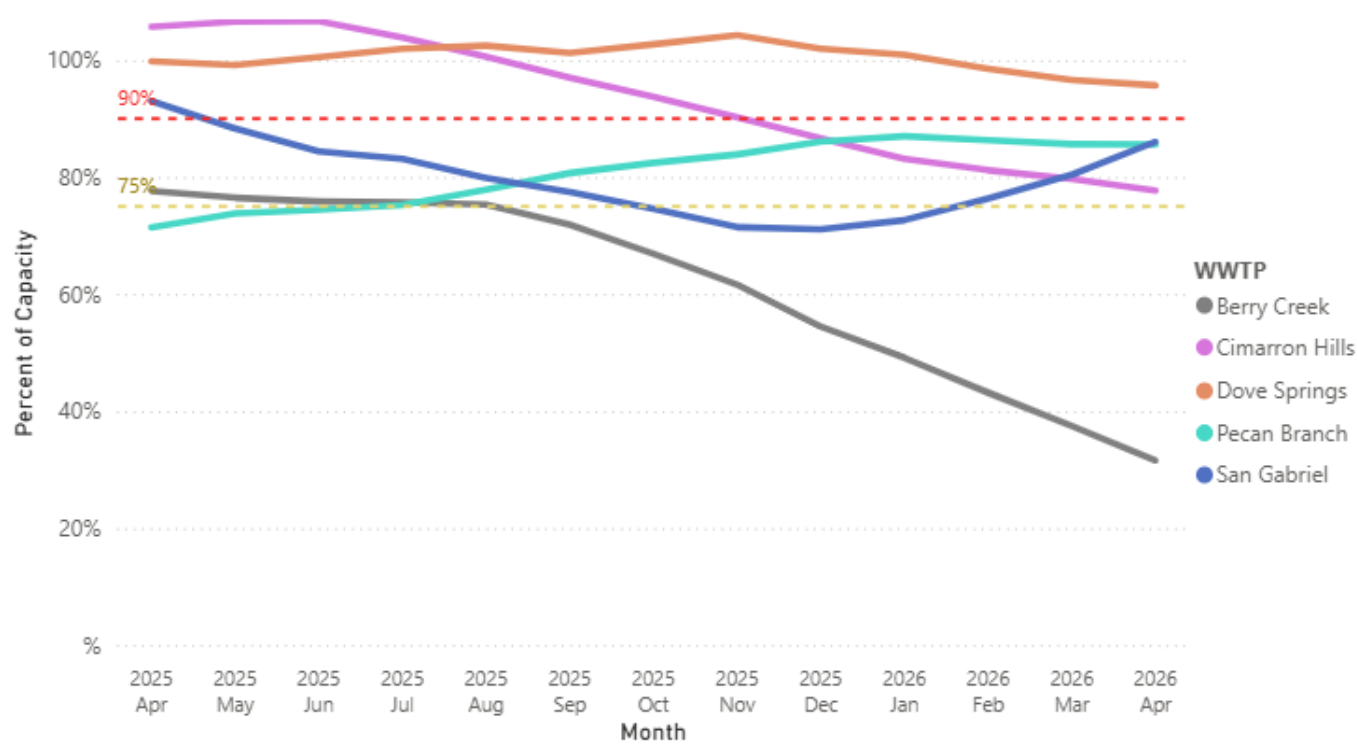
DCP Trigger Met?
NO

Lake Level:
787.92
Aquifer:
167.24

WCRRWL: ON

Operating Statistics - Wastewater

WWTP Capacity Usage Rolling Annual



Wastewater System (MGD)

Rate Capacity
8.54 MGD

Average Annual Production (YTD)
7.33 MGD (85.87%)

Average Day Production for the Month
8.07 MGD (94.48%)

Average Day Reuse for the Month
1.06 MGD (7.85%)

Total Treatment for the Year/Previous Year
880.02 MG / 2739.27 MG

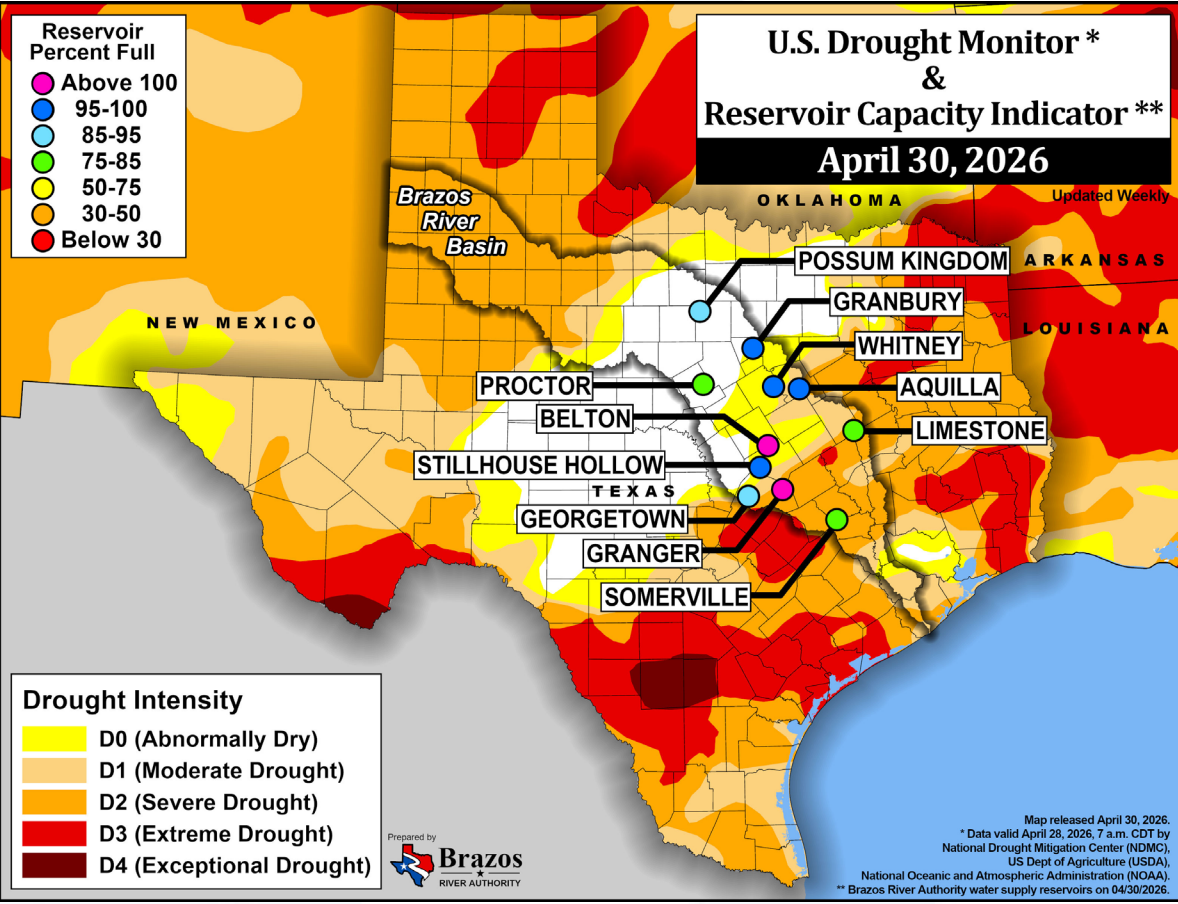
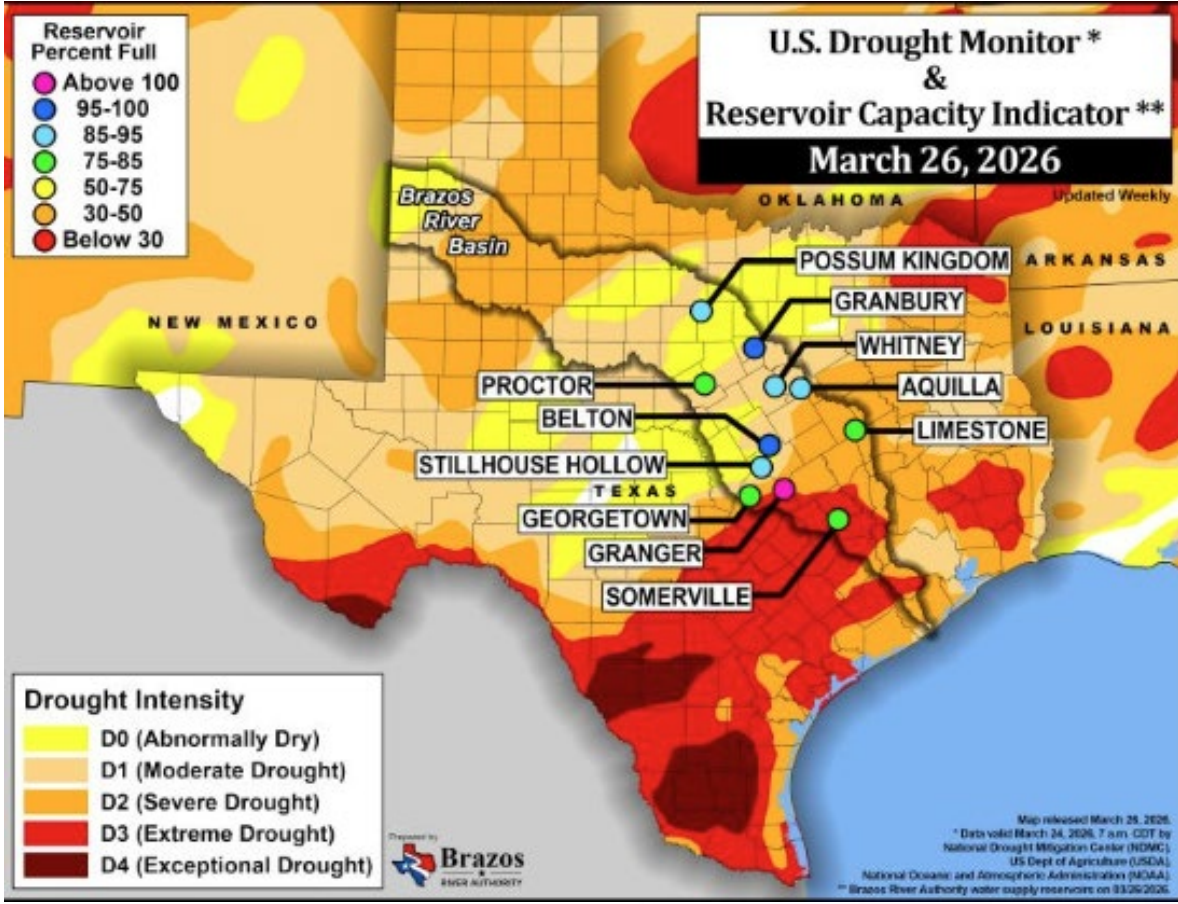
Notes (Dove Springs and San Gabriel are considered combined for 75/90 rule due to pump station diversion capabilities)

Dove Springs is currently under rehabilitation

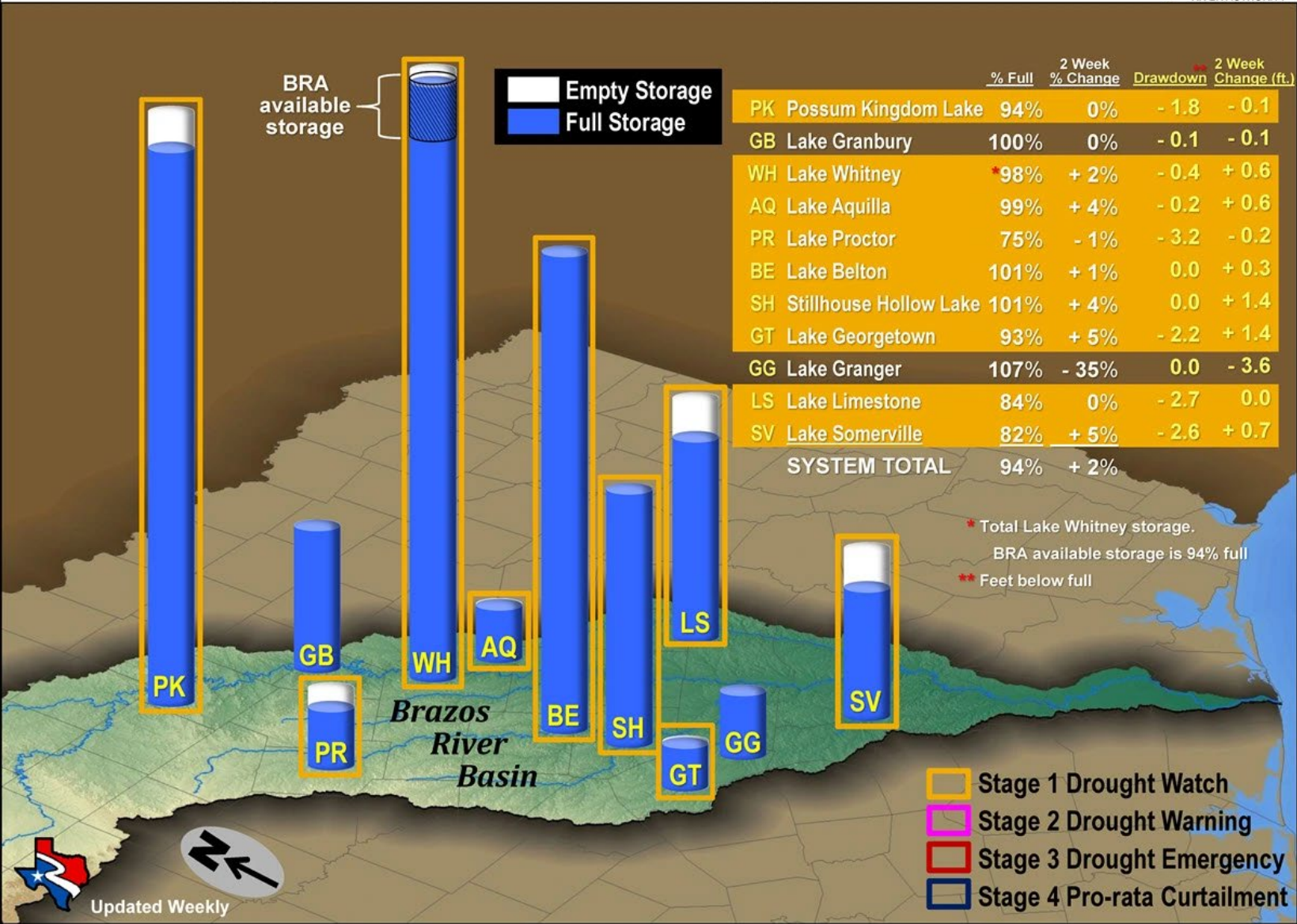
Lift Station is being designed to relieve flow from Cimarron Hills WWTP

Package Plant Installed for Dove Springs

Berry Creek is offline



BRA Water Supply Reservoirs "PERCENT FULL" May 6, 2026



Basin Triggers (Stillhouse pump station to Lake Georgetown)
783 msl (new - on)
785 msl (new - off)

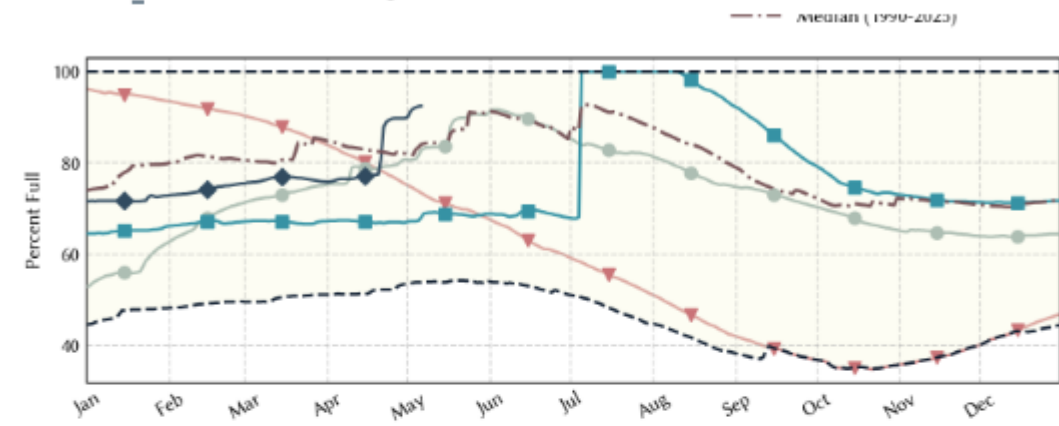
Current Status -on

4/8/2026
Belton 97%
Stillhouse 93%
Georgetown 76%

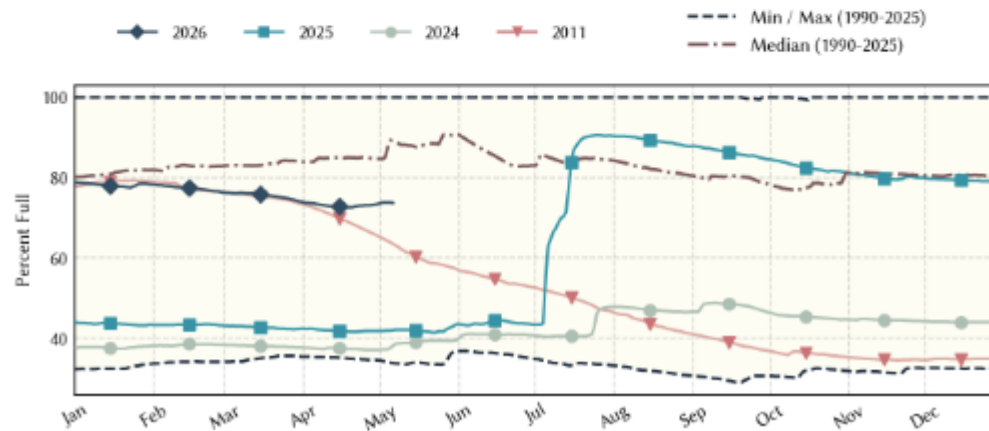
Reservoir Capacity

Drought Severity Triggers Updated 5-2024		
Status	Old Trigger	New Trigger
	Water Storage (acre-feet)	Water Storage (acre-feet)
Lake Georgetown, Lake Stillhouse Hollow		
Top of Conservation (full)	267,949	267,949
Stage 1 Drought Watch	222,398	222,398
Stage 2 Drought Warning	164,789	178,186
Stage 3 Drought Emergency	107,180	133,975
Stage 4 Pro-rata Curtailment	53,590	92,986

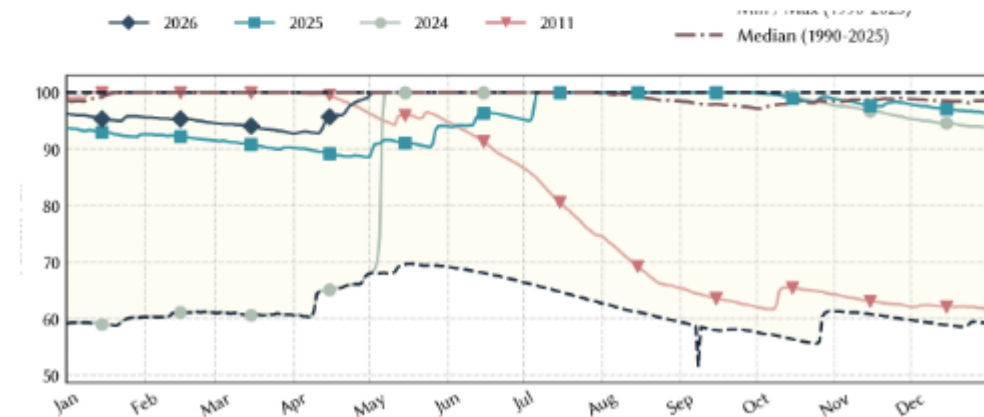
Lake Georgetown: 89.8% full as of 5/1/2026



Lake Travis: 73.5% full as of 5/1/2026



Stillhouse Hollow Lake: 99.2% full as of 5/1/2026



636.31, BCRUA Barge inoperable at 623

Engineering – CIP Updates

Questions?

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Cost of Service and Rate Model Updates for FY 2027

SUGGESTED ACTION:

Consideration and possible action to recommend to Council the water and wastewater cost of service study and rate modeling for the FY2027 budget -- Chelsea Solomon, Water Utilities Director; Leigh Wallace, Chief Financial Officer

ITEM SUMMARY:

The goals and objectives of the FY 2027 Rate Study Update is to update the FY 2026 rate study to incorporate the funding needed for accelerated infrastructure projects driven by resource acquisition and expansion projects needed based on the Water and Wastewater Master Plan.

Major projects include water supply through the Georgetown Regional Water Initiative, and the construction of the Three Forks Water Reclamation Plant, and the Northlands Water Reclamation Plant. Rate includes implementation of change to the fixed cost recovery policy previously approved by council. This shifts more cost recovery to volumetric rates, giving customers more control over their bill.

The City's consultant, NewGen Strategies, will provide an overview of the key drivers (Capital Plan, debt service, and customer growth) impacting rates for the Fiscal Year 2027 budget.

Summary of Proposed changes

- Water Base Rate 4% and Volumetric Rate increases of 14%
- Wastewater Base and Volumetric increase of 12%
- Reclaimed follows same percentage increase of water volumetric. 14%

The monthly impact to the average water and wastewater customer paying a base rate and consuming 6,000 gallons per month is \$4.00 for water and \$7.00 on wastewater.

These rates will become effective October 1, 2026. Water rates were last adjusted October 1, 2025.

FINANCIAL IMPACT:

The revenue from these rate increases is projected in the FY2027 budget for the Water Fund. Additional rate increases are forecasted for the next 5 years.

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

[Georgetown Water Board Presentation_2026-05-14_Sent_05_07.pdf](#)

May 14, 2026

WATER AND WASTEWATER RATE STUDY UPDATE

WATER UTILITY ADVISORY BOARD



KEY POINTS

Summary of findings
from this rate study

Key Points

- Georgetown's water and wastewater expenses are projected to increase at an average annual rate of 13.6% through FY 2031
- Driven by major capital investments of \$1.765 billion between FY 2026 and FY 2031, primarily funded through new debt issuances
- Also reflects significant increases in wholesale costs, including water from Recharge, LP (indicative pricing)
- Water and wastewater rate increases are needed to meet these rising costs, and to satisfy key metrics applied by rating agencies (Fitch and S&P) to maintain the City's credit worthiness
- The necessary increases would see typical Residential bills increase by an average of 10.3% per year, while a typical Commercial bill (40 kgal) would increase by 11.8% per year

KEY ASSUMPTIONS

Assumptions used to
produce five-year
cost forecast

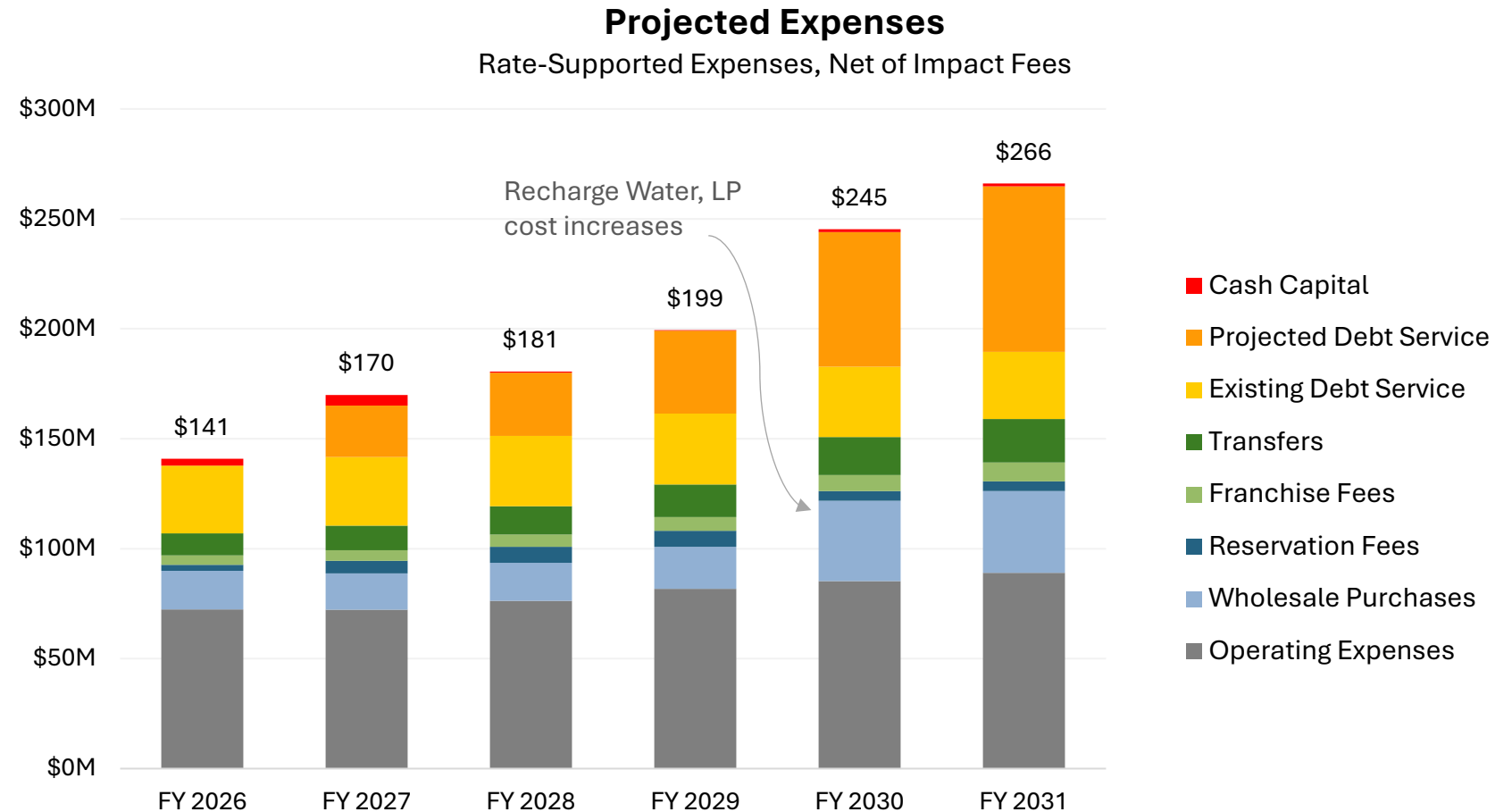
Key Assumptions

- Starts with the City's FY 2026 and FY 2027 preliminary budgets
- Inflation (from FY 2028):
 - General inflation of 3.0% per year, construction cost increases of 3.2% per year
 - Salary cost increases of 5.0% and benefit cost increases of 8.0% per year
 - Fuel cost increases averaging 2.3% and electricity averaging 1.6% per year
- Capital project costs:
 - Capital projects worth \$1,765M through FY 2031, primarily debt funded
- Wholesale costs increases:
 - Reservation fees and water purchase costs increasing by 105% by FY 2031 (net of Impact Fee revenue used)
- Additional personnel:
 - Additional personnel hired in FY 2028 and FY 2029, with associated vehicle and equipment expenses
- Connection growth:
 - Growth averaging 4,070 new water connections per year
 - Wastewater growing by 2,580 per year on average

MAJOR COST DRIVERS

Water & Sewer Fund
cost drivers through
FY 2031

- Expenses are projected to increase at an average annual rate of 13.6% over the next five years (net of Impact Fee usage)
- This is driven mostly by projected debt service payments and wholesale water purchase costs



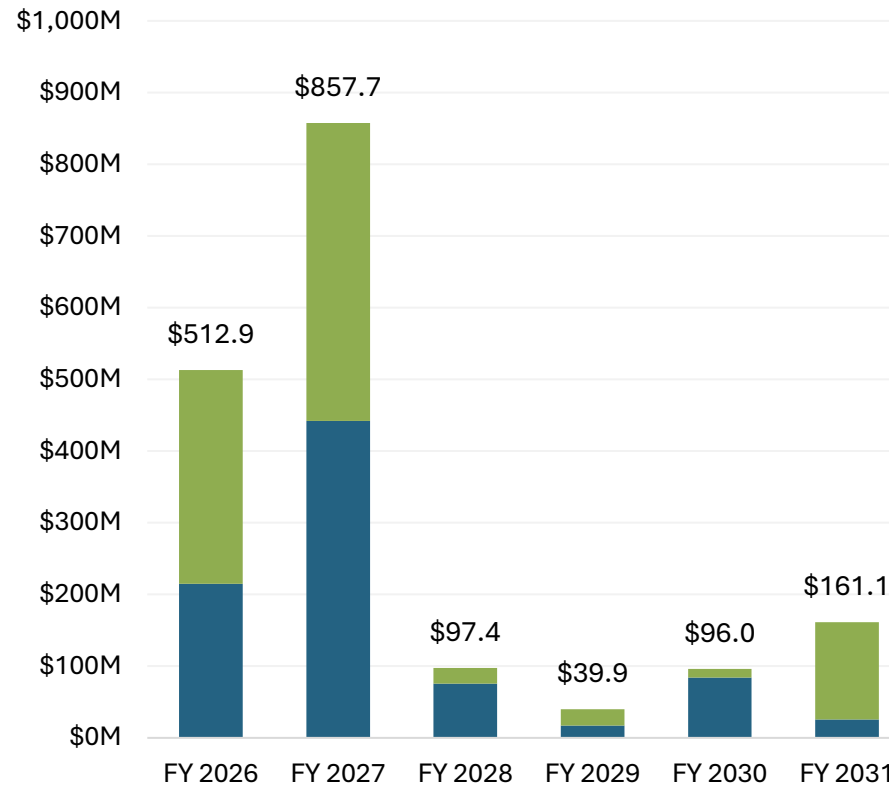
CAPITAL PROJECTS

Projected Capital Improvement Projects

- Total capital project costs of \$1,765 M are anticipated by FY 2031
- Most of these costs (\$1,446 M) to be financed through new debt
- Use of impact fee balances of \$251 M to offset these costs

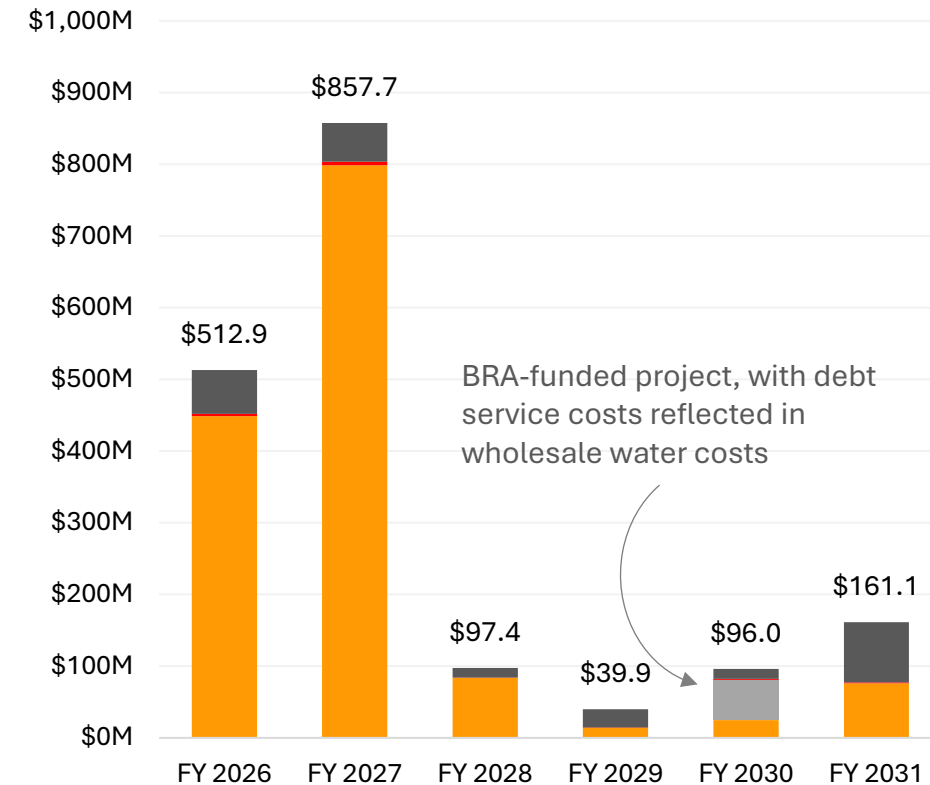
Projects by Service (\$M)

■ Water ■ Wastewater ■ Reuse



Projects by Funding Source (\$M)

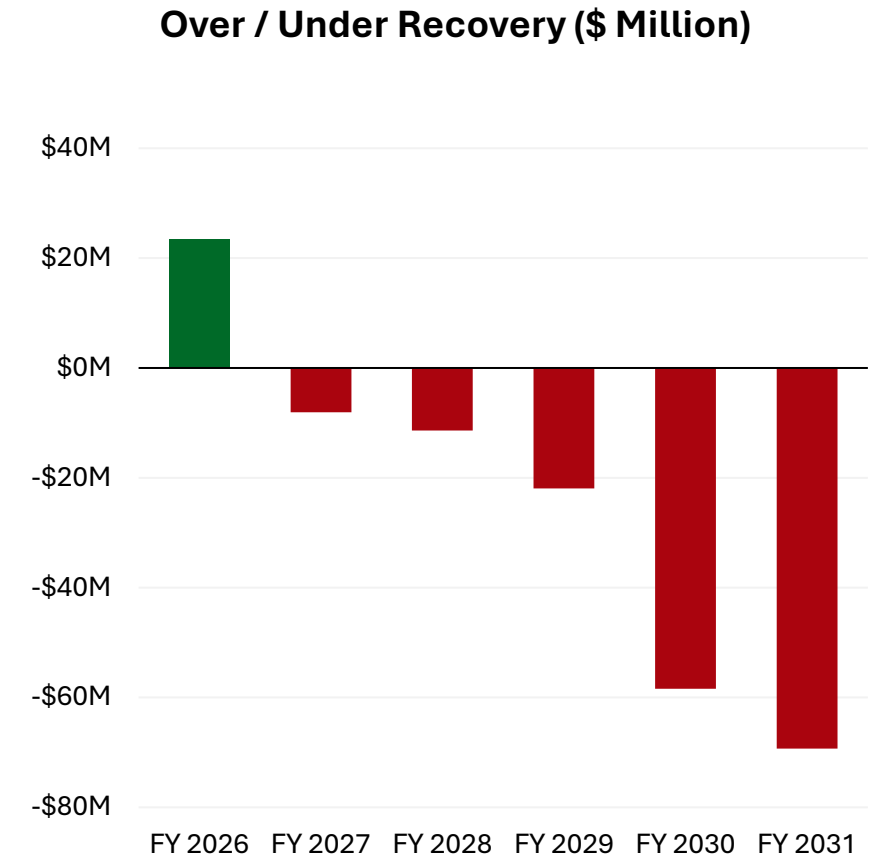
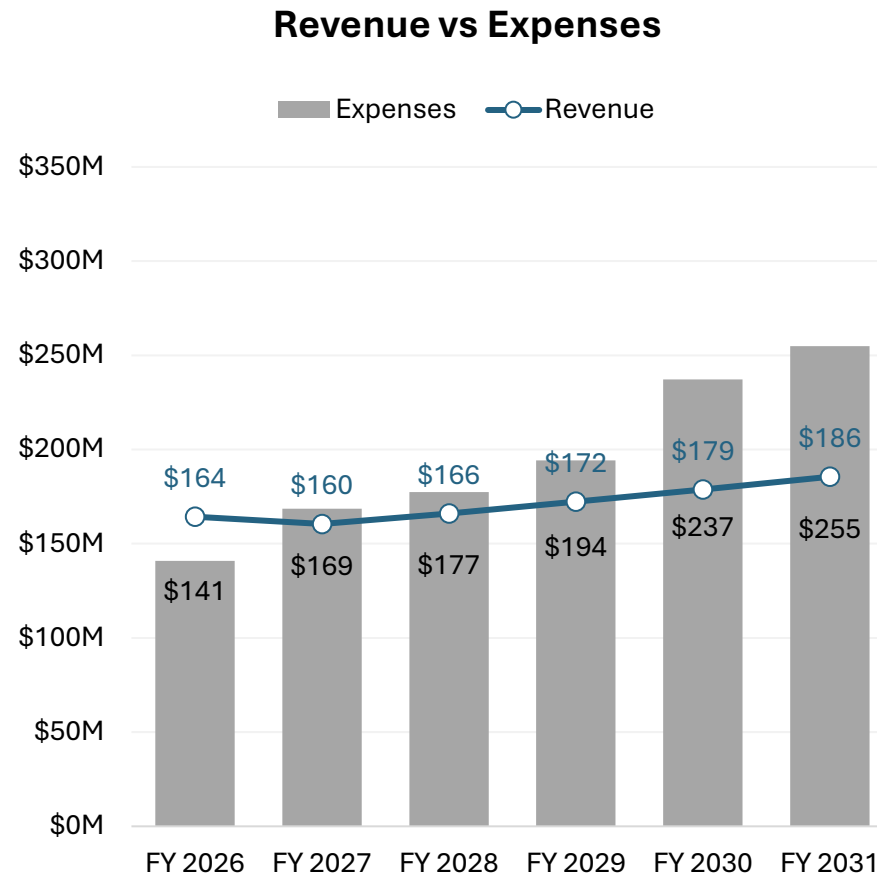
■ Debt ■ Other ■ Cash ■ Impact Fees



REVENUE & EXPENSES

Revenue sufficiency
under current rates

- Current water and wastewater rates would be insufficient to cover expenses from FY 2027 onward



PROJECTED RATE CHANGES

Projected changes in rates over the study period

- Projected annual increases range from 4.0% to 14.0% per year for various components of water and wastewater rates
 - Larger increases are applied to the volumetric water charges, to provide stronger price incentives to conserve water use
 - Larger increases are applied to wastewater minimum charges, to address the current under-recovery of costs for this service

Projected Rate Increases

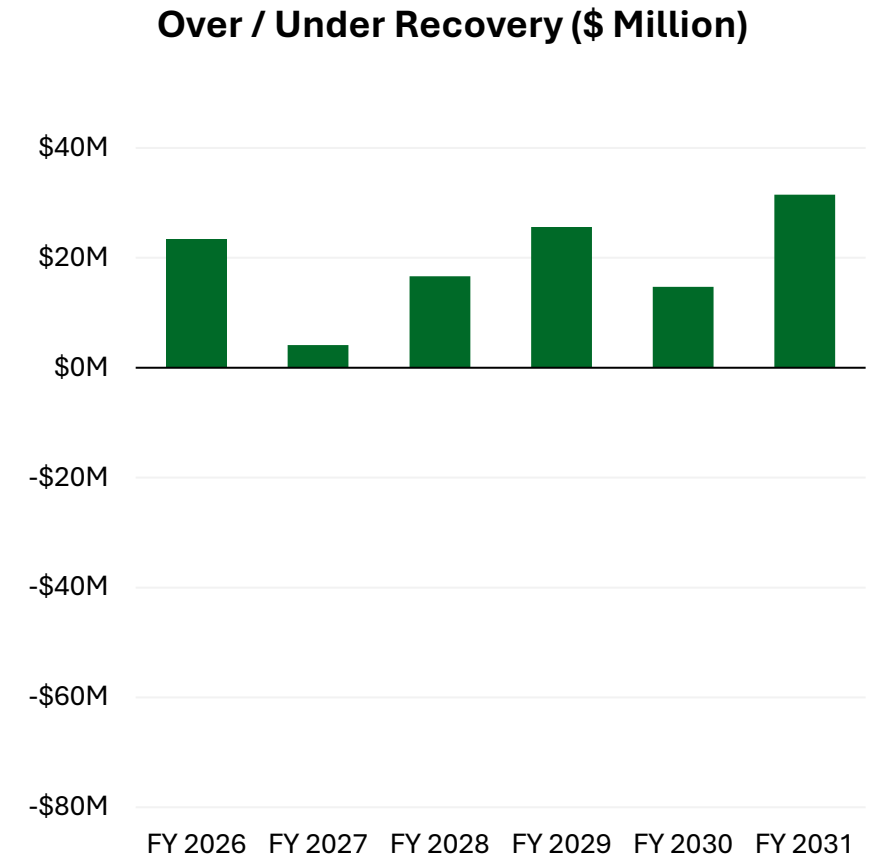
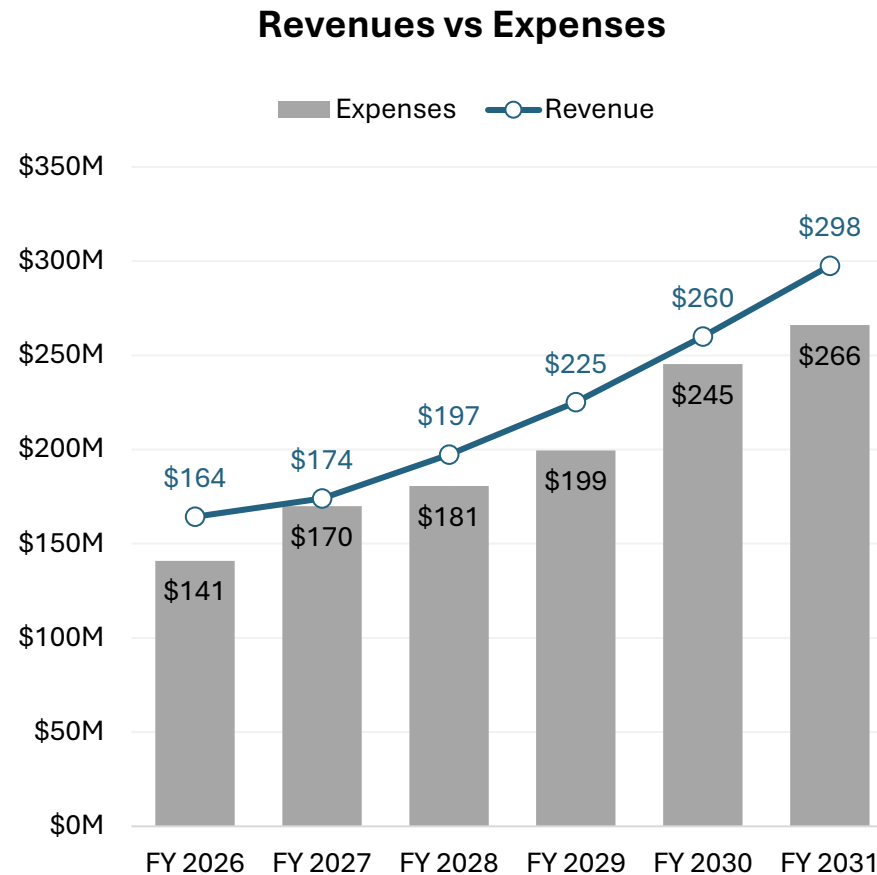
Water	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum / Fixed	4.0%	6.0%	8.0%	10.0%	10.0%
Volumetric	14.0%	14.0%	14.0%	14.0%	14.0%
Wastewater	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum / Fixed	12.0%	12.0%	12.0%	12.0%	9.0%
Volumetric	12.0%	12.0%	12.0%	12.0%	9.0%

REVENUE & EXPENSES

Revenue sufficiency under projected rates

Note that some expenses, including Franchise Fees, increase with projected revenue

- Projected rates, estimated as part of this study, would cover the projected increases in expenses



FINANCIAL METRICS

Financial performance under projected rates

- Under the projected rates, the utility would also meet the applicable S&P, Fitch, and City financial metrics across the study period
- Sustained performance against these metrics will support the utility's credit rating and contribute to lower long-term borrowing costs

METRICS UNDER PROJECTED RATES



S&P METRICS

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Fixed Cost Coverage Ratio	●	●	●	●	●	●
Fixed Cost Coverage Ratio without Impact Fees	●	●	●	●	●	●
Days Cash on Hand	●	●	●	●	●	●

FITCH METRICS

Coverage of Full Obligations Ratio	●	●	●	●	●	●
Coverage of Full Obligations Ratio w/out Impact Fees	●	●	●	●	●	●
Leverage Ratio	●	●	●	●	●	●
Days Cash on Hand	●	●	●	●	●	●

CITY METRICS

Debt Service Coverage for Cost of Service	●	●	●	●	●	●
Debt Service Coverage for Bond Covenant	●	●	●	●	●	●
Base Revenues as % of Fixed Requirement	●	●	●	●	●	●
Base Revenues + 1st Tier as % of Fixed Requirement	●	●	●	●	●	●

PROJECTED RATES

Residential Rates

Residential Water & Wastewater Rates

Residential Water	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)						
5/8"	\$ 33.25	\$ 34.60	\$ 36.65	\$ 39.60	\$ 43.55	\$ 47.90
3/4"	49.85	51.85	54.95	59.35	65.30	71.85
1"	83.15	86.45	91.60	98.95	108.85	119.75
1 1/2"	166.20	172.80	183.15	197.80	217.65	239.50
2"	332.45	345.70	366.35	395.70	435.35	479.00
Volumetric Charges (\$ / kgal)						
0 - 7,000 gal	\$ 2.80	\$ 3.20	\$ 3.65	\$ 4.15	\$ 4.75	\$ 5.40
7,001 - 15,000 gal	4.20	4.80	5.50	6.20	7.15	8.10
15,001 - 25,000 gal	7.35	8.40	9.65	10.85	12.50	14.15
25,001 - 50,000 gal	14.70	16.80	19.30	21.70	25.00	28.30
50,001+ gal	18.40	21.00	24.15	27.15	31.25	35.40

Residential Wastewater	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)						
All Connections	\$ 60.85	\$ 68.15	\$ 76.35	\$ 85.50	\$ 95.75	\$ 104.35
Volumetric Charges (\$ / kgal)						
All Volumes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Residential low-income discounts of 30% for water and 20% for wastewater are available to permanent residents with proof of participation in the Medicaid Program.

PROJECTED RATES

Commercial Rates - Water

Commercial Water Rates

Commercial Water	First Tier (kgal)	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)							
5/8"	300	\$ 33.25	\$ 34.60	\$ 36.65	\$ 39.60	\$ 43.55	\$ 47.90
3/4"	300	49.85	51.85	54.95	59.35	65.30	71.85
1"	300	83.15	86.45	91.60	98.95	108.85	119.75
1 1/2"	300	166.20	172.80	183.15	197.80	217.65	239.50
2"	600	332.45	345.70	366.35	395.70	435.35	479.00
3"	900	797.90	829.60	879.20	949.60	1,044.80	1,149.60
4"	4,000	1,396.30	1,451.80	1,538.60	1,661.80	1,828.40	2,011.80
6"	6,000	3,058.50	3,180.10	3,370.25	3,640.10	4,005.05	4,406.80
8"	8,000	5,319.20	5,530.70	5,861.35	6,330.70	6,965.35	7,664.00
Volumetric Charges (\$ / kgal)							
First Tier		\$ 3.70	\$ 4.20	\$ 4.80	\$ 5.45	\$ 6.20	\$ 7.05
Second Tier		9.96	11.30	12.92	14.67	16.69	18.97

The volumes in the first volumetric tier vary by meter size

PROJECTED RATES

Commercial Rates - Wastewater

Commercial Wastewater Rates

Small Commercial Wastewater	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)						
All Connections	\$ 60.85	\$ 68.15	\$ 76.35	\$ 85.50	\$ 95.75	\$ 104.35
Volumetric Charges (\$ / kgal)						
All Volumes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Medium Commercial Wastewater	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)						
All Connections	\$ 92.00	\$ 103.05	\$ 115.40	\$ 129.25	\$ 144.75	\$ 157.80
Volumetric Charges (\$ / kgal)						
All Volumes	\$ 5.30	\$ 5.95	\$ 6.65	\$ 7.45	\$ 8.35	\$ 9.10

Large Commercial Wastewater	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031
Minimum Charges (\$ / month)						
All Connections	\$ 163.40	\$ 183.00	\$ 204.95	\$ 229.55	\$ 257.10	\$ 280.25
Volumetric Charges (\$ / kgal)						
All Volumes	\$ 5.30	\$ 5.95	\$ 6.65	\$ 7.45	\$ 8.35	\$ 9.10

Small Commercial – 4” sewer line, ¾” water meter, 10 fixtures or fewer, requested in writing

Medium Commercial – 6” or smaller sewer line

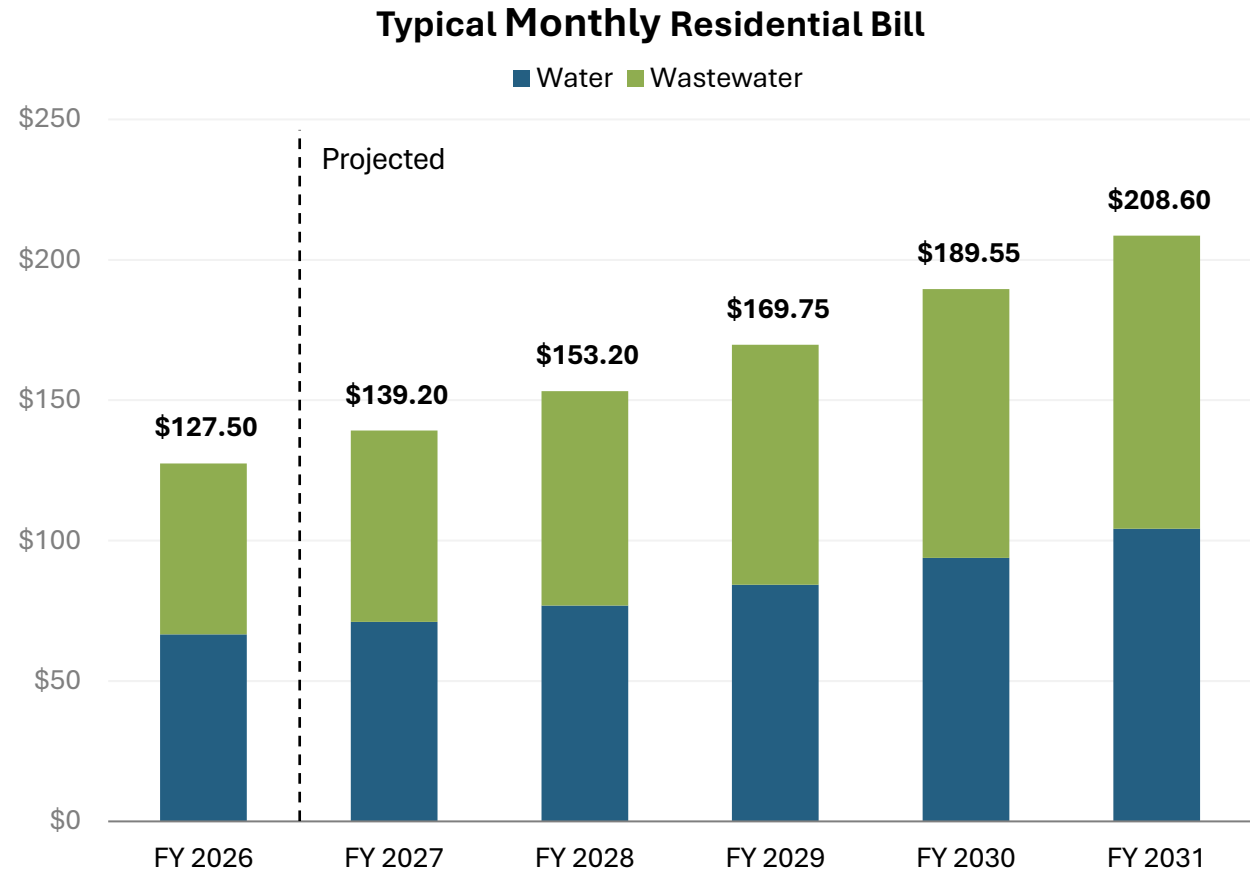
Large Commercial – 8” or larger sewer line

RESIDENTIAL BILL IMPACT

Impact of projected
rates on a typical
Residential customer

- 3/4" meter
- 6,000 gallons
water use

- A typical Residential household would see their monthly water and wastewater bill increase by an average of 10.3% each year



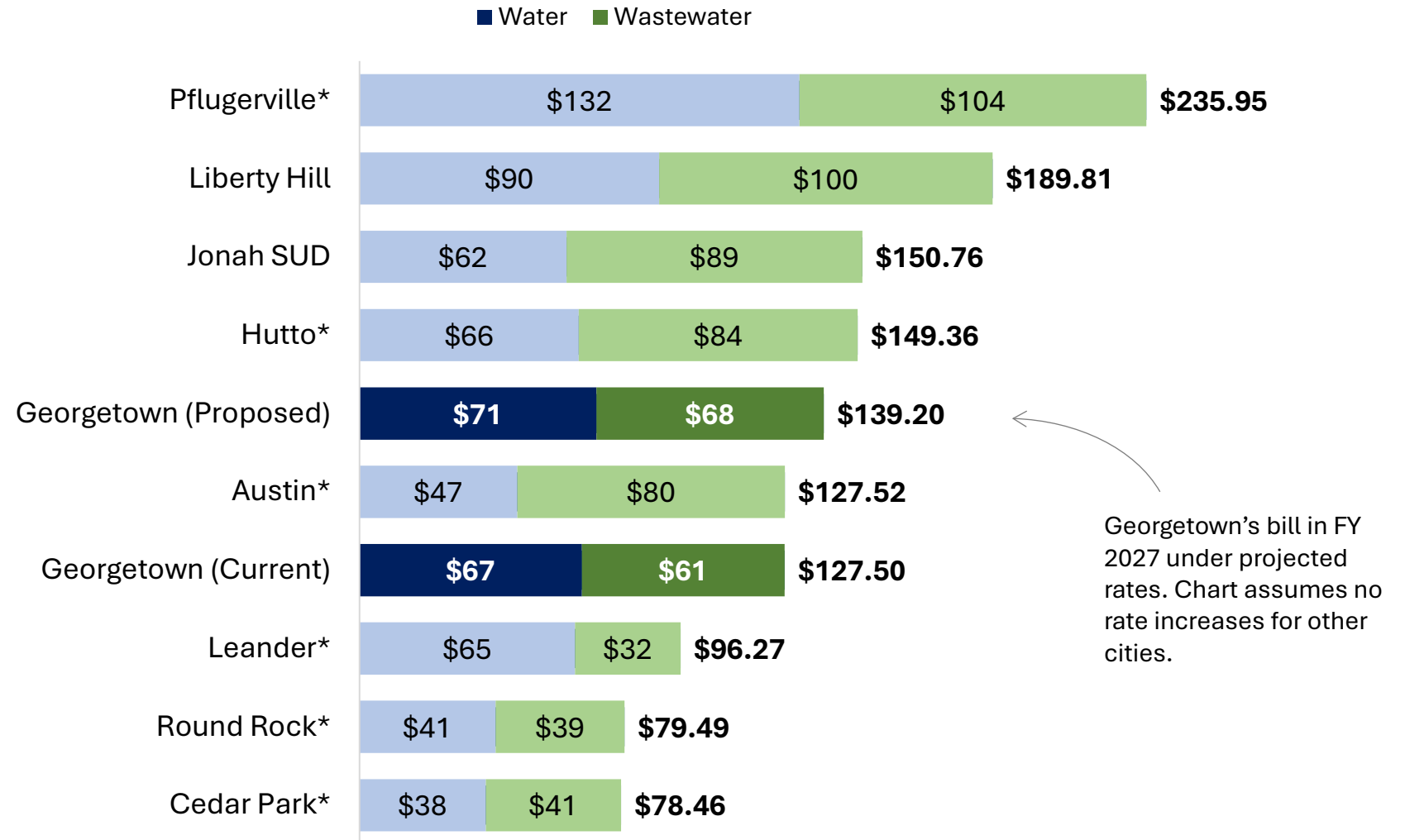
BILL COMPARISON

Residential customers

- 3/4" meter or closest
- 6,000 gallons water use

Bill comparisons are based on publicly available data and NewGen's understanding and interpretation of this data (compiled in March 2026).

Monthly Residential Bill Comparison



* Uses winter average

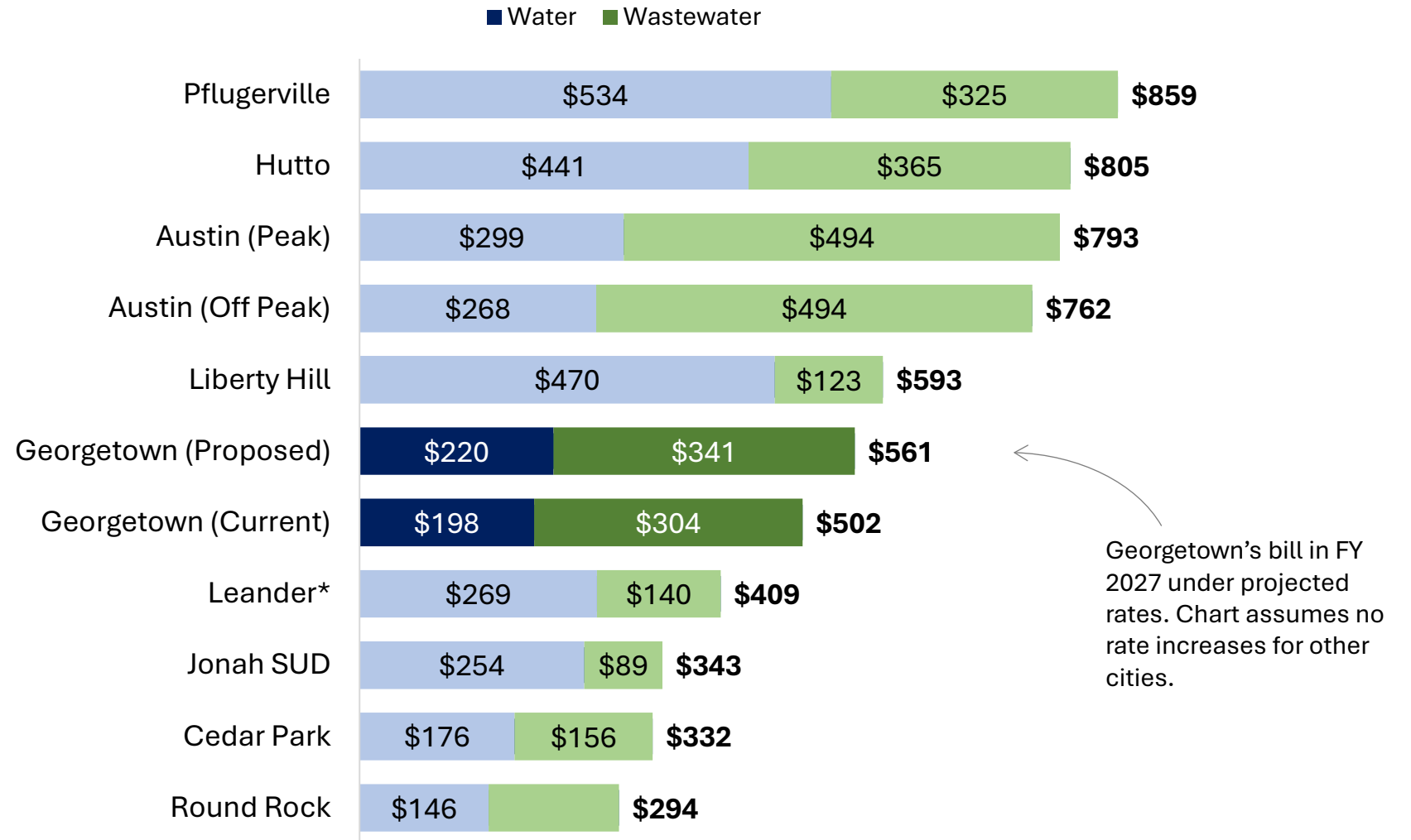
COMMERCIAL BILL COMPARISON

Commercial customers

- 3/4" meter or closest
- 40,000 gallons water use

Bill comparisons are based on publicly available data and NewGen's understanding and interpretation of this data (compiled in March 2026).

Monthly Commercial Bill Comparison



* Uses winter average

RISKS AND OTHER FACTORS

Potential to Change
the 5-Year Outlook

- Ongoing water supply negotiations and costs
- Capital infrastructure materials and labor costs
- Operational cost inflation
- Workforce availability and expansion costs
- Interest rates and debt capacity
- Growth rate volatility
- Federal and state regulatory requirements
- Regional partnerships and development agreements
- Impact of weather on water consumption

RECOMMENDING RATE PLAN AND NEXT STEPS



- Water Utility Advisory Board:
 - Discussion on proposed plan
 - Questions or edits before Council
 - Recommendation to Council
- City Council Workshop - May 26
 - Rates effective October 1, 2026
- Future rate study discussion and direction
 - Other rate objectives to explore or revisit?



THANK YOU

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City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

COG Water Reuse Assessment Report

SUGGESTED ACTION:

Consideration and possible action to recommend to Council the City of Georgetown Water Reuse Assessment Report for adoption -- Chelsea Solomon, PE, Water Utility Director

ITEM SUMMARY:

The City of Georgetown has been proactively planning for future water supply and utility services through multiple recent planning efforts. The City of Georgetown completed the Water and Wastewater Master Plan and the Integrated Water Resources Plan (IWRP). Industrial development and population migration to the greater Austin area has led to unprecedented water demand growth. The IWRP recommended different combinations of new water supply options that could meet projected future water needs over a 50-year planning horizon. The best performing supply portfolios all included additional reclaimed water use as part of the future supply strategy, with volumes ranging from 4.5 to 22.3 million gallons per day (mgd). This Water Reuse Assessment Report builds off the IWRP and evaluates detailed reuse projects to meet the reuse supply targets identified.

The Water Reuse Assessment looks at existing reclaimed uses, potential future reclaimed uses, indirect and direct potable opportunities. In addition to outlining projects to help meet future supply needs, it also lists opportunities for decommissioning aging infrastructure and consolidating to a more regional Georgetown system, which helps bring efficiencies to operations, costs, and overall maintenance and staffing needs.

These projects are not required to be completed but a menu of options that can be leveraged to reduce potable water demand and supplement long term supply and sustainability. Future IWRP updates and Water and Wastewater Master plan updates may result in the need for implementation of some of these projects.

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

[COG Water Reuse Assessment Report_FINAL_January 2026.pdf](#)
[2026 Final Reuse Report.pdf](#)



CITY OF GEORGETOWN

WATER REUSE ASSESSMENT REPORT



JANUARY 2026



Photo Courtesy of City of Georgetown

**CDM
Smith**

REPORT
JANUARY 2026

FINAL Water Reuse Assessment Report



Prepared for:

CITY OF GEORGETOWN



TPBE Firm Registration No. F-3043



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Appendices

Appendix A Lake Georgetown Water Quality Analysis

Appendix B CIP Planning Level Costs and Assumptions

Appendix C Case Studies

Appendix D Reuse Updates to the WIT Model

Appendix E Return Flow Analysis

Appendix F Lake Granger Uncontrolled and Controlled Flows

Appendix G Rate Analysis



Acronyms and Abbreviations

1/d	per day
°F	Degrees Farenheit
°C	Degrees Celsius
%	Percent
µg/L	micrograms per liter
AF	Acre-feet
AFY	Acre-feet per year
ASR	Aquifer Storage and Recovery
BOD/BOD ₅	Five-day Biochemical oxygen demand
CBOD	Carbonaceous Biochemical Oxygen Demand
CCN	Certificate of Convenience and Necessity
CFU/100 mL	Colony forming units per 100 milliliters
CIP	Capital Improvement Project
COG	City of Georgetown
CRADA	Cooperative Research and Development Agreement
CSTR	Continuously Stirred Tank Reactor
DDW	Division of Drinking Water
DS	Dove Springs
DPR	Direct Potable Reuse
EPA	Environmental Protection Agency
EPCOR	Edmonton Power Corporation
EST	Elevated storage tank

ETJ	Extra-Territorial Jurisdiction
EWC	East Williamson County
FY	Fiscal Year
GAC	Granular activated carbon
Gal	Gallon
GIS	Geographic information system
g/m ² /d	Grams per square meter per day
GWRS	Ground Water Replenishment System
HOA	Homeowner's Association
hp	Horsepower
HS	High Service Pumps
IPR	Indirect potable reuse
IWRP	Integrated Water Resource Plan
kg/m ² /d	kilogram per square meter per day
LF	Linear feet
MBR	Membrane Bioreactor
LVLWTF	Leo J. Vander Lans Advanced Water Treatment Facility
m	meter
MF	Microfiltration
mg	Million gallons
mgd	Million gallons per day
mg/L	Milligrams per liter
mi	miles
mL	milliliter

NA	Not applicable
ng/L	nanograms per liter
NDMA	n-nitrosodimethylamine
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
PCR	Polymerase chain reaction
PFAS	Per- and Polyfluoroalkyl Substances
ppm	parts per million
RO	Reverse osmosis
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SG	San Gabriel
SOD	Sediment Oxygen Demand
SOP	Standard operating procedures
SU	Standard Units
TCEQ	Texas Commission on Environmental Quality
TDS	Total dissolved solids
TLAP	Texas Land Application Permit
TOC	Total organic carbon
TPDES	Texas Pollutant Discharge Elimination System
TWC	Texas Water Code
TWDB	Texas Water Development Board

UF	Ultrafiltration
UV	Ultraviolet Disinfection
UV/AOP	Ultraviolet Disinfection with Advance Oxidation Process
UIC	Underground Injection Control
UNM	Uniform Costing Model
USBR	United States Bureau of Reclamation
WASP	Water Quality Analysis Simulation Program
WIT	Water Integration Tool
WRF	Water Reclamation Facility
WTP	Water treatment plan
WWTP	Wastewater Treatment Plant



Executive Summary

The City of Georgetown (city) has been proactively planning for future water supply and utility services through multiple recent planning efforts – the City of Georgetown Water System Masterplan, the City of Georgetown Wastewater System Masterplan, and the City of Georgetown Integrated Water Resources Plan (IWRP). Industrial development and population migration to the greater Austin area has led to unprecedented water demand growth. The IWRP recommended different combinations of new water supply options that could meet projected future water needs over a 50-year planning horizon. The best performing supply portfolios all included additional reclaimed water use as part of the future supply strategy, with volumes ranging from 4.5 to 22.3 million gallons per day (mgd). This Reuse Assessment builds off the IWRP and evaluates detailed reuse projects to meet the reuse supply targets identified that could reduce potable demand or be an option for reuse in the future. This plan is constructed with the objectives of reducing potable demand and/or supplementing raw water supply.

In addition to helping the city meet its future water demand, other benefits of implementing a reuse water program include:

- **Reliability:** Reuse water is a consistent supply and less impacted by drought and other disruptions than surface water and groundwater sources.
- **Sustainability:** Reuse water reduces the pressure on natural systems.
- **Local Control:** Reuse water is locally sourced so there is no competition with neighboring cities for water rights.
- **Cost-Effectiveness:** As competition for local groundwater and surface water sources increase, cities need to go further afield for new supplies, making reuse to offset potable demand and indirect potable reuse a cost-effective alternative. Reclaimed water is likely to be less expensive than new groundwater resources. However, the use of reclaimed for irrigation purposes is not currently set up so that the reclaimed water rate fully supports the cost of a reclaimed system.

Types of Reuse Supply

There are multiple types of reuse water used for different purposes and with different regulatory requirements. Each is described below and shown conceptually in **Figure ES-1**.

- **Non-Potable Reuse:** Non-potable reuse water is treated wastewater used for non-drinking water purposes. In Texas, it is further categorized into Type I and Type II.
 - Type I – Applications where reclaimed water may come into contact with the public, including but not limited to residential irrigation, public park irrigation, fire protection, irrigation of food crops, or toilet flushing.
 - Type II – Applications where the public would not come in contact with the reclaimed water, including but not limited to irrigation in remote locations, irrigation of spaces where public access can be restricted during times of irrigation, such as golf courses, sod farms, cemeteries, industrial complexes, and cooling tower makeup water.

- **Indirect Potable Reuse (IPR):** IPR is the intentional discharge of treated wastewater to an environmental buffer—such as a lake, river or tributary, or groundwater aquifer—before subsequent withdraw, treatment and distribution to customers. Many water systems in Texas include de-facto, or unintentional potable reuse, as drinking water sources often have a fraction of supply that originates from wastewater effluent discharged from an upstream community.
- **Direct Potable Reuse (DPR):** DPR is the introduction of treated reclaimed municipal wastewater either: directly into a public water system; or into a raw water supply immediately before the water enters a drinking water treatment plant.

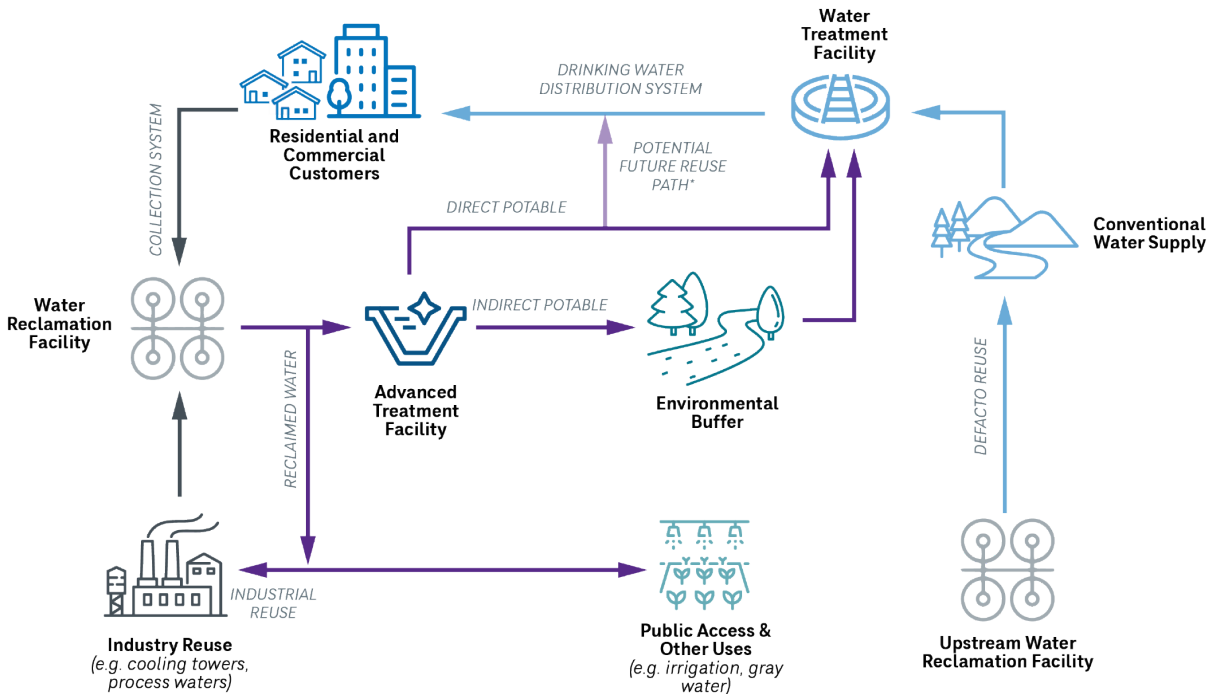


Figure ES-1 Water Reuse Conceptual Flow Diagram

Existing Reuse System

The city currently has five wastewater treatment plants (WWTPs) with a combined average treatment capacity of 8.53 mgd and two additional plants planned to serve future growth areas (**Figure ES-2**). The city has an existing non-potable reuse network that uses treated effluent from the Pecan Branch, San Gabriel, Berry Creek, and Cimarron Hills WWTPs.

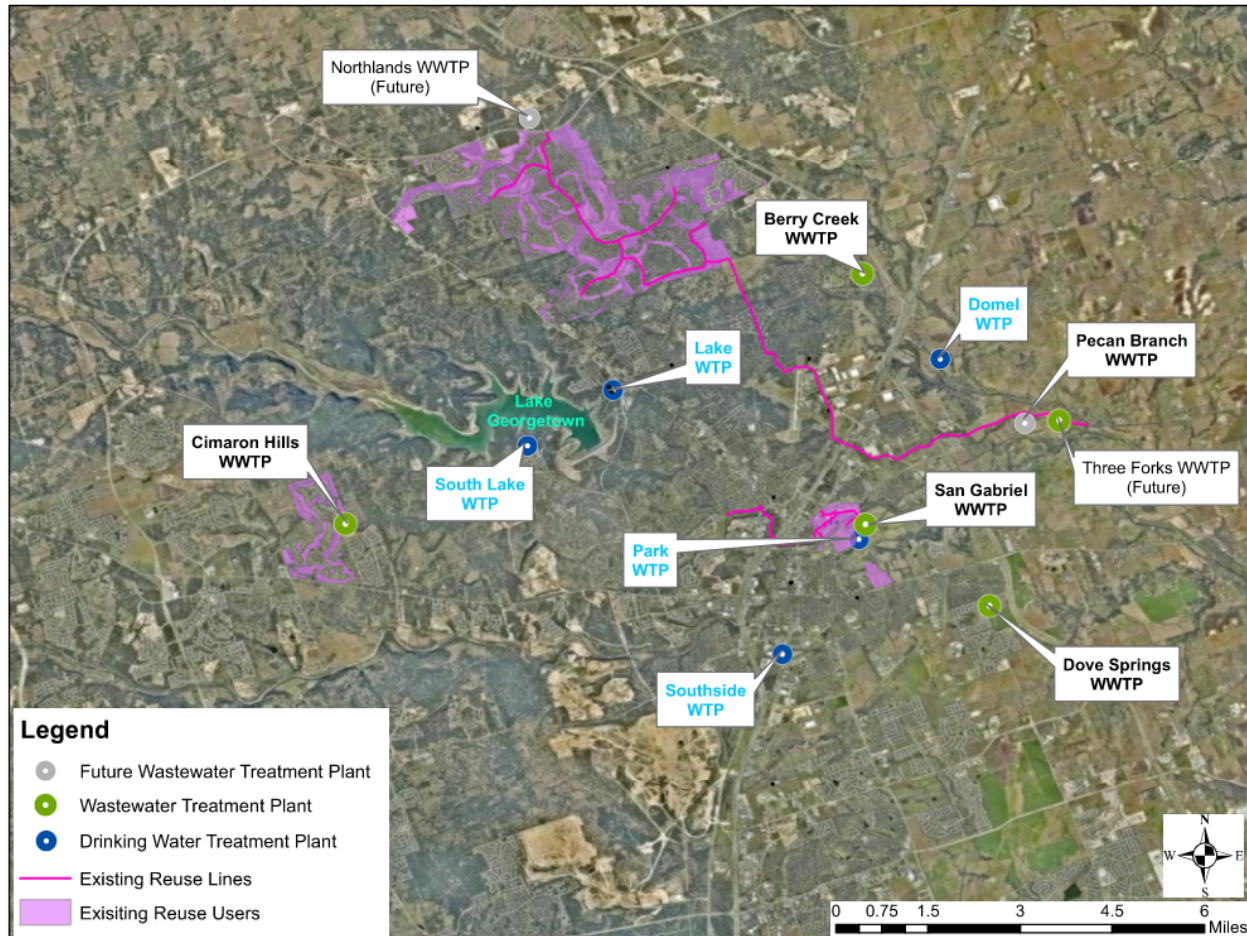


Figure ES-2 City of Georgetown Existing and Future Facilities

Future Reuse Supply Options

The Reuse Assessment is targeting providing at least 22.3 mgd of reuse water supply to match the preferred supply portfolio from the IWRP. In total nine different supply alternatives were evaluated including five non-potable reuse options, two IPR options, and two DPR options. These alternatives are detailed below in **Table ES-1**.

Table ES-1 Reuse Supply Alternatives Evaluated

Reuse Type	Alternative	Max Yield (mgd)	Estimated Capital Cost Year 2024\$ (\$ Million)
Non-potable	Three Forks WWTP to Lake WTP Elevated Storage	2.0	\$30.2
Non-potable	San Gabriel WWTP to Lake WTP Elevated Storage	0.5	\$24.4
Non-potable	Northlands WWTP to West-side Elevated Storage (In addition to flows to Sun City Golf Course)	0.5	\$14.2

Reuse Type	Alternative	Max Yield (mgd)	Estimated Capital Cost Year 2024\$ (\$ Million)
IPR	Three Forks and Northlands WWTP IPR to Lake Granger	21	\$317.5
IPR	Northlands WWTP IPR to Lake Georgetown	15.4	\$85.1
Non-potable	Dove Springs WWTP to South-side Elevated Storage (including Southwestern University)	1.0	\$16.7
Non-potable	Dove Springs WWTP to West-side Elevated Storage	1.5	\$35.0
WWTP Consolidation	Three Forks WWTP Flows to Airport PS to Berry Creek	-	\$3.4
DPR	Northlands WWTP DPR	12.3	\$133.6
DPR	Three Forks WWTP DPR	16.8	\$251.8

Recommendations

Focusing only on expanding the city’s non-potable reuse system does not provide enough additional supply to meet the identified need of at least 22.3 mgd. While expansion of the non-potable system is recommended in some areas, implementing potable reuse at the new larger WWTPs will allow for more flexibility in future water supply alternatives. **Figure ES-3** shows the evaluation criteria, both cost and non-cost, used in selecting the recommended projects.

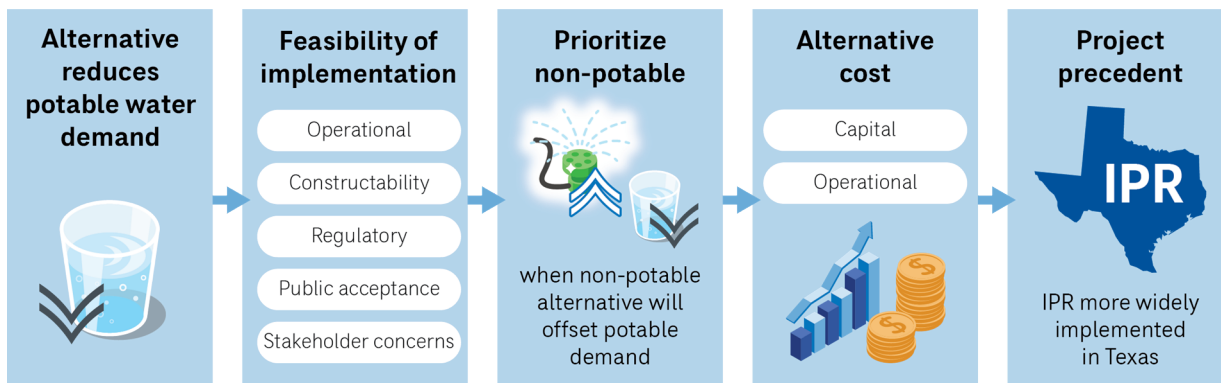


Figure ES-3 Reuse Alternative Screening Criteria

After costing and screening, the recommended reuse project alternatives are:

- **Maintain all existing non-potable water systems:** It is recommended that the city continue to supply non-potable water from the Pecan Branch WWTP and the San Gabriel WWTP to serve existing reclaimed customers.

- **IPR to Lake Granger:** Treated effluent from the new Three Forks WWTP, Northlands WWTP and expansions to existing plants is recommended to be conveyed via the San Gabriel River to Lake Granger under a bed and banks permit. From Lake Granger, the water would be treated at the East Williamson County Water Treatment Plant and pumped to Circleville for storage and conveyance back to the city distribution system. To give the city flexibility to consider DPR from future plants, it is recommended that the future facilities evaluate membrane bioreactors for treatment.
- **Decommission Berry Creek WWTP:** With the larger Three Forks WWTP planned, wastewater flows can be re-diverted to Three Forks WWTP while Berry Creek WWTP could be decommissioned to save on operation and maintenance costs. A new pump station and pipeline utilizing Three Forks WWTP effluent could continue to fill the Berry Creek ponds to supply the Berry Creek golf course contracted reuse water volume.
- **Build non-potable water system from Dove Springs WWTP:** Reuse water from Dove Springs is recommended to supply existing and new non-potable reuse customers to the south and west of the plant. New tertiary filters would be required at Dove Springs WWTP. Pump stations, transmission mains and elevated storage tanks would be installed to deliver Type I reuse water to irrigation customers.
- **Decommission Cimarron Hills WWTP:** The reuse supply from Dove Springs WWTP could supply the golf course at Cimarron Hills WWTP, allowing that plant to be decommissioned.
- **Provide advanced treatment at Northlands WWTP:** It is recommended that the new Northlands WWTP evaluates membrane bioreactors and treatment for per- and polyfluoroalkyl substances (PFAS). This would allow for future IPR to Lake Georgetown and/or Lake Granger.

The projects identified in **Figure ES-4** allow the city to meet the reuse targets set within the IWRP. Prior to implementing a non-potable reuse project the city needs to ensure that it can first meet its long term potable needs and weigh the cost of new water versus the cost of indirect potable reuse or direct potable reuse. There is not a Certificate of Convenience and Necessity (CCN) that requires a reclaimed system to be in place, but CCN regulations do require long term ability to serve potable domestic use.

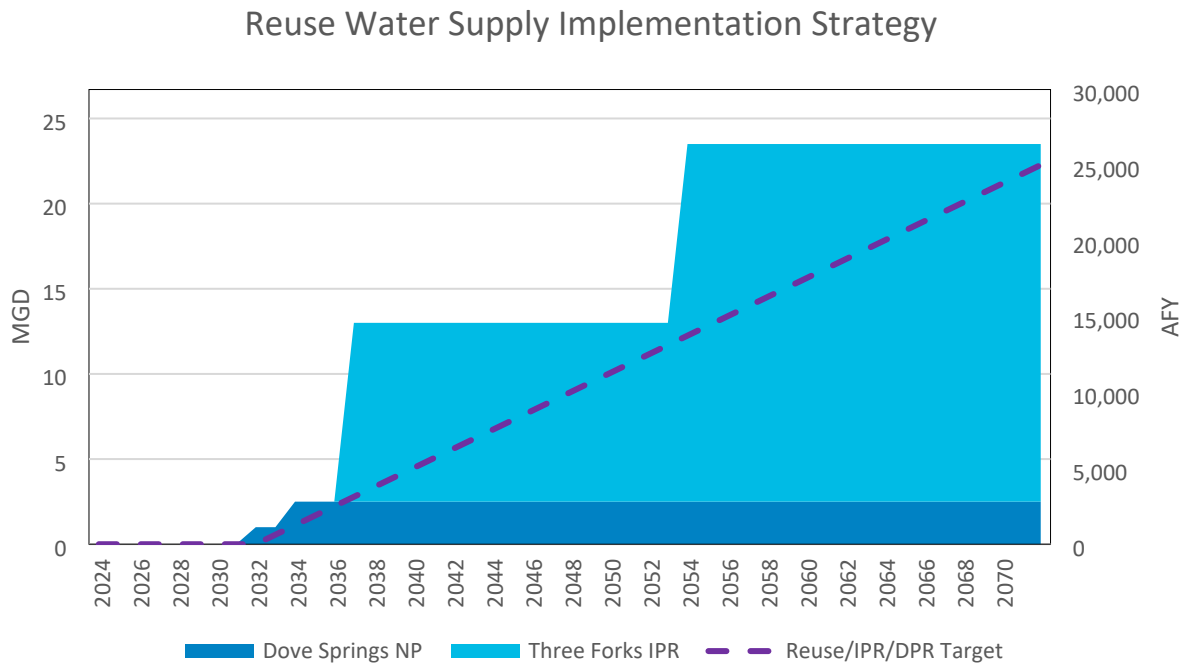


Figure ES-4 Recommended New Reuse Projects to Meet the IWRP Water Supply Strategy

1.0 Introduction and Background

The City of Georgetown (city) led an effort to meet increasing water demands for their rapidly growing population and to diversify their water supplies by recently completing the City of Georgetown Water System Masterplan (CDM Smith, June 2022) for potable water, City of Georgetown Wastewater System Masterplan (CDM Smith, January 2023), and City of Georgetown Integrated Water Resources Plan (CDM Smith, May 2023). The results of these studies indicated a significant portion of reuse water supply may be required to meet future potable water supply demands. This report summarizes findings of the effort to evaluate both non-potable and potable reuse opportunities that will allow the city to provide reuse water in quantities sufficient to meet their long-term water supply needs. The terms “reuse” and “reclaimed water” will be used interchangeably in this report.

1.1 Existing Water Supply and Future Supply Planning

The city has historically met approximately 70 percent of its water demand through a contract with the Brazos River Authority; the water is supplied from Lake Georgetown and is supplemented with water transferred from Lake Stillhouse Hollow and backed up by supplies in Lake Belton. Additional supply sources include the Edwards Aquifer and contracts with the Brushy Creek Regional Utility Authority (which is supplied through a contract with the City of Round Rock) and the City of Leander for supply from Lake Travis and the Lower Colorado River Authority. **Figure 1.1** provides a schematic that summarizes the existing water and wastewater system.

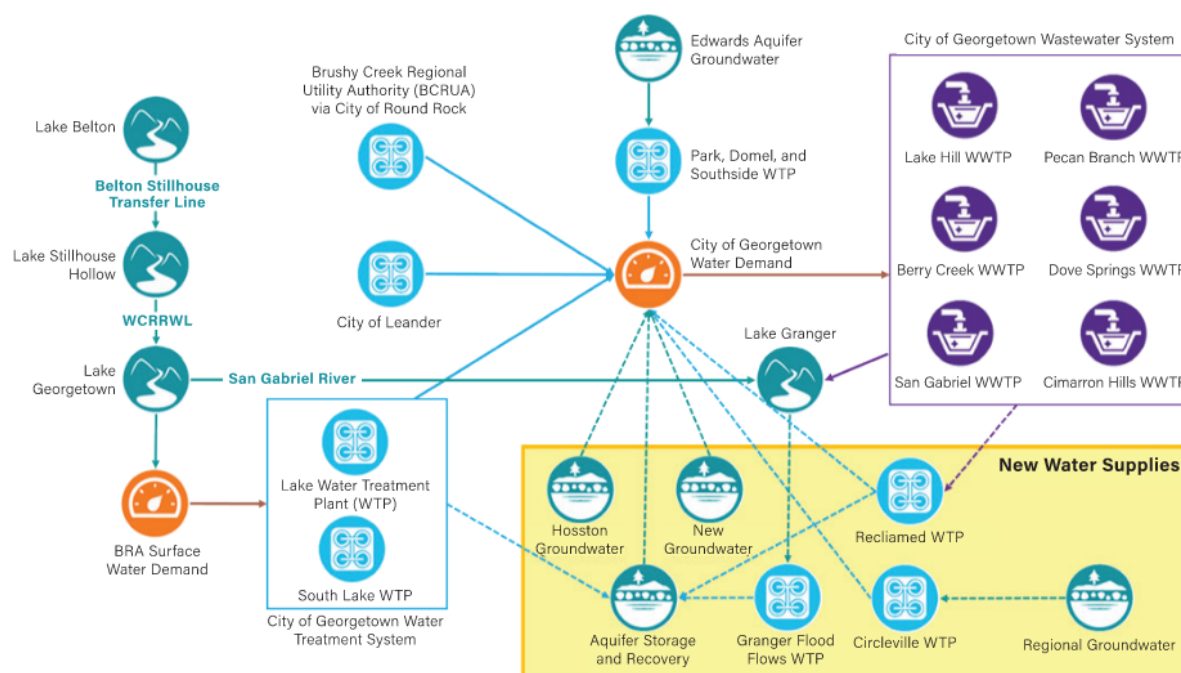


Figure 1.1 Water Integration Tool Elements Showing the City Water Supply and Demand

Within the Integrated Water Resource Plan (IWRP), a system model **Figure 1.1** was created to simulate changes to surface water, groundwater, and recycled water budgets with changing hydrology and new projects implementation over a 50-year planning period. Because no single supply option was sufficient

to address the city's projected water supply gaps, groups of options were combined into supply portfolios. These portfolios were then compared based on reliability, cost-effectiveness, public acceptance, and permitting complexity. The best performing supply portfolios all included additional reclaimed water use as part of the future supply strategy, with volumes ranging from 4.5 to 22.3 million gallons per day (mgd). The selected portfolio from the IWRP is shown in **Figure 1.2**; of the options considered, it is the one with the highest percentage of reclaimed water.

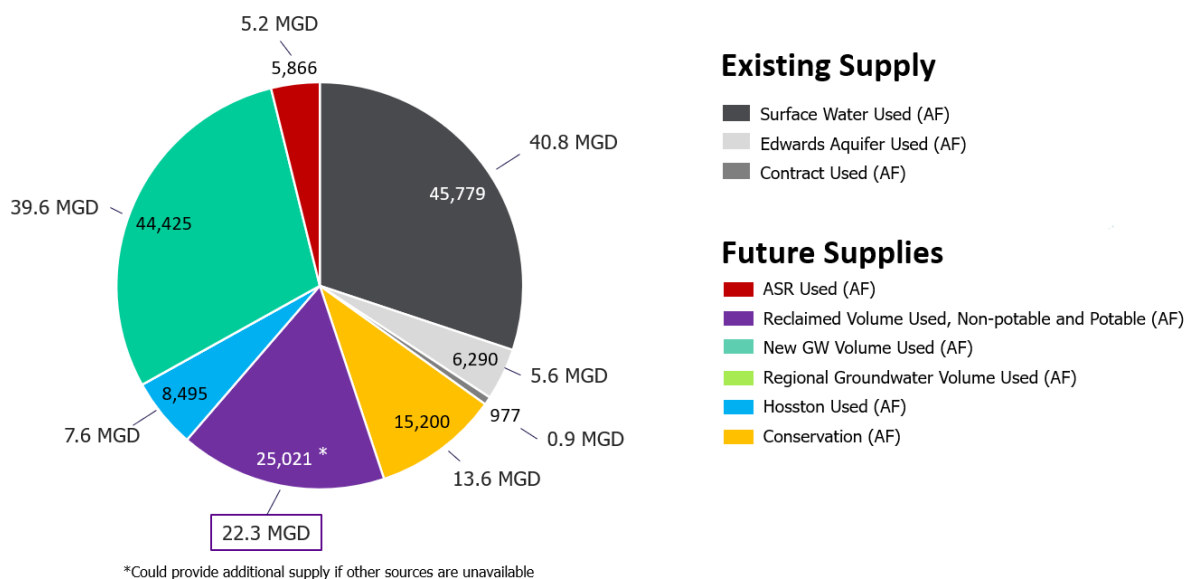


Figure 1.2 Water Supplies for City Through 2070 to Meet Projected Demand

1.2 Drivers for Recycled Water Implementation

In addition to helping the city meet its water supply demand, there are other benefits to implementing a reclaimed potable/non-potable water program:

- **Reliability:** Reuse water is a consistent supply and less impacted by drought and other disruptions than surface water and groundwater.
- **Sustainability:** Reuse water reduces the pressure on natural systems.
- **Local control:** Reuse water is locally sourced so there is no competition with neighboring cities for water rights.
- **Cost-effectiveness:** As competition for local ground and surface water sources increase, cities need to go further afield for new supplies, making reuse a cost-effective alternative.

1.2.1 Drinking Water Facilities

The city's drinking water system is complex because of the topography and the recent integration of two formerly separate water distribution systems. The city's surface water treatment plants (WTPs) are located near Lake Georgetown within or near the city limits. The city's groundwater facilities are located spread out over the productive area of the Edwards Aquifer. A series of storage tanks and pump stations transport water into multiple pressure planes (eight pressure planes) located throughout the city and

its service area. The total water service area which is defined by the city's CCN, including both existing and future services, covers approximately 465 square miles (297,600 acres), of which about 180 square miles (116,000 acres) are within the city limits or Extra-Territorial Jurisdiction (ETJ). The CCN also extends into the cities of Leander and Liberty Hill. The remainder is largely undeveloped and extends far outside the ETJ, especially to the north in Bell and Burnet Counties.

The city currently has about 45 mgd of treated water capacity through a combination of surface water, groundwater, and purchased supplies. The current workhorse of the system is the Lake WTP, situated north of Lake Georgetown, which can produce 28.6 mgd, or 64 percent (%) of the total capacity. This WTP is undergoing an expansion to 37.4 mgd and will be online by summer 2024. Concurrently, the city is building a new plant, the South Lake WTP, off the south shore of Lake Georgetown. This plant will be capable of producing 44 mgd when completed in 2025. It is anticipated in year 2070, 135.7 mgd will be needed to meet demand projections.

1.2.2 Water Reclamation Facilities

The city's wastewater collection and treatment system consists of approximately 440 miles of gravity pipe, 28 miles of force main, and five wastewater treatment plants (WWTPs). The total average treatment capacity of the system, based on the summed capacity of all five WWTPs, is 8.5 mgd. The city has an existing non-potable reuse network that includes utilization of treated effluent from the Pecan Branch, San Gabriel, Berry Creek, and Cimarron Hills WWTPs. Up to 3 mgd of Type I treated effluent from Pecan Branch WWTP is pumped to the Sun City Golf Course. Type I reclaimed water from the San Gabriel WWTP is used to irrigate athletic fields at Southwestern University, the Country golf course and the San Gabriel Park. The Berry Creek WWTP is permitted to provide 0.1 mgd of Type II effluent to the Berry Creek Country Club golf course. The Cimarron Hills WWTP is a no-discharge plant permitted for 0.24 mgd to be used for golf course irrigation uses. Effluent not used as non-potable reclaimed water is discharged to the San Gabriel River and flows into Lake Granger, where it is stored prior to being utilized as a drinking water source for other water utilities and make up water from Georgetown's BRA raw water contract. Major existing and future treatment facilities, existing reclaimed water lines and existing non-potable irrigation areas within the city are shown in **Figure 1.3**.

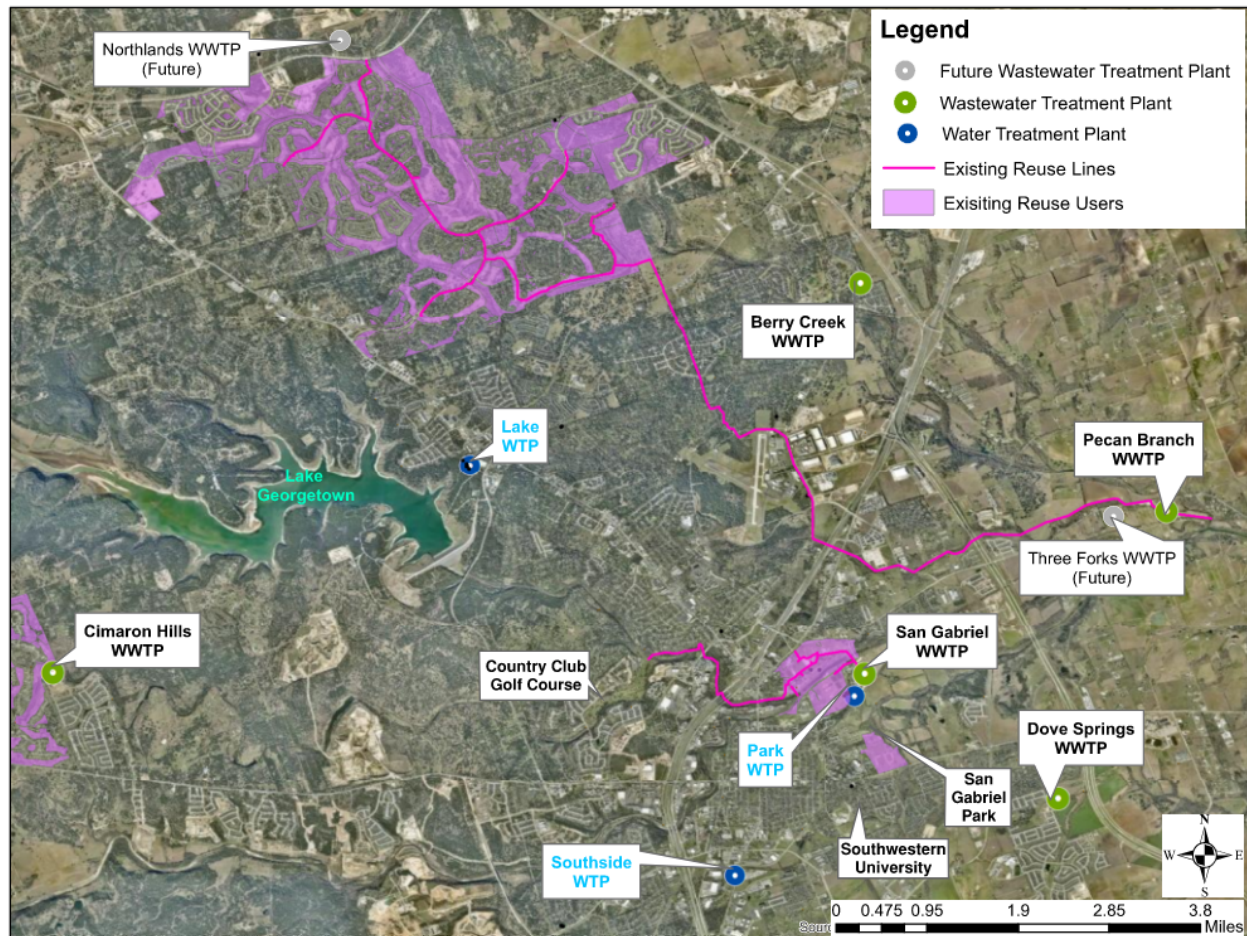


Figure 1.3 City of Georgetown’s Major Existing and Future Facilities

1.3 Future Planned Infrastructure Projects

Based on recommendations from the wastewater master plan evaluation results, two new WWTPs are being built to meet the required wastewater demands in the next 10 years. Most of the new development growth is expected to happen to the north and west of Lake Georgetown, which is uphill and on the opposite side of most of the existing reclamation infrastructure. Limitations to new treatment facilities include cost of real estate and availability, as competition for land around Lake Georgetown is significant.

1.3.1 Future Water Reclamation Facilities

Northlands WWTP will provide a treatment capacity of 1.5 mgd in the first phase, then 3 mgd in the next 10 years. The plant’s Texas Pollutant Discharge Elimination System (TPDES) permit allows up to 3 mgd to be discharged from this plant. In the wastewater master plan, it was projected that Northlands WWTP will have a build-out capacity of 15.5 mgd in 2065. Three Forks WWTP, which is adjacent to the Pecan Branch WWTP, is planning to provide 10.5 mgd capacity by 2029 and 21.0 mgd for build-out in 2039. A permit for this plant is currently under review at the Texas Commission on Environmental Quality.

1.3.2 New Groundwater Supplies

To address the long-term demands of population growth in the water service area, the city is looking to partner with Edmonton Power Corporation (EPCOR) to secure additional water supply. The city has entered into a 2-year reservation agreement to negotiate a public–private partnership and a water supply agreement, which will provide a plan to deliver water from the Carrizo-Wilcox Aquifer in Robertson County. The partnership contemplates Georgetown receiving approximately 35 to 62 mgd of treated groundwater (39,399 to 70,000 acre-feet), with initial delivery by 2030.¹

¹ City of Georgetown Utility Systems – Water. n.d. “Carrizo-Wilcox Aquifer Water Supply Project.” Accessed January 21, 2024, <https://gus.georgetown.org/water/where-does-georgetown-get-its-water/water-supply-project/>

2.0 Reuse Terminology and Existing Regulations

2.1 Overview of Existing Regulations

Non-potable reuse water is treated wastewater (domestic, municipal, or industrial) that can be used for non-drinking water purposes; it is typically indicated by a purple pipe within a distribution system. In Texas, it can be further categorized under 30 TAC §210.32 into Type I and Type II:²

- Type I – Applications where reclaimed water may come into contact with the public, including but not limited to residential irrigation, public park irrigation, fire protection, irrigation of food crops, or toilet flushing.
- Type II – Applications where the public would not come in contact with the reclaimed water, including but not limited to irrigation of sod farms or remote locations, and irrigation of spaces in which public access can be restricted during times of irrigation, such as golf courses, sod farms, cemeteries, industrial complexes, and cooling tower makeup water.

Water quality requirements for Type I and Type II non-potable reuse applications are listed in **Table 2.1**. Sampling must be done twice per week for Type I reuse systems, and once per week for Type II.

Table 2.1 Quality Standards for Using Reclaimed Water, 30 Texas Administrative Code §210.33

Type	BOD ₅ ¹	CBOD ₅ ²	Turbidity	Fecal Coliform or <i>E. Coli</i> ³	Fecal Coliform or <i>E. Coli</i> ⁴	Enterococci ³	Enterococci ⁴	Sample Frequency
	mg/L	mg/L	NTU	CFU/ 100 mL	CFU/ 100 mL	CFU/ 100 mL	CFU/ 100 mL	Samples/ week
I	5	5	3	20	75	4	9	2
II (non-pond system)	20	15	N/A	200	800	35	89	1
II (pond system)	30	N/A	N/A	200	800	35	89	1

Notes:

¹ Five-day Biochemical Oxygen Demand

² Carbonaceous Biochemical Oxygen Demand

³ 30-day geometric mean

⁴ Single-sample maximum

Figure 2.1 illustrates the implementation of Type I and Type II non-potable reuse.

² Texas Administrative Code – Specific Uses of Reclaimed Water. Accessed November 06, 2023, [https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=210&rl=32](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=210&rl=32).

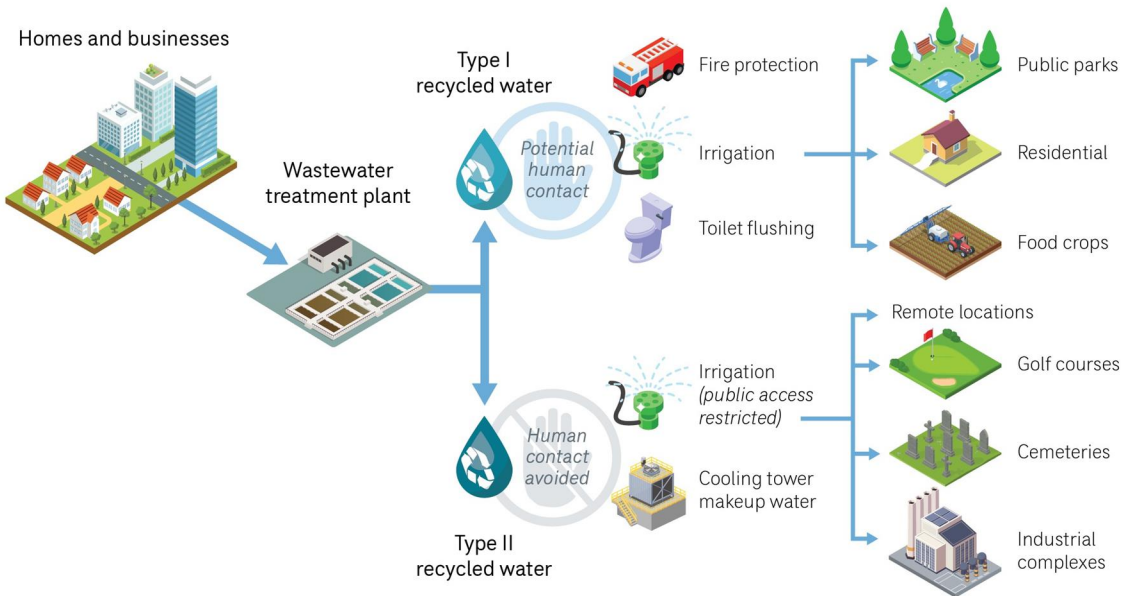


Figure 2.1 Schematic of Non-Potable Reuse Process Flow

Pros and cons of implementing or expanding a non-potable reuse system are highlighted in **Table 2.2**. Several non-potable projects will be discussed as options for the city as part of this report.

Table 2.2 Non-Potable Reuse Pros and Cons

Category	Pros	Cons
Feasibility	There are many large water users that could utilize non-potable water and be “anchor” customers.	Can be a burden to install a new piping system, often alongside existing infrastructure.
Public Acceptance	There is a significant interest in non-potable water within the state in the past few years.	Potential risk of small, niche groups who may heavily oppose projects.
Regulatory Complexity	Non-potable reuse in Texas is well defined and has been regulated since 1997.	Moderate additional testing required to maintain compliance.
Relative Cost	Operation and maintenance costs are lower than other types of water reuse.	Routing purple pipe is expensive, especially within large, developed service areas. Contracts with major users should be established to secure revenue and confirm demands.
Reliability	Effluent is continuously generated.	Relying on customers to use estimated amount, which could fluctuate with wet years and as businesses implement water conservation goals.

2.1.1 Indirect Potable Reuse

Potable water reuse is the use of treated wastewater effluent for drinking water purposes. De-facto, or unintentional potable reuse, occurs when a community uses a drinking water source in which a fraction originates from the wastewater effluent of an upstream community. In Texas, de-facto reuse is practiced

and has been for decades. However, with the impending PFAS drinking water regulation, this could change the way de-factor reuse is viewed and implemented. Indirect potable reuse (IPR) is the intentional discharge of treated wastewater to an environmental buffer, such as a lake, river or tributary, or groundwater aquifer, before subsequent drinking water treatment and conveyance to customers (**Figure 2.2**). This can allow a city to augment their surface water or groundwater supplies. Several IPR options will be discussed for the city as part of this report.

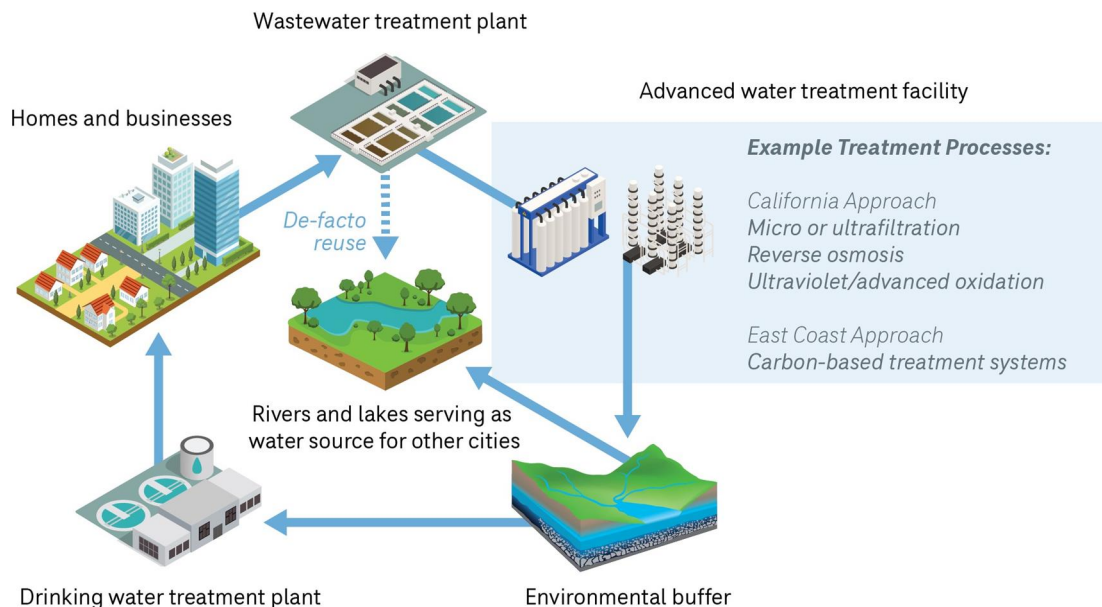


Figure 2.2 Schematic of Indirect Potable Reuse Process Flow

TCEQ does not have formal regulations for the practice of IPR, specifically. The permitting pathway for IPR in Texas is shown in **Figure 2.3**. Wastewater effluent is already being discharged to the San Gabriel River which flows into Lake Granger. The proposed Three Forks TPDES permit would increase the potential discharge into Lake Granger. To discharge effluent from an existing WWTP into Lake Georgetown, an amendment to the existing TPDES permit will first be required to add a second outfall location. For a new WWTP, the location can be written directly into the permit. The first step in this regulatory process is to have a preapplication meeting with TCEQ staff. Public notice will need to be sent to all property owners within the first mile downstream of the discharge point.

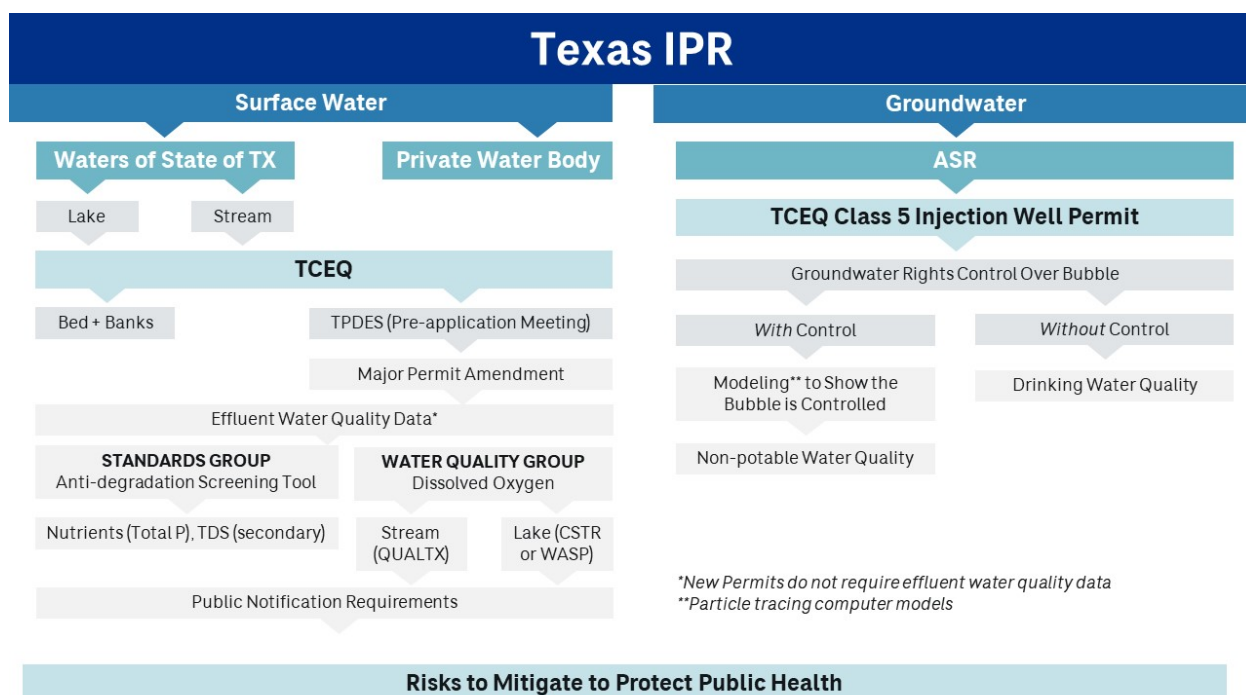


Figure 2.3 Permitting Pathway for Indirect Potable Reuse in Texas

Table 2.3 highlights several pros and cons of an IPR system.

Table 2.3 Indirect Potable Reuse Pros and Cons

Category	Pros	Cons
Feasibility	No need for a separate delivery system – just need to build the transmission and some targeted additional treatment.	Even if no regulation exists for certain constituents for discharge into drinking water sources, the city will have to address them in their drinking water facilities.
Public Acceptance	Public may be more accepting of potable reuse with an environmental buffer that is seen as “natural.”	Potential risk for certain small groups who may heavily oppose projects.
Regulatory Complexity	IPR regulations in Texas are well-defined.	Will need to do additional testing and monitoring.
Relative Cost	Additional treatment and infrastructure, but low sampling and monitoring costs in comparison to direct potable reuse (DPR). Potentially less expensive than buying groundwater on the retail market.	High upfront investment, especially if addressing some contaminants before discharging into a drinking water source.
Other	Minimize the risk of not getting paid for that water in wet years or if facilities take drastic conservation efforts.	Potential recontamination by buffer water pollutants.

2.1.2 Direct Potable Reuse

The State of Texas Health and Safety Code §341.0391 defines direct potable reuse (DPR) as “the introduction of treated reclaimed municipal wastewater as either directly into a public water system or into a raw water supply immediately before the water enters a drinking water treatment plant” (**Figure 2.4**).

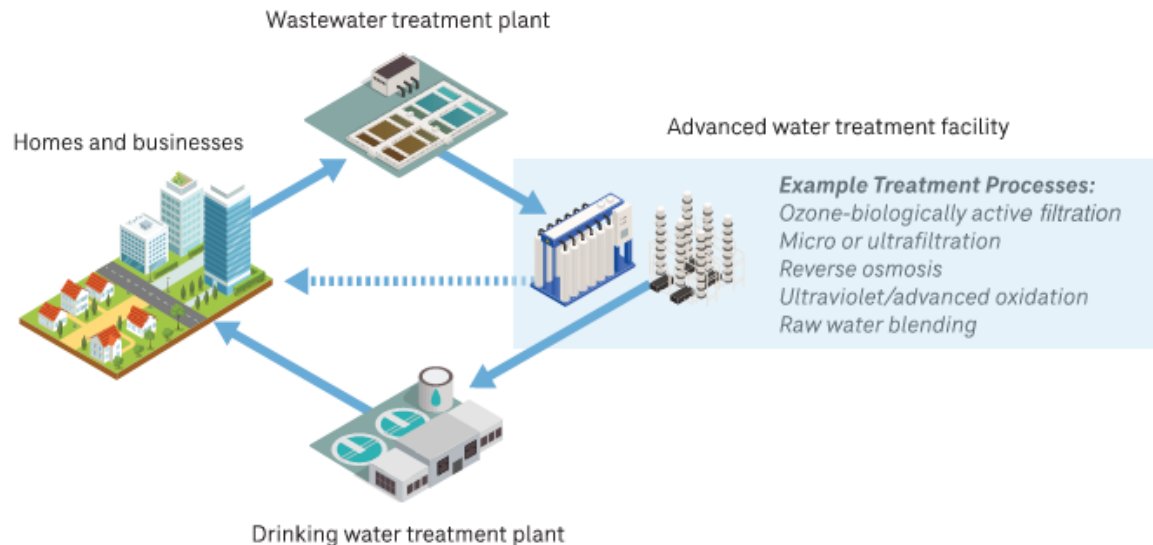


Figure 2.4 Schematic of DPR Process Flow

DPR requires higher level of treatment, which can come with higher construction, operating, and maintenance costs, but can provide cities with a reliable source of drinking water often without water rights issues or competition with neighboring cities.

Texas recently established DPR guidelines (November 2022) in which DPR facilities are approved on a case-by-case basis through a rule exception process. To receive an exemption from the requirements in 30 TAC, Chapter 290, Subchapter D, a water utility must demonstrate to TCEQ that their proposed process will not degrade the service or quality of water. Additionally, the proposed DPR system must meet federal and state finished drinking water standards. The approval process generally consists of the following steps:

- 1) Conduct wastewater effluent characterization.
- 2) Write a pilot testing protocol, conduct a pilot study, and prepare a report.
- 3) Submit plans and specifications for the DPR plant.
- 4) Construct the DPR facility.
- 5) Submit a disinfection study (e.g., Concentration-Time study) and test membrane performance parameters (e.g., direct integrity test parameters).

- 6) Submit a full-scale verification testing protocol.
- 7) Start-up/commission the plant and conduct verification testing.
- 8) Prepare and submit the final verification testing report.

More information about DPR regulations can be found at the following link:

<https://www.tceq.texas.gov/downloads/drinking-water/rg-634.pdf>.

Table 2.4 highlights some pros and cons associated with DPR.

Table 2.4 Direct Potable Reuse Pros and Cons

Category	Pros	Cons
Feasibility	Does not require miles of new purple pipe. Can utilize existing drinking water distribution system.	More stringent treatment, sampling, monitoring, and reporting required. Where to discharge waste stream.
Public Acceptance	Big Spring and Wichita Falls demonstrated the public acceptance of DPR in Texas.	Negative media coverage can impact project feasibility.
Regulatory Complexity	There is established regulatory precedent for DPR in Texas (Big Spring, Wichita Falls, El Paso). The recently released 2022 DPR Guidelines strengthen and confirm the regulatory pathway.	Although DPR Guidelines formally exist, DPR is still approved on a case-by-case basis.
Relative Cost	DPR may become “cost comparable” with acquiring additional water sources from neighboring communities as water scarcity increases.	High upfront investment is required. Construction, operation, and maintenance costs are higher due to the higher levels of treatment and process monitoring required.
Reliability	Provides reliable source of drinking water without competition with neighboring cities or relying on surface water sources.	Extensive system monitoring required, from collection system monitoring through advanced treatment.

2.1.3 On-Site/Decentralized Reuse

Decentralized wastewater treatment consists of a variety of approaches for collection, treatment, and reuse of wastewater for non-potable purposes in individual dwellings, industrial or institutional facilities, clusters of homes or businesses, and entire communities (**Figure 2.5**). There are many wastewater sources available within a building, including blackwater (from toilets, dishwashers, kitchen and utility sinks), greywater (from sinks, washing machines, and showers), stormwater, rainwater, air-conditioning condensate, and foundation drainage. Different treatment processes may be required, depending on the water source. For example, greywater can often be treated with artificial wetlands while blackwater requires both biological or chemical treatment and disinfection. Systems that discharge into water or onto soil surfaces require a TPDES or Texas Land Application Permit (TLAP) permit; however, alternative water, greywater, and combined reuse systems do not require permits if abiding by 30 TAC Chapter 210 Subchapter F. Recycled water can be used on-site for toilet flushing, clothes washing, irrigation, or in heating or cooling systems. No on-site uses are identified as part of this report, but the city may further investigate options if a large facility of interest is identified in the future.

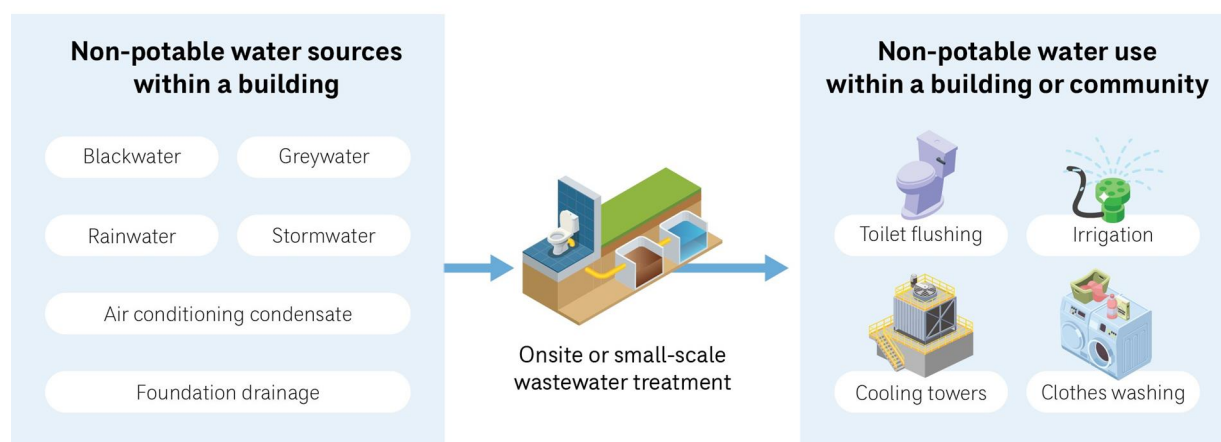


Figure 2.5 Schematic of On-Site/Decentralized Use Process

Table 2.5 highlights pros and cons of implementing on-site or decentralized reuse.

Table 2.5 On-site/Decentralized Reuse Pros and Cons

Category	Pros	Cons
Feasibility	Easier to implement because there are fewer parties involved.	Have to limit to a small number of systems in a sewer shed so the treatment brine does not impact the regular collection system.
Public Acceptance	Only impacting the people involved within the project.	
Regulatory Complexity	Some applications do not require TPDES or TLAP permits if complying with 30 TAC Chapter 210 Subchapter F.	
Relative Cost	Lower upfront investment.	

Category	Pros	Cons
Reliability	Can serve communities not easily reached by centralized systems.	Have to limit to a small number of systems in a sewer shed so the treatment brine does not impact the regular collection system.

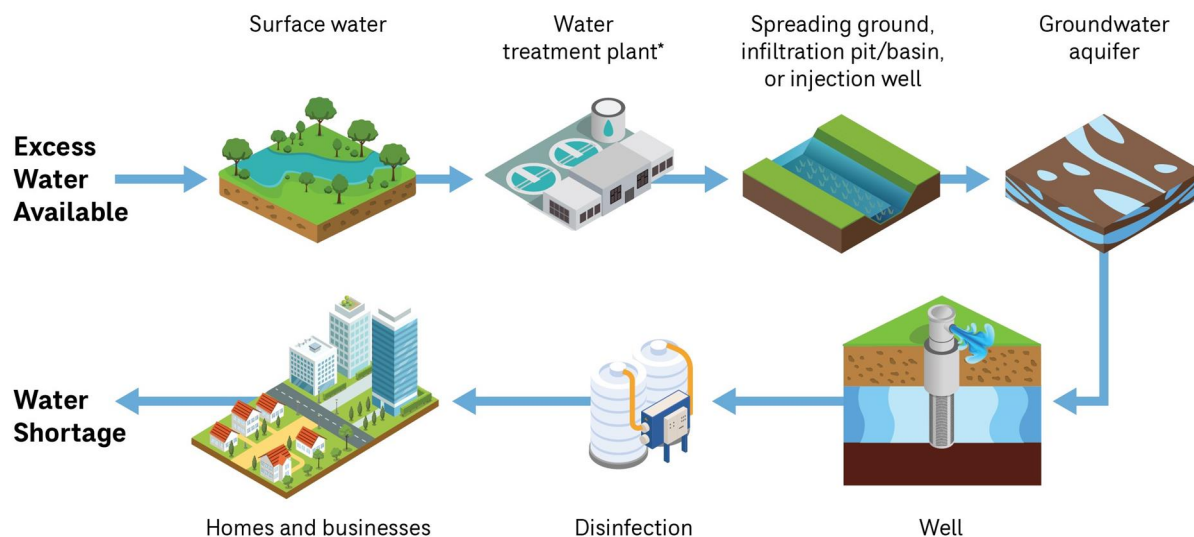
2.1.4 Aquifer Storage and Recovery (ASR)

According to Texas Water Code (TWC) 27.151, ASR is the injection of water into a geologic formation for the purpose of subsequent recovery and beneficial use by the project operator. ASR projects typically use confined deeper aquifers with sufficient permeability and storage characteristics to meet the needs of the project. Using the same well, water is injected and stored during times when water is available, and then subsequently recovered when needed. **Figure 2.6** provides a visual representation of a typical ASR project.

ASR projects are regulated under TCEQ’s Underground Injection Control (UIC) Program as Class V wells. In 2015, House Bill 655 was passed, establishing TWC 27.151, ASR Projects, thereby enabling TCEQ to be the sole permitting agency (provided the volume of water recovered does not exceed the volume recharged).

One of the technical challenges for ASR implementation is ensuring the recharged water is not withdrawn by adjacent landowners (i.e., the water is lost to others). One approach is to own the land overlying the full extent of the recharged “bubble.” This can be expensive, particularly when ASR systems are in urbanized locations; however, other forms of institutional control may be possible, and the land requirements for an ASR well are very small (little more than 1 acre).

No ASR projects are discussed for the city as part of this report because at this time, ASR is not allowed in Williamson County if the injection well transects the Edwards Aquifer. The target aquifer for ASR in the lower Trinity Aquifer formation is the Hosston which is below the Edwards Aquifer. Until the rules for transecting the Edwards Aquifer in Williamson County are changed, ASR is not a possibility. This should be revisited if the rules change in upcoming legislative sessions.



**Required under TCEQ Class V Injection Well Program unless the entire land containing the aquifer is owned*

Figure 2.6 Schematic of ASR Process Flow

The pros and cons implementing ASR are outlined in **Table 2.6**.

Table 2.6 Aquifer Storage Recovery Pros and Cons

Category	Pros	Cons
Feasibility	Can potentially store large volumes of water during low-demand periods.	Location is constrained by the hydrogeological setting. Within the Georgetown City limits, suitable aquifers are much thinner, only allowing smaller volumes to be stored and recovered. Potential exists for much larger ASR systems further east, but conveyance is required.
Public Acceptance	Less controversial than other water storage solutions, such as building new dams.	Risk of small opposition groups, as the city is close to the sensitive Edwards Aquifer.
Regulatory Complexity	Well-established practice.	The need to meet drinking water standards prior to injection and storage has not yet been established in Texas, but there is a risk of changing regulatory control as more stringent standards are applied.
Relative Cost	Reduced cost of transmission and distribution infrastructure.	Highly dependent on local geologic conditions.
Reliability	Less water lost to evaporation in comparison to surface water reservoirs. Can store large volumes of water during low-demand periods.	Potential for leaching of hazardous contaminants into the aquifer (mineral precipitation, mobilization of trace elements).

3.0 Reuse Options

CDM Smith evaluated multiple non-potable and potable reuse alternatives. The most feasible were selected and are detailed within this section. Screening of alternatives is described in more detail in Section 4.

3.1 Overview

To secure the 22.3 mgd of reuse water targeted to supplement existing and future supplies, we evaluated several options with non-potable irrigation water that would build on the city's existing non-potable irrigation system. We then evaluated indirect and then DPR options. In the paragraphs below, we detail the development of potential supplies, demands for irrigation water and the potential supplies that could augment existing surface water and groundwater supplies through IPR or DPR. Prior to selecting any project, the City shall verify it has raw water resources to meet long term potable supply of the CCN and the costs of that supply versus a reclaimed project. Utilizing reclaimed water for indirect potable reuse may be the highest and best use to most cost effectively meet long term potable needs. Reclaimed irrigation uses should prioritize those that lower the City's potable demand and replace existing potable meters with non-potable meters.

3.2 Option Development

Five non-potable irrigation alternatives and four potable reuse (IPR/DPR) alternatives were identified as feasible options; each is described in the following subsections.

Some cost assumptions pertain to all alternatives and were developed with input from the city staff as well as CDM Smith's previous project cost experience. These parameters used for all alternatives are shown in **Table 3.1**.

Table 3.1 Cost Assumptions Common to All Reuse Alternatives

Parameter	Cost Carried in Report Estimates
Easement acquisition	\$30,000 per acre
Professional services – non-potable projects	15%
Professional services – potable projects	20%
Mobilization/demobilization	5%
Contingency	35%
Operation costs – non-potable projects	\$0.50 per thousand gallons
Operation costs – conventional treatment projects	\$1.50 per thousand gallons
Operation costs – advanced treatment projects	\$3.00 per thousand gallons

Where available, costs were utilized from both the Texas Water Development Board (TWDB) Uniform Costing Model (UNM) and the values used in the City of Georgetown Water System Master Plan. Detailed cost breakdowns are included in Appendix B.

3.2.1 Non-Potable Reuse Options

Many of the existing WWTPs produce effluent that already meets Type I or Type II non-potable reuse water quality standards. In **Table 3.2**, results highlighted in green comply with Type I standards and results highlighted in blue comply with Type II standards.

Table 3.2 WWTP Effluent Water Quality Data

Parameter	Berry Creek Effluent	Cimarron Hills Reuse	Dove Springs Effluent	Pecan Branch Effluent	Pecan Branch Reuse	San Gabriel Effluent	San Gabriel Reuse
BOD ₅ (mg/L)	2.8	2.9	3.7	2.4	–	3.2	–
CBOD ₅ (mg/L)	2.6	2.9	3.5	2.2	2.1	3	3.1
Turbidity (NTU)	9.4	–	–	–	0.9	–	1.4
Fecal coliform of <i>E. coli</i> * (CFU/100 mL)	132†	–	2†	5.2†	7.9†	10.2†	4.8†
Fecal coliform of <i>E. coli</i> ** (CFU/100 mL)	980†	–	113†	721†	875†	177†	561†
Enterococci* (CFU/100 mL)	–	–	–	–	–	–	–
Enterococci** (CFU/100 mL)	–	–	–	–	–	–	–

Unless specified otherwise, data is from the 2022 DMR data set. *30-day average, **Single-sample maximum, †From 2016–2018 DMR Data

A methodology was developed to estimate the city’s demands for non-potable irrigation water, both existing and into the future. In the 2022 water billing data, demands for billing code “Irrigation” identify water that is used for irrigation and is metered through a dedicated irrigation water meter. This billing code designation provides an estimate for non-potable irrigation water use demand, or potential reclaimed water users, which would offset potable water demands currently required from the system. Another factor considered was the location and sizing of existing recycled water infrastructure, as the city does have an existing reclaimed water system. Relevant data were spatially mapped in a geographic information system (GIS) format, and large users were identified and grouped into areas. These areas were discussed and confirmed with the city as having the highest potential for non-potable irrigation water demand and are presented in the paragraphs below.

3.2.1.1 Three Forks WWTP to Lake WTP Elevated Storage Alternative

The Three Forks – Lake WTP Alternative involves installing a new reclaimed waterline (from the Pecan Branch WWTP/Three Forks WWTP) to convey treated effluent to a new elevated storage tank near Lake WTP for Type I non-potable reuse applications. Flows would be maintained to Sun City through the existing pump station, while a new pump station and existing storage tank would send flows to the new elevated storage tank near Lake WTP. A valve would be installed at the pump station to isolate flows from Sun City, as needed.

Figure 3.1 shows a schematic of the proposed system improvements.

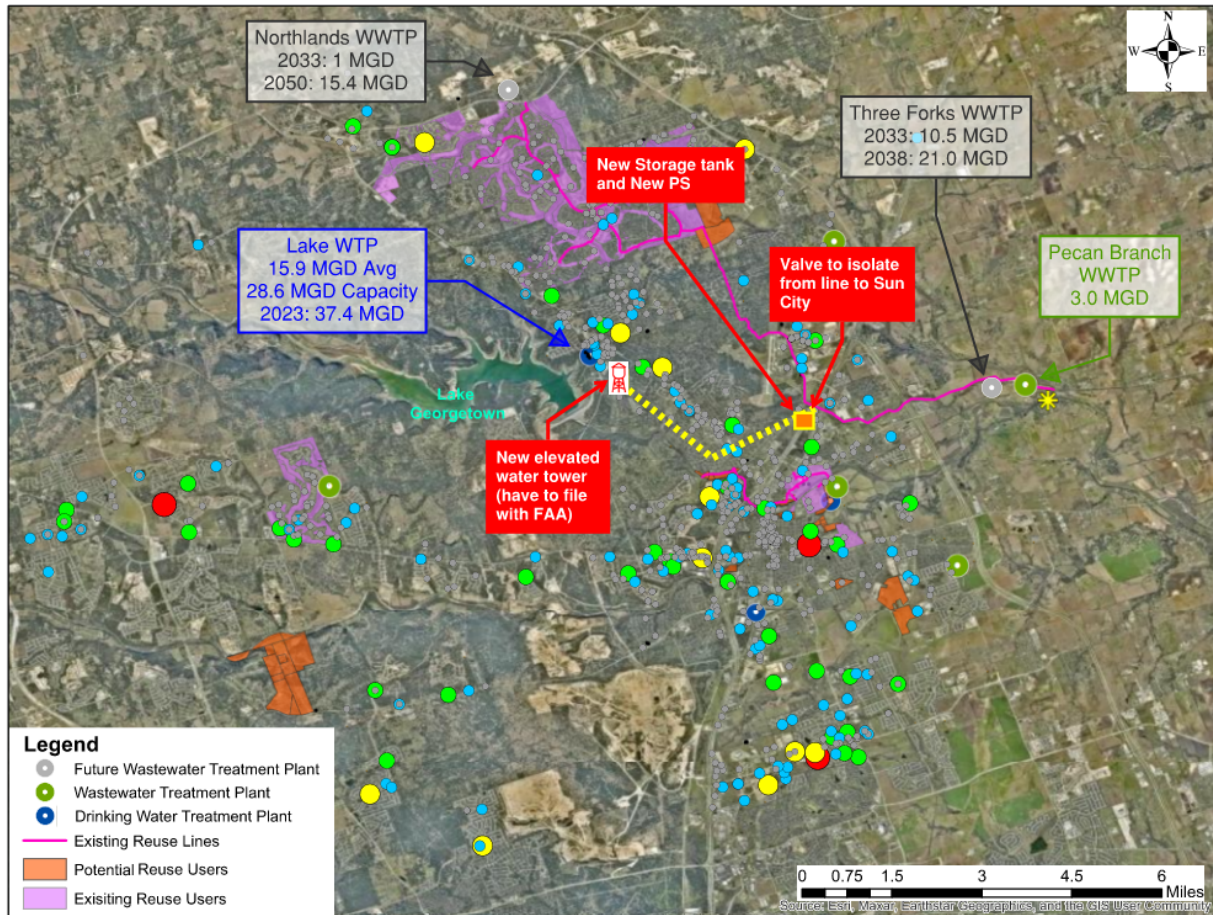


Figure 3.1 Three Forks WWTP to Lake WTP Elevated Storage Alternative Schematic

Water stored in the proposed Lake WTP elevated storage tank can be used for irrigation purposes without additional treatment. It is recommended to prioritize the largest consumers when installing purple pipes.

This alternative also considers future potable reuse of potable irrigation that can be converted. When needed, advanced treatment processes can be installed at Lake WTP to treat the effluent to DPR standards. Treated DPR water could then be blended with treated water from conventional treatment process at Lake WTP to augment potable supply.

A summary of costs associated with this non-potable alternative is shown in **Table 3.3**, which assumes a 100 horsepower (hp) booster pump station at Three Forks WWTP, and a 200 hp booster pump station and ground storage tank near the airport.

Table 3.3 Three Forks WWTP to Lake WTP Elevated Storage Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
2 mgd	\$25.5 Million	\$365,000	\$3.30/kgal

3.2.1.2 San Gabriel WWTP to Lake WTP Elevated Storage Alternative

The San Gabriel – Lake WTP Alternative involves sending water from San Gabriel WWTP to a new elevated storage tank at Lake WTP for Type I non-potable reuse applications. This alternative avoids diverting flow from the existing Pecan Branch reclaimed waterline.

This alternative also considers future potable reuse. When needed, advanced treatment processes can be installed at Lake WTP to treat the effluent to DPR standards. Treated DPR water could then be blended with treated water from the conventional treatment process at Lake WTP to augment potable supply.

Figure 3.2 shows a schematic of the proposed system improvements.

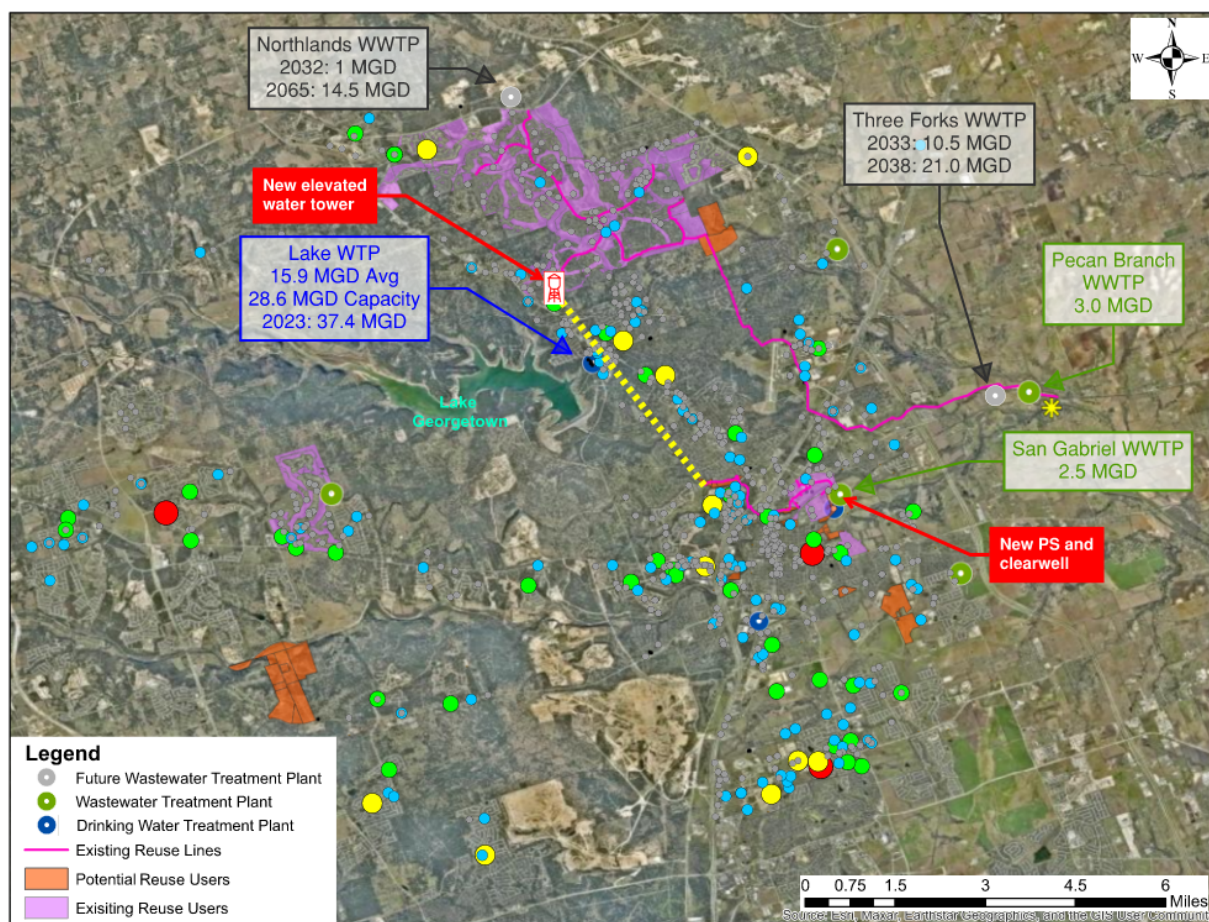


Figure 3.2 San Gabriel WWTP to Lake WTP Elevated Storage Alternative Schematic

A summary of costs associated with this non-potable alternative is shown in Table 3.4, which assumes a 0.5 mg clearwell and a 50 hp booster pump station at San Gabriel WWTP and a 0.5 mg elevated storage tank (EST) near Lake WTP.

Table 3.4 San Gabriel WWTP to Lake WTP Elevated Storage Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
0.5 mgd	\$21.8 Million	\$91,250	\$10.10/kgal

3.2.1.3 Northlands WWTP Elevated Storage Alternative

The Northlands WWTP Storage Alternative proposes building a new elevated water storage tank near the future Northlands WWTP (**Figure 3.3**). Water stored in this tank can be used to satisfy irrigation demands for two new customers located west of the facility. Additionally, this project would require site improvements (e.g., civil and piping modifications) to the airport pump station.

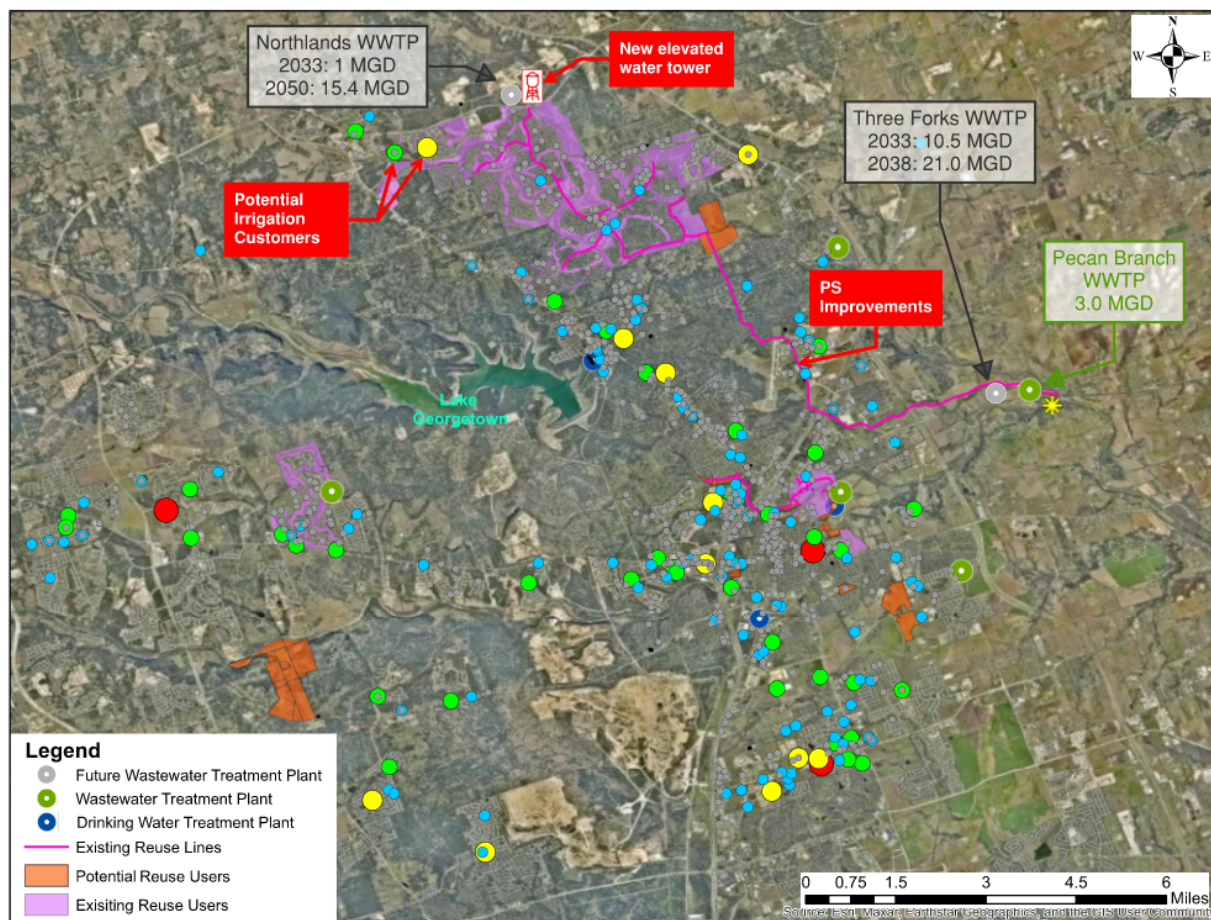


Figure 3.3 Northlands WWTP Elevated Storage Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.5**, which assumes a 0.5 mg clearwell, additional yard piping, and a new 0.5 mg EST at Northlands WWTP, in addition to booster pump station improvements (50 hp) at the airport pump station. This alternative would only remove two potable customers from the potable system.

Table 3.5 Northlands WWTP Elevated Storage Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
0.5 mgd	\$10.3 Million	\$91,250	\$5.03/kgal

3.2.1.4 Dove Springs WWTP to South Alternative

The Dove Springs – South Alternative involves conveying effluent flows from the Dove Springs WWTP to serve large-demand consumers located south of the plant. This scenario requires adding filters at Dove

Springs to meet Type I non-potable reuse standards. It also requires building a new pump station at Dove Springs WWTP and a new elevated water tower within the community south of the plant, as shown in **Figure 3.4**.

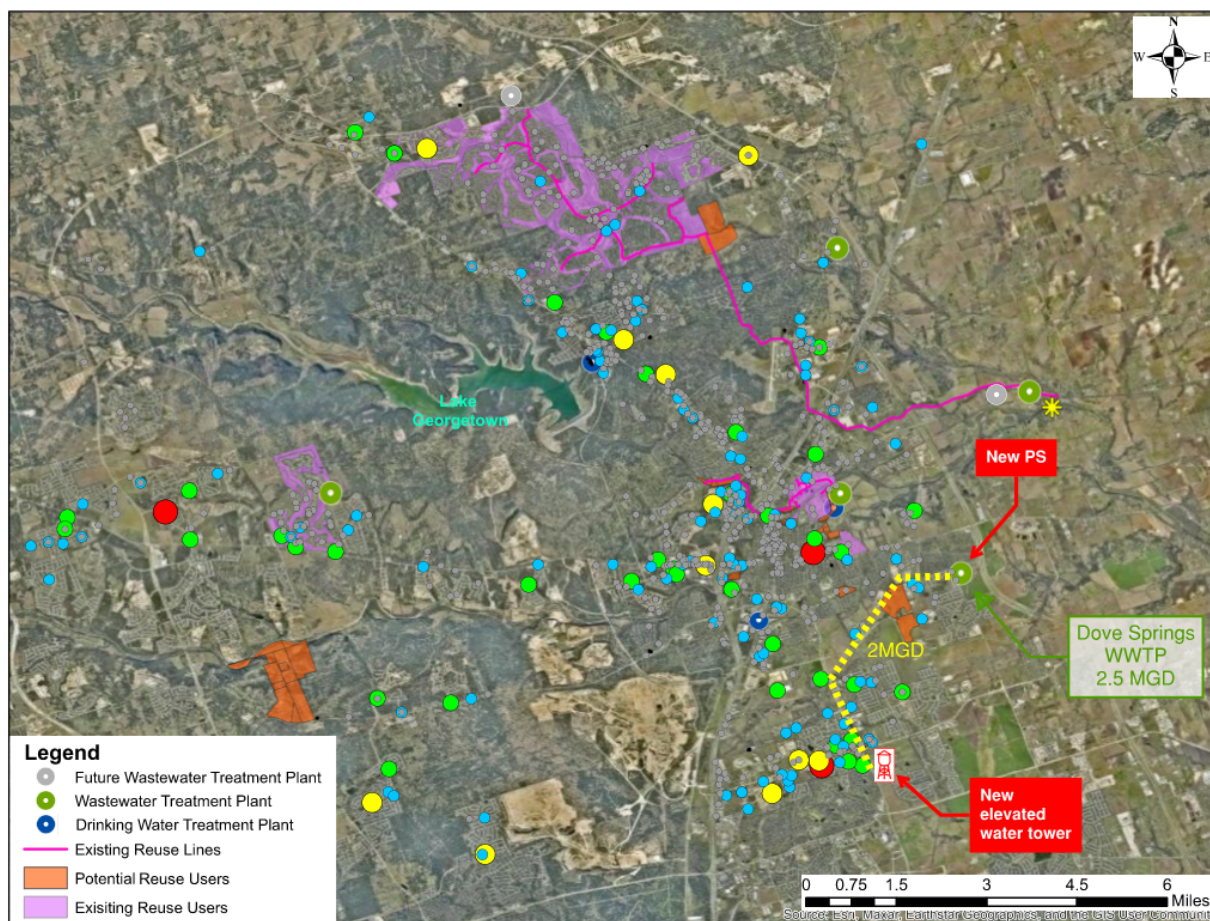


Figure 3.4 Dove Springs WWTP to South Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.6** which assumes a new 1 mg clearwell, 100 hp booster pump station, installation of effluent filters, and additional yard piping at Dove Spring WWTP. It also assumes a new 0.5 mg EST near the Teravista community.

Table 3.6 Dove Springs WWTP to South Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
1.0 mgd	\$15.3 Million	\$182,500	\$3.87/kgal

3.2.1.5 Dove Springs WWTP to West Alternative

The Dove Springs – West Alternative involves conveying effluent from the Dove Springs WWTP westward to the area south of Lake Georgetown. This would involve installing two new elevated water towers for additional storage as well as a new booster pump station with a new ground storage tank.

Figure 3.5 shows a schematic of the proposed system improvements.

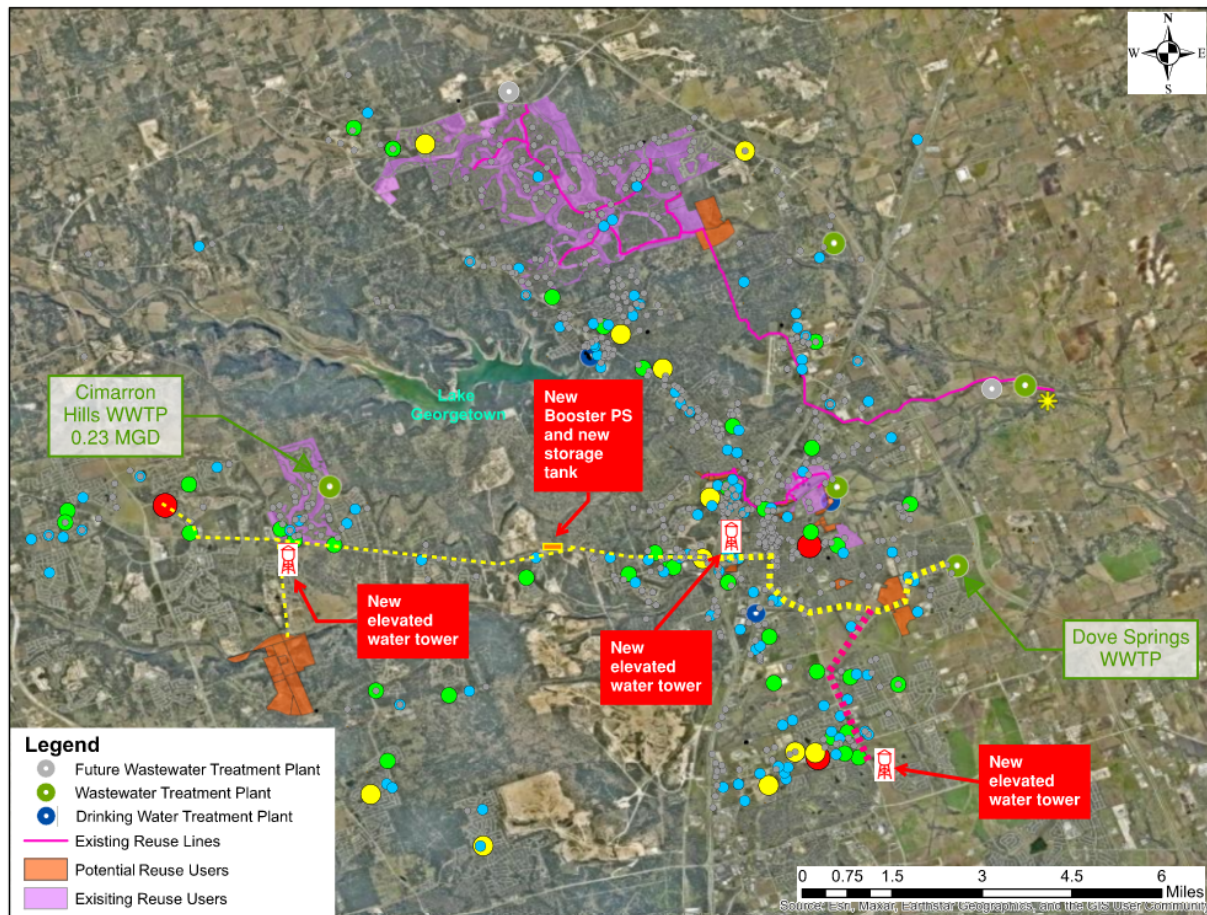


Figure 3.5 Dove Springs WWTP to West Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.7**, which assumes a new 1.5 mg clearwell, 200 hp booster pump station, installation of effluent filters, and additional yard piping at Dove Spring WWTP. It also assumes a new 300 hp booster pump station with a new 0.5 mg ground storage tank, and two new 1.5 mg ESTs.

Table 3.7 Dove Springs WWTP to West Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
1.5 mgd	\$33.5 Million	\$273,750	\$5.41/kgal

3.2.2 Potable Reuse Options

The following sections present four options for implementing potable reuse to augment water supply and meet future demands. Both IPR and DPR were considered because there is a clear regulatory pathway for both within Texas.

3.2.2.1 IPR Options

IPR to Lake Granger Alternative

In this alternative, up to 21 mgd of treated effluent from the future Three Forks and Northlands WWTPs and excess flows from Pecan Branch, San Gabriel and Dove Springs WWTPs would be conveyed to Lake

Granger using the San Gabriel River. Currently the Brazos River authority has prior return flow rights to Pecan Branch, San Gabriel , and Dove Springs WWTP's. The BRA does not have return flow rights to Northlands and Three Forks WWTP's. Making these two plants ideal for indirect potable reuse and the most efficient use of existing potable infrastructure. To maintain ownership of the water discharged into the San Gabriel River, a bed and banks permit is required. From there, it would be treated by the East Williamson County (EWC) WTP and then pumped to Circleville (where it would be stored in a new ground storage tank until it is pumped and blended for distribution). The city has plans to install a new water transmission main north of Lake Granger that could be used to convey this water toward the main city distribution system. **Figure 3.6** depicts a process flow for this alternative.

This option, as opposed to the non-potable options listed previously in this report, would allow the city to retain the rights of water previously purchased to supplement the potable water demands of the growing population, rather than relying on irrigation alone. This option should be heavily considered as the cost of new potable water from retail purveyors is expected to be exponentially more expensive. This option would also take advantage of existing potable water distribution piping.



Figure 3.6 IPR to Lake Granger Alternative Process Flow Diagram

Lake Granger is more than 15 miles from the bulk of the city water demands and existing distribution system; however, by utilizing a bed and banks permit, significant conveyance costs can be avoided. Additionally, blending flows with new regional groundwater will also allow for project efficiency. **Figure 3.7** presents a map and schematic of this option. Pairing with EWC to treat the water near Circleville will allow for project and operational efficiency, as a larger treatment plant uses fewer resources and operators on a per-gallon-treated basis.

Note that return flows remain fairly constant but uncontrolled flows into Lake Granger vary significantly throughout the year so there are periods of time when the majority of the flows into the Lake will be returned into the City's use. An estimated percentage is summarized for each of the expected WWTP phased flows as a figure in Appendix F.

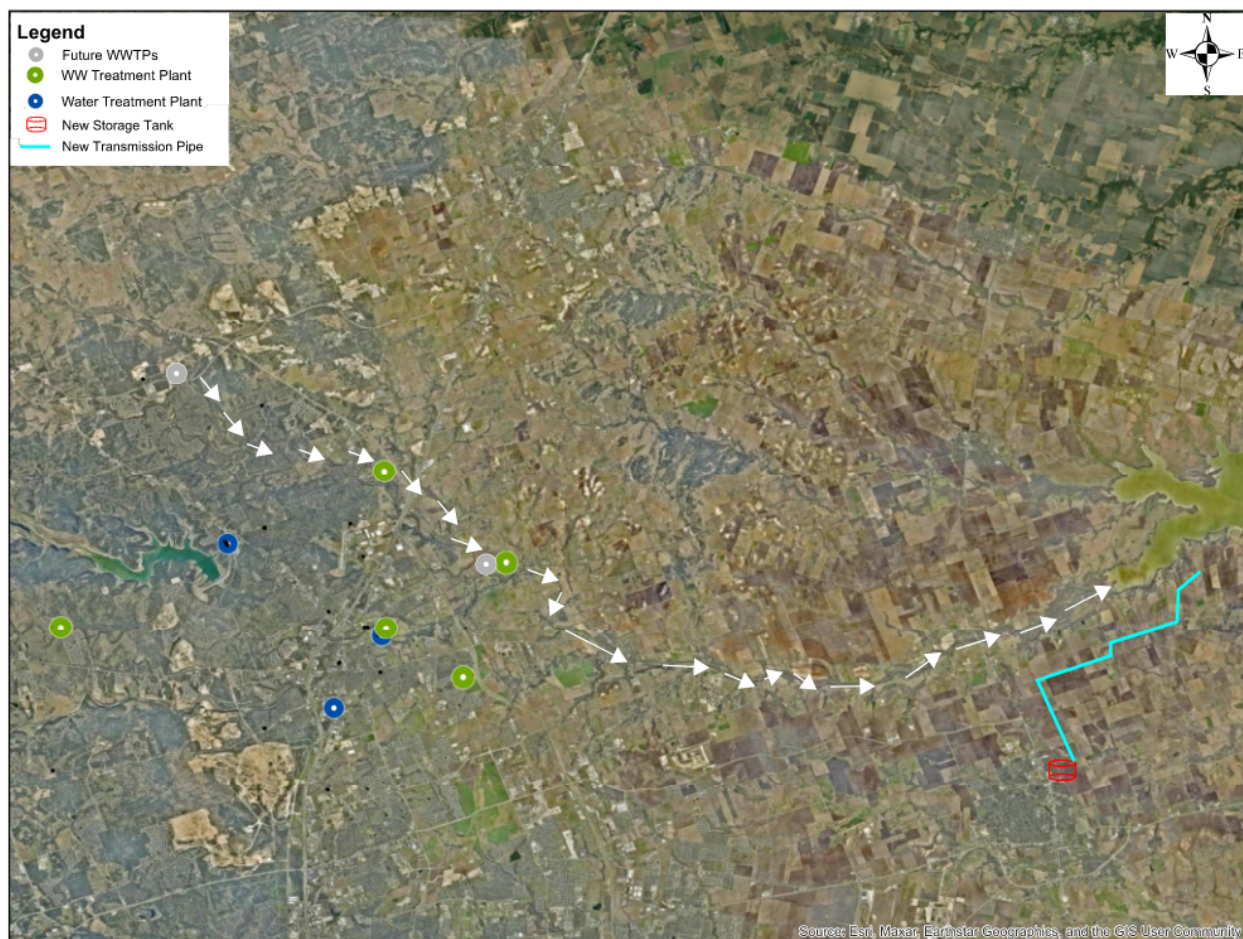


Figure 3.7 IPR to Lake Granger Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.8**, which assumes costing on two phases, based on the growth estimations and permitting of the Three Forks WWTP. The first phase includes bed and banks permitting, a new 4 mg ground storage tank at Circleville, a 36-inch line installation from Circleville to the estimated location of the new ground water line, and a 200 hp booster pump station, in addition to a pro-rata expansion cost shared with EWC for 10.5 mgd. The EWC expansion opportunity would occur after 2030; however approximately 4 mgd of off-peak water might be available occasionally in 2030. In the second phase, the pump station would be replaced with a 700 HP pump station and the pro-rata cost is added for an additional 10.5 mgd, for a total of 21 mgd. The cost shown in the table is for the summation of the two phases.

Table 3.8 IPR to Lake Granger Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
21 mgd ¹	\$317.5 Million	\$3.8 Million	\$4.29/kgal

Notes:

¹ 21 mgd is in year 2050.

Northlands WWTP Advanced Treatment Alternative – 15.4 mgd

This alternative proposes implementing advanced treatment at the future Northlands WWTP for IPR applications. **Figure 3.8** shows the proposed process flow diagram in which Northlands WWTP effluent (12 mgd) would be sent through a per- and polyfluoroalkyl substances (PFAS) removal facility utilizing granular activated carbon (GAC) before discharge into Lake Georgetown. Through the PFAS removal process, other contaminants would be removed too, but PFAS is the compound with known upcoming regulations. From there, the Lake WTP takes source water for treatment and distribution to the city.



Figure 3.8 Northlands WWTP Advanced Treatment Alternative Process Flow Diagram

Though there are no regulations currently in Texas for PFAS levels in WWTP effluent, new regulations for PFAS in drinking water will take effect soon. The city already has plans to modify existing WTPs, as required, to meet these regulations, but there are other cities that use Lake Georgetown as a drinking water source. Before effluent is discharged into Lake Georgetown, a TPDES permit from TCEQ must be acquired. Based on preliminary water quality modeling, we believe a discharge into Lake Georgetown could be permitted based on the state’s stream water quality standards. Adding a PFAS removal process would reduce risk of those utilities contesting the city TPDES permit application, or even taking legal action, whether merited or not.

As part of the permitting process for a new discharge into Lake Georgetown, TCEQ requires characterization of the potential impacts of this activity on lake water quality; specifically, the impacts of effluent biological oxygen demand (BOD) loads on localized dissolved oxygen concentrations. Because of limited water quality data pertaining to the lake, a full calibration of the water quality model was not undertaken as part of this exercise. Rather, the model was parameterized following published TCEQ standard operating procedures (SOPs) (Rudolph 2018) and, based on published and default parameter values, with minor adjustments was made to better match the limited water quality data. Because of the lack of calibration, the model is best suited for assessing the relative response of the lake to the discharge only.

Four WWTP discharge scenarios were simulated with the constructed model:

- Scenario 1 – 20 mgd total discharge with effluent concentrations of 5 and 1 mg/L for CBOD5 and NH₄, respectively
- Scenario 2 – 20 mgd total discharge with effluent concentrations of 5 and 2 mg/L for CBOD5 and NH₄, respectively
- Scenario 3 – 40 mgd total discharge with effluent concentrations of 5 and 1 mg/L for CBOD5 and NH₄, respectively
- Scenario 4 – 40 mgd total discharge with effluent concentrations of 5 and 2 mg/L for CBOD5 and NH₄, respectively

Modeling results indicated that, under all four scenarios, the maximum allowable dissolved oxygen depletion of 1.0 mg/L will not be exceeded. In other words, assuming an ambient DO concentration of 6 mg/L, the relevant water quality standard (5.0 mg/L) will not be violated, as modeled. The full water quality report can be found in **Appendix A**.



Figure 3.9 Northlands WWTP Advanced Treatment Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.9**, which assumes a 1000 hp booster pump station, a 4 mg ground storage tank, and a 15.4 mgd PFAS GAC polishing process.

Table 3.9 Northlands WWTP Advanced Treatment Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
15.4 mgd	\$108.7 Million	\$11.4 Million	\$3.59/kgal

3.2.2.2 DPR Options

DPR at Northlands WWTP Alternative – 12.3 mgd

In this alternative, a 15.4 mgd advanced water treatment facility would be built near the future Northlands WWTP to implement DPR, and a 20 percent loss is considered, for a potable demand offset of 12.3 mgd. **Figure 3.10** shows the proposed process flow diagram. Effluent from the Northlands WWTP would enter the advanced water treatment facility where it would be purified using reverse osmosis

(RO) and ultraviolet disinfection/ advanced oxidation (UV/AOP) processes. Typically, either micro- or ultra-filtration (MF/UF) is required ahead of the RO to protect the RO membranes from fouling. However, if a membrane bioreactor (MBR) is implemented at the Northlands WWTP, an additional MF or UF process is not required ahead of the RO. Effluent from the 12 mgd advanced water treatment facility would be blended with potable water from other city WTPs at the Daniel above-ground storage tank before distribution.

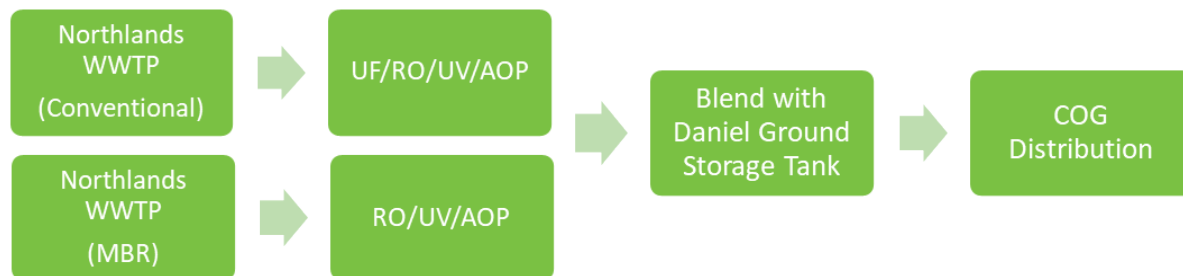


Figure 3.10 DPR at Northlands WWTP Alternative Process Flow Diagram

This alternative minimizes conveyance costs owing to its location in reference to the expected growth to the northwest of Lake Georgetown. DPR requires significantly more frequent sampling, monitoring, and reporting to protect public safety. **Figure 3.11** shows the schematic layout proposed. There is a benefit to adding DPR to a new facility versus retrofitting an old WWTP because Supervisory Control and Data Acquisition (SCADA) and other operational and process monitoring designs could facilitate the process from the beginning if designed with DPR in mind.

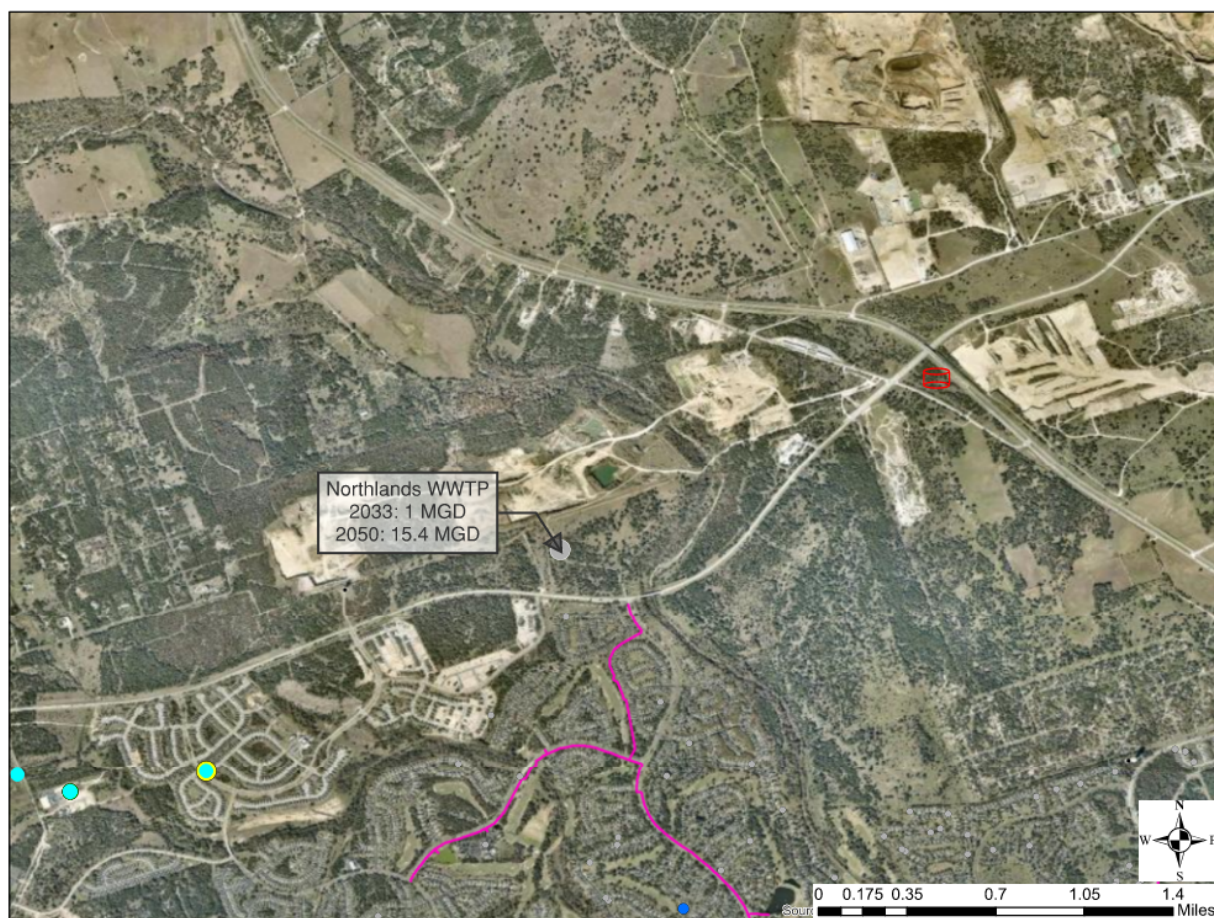


Figure 3.11 DPR at Northlands WWTP Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.10**, which assumes a new 15.4 mgd UF/RO/UV/AOP facility, 400 hp booster pump station, a 4 mg clearwell, and RO concentrate disposal (pump station, transmission line, and injection well outside of aquifer recharge limits). The cost shown assumes the flow will be send east toward the new pump station near Rattlesnake Rd., but another option to consider is to pump it west into Andice and blend it at the Daniel storage tank.

Table 3.10 DPR at Northlands WWTP Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
12.3 mgd	\$192.2 Million	\$13.5 Million	\$6.43/kgal

DPR at Three Forks WWTP Alternative – 16.8 mgd

In this alternative, a 21 mgd advanced water treatment facility would be built near the future Three Forks WWTP to implement DPR. Assuming a 20% system loss to membrane concentrate, the potable demand offset would be approximately 16.8 mgd. **Figure 3.12** shows the proposed process flow diagram. Effluent from the Three Forks WWTP would enter the advanced water treatment facility where it would be purified with RO and UV/AOP processes. Typically, either MF or UF is required ahead of the RO to protect the RO membranes from fouling. However, if a membrane bioreactor (MBR) is implemented at the Three Forks WWTP, an additional filtration process is not required ahead of the RO

process. Concentrate waste from the RO treatment process cannot be injected for disposal through the Edwards Aquifer in Williamson County. Effluent from the 21 mgd advanced water treatment facility would be blended with other treated drinking water before distribution.



Figure 3.12 DPR at Three Forks WWTP Alternative Process Flow Diagram

Because of the location of the Three Forks WWTP and anticipated areas of growth and water demands, significant conveyance is required for this alternative. There are two new possible groundwater transmission pipelines in the planning phase that could be utilized. **Figure 3.13** shows the location of these transmission lines. Newly treated DPR water could be blended with the new groundwater supply from the north at a new storage tank near State Highway 195 and Ronald Reagan Boulevard, or it can be blended with new water supply to the south near SH 130 and Chandler Road.

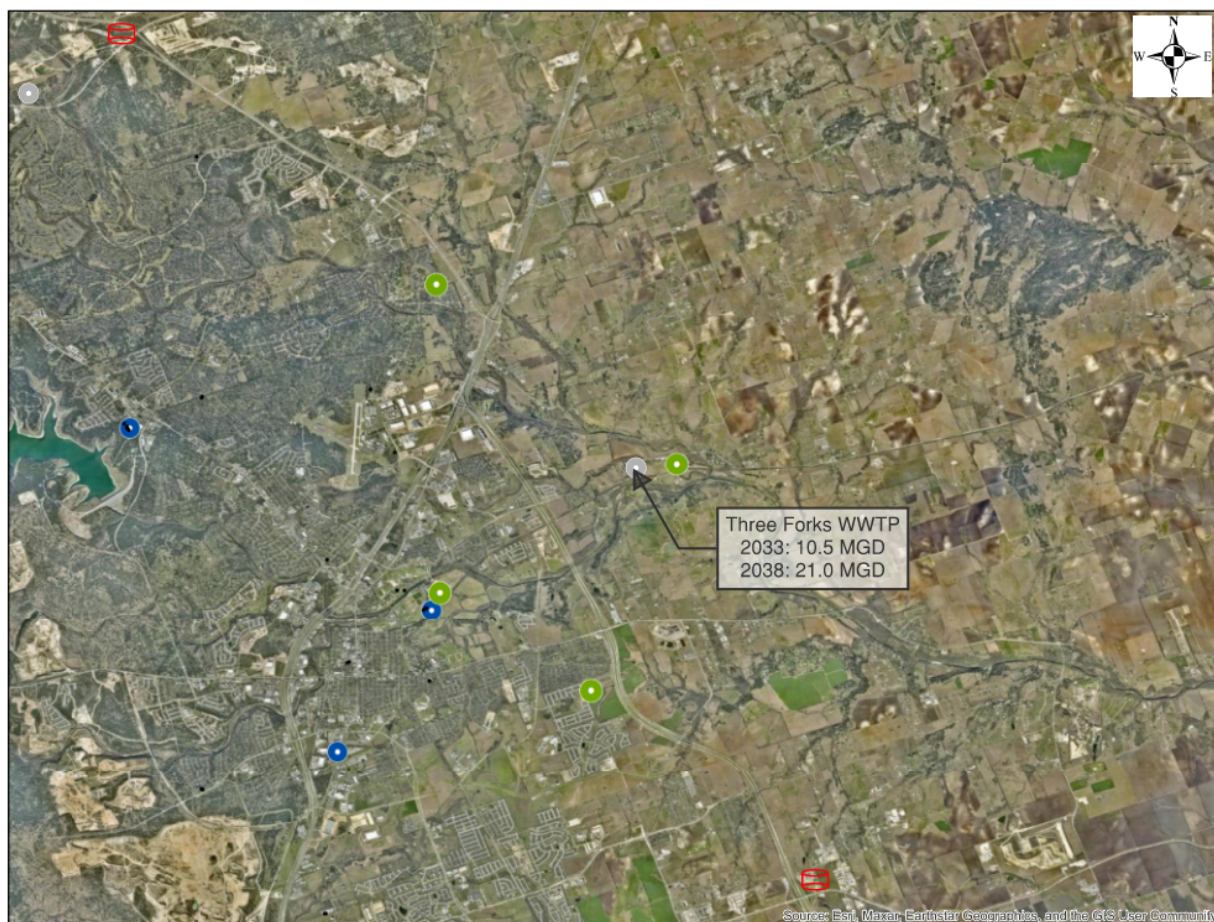


Figure 3.13 DPR at Three Forks Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 3.11**, which assumes a new 21 mgd UF/RO/UV/AOP disinfection facility, a 1,000 hp booster pump station and 4 mg clearwell at Three Forks WWTP, and RO concentrate disposal (pump station, transmission line, and injection well outside of aquifer recharge limits).

Table 3.11 DPR at Three Forks WWTP Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost	Unit Water Cost
16.8 mgd	\$294.3 Million	\$18.4 Million	\$6.85/kgal

4.0 Reuse Options for Evaluation

There is unlikely any singular option will satisfy the required potable water demand offset; therefore, a combination of projects will need to be recommended and progressed. Because of the timing required for new facility design and construction, proper phasing will also be critical for the city planning process. In this section, the non-potable and potable water reuse alternatives are compared.

4.1 Screening of Reuse Options

Although only the alternatives discussed in Section 3 were developed and costed, many alternatives were originated and screened out based on cost and non-cost factors. The general process for evaluation criteria is graphically shown below in **Figure 4.1**.

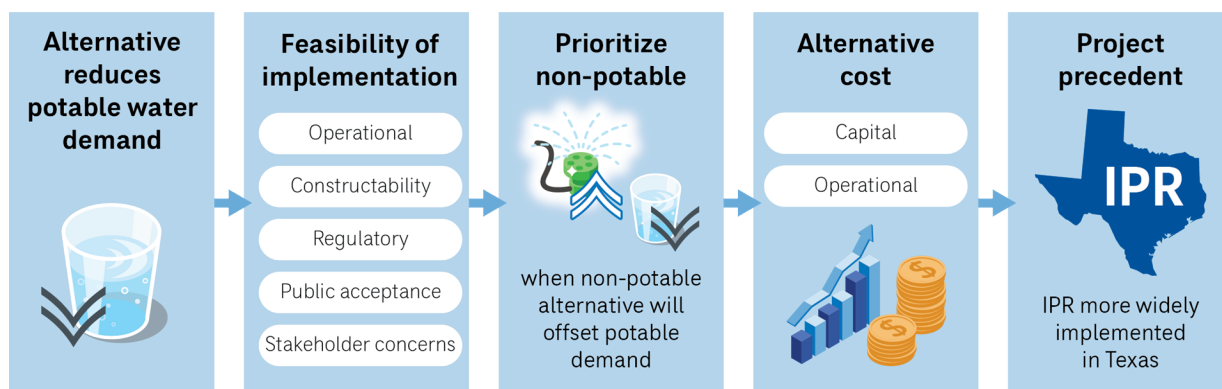


Figure 4.1 Reuse Alternative Screening Criteria

The first criteria for any alternative was its ability to offset potable water demand. If an alternative could not do this, it was not further developed as part of this effort. Next, several parameters determined the alternative's ability to be implemented. From an operational and constructability perspective, the technology must exist and be well established, as public safety comes first. From a regulatory perspective, the alternative must be legal, and paths with well-established regulation and historical success were prioritized over alternatives that carried a lot of regulatory risks and unknowns. For example, options that sent wastewater effluent into Lake Georgetown without PFAS removal would not be considered because of the known upcoming PFAS regulation changes to drinking water since Lake Georgetown currently serves as a main raw water source for various communities but may be considered in the future. Public acceptance must be considered since it can historically make a project succeed or fail almost single-handedly. The last non-cost item is stakeholder concerns that have been voiced by the city about expected areas of growth, neighbor relations, and preferences. Based on those feasibility parameters, non-potable project were given priority where capital and operational costs allowed, then IPR, and then DPR.

Table 4.1 summarizes the alternatives discussed for utilizing reclaimed water to augment current supplies. NP signifies non-potable reuse. Table 4.1 includes the potential water supply that could be used to augment existing supplies and includes the estimated cost per 1,000 gallons for capital and operation costs for each alternative. For comparison, new groundwater is expected to cost between

\$6.00 to \$9.00 per thousand gallons in 2030. The projects listed in **Table 4.1** have not been selected or ranked at this time and are only a list of potential projects.

Table 4.1 Water Reuse Alternatives Summary and Discussion

Alternative	Reuse Type	New Water Volume	Estimated Cost per kgal	Discussion
Three Forks WWTP to Lake WTP Elevated Storage	NP	2 mgd	\$3.30	Given this option alone provides only 2 mgd of new water, it may be more cost-effective to invest in a potable reuse alternative utilizing Three Forks effluent.
San Gabriel WWTP to Lake WTP Elevated Storage	NP	0.5 mgd	\$10.10	This new reclaimed water supply would not be utilized in either of the potable alternatives identified, so could be a separate NP project. Construction of new pipeline through the downtown area may be complicated.
Northlands WWTP Elevated Storage	NP	0.5 mgd	\$5.03	Given this option alone provides only 2 mgd of new water, it may be more cost-effective to invest in a potable reuse alternative utilizing Northlands effluent. Additionally, there were few existing potential customers in this area, so there is a risk of not being able to sell the full 2 mgd consistently.
Dove Springs WWTP to South	NP	1.5 mgd	\$3.87	This new reclaimed water supply would not be utilized in either of the potable alternatives identified, so could be a separate NP project. There were many potential customers identified in this area, making it likely that 3 mgd could be utilized. The city may want to start discussions with individual potential customers to understand water quality and quantity demands. Contracts are recommended to minimize the risk of the city not being able to sell enough if demands are reduced (wet year, conservation, etc.).
Dove Springs WWTP to West	NP	1.5 mgd	\$5.41	This new reclaimed water supply would not be utilized in either of the potable alternatives identified, so could be a separate NP project. There were many potential customers identified in this area, making it likely that 5 mgd could be utilized. The city may want to start discussions with individual potential customers to understand water quality and quantity demands. Contracts are highly recommended to minimize the risk of the city not being able to sell enough if demands are reduced (wet year, conservation, etc.). Though this alternative requires significant conveyance investment, this area is not expected to be as congested and may have existing pipe that can be utilized.
WWTP IPR to Lake Granger	IPR	21 mgd	\$4.29	Though IPR is more costly than non-potable reuse projects on a per gallon basis, this alternative reliably utilizes much higher flows of up to 20 mgd, given that demand is constant. This alternative provides the benefit of retaining the water rights, while also sharing the cost of drinking water treatment, including access to operators. The city could also consider storing some of the water during low-demand season into an aquifer for usage during high-demand period. This augmentation project cannot begin until the Three Forks and Northlands WWTPs have been commissioned.
Northlands WWTP IPR to	IPR	15.4 mgd	\$3.59	This alternative does not solve immediate water supply needs because Northlands build-out is not anticipated

Alternative	Reuse Type	New Water Volume	Estimated Cost per kgal	Discussion
Lake Georgetown				until 2050. However, this is a very cost-effective option that would provide flexibility for the city and has lower monitoring and testing complexity than implementing DPR at Northlands WWTP. It also allows for an easy transition to future DPR, if required. Technology may improve for GAC and PFAS removal methods by the time this option becomes an available alternative.
Northlands WWTP DPR	DPR	12.3 mgd	\$6.43	Though operational and maintenance costs are high, implementing DPR at Northlands provides the most reliable water from a water rights perspective, since the city would not be dependent on other entities for this portion of their water supply. There is an economy of scale as well, and as DPR is more on the forefront of our industry, those operational and maintenance costs may decrease with time.
Three Forks WWTP DPR	DPR	16.8 mgd	\$6.85	Though operational and maintenance costs are high, implementing DPR at Three Forks provides the most reliable water from a water rights perspective, since the city would not be dependent on other entities for this portion of their water supply. There is an economy of scale as well, and as DPR is more on the forefront of our industry, those operational and maintenance costs may decrease with time.

4.2 Other Beneficial Projects

The existing wastewater system has several small facilities, and there is some benefit in consolidating these small facilities to be more efficient with staff and resources.

4.2.1 Berry Creek WWTP Consolidation Alternative

The ponds at the Berry Creek golf course are currently filled with treated effluent from the Berry Creek WWTP and are used for irrigation. This alternative proposes installing a new pump station that would fill the ponds with effluent from the new Three Forks WWTP. The existing Berry Creek WWTP flows would be consolidated into the future Three Forks WWTP. It is recommended that potential reuse customers be further evaluated in this area and added when this alternative is implemented.

Figure 4.2 shows a schematic of the proposed system improvements.

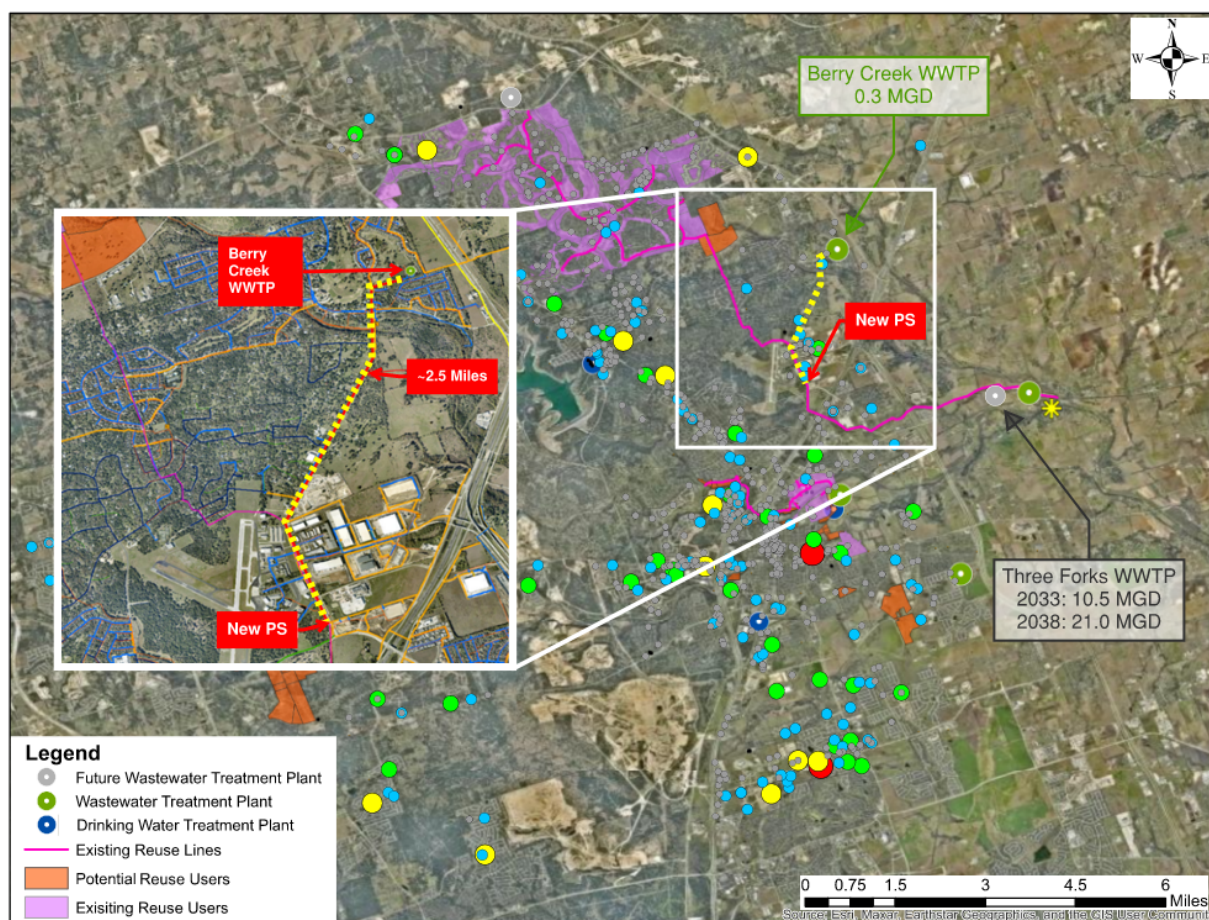


Figure 4.2 Berry Creek WWTP Consolidation Alternative Schematic

A summary of costs associated with this alternative is shown in **Table 4.2**, which assumes a 50 hp booster pump station.

Table 4.2 Berry Creek WWTP Consolidation Alternative Cost Summary

Available New Flow	Conceptual Capital Cost	Annual Operations Cost (of new pump station)	Unit Water Cost
Not applicable	\$3.4 Million	\$54,750	Not applicable

4.2.2 Cimarron Hills WWTP Consolidation Alternative

With the Dove Springs to West alternative can supply the required water to meet the Cimarron Hills Golf and Country Club contract, so the Cimarron Hills WWTP could be consolidated to be more efficient with the city's resources.

4.3 Integration with Other Water Supply Options

As part of the IWRP analysis, a systems model was created using the Water Integration Tool (WIT) model developed by CDM Smith. The WIT is designed to simulate changes to surface water, groundwater, and recycled water budgets with changing hydrology or new project implementation. The WIT systems approach is a high-level water supply simulation that is lower in precision, but more comprehensive and

integrated than models used in the master planning and capital improvements approach. Under the IWRP, there were no project-specific reuse water options included within WIT but, rather, a general assumed supply coming from reuse water. The options evaluated under this study are planned to be incorporated into WIT so that the more detailed reuse water supply options can be evaluated alongside other supply options that the city is considering.

5.0 Recommended Implementation Plan

5.1 Recommended Long-Term Strategy

Specific Capital Improvement Project (CIP) recommendations are discussed in this section. There is no combination of non-potable reuse water options that will reliably satisfy the supply gap of 22.3 mgd. Trying to meet the supply gap through irrigation and non-potable demand requires significant conveyance and contractual investments. CDM Smith recommends prioritizing indirect potable reuse options for new WWTPs effluent flows. At this time the Three Forks WWTP and Northlands WWTP will come online in 2030 giving the city access to additional source supply. This will allow for larger volumes of water to be reused, which will take advantage of the cost savings that come from economy of scale, as well as retain water rights to the city without having to rely on external supply from new groundwater and surface water sources that have other cities competing for the same resources. Expanding non-potable irrigation water supplies should be done judiciously to target large potable users that will reduce Georgetown's overall potable demand, otherwise the city must handle too many contracts, which will become burdensome.

5.1.1 Benefits, Feasibility Issues, and Constraints

It is important to note that even alternatives that are not formally part of the recommended strategy to meet the supply gap are options that can be reconsidered as other water sources change. If new groundwater or surface water becomes unavailable or drastically increases in cost in the future, these options can be revisited and provide the city with additional flexibility and independence. Additionally, as technology improves and as regulations change, some of the alternatives discussed may become more or less viable.

5.2 10-Year CIPs

The following options are the recommended projects going forward, with additional discussion for each:

- **Maintain all existing non-potable water systems:** It is recommended that the city continue to supply non-potable water from the Pecan Branch WWTP to Sun City for community irrigation and from the San Gabriel WWTP to the existing irrigation customers.
- **Decommission Berry Creek WWTP:** With the larger Three Forks WWTP planned, wastewater flows can be re-diverted to Three Forks WWTP and Berry Creek WWTP could be decommissioned to save on operation and maintenance costs. A new pump station and pipeline using Three Forks WWTP flows could continue to fill the Berry Creek ponds to supply the Berry Creek golf course contracted reuse water volume.
- **Build non-potable water system from Dove Springs WWTP:** Reuse water from Dove Springs is recommended to supply existing and new non-potable reuse customers to the south and west of the plant. New tertiary filters would be required at Dove Springs WWTP. Pump stations, transmission mains and elevated storage tanks would be installed to deliver Type I reuse water to irrigation customers.

- **Decommission Cimarron Hills WWTP:** The reuse supply from Dove Springs WWTP could supply the golf course at Cimarron Hills WWTP, allowing that plant to be decommissioned.
- **IPR to Lake Granger:** Treated effluent from the new Three Forks and Northlands WWTPs is recommended to be conveyed via the San Gabriel River to Lake Granger under a bed and banks permit. From Lake Granger, the water would be treated at the East Williamson County Water Treatment Plant and pumped to Circleville for storage and conveyance back to the city distribution system. To give the city flexibility to consider using the WWTPs supply for DPR in the future, it is recommended that the facility evaluate membrane bioreactors for treatment.
- **Provide advanced treatment at Northlands WWTP:** It is recommended that the new Northlands WWTP evaluate membrane bioreactors and treatment for per- and polyfluoroalkyl substances (PFAS). This would allow the future ability to explore discharge into Lake Georgetown for IPR in addition to Lake Granger.

The recommended implementation strategy at this time is shown on **Figure 5.1**.

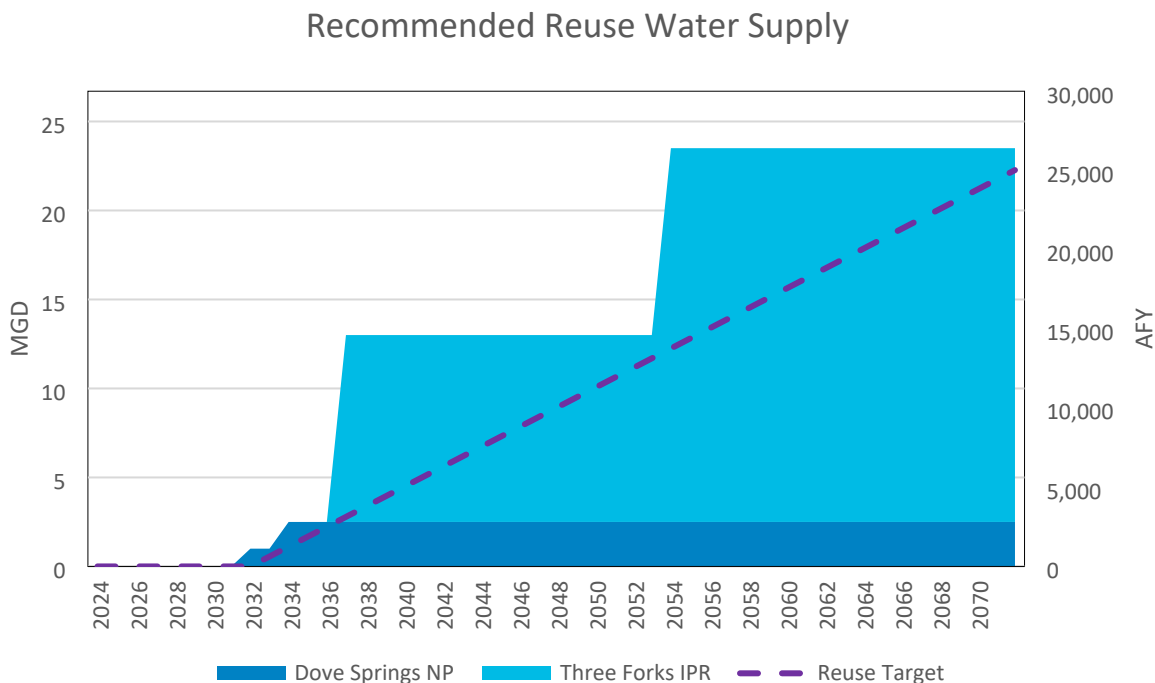


Figure 5.1 Recommended Reuse Water Supply Implementation Strategy.

Appendix A Lake Georgetown Water Quality Analysis

Lake Georgetown

Lake Georgetown Water Quality Analysis

The City of Georgetown is investigating the feasibility of permitting a discharge from the new Northland and Three Forks Wastewater Treatment Plants (WWTPs) to Lake Georgetown. As part of the permitting process, Texas Commission on Environmental Quality (TCEQ) requires quantification of the potential impacts of this activity on lake water quality; specifically, the impacts of reuse water biological oxygen demand (BOD) loads on localized dissolved oxygen concentrations.

To this end, a two-dimensional water quality model was constructed using the U.S. Environmental Protection Agency (EPA) Water Quality Analysis Simulation Program (WASP) to simulate the proposed discharges and lake response in the form of changes in dissolved oxygen concentrations. The model simulates steady-state advective and dispersive solute transport through the lake, carbonaceous and nitrogenous BOD oxidation, reaeration, and sediment oxygen demand. The model was constructed to represent summer low-flow critical conditions. Modeling results indicate that the proposed discharge will have small impacts on lake-dissolved oxygen levels that are within TCEQ compliance thresholds.

Because of limited water quality data in the lake, a full calibration of the water quality model was not undertaken as part of this exercise. Rather, the model was parameterized following published TCEQ standard operating procedures (SOPs) (Rudolph 2018) and, based on published and default parameter values, with minor adjustments was made to better match the limited water quality data. Because of the lack of calibration, the model is best suited for assessing the relative response of the lake to the discharge only.

Regulatory Summary for Lake Georgetown

Lake Georgetown is considered a classified lake, with an assigned segment number of 1249— Lake Georgetown from North San Gabriel Dam in Williamson County to a point 6.6 km (4.1 mi) downstream of US 183 in Williamson County, up to the normal pool elevation of 791 feet (impounds North Fork San Gabriel River). Lake Georgetown is classified per TCEQ surface water quality standards presented in 30 TAC Chapter 307 for Primary Contact Recreation 1, high aquatic life, and domestic public water supply uses (including aquifer protection). The aquifer protection use applies to the contributing, recharge, and transition zones of the Edwards Aquifer. Lake Georgetown is located within the aquifer contributing zone. Designated use class descriptions are provided in **Table A-1**.

Table A.1 Designated Uses of Lake Georgetown Segment 1249

Designated Use	Class	Description
Recreation	Primary Contact Recreation 1	Activities that are presumed to involve a significant risk of ingestion of water (e.g., wading by children, swimming, water skiing, diving, tubing, surfing, handfishing as defined by Texas Parks and Wildlife Code, §66.115, and the following whitewater activities: kayaking, canoeing, and rafting).

Designated Use	Class	Description
Aquatic Life	High	Habitat characteristics: Highly diverse Species assemblage: Usual association of regionally expected species Sensitive species: Present Diversity: High Species richness: High Trophic Structure: Balance to slightly imbalanced
Domestic Water Supply	Public Supply	Segments designated for public water supply are those known to be used, or exhibit characteristics that would allow them to be used, as the supply source for public water systems, as defined by 30 TAC Chapter 290.

Source: Texas Commission on Environmental Quality Chapter 307 – Texas Surface Water Quality Standards Rule Project No. 2020-014-307-OW

Site-specific criteria applicable to Lake Georgetown Segment 1249 are shown in **Table A-2**.

Table A.2 Site-Specific Criteria for Lake Georgetown Segment 1249

Chloride (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria (#/100 mL)	Temperature (degrees Fahrenheit [°F])	Chlorophyll-a
50	50	350	5.0/3.0 ¹	6.5-9.0	126	90	5.00 (3.87) ²

¹ Dissolved oxygen concentrations are listed as mean/minimum values. Dissolved oxygen means are applied as a minimum average over a 24-hour period (24-hour minimum dissolved oxygen concentrations are not to extend beyond 8 hours per 24-hour day). Lower dissolved oxygen minima may apply on a site-specific basis when natural daily fluctuations below the mean are greater than the difference between the mean and minima of the appropriate criteria.

² Nutrient criteria for selected reservoirs are specified in terms of concentrations of chlorophyll-a in water as a measure of the density of phytoplankton (suspended microscopic algae). Criteria are adjusted to minimum levels that could generally be historically quantified by laboratory chemical analyses. When a chlorophyll-a criterion is below 5.00 micrograms per liter (µg/L), then the criterion is set at the minimum default criterion of 5.00 µg/L. The calculated values are shown in parentheses ().

Notes: mg/L = milligrams/liter; SU = standard units; Indicator Bacteria = *E. coli*; mL = milliliters; F = Fahrenheit; NA = Not Applicable

Lake Georgetown Dissolved Oxygen Model: Overview

U.S. EPA's WASP was used to simulate Lake Georgetown water quality, both with and without the proposed WWTPs discharge. WASP is a well-known and widely published modeling tool designed to assist users in interpreting and predicting water quality responses to natural phenomena and anthropogenic stressors. It has been widely used in support of management, planning, and permitting and has been used specifically by TCEQ for similar evaluations of other Texas lakes. WASP is a dynamic compartment-based model that allows for simulation in up to three dimensions. The time-varying processes of advection, dispersion, point and diffuse mass loading, boundary exchange, and internal lake kinetics are represented in the basic program.

For the application described here, a model of Lake Georgetown steady-state dissolved oxygen dynamics was constructed to predict relative impacts of the proposed WWTPs discharge. One model was developed to simulate baseline conditions without WWTPs discharge. Four other models representing a range of WWTPs discharge conditions were also developed, as described subsequently. All models were constructed to represent critical late-summer low-flow conditions.

Available ambient monitoring data were insufficient to support site-specific calibration of the model. Therefore, the focus of this analysis is on the prediction of relative impacts only— meaning the interpretation of model results should focus on comparison of model scenarios with and without effluent discharge rather than on specific magnitudes of predicted concentrations and/or comparison to regulatory standards. In lieu of site-specific calibration, model kinetic parameterization followed TCEQ standard operating procedures (SOPs) (Rudolph 2018).

The model was constructed to simulate parameters for CBOD (ultimate), ammonia nitrogen, and dissolved oxygen.

Further details on model constructed are provided in subsequent sections.

Model Parameterization

As shown in Figure A-1, Lake Georgetown was represented in WASP using 12 well-mixed segments of varying size. The width of the lake was idealized as uniform (0.4 mi) and divided into two uniform width (0.2 mi) layers of longitudinal segments. Each segment is a 0.5 mi in longitudinal length, except for the upstream most two segments, which are 1.5 mi in length. For the modeling presented here, a late-summer low-level lake condition was assumed. This corresponds to the critical condition with respect to water quality. Segment volumes, lengths, and depths corresponding to this condition were quantified in the model based on available bathymetric maps and survey data, collected by TWDB (2001), and an assumed lake volume of approximately 45% of capacity. This assumed low pool capacity is based on available recent reported data (<https://waterdatafortexas.org/reservoirs/statewide>).

Lake bathymetry information, in the form of an elevation–volume table, was used to calculate a mean lake depth of 6.3 meters for the low pool condition described above. For the WASP model, a uniform depth, equal to this value, was assumed for all segments. Given this assumed depth, and the segmentation described above, total modeled lake volume was set at 17,000 acre-feet (AF). This volume is reflective of 45% of full capacity.

Aligning with the assumed low pool condition, inflow to the lake was set equal to the 7-day annual low flow with a 2-year recurrence interval (7Q2). In addition to the river inflow, a supplemental inflow of 40,000 acre-feet per year (AFY) was included in the model, per communications with the City of Georgetown. This supplemental inflow represents existing steady annual pumping to the lake from Lake Stillhouse for water supply purposes.

The simulated proposed WWTP discharge to the lake occurs in the model at Segment 3, just upstream of the lake dam.

Model oxidation and reaeration rate constants were set at TCEQ recommended values (Rudolph 2018). Additionally, boundary loads of CBOD and ammonia were incrementally added to the modeled system until ambient lake concentrations of 6, 3, and 0.05 mg/L, for dissolved oxygen, CBOD, and ammonia, respectively, were achieved, following TCEQ protocol.

Further details on model parameterization are provided in **Table A-3**.

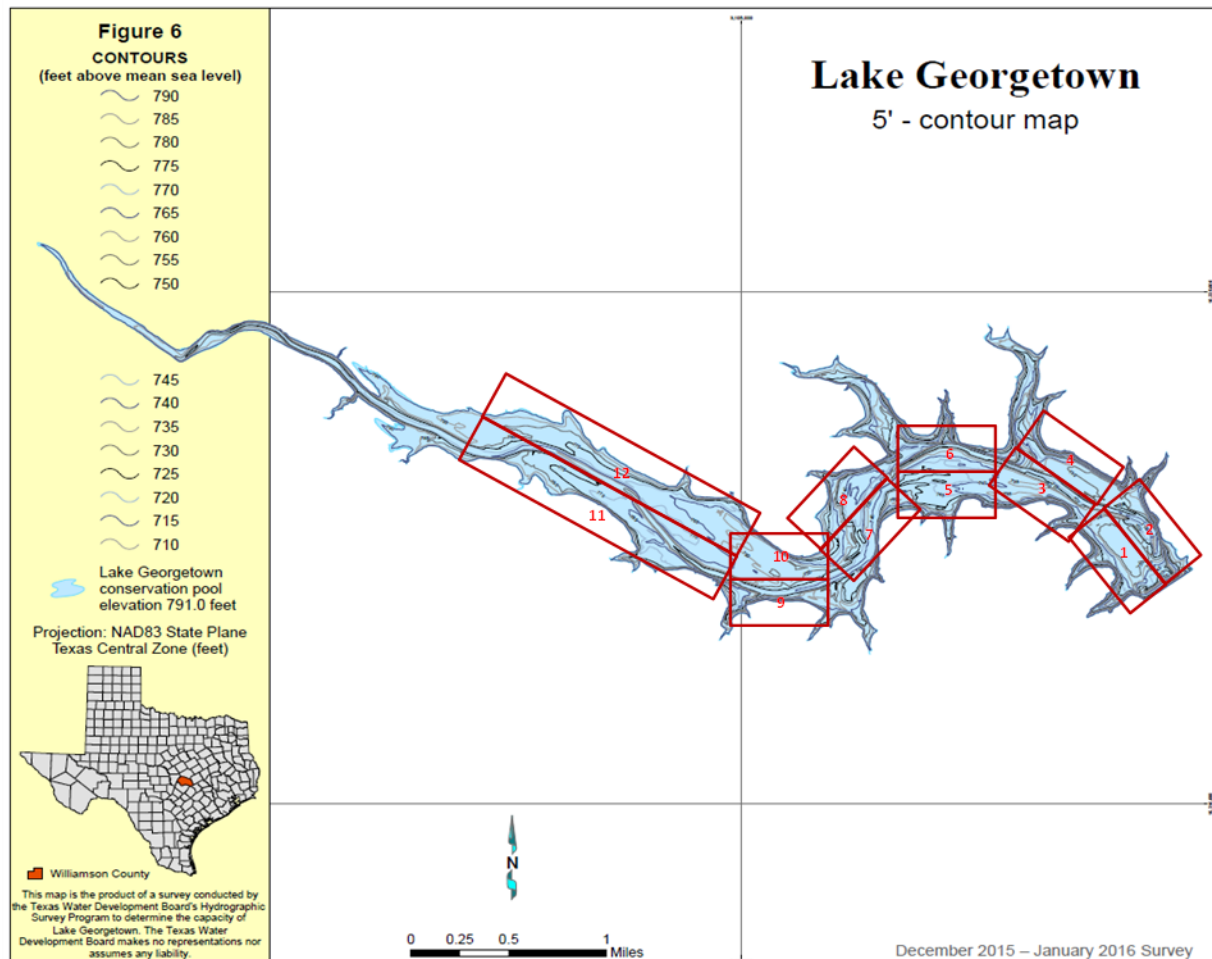


Figure A.2 Lake Georgetown model domain and segmentation

Table A.3 Water Quality Model Parameterization

Parameter Name	Value	Recommended Range
Segment volume (1-10) (AF)	1,059	NA
Segment volume (11-12) (AF)	3,156	NA
Segment mean depth (1-12) (m)	6.3	NA
Water temperature (°C)	30.5	30.5 (TCEQ)*
Sediment oxygen demand (SOD) (g/m ² /d)	0.2	0.2 – 5
CBOD oxidation rate (1/d)	0.16	0.16 (TCEQ)*
NH ₄ nitrification rate (1/d)	0.69	0.69 (TCEQ)*
Reaeration rate (1/d)	0.3	0.3 (TCEQ)*
Ambient CBOD areal load (kg/m ² /d)	0.15	calculated following TCEQ SOP*
Ambient NH ₄ areal load (kg/m ² /d)	0.01	calculated following TCEQ SOP*
CBOD5 ambient (mg/L)	1.3	TCEQ SOP
NH ₄ -N ambient (mg/L)	0.05	TCEQ SOP
Q ambient (mgd)	40	7Q2 + supplemental water import
Q WWTP (mgd)	20, 40	proposed permit limits

Parameter Name	Value	Recommended Range
Dissolved Oxygen WWTP (mg/L)	6.0	current discharge measured mean
CBOD ₅ WWTP (mg/L)	5	proposed permit limit
NH ₄ -N WWTP (mg/L)	1, 2	proposed permit limits

* Rudolph 2018

Lake Georgetown Dissolved Oxygen Model Simulation Results

Four WWTP discharge scenarios were simulated with the constructed model:

- Scenario 1 – 20 mgd total discharge with effluent concentrations of 5 and 1 mg/L for CBOD₅ and NH₄, respectively
- Scenario 2 – 20 mgd total discharge with effluent concentrations of 5 and 2 mg/L for CBOD₅ and NH₄, respectively
- Scenario 3 – 40 mgd total discharge with effluent concentrations of 5 and 1 mg/L for CBOD₅ and NH₄, respectively
- Scenario 4 – 40 mgd total discharge with effluent concentrations of 5 and 2 mg/L for CBOD₅ and NH₄, respectively

Modeling results indicate that, under all four scenarios, the maximum allowable dissolved oxygen depletion of 1.0 mg/L will not be exceeded (**Table A-4**). In other words, assuming an ambient DO concentration of 6 mg/L, the relevant water quality standard (5.0 mg/L) will not be violated, as modeled. The maximum simulated depletion (Scenario 4) is approximately 0.7 mg/L. This simulated maximum depletion occurs in Segment 4, adjacent to the discharge segment, due to oxidizing CBOD and NH₄.

Table A.4 Model Simulation Results

Scenario	Maximum CBOD ₅ (mg/L)	Maximum NH ₄ (mg/L)	Minimum DO (mg/L)	Maximum DO Depletion (mg/L)
Baseline: Ambient Conditions	3.2	0.05	5.83	NA
Scenario 1 – 20 mgd, 1 mg/L NH ₄	4.5	0.12	5.65	0.2
Scenario 2 – 40 mgd, 1 mg/L NH ₄	5.8	0.18	5.46	0.4
Scenario 3 – 20 mgd, 2 mg/L NH ₄	4.5	0.18	5.50	0.3
Scenario 4 – 40 mgd, 2 mg/L NH ₄	5.8	0.30	5.17	0.7

Appendix B CIP Planning Level Costs and Assumptions

Non-Potable Reuse Options

Three Forks – Lake WTP

Table B.1 Three Forks – Lake WTP Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Yard piping at PB WWTP	1	LS	\$800,000	\$800,000
100 hp booster pump station ¹	1	LS	\$1,214,194	\$1,214,194
Ground Storage Tank 1-2	2,000,000	Gal	\$1.00	\$2,000,000
WWTP Improvements Subtotal				\$4,014,194
Mobilization/demobilization	5	%	NA	\$200,750
Contingency	35	%	NA	\$1,404,968
WWTP Improvements Construction Subtotal				\$5,619,911
Professional Services	15	%	NA	\$843,000
Total PB WWTP Improvements Cost				\$6,462,911
Elevated storage tank	500,000	gal	\$4.00	\$2,000,000
200 hp booster pump station	1	LS	\$1,614,619	\$1,614,619
Trench safety	45,000	LF	\$4.89	\$220,181
12-inch waterline - urban rock ²	24,000	LF	\$165.34	\$3,968,088
12-inch waterline - urban rock ³	21,000	LF	\$165.34	\$3,472,077
24-inch bored highway/river crossing	200	LF	\$597.45	\$119,490
Dewatering	45,000	LF	\$3.61	\$162,239
Conveyance Subtotal				\$11,556,694
Mobilization/demobilization	5	%	NA	\$577,750
Contingency	35	%	NA	\$4,044,843
Conveyance Construction Subtotal				\$16,179,287
Professional services	15	%	NA	\$2,427,000
Easement acquisition	14.463	acres	\$30,000	\$433,884
Total Conveyance Improvements Cost				\$19,040,172
			Project Total:	\$25,503,083

Notes:

¹ At WWTP

² From WWTP to airport

³ From Airport to EST

San Gabriel (SG) – Lake WTP

Table B.2 San Gabriel – Lake WTP Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Yard piping at SG WWTP	1	NA	\$500,000	\$500,000
Ground Storage Tank 0-0.5	500,000	Gal	\$1.5	\$750,000
50 hp booster pump station ¹	1	LS	\$1,162,526	\$1,162,526
WWTP Improvements Subtotal				\$2,412,526
Mobilization/demobilization	5	%		\$120,750
Contingency	35	%		\$844,384
WWTP Improvements Construction Subtotal				\$3,377,660
Professional services	15	%		\$506,750
Total San Gabriel WWTP Improvements Cost				\$3,884,410
Total Dove Springs WWTP Improvements Cost				6,379,910
Pressure appurtenances	1		\$100,000	\$100,000
Elevated storage tank	500,000		\$4	\$2,000,000
Trench safety	48,500	LF	\$4.89	\$237,307
8-inch waterline - urban rock	40,000	LF	\$95.59	\$3,823,418
12-inch bored highway/river crossing	200	LF	\$303.88	\$60,775
6-inch Waterline - Urban Rock	8,500	LF	\$60.71	\$516,032
Dewatering	48,500	LF	\$3.61	\$174,857
Conveyance Subtotal				\$6,912,389
Mobilization/demobilization	5	%		\$345,500
Contingency	35	%		\$2,419,336
Conveyance Construction Subtotal				\$9,677,226
Professional services	15	%		\$1,451,500
Easement acquisition	14.463	acres	\$30,000	\$433,884
Total Conveyance Improvements Cost				\$11,562,610
			Project Total:	\$21,826,930

Notes:

¹ At San Gabriel WWTP

Northlands WWTP Storage

Table B.3 Northlands WWTP Storage Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Yard piping at Northlands WWTP	1		\$800,000	\$800,000
Groound Storage Tank 1-2	500,000		\$1.0	\$500,000
WWTP Improvements Subtotal				\$1,300,000
Mobilization/demobilization	5	%		\$65,000
Contingency	35	%		\$455,000
WWTP Improvements Construction Subtotal				\$ 1,820,000
Professional services	15	%		\$273,000
Total Northlands WWTP Improvements Cost				\$2,093,000
50 hp booster pump station	1		\$1,162,526	\$1,162,526
Elevated storage tank	500,000	Gal	\$4	\$2,000,000
Trench safety	16,000	LF	\$4.89	\$78,287
8-inch waterline - urban rock	16,000	LF	\$95.59	\$1,529,367
12-inch bored highway/river crossing	200	LF	\$303.88	\$60,775
Dewatering	16,000	LF	\$3.61	\$57,685
Conveyance Subtotal				\$4,888,640
Mobilization/demobilization	5	%		\$244,500
Contingency	35	%		\$1,711,024
Conveyance Construction Subtotal				\$6,844,164
Professional services	15	%		\$1,026,500
Easement acquisition	11.019	acres	\$30,000	\$330,579
Total Conveyance Improvements Cost				\$ 8,201,242
			Project Total:	\$10,294,242

Notes:

¹ DN Supplier

Dove Springs (DS) – South

Table B.4 Dove Springs – South Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Yard piping at DS WWTP	1		\$800,000	\$800,000
100 hp booster pump station ¹	1		\$1,214,194	\$1,214,194
Ground Storage Tank 1-2	1,000,000		\$1.0	\$1,000,000
Effluent filters at DS WWTP	1		\$500,000	\$500,000
WWTP Improvements Subtotal				\$ 3,514,194
Mobilization/demobilization	5	%		\$175,750
Contingency	35	%		\$1,229,968
WWTP Improvements Construction Subtotal				\$4,919,911
Professional services	15	%		\$738,000
Total Dove Springs WWTP Improvements Cost				\$5,657,911
Elevated storage tank	500,000	Gal	\$4	\$2,000,000
Trench safety	34,500	LF	\$4.89	\$168,806
12-inch waterline - rural rock ³	23,500	LF	\$107.21	\$2,519,452
8-inch waterline - rural rock ⁴	11,000	LF	\$62.00	\$682,015
12-inch bored highway/river crossing	200	LF	\$303.88	\$60,775
Dewatering	34,500	LF	\$3.61	\$124,383
Conveyance Subtotal				\$5,555,431
Mobilization/demobilization	5	%		\$277,750
Contingency	35	%		\$1,944,401
Conveyance Construction Subtotal				\$7,777,582
Professional services	15	%		\$1,166,750
Easement acquisition	23.760	acres	\$30,000	\$712,810
Total Conveyance Improvements Cost				\$9,657,141
			Project Total:	\$15,315,053

Notes:

¹ At WWTP

² DN Supplier Mods

³ HS to EWT

⁴ EWT to West

Dove Springs – West

Table B.5 Dove Springs – West Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Yard piping at DS WWTP	1		\$800,000	\$800,000
200 hp booster pump station ¹	1		\$1,614,619	\$1,614,619
Effluent filters at DS WWTP	1		\$500,000	\$500,000
Ground Storage Tank 1-2	1,500,000		1	\$1,500,000
WWTP Improvements Subtotal				\$4,414,619
Mobilization/demobilization	5	%		\$220,750
Contingency	35	%		\$1,545,117
WWTP Improvements Construction Subtotal				\$6,180,486
Professional services	15	%		\$927,000
Total Dove Springs WWTP Improvements Cost				\$7,107,486
Pressure reducing equipment	1		\$100,000	\$100,000
300 hp booster pump station	1		\$2,389,636	\$2,389,636
Ground storage tank 1-2	500,000		1	\$500,000
Elevated storage tank	500,000	Gal	4	\$2,000,000
Elevated storage tank	500,000	Gal	4	2,000,000
Trench safety	76,600	LF	\$4.89	\$374,798
12-inch waterline - urban rock ³	15,600	LF	\$165.34	\$2,579,257
12-inch waterline - rural rock ⁴	13,500	LF	\$107.21	\$1,447,345
12-inch waterline - rural rock ⁵	26,500	LF	\$107.21	\$2,841,084
8-inch waterline - rural rock ⁶	12,000	LF	\$62.00	\$744,016
8-inch waterline - rural rock ⁷	9,000	LF	\$62.00	\$558,012
24-inch bored highway/river crossing	200	LF	\$597.45	\$119,490
Dewatering	76,600	LF	\$3.61	\$ 276,167
Conveyance Subtotal				\$15,929,805
Mobilization/demobilization	5	%		\$796,500
Contingency	35	%		\$ 5,575,432
Conveyance Construction Subtotal				\$22,301,737
Professional services	15	%		\$3,345,250
Easement acquisition	25.207	acres	\$30,000	\$756,198
Total Conveyance Improvements Cost				\$ 26,403,185
			Project Total:	\$33,510,671

Notes:

¹ At WWTP

² DN Supplier

³ WWTP to HS PS

⁴ HS to Mill

⁵ Mill to EWT

⁶ EWT to West

⁷ EWT to South

Berry Creek WWTP

Table B.6 Berry Creek WWTP Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
50 hp booster pump station ¹	1		\$1,162,526	\$1,162,526
Trench safety	12,672	LF	\$4.89	\$62,003
6-inch waterline - urban rock ²	12,672	LF	\$60.71	\$769,313
12-inch bored highway/river crossing	200	LF	\$303.88	\$60,775
Dewatering	12,672	LF	\$3.61	\$45,686
Conveyance Subtotal				\$2,100,304
Mobilization/demobilization	5	%		\$105,000
Contingency	35	%		\$735,106
Conveyance Construction Subtotal				\$2,940,410
Professional services	15	%		\$441,000
Easement acquisition	0	acres	\$30,000	-
Total Conveyance Improvements Cost				\$3,381,410
			Project Total:	\$3,381,410

Notes:

¹ By airport

² From WWTP to airport

Potable Reuse Options

IPR

IPR to Lake Granger

Table B.7 IPR to Lake Granger Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Bed and banks permitting ¹	1		\$250,000	\$250,000
EWC WTP pro rata expansion cost ²	10.5	mgd	\$9	\$94,500,000
Ground Storage Tank 2.5+	4,000,000		\$0.75	\$3,000,000
200 hp booster pump station ³	1		\$1,614,619	\$1,614,619
Site Improvements Subtotal				\$99,364,619
Mobilization/demobilization	5	%		\$4,968,250
Contingency	35	%		\$34,777,617
Site Improvements Construction Subtotal				\$139,110,486
Professional services	20	%		\$27,822,000
Total Site Improvements Cost				\$166,932,486
Trench safety	53,000	LF	\$4.89	\$259,325
36-inch waterline - rural soil ⁴	52,000	LF	\$295.80	\$15,381,507
36-inch waterline - urban soil ⁵	1,000	LF	\$424.97	\$424,968
42-inch bored highway/river crossing	200	LF	\$1,050.00	\$ 210,000
Dewatering	53,000	LF	\$3.61	\$191,081
Conveyance Subtotal				\$16,466,881
Mobilization/demobilization	5	%		\$823,250
Contingency	35	%		\$5,763,408
Conveyance Construction Subtotal				\$23,053,540
Professional services	15	%		\$3,458,000
Easement acquisition	35.813	acres	\$30,000	\$1,074,380
Total Conveyance Improvements Cost				\$27,585,920
			Project Total:	\$194,518,405

Notes:

¹ From WWTP to Lake Granger

² \$9/gal. Includes PS to Circleville WTP, storage tank at WTP, and treatment.

³ At Circleville WTP

⁴ From Circleville WTP to new North Pipeline

⁵ Buffer for more urban areas

Northlands Advanced Treatment

Table B.8 Northlands Advanced Treatment Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Ground Storage Tank 2.5+	4,000,000		\$0.75	\$3,000,000
700 hp booster pump station ²	1		\$5,438,037	\$5,438,037
UF/RO facility - 12 mgd capacity equipment ¹				\$12,000,000
UF/RO facility - 12 mgd capacity ancillary				\$4,200,000
RO Capture	25%			
RO disposal ³	1	LS	\$13,503,304	\$13,503,304
Site Improvements Subtotal				\$38,141,341
Mobilization/demobilization	5	%		\$1,907,000
Contingency	35	%		\$13,349,469
Site Improvements Construction Subtotal				\$53,397,811
Professional services	20	%		\$10,679,500
Total Site Improvements Cost				\$64,077,311
Trench safety	41,000	LF	\$4.89	\$200,610
24-inch waterline - rural rock ⁴	31,000	LF	\$246.71	\$7,648,128
24-inch waterline - urban rock ⁴	10,000	LF	\$375.88	\$3,758,833
36-inch bored highway/river crossing	200	LF	\$901.33	\$180,265
Dewatering	41,000	LF	\$3.61	\$147,818
Conveyance Subtotal				\$11,935,654
Mobilization/demobilization	5	%		\$596,750
Contingency	35	%		\$4,177,479
Conveyance Construction Subtotal				\$16,709,883
Professional services	15	%		\$3,342,000
Easement acquisition	21.350	acres	\$30,000	\$640,496
Total Conveyance Improvements Cost				\$ 20,692,378
			Project Total:	\$84,769,689

Notes:

¹ At Northlands WWTP

² Cost from TWDB UNM Table 2 Indexed for 10/2023

³ Send out of recharge zone

⁴ From Northlands to Lake WTP

DPR

DPR at Northlands

Table B.9 DPR at Northlands Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Ground Storage Tank 2.5+	4,000,000		\$0.75	\$3,000,000
1,000 hp booster pump station ¹	1		\$7,672,670	\$7,672,670
UF/RO/UV/AOP facility	12,000,000	gallons	\$6.0	\$72,000,000
RO capture	20%			
RO disposal ²	1	LS	\$13,503,304	\$13,503,304
Site Improvements Subtotal				\$96,175,974
Mobilization/demobilization	5	%		\$4,808,750
Contingency	35	%		\$33,661,591
Site Improvements Construction Subtotal				\$134,646,315
Professional services	20	%		\$26,929,250
Total Site Improvements Cost				\$ 161,575,565
Trench safety	38,000	LF	\$4.89	\$185,931
24-inch waterline - rural rock ³	30,000	LF	\$246.71	\$7,401,414
24-inch waterline - urban rock	8,000	LF	\$375.88	\$3,007,067
36-inch bored highway/river crossing	200	LF	\$901.33	\$180,265
Dewatering	38,000	LF	\$3.61	\$137,002
Conveyance Subtotal				\$10,911,679
Mobilization/demobilization	5	%		\$545,500
Contingency	35	%		\$3,819,088
Conveyance Construction Subtotal				\$15,276,266
Professional services	15	%		\$3,055,250
Easement acquisition	20.661	acres	\$30,000	\$619,835
Total Conveyance Improvements Cost				\$18,951,351
			Project Total:	\$180,526,916

Notes:

¹ At Northlands WWTP

² Send out of recharge zone

³ From Northlands WWTP to Daniel Storage Tank near Andice

DPR at Three Forks

Table B.10 DPR at Three Forks Alternative Budget Information

Item Description	Quantity	Unit	Unit Price	Total Cost
Ground Storage Tank 2.5+	4,000,000		\$ 0.75	\$3,000,000
1,000 hp booster pump station ¹	1		\$7,672,670	\$9,207,204
UF/RO/UV/AOP/disinfection facility ¹	16,800,000	gallons	\$6	\$100,800,000
RO capture	20%			
RO disposal ²	1	LS	\$ 23,244,431	\$23,244,431
Site Improvements Subtotal				\$136,251,635
Mobilization/demobilization	5	%		\$6,812,500
Contingency	35	%		\$47,688,072
Site Improvements Construction Subtotal				\$190,752,207
Professional services	20	%		\$38,150,500
Total Site Improvements Cost				\$228,902,707
Trench safety	42,000	LF	\$4.89	\$ 205,503
36-inch waterline - rural soil ³	40,000	LF	\$295.80	\$11,831,929
36-inch waterline - urban soil ⁴	2,000	LF	\$424.97	\$849,935
36-inch bored highway/river crossing	200	LF	\$901.33	\$180,265
Dewatering	42,000	LF	\$3.61	\$151,423
Conveyance Subtotal				\$13,219,055
Mobilization/demobilization	5	%		\$661,000
Contingency	35	%		\$4,626,669
Conveyance Construction Subtotal				\$18,506,725
Professional services	15	%		\$3,701,250
Easement acquisition	27.548	acres	\$30,000	\$826,446
Total Conveyance Improvements Cost				\$ 23,034,421
			Project Total:	\$251,937,128

Notes:

¹ At Three Forks WWTP

² Send to Milan County

³ From Three Forks WWTP to blending with North Pipe

⁴ Buffer for urban areas



Appendix C Case Studies

Round Rock Case Study

Kit Perkins, City of Round Rock, and Allen Woelke, CDM Smith

Location

Round Rock, Texas

Size

4.2 mgd, Fiscal Year (FY) 2023

Year of Installation

Circa 1997

Status

Operational

History

The City of Round Rock has been selling reclaimed water for more than 25 years, with the first connection to the Forest Creek Golf Course in 1997 with Type II irrigation water. The initial treatment and conveyance system consisted of water diverted from the city's chlorine contact basins and pumped to a pond. From there, an abandoned force main was used to convey reclaimed water to the Forest Creek Golf Course. The golf course is city-owned and there is no fee charged for golf course water. It is, instead, treated as a potable water offset. TCEQ has approved the 30 TAC Chapter 210 contract for this use of reclaimed water.

Current Status

Today, the treatment system has been upgraded with tertiary disc filters that treat the water to a standard that qualifies it for Type I non-potable uses. A 1.0 mg clearwell was added (with a second 2.0 mg clearwell to be added in the future) in addition to two pump stations for conveyance to the clearwell and to a 1.25 mg EST.

The city's reclaimed water program now has 20 to 30 customers who use the water for a variety of purposes, such as indoor toilet flushing, cooling tower and air-conditioning makeup water, and construction water. The largest private customers are homeowners associations (HOAs). Some customers have multiple meters, bringing the total reuse meters in service to 50.

Water sales in recent years consist of 2,194 AF in FY2023 and 2,135 AF in FY2022. Additionally, the maximum day flows in calendar years 2023 and 2022 were 4.21 mgd and 4.33 mgd, respectively. Fees currently charged for reclaimed water consist of 75% of the lowest tier water rate, which is equivalent to \$1.92/1,000 gal. There are no impact fees and no drought restrictions. The contractual arrangement with customers is built around anchor customers that base load the system.

Future System

The City of Round Rock's reclaimed water program is expected to grow in the coming decades. In 2030, the projected system water delivery is 12 mgd for maximum day and 4.25 for average day. The city is anticipating that the bulk of new customers will consist of parks, HOAs, and data centers.

Supporting future reclaimed water customers will require adding a clearwell, building out transfer and high service (HS) pumps, a dual electrical feed, adding additional conveyance and distribution piping, and one more EST south of the existing WWTP. Other additional improvements planned include adding a serviceable screen after water meters to prevent solids from plugging sprinkler heads. Despite future expansion, fees for reclaimed water are expected to remain at 75% of the potable water base rate. The city has not evaluated whether revenue is being generated on reclaimed water; however, the reclaimed water program offsets the need for additional water supplies and additional potable water. The U.S. Bureau of Reclamation (USBR) has set aside funding for a reclaimed water project in Williamson County, where Round Rock is located, and has promised matching funds to 25%.

Orange County Groundwater Replenishment System (GWRS) Advanced Water Treatment Facility³

**Mehul Patel, Orange County Water District, Greg Wetterau, and
Bruce Chalmers, CDM Smith**

Project Facts

Location

Orange County, California

Size

70 mgd initial, expanded to 100 mgd

Year of Installation

2008 initial, expansion complete in 2015

Status

Operational

Cost

\$481 million initial, \$143 million expansion

Background

Water Factory 21 was established in Orange County, California in 1976 as the first project utilizing direct injection of recycled wastewater into a drinking water aquifer for subsequent indirect potable reuse (IPR). Water Factory 21 was a 16 mgd demineralization plant using reverse osmosis (RO), a new technology at the time, to purify reclaimed water for reuse (Orange County Water District [OCWD] 2013). The OCWD obtains water from the Santa Ana River, the Colorado River, the State Water Project (Delta conveyance), local precipitation, and recycled water from the Orange County Sanitation District (OCSD) (Wehner 2010). Starting in 2004 and completed in 2008, the OCWD upgraded their recharge system by superseding Water Factory 21 with the unveiling of a 70 mgd Groundwater Replenishment System (GWRS)—the world’s largest advanced water treatment system for potable reuse (**Figure C-1**).

³ Patel, M., Wetterau, G., & Chalmers, B. (2017). 2017 Potable Reuse Compendium. U.S. Environmental Protection Agency and CDM Smith Inc. under Cooperative Research and Development Agreement (CRADA).



Figure C.1 The World's Largest Wastewater Recycling System for Indirect Potable Reuse

(Photo Credit: Jim Kutzle, Orange County Water District, from GWRS 2013)

During construction of the GWRS, the Interim Water Factory was operating from 2004–2006 which produced 5 mgd of reclaimed water utilizing MF, RO, and UV/AOP with hydrogen peroxide (Wehner 2010). This water was blended with 8 mgd imported water before being used for groundwater replenishment. At the GWRS, influent water flows from the OCSD Plant 1 to the GWRS. After treatment, the GWRS pipelines initially distributed 35 mgd of purified reclaimed water from the OCWD's facility located in Fountain Valley to groundwater recharge basins (Kraemer, Miller, and Miraloma) located in Anaheim (**Figure C-2**). The purified water flows year-round through a 13-mile long pipeline before reaching and percolating through recharge basins which provide up to 70% of the drinking water supplied to the northern and central parts of the OCWD (OCWD 2013). The other 35 mgd was pumped into the Talbert Gap seawater intrusion barrier injection wells. The plant completed an expansion to 100 mgd in 2015; however, limited availability of wastewater from OCSD Plant 1 has thus far prevented the facility from operating at its full rated capacity. The facility is planning a future expansion to 130 mgd, and is evaluating alternatives for providing additional wastewater flows for both the current and expanded facility. At 70 mgd, the GWRS served approximately 600,000 people. With the completed expansion, the GWRS will produce enough water to sustain a population of 850,000 people (OCWD 2014).

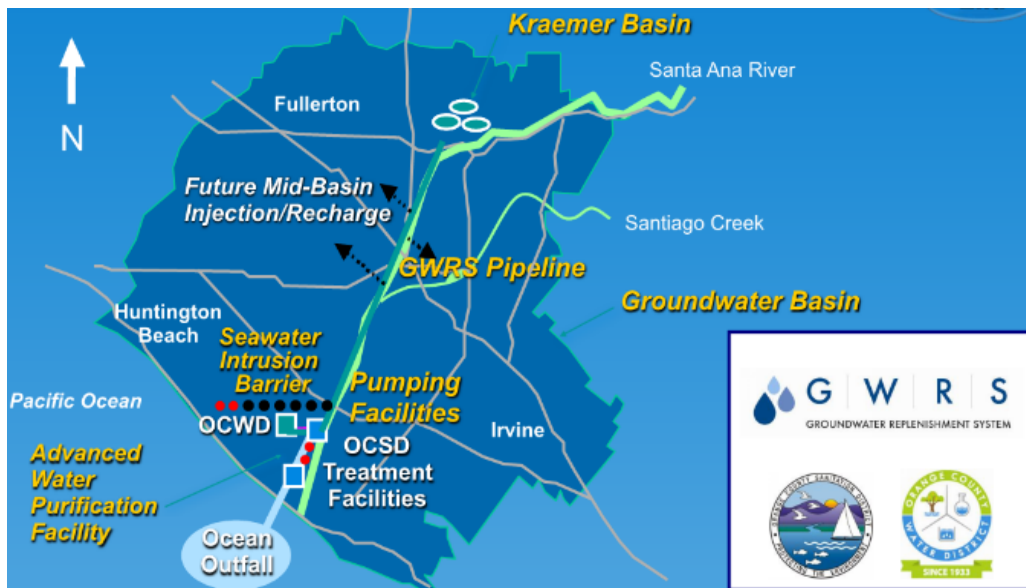


Figure C.2 Map of GWRs facilities, pipeline, and recharge basins (Source: GWRs)

Treatment Type and Process Flow Block Diagram

The GWRs treatment process utilizes MF, RO, UV/AOP with hydrogen peroxide as part of the advanced purification process followed by decarbonation and lime addition (**Figure C-3**). The microfiltration process has a 90% recovery rate at the GWRs; backwash from the process is sent to OCSD Plant 1 for treatment and return to GWRs. Each microfiltration cell experiences backwashing every 22 minutes to prevent high-pressure buildup (GWRs 2013). Additionally, each microfiltration cell receives a full chemical cleaning every 21 days. The RO process has an 85% recovery rate and the resulting brine is distributed to the OCSD ocean outfall. MF and RO are followed by six low-pressure high-output UV reactors in series, each with 72 lamps. Following UV disinfection, the water is stabilized to pH levels between 8.5 and 9 by partial degasification and lime addition (GWRs 2013).

The water quality of influent water to the GWRs and product water following the complete treatment process is summarized in **Table C-1**.

Table C.1 GWRs Influent and Effluent Water Quality

Water Quality Parameter	Influent Levels (mg/L)	Effluent Levels (mg/L)
Total dissolved solids (TDS)	1,000	<30
Total organic carbon (TOC)	12–15	<0.30
Pharmaceuticals	–	Non-detect (<10 ng/L)

Unique WWTP or Water Reclamation Facility (WRF) Permit Limits in the National Pollutant Discharge Elimination System (NPDES) Permit or Additional Permit

OCSD has a source control program to strive to limit pollution from drugs/medications or industrial chemicals, such as 1,4-dioxane, dumped into the source water. In addition to their source control program, the OCSD has implemented additional programs such as educational outreach programs, toxics inventory, and a pollutant ranking system in response to permit criteria set by DDW.

The GWRS has been given greater than 20 awards over the years, including the coveted 2014 Lee Kuan Yew Water Prize and the 2014 U.S. Water Prize (OCWD 2014).

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Wichita Falls River Road WWTP and Cypress WTP Permanent IPR and Emergency DPR Project⁴

Daniel Nix and Russell Schreiber, City of Wichita Falls

Project Facts

Location

Wichita Falls, Texas

Size

DPR: 5 mgd IPR: 16 mgd

Year of Installation

DPR: 2014 IPR: potentially 2018

Status

DPR: Decommissioned IPR: Planning Stages

Cost

DPR: \$13 Million IPR: Projected \$33.5 Million

Background

Lake Arrowhead and Lake Kickapoo are the main surface water supplies for the City of Wichita Falls, Texas. During 2013, both lakes were less than 35% full (**Figure A.6-1**), sending Wichita Falls into extreme drought conditions with no readily available water supply solution (Khan 2013).

⁴ Nix, D., and Schreiber, R. 2017. 2017 Potable Reuse Compendium. U.S. Environmental Protection Agency and CDM Smith Inc. under CRADA.



Figure C.4 Lake Arrowhead levels in 2013 (Photo credit: Daniel Nix)

By May 2014, Wichita Falls declared a Stage 5 drought. Wichita Falls, however, proactively began investigating the possibility of implementing a DPR project following the drought of 1995–2000 during which they supplemented their drinking water supply with highly saline water from Lake Kemp and Lake Diversion (Dahl 2014). By using microfiltration (MF) and RO, they were able to integrate the treated saline lake water with the existing potable water supply. Wichita Falls Public Works Department was confident they could do the same with municipal wastewater when faced with the most recent drought conditions. In 2012, recognizing the city would be out of water by 2014 without further action, Wichita Falls drafted a two-phase project plan involving both a permanent IPR scheme and an emergency temporary DPR scheme.

Conservation Efforts

By December 2014, staged water conservation efforts saved up to 6.1 billion gallons of water (about 1.5 years' supply). Stage 5 drought restrictions had lowered the average summer usage by 65%. Nonetheless, conservation alone was insufficient to sustain a reliable drinking water supply (Nix 2014).

Emergency (Short-Term) DPR System

The DPR scheme was implemented because drought conditions led to severe and abrupt drinking water needs for the City of Wichita Falls, with lake levels well below the 40% considered to be an emergency. The emergency DPR project began operating online on July 9, 2014 after only 27 months of design, permitting, and construction. The city expected the temporary DPR system to remain in operation for 2 to 2.5 years, at which time the permanent IPR system would come online. Because of significant rainfall, the DPR project was decommissioned on July 21, 2015.

A unique context in Wichita Falls was that the city already had an MF/RO plant that treated the Lake Kemp water. This MF/RO system was scheduled to be taken offline because the salinity in Lake Kemp had increased dramatically (going from the normal 2,500 parts per million (ppm) total dissolved solids [TDS] to 8,000 ppm TDS). The Lake Kemp MF/RO system could not successfully treat this higher TDS

water. Reusing the facility kept costs and time down because design and construction of a new membrane plant was not needed.

The DPR system transferred treated effluent from the River Road WWTP to the Cypress water treatment plant (WTP) through 13 miles of pipe that were laid in 3 months—all aboveground. The pipeline was sized for the future permanent IPR system and will be reused. By laying the pipeline through the city's flood control channels, the city did not face any right-of-way issues.

At the Cypress WTP, the treated effluent was purified through MF and RO. A disinfection-dose UV system was added after 6 months of operation. The UV dose employed targeted pathogen inactivation, but was not designed to address unregulated constituents, such as n-nitrosodimethylamine (NDMA), or provide advanced oxidation. The advanced-treated water was then blended at a 1:1 ratio with raw untreated Lake Arrowhead water and subsequently treated at a conventional WTP, followed by holding in an engineered storage buffer for 24 hours before being conveyed to the distribution system. The process created an additional 5 mgd (up to 50% of daily demand) of municipal drinking water. Additionally, 2.5 mgd of brine from the MF and RO processes were discharged to the Big Wichita River under the discharge permit acquired for the Lake Kemp operation (**Figure C-5** and **Figure C-6**) (Nix 2014).



Figure C.5 RO modules
(Photo credit: City of Wichita Falls)



Figure C.6 RO permeate
(Photo credit: City of Wichita Falls)

Permanent (Long-Term) IPR system

The IPR project will use the existing 13-mile pipeline constructed for the DPR project to complete the 15-mile pipeline from River Road WWTP to Lake Arrowhead. Wichita Falls has received a new discharge permit from TCEQ for the permanent IPR installation. The IPR project will ultimately pipe up to 16 mgd of advanced-treated (i.e., tertiary) effluent from River Road WWTP back to Lake Arrowhead, which will serve as an environmental buffer, before the water is treated at the city's conventional WTPs and distributed to customers. River Road WWTP will be retrofitted with a new phosphorous reduction process, tertiary filtration processes, and a new pump station using loan money to fund the upgrades (Ingle 2014).

Treatment Process

DPR

WWTP → Pipeline (including chloramine disinfectant down the pipeline) → WTP (MF → RO → UV) → Holding Lagoon (engineered storage buffer) → Blending 50-50 → Conventional WTP (chlorine dioxide pre-disinfection, chloramine primary disinfection, coagulation, lime, sedimentation, gravity media filtration, fluoridation, chloramine terminal disinfection) → Storage (engineered storage buffer) (**Figure C-7**).

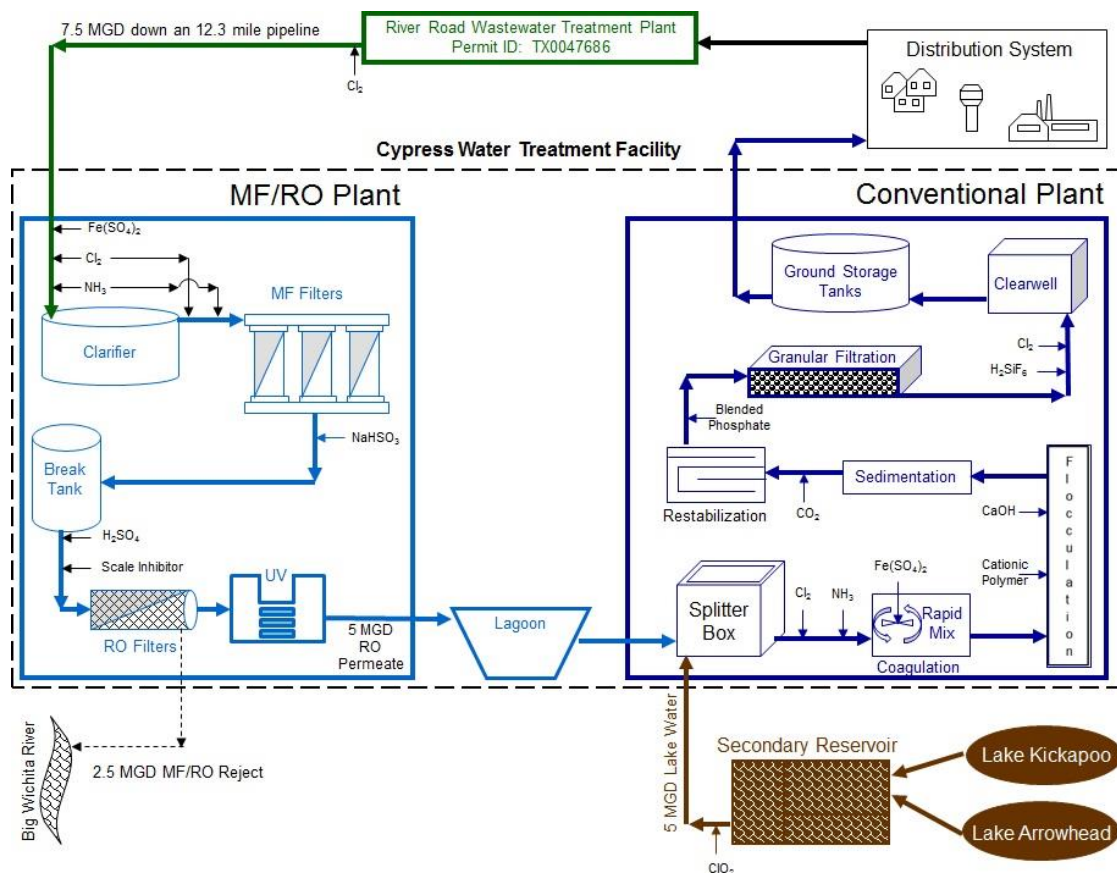


Figure C.7 Emergency DPR treatment process flow diagram (Source: Daniel Nix)

IPR

River Road WWTP (upgrades will include chemical phosphorus reduction with filters and new re-aeration) → Effluent Pump station and pipeline → Lake Arrowhead (environmental storage buffer) → Conventional WTP.

Collaboration Between TCEQ and City

Although there are no IPR or DPR regulations currently implemented in Texas, TCEQ reviews submitted project proposals individually and grants approval and discharge permits on a case-by-case basis. TCEQ approved the Wichita Falls DPR scheme after reviewing the DPR project proposal and the proposed long-term IPR system solution. Since there are no regulatory guidelines for DPR in Texas, TCEQ and the City of Wichita Falls Public Works Department collaboratively discussed the necessary treatment requirements and effluent limitations.

DPR Permitting Process

The city worked with TCEQ for the first 9 months of 2013 to discuss how to operate the plant and received the approval to build the pipeline towards the end of 2013. Following the completion of the DPR system installation in December 2013, TCEQ worked with the city on carrying out an intense 45-day testing period, followed by 30 additional days of testing. During this full-scale verification testing, TCEQ staff spent time on-site understanding how the plant was operating and observing the lab operations. Based on the results from these full-scale verification test periods, TCEQ approved a permit on June 28, 2014 which allowed 6 months of operation. TCEQ has subsequently extended the permit based on excellent operation but required the addition of UV after the initial 6 months of operation.

DPR Microbial Log Removal Requirements

TCEQ used the Surface Water Treatment Rules (SWTRs) as the basis for assigning log removal requirements. However, to be more conservative than required by the SWTRs, rather than using a 24-sample average concentration as the basis for assigning log removal requirements, they took the maximum concentration ever observed, and applied this standard to viruses, Giardia, and Cryptosporidium, rather than only Cryptosporidium, as required by the SWTRs.

The DPR process is required to achieve 9-log virus removal, 8-log Giardia removal, and 5.5-log Cryptosporidium removal, as specified by TCEQ. Initially, TCEQ had required 8-log virus removal but increased it to 9-log because chloramines were pre-forming at the wastewater plant; therefore, TCEQ felt that there would not be as much free chlorine disinfection occurring. Likewise, TCEQ initially required a lower Giardia removal target (6-log) but increased it to 8-log removal required after continuous effluent monitoring indicated higher concentrations of Giardia could be present in the treated wastewater than the maximum concentration observed previously. These adjustments show the adaptability on the part of TCEQ to changing conditions and the open communication between the regulators and the city with the common goal of protecting public health.

Because no daily integrity test has been demonstrated to the satisfaction of the TCEQ to date for RO, it does not give microbial log removal credits for the DPR RO elements. As a result, other employed treatment methods must successfully achieve the log removal requirements.

IPR Permitting Process

TCEQ approved the permit for the IPR system in fall 2014, which allowed the city to go forward with design. The system is funded with a \$33.5 million loan through the Texas Water Development Board and the Clean Water Act State Revolving Fund. The city is in the midst of a required archaeological investigation along the pipeline route and the design process and expects to have the permanent IPR system online and upgrades to the River Road WWTP complete by 2018.

DPR System Monitoring

The city worked with TCEQ in a collaborative process to decide upon 42 monitoring locations and requirements within the DPR system to ensure public health was protected and off-speculation drinking water was prohibited from entering the distribution system (**Figure A.6-4**). The range of chemical and microbial constituents required for monitoring of the temporary DPR scheme were similar to the current Safe Drinking Water Act (SDWA) requirements. Constituents in the SDWA were monitored in the wastewater effluent, RO permeate before blending, lake water, and at the end of the conventional WTP. TCEQ required biweekly monitoring of *Cryptosporidium*, *Giardia*, and total culturable viruses using standard methods. A polymerase chain reaction (PCR) based method was also tried for *Cryptosporidium* and *Giardia* during verification testing but was removed from the monitoring requirements because PCR results were difficult to interpret. Other monitoring parameters included *E. coli* (daily); full metal scans; algal counts; inorganic, organic, radioactive, and secondary chemicals specified under Texas drinking water codes; and disinfection by-products. The city monitored unit processes to ensure that the required microbial log removals are being met. For example, every 8 hours, log removal credits for each disinfection zone were calculated based on disinfectant concentration and contact time. The log removal values were entered into a table with values from other unit processes and an overall observed log removal was tabulated. The DPR process regularly provided a calculated 25-log removal for viruses and 16-log removal for *Giardia* (compared to the 9- and 7-log removal requirements, respectively).

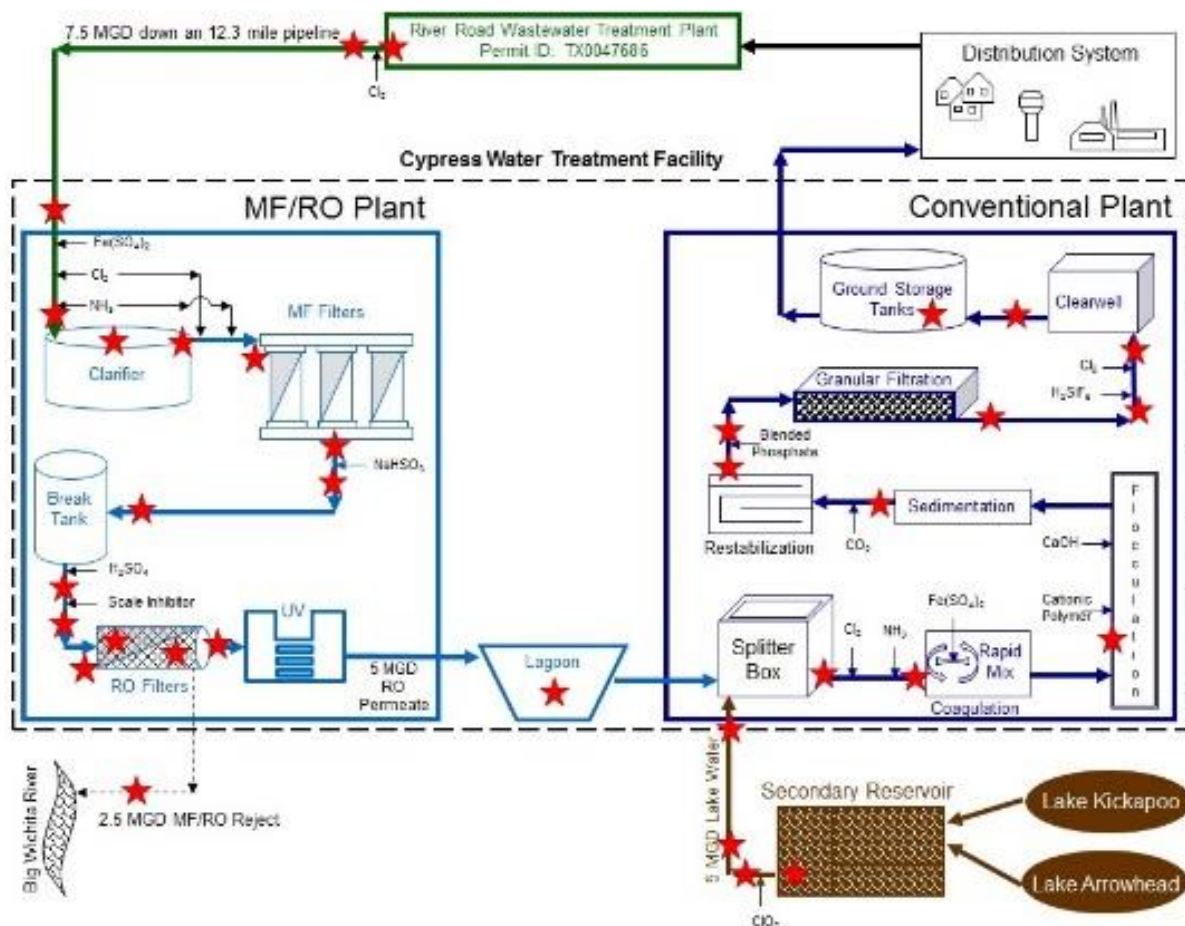


Figure C.8 Water quality monitoring locations in Emergency DPR Project (Source: Daniel Nix)

Operator Certification

The City of Wichita Falls has historically produced high-quality drinking water, and prides itself on its plant operator certification system. Wichita Falls plant operators must be certified by the State of Texas and continue training throughout their career lifetime. They can achieve certification levels A through D (A being the highest achievable level). Operators must be recertified every 3 years (City of Wichita Falls 2014a). In total, the City of Wichita Falls has five Class A operators, 19 Class B operators, and 11 Class C operators (City of Wichita Falls 2014).

Because there are no specific regulations regarding operator certification for reuse, Wichita Falls implemented two additional requirements for its operators. First, water operators are required to tour the wastewater plant, so they would understand the wastewater treatment processes. Second, water operators are required to take basic wastewater, wastewater treatment, and waterborne pathogens classes. Likewise, wastewater operators are required to tour the water treatment plant (WTP) and take basic water, surface water, and waterborne pathogens classes. There is currently an ongoing effort to determine and begin a certified DPR operator program in Texas.

Collaboration Between the County Public Health Department and the City's Public Works Department

The city had an existing local water quality task force that was established in 1997 in response to the Milwaukee Cryptosporidium outbreak. The task force is made up of members of the city's public works department and the city/county public health department. The task force has met regularly and has established protocols for what action and communication is required in the case of unexpected process upsets or disease outbreaks observed in the population. TCEQ has attended one of the task force meetings to observe how information and data are exchanged. This relationship is unique and helps to guarantee public health safety.

Leadership

The director of the city's public works department and the utilities operations manager were trailblazers with DPR. However, they also felt that the science was already proven and there was nothing innovative technically—all of the components had been previously studied for four decades or more. Wichita Falls simply did extensive research to assemble and digest published literature from the United States, Australia, Europe, and Japan, and then put the pieces together.

Public Outreach

Public outreach techniques were used to educate doctors, professors of environmental science and chemistry, and the general public (Dahl 2014). Ensuring the community was comfortable with the potable reuse concept immensely helped the project's evolution. The leadership of the Public Works Department feels that the DPR and IPR projects have been 100% transparent with the citizens and that they could not have succeeded without the support of the community.

Public Perception

City and state officials did not receive any complaint calls regarding taste during DPR operations. In fact, some residents felt the water tasted better since the DPR scheme was brought online.

The public works department monitored bottled water sales at the three large Walmart retailers in town. Water bottle sales increased by about 9% after DPR was brought online, indicating that some residents may have switched from tap water to bottled water for drinking; but the majority of the population did not begin buying bottled water. City residents have embraced their place in history as a leader in DPR (**Figure C-9**).



Figure C.9 T-shirts sold in Wichita Falls touting DPR.

(Photo credit: F5 Concepts, Inc.)

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This part is different/ out-of-date from what was officially published in the 2017 compendium Need to double check that all other text is updated

Appendix D

Reuse Updates to the WIT Model

As part of the City of Georgetown Integrated Water Resources Plan (IWRP) a system model was created using the Water Integration Tool (WIT) in Powersim®. The model simulates changes to surface water, groundwater, and recycled water budgets with changing hydrology and new project implementation. The model included all existing City water supplies (i.e., Brazos River Authority provided surface water, City of Leander contract water, Brushy Creek Regional Utility Authority contract water, and Edwards aquifer supply), all existing wastewater treatment plants (i.e., Pecan Branch, Berry Creek, Dove Springs, San Gabriel, and Cimarron Hills), and all future supply options explored within the IWRP (Hosston groundwater, regional groundwater, new groundwater, Lake Granger flood flows, Lake Georgetown flood flows, aquifer storage and recovery, and new reclaimed water use).

As part of the City of Georgetown Reuse Water Assessment, the model was updated to include planned future wastewater facilities and incorporate the latest reuse project recommendations.

Model Updates

The following sections describe updates made within the model.

Future Wastewater Facilities

The planned future Three Forks WWTP and Northlands WWTP were added into the model and the planned future capacities of all facilities were adjusted to match assumptions with the reuse assessment. **Table 1** lists the treatment capacities included within the model.

Table 1. Wastewater Facility Capacities with the WIT Model

Facility	Capacity (Year)
Berry Creek WWTP	0.3 MGD
Cimarron Hills WWTP	0.2 MGD
Dove Springs WWTP	1.7 MGD; 6.5 MGD (2032); 10 MGD (2065)
Pecan Branch WWTP	1.5 MGD; 3 MGD (2030)
San Gabriel WWTP	2.5 MGD
Three Forks WWTP (Future)	0 MGD; 10.5 MGD (2032); 21.0 MGD (2065)
Northlands WWTP (Future)	0 MGD; 1 MGD (2032); 7.2 MGD (2065)

New Groundwater Supply

The City of Georgetown is currently pursuing a partnership with Edmonton Power Corporation (EPCOR) to secure additional water supply from the Carrizo-Wilcox Aquifer in Robertson County. The current proposed take-down schedule for the partnership was entered into the model as shown in **Table 2**. Currently contracted for 40,000 AFY but under negotiations to amend the transport permits to increase to 70,000 AFY.

Table 2. Proposed Schedule of Supply of New Groundwater

Year	Volume Available (AFY)
2024	0
2029	16,000
2034	32,000
2039	52,000*
2044	64,000*
2049	70,000*

* Volume held to 40,000 AFY if additional transport permits are not approved.

Recommended Reclaimed Water Projects

The model updates incorporated the following two recommendations from the reuse assessment:

- **Non-potable water system from Dove Springs:** Dove Springs now has the option in the model to supply existing and future non-potable reuse customers to the south and west of the plant. Available supply is assumed at 1.0 MGD in 2027 with an additional 1.5 MGD in 2030.
- **Indirect Potable Reuse via Lake Granger:** Indirect potable reuse via Lake Granger was already a supply option within the model. Effluent from the WWTPs is conveyed via the San Gabriel River to Lake Granger where it is treated and pumped back to Circleville and then the city distribution system. With the addition of the new Three Forks WWTP into the model, its effluent was also now included in the available supply for indirect potable reuse.

Results

Once all updates to the model were made, the model was run to confirm that future demands could be met with the currently modelled planned supplies. **Figure 1** shows how new supplies are combined in the model to meet growing demands. Neither new groundwater nor reclaimed water is used at the full available capacity but proportioned to meet demand. Additional supply would be available to meet additional growth or during years with higher demands.

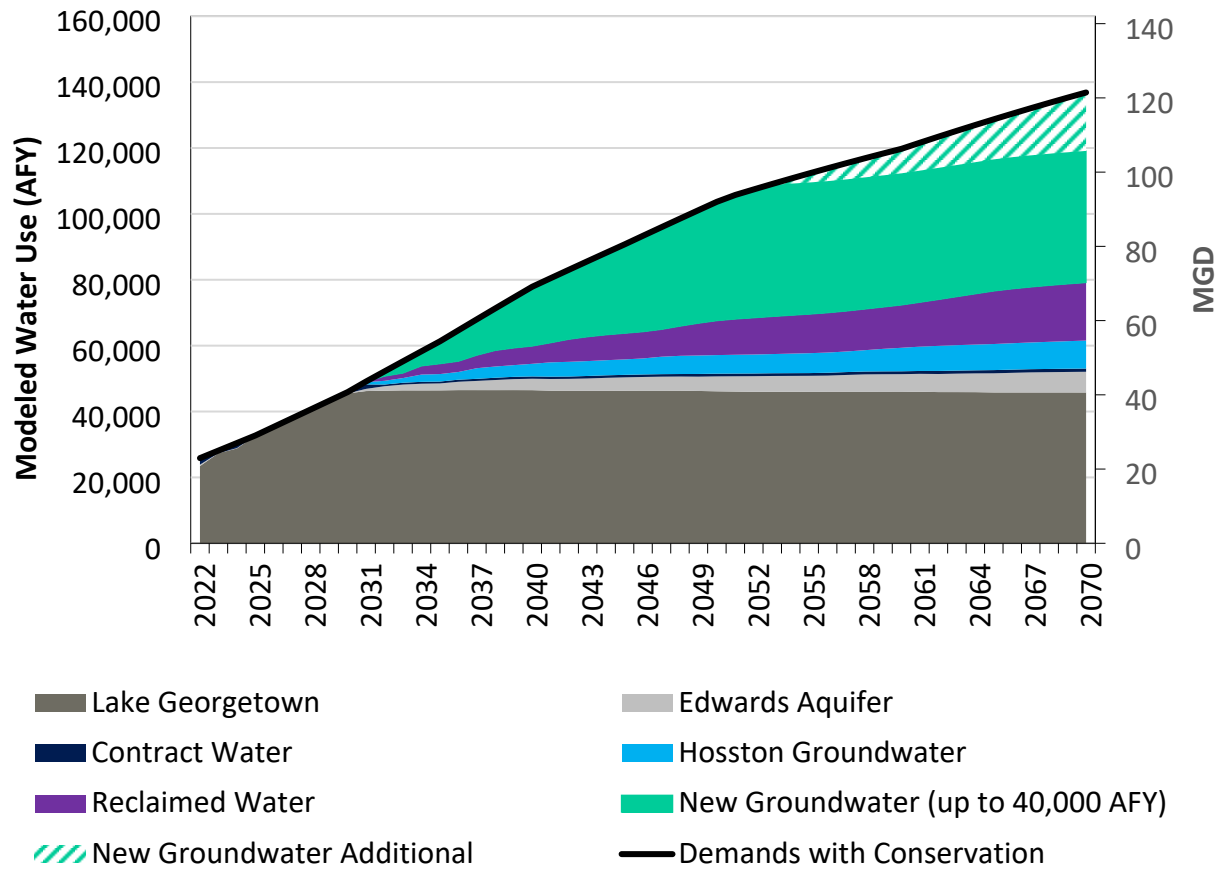


Figure 1. Modeled Supply over 50-year Planning Horizon



Appendix E

Return Flow Analysis

Background

As part of ongoing work on the City of Georgetown Reuse Assessment Report, CDM Smith evaluated reuse water projects for potential future water supply. One recommended project from the assessment is indirect potable reuse via Lake Granger. Under this supply option, treated effluent from the planned Three Forks Wastewater Treatment Plant would be conveyed via the San Gabriel River to Lake Granger under a bed and banks permit. From Lake Granger, the water would be treated at the East Williamson County Water Treatment Plant and pumped to Circleville for storage and conveyance back to the City of Georgetown distribution system.

As part of investigating the feasibility of this supply option, this memo outlines the expected impact on the firm yield and spills at Lake Granger from consistent return flows from City of Georgetown WWTPs. The analysis was performed using the Microsoft Excel-based Brazos River Authority (BRA) Williamson County Regional Raw Water System Simulation Model. The model includes simulation of Lake Granger, Lake Georgetown, Lake Stillhouse Hollow, and Lake Belton.

Analysis

As part of the analysis, the following inputs were adjusted within the model:

- **Demands (for Lake Belton, Lake Stillhouse Hollow, and Lake Georgetown users):** The demand year within the model was set to 2070. This assumes most users of Lake Belton, Lake Stillhouse Hollow and Lake Georgetown are using their full contract values from BRA.
- **Demand (for Lake Granger):** The City of Taylor and Jonah SUD are listed within the model as Lake Granger users. However, for the analysis a single demand was placed on Lake Granger and varied to determine the firm yield for a given condition.
- **Return Flow from the City of Georgetown to Granger:** The City of Georgetown annual demand within the model is 45,707 acre-feet per year (AFY). While the City's total water demand is higher than this, the value represents the contracted supply from BRA. The percentage of this demand returned to Lake Granger was varied from 0 to 100 percent. In the future, City of Georgetown return flows to Lake Granger could be greater than the BRA contracted value as water supply from other sources such as groundwater is also returned to the river and reservoir via the WWTPs.

Results

For each assumed percentage of return flows, the model was run iteratively placing increasing demands on Lake Granger until there was a predicted shortage. The demand prior to their being a shortage was used as an estimate of the firm yield for the reservoir. The firm yield represents the maximum amount of water the reservoir can provide during a repeat of the worst drought on record. The model uses historic hydrology from 1941 through 2013 with the drought of record occurring in the 1950s. The average annual spills from the reservoir with the assumed returned flows and matching firm yield demand were also recorded. Results are shown in **Table 1**, **Figure 1** and **Figure 2**.

Table 1: Model Results

Georgetown to Lake Granger Return Flow (%)	Georgetown Return Flow (AFY)	Granger Firm Yield (AFY)	Granger Average Annual Spills (AFY)
0%	-	21,000	109,395
10%	4,571	26,000	109,009
20%	9,141	30,000	109,552
30%	13,712	35,000	109,166
40%	18,283	39,000	109,710
50%	22,854	44,000	109,324
60%	27,424	48,000	109,868
80%	36,566	57,000	110,027
100%	45,707	66,000	110,188

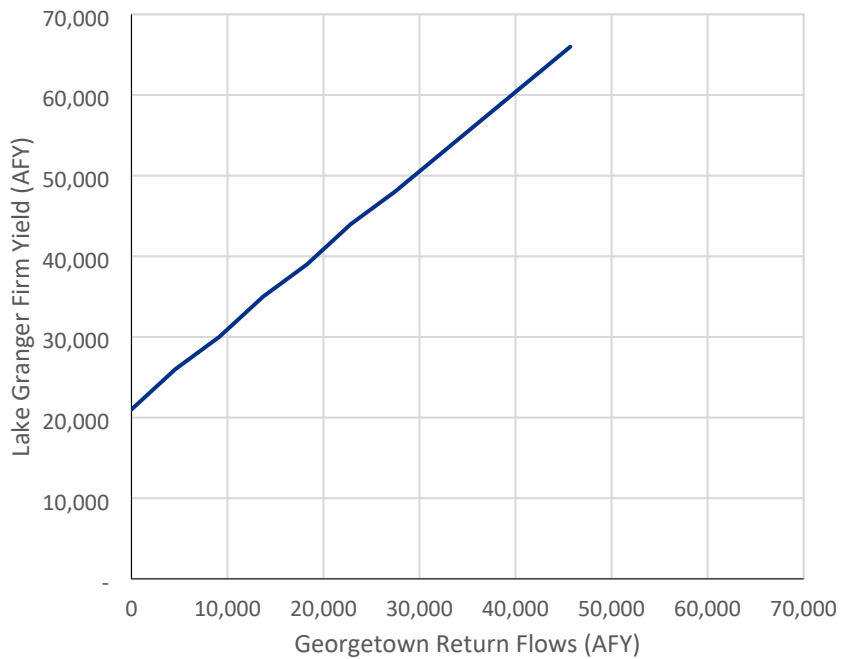


Figure 1: City of Georgetown Return Flow Impact on Lake Granger Firm Yield

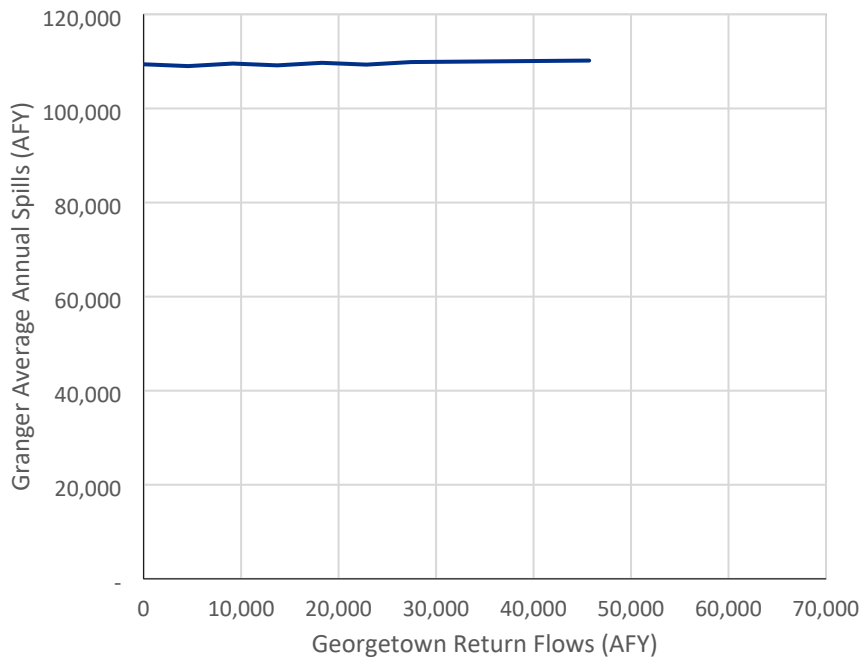


Figure 2: City of Georgetown Return Flow Impact on Lake Granger Spills

Conclusion

The firm yield of Lake Granger was shown to increase linearly at a proportionate amount as the return flows from the City of Georgetown increased. As the drought of record in the 1950s was a long multi-year drought, any new inflows added to the reservoir during that time period would be stored and available for withdrawal.

The spills from Lake Granger downstream remained consistent across the model runs. The new return flows added to the reservoir were balanced by the matching increased demand out of the reservoir.

The analysis shows that return flows added to Lake Granger by the City of Georgetown would increase the firm yield of the reservoir and provide additional supply the City could withdraw for reuse. Adding then withdrawing the water would not be expected to impact downstream users.



Appendix F

Lake Granger Uncontrolled and Controlled Flows Analysis

Background

As part of ongoing work on the City of Georgetown Water Reuse Assessment Report, CDM Smith evaluated reuse water projects for potential future water supply. One recommended project from the master plan is indirect potable reuse via Lake Granger. Under this supply option, treated effluent from the planned Three Forks Wastewater Treatment Plant (WWTP) and Northlands WWTP would be conveyed via the San Gabriel River to Lake Granger under a bed and banks permit.

Return flows to Lake Granger remain fairly constant and are further discussed in Appendix E, but uncontrolled flows into Lake Granger vary significantly throughout the year so there are periods of time when the majority of the flows into Lake Granger will be returned into the City's use. CDM Smith led a small analysis of historical data to estimate how much and when we can expect flows from these two sources to dominate the flows into Lake Granger.

Analysis

Using the USGIS water data, CDM Smith set up a calculation to sum up the following segments that feed into Lake Granger and identified their contributing drainage areas as below:

- North Fork San Gabriel River: 248 square miles
- South Fork San Gabriel River: 133 square miles
- Willis Creek near Granger Lake: 57.8 square miles
- Berry Creek at Airport Road: 74.1 square miles
- Lake Granger: 709 square miles

Next we found the median for each month from the USGS data available for the gages at Willis Creek, North Fork San Gabriel, South Fork San Gabriel and Berry Creek. We had varying number of years available for each site, but took all that was available into consideration to give a range of flows over the available span on a monthly basis. Then uncontrolled and metered flows were summed for each month and the 7 MGD, 10.5 MGD, and 21 MGD flows as fixed values to get a flow percentage. Note that North Fork San Gabriel River was not used to calculate uncontrolled flows since it is mostly controlled by the dam, but it was included in metered values. Berry Creek only contributed to the median flows in April and May.

Results

Flow percentages are presented in **Figure 1** below. Note that Three Forks WRF discharge flows will be major contributors during the late summer and early fall months.

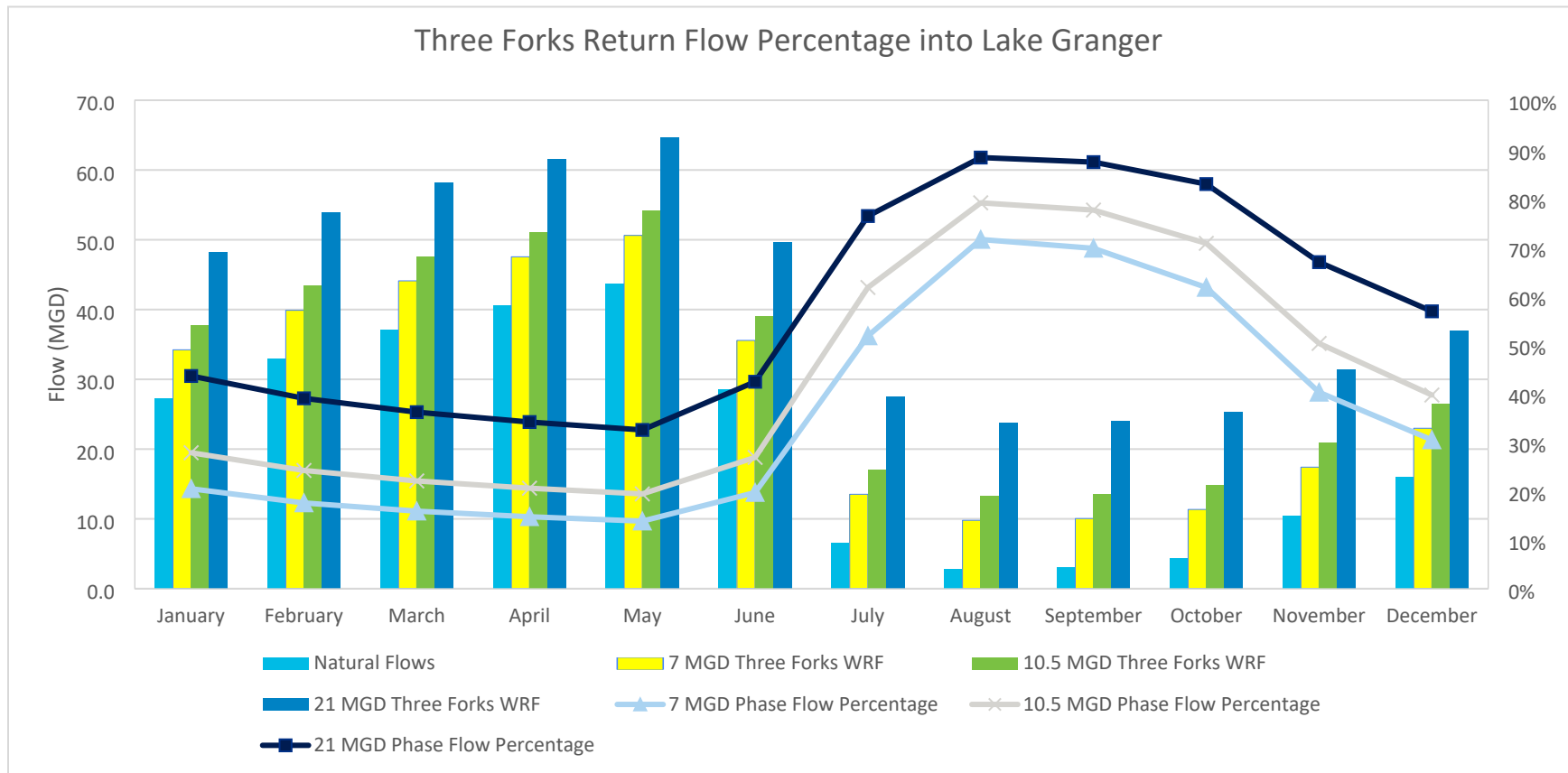


Figure 1: Median historical flows into Lake Granger from uncontrolled and metered sources.



Appendix G

Rate Analysis



275 W Campbell Road
Suite 440
Richardson, TX 75080
Phone: (972) 680-2000

Memorandum

To: Allen Woelke, P.E., Vice President CDM Smith
From: Matthew B. Garrett, Partner
Date: August 21, 2025
Re: Rate Analysis for the Georgetown Reuse Water Assessment Report

Dear Mr. Woelke:

NewGen Strategies and Solutions, LLC (NewGen) is pleased to submit this summary of our results from the Services in Connection with the Georgetown Reuse Water Assessment Study (Study) to CDM Smith Inc. (CDM). As part of this Study, NewGen's Project Team (Project Team) analyzed both the City of Georgetown (City) Integrated Water Resources Plan (IWRP) and the Water Reuse Master Plan Report (Report). In 2023, the IWRP recommended different portfolios of new water supply projects to meet projected future water needs over the next fifty (50) years. In 2024, the Report was produced to evaluate the identified projects in more detail. CDM engaged NewGen to perform services in connection with this project including assisting CDM and the City to understand and evaluate the impact of these funding options on the rate, as well as the "opportunity cost," or next best option of not including this reuse back into the City's source of supply for treated water needs. This comparison may help in developing a payment plan, which can best minimize impact to customers, while supporting the City's financial position, paying back the sources of funding, and evaluating the appropriate level of "subsidy" if any, for this service.

As requested by the City, NewGen is providing four (4), five (5)-year forecasts to compare the impact to customer rates with an established baseline forecast and explain any deviations that may be required from the baseline.

The Project Team began by reviewing the Report and the IWRP. Based on conversations with CDM and the City, particular attention was given to the projects listed in Section 3.2.1 of the Report, Non-Potable Reuse Options. These projects are listed below. The one addition to the list is the Three Forks Wastewater Treatment Plant (WWTP) to Airport Pump Station (PS) to Berry Creek Project, which is listed in Section 4.2, Other Beneficial Projects.

- Three Forks WWTP to Lake WTP Elevated Storage
- San Gabriel WWTP to Lake WTP Elevated Storage
- Northlands WWTP Elevated Storage
- Dove Springs WWTP to South
- Dove Springs WWTP to West
- Three Forks WWTP to Airport PS to Berry Creek

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For each of these projects, the Project Team’s analysis included but was not limited to:

- The timing of each project’s award, completion, and ramp up time, and how these effect revenues and expenses;
- The cost of each project, associated debt and its structure, and future changes to operations and maintenance (O&M) costs, and unit costs;
- The effect each project would have on volumes available for potential reuse water and potable water. Some projects were necessary to sustain the currently available reuse water; and
- Current customer contracts.

The reuse system has twelve (12) paying customers accounts listed below. Berry Creek Golf Course is a customer, however based on their current contract, they do not pay for reuse water.

- | | |
|---|--|
| ▪ City of Georgetown (COG) Pump Sun City Lift Station | ▪ COG PARD San Gabriel Park Community Center |
| ▪ Sun City Texas Community Association | ▪ COG PARD San Gabriel Park Event Lawn |
| ▪ Cimarron Hills 2009, LP | ▪ COG PARD San Gabriel Park Youth Baseball |
| ▪ COG Parks & Recreation (PARD) McMaster Athletic Complex | ▪ Georgetown (GTWN) Country Club |
| ▪ COG PARD Admin | ▪ GTWN Youth Baseball Association |
| ▪ COG PARD San Gabriel Park Baseball Field | ▪ Southwestern University Non-Potable Irrigation |

Monthly conference calls were held with CDM, City staff, and the Project Team to confirm or better understand the data provided, refine future projections, and receive further direction. Additional meetings were held, as necessary.

As with any study, some assumptions must be made. Inflationary assumptions were applied from the Water and Wastewater Model. Annual debt payments for the Reuse System are from the Water and Wastewater Model.

As of March 2025, the City’s reuse five (5)-year Capital Improvement Plan (CIP) includes one (1) reuse project. The \$2.5 million San Gabriel Reuse Irrigation Improvements Project is scheduled to begin in Fiscal Year (FY) 2026 with \$0.5 million of debt financing. In FY 2027 the remaining \$2 million is expected to be debt financed. The Water and Wastewater Model provided term options of eight (8), twenty (20), or thirty (30) years. Terms of thirty (30) years were assumed to mitigate the financial impact of the new debt.

While the Water and Wastewater Model reflected growth in water and wastewater beyond 2026, the model reflected no growth in reuse. The reuse (irrigation) expense budget also increased. The original reuse expense budget for FY 2025 was \$604,167, before franchise or Payment in Lieu of Tax (PILOT) fees. The reuse expense budget for FY 2026 is \$1,575,955 also before franchise or Payment in Lieu of Tax (PILOT) fees. This increase was primarily due to a reallocation of costs that are shared with water and wastewater.

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Based on current assumptions, the Project Team proceeded to look at the Study from four (4) different scenarios:

1. No Reuse Rate change with no CIP Project
2. Reuse Rate changes from the Water And Wastewater Model with the CIP Project (Baseline)
3. Full Coverage Reuse Rate with no CIP Project
4. Full Coverage Reuse Rate with the CIP Project

No Reuse Rate Change

To offer a minimal contrast, if there was no CIP project and the reuse rate remained at \$1.80, in FY 2026, expenses would exceed revenues by approximately \$628,000. The difference between revenues and expenses would continue to grow to approximately \$1,041,000 in FY 2030, as illustrated in Table 1.

Table 1.
Reuse Revenue Less Expenses With No Rate Change and No CIP Project

(\$K)	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Revenues With No Rate Change	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053
Expenses With No CIP	\$1,681	\$1,769	\$1,938	\$2,010	\$2,094
Difference (\$)	(\$628)	(\$715)	(\$884)	(\$956)	(\$1,041)

Reuse Rate Changes From The Water And Wastewater Model

The Project Team incorporated the reuse rates in the Water and Wastewater model. In this scenario, the projected debt financing of the CIP project referenced above was applied. These rates are the result of rate increases of 8.5% and will be referred to as the baseline reuse rates. The result is a FY 2026 rate of \$1.95. The rate increases by 8.5% each year through FY 2030, when the rate reached \$2.71, as shown below in Table 2.

Table 2.
Baseline Reuse Rate Increases – With CIP Project (Baseline)

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Baseline Rates	\$1.95	\$2.12	\$2.30	\$2.49	\$2.71
Difference Yr to Yr (\$)	\$0.15	\$0.17	\$0.18	\$0.20	\$0.21
Difference Yr to Yr (%)	8.5%	8.5%	8.5%	8.5%	8.5%

The Water and Wastewater Model included a franchise fee, 3% of revenue and a return on investment (ROI) or PILOT fee of 7% of revenue, which are both paid to the General Fund. As rates and revenue adjust, so do the expense transfers. In FY 2026, if debt were issued as described above and the reuse rate increased by 8.5%, expenses would exceed revenues by approximately \$570 thousand. The difference between revenues and expenses would continue to grow to approximately \$841 thousand in FY 2030, as illustrated in Table 3.

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Table 3.
Reuse Revenue Less Expenses With Rate Change and CIP Project

(K)	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Baseline Revenues	\$1,118	\$1,187	\$1,262	\$1,344	\$1,433
Baseline Expenses	\$1,688	\$1,807	\$2,086	\$2,176	\$2,274
Difference (\$)	(\$570)	(\$620)	(\$824)	(\$831)	(\$841)
Difference (%)	(33.8%)	(34.3%)	(39.5%)	(38.2%)	(37.0%)

Comparing the baseline reuse rates with the proposed potable rates in the Water Rate Study, in FY 2026 the potable water rate would exceed the baseline rate by \$0.80 or 29.0%. Due to the proposed potable rate increasing faster than the baseline rate this difference would continue to grow. By FY 2030 the potable rate would exceed the FY 2030 baseline rate by \$1.14 or 29.7%, as shown in Table 4 below.

Table 4.
Baseline Reuse Rate vs Proposed Potable Rate – No CIP Project

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Baseline	\$1.95	\$2.12	\$2.30	\$2.49	\$2.71
Potable	\$2.75	\$3.00	\$3.25	\$3.55	\$3.85
Difference (\$)	(\$0.80)	(\$0.88)	(\$0.95)	(\$1.06)	(\$1.14)
Difference (%)	(29.0%)	(29.4%)	(29.3%)	(29.7%)	(29.7%)

Full Coverage Reuse Rate Change

In FY 2026, if the rate is increased to fully cover the expenses without the CIP project, the full coverage reuse rate would increase from \$1.80 in FY 2025 to \$3.47 in FY 2026. This would be a 92.8% increase. Increases in FYs 2027, 2028, and 2029 would require increases of 7.2%, 12.9%, and 4.8%, respectively. In FY 2030, the full coverage reuse rate increase necessary to keep up with expenses is forecasted to be 5.2%, resulting in a rate of \$4.63, as shown in Table 5 below. The volatility of the rate increases is related to the large increase in expenses in FY 2026 and the timing of debt issuances.

Table 5.
Full Coverage Reuse Rate With No CIP Project - Increases

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage - No CIP Proj	\$3.47	\$3.72	\$4.20	\$4.40	\$4.63
Difference Yr to Yr (\$)	\$1.67	\$0.25	\$0.48	\$0.20	\$0.23
Difference Yr to Yr (%)	92.8%	7.2%	12.9%	4.8%	5.2%

Reviewing the full coverage reuse rates with no CIP project, FYs 2026 through 2030 are expected to have marginal surpluses of funds ranging from \$1 thousand or 0.1% to \$26 thousand or 1.2%, as illustrated in Table 6 below. These surpluses are attributable to the rounding of rates up to the next full penny.

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Table 6.
Full Coverage Reuse Revenue Less Expenditures With No CIP Project

(\$K)	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Revenues – No CIP Proj	\$1,753	\$1,857	\$2,058	\$2,142	\$2,238
Expenses - No CIP Proj	\$1,751	\$1,849	\$2,038	\$2,118	\$2,212
Difference (\$)	\$1	\$8	\$20	\$24	\$26
Difference (%)	0.1%	0.4%	1.0%	1.1%	1.2%

Comparing the full coverage reuse rates with no CIP project, with the proposed potable water rates in the Water and Wastewater Rate Study, in FY 2026 the reuse rate would exceed the potable rate by \$0.72 or 26.2%. By FY 2030, the full coverage reuse rate with no CIP project would exceed the FY 2030 potable rate by \$0.78 or 20.3%. The percentage difference is narrowing, due to the proposed potable rate increasing at a faster pace than the full coverage reuse rate with no CIP, as shown in Table 7 below.

Table 7.
Reuse Rate vs Proposed Potable Rate – No CIP Project

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Reuse Rate - No CIP	\$3.47	\$3.72	\$4.20	\$4.40	\$4.63
Potable Water Rate	\$2.75	\$3.00	\$3.25	\$3.55	\$3.85
Difference (\$)	\$0.72	\$0.72	\$0.95	\$0.85	\$0.78
Difference (%)	26.2%	24.0%	29.2%	23.9%	20.3%

Full Coverage Reuse Rate

The Project Team incorporated the projected cost of debt financing the capital project referenced above into the financial planning model to assure a scenario in which the project can be implemented in the desired timeline within a potentially available budget. In FY 2026, if the rate increased by 92.8% to \$3.47, revenues would be expected to exceed expenses including the CIP project. To fully cover expenses, increases in FYs 2027, 2028, and 2029 would require increases of 8.9%, 19.3%, and 4.9%, respectively. In FY 2030 the increase to the reuse rate necessary to keep up with expenses is forecasted at approximately 5.1%, as shown in Table 8 below. As mentioned in scenario No. 3, the volatility of the rate increases is related to the large increase in expenses in FY 2026 and the timing of debt issuances.

Table 8.
Full Coverage Reuse Rate With CIP Project - Increases

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage	\$3.47	\$3.78	\$4.51	\$4.73	\$4.97
Difference Yr to Yr (\$)	\$1.67	\$0.31	\$0.73	\$0.22	\$0.24
Difference Yr to Yr (%)	92.8%	8.9%	19.3%	4.9%	5.1%

Reviewing the full coverage reuse rates with the CIP project, FYs 2026 through 2030 are expected to have a marginal surplus of funds, ranging from approximately \$1,000, or 0.1%, to approximately \$12,000, or

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0.5%, as illustrated in Table 9 below. These surpluses are attributable to the rounding of rates up to the next full penny.

Table 9.
Full Coverage Reuse Revenue less Expenditures With CIP Project

(\$K)	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Revenues - CIP	\$1,753	\$1,882	\$2,188	\$2,280	\$2,380
Expenses - CIP	\$1,751	\$1,877	\$2,179	\$2,269	\$2,369
Difference (\$)	\$1	\$5	\$9	\$11	\$12
Difference (%)	0.1%	0.3%	0.4%	0.5%	0.5%

When comparing the full coverage reuse rate that includes the CIP project with the potable rate proposed in the Water Rate Study, in FY 2026, the full coverage reuse rate would be \$0.72 or 26.2% more than the proposed FY 2026 potable rate. By FY 2030, the full coverage reuse rate would be \$1.12 or 29.1% higher than the proposed FY 2030 potable rate, as shown in Table 10 below.

Table 10.
Full Coverage Reuse Rate With CIP Project vs Proposed Potable Rate

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage	\$3.47	\$3.78	\$4.51	\$4.73	\$4.97
Potable Water Rate	\$2.75	\$3.00	\$3.25	\$3.55	\$3.85
Difference (\$)	\$0.72	\$0.78	\$1.26	\$1.18	\$1.12

Comparing Both Scenarios That Include the CIP Project

There are two (2) of the four (4) scenarios from above that include the CIP project. The baseline rate and the full coverage reuse rate with the CIP project both include the CIP Project. Therefore, they have very similar expenses, but because the baseline rate is increasing by 8.5% and the full coverage rate covers all of the expenses, the rates and revenues are quite different.

Figure 1 shows a comparison of the revenues generated by the baseline rate and the full coverage reuse rate with the CIP project. In FY 2026, the full coverage reuse rate generates approximately \$1,753,000 in revenue, approximately \$635,000 more than the baseline rate that is generating approximately \$1,118,000. By FY 2030, this difference has grown to approximately \$947,000, as the full coverage reuse rate generates approximately \$2,380,000 in revenue and the baseline rate generates approximately \$1,433,000.

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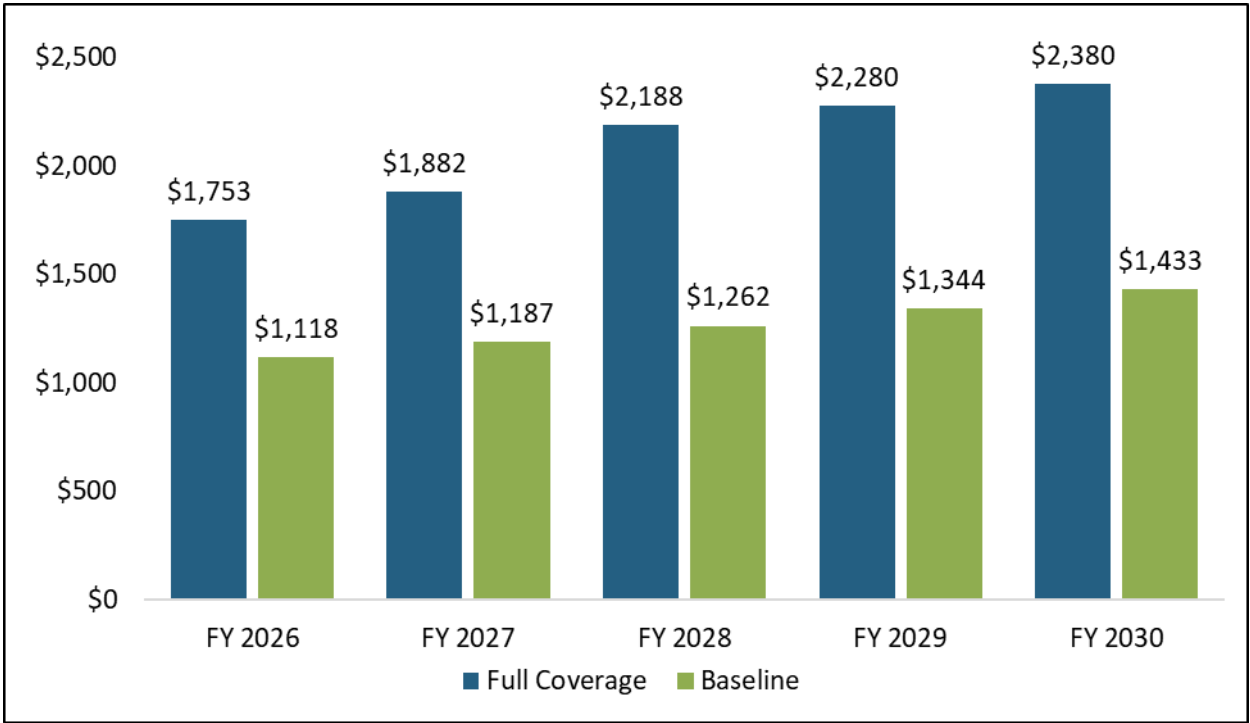


Figure 1. Revenues With CIP Project

As stated above, the expenses of these two (2) scenarios are very similar. The only differences are the franchise and PILOT fees. The franchise and PILOT fees are based on revenues, which as seen in Figure 1 above, have differences ranging from approximately \$635,000 to approximately \$947,000. In FY 2026 the full coverage reuse rate scenario has expenses of approximately \$1,751,000, approximately \$64,000 more than the baseline rate that has approximately \$1,688,000 in expenses. By FY 2030, this subtle difference has grown to approximately \$95,000 as the full coverage reuse rate scenario has approximately \$2,369,000 in expenses and the baseline rate scenario has approximately \$2,274,000 in expenses, as shown below in Figure 2.

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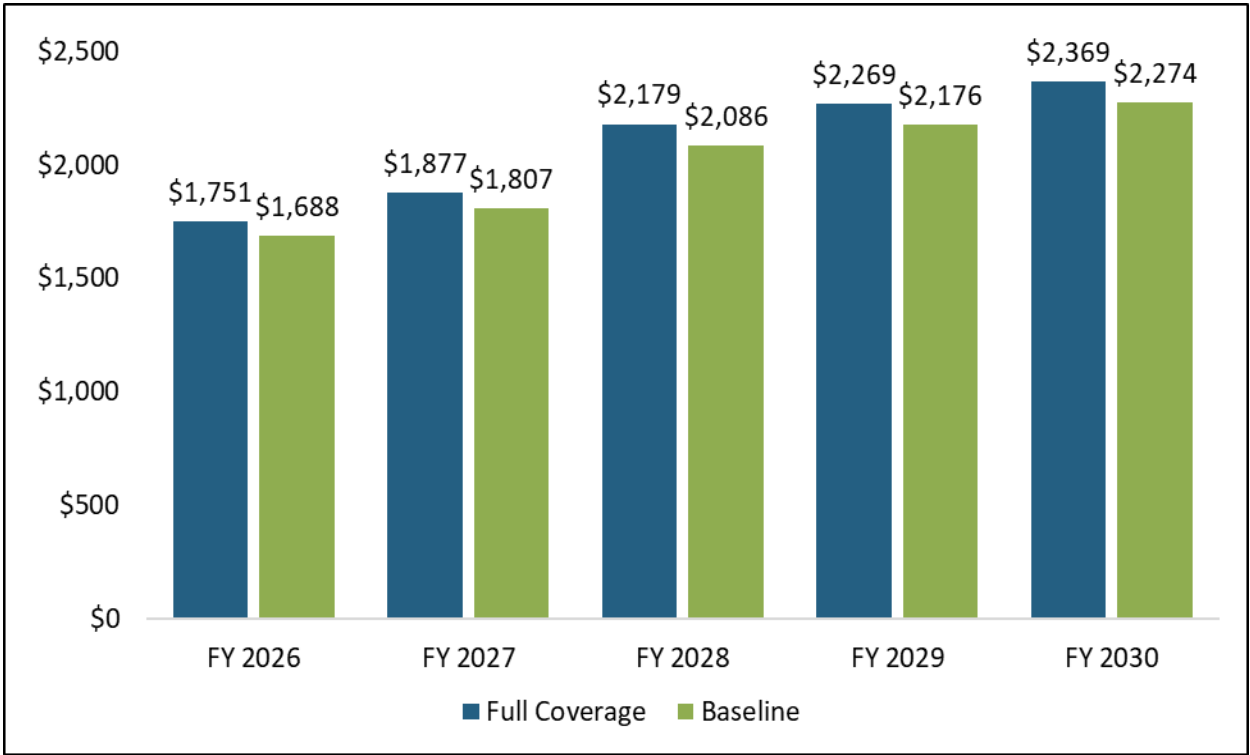


Figure 2. Expenses With CIP Project

As the baseline reuse rates increase 8.5% each year and the full coverage with the CIP project reuse rates increase as needed to fully cover the expense costs, this results in FY 2026 full coverage with the CIP project reuse rate of \$3.47 which is 78% more than the baseline reuse rate at \$1.95. As both rates increase each year, in FY 2030 the full coverage with the CIP project reuse rate reaches \$4.97 which is 84% more than the baseline reuse rate at \$2.71, as seen in Figure 3 below.

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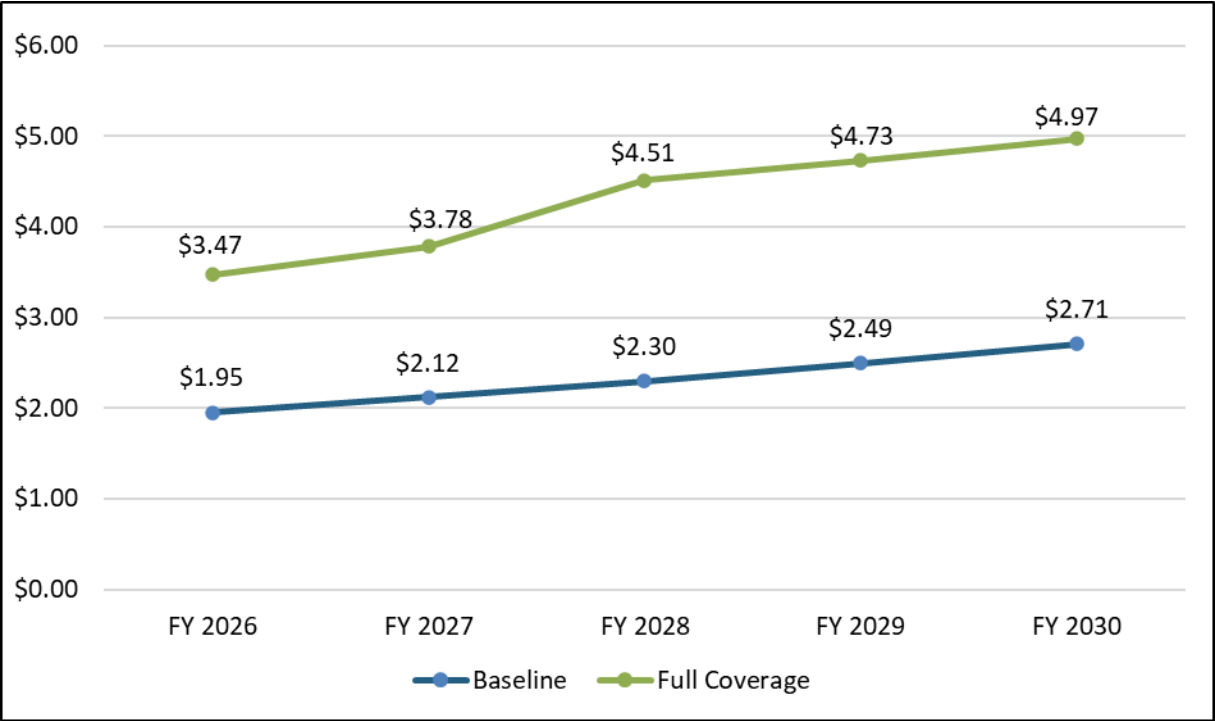


Figure 3. Rates

Beyond FY 2030

Beyond 2030, there are three (3) other reuse projects currently being considered (These are three (3) of the original projects listed above.):

- 1. Berry Creek WWTP Consolidation Alternative, also known as Three Forks WWTP to Airport PS to Berry Creek: With the larger Three Forks WWTP planned, wastewater flows can be rediverted from Berry Creek WWTP to Three Forks WWTP. This would allow Berry Creek WWTP to be decommissioned. Utilizing Three Forks WWTP effluent, a new pump station and pipeline could continue to supply the Berry Creek golf course with their contracted reuse water. This project has a conceptual capital cost of \$3.4 million and annual operations cost of the new pump station are estimated at \$54,750, but these costs would be mitigated by the operational savings of decommissioning the Berry Creek WWTP. This project does not create new flow. However, this project connects to flow from the future Three Forks WWTP.
- 2. Northlands WWTP Elevated Storage: This storage facility could be used to serve two (2) new customers to the west of the facility and would provide a new available flow of 0.5 million gallons per day (mgd). This project has a conceptual capital cost of \$10.3 million and annual operations cost are estimated at \$91,250, resulting in an estimated unit water cost of \$5.03 per thousand gallons.

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3. Dove Springs WWTP to West: This project would result in an available new flow of 1.5 mgd. The conceptual capital cost is \$33.5 million and annual operations cost are estimated at \$273,750, resulting in an estimated unit water cost of \$5.41 per thousand gallons. This project is included with the reuse projects. While this is expected to increase flows for potential reuse, it is NewGen's understanding that the current flow from Dove Springs WWTP is enough to supply the golf course at Cimarron Hills WWTP, allowing Cimarron Hills WWTP to be decommissioned.

Benefits and Drawbacks to Reuse Water

Reuse water may or may not be in a utility's best interest to pursue reuse. Some cities are implementing reuse water into their system. Other cities are increasing their utilization of reuse water. Potential reasons for adding or increasing their intake of reuse water include, but are not limited to:

- **Reliability:** Reuse water is a consistent supply and less impacted by drought and other disruptions than surface water and groundwater sources.
- **Sustainability:** Reuse water reduces the pressure on natural systems.
- **Growing populations:** As populations grow, so does the need for potable water. Using reuse water reduces the pressure on potable infrastructure. Also, as populations grow, the availability of reuse water increases.
- **Local Control:** Reuse water is locally sourced, so there is no competition with neighboring cities for water rights.
- **Conservation:** Utilizing reuse water reduces the need to use water from other sources that would impact the environment.
- **Cost-Effectiveness:** As competition for local groundwater and surface water sources increases, cities need to build pipelines and pump stations to the next closest new source of water, which continues to be further away and therefore, more expensive. If potential reuse water is available at a closer distance, reuse could be a cost-effective alternative.
- **Advances in technology:** As technology improves, less expensive treatment options are made available.

Conversely, some cities are avoiding or reducing their utilization of reuse water. These reasons include but are not limited to:

- **Public perception:** The idea of reusing wastewater can be very unappealing.
- **High cost of infrastructure:** The cost of new pipelines and new pump stations to convey the reuse water can be immense.
- **Regulatory hurdles:** Reuse water is highly regulated and to get reuse water approved can take a lot of time and effort.
- **O&M challenges:** Sometimes cities will reduce their reuse programs due to logistical inefficiencies.

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Another reason that may discourage the application of reuse water is if the reuse water rate is higher than the potable water rate. Keeping the reuse rate lower than the potable rate provides a financial incentive for customers to use the reuse water. This financial incentive makes reuse water more politically and socially acceptable. Figure 4 below illustrates that the potable rate is higher than the baseline rate but lower than the full coverage with the CIP project rate.

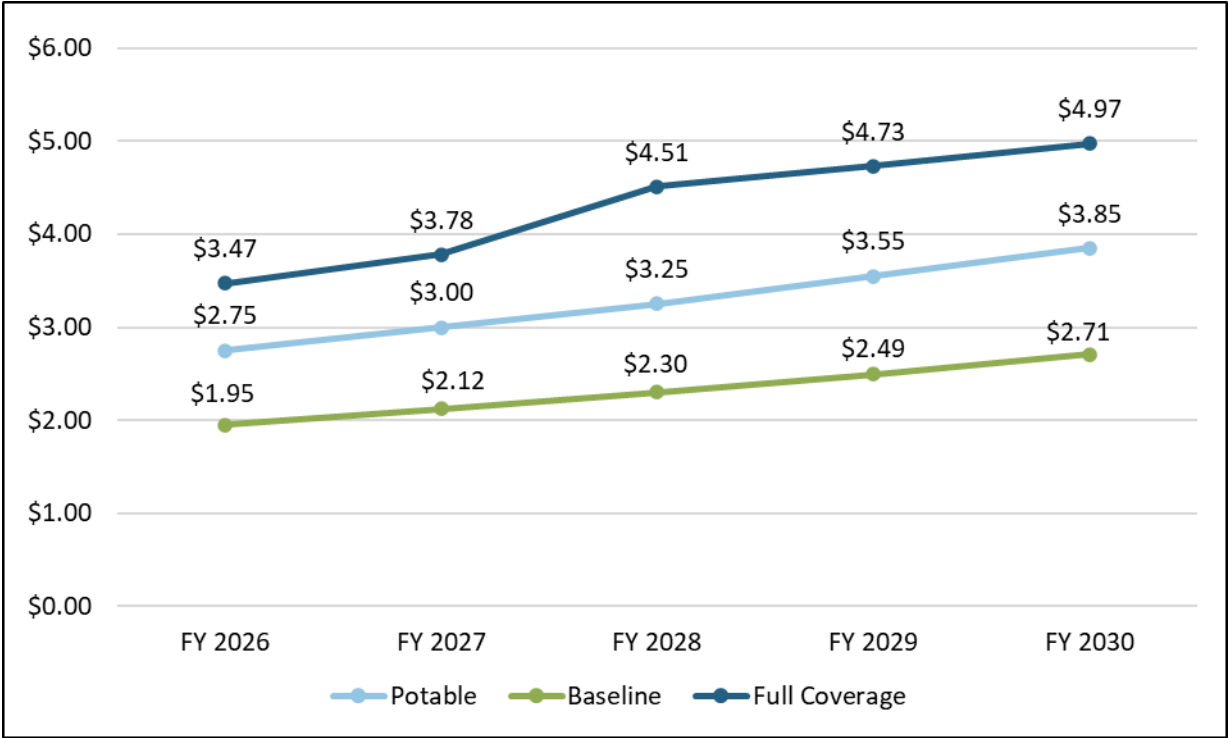


Figure 4. Compare With Potable Rates

An example of a reason that may affect the utilization of reuse water is the marginal cost, or the additional cost of the next thousand gallons of water. Should the City need more water for reuse or potable, the City would have to purchase it. Two such examples from the Report are raw water contracts with the Brazos River Authority (BRA) for 45,707 acre-feet per year and the city of Leander for 1,200 acre-feet per year (from the Colorado River Authority). Figure 5 below illustrates the additional cost per thousand gallons for water from each of these contracts. These costs would be in addition to any additional variable costs to wheel, treat, or transmit the water.

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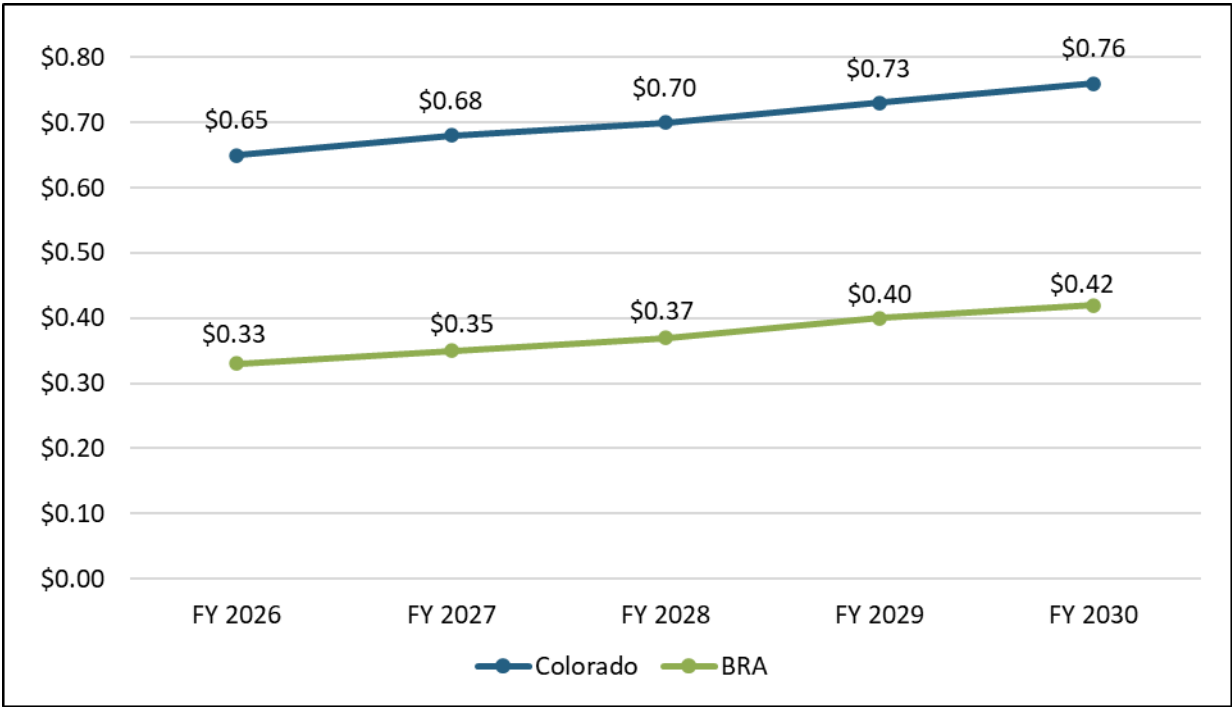


Figure 5. Additional Costs to Purchase Raw Water

Conclusion

In conclusion, expanding the customer base or the reuse infrastructure would unnecessarily increase the financial burden of the utility system. NewGen does not recommend expanding the customer base or the current reuse infrastructure for non-potable reuse. As projected in the Reuse Master Plan, the ultimate reuse application is likely some form of direct potable reuse as a source supply for treated water. There will be maintenance and rehabilitation projects that will be necessary to honor existing non-potable contracts, maintain the current customer base, and maintain the current infrastructure. These projects may be desired but will have a financial impact on the utility system. Reuse water is a smart, sustainable option, but only if it makes economic sense. Decisions should be made to help reuse water make economic sense, not just today, but ten (10), twenty (20), and even thirty (30) years from now.

As with any forecast, assumptions must be made and the City should be aware that the actual rates required may be different from the rates outlined in this report due to unforeseen changes, such as system growth, inflation, budget changes, etc. It should be noted that this analysis is based on data provided by the City. While this data has been reviewed and tested for accuracy to the greatest extent possible, if the data relied on by NewGen’s Project Team is inaccurate and not reflective of the actual operation and/or financial condition of the City’s reuse utilities, then the results of this analysis may merit revision. Regular reviews of the performance of a utility’s reuse rates are an integral part of the management of any reuse utility, and failure to monitor the City’s rates can result in the need for significant rate actions. Our Project Team recommends that, going forward, the City regularly monitors and reviews the performance of its

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adopted rates and perform rate adjustments in a timely manner, so as to preserve the financial integrity of the reuse utility.

NewGen thanks you for the opportunity to assist CDM and the City in this effort. If you or City staff should have any questions regarding this report and/or require additional information, please contact Matthew Garrett at (972) 675-7699 or via e-mail at mgarrett@newgenstrategies.net.

Very truly yours,

NewGen Strategies and Solutions, LLC

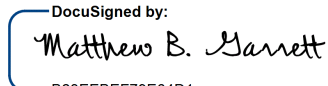
DocuSigned by:

B23EEBEF79E6AD1
Matthew B. Garrett
Partner



Photo Courtesy of City of Georgetown

Water Reuse Assessment Report Final Update

Presentation to Water Utility Advisor Board



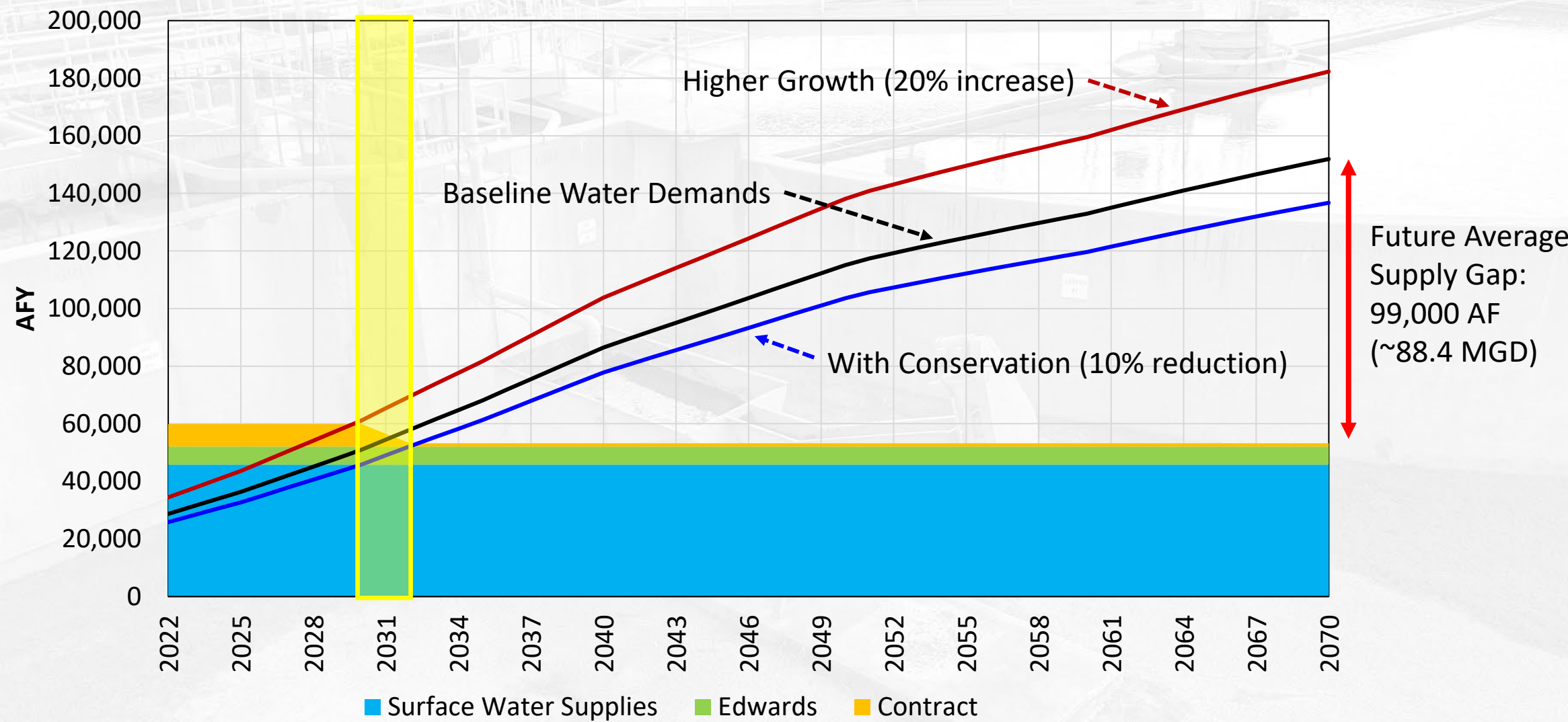
Project Background

- Reuse assessment followed the Integrated Water Resources Plan (IWRP)
- IWRP recommended additional reuse totally approximately 22.3 MGD in addition to new groundwater supply
- Reuse assessment was completed in 2024 and focused on:
 - Targeted non-potable potential projects that reduce overall potable demand
 - Indirect potable reuse through bed and banks permitting
 - Planning for future direct potable reuse projects
 - Rate analysis for potential reclaimed levers (was postponed to work on Impact Fees and other rate matters)
- Ongoing bed and banks permitting in process with TCEQ and BRA
- Ongoing work associated with new groundwater supply

Water Reuse Assessment Objectives

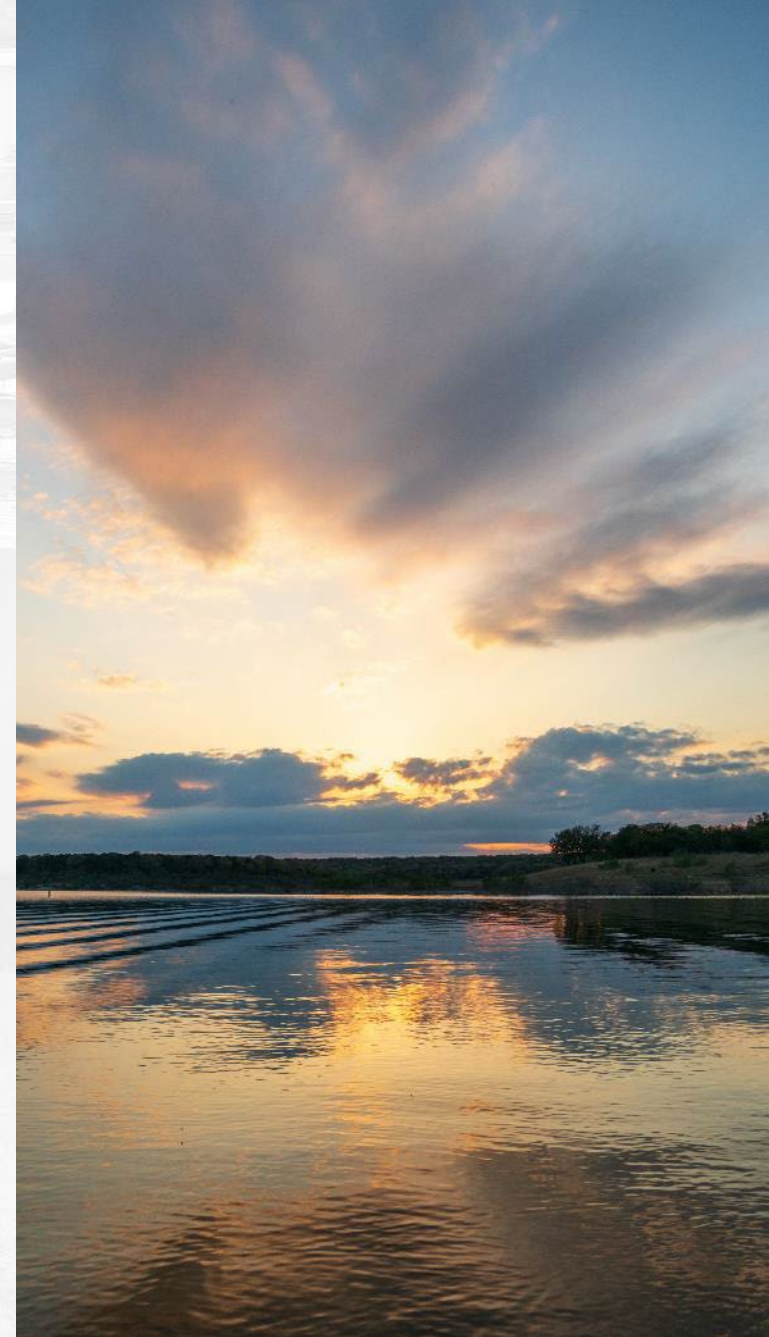
- Build upon the work of the:
 - Integrated Water Resource Plan
 - Water Master Plan
 - Wastewater Master Plan
- Evaluate existing facilities, demands and flows to assess alternatives to further leverage the use of reclaimed water.
 - Evaluate future non-potable opportunities
 - Evaluate indirect potable reuse (IPR) and direct potable reuse (DPR)
- Menu of options to utilize reuse opportunities, including planning level costs, regulatory needs, and piloting recommendations.

City of Georgetown Future Water Demands



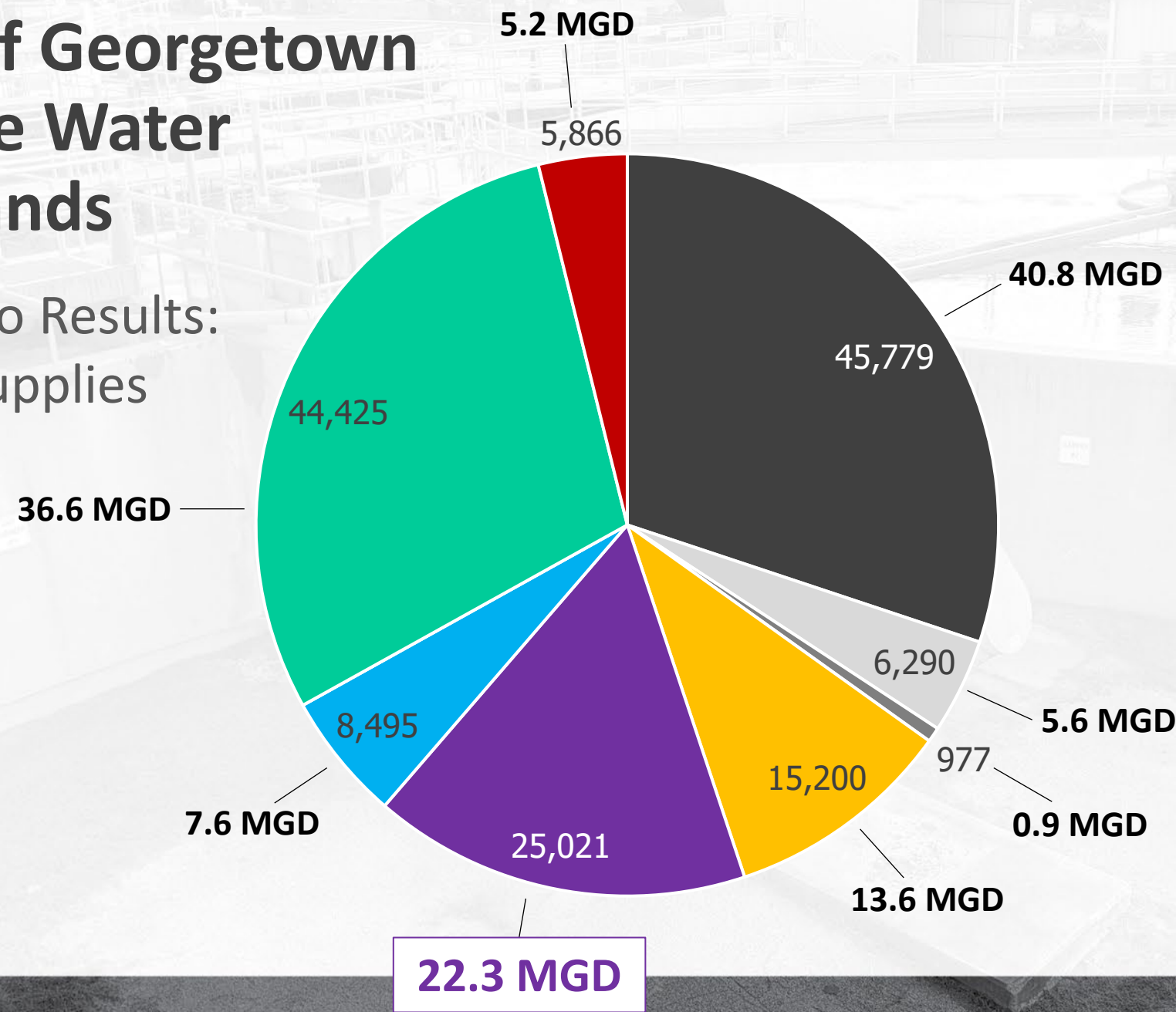
IWRP Provides Portfolios That Meet Georgetown's Future Supply Needs

- Over 20 supply portfolios evaluated, 6 meet long-term needs
- A new supply must be online by 2030
- Regional groundwater and reclaimed water are required for all high-scoring portfolios
- Reclamation is required to prevent supply gaps unless large areas are acquired for ASR
- ASR is required if regional groundwater is not purchased



City of Georgetown Future Water Demands

Portfolio Results:
2070 Supplies



Existing Supply

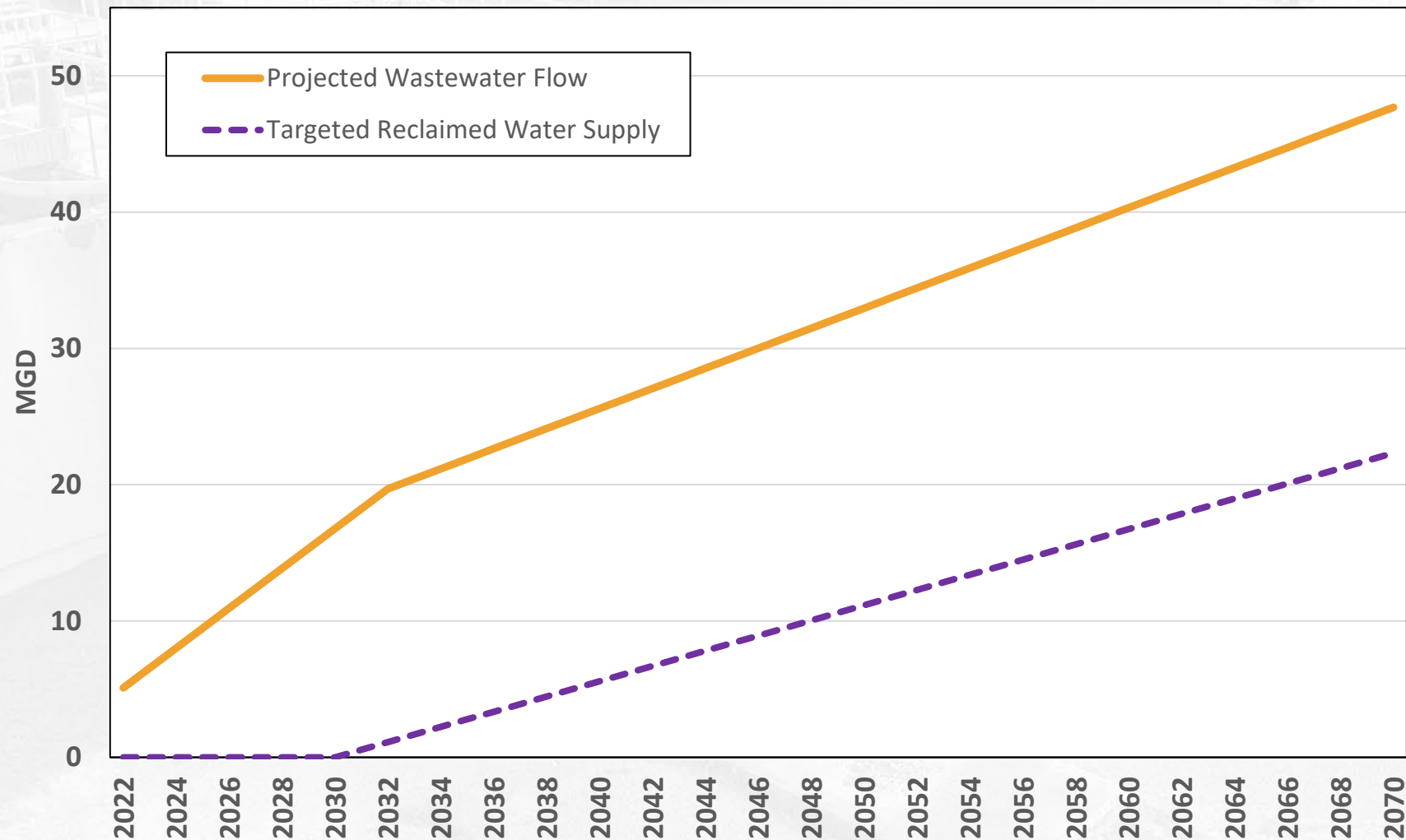
- Surface Water Used (AF)
- Edwards Aquifer Used (AF)
- Contract Used (AF)

Future Supplies

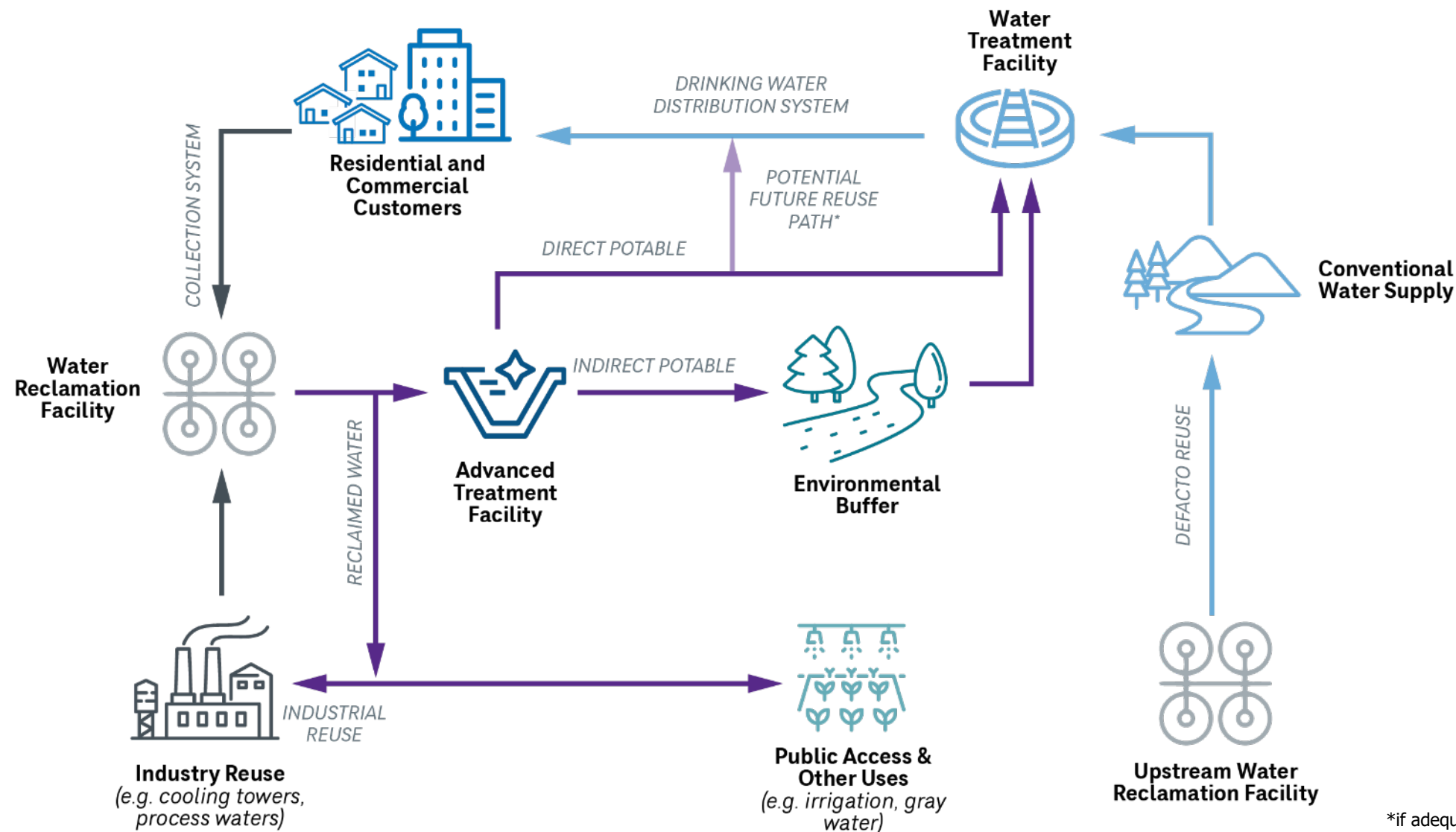
- ASR Used (AF)
- Reclaimed Volume Used (AF)
- New GW Volume Used (AF)
- Regional Groundwater Volume Used (AF)
- Hosston Used (AF)
- Conservation (AF)

*Could provide additional supply if other sources are unavailable

Additional Reclaimed/Reuse Water Availability

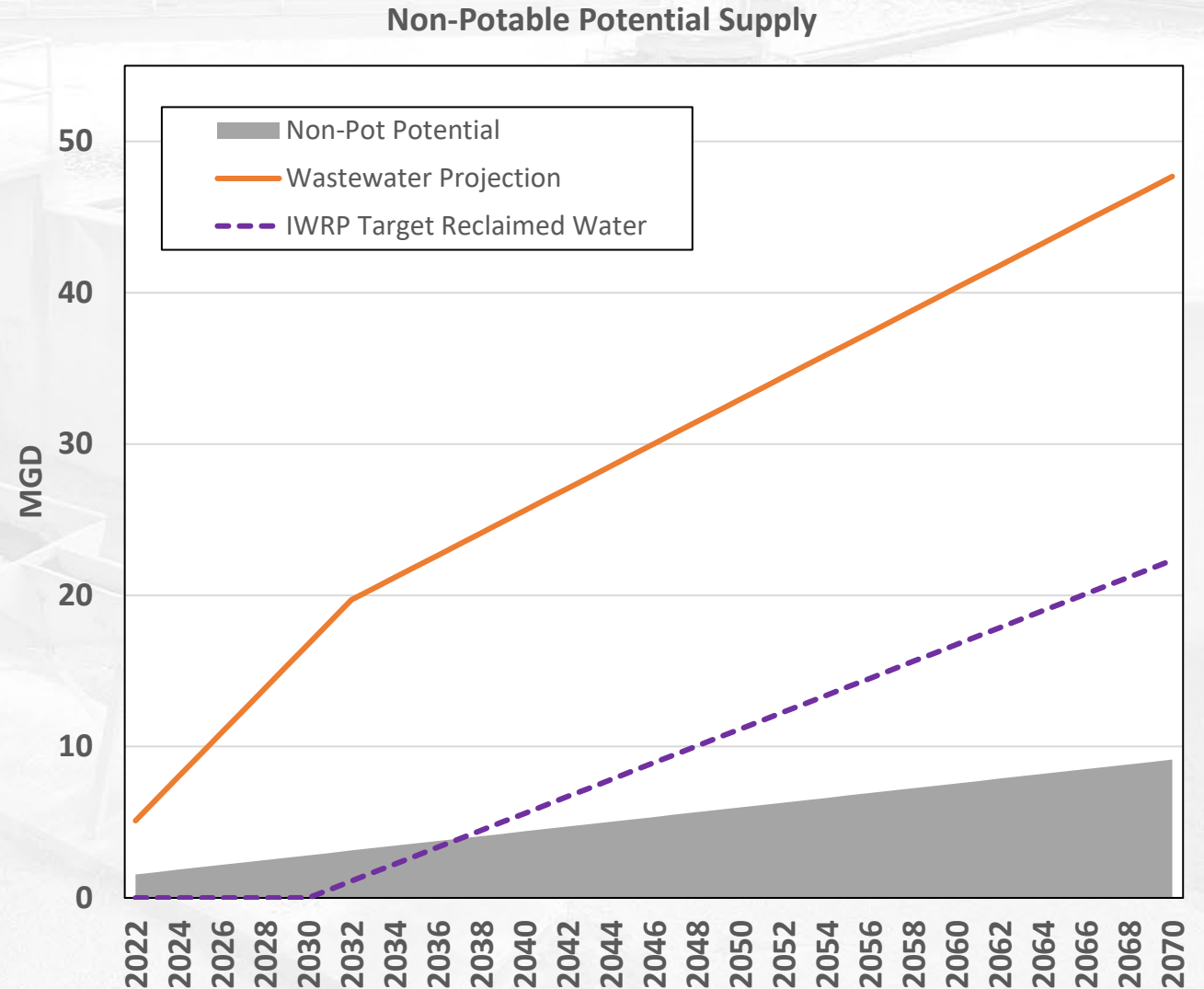


Water Reuse Process Flow Diagram



Available Supply: Non-Potable Supply (Irrigation)

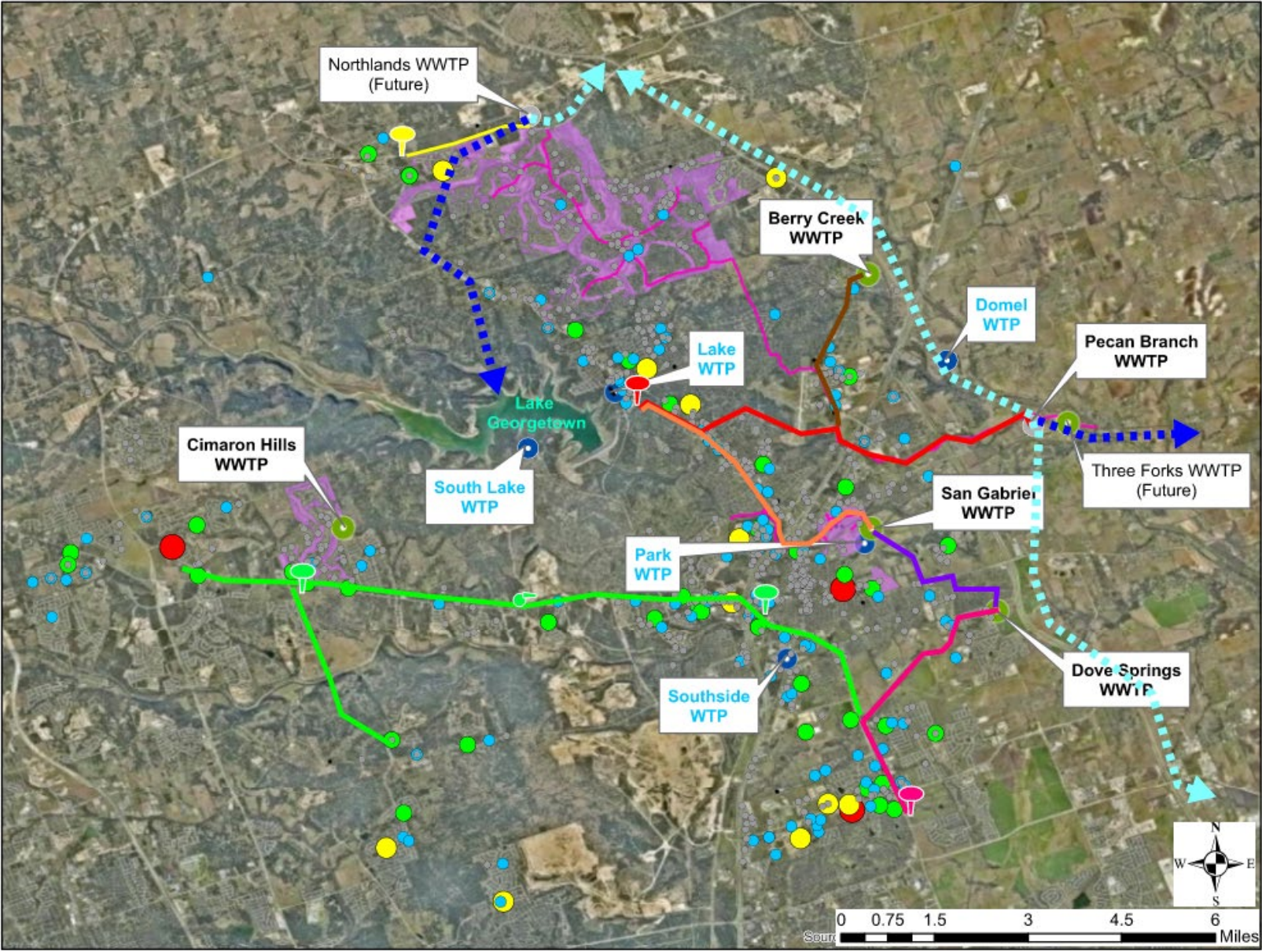
- Few large existing anchor users
- Demands are seasonal
- Limited pool of potential customers
- Assumed growth in future irrigation users matches growth in water demand



Existing Reuse Projects

Alternative	Reuse Type	Plant Capacity	Potential Reuse Volume
Pecan Branch WWTP Flows to Sun City	Non-potable Type I	3.0 MGD	3.0 MGD
San Gabriel WWTP Flows to Southwestern University	Non-potable Type I	2.5 MGD	1 MGD
San Gabriel WWTP to Georgetown Country Club	Non-potable Type I	2.5 MGD	0.5 MGD
San Gabriel WWTP to San Gabriel Park	Non-potable Type I	2.5 MGD	0.5 MGD
Dove Springs WWTP	None	2.5 MGD	0.0 MGD
Berry Creek WWTP to Berry Creek Golf Course	TLAP	0.3 MGD	0.1 MGD
Cimarron Hills WWTP to Cimarron Hills Golf Course	TLAP	0.23	0.23

Identified Possible Reuse Alternatives



Legend

- 0-2.2 kgal/day
- 2.2-6.5 kgal/day
- 6.5-15 kgal/day
- 15-26 kgal/day
- 26-64 kgal/day

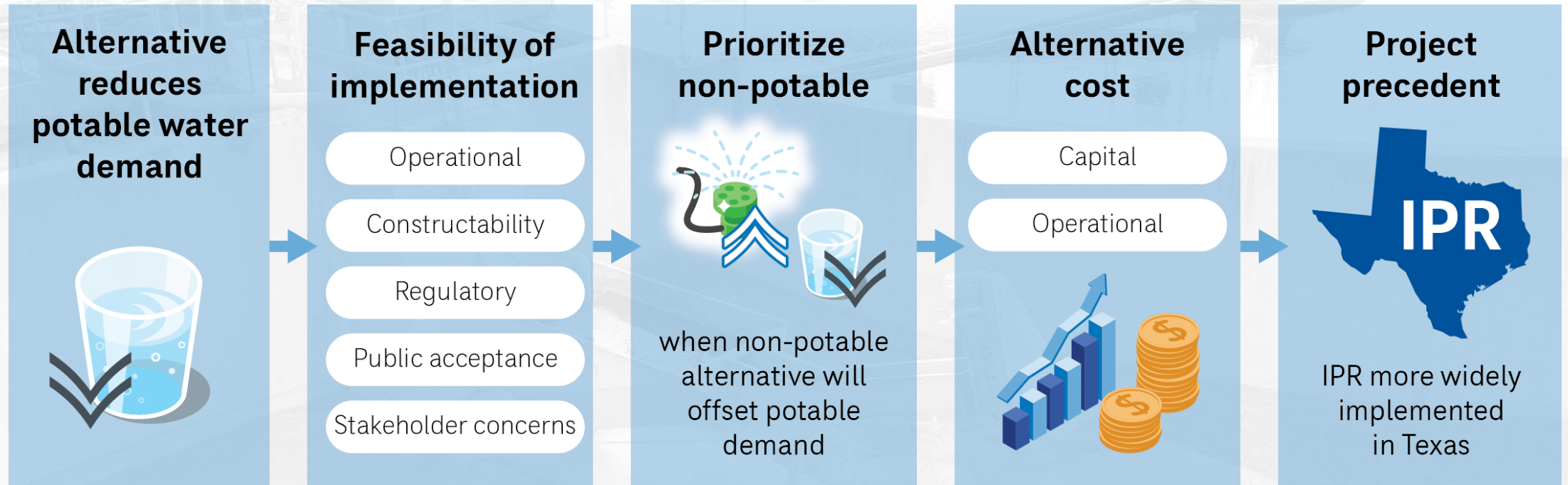
Legend

- Future Wastewater Treatment Plant
- Wastewater Treatment Plant
- Drinking Water Treatment Plant

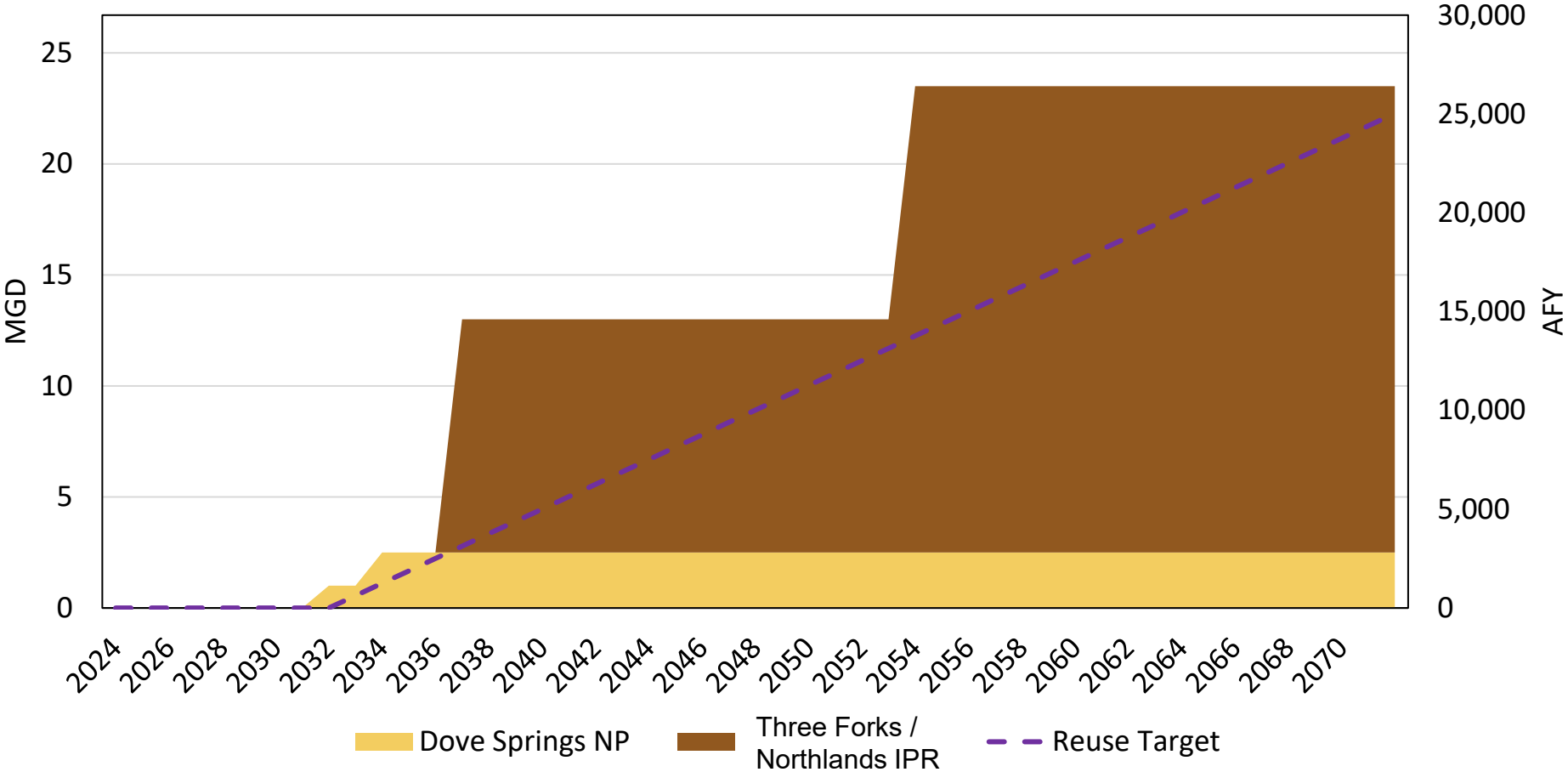
Identified Possible Reuse Alternatives

Alternative	New Reuse Type & Volume	Estimated Capital Cost	Availability
Three Forks WWTP to Lake WTP Elevated Storage	Non-potable: Up to 2.0 MGD	\$30.2 Million	2033
San Gabriel WWTP to Lake WTP Elevated Storage	Non-potable: Up to 0.5 MGD	\$24.4 Million	2027
Northlands WWTP to West-side Elevated Storage (In addition to flows to Sun City Golf Course)	Non-potable: Up to 0.5 MGD	\$14.2 Million	2033
Three Forks and Northlands WWTP IPR to Lake Granger	IPR: Up to 21 MGD	\$317.5 Million	2033/2038
Northlands WWTP IPR to Lake Georgetown	IPR: Up to 15.4 MGD	\$85.1 Million	2050
Dove Springs WWTP to South-side Elevated Storage (including Southwestern University)	Non-potable: Up to 1.0 MGD	\$16.7 Million	2027
Dove Springs WWTP to West-side Elevated Storage	No-potable: Up to 1.5 MGD	\$35.0 Million	2030
Three Forks WWTP Flows to Airport PS to Berry Creek	WWTP Consolidation	\$3.4 Million	2029
Northlands WWTP DPR	DPR: Up to 12.3 MGD	\$192.2 Million	2050
Three Forks DPR	DPR: Up to 16.8 MGD	\$294.3 Million	2038

Reuse Alternative Screening Criteria



Reuse Water Supply Implementation Strategy



Implementation Strategy

- Maintain all existing non-potable water systems
- IPR to Lake Granger from Three Forks WWTP, Northlands WWTP, and expansions
- Decommission Berry Creek WWTP
- Build non-potable water system from Dove Springs WWTP
- Decommission Cimarron Hills WWTP
- Provide advanced treatment at Northlands WWTP

Three Forks & Northlands WWTP Flows to Lake Granger

- Availability:
When Three Forks & Northlands WWTPs are constructed
- Volume available:
~10.5 MGD in 2037 and 21 MGD in 2050



Three Forks and
Northlands
WWTP



Bed and Banks



Lake Granger



EWC WTP



Blend with
Regional GW

Three Forks WWTP flows to Airport PS to Berry Creek

- Availability: Requires installation of a new pump station and water line
- Replaces Berry Creek WWTP flows if desired



Dove Springs WWTP Flows South and West

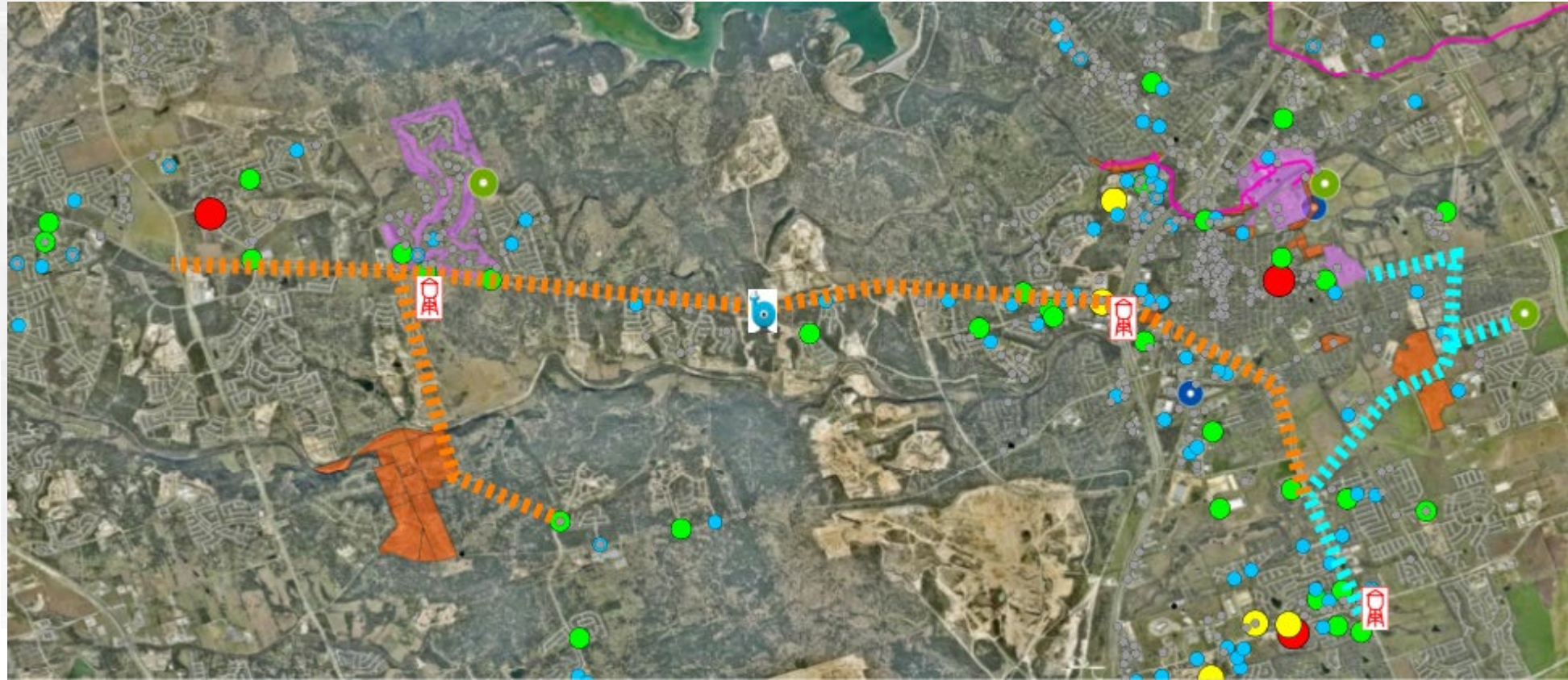
- Availability: With improvements at Dove Springs WWTP
- Allows removal of Cimarron Hills WWTP, or Cimarron Golf course served by Lakeside Estates
- Volume available:
~1 MGD
South (blue)
~1.5 MGD
West (orange)

Legend

- 0-2.2 kgal/day
- 2.2-6.5 kgal/day
- 6.5-15 kgal/day
- 15-26 kgal/day
- 26-64 kgal/day

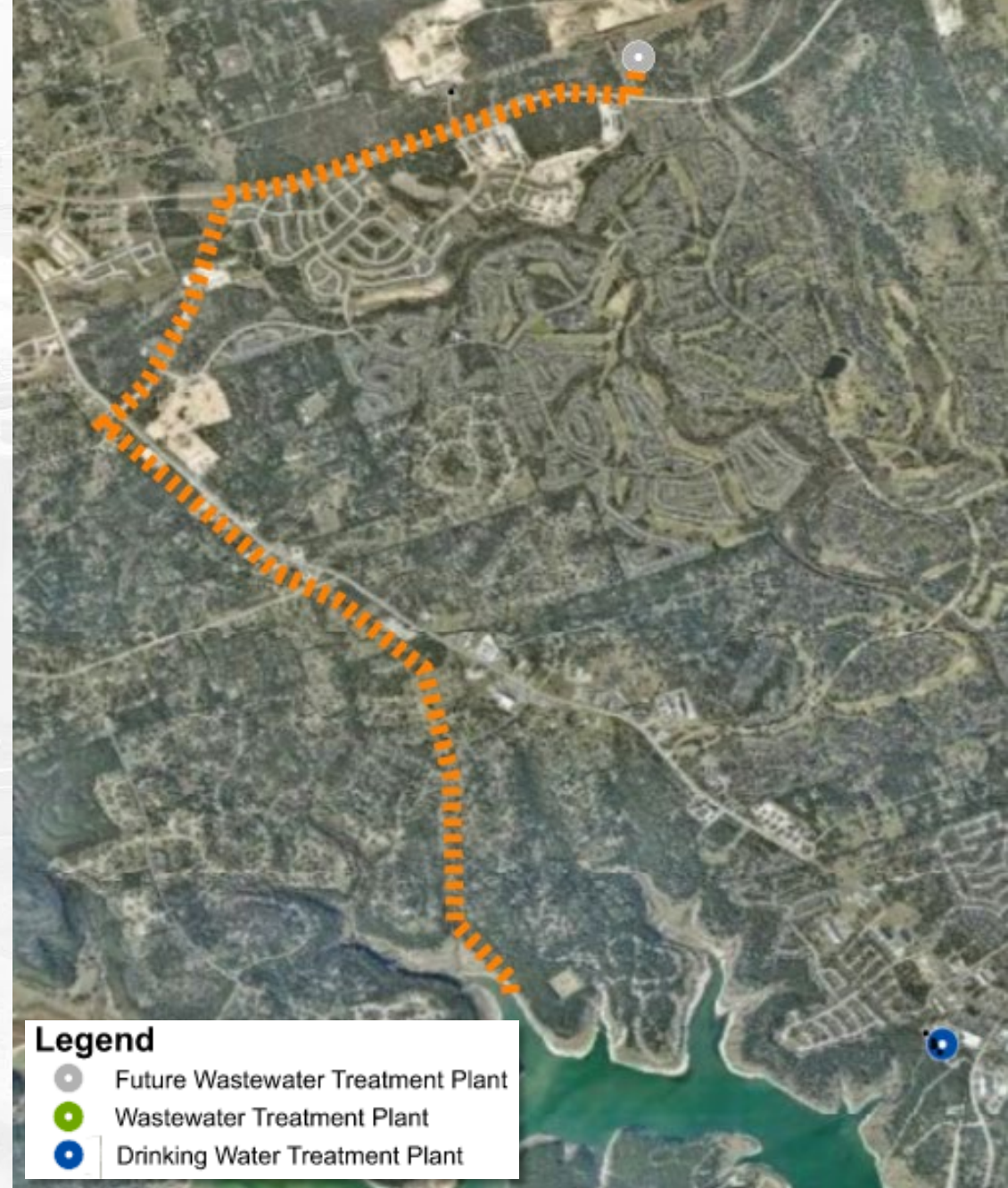
Legend

- Future Wastewater Treatment Plant
- Wastewater Treatment Plant
- Drinking Water Treatment Plant



Northlands IPR with PFAS Removal Facility

- Availability: ~1 MGD in 2029 and ~12 MGD in 2050



Rate Analysis - Existing

- Current Rates do not cover costs
- Analysis based on FY-26 rate model, represent scale, but not updated for ongoing FY 27 model
- Reuse rates currently adjust with volumetric water adjustment percentage
- There is NO base rate on reuse currently
- No CIP projects
- If the rate is increased to fully cover the expenses, the full coverage reuse rate would increase from \$1.80 in FY 2025 to \$3.47 in FY 2026. This would be a 92.8% increase.
- Current FY-26 rate is \$1.95

Table 5.
Full Coverage Reuse Rate With No CIP Project - Increases

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage - No CIP Proj	\$3.47	\$3.72	\$4.20	\$4.40	\$4.63
Difference Yr to Yr (\$)	\$1.67	\$0.25	\$0.48	\$0.20	\$0.23
Difference Yr to Yr (%)	92.8%	7.2%	12.9%	4.8%	5.2%

Rate Analysis vs Potable Rate

- Potable is lower since fixed costs are partially covered by base rates
- No base rate for reuse.
- Based on FY 26 rate model
- No CIP projects

Table 7.
Reuse Rate vs Proposed Potable Rate – No CIP Project

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Reuse Rate - No CIP	\$3.47	\$3.72	\$4.20	\$4.40	\$4.63
Potable Water Rate	\$2.75	\$3.00	\$3.25	\$3.55	\$3.85
Difference (\$)	\$0.72	\$0.72	\$0.95	\$0.85	\$0.78
Difference (%)	26.2%	24.0%	29.2%	23.9%	20.3%

Rate Analysis Full Coverage with CIP project increases

- Potable is lower since fixed costs are partially covered by base rates
- NO base rate for reuse
- Based on FY 26 rate model
- CIP based on year could come online
- Not all projects included as some are beyond the rate analysis period

Table 8.
Full Coverage Reuse Rate With CIP Project - Increases

	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage	\$3.47	\$3.78	\$4.51	\$4.73	\$4.97
Difference Yr to Yr (\$)	\$1.67	\$0.31	\$0.73	\$0.22	\$0.24
Difference Yr to Yr (%)	92.8%	8.9%	19.3%	4.9%	5.1%

Rate Analysis vs Potable Rate with CIP Projects

- Potable is lower since fixed costs are partially covered by base rates
- NO base rate for reuse.
- Based on FY 26 rate model

Table 10. Full Coverage Reuse Rate With CIP Project vs Proposed Potable Rate					
	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Full Coverage	\$3.47	\$3.78	\$4.51	\$4.73	\$4.97
Potable Water Rate	\$2.75	\$3.00	\$3.25	\$3.55	\$3.85
Difference (\$)	\$0.72	\$0.78	\$1.26	\$1.18	\$1.12

Potential Items to consider through Implementation

- Effluent to existing reclaimed non-potable, does not always reduce potable demand
- Infrastructure to fully utilize effluent for non-potable is not established and is not heavily utilized during the winter (68% less than summer)
- Reclaimed non-potable revenues do not currently support the reclaimed utility
- May need to move to a “take or pay type” arrangement
- In a drought scenario, effluent to reclaimed non-potable prioritizes non-potable customers over potable uses
- IPR offers operational flexibility
- Already have extensive potable infrastructure
- Already have flexibility, billing, and cost recovery in the potable water system
- All Reclaimed non-potable contracts should be renegotiated

Next Steps

- Recommendation of final report to council
- Reuse rate will for the time being continue the practice of adjustment with the volumetric water rate
- Upon sale finalization of the CCN, reuse and IWRP to be updated for reuse needed.
- Assessment to be updated with next Water/Wastewater Master Plan.
- Future policy discussion with council
 - Highest and best use, where do they want to focus CIP and rate dollars
 - Does reuse need a base rate
 - How much subsidy do they want to provide

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Construction contract with Austin Underground for Church Street Wastewater Improvements

SUGGESTED ACTION:

Consideration and possible recommendation to City Council to approve a contract with Austin Underground, Inc of Lago Vista, TX for the base bid and Alternate A for the construction of Church Street Wastewater Improvements in the amount of \$1,277,814.00 -- Wesley Wright, P.E., Systems Engineering Director and David Herzog, CIP Manager

ITEM SUMMARY:

The project consists of furnishing, installing and providing all labor and materials required for installation of 1,900 LF of 8" Wastewater Line, manholes, wastewater services, wastewater service yard lines, cleanouts, bypass pumping and road repair. The alternate bid allows the installation of flowable fill in lieu of the crushed limestone base backfill. This will allow the road to be opened sooner. Contractor shall always keep one lane of traffic open during the construction phase, and roadway will be open to two lanes in each direction at the end of the day. The contract allows for up to 180 days to complete all work. Currently, the existing wastewater line is located within the backyards of residential properties, which creates challenges for the City's operations staff to safely and efficiently access the line for maintenance and regulatory compliance.

This project will relocate the wastewater main from the rear property lines to Church Street, providing improved accessibility for operations and maintenance activities. As part of this project, all existing service connections will be relocated from the rear of the properties to the front, where they will connect to the new wastewater main.

The Church Street WW Improvement project advertised for public bids on March 22nd and March 29th, in the Williamson County Sun. On April 9th we received 10 competitive bids. The low qualified bidder for the project was Austin Underground Inc. with a base bid of \$1,269,014.00 and Alternate A in the amount of \$8,800.00.

Staff recommendation:

Austin Underground Inc has successfully completed projects similar in size and scope. Staff and KPA Engineering recommend awarding this contract to Austin Underground of Lago Vista, TX, for the base bid of \$1,269,014.00 and Alternate A in the amount of \$8,800.00 for a total price of \$1,277,814.00.

FINANCIAL IMPACT:

Funds for this expenditure are budgeted and available in the FY26 Wastewater Capital Improvement Plan budget.

SUBMITTED BY:

Dustin Hanson, Systems Engineering

ATTACHMENTS:

[Agenda Packet Church Street WW Improvements.pdf](#)



11 South 2nd Street · Temple, TX 76501 · (254) 773-3731
800 South Austin Avenue · Georgetown, TX 78626 · (512) 819-9478

April 13, 2026

Mr. Dustin Hanson
Systems Engineering Project Manager
City of Georgetown
300-1 Industrial Avenue
Georgetown, Texas 78626-8445

Re: Church Street Wastewater Improvements
Georgetown, Texas

Mr. Hanson,

Bids were received by the City of Georgetown until 2:00 P.M. on Thursday, April 9, 2026 for the above referenced project. There were ten (10) competitive bids received for the project. A detailed bid tabulation of this bid is attached for your use.

The purpose of this project is to abandon an existing failing 6-inch wastewater line that is inaccessible for repairs due to its location in the backyards of properties that front Church Street from East 16th to the north towards University Drive. The project consists of a Base Bid and Alternate A bid. The base bid consists of the installation of a new 8-inch wastewater line from the intersection of Church Street and East 18th Street and extends north approximately 1,900 linear feet within Church Street and includes new manholes, wastewater services, wastewater service yard lines, cleanouts, bypass pumping, testing, and a final HMAC mill and overlay within the construction limits of the new wastewater line. The Alternate A bid allows the installation of flowable fill backfill material in lieu of standard crushed limestone base backfill.

The low, successful bidder is Austin Underground, Inc of Lago Vista, Texas in the total amount (Base Bid plus Alternate A) of **\$1,277,814.00**. Austin Underground, Inc is the low successful bidder for the recommended award of the Base Bid with Alternate A Bid. Austin Underground, Inc has successfully completed projects of similar size and scope for various municipalities in the area, including the City of Georgetown and meets the competitive sealed bidding requirements set forth in the Contract Documents for this project. Based on this information, we recommend awarding the Downtown Water Line Improvements Project to Austin Underground, Inc of Lago Vista, Texas for the total bid amount of **\$1,277,814.00**.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Alvin R. Sutton III', with a stylized flourish at the end.

Alvin R. (Trae) Sutton III, P. E.
Principal
TSutton@kpaengineers.com

xc: Mr. David Herzog, City of Georgetown
Mr. Hunter Anderson, City of Georgetown
Ms. Nicole Abrego, City of Georgetown
2024-182-40

BID TABULATION
CITY OF GEORGETOWN TEXAS
Church Street Wastewater Improvements
April 9, 2024; 2:00 PM

2024-182-30

				BIDDER INFORMATION																			
				1		2		3		4		5		6		7		8		9		10	
				Austin Underground, Inc. PO Box 5650 Lago Vista, TX 78645-5650		Packsaddle Management, LLC PO Box 4385 Horseshoe Bay, TX 78657		Royal Vista, Inc. 350 County Road 260 Liberty Hill, TX 78642		Patin Construction, LLC 3800 W 2nd Street Taylor, TX 76574		M&C Fonseca Construction Co., Inc. 1901 Prairie Creek Road Granite Shoals, TX 78654		Liberty Civil Construction, LLC 2937 Hero Way Leander, TX 78641		AO Services 25565 Ronald Reagan Blvd Georgetown, TX 78633		Guerra Underground, LLC 9810 FM 969 Austin, TX 78724		JM Pipeline, LLC PO Box 1999 Burnet, TX 78611		Bell Contractors, Inc. 3082 W. Hwy 190 Belton, TX 76513	
Item No.	Bid Quantity	Unit	Bid Data Description	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount
BASE BID																							
1	100%	LS	Insurance, Bonds and Mobilization, not to exceed 5% of Bid	\$ 55,000.00	\$ 55,000.00	\$ 40,000.00	\$ 40,000.00	\$ 65,000.00	\$ 65,000.00	\$ 72,500.00	\$ 72,500.00	\$ 60,000.00	\$ 60,000.00	\$ 70,500.00	\$ 70,500.00	\$ 70,219.00	\$ 70,219.00	\$ 86,135.00	\$ 86,135.00	\$ 50,000.00	\$ 50,000.00	\$ 110,214.31	\$ 110,214.31
2	20	STA	Provide Labor, Equipment, Tools and Supervision to Complete Preparation of Right-of-way	8,425.00	168,500.00	1,250.00	25,000.00	3,000.00	60,000.00	5,000.00	100,000.00	800.00	16,000.00	2,200.00	44,000.00	2,282.00	45,640.00	36,988.83	739,776.60	2,000.00	40,000.00	3,727.95	74,559.00
3	100%	LS	For Providing a Video DVD of the Project Area Prior to and After Construction	1,000.00	1,000.00	1,000.00	1,000.00	4,500.00	4,500.00	500.00	500.00	4,800.00	4,800.00	1,000.00	1,000.00	3,933.00	3,933.00	6,767.75	6,767.75	3,000.00	3,000.00	693.84	693.84
4	100%	LS	For Preparation of Traffic Control Plan. Plan is to be prepared and signed by P.E. Licensed in the State of Texas	4,000.00	4,000.00	1,000.00	1,000.00	3,450.00	3,450.00	3,000.00	3,000.00	6,500.00	6,500.00	5,000.00	5,000.00	2,809.00	2,809.00	4,306.75	4,306.75	1,000.00	1,000.00	4,130.00	4,130.00
5	7	MO	Implement Barricade, Signing and Traffic Safety Plan Control Plan	2,800.00	19,600.00	1,500.00	10,500.00	8,750.00	61,250.00	3,500.00	24,500.00	6,000.00	42,000.00	12,000.00	84,000.00	50,558.00	353,906.00	3,093.83	21,656.81	1,000.00	7,000.00	57,360.93	401,526.51
6	100%	LS	Submit Trench Safety Plan prepared and signed by P.E., in Conformance with State Law and OSHA	1,000.00	1,000.00	1,000.00	1,000.00	1,150.00	1,150.00	1,000.00	1,000.00	8,500.00	8,500.00	2,000.00	2,000.00	1,686.00	1,686.00	3,076.25	3,076.25	1,000.00	1,000.00	767.00	767.00
7	4,100	LF	Provide and Implement Trench Safety Plan (Pipe)	2.50	10,250.00	1.00	4,100.00	10.00	41,000.00	5.00	20,500.00	6.00	24,600.00	2.00	8,200.00	4.00	16,400.00	3.69	15,129.00	5.00	20,500.00	7.79	31,939.00
8	3,900	SF	Provide and Implement Trench Safety Plan (Manholes/Inlets)	1.30	5,070.00	1.00	3,900.00	2.30	8,970.00	3.00	11,700.00	1.85	7,215.00	0.50	1,950.00	4.00	15,600.00	0.13	507.00	5.00	19,500.00	1.18	4,602.00
9	100%	LS	Prepare Stormwater Pollution Prevention Plan, including submission to and receiving permits from Texas Commission on Environmental Quality (TCEQ)	1,030.00	1,030.00	4,000.00	4,000.00	6,500.00	6,500.00	3,000.00	3,000.00	4,200.00	4,200.00	14,000.00	14,000.00	5,056.00	5,056.00	4,675.90	4,675.90	25,000.00	25,000.00	9,369.20	9,369.20
10	9	EA	Furnish, Install, Maintain and Remove Inlet Protection	206.00	1,854.00	150.00	1,350.00	775.00	6,975.00	150.00	1,350.00	450.00	4,050.00	250.00	2,250.00	281.00	2,529.00	123.05	1,107.45	250.00	2,250.00	436.60	3,929.40
11	1,000	LF	Remove & Replace 8" PVC SDR-26 Wastewater Line Pipe	100.00	100,000.00	140.00	140,000.00	155.00	155,000.00	125.00	125,000.00	95.00	95,000.00	197.00	197,000.00	148.00	148,000.00	164.97	164,970.00	99.00	99,000.00	416.37	416,370.00
12	1,000	LF	Furnish & Install 8" PVC SDR-26 Wastewater Line Pipe	85.00	85,000.00	140.00	140,000.00	115.00	115,000.00	120.00	120,000.00	90.00	90,000.00	210.00	210,000.00	147.00	147,000.00	164.97	164,970.00	105.00	105,000.00	271.54	271,540.00
13	100%	LS	Furnish all Materials, Equipment, Tools & Labor Necessary for Temporary Bypass or Bypass Pumping in order to Install the new Wastwater Line	25,000.00	25,000.00	30,000.00	30,000.00	62,675.00	62,675.00	15,000.00	15,000.00	62,000.00	62,000.00	20,000.00	20,000.00	36,758.00	36,758.00	14,642.95	14,642.95	60,000.00	60,000.00	50,272.36	50,272.36
14	7	EA	Furnish & Install 4" Diameter Wastewater Manhole	12,500.00	87,500.00	8,500.00	59,500.00	11,500.00	80,500.00	5,500.00	38,500.00	7,400.00	51,800.00	10,000.00	70,000.00	7,384.00	51,688.00	8,640.12	60,480.84	13,000.00	91,000.00	13,665.86	95,661.02
15	1,000	LF	Furnish & Install 4" Wastewater Service Line from Main to ROW Cleanout, Inlcuding Bends, Fittings, and Appurtenances	80.00	80,000.00	50.00	50,000.00	55.00	55,000.00	120.00	120,000.00	52.00	52,000.00	220.00	220,000.00	103.00	103,000.00	168.10	168,100.00	64.00	64,000.00	162.50	162,500.00
16	80	LF	Furnish & Install 6" Wastewater Service Line from Main to ROW Cleanout, Inlcuding Bends, Fittings, and Appurtenances	120.00	9,600.00	55.00	4,400.00	120.00	9,600.00	120.00	9,600.00	58.00	4,640.00	253.00	20,240.00	125.00	10,000.00	182.35	14,588.00	125.00	10,000.00	166.28	13,302.40
17	1,075	LF	Furnish & Install 4" Wastewater Service Yard Line from ROW Cleanout to House Cleanout, Inlcuding Bends, Fittings, and Appurtenances	61.00	65,575.00	50.00	53,750.00	70.00	75,250.00	120.00	129,000.00	84.00	90,300.00	193.00	207,475.00	105.00	112,875.00	58.97	63,392.75	65.00	69,875.00	110.70	119,002.50
18	315	LF	Furnish & Install 6" Wastewater Service Yard Line from ROW Cleanout to House Cleanout, Inlcuding Bends, Fittings, and Appurtenances	50.00	15,750.00	55.00	17,325.00	130.00	40,950.00	120.00	37,800.00	88.00	27,720.00	197.00	62,055.00	123.00	38,745.00	63.47	19,993.05	75.00	23,625.00	110.87	34,924.05
19	26	EA	Furnish & Install 4" Wastewater Service ROW Cleanout	1,000.00	26,000.00	500.00	13,000.00	750.00	19,500.00	750.00	19,500.00	550.00	14,300.00	1,700.00	44,200.00	1,709.00	44,434.00	488.53	12,701.78	2,800.00	72,800.00	792.04	20,593.04
20	2	EA	Furnish & Install 6" Wastewater Service ROW Cleanout	3,000.00	6,000.00	900.00	1,800.00	2,050.00	4,100.00	750.00	1,500.00	686.00	1,372.00	1,900.00	3,800.00	2,226.00	4,452.00	655.11	1,310.22	2,800.00	5,600.00	813.31	1,626.62
21	26	EA	Furnish & Install 4" Wastewater Service Yard Cleanout	800.00	20,800.00	500.00	13,000.00	700.00	18,200.00	750.00	19,500.00	500.00	13,000.00	1,700.00	44,200.00	1,765.00	45,890.00	488.55	12,702.30	2,500.00	65,000.00	792.04	20,593.04
22	32	EA	Connect to Existing House Service	500.00	16,000.00	600.00	19,200.00	900.00	28,800.00	1,500.00	48,000.00	1,100.00	35,200.00	2,000.00	64,000.00	2,636.00	84,352.00	76.23	2,439.36	250.00	8,000.00	992.50	31,760.00
23	1	EA	Connect to Existing Manhole	3,800.00	3,800.00	500.00	500.00	4,000.00	4,000.00	5,000.00	5,000.00	4,200.00	4,200.00	5,500.00	5,500.00	4,319.00	4,319.00	304.89	304.89	3,000.00	3,000.00	5,372.88	5,372.88
24	7	EA	Cut & Cap Existing 4" Wastewater Service	450.00	3,150.00	300.00	2,100.00	175.00	1,225.00	500.00	3,500.00	250.00	1,750.00	1,500.00	10,500.00	1,443.00	10,101.00	202.97	1,420.79	500.00	3,500.00	1,613.28	11,292.96
25	100%	LS	Demolition and Haul Off of Existing Grinder Pump Assembly & Vault	5,000.00	5,000.00	2,000.00	2,000.00	3,450.00	3,450.00	2,500.0													

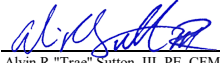
BID TABULATION
CITY OF GEORGETOWN TEXAS
Church Street Wastewater Improvements
April 9, 2024; 2:00 PM

				BIDDER INFORMATION																			
				1		2		3		4		5		6		7		8		9		10	
				Austin Underground, Inc. PO Box 5650 Lago Vista, TX 78645-5650		Packsaddle Management, LLC PO Box 4385 Horseshoe Bay, TX 78657		Royal Vista, Inc. 350 County Road 260 Liberty Hill, TX 78642		Patin Construction, LLC 3800 W 2nd Street Taylor, TX 76574		M&C Fonseca Construction Co., Inc. 1901 Prairie Creek Road Granite Shoals, TX 78654		Liberty Civil Construction, LLC 2937 Hero Way Leander, TX 78641		AO Services 25565 Ronald Reagan Blvd Georgetown, TX 78633		Guerra Underground, LLC 9810 FM 969 Austin, TX 78724		JM Pipeline, LLC PO Box 1999 Burnet, TX 78611		Bell Contractors, Inc. 3082 W. Hwy 190 Belton, TX 76513	
				Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount
Item No.	Bid Quantity	Unit	Bid Data Description		Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	Unit Price	Extended Amount	
ALTERNATE A																							
1	100%	LS	Utilize Flowable Fill in Lieu of Base Backfill and Asphalt Patch	\$ 8,800.00	\$ 8,800.00	\$ 362,000.00	\$ 362,000.00	\$ 12,592.00	\$ 12,592.00	\$ 82,500.00	\$ 82,500.00	\$ 338,000.00	\$ 338,000.00	\$ 99,000.00	\$ 99,000.00	\$ 192,737.00	\$ 192,737.00	\$ (5,775.00)	\$ (5,775.00)	\$ 971,285.84	\$ 971,285.84	\$ 573,877.40	\$ 573,877.40
ALTERNATE A BID AMOUNT - (Item 1)					\$ 8,800.00		\$ 362,000.00		\$ 12,592.00		\$ 82,500.00		\$ 338,000.00		\$ 99,000.00		\$ 192,737.00		\$ (5,775.00)		\$ 971,285.84	\$ 573,877.40	

BASE BID AMOUNT - (Items 1 - 42)	\$ 1,269,014.00	\$ 1,005,474.00	\$ 1,373,597.50	\$ 1,319,825.00	\$ 1,241,132.00	\$ 1,810,495.00	\$ 1,812,020.00	\$ 2,058,254.93	\$ 1,357,275.00	\$ 2,388,904.15
ALTERNATE A BID AMOUNT - (Item 1)	\$ 8,800.00	\$ 362,000.00	\$ 12,592.00	\$ 82,500.00	\$ 338,000.00	\$ 99,000.00	\$ 192,737.00	\$ (5,775.00)	\$ 971,285.84	\$ 573,877.40
TOTAL BID (BASE BID + ALTERNATE A)	\$ 1,277,814.00	\$ 1,367,474.00	\$ 1,386,189.50	\$ 1,402,325.00	\$ 1,579,132.00	\$ 1,909,495.00	\$ 2,004,757.00	\$ 2,052,479.93	\$ 2,328,560.84	\$ 2,962,781.55

Did Bidder Acknowledge Addendum No. 1 & 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Did Bidder provide Section #00400?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Did Bidder provide Section #00410?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

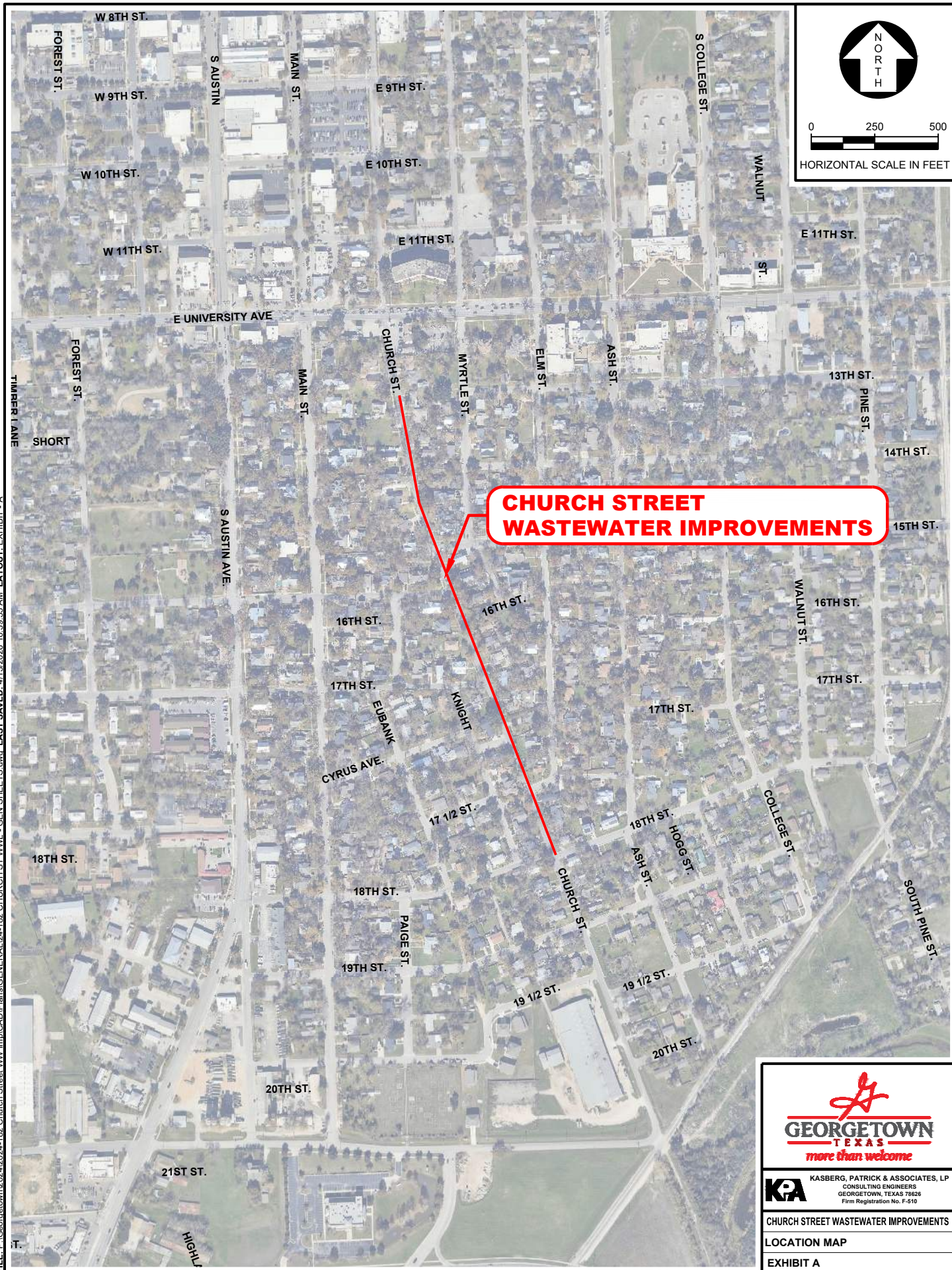
I hereby certify that this is a correct and true tabulation of all bids received



Alvin R "Trae" Sutton, III, PE, CFM
Kasberg, Patrick & Associates, LP

April 13, 2026
Date

© 2025 Kasberg, Patrick & Associates, LP KPA Firm Registration Number F-510
FILE: P:\Georgetown\2024\2024-182 Church Street WW Imp\CAD\Plans\GENERAL\24-182 Church ST.WWL - GEN SHEETS.dwg LAST SAVED: 4/13/2026 10:39:55 AM LAYOUT: EXHIBIT - A





GEORGETOWN
TEXAS
more than welcome



KASBERG, PATRICK & ASSOCIATES, LP
CONSULTING ENGINEERS
GEORGETOWN, TEXAS 78626
Firm Registration No. F-510

CHURCH STREET WASTEWATER IMPROVEMENTS

LOCATION MAP

EXHIBIT A

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Special Services Agreement with FilmTec (DuPont) for Three Forks and Northlands Membranes Supplier

SUGGESTED ACTION:

Consideration and possible recommendation to City Council to approve a Special Services Agreement with FilmTec (DuPont) of Wilmington, Delaware, for membrane filtration system special services associated with Three Forks and Northlands Water Reclamation Facilities in the amount of \$300,000.00 -- Wesley Wright, P.E. Systems Engineering Director / David Herzog, CIP Manager

ITEM SUMMARY:

This agreement provides specialized membrane filtration system design support services for the Three Forks and Northlands Water Reclamation Facility projects that are currently being designed by CDM Smith and Freese and Nichols. The Membrane Filtration System Supplier (MFSS) will provide technical support during the design phase and participate in project coordination meetings with City staff and project engineers.

Under this agreement, the membrane filtration system supplier (MFSS) will participate in design coordination meetings and provide technical support that is necessary for the integration of the membrane system for both treatment facilities. Services include preparation of shop drawings, 3-D design files, process documentation, equipment submittals, and coordination assistance to the City's design engineers during project development. The total agreement is for \$300,000.00 with \$150,000.00 being designated for each project. The agreement establishes two submittal milestones for each project, including an initial submittal package and a final submittal package. Compensation will be based on approved deliverables, with \$80,000.00 allocated for approval of Submittal Package No. 1 and \$70,000.00 allocated for approval of Submittal Package No. 2 for each project.

This agreement is limited to special services and design support associated with the membrane filtration systems. Once execution of the Construction Manager at Risk (CMAR) contract is established, the CMAR will assume responsibility for procurement and contracting of the membrane filtration equipment supplier for project construction and implementation.

STAFF RECOMMENDATION:

City staff recommends approval of the Special Services Agreement with FilmTec (DuPont) of Wilmington, Delaware, in the amount of \$300,000.00.

FINANCIAL IMPACT:

Funds for this expenditure are available in the FY26 wastewater CIP budget – PRJ000370 (Northlands WRF) and PRJ000259 (Three Forks WRF).

ATTACHMENT:
Special Services Agreement

SUBMITTED BY:
Larry Taylor, Systems Engineering

ATTACHMENTS:
[Special Services Agreement from MFSS RFP - Three Forks WRF and Northlands WRF.pdf](#)

SECTION 005243 SPECIAL SERVICES AGREEMENT

THIS AGREEMENT is by and between the City of Georgetown, Texas, a home-rule city and municipal corporation with principal offices located at 808 Martin Luther King, Jr. St., Georgetown, Williamson County, Texas 78626 (Owner) and _____ authorized to do business in Texas, acting by and through its duly authorized representative, (“Membrane System Supplier”, hereafter referred to as “MFSS”). Owner and MFSS may jointly be referred to as Parties.

Owner and MFSS, in consideration of the mutual covenants hereinafter set forth, hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 MFSS shall provide Special Services as specified or indicated in the Proposal Documents. The Special Services to be furnished are described in Section 011000 – Summary.
- 1.02 MFSS shall attend progress design meetings as required by the Owner. MFSS shall provide all necessary project documents required by the Engineer for design of the membrane system as part of the Three Forks WRF project and the Northlands WRF project, together called Project for this agreement.

ARTICLE 2 – THE PROJECT

- 2.01 The Project for which the Work under the Special Services may be the whole or only a part is generally described as follows: Three Forks WRF and Northlands WRF – Membrane Filtration System.
- 2.02 The MFSS shall provide project design documentation, shop drawings, 3-D design file and assistance to the Engineer in the design of the membrane system and shall attend progress design meetings.
- 2.03 The Owner shall execute the Agreement and administer the Contract for the Special Services associated with the Membrane System design and preparation of Shop Drawings and other Submittals required for the Project.

ARTICLE 3 – ENGINEER

- 3.01 Project No. PRJ000259 has been designed by: CDM Smith and Project No. PRJ000370 has been designed by Freese and Nichols, Inc. together called “Engineer”, which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Proposal Documents in connection with the completion of the Work in accordance with the Proposal Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

- A. All time limits for Milestones and the furnishing of Special Services as stated in the Proposal Documents are of the essence of the Agreement.

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. All Shop Drawings required by the *Proposal* Documents shall be submitted to the Owner for Engineer's review and approval in accordance with Division 01 – *Submittals*, and the following schedule.
 - 1. The MFSS shall have submitted to the Engineer all Shop Drawings associated with the First Shop Drawing Submittal as described in Paragraph 4.03.A.1 below within 60 calendar days after the Notice of Proceed.
 - 2. The MFSS shall have submitted to the Engineer all Shop Drawings associated with the Second Shop Drawing Submittal as described in Paragraph 4.3.A.1 below within 90 calendar days after the Notice of Proceed.

4.03 Project Milestones for Special Services

- A. The furnishing of Special Services to the Owner and Engineer will commence upon the execution of the Agreement between the Owner and the MFSS. The MFSS shall provide all Special Services required by the Proposal Documents based upon the following milestones.
 - 1. Upon execution of the Agreement, the MFSS will begin to provide Special Services required for Shop Drawings and Samples.
 - a. The First Submittal shall include P&IDs and layouts for the membrane filtration system, with shop drawings and 3-D design file (.stp) for the major equipment (membrane components, blowers, compressors and air receivers, and all pumps), as defined in the specifications and electrical loads.
 - b. The Second Submittal shall include shop drawings for all remaining equipment and facilities as defined in the equipment specifications, including design calculations, piping connections and layouts, equipment and piping materials and process instrumentation and controls.
 - c. Refer to Membrane Technical Specifications included in Division 46 for other submittal requirements
 - 2. MFSS shall participate in up to four (4) three-hour virtual progress design meetings and one (1) six-hour on-site meeting in Georgetown and provide assistance to Engineer during design of the Membrane System.
 - 3. All submittals shall be in accordance with Section 013300 – Submittals.

4.04 *Liquidated Damages*

- A. MFSS and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Should MFSS fail to complete the Work within this time, the Owner may retain liquidated damages in accordance with this Agreement. Liquidated Damages set forth in this Article 4 shall constitute the Owner's sole and exclusive remedy for delay by MFSS in achieving any Milestones or dates for the delivery of Goods or furnishing of Special Services. In no event shall MFSS be required to pay liquidated damages to the extent that the payment of such damages would allow the aggregate of all such damages paid to exceed the Agreement Price. It is understood that the foregoing limitation is a subset of and not in addition to the limitation of liability set forth in Article 4 of this Agreement.
- B. MFSS agrees to pay the Owner liquidated damages in the amount of one thousand dollars (\$1,000.00) per calendar day that expires after the contract times or dates specified for the furnishing of Special Services in Article 4 of this Agreement.
- C. The liquidated damages are not a penalty but represent the fixed costs associated with the Owner's administrative fees and costs incurred by the Owner's inability to place all of portions of this project into service within the time stipulated in the Agreement. The payment of liquidated damages shall not, however, prevent the Owner from pursuing non-monetary remedies for breach of contract or other claims for breach of contract not relating to failure to achieve final completion.
- D. By execution of this Agreement, Owner and MFSS expressly agree that these liquidated damage amounts are reasonable under the circumstances existing at the time this Agreement is executed.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay MFSS for completion of the Work in accordance with the *Proposal* Documents an amount in current funds equal One Hundred Fifty Thousand Dollars (\$150,000.00) for each project for a total of Three Hundred Thousand Dollars (\$300,000.00) total for this Proposal. Contract price must be adjusted by amendments or change orders duly authorized by the Parties.
 - A. For all Work, at the prices stated in MFSS's Proposal, attached hereto as an exhibit.
- 5.02 Owner agrees to pay MFSS from available funds for satisfactory performance of this Agreement in accordance with Proposal Documents, and Owner agrees to make payment on account thereof as provided in the Proposal Documents. Lack of funds shall render this Agreement null and void to the extent funds are not available.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Measurement and Payment*

- A. Work associated with this Item is considered subsidiary to the various items bid. No separate payment will be allowed for this Item.
- B. Progress Payments: The Owner will make progress payments on account of the Agreement Price on the basis of MFSS's Applications for Payment as follows for each Project separately:
 - 1. The Owner shall provide a payment of eighty thousand dollars (\$80,000) for Special Services for approval of MFSS's First Shop Drawing Submittal.
 - 2. The Owner shall provide a payment of seventy thousand dollars (\$70,000) for Special Services for approval of MFSS's Second Shop Drawing Submittal.

ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest as provided in Tex. Gov. Code Chapter 2251.

ARTICLE 8 – MFSS'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement, MFSS makes the following representations:
 - A. MFSS has examined and carefully studied the Proposal Documents and the other related data identified in the Proposal Documents.
 - B. MFSS understands that this project is a greenfield site and thus no Site Visit is applicable.
 - C. MFSS is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. MFSS does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Proposal Documents.
 - E. MFSS is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Proposal Documents.
 - F. MFSS has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that MFSS has discovered in the Proposal Documents, and the written resolution thereof by Engineer is acceptable to MFSS.
 - G. The Proposal Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – AGREEMENT DOCUMENTS

9.01 *Contents*

- A. The Agreement Documents consist of the following:
1. Proposal Form.
 2. This Agreement (pages 1 to 14, inclusive).
 3. Proposal bonds (pages, 1 to 2, inclusive).
 4. Certificate of Insurance
 5. Form 1295.
 6. Specifications as listed in the table of contents of the Proposal Documents.
 7. Addenda.
 8. Exhibits to this Agreement (enumerated as follows):
 - a. MFSS's Proposal (pages _____ to _____, inclusive).
 - b. Documentation submitted by MFSS prior to Notice of Award (pages _____ to _____, inclusive).
 9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Proposal Documents other than those listed above in this Article 9.
- D. If necessary, the Proposal Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.
- E. To the extent of any direct conflict or inconsistency between any of the Proposal Documents, the MFSS shall immediately seek clarification from the Engineer and notify the Owner that clarification has been requested. The Engineer shall clarify such discrepancy, within a reasonable time under the circumstances.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Neither party shall assign all or any part of this Agreement without the prior written consent of the other.

10.03 *Successors and Assigns*

- A. Owner and MFSS each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Proposal Documents.

10.04 *Severability*

- A. Any provision or part of the Proposal Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and MFSS, who agree that the Proposal Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *MFSS's Certifications*

- A. MFSS certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Waiver of Breach*

- A. Waiver of any breach of this Agreement shall not constitute waiver of any subsequent breach.

10.07 *Indemnification*

- A. MFSS covenants and agrees to indemnify, hold harmless and defend, at its own *expense, the city, its officers, servants and employees, from and against any and all claims arising out of, or alleged to arise out of, the work and services to be performed by the MFSS, its officers, agents, employees, subcontractors, licenses or invitees under this contract. This indemnity provision is intended to include, without limitation, indemnity for costs, expenses and legal fees incurred by the city in defending against such claims and causes of actions.*
- B. MFSS covenants and agrees to indemnify and hold harmless, at its own expense, the city, its officers, servants and employees, from and against any and all loss, damage or destruction of property of the city, arising out of, or alleged to arise out of, the work and services to be performed by the MFSS, its officers, agents, employees, subcontractors, licensees or invitees under this contract.
- C. Limitation on MFSS's Obligation to Indemnify MGSS's obligation to indemnify as set forth in Articles 6.1 and 6.2 is subject to the following exceptions and conditions:
1. MFSS will not be obligated to indemnify any other party for that party's own negligence or fault, regardless of nature or degree; and
 2. If a judgement, claim, loss, or expense occurs that is the result of the concurrent fault of multiple parties, each party will only be responsible for its own proportionate share of the fault.

10.08 *MFSS Insurance*

- A. Insurance coverage and limits:

MFSS shall provide to the City certificate(s) of insurance documenting policies of the following coverage at minimum limits that are to be in effect prior to commencement of work on the Project:

Commercial General Liability
\$1,000,000 each occurrence
\$2,000,000 aggregate

Automobile Liability
\$1,000,000 each accident on a combined single limit
or
\$250,000 Property Damage
\$500,000 Bodily Injury per person per occurrence

A commercial business policy shall provide coverage on "Any Auto", defined as autos

owned, hired and non-owned when said vehicle is used in the course of the PROJECT.

Worker's Compensation

Coverage A: Statutory limits

Coverage B: Employer's Liability

\$100,000 each accident

\$500,000 disease - policy limit

\$100,000 disease - each employee

Professional Liability

\$1,000,000 each claim

\$2,000,000 aggregate

Professional liability shall be written on a claims-made basis and shall contain a retroactive date prior to the date of the contract or the first date of services to be performed, whichever is earlier. Coverage shall be maintained for a period of 5 years following the completion of the contract. An annual certificate of insurance specifically referencing this project shall be submitted to the City for each year following completion of the contract.

- B. Certificates of insurance evidencing that the MFSS has obtained all required insurance shall be delivered to the Owner prior to MFSS proceeding with the Project.
1. Applicable policies shall be endorsed to name the City an Additional Insured thereon, as its interests may appear. The term Owner shall include its employees, officers, officials, agents, and volunteers as respects the contracted services.
 2. Certificate(s) of insurance shall document that insurance coverage specified in this agreement are provided under applicable policies documented thereon.
 3. Any failure on part of the Owner to request required insurance documentation shall not constitute a waiver of the insurance requirements.
 4. A minimum of forty-five (45) days' notice of cancellation or material change in coverage shall be provided to the Owner. A ten (10) days notice shall be acceptable in the event of non-payment of premium. Such items shall be endorsed onto MFSS's insurance policies. Notice shall be sent to Chelsea Solomon, Director, City of Georgetown Water Utilities, 300-1 Industrial Ave, Georgetown, Texas 76626.
 5. Insurers for all policies must be authorized to do business in the State of Texas and have an insurance rating of A: VII in the current A.M. Best Key Rating Guide or have reasonably equivalent financial strength and solvency to the satisfaction of Risk Management.
 6. Deductible limits, or self-insured retentions, affecting insurance required herein shall be acceptable to the Owner in its sole discretion; and, in lieu of traditional insurance, any alternative coverage maintained through insurance pools or risk retention groups must be also approved. Dedicated financial resources or letters of credit may also be acceptable to the Owner.
 7. Applicable policies shall each be endorsed with a waiver of subrogation in favor of the Owner as respects the Project.
 8. The Owner shall be entitled, upon its request and without incurring expense, to review the MFSS 's insurance policies including endorsements thereto and, at the Owner's discretion, the MFSS may be required to provide proof of insurance premium payments.

9. The Commercial General Liability insurance policy shall have no exclusions by endorsements unless the Owner approves such exclusions in writing.
10. For all lines of coverage underwritten on a claims-made basis, other than Professional Liability, the retroactive date shall be coincident with or prior to the date of the contractual agreement. The certificate of insurance shall state both the retroactive date and that the coverage is claims-made.
11. The OWNER shall not be responsible for the direct payment of any insurance premiums required by this agreement and all insurance required in this section, with the exception of Professional Liability, shall be written on an occurrence basis.
12. Sub consultants and subcontractors to/of the MFSS shall be required by the MFSS to maintain the same or reasonably equivalent insurance coverage as required for the MFSS. When sub consultants/subcontractors maintain insurance coverage, MFSS shall provide OWNER with documentation thereof on a certificate of insurance.

10.09 *General Legal Provisions*

- A. Authorization to Proceed: MFSS shall be authorized to proceed with this Agreement upon receipt of a written Notice to Proceed from the Owner.
- B. Reuse of Project Documents: All designs, drawings, specifications, documents, and other work products of the MFSS, whether in hard copy or in electronic form, are instruments of service for this Project, whether the Project is completed or not. Reuse, change, or alteration by the Owner or by others acting through or on behalf of the Owner of any such instruments of service without the written permission of the MFSS will be at the Owner's sole risk. The Owner shall own the final designs, drawings, specifications and document.
- C. Force Majeure
 1. The MFSS is not responsible for damages or delay in performance caused by acts of God, strikes, lockouts, accidents, or other events beyond the control of the MFSS.
 2. The parties agree that force majeure events such as extreme weather or other act of God, strike or other labor shortage, fire, accident, war or civil disturbance, act of government, pandemic, delay of carriers, failure of normal sources of supply, complete or partial shutdown of a plant by reason of inability to attain sufficient raw materials or power, and/or similar contingency beyond the reasonable control of either party shall i) not give rise to delay damages (regardless of whether such delay may have been foreseeable), and (ii) allow pricing to be equitably adjusted.

10.10 *Termination*

- A. This Agreement may be terminated only by the Owner for convenience on 30 days' written notice. This Agreement may be terminated by either the Owner or the MFSS for cause if either party fails substantially to perform through no fault of the other and does not commence correction of such nonperformance with 5 days of written notice and diligently complete the correction thereafter.
- B. If this Agreement is terminated for the convenience of the Owner, the MFSS will be paid for work prior to termination and termination expenses as follows:
 1. Cost of reproduction of partial or complete studies, plans, specifications or other forms of MFSS's work product;
 2. Out-of-pocket expenses for purchasing storage containers, microfilm, electronic data files, and other data storage supplies or services;

3. The time requirements for the MFSS's personnel to document the work underway at the time the Owner's termination for convenience so that the work effort is suitable for long time storage.
 - C. Prior to proceeding with termination services, the MFSS will submit to the Owner an itemized statement of all termination expenses. The Owner's approval will be obtained in writing prior to proceeding with termination services.
- 10.11 Suspension, Delay, or Interruption of Work: The Owner may suspend, delay, or interrupt the services of the MFSS for the convenience of the Owner. In the event of such suspension, delay, or interruption, an equitable adjustment in the Project's schedule, commitment and cost of the MFSS's personnel and subcontractors, and MLSS compensation will be made.
- 10.12 Assignment: Neither party shall assign all or any part of this Agreement without the prior written consent of the other.
- 10.13 Interpretation: Limitations on liability and indemnities in this Agreement are business understandings between the parties and shall apply to all the different theories of recovery, including breach of contract or warranty, tort including negligence, strict or statutory liability, or any other cause of action, except for willful misconduct or gross negligence for limitations of liability and sole negligence for indemnification. Parties mean the Owner and the MFSS, and their officers, employees, agents, and subcontractors.
- 10.14 Jurisdiction: The law of the State of Texas shall govern the validity of this Agreement, its interpretation and performance, and any other claims related to it. The venue for any litigation related to this Agreement shall be Williamson County, Texas.
- 10.15 *Alternate Dispute Resolution*
- A. All claims, disputes, and other matters in question between the City and MFSS arising out of, or in connection with this Agreement or the Project, or any breach of any obligation or duty of City or MFSS hereunder, will be submitted to mediation. If mediation is unsuccessful, the claim, dispute or other matter in question shall be submitted to arbitration if both parties acting reasonably agree that the amount of the dispute is likely to be less than \$50,000, exclusive of attorney's fees, costs and expenses. Arbitration shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association or other applicable rules of the Association then in effect. Any award rendered by the arbitrators less than \$50,000, exclusive of attorney's fees, costs and expenses, will be final, judgment may be entered thereon in any court having jurisdiction, and will not be subject to appeal or modification except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C. Sections 10 and 11).
 - B. Any award greater than \$50,000, exclusive of attorney's fees, costs and expenses, may be litigated by either party on a de novo basis. The award shall become final ninety (90) days from the date same is issued. If litigation is filed by either party within said ninety (90) day period, the award shall become null and void and shall not be used by either party for any purpose in the litigation.

- 10.16 Severability and Survival: If any of the provisions contained in this Agreement are held for any reason to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability will not affect any other provision, and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.
- 10.17 Observe and Comply: MFSS shall at all times observe and comply with all federal and State laws and regulations and with all Owner ordinances and regulations which in any way affect this Agreement and the work hereunder, and shall observe and comply with all orders, laws ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. MFSS agrees to defend, indemnify and hold harmless Owner and all of its officers, agents and employees from and against all claims or liability arising out of the violation of any such order, law, ordinance, or regulation, whether it be by itself or its employees.
- 10.18 Governing Law and Venue: This Agreement, including all of the Proposal Documents is performable in the State of Texas. Venue shall be Williamson County, Texas.
- 10.19 Authority to Sign: MFSS shall attach evidence of authority to sign Agreement if signed by someone other than the duly authorized signatory of the MFSS.
- 10.20 Non-appropriation of Funds: In the event no funds or insufficient funds are appropriated by City in any fiscal period for any payments due hereunder, City will notify Vendor of such occurrence and this Agreement shall terminate on the last day of the fiscal period for which appropriations were received without penalty or expense to City of any kind whatsoever, except as to the portions of the payments herein agreed upon for which funds have been appropriated.
- 10.21 No Third Party Beneficiaries: This Agreement gives no rights or benefits to anyone other than the Owner and the MFSS and there are no third-party beneficiaries.
- 10.22 No Cause of Action Against Engineer: MFSS, its subcontractors and equipment and materials suppliers on the PROJECT or their sureties, shall maintain no direct action against the Engineer, its officers, employees, and subcontractors, for any claim arising out of, in connection with, or resulting from the special services performed. Only the Owner will be the beneficiary of any undertaking by the Engineer. The presence or duties of the Engineer's personnel at a construction site, whether as on-site representatives or otherwise, do not make the Engineer or its personnel in any way responsible for those duties that belong to the Owner and/or the Owner's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the Proposal Documents and any health or safety precautions required by such construction work. The Engineer and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.
- 10.23 MFSS's Total Limitation of Liability: Notwithstanding any other provisions of the Proposal Documents, the MFSS's total liability arising at any time under any of the Proposal Documents or otherwise in connection with completing the Contract (whether arising under breach of contract,

tort, strict liability, or any other theory of law) shall not exceed 1.0 times the amount of the Total Contract Price of the Special Services Agreement.

IN WITNESS WHEREOF, Owner and MFSS have signed this Agreement. Counterparts have been delivered to Owner and MFSS. All portions of the Proposal Documents have been signed or have been identified by Owner and MFSS or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

Owner:

MFSS

City of Georgetown

By: _____

By: _____

Title: Josh Schroeder, Mayor

Title: _____

Attest: _____

Title: City Secretary

Address for giving notices:

Address for giving notices:

808 Martin Luther King, Jr. St.

Georgetown, TX 78626

APPROVED AS TO FORM:

City Attorney

City of Georgetown, Texas
Water Utility Advisory Board
May 14, 2026

SUBJECT:

Cyber Security Update

SUGGESTED ACTION:

Sec. 551.089 Deliberation Regarding Security Devices or Security Audits

ITEM SUMMARY:

FINANCIAL IMPACT:

SUBMITTED BY:

Rebecca Fisher, Water Utility Department

ATTACHMENTS:

N/A