



CITIZEN ADVISORY BOARD MEETING
Zoom Webinar and/or Town Council Chamber
3 S. Timber Ridge Parkway, Severance, CO 80550

AGENDA
CITIZEN ADVISORY BOARD MEETING
Wednesday, August 6, 2025, at 6:00 PM

A. CALL TO ORDER

1. Roll Call
2. Pledge of Allegiance
3. Approval of Agenda
4. Approval of July 2, 2025 Minutes
5. Public Comment

The purpose of the Public Comment is for members of the public to speak to the Town Council on any subject not scheduled on the agenda. To accomplish scheduled agenda items, comments should be limited to three minutes for those attending in person or an appropriate time as deemed by the Mayor. The Town Council is not obligated to make decisions or take action on comments but may choose to schedule the matter for a later discussion. Those addressing the Town Council, please state your name and address and sign-in.

B. REGULAR MEETING

1. **Community Grant Request: Carnival of Dreams**
 - Legislative, Discussion
 - Staff Presentation: Nicholas Wharton, Town Manager
2. **Water Master Plan**
 - Discussion
 - Staff Presentation: Nicholas Wharton, Town Manager

C. COMMUNICATIONS

1. Town Staff
2. Board Members

D. ADJOURN

Citizen Advisory Board MEETING

Wednesday, August 6, 2025, 6:00 PM (MDT)

The Citizen Advisory Board reserves the right to adjourn to a virtual-only meeting at their discretion should the need arise.

Registration URL

https://us02web.zoom.us/webinar/register/WN_Mg9QsgE-RYa6TpighgRVuQ

The Town of Severance does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in the provision of services. For disabled persons needing reasonable accommodation to attend or participate in a town service, program, public meeting, or activity, call 970-686-1218 at least 72 hours in advance. Disabled access is available from the front entrance of the Town Hall.



CITIZEN ADVISORY BOARD MEETING
Zoom Webinar and/or Town Council Chamber
3 S. Timber Ridge Parkway, Severance, CO 80550

MEETING MINUTES
Wednesday, July 2, 2025, at 6:00 PM

Chair: Josh Green
Vice-Chair: Chase Zajc
Board Members: Dale Garland
Felicia Jarrett
Marissa Riopelle
Richard Vandenberg
Audience: Adam Jokerst WestWater Research, Cassidy White WestWater
Research, Kelsey Dudziak WestWater Research
Staff: Nicholas Wharton, Town Manager
Sarah Jacobsen, Town Clerk

A. CALL TO ORDER

1. Roll Call

PRESENT: Chair Josh Green, Vice-Chair Chase Zajc, Member Dale Garland, and Member
Melissa Riopelle
ABSENT: Member Felicia Jarrett, and Member Richard Vandenberg

2. Pledge of Allegiance

3. Approval of Agenda

MOTION WAS MADE BY Member Garland, seconded by Member Zajc to approve the
Agenda. All Members present voting Yes.

MOTION PASSED

4. Approval of Minutes

MOTION WAS MADE BY Vice-Chair Zajc, seconded by Member Riopelle to approve the
meeting minutes from June 4, 2025. All Members present voting Yes.

MOTION PASSED

5. Public Comment

The purpose of the Public Comment is for members of the public to speak to the Town Council

on any subject not scheduled on the agenda. To accomplish scheduled agenda items, comments should be limited to three minutes for those attending in person or an appropriate time as deemed by the Mayor. The Town Council is not obligated to make decisions or take action on comments but may choose to schedule the matter for a later discussion. Those addressing the Town Council, please state your name and address and sign-in.

No comment.

B. REGULAR MEETING

1. Water Master Plan

- Discussion
- Staff Presentation: Nicholas Wharton, Town Manager
Presentation from WestWater Research on the proposed phase one of the Town's Water Master Plan was presented by Adam Jokerst, Cassidy White and Kelsey Dudziak.

C. COMMUNICATIONS

1. Town Staff
CAB has two seat vacancies which Town Council will look to appoint at the July 8, 2025 Council Meeting. Town Manager Nicholas Wharton gave project and event updates to the board and invited everyone to the July 22, 2025 Town Hall open house.
2. Board Members
Member Garland let the board know he will be out of town for the next meeting (August 6th) but will try to participate remotely.

D. ADJOURN

MOTION WAS MADE BY Member Zajc, seconded by Member Garland to adjourn the meeting at 6:57 p.m. All Members present voting Yes.

MOTION PASSED

TOWN OF SEVERANCE

Josh Green, Chair

ATTEST:

Sarah Jacobsen, Town Clerk



AGENDA ITEM SUMMARY

AGENDA ITEM	SUBMITTED BY	PRESENTED BY
Community Grant Request: Carnival of Dreams	Nicholas Wharton, Town Manager	Nicholas J. Wharton
ACTION REQUESTED		
Management recommends that the Citizen Advisory Board consider the Chamber's Carnival of Dreams event grant request.		<u>Discussion</u> <u>Action Requested</u>
BRIEF SUMMARY		
<p>The application for a \$1,000 Community Grant was received on July 30, 2025, from the Severance Chamber of Commerce.</p> <p>The award criteria are considered based on how well the stated purpose of the grant request serves the Town's citizens in relation to any and all of the following general criteria:</p> <ul style="list-style-type: none"> • Promotion of commerce and industry • Celebration of the Town's culture or history • Observance of local, regional, or national historical dates or events • Contribution to education, safety, health, welfare, or recreation • Expected number of people who will participate or benefit from the program, event, or activity 		
PUBLIC SUPPORT/CONCERN		
None at this time		
ANALYSIS AND RECOMMENDATION		
Management recommends that the Citizen Advisory Board consider the Severance Chamber of Commerce event grant request.		
MATERIALS SUBMITTED		
<p>The following materials were submitted and included in this packet:</p> <ol style="list-style-type: none"> 1. Chamber Community Grant Application 		



Online Form Submission #554 for Community Grant Application

From noreply@civicplus.com <noreply@civicplus.com>

Date Wed 7/30/2025 9:55 AM

To Nicholas Wharton <nwharton@townofseverance.org>; Lindsay Radcliff Coombes <lcoombes@townofseverance.org>; Sarah Jacobsen <SJacobsen@townofseverance.org>

Community Grant Application

Step 1

Step 2

Name of Requesting Organization	Severance Chamber of Commerce
Email Address	info@severancechamber.com
Phone Number	9704022058
Contact Name	Elizabeth Atkins
Address	473 3rd Street
If Mailing Address is Different	<i>Field not completed.</i>
City	Severance
State	CO
Zip Code	80550

Step 3

<p>Please describe how the grant, if awarded, would be used and how this use relates to any of the award criteria in the Town's Grant to Community Organizations Policy</p>	<p>To sponsor the Severance Chamber's Fundraiser Event, Carnival of Dreams on September 7, 2025. This event is expected to have 300-400 people come through, has four bands playing, food trucks, carnival games, a silent auction, a petting zoo, face painting and more. We would like to see the Town of Severance Sponsor this event, showing their support for the Severance Chamber of Commerce and also their support for the Weld RE4 Work Based Program, the CTE Program, whom the fundraiser is for. The town will get to have a booth at the event with their sponsorship and marketing for the Town as well. This is for the Presenting Sponsor position (in which we have two of). This is what you get for being a presenting sponsor:</p>
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Presenting Sponsor – \$1,000

LIMITED TO 2 • Premier Partner Positioning

Be the brand everyone remembers — before, during, and after the event.

Top-Tier Visibility:

- “Presented by [Your Business]” on all promotions: flyers, social media, emails, press releases, and website
- Premium banner placement at the main stage or entry point
- Priority booth location at the highest traffic area

Strategic Marketing Extras:

- Pre-event custom social media spotlight (includes up to 3 images, write-up & links)
- Featured in a short video reel or interview (shared across Chamber socials & Timnath TV)
- Logo in post-event recap graphics & “Thank You” email
- Access to branded digital templates to promote your sponsorship

Engagement Boosters:

- Opportunity to give a 60-second welcome or closing remark
- Product, flyer, or coupon in attendee gift bags
- Lead capture station via QR code (sponsor-provided form)

Perks:

- 4 complimentary drinks (coffee or lemonade)
- One team photo featured in our event gallery
- Option to participate in 50-50 raffle giveaway

Requested Grant Amount	1000.00
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Has the Town of Severance contributed to the Requesting Organization in the past?	No
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If yes, what amount(s) and when?	<i>Field not completed.</i>
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If yes to the above, please provide detailed accounting of how the funds were used and describe how the funds benefitted the community (attach documentation if needed)	<i>Field not completed.</i>
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Step 4

List your organization's top five funding sources and amounts that were received from the sources broken down in the last two fiscal years (corporate, government, and/or individual contributions)

We are funded only by our memberships, which are \$150 a year for a business and \$75 a year for an individual.

Does the IRS classify you (the requesting organization) as a 501(c)3 organization? Yes

Please attach the following information to complete your grant request

1. Along with this application, include a brief description of the requesting organization (including its mission and leadership) and any other information relevant to this request.

2. Most recent year's actual income and expenses for the organization and for the specific event or project for which the funds will be used.

3. Most recent budget for the organization and for the specific event or project for which the funds will be used.

4. Names and addresses of all board members, including designated officers.

5. Any other documents that will support the application.

Requested document upload [June 2025 Board Meeting Minutes.pdf](#)

Affirmation of Application

By submitting this application, you are certifying that **a)** the information in the application and supporting documents are correct to the best of your knowledge, and **b)** the Internal Revenue Service (IRS) 501(c)3 determination, if applicable, has not been revoked, canceled, or modified; and **c)** funds will be used for the projects outlined in this Community Grant Application.

X

Email not displaying correctly? [View it in your browser.](#)

Severance Chamber of Commerce response to the Community Grant attachment requirements are below.

1. Along with this application, include a brief description of the requesting organization (including its mission and leadership) and any other information relevant to this request. The requesting organization is the Severance Chamber of Commerce. The mission and values are attached to this email. Elizabeth Atkins is the President of the organization and Justin Spaeth is the Treasurer. The funds for the sponsorship will go directly to the fundraiser recipients, who are the Poudre and Weld County CTE Programs at the school districts. We feel that it is important that the Town be a Sponsor for this event. The Chamber sponsors the Fishing Derby by purchasing trophies every year and also buys prizes on Arbor Day for the kids at Range View Elementary. It is important that we show our support to the Town and the Town shows its support to The Chamber. This donation/sponsorship helps Weld Re4 and their students in the CTE Program and also shows support of The Severance Chamber.

2. Most recent year's actual income and expenses for the organization and for the specific event or project for which the funds will be used. We are trying to spend less than \$500 on this event.

3. Most recent budget for the organization and for the specific event or project for which the funds will be used. We do not currently have a budget at the chamber. We took over in December and are still trying to get to some of these important projects. At this point, we are not using our monies for anything except a website and sponsoring our members.

4. Names and addresses of all board members, including designated officers.

Elizabeth Atkins, President- 473 3rd Street Severance 80550

Justin Spaeth- Treasurer- 10845 CR 74 Severance 80550

Hilda Daniel- Board Member- 1734 1/2 Whedbee St. Fort Collins 80525

5. Any other documents that will support the application. I attached the document that shows the different sponsorships and what the Town will get with their Sponsorship. I highly recommend someone from the Town of Severance having a table at the Event as well, which comes included with the Town being a Member of the Chamber and also with a sponsorship.

I hope this information helps and I appreciate you taking the time to help us gain this support for our schools!

Elizabeth Atkins, President, The Severance Chamber



EXECUTIVE BOARD MEETING MINUTES

Tuesday, June 10, 2025

9:00 AM

Present:

President: Elizabeth Atkins

Board Members/Ambassador:

Hilda Daniel

Nathan Simpson

Town Events Liaison: Kayli Adams

City Liaison: Mayor Matt Fries

Not Present:

Treasurer: Justin Spaeth

Weld RE4 Liaison: Katie Smith

Town Planning Director: Shani Porter

May 2025 Meeting Approval

MOTION NOT MADE

I. President Updates: Elizabeth Atkins

A. Events Coming Up (*We need more Chamber Board Member presence at these events please*)

01. Regional After Hours Event

CSU Canvas Stadium 4th Floor

August 7, 2025 from 5:00-7:00 PM

Monies received for tickets goes to The Chamber the attendee chooses when registering

02. Business Bites Networking Event

Sponsored by Vecino's, Pirate Radio, and The Chamber

You do not need to be a member to go to this event

1st Wednesday of every month from 11:30-1:00 PM

03. Pedro's Event with the Timnath Chamber

More to come on this, we are deep in planning

September 7th from 11:00-4:30

Pedro's Coffee

04. Business Spotlight of the Month for June
Zach Averill with Oak and Stone Design
June 17, 2025 from 5:30-7:00 PM
TBK Bank
 05. Dual Ribbon Cutting Event in June
Leslie Ponto, Virtual Assistant and Ryan Ponto, The Spot Specialist
June 18, 2025 from 4:30-6:30 PM
Vecino's on the Patio
 - Cupcakes with logos have been ordered
 - Elizabeth will bring the plaques and the ribbon and scissors
 06. Cleared for Take Off Weld RE4 Event
August 11, 2025 from 8:00-9:30 AM
Windsor High School Stadium
We are gathering members that want to have a table there and so far we have 6 members signed up for this
- B. Administrative Updates
01. New Member and Renewal letters and stickers have gone out snail mail
 02. Past Due Balances- We only have two unpaid invoices left at this time, Bruen Media and C & J Lawn Services

II. Treasurer Updates: Justin Spaeth- Not Present- Notes sent by email

- A. The TBK Bank Balance is \$9,840.92 (this is after the check clearing for the Growthzone settlement funds were paid).
- B. We no longer have a contract with Growthzone.
- C. The Hartford Insurance invoices are \$502.00 for General Liability and \$323.00 for Directors and Officers Insurance.
 - 1st Approval: Justin Spaeth (through email)
 - 2nd Approval: Elizabeth Atkins (through email and at the Board meeting)
- D. Severance Chamber 2024 tax return was brought up on the big screen and gone through.
 - 1st Approval: Hilda Daniel
 - 2nd Approval: Elizabeth Atkins
 - 3rd Approval: Nathan Simpson
- E. Timanth/Severance Cooperative Agreement for the Pedro's Event
 - 1st Approval: Justin Spaeth (through email)
 - 2nd Approval: Elizabeth Atkins
 - 3rd Approval: Nathan Simpson

III. Town Liaison- Town of Severance Events Coordinator: Kayli Adams

A. Past Events

01. Fishing Derby

- Great Turnout, but not everyone who signed up for the event showed up
- Thank you to the Severance Chamber for the Trophies donated to the event for the kids. They loved them!

02. June Summer Kick off Concert

- This was great! It went well. The band was good. No issues.

03. Coffee with the Council

- About 15 people attended, 6 of them being new (estimated)
- Lots of questions and discussion totalling 1 hour and 15 minutes

B. Upcoming Events

01. Movies in the Park- June

- Wicked Sign Along at The Library

02. Doggie Ice Cream Social Postponed due to renovations at the Dog Park

03. Recreation and Public Safety Town Hall

- June 22, 2025 at 6 PM at Town Hall

04. Severance Days Preparations are deep in the works!

III. Town Liaison- Mayor: Matt Fries

A. Facebook

01. Discussion on Facebook posts that are negative to the Town and how to deal with these.

- Direct them to Town Hall, maybe tell them that email is an option so they are not intimidated.
- Discussion about the Chamber holding a "Town Hall" session at the Library for Residents to come to us to discuss things they would like to see or things they don't like, etc. and we can take these items to The Town for review. This just helps our City in a positive way and as long as we stick to our Vision and Mission, this is absolutely okay to do. Have a discussion with the other board members about this.
- A particular post that was discussed was someone stating we need to keep open space in Severance. What type of open space? Windsor did an Open Space area and it cost \$20 Million Dollars. Do the residents want to see taxes rise to pay for that? And other posts want grocery stores, but it is not realistic to have a grocery store and commercial space when we don't have enough homes for that kind of developer to come to Severance.

B. Town Hall Meeting Tonight

01. Discussion between council starts at 5:00 PM, Public Comment starts at 6:00 PM

02. Agenda Includes

- A written policy is needed and will be discussed on what is allowed during public comment. This helps to keep order during the meetings. Freedom of speech is legal, but there are things that can be controlled.

- Discussion on adding to the ballot in November an increase of Sales Tax in lieu of the transportation fee of \$15.50 a month per household and how much of an increase. This was in the last ballot, but the Town is going to go about it in a different way this year.
- Discussion on adding to the ballot in November a potential lodging tax. Hotels may start coming to the area and to have this in place before that will be helpful. This also helps with the AirBNBs.
- There are 4 vacant positions on the planning committee and 7 applicants. Discussion on who to fill these positions with will occur. There are also 4 vacant positions on the tree board and no applicants.



MISSION STATEMENT:

The Severance Chamber of Commerce is committed to promoting economic vitality, supporting local businesses, and enhancing community connections. Through advocacy, resources, and partnerships, we strive to cultivate a thriving business environment while preserving the unique character and quality of life in Severance, Colorado.

VISION STATEMENT:

To cultivate a vibrant and prosperous business community that strengthens Severance's unique identity, fosters collaboration, and drives sustainable growth for future generations.



AGENDA ITEM SUMMARY

AGENDA ITEM	SUBMITTED BY	PRESENTED BY
Water Master Plan	Nicholas Wharton, Town Manager	Adam Jokerst, WestWater Reseach
ACTION REQUESTED		
Management is asking the board to provide feedback and comments on the draft phase one of the Water Master Plan.		<u>Presentation</u>
BRIEF SUMMARY		
Presentation on the second phase of the Severance Water Master Plan.		
PUBLIC SUPPORT/CONCERN		
None.		
ANALYSIS AND RECOMMENDATION		
MATERIALS SUBMITTED		
<p>The following materials were submitted and included in this packet:</p> <ol style="list-style-type: none"> 1. Financial Assessment Technical Memorandum 2. Demand Analysis Technical Memo 		

Memorandum

To: Nicholas Wharton, Town Manager, Town of Severance
From: WestWater Research
Date: July 30, 2025
Re: Financial Assessment Technical Memorandum

Introduction

The Town of Severance (Severance or the Town) is developing a Water Supply Master Plan (Master Plan) to strategically identify, evaluate, and plan for future water supply opportunities. WestWater Research, LLC (WestWater) has been retained by Severance to facilitate and support the Plan’s development, including conducting technical assessments. In this technical memorandum, WestWater evaluates Severance’s capacity to finance water acquisitions and infrastructure projects through bonding. Understanding the Town’s financial capacity is a precursor to assessing water supply alternatives as it will allow Severance to review and pursue only those alternatives that are financially viable.

The objective of this analysis is to estimate the bonding capacity of the Town’s Water Fund (WF) across the 31-year period of analysis 2025–2055 (POA). This memorandum reports WF bonding capacity estimates, by year, for both a 20- or 30-year bond term at typical municipal bonding rates. The three water demand scenarios developed by WestWater in support of the Master Plan effort (2025 Demand Analysis) provide the foundation for WF revenue forecasts across the POA and are used to adjust WF expenditure forecasts as necessary.¹

Methodology & Conceptual Overview

WestWater’s Bonding Capacity Model (BCM) estimates future-year bonding capacity through an application of Fitch Ratings’ (Fitch) *U.S. Water and Sewer Rating Criteria*² to municipality- or utility-specific financials and demand forecasts. Fitch determines an entity’s financial profile by an evaluation of their leverage and liquidity profiles in the context of its overall risk profile. These metrics are evaluated on both a historical and forward-looking basis to assess flexibility to withstand stress scenarios and, ultimately, relative capacity to repay debt and other liabilities.

A key financial metric identified by Fitch and used as the primary bonding capacity indicator in the BCM, is an entity’s *Funds Available for Debt Service* (FADS).³ Fitch emphasizes the consideration of

¹ *Demand Analysis Technical Memorandum*. Dated June 16, 2025. Transmitted to Town of Severance from WestWater.

² Fitch Ratings: *U.S. Water and Sewer Rating Criteria*. Criteria Report, February 24, 2025.

³ Fitch Ratings (2025) defines FADS as “EBITDA plus interest income, taxes, other non-operating cash receipts not restricted as to spending and connection/availability fees. FADS may further reflect adjustments for noncash expenses, nonrecurring items and non-operating expenses paid ahead of debt service as appropriate.”

an entity's overall risk profile based on a forward-looking and through-the-cycle basis,⁴ rather than a single point in time. The BCM therefore incorporates a 10-year forward-looking rolling average into the derived FADS metric.

WestWater's Bonding Capacity Model (BCM)

Bonding capacity is ultimately determined by ratings agencies and bond markets, and the specific factors and their weighting in the final determination is not disclosed. The BCM calculates a reasonable estimate of the WF's future-year bonding capacity based on a forecasted FADS adjusted by a debt service coverage ratio (DSCR) of 1.25.

The BCM estimates bonding capacity in a given future year (t) by equations 1–4 (below). As shown by Equation 1, bonding capacity in year t is the present value of the maximum annual bond payment that can be made across the bonding term, beginning in year t , discounted at the assumed coupon rate. The BCM estimates the maximum annual bond payment ($Pmt_{max,t}$) as the forecasted FADS of the WF in year t adjusted downward by the target DSCR of 1.25 (Equation 2). The forecasted FADS of the WF is calculated as the average annual WF net revenue for the forward-looking 10-year period starting in year t less any existing debt service payments in year t (Equation 3). Finally, WF annual net revenue in year t is calculated as WF year t revenues less WF year t expenditures (Equation 4).

The forecasted FADS of the WF uses a forward-looking 10-year average of net revenues because net revenues often fluctuate significantly year-to-year, meaning that a single year is not an accurate depiction of bonding payment capacity over the bond term. This is in conformation with Fitch Ratings' emphasis on a forward-looking *through-the-cycle* type analysis. Conversely, structural debt service payments are known in time and value and are therefore incorporated into the forecasted FADS as same-year values.

$$bndCap_t = PV(Pmt_{max,t}) = \sum_t^T \frac{Pmt_{max,t}}{(1+r)^t} \quad (1)$$

$$Pmt_{max,t} = \frac{fcFADS_t}{DSCR} \quad (2)$$

$$fcFADS_t = \frac{\sum_t^{t+n} NR_t}{n+1} - exDS_t \quad (3)$$

$$NR_t = Rev_t - Exp_t \quad (4)$$

⁴ *Through-the-cycle* refers to a method of assessing risk that considers a longer-term, average view of an entity's creditworthiness, rather than focusing solely on its current, immediate situation. It's a way to evaluate risk that smooths out the impact of short-term economic fluctuations, focusing instead on the underlying, more permanent characteristics that influence an entity's ability to repay debt. Rating agencies generally assign ratings on a through-the-cycle basis whereas banks' internal valuations are often based on a point-in-time performance, that is they are related to the current value of the rated entity's or instrument's underlying assets.

Where:

$bndCap_t$	= Bonding capacity of WF in year t for the specified term and rate
$Pmt_{max,t}$	= Maximum annual bond payment that can be made across the bond term, beginning in year t
T	= Term through maturity—generally 20 or 30 years
r	= Bond coupon rate—dependent on term, but generally 4.0%–6.0%
$fcFADS_t$	= Forecasted FADS of WF in year t , equal to average net revenues for years t through $t + n$ less existing debt service in year t .
n	= <i>Additional</i> years to include in the forecast of average net revenue (i.e., $n = 9$ returns a 10-year forward-looking average)
NR_t	= Net Revenues of WF in year t
$DSCR$	= Debt Service Coverage Ratio target—generally 1.25
Rev_t	= Sum of Revenues to WF in year t
Exp_t	= Sum of Expenditures out of WF in year t
$exDS_t$	= Existing debt service payments out of WF in year t

The elements required to forecast the Town’s bonding capacity with the BCM are therefore:

- 2024 end-of-year (EOY) balance of the WF (i.e., cash-flow modeling start point)
- Forecast of WF revenues over the POA
- Forecast of WF expenditures over the POA
- Forecast of debt service over the POA

Data Sources

The Town shared numerous budget documents, rate and fee schedules, and historical datasets with WestWater to support the modeling effort, while other publicly-available sources were obtained from web searches. The primary sources utilized are listed below with a brief description.

- **WF Audited Financials** – Audited financial statements providing the net position, changes in net position, assets, and cash flows for the WF for the years 2020–2024.⁵
- **WF Budget** – Budgeted capital and operating activity of the WF for the years 2021–2025.⁶
- **WF Account Statements** – Listing of current and noncurrent assets, liabilities, and net position of the WF for end-of-year 2019–2024.⁷

⁵ *Financial Statements, December 31, 2020–2024* (including independent auditors’ report). Town of Severance, Colorado. Obtained from the Office of the State Auditor, Local Government Audit Division. ([link](#))

⁶ Microsoft Excel workbook providing 2021–25 budgeted Water Fund account activity. Uploaded by Town to SharePoint folder.

⁷ *Town of Severance Statement of Net Position Proprietary Funds*. December 31, 2019–2024. Emailed to WestWater June 5, 2025.

- **Raw Water Acquisition Fee (WAF)** – WAF fee revenues collected for the period January 2020–March 2025. This fee is collected in lieu of water rights dedications for Town infill development (with some select exceptions).⁸
- **Capital Improvement Plan (CIP)** – Planned funding requests to support WF-related capital improvements for the 10-year period 2025–2034.⁹ The CIP was reviewed with the Town Manager to identify those line items to be included in the modeling exercise.¹⁰
- **Water Rates** – Fee schedules for water service years 2020–2025 detailing volumetric fees and monthly base charges by account class and tap size. The Town’s water service year spans November to October of the following year.¹¹
- **Impact Fees** – Fee schedule for water utility impact fees for service year 2025 listing meter charges by size, meter set fee additive cost, and raw water acquisition fee (WAF).¹²

The WF Audited Financials serve as the primary data source for developing the forecasted non-rate revenue and expense streams used in the BCM. Comparison of the WF Audited Financials and the budgeted financial activity reported in the WF Budget revealed significant differences in certain years. The WF Budget is useful for comparison, and for providing insights to the Town’s planning process, but the 2020–2024 activity reported in the WF Audited Financials reveal the actual movement of the WF over the five years preceding the POA.

Modeling the Funds Available for Debt Service (FADS)

Historical Cash Flow Activity & Application to BCM

For the purposes of this analysis, the WF account balance is a measure of the liquid aspects of the WF—i.e., a measure of the funds available to contribute to a bond payment, or FADS. This can be roughly approximated as the sum of the operating budget, non-operating budget, and capital-related financing activities (such as plant investment fees). Notably, this is exclusive of the value assigned to capital assets, such as real estate or water infrastructure, which comprise a majority of total assets by value.

Table 1 summarizes WF cash flows (in millions of dollars) by activity type for the years 2020–2024, the five-year average for each line item, and the final column indicates how it will (or won’t be) used in the BCM. The year-over-year account summary identifies the annual change in the fund’s liquid holdings and identifies the resulting EOY balance. The 2020 beginning balance was provided in the Audited Financials. The proposed target reserves do not impact the ultimate DSCR but are provided for informational purposes. These targets are based on standard rate-setting guidance and are common to Front Range communities.

⁸ Microsoft Excel workbook providing January 2020–March 2025 raw water acquisition fee collections. Uploaded by Town to SharePoint folder.

⁹ *Capital Improvements: 10-Year Plan*. 2025 Town of Severance Budget: Adopted Version – 12/10/2024. Obtained from ClearGov.com ([link](#))

¹⁰ July 16, 2025, call with Town Manager regarding financial modeling inputs, data sources, and initial revenue results.

¹¹ Fee schedule documents for Town water rates for water service years 2020–25. Uploaded to SharePoint folder.

¹² *2025 Fee Scheule: Utilities Impact Fees – Water*. Town of Severance. ([link](#))

The primary data source for the table is the Audited Financials, though aggregated line items from the Financials were further broken out in the table when possible. The language used in the final column of **Table 1**—indicating how a line item is applied in the BCM—is explained below.

- **Cont. w/escal. (multiple items)** – These items are carried into the BCM and forecasted across the POA based on the 2020–2024 data and a specified escalation rate, or are derived in future years based on a specific calculation that is explained in the applicable section.
- **Discontinue (multiple items)** – These items are not carried into the BCM. Their omission is based on either guidance from the Town or lacking a non-zero value in most of the evaluated years.
- **Rate Model (Water rates revenues)** – Water rates revenues are included in the BCM, but the historical values are supplanted with the rate model developed and discussed in the following report section.
- **Thru 2028 (WAF)** – Based on guidance from the Town, this revenue stream is expected to be fully exhausted by 2028 so is modeled as such in the BCM.
- **Thru 2029 (PIF)** – The PIF is supporting the preconstruction and design of significant infrastructure that will be bonded for by 2030, at which point these specific fees will cease and be replaced with a fee formulated to cover bond payments.
- **Thru 2025 (NISP capital costs)** – Northern Water is asking NISP participants to bond for construction costs in 2026. Pre-construction and design costs, represented in this line item, will cease upon the commencement of construction.
- **CIP (non-NISP capital costs)** – The Town’s Capital Improvement Plan (CIP) is used in the forecasting of non-NISP and non-bonding capital expenditures in lieu of projecting based on the historical data. Rather than base

The following sections discuss the WF revenues and expenses modeled in the BCM.

Table 1. Cash Flow Analysis of WF & Description of BCM Application, 2020–2024 (\$M)

Description	Activity Type	2020	2021	2022	2023	2024	5-Yr Avg	BCM Notes
Sources of Funds								
Water rates revenues	Operating	\$1.55	\$1.54	\$1.87	\$2.11	\$2.86	\$1.99	Rate Model
Other operating receipts	Operating	\$0.00	\$0.20	\$0.13	\$0.03	\$0.02	\$0.08	Cont. w/escal.
Sale of NISP shares	Capital & Financing	\$0.00	\$0.00	\$0.00	\$0.00	\$5.81	\$1.16	Discontinue
Raw water acqu. fee (WAF)	Capital & Financing	\$0.53	\$0.82	\$0.72	\$0.55	\$0.00	\$0.52	Thru 2028
Plant investment fees (PIF)	Capital & Financing	\$5.80	\$2.78	\$1.30	\$1.46	\$0.33	\$2.33	Thru 2029
Investment Earnings	Investing	\$0.16	(\$0.06)	(\$0.23)	\$0.65	\$0.58	\$0.22	Cont. w/escal.
Fund transfers in	Noncapital Financing	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Discontinue
Total Sources		\$8.05	\$5.27	\$3.79	\$4.80	\$9.60	\$6.30	
Uses of Funds								
Cash paid to employees	Operating	\$0.31	\$0.27	\$0.32	\$0.35	\$0.45	\$0.34	Cont. w/escal.
Cash paid to suppliers	Operating	\$1.36	\$0.90	\$1.70	\$1.36	\$1.51	\$1.37	Cont. w/escal.
Acqu. of capital assets (NISP)	Capital & Financing	\$1.00	\$0.73	\$0.95	\$1.16	\$1.37	\$1.04	Thru 2025
Acqu. of capital assets (other)	Capital & Financing	\$3.25	\$4.42	\$1.57	\$5.47	\$1.22	\$3.19	CIP
Debt payments	Capital & Financing	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	Discontinue
Fund transfers out	Noncapital Financing	\$0.00	\$0.20	\$0.00	\$0.05	\$0.01	\$0.05	Discontinue
Total Uses		\$5.93	\$6.52	\$4.55	\$8.39	\$4.56	\$5.99	
Year-Over-Year Account Summary								
Annual Surplus (Deficiency) = Net Revenues		\$2.12	(\$1.25)	(\$0.75)	(\$3.60)	\$5.03	\$0.31	
Beginning Balance (BOY Net Position)		\$15.86	\$17.98	\$16.73	\$15.97	\$12.38	\$15.78	
Ending Balance (EOY Net Position)		\$17.98	\$16.73	\$15.97	\$12.38	\$17.41	\$16.09	
Proposed Target Reserves								
Operations & Maintenance (90 days O&M)		\$0.41	\$0.29	\$0.50	\$0.42	\$0.48	\$0.42	
Capital Reserve (1-year Depreciation Expense)		\$0.13	\$0.21	\$0.26	\$0.30	\$0.30	\$0.24	
Total Proposed Target Reserves		\$0.54	\$0.50	\$0.76	\$0.72	\$0.79	\$0.66	

Water Fund Revenues

WF revenue accounts are categorized as either *restricted* or *non-restricted*. Restricted accounts are earmarked for growth activities or activities associated/caused by growth, while unrestricted accounts are afforded more freedom in their allocation.¹³ Future capital expenses being considered in the BCM are all associated with growth and therefore both restricted and non-restricted accounts are considered accessible revenue streams to support bond payments. Restricted assets include the WAF and the PIFs.

As shown in **Table 1**, the revenue streams to be for the duration of the POA (2025–2055) include water rates revenues, other operating receipts, plant investment fees (PIF), and investment earnings, while the raw water acquisition fee (WAF) is modeled through 2028.

¹³ July 22, 2025, conversation with the Town Finance Director, Efrain Lemus, concerning financial statements, budgets, and fee structures. Mr. Lemus explained that the total interest and dividends accrued to the Town in a given year is considered attributable to individual funds roughly in proportion to fund size relative to the Town's total budget.

Water Rates

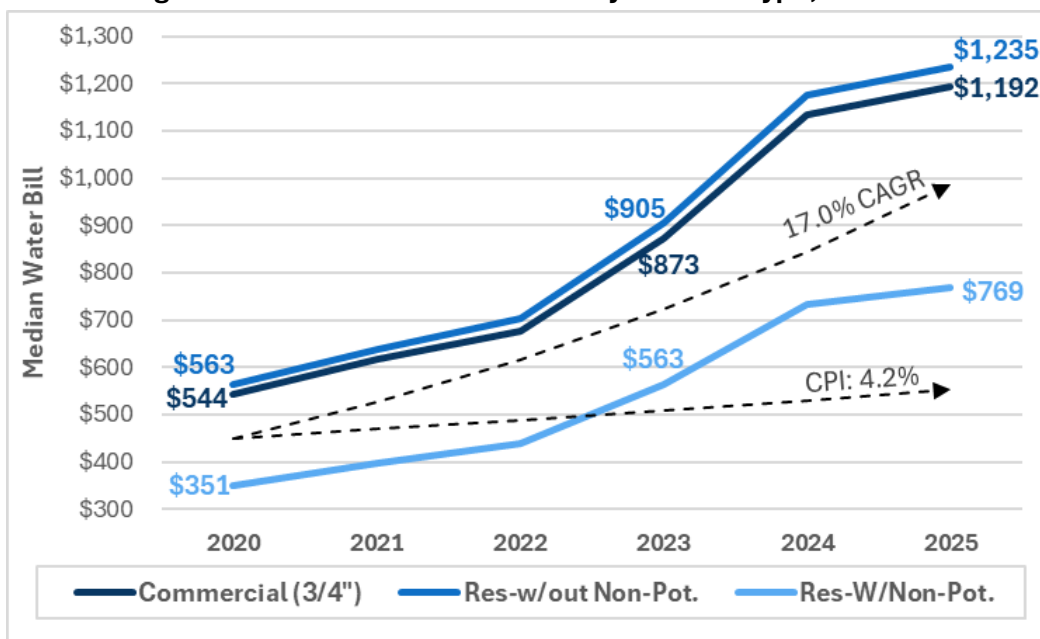
Water rates are comprised of a fixed monthly base charge per account and a volumetric charge per thousand gallons (kgal) consumed per month. Historical water rates spanning water service years 2020–2025 were provided by the Town and used as context to determine appropriate assumptions for future-year charges and escalation. As shown in **Table 2**, water rates escalated significantly from 2020–2025. Rates grew at a 17% compound annual growth rate (CAGR) from 2020–2025, with the highest jump being 30% from 2023–2024. Correspondence with the Town Manager indicated that the rate increases over this period were to cover past WF deficiencies and that such significant rate hikes are not expected in the coming years¹⁴—evidenced by the 5% increase from 2024–2025. **Figure 1** shows the median annual water bill for the typical single-family residential (single family) and commercial accounts (3/4” tap) across the data period based on the historical water demand by account data shared by the Town for the 2025 Demand Analysis.

Table 2. Historical Water Rates & Year-over-Year Percent Change, 2020–2025

Monthly Base Rate & Volumetric Rate by Year (3/4” Tap)*	Year-over-Year Change in Rates					2020–25						
	2020	2021	2022	2023	2024	2025	'20-21	'21-22	'22-23	'23-24	'24-25	CAGR
Base (\$/mo.)	\$16.45	\$18.70	\$20.57	\$26.48	\$34.42	\$36.14	13.7%	10.0%	28.7%	30.0%	5.0%	17.0%
Vol (\$/kgal)	\$3.84	\$4.35	\$4.78	\$6.16	\$8.01	\$8.41	13.3%	9.9%	28.9%	30.0%	5.0%	17.0%

*Analysis of Town accounts found that 95%+ of all single family and commercial accounts were a ¾” tap. Furthermore, single family and commercial base and volumetric charges are the same for ¾” tap.

Figure 1. Median Annual Water Bill by Account Type, 2020–25



¹⁴ June 4, 2025, call with Town Manager regarding 2025 Demand Analysis and historical water rates and account types.

The BCM assumes that rate escalation will stabilize in future years and is modeled to increase at a 10% CAGR from 2025–2030, tapering down to 5% CAGR from 2030–2040, and finally to a 2.5% CAGR from 2040–2055. Rate escalation by period is shown in **Table 3**.

The Town has three different tap categories for residential users, all of which are ¾-inch, and six categories for commercial users, ranging from 1-inch to 4-inch taps. Analysis of the historical account data revealed that greater than 95% of commercial accounts were ¾-inch taps. Furthermore, 2020–2025 single family and commercial base and volumetric charges are the same for ¾-inch taps. Therefore, all new single family and commercial accounts added in future years are assumed to be ¾-inch taps and assessed at the same monthly base charge and volumetric rate.

The 2025 Demand Analysis projects the construction of the Town’s first multifamily residential housing developments (multifamily). The expectation is that 195 multifamily units will be constructed in the Town by 2030. The multifamily developer, Journey Homes, has built multifamily housing in other northern Colorado communities that has averaged five units per building. Therefore, the BCM assumes five units per multifamily account—equaling 39 multifamily accounts serving five units each. To accommodate the capacity needs of five units, multifamily accounts are modeled as a 1-inch tap.

The Town’s water rate schedules do not include a multifamily category, nor do they include any residential 1-inch tap category. The commercial 1-inch tap monthly base charge for the 2025 water service year is therefore used as the baseline for each multifamily account. **Table 4** applies the escalation rates from **Table 3** to the 2025 service year rates to forecast water rate charges by account type by decade across the 31-year modeling POA.

Table 3. Water Rates Escalation

Period	Rate
2025–2030	10.0%
2030–2040	5.0%
2040–2055	2.5%
2025–55 CAGR	4.55%

Table 4. Escalated Rate Charges by Decade

Charge & Tap Size	2025	2035	2045	2055
Volumetric Rate (\$/kgal)				
All Tap Sizes	\$8.41	\$17.29	\$24.96	\$31.95
Base Rate (\$/mo.)				
¾-inch Tap (SF & Com)	\$36.14	\$74.28	\$107.27	\$137.31
1-inch Tap (Multifamily)	\$90.33	\$185.67	\$268.08	\$343.25

Applying the forecasted rates to the three demand scenarios specified in the 2025 Demand Analysis (High Bookend, Most Probable, and Low Bookend) yields the water rate revenues used in the BCM. **Figure 2** shows cumulative water rate revenues over the 31-year POA by demand scenario, while **Figure 3** shows the cumulative water rate revenues broken out by account type and rate fee type. The High Bookend demand scenario generates approximately 17% more revenue than the Most Probable and 40% more than the Low Bookend over the POA. The Most Probable demand scenario generates 20% more rate revenue than the Low Bookend over the 31-year period. Under any scenario, single family accounts comprise 95% of rate revenue generation, while multifamily and commercial accounts make up 2%–3% of revenue. Finally, the revenue generation ratio between base charge and volumetric rates ranges from 44%/56% under High Bookend to 55%/45% under Low Bookend.

Figure 2. Cumulative Water Rates Revenues by Scenario over POA

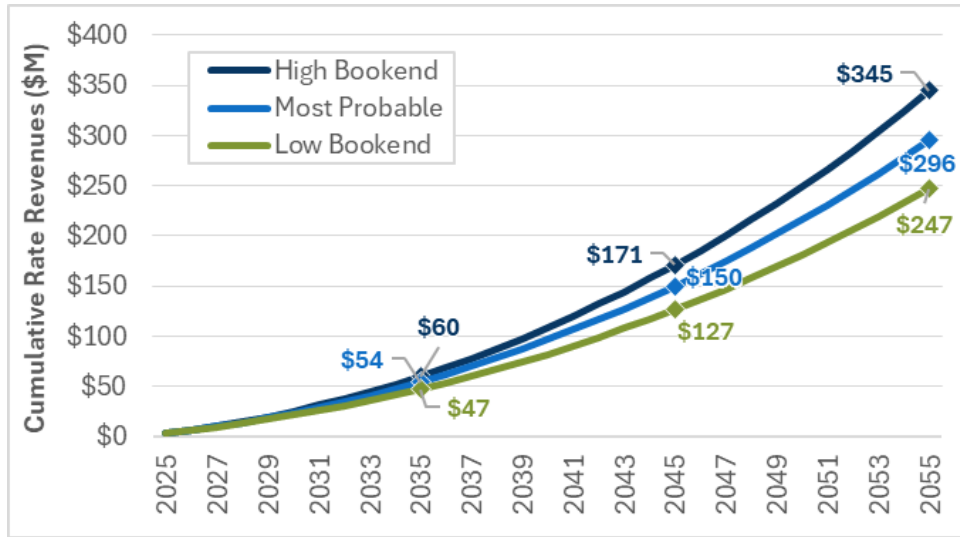
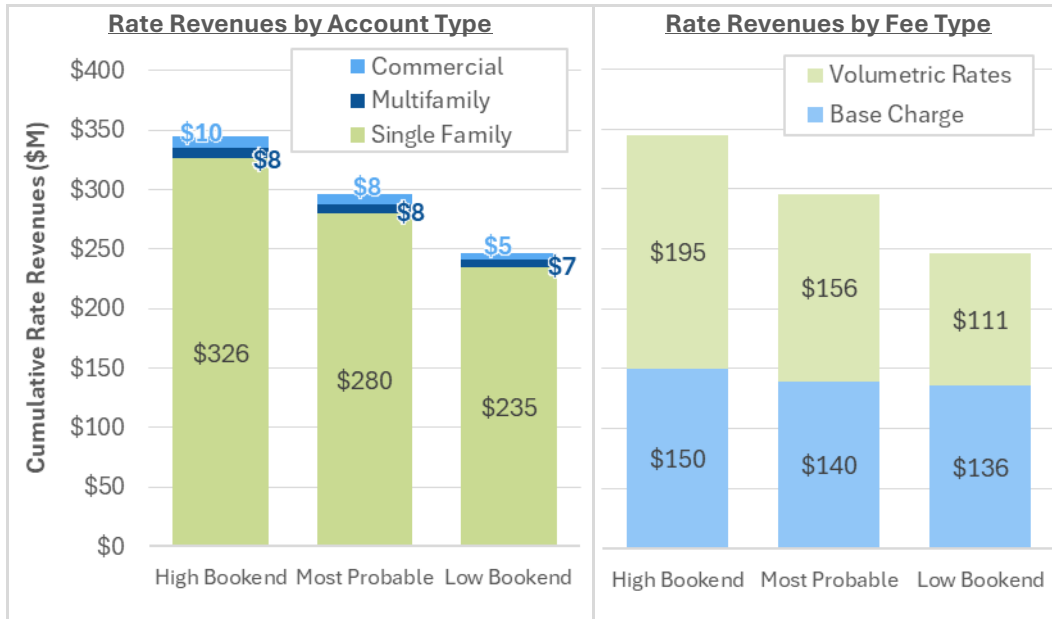


Figure 3. Water Rates Revenues over POA by Scenario, Account Type, & Fee Type



Investment Earnings

The Audited Financials reported investment earnings averaging \$0.22 million for 2020–2024, with an overall upward trend. Communication with the Town indicated that an active effort has been made in the past two years to grow interest and dividend revenues, and that 2023–2024 returns are a better indication of future year returns than those from 2020–2022.^{15,16} **Table 5** shows that investment

¹⁵ 10 *Ibid.*

¹⁶ 13 *Ibid.*

earnings have indeed increased since 2023, averaging 4.4% of the WF beginning-of-year (BOY) balance in that time. The BCM assumes that interest and dividend revenue is realized over the POA at 4.0% of BOY balance.

Table 5. Investment Earnings Revenues, 2020–2024

	2020	2021	2022	2023	2024
Investment Earnings (\$M)	\$0.16	(\$0.06)	(\$0.23)	\$0.65	\$0.58
Percent of BOY Balance	1.03%	-0.36%	-1.35%	4.08%	4.65%

Meter Set Fees

Meter set fees are captured as part of the water rates revenues in **Table 1** and have historically been a minor source of growth revenue to the WF. However, starting in 2025, meter installs will no longer be performed nor arranged by the town, and therefore, the town will not be collecting meter fees nor meter set fees. Based on guidance from the Town, this revenue stream is not included in the BCM.¹⁷

Raw Water Acquisition Fees (WAF)

The Town’s Water Acquisition Fee (WAF) is similar to what is commonly known as a “cash-in-lieu” fee, which municipalities charge developers for the cost of acquiring raw water to supply a new development. However, Severance only allows for the WAF to be paid for infill, while all new development requires dedication of water rights (with some select exceptions).¹⁸ A follow-up conversation with the Town Finance Director indicated that there is minimal infill left to be developed and infill opportunities will likely be exhausted by 2028.¹⁹

To model the WAF fee revenue attributable to the remaining infill opportunities the BCM assumes the 2020–2024 average number of accounts will be developed for the period 2025–2028. The fee per account is escalated at a rate comparable to northern Colorado water rights acquisition prices (6.0% annually). The revenue stream grows from \$0.55 million in 2025 to \$0.69 million in 2028 and then goes to \$0 for the remainder of the POA (2029–2055). The historical analysis and forecasted revenues are shown in **Table 6**.

Table 6. Historical & Forecasted WAF Revenues & Accounts

WAF Aspect	Historical WAF Revenue*					2020–24	WAF Revenue Forecast over POA				
	2020	2021	2022	2023	2024	Average	2025	2026	2027	2028	2029–55
Revenue (\$M)	\$0.53	\$0.82	\$0.72	\$0.55	\$0.14	\$0.55	\$0.55	\$0.62	\$0.65	\$0.69	\$0.0
Accounts	60	74	87	67	23	62	62	62	62	62	0
Median \$/Acct	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375	\$9,940	\$10,530	\$11,170	\$0

*WAF data is through March 2025. 2025 WAF revenue is therefore likely an underestimate of total 2025 WAF fees and not evaluated.

¹⁷ 10 *Ibid.*

¹⁸ 10 *Ibid.*

¹⁹ 13 *Ibid.*

Local Plant Investment Fees (PIFs)

Local Plant Investment Fees (PIFs) are fees collected to fund capital projects. Based on a review of the CIP and discussions with the Town, the PIF line item in **Table 1** is likely an aggregate of the fees collected to support capital expenditures for NISP, the Cobb Lake Regional Water Treatment Plant (Cobb Lake WTP), and the Raw Water Acquisition Program. As mentioned above, the WAF is being phased out by 2028, and both NISP and the Cobb Lake WTP are going to be funded through bonds which are assumed to be issued in 2026 and 2029, respectively. The PIF is therefore included in the BCM through 2029 and excluded for the remainder of the POA.

As can be seen in **Table 1**, PIF revenue has steadily declined from 2020–2024. The BCM therefore assumes the average for the last two data years (\$0.89 million) through 2029, with no escalation applied. Note that this specific fee(s) will cease but will be replaced with an annual fee(s) formulated to cover the construction bond payments.

Other Operating Receipts

As shown in **Table 1**, other operating receipts is the smallest revenue stream of those carried into the BCM. The five-year average for this revenue stream is \$0.08 million and this value is used as the starting point in the model and escalated using the same thresholds as the water rates revenues (see **Table 3**).

Summary of Forecasted Revenues

The Town’s revenue streams are summarized in **Table 7** below. Revenues are forecasted through 2055 to allow for the BCM to project the Town’s maximum capacity for a 30-year bond. Water rates are expected to provide the majority of the Town’s revenue stream over the next 30 years, but investment earnings will provide a significant source of revenue as well. The only revenue stream that is directly dependent on growth scenario is the water rates. However, as investment earnings are based on BOY balance, they are indirectly affected by the selection of a growth scenario. The table below shows the revenue estimates for each demand scenario by decade of the POA.

Table 7. Summary of Annual Revenues over POA by Decade & Demand Scenario (\$M)

Revenue Type	2025	2035			2045			2055		
	All Scen.	Low	MP	High	Low	MP	High	Low	MP	High
Water Rates	\$2.91	\$5.79	\$6.95	\$7.91	\$9.63	\$11.62	\$13.61	\$14.26	\$17.35	\$20.97
Other Oper. Receipts	\$0.08	\$0.16	\$0.16	\$0.16	\$0.24	\$0.24	\$0.24	\$0.30	\$0.30	\$0.30
WAF Revenues	\$0.55	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PIF Revenues	\$0.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Investment Earnings	\$0.70	\$1.33	\$1.60	\$1.79	\$2.60	\$3.68	\$4.50	\$4.66	\$7.30	\$9.42
Totals	\$5.13	\$7.28	\$8.71	\$9.86	\$12.46	\$15.54	\$18.35	\$19.22	\$24.95	\$30.69

Water Fund Expenses

The expenses to be incurred throughout the duration of the POA (2025–2055) include wages to employees and payments to suppliers—both operating expenses. The capital asset expenditures for NISP and other CIP items are introduced and cutoff along specific timelines based on when a bond is taken out for those elements. Existing debt service is also discussed in this section.

Operating Expenses

The sum of the two operating expense line items in **Table 1** averaged \$1.71 million from 2020–2024 and each grew steadily over that period. The BCM therefore uses the 2024 value for each and escalates it across the POA at a series of rates based on the US Bureau of Reclamation’s Operations and Maintenance Index (see **Table 8**).²⁰ The costs are also adjusted to increase in direct proportion to demand under the three demand scenarios. The 2024 sum of these operating expenses is \$1.96 million, which escalates to \$9.39–\$10.95 million in 2055, depending on the demand scenario.

Table 8. Operating Expenses Escalation

Period	Rate
2025–2030	4.3%
2030–2040	3.4%
2040–2055	3.1%
2025–55 CAGR	3.4%

Capital Expenses

The WF-related items included in the Town’s 10-year capital improvement plan (CIP) are summarized in **Table 9**. At the direction of the Town Manager, only the NISP Program, Cobb Lake WTP, Emergency Water System Connection (EWSC), NISP Program, and Southline Water Loop should be considered for BCM inclusion. He further stated that the Southline Water Loop and EWSC will likely be paid for directly from the WF, while NISP and the Cobb Lake WTP will be bonded for.²¹ **Table 10** reports the annual funding request plan through 2034 for the item considered in the BCM. The Town’s Finance Director provided that the annual costs were estimated at a 2025 price level and escalated through 2034 at a 5% CAGR.²²

As shown above in **Table 1**, the NISP capital expenditure has averaged \$1.04 million for the past five years, while the remaining capital expenditures (denoted as *other* in **Table 1**) averaged \$3.19 million. The CIP estimates the 2025 NISP payment to be \$0.50 million, which is therefore the value used in the BCM for that year. As previously explained, this cost item is omitted from the BCM after 2025 due to it being a pre-construction and design cost that ceases when construction costs are bonded for (assumed 2026).

The Cobb Lake WTP is expected to be bonded for in 2029, and therefore the final capital expense included for that item is in 2028. The 2027 and 2028 Cobb Lake WTP costs of \$10 and \$12 million shown in **Table 10** are assumed to be preliminary construction cost estimates, which will be covered by the bond issuance, and are therefore omitted. Rather, the average of the preconstruction and design costs seen in 2025–2026 (\$0.16 million) is escalated at 5% CAGR and input as costs for 2027 and 2028.

The Southline Water Loop has an estimated cost of \$1.50 million in 2025 and no costs beyond that while the EWSC has expenses totaling \$14.23 million over the four-year span 2030–2033 (see **Table 10**). As capital expenditures beyond 2034 are not estimated, the average for the included items over

²⁰ USBR O&M Index ([link](#))

²¹ 10 *ibid.*

²² 13 *ibid.*

the 10-year CIP, exclusive of planned bonding principal, is carried forward through the end of the POA (2055) at a 3.5% CAGR.²³ This represents a \$1.69 million expense in 2034 and escalates to \$3.47 million in 2055. **Table 11** shows the capital expenses modeled in the BCM pursuant to the data treatments discussed above.

Table 9. WF-Related CIP Funding Requests, 2025-2034

Department	Item	Included in BCM?	Total Funding Request, 2025-34
W-2801 Regional Water Treatment Plant	Cobb Lake WTP	Yes	\$22,300,000
W-2302 Emergency Water System Connection	Emergency Water System Connection	Yes	\$14,230,000
Prog-Water2 NISP Program	NISP Program	Yes	\$7,225,000
W-2301 Southline Water Loop	Southline Water Loop	Yes	\$1,498,400
Prog-Water3 Water Acquisition Program	Water Acquisition Program	No	\$9,588,445
Water Capital	Digital Water Meter Reading System	No	\$600,000
Total Funding Request for WF-Related Items			\$55,441,845
Total 2025-34 Funding Request for Included Items			\$45,253,400

Table 10. CIP Funding Request Items Considered in BCM – Costs by Year, 2025-2034 (\$M)

CIP Item (\$M)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	'25-34 Tot.
Cobb Lake WTP*	\$0.13	\$0.18	\$10.00	\$12.00	--	--	--	--	--	--	\$22.30
EWSC	--	--	--	--	--	\$0.49	\$4.54	\$4.20	\$5.00	--	\$14.23
NISP Program	\$0.50	\$0.50	\$0.60	\$0.55	\$0.65	\$0.73	\$0.85	\$0.88	\$0.93	\$1.05	\$7.23
Southline Water Loop	\$1.50	--	--	--	--	--	--	--	--	--	\$1.50
Total by Year	\$2.13	\$0.68	\$10.60	\$12.55	\$0.65	\$1.22	\$5.39	\$5.08	\$5.93	\$1.05	\$45.25

Table 11. Capital Expenses by Year Included in BCM, 2025-2034 (\$M)

CIP Item (\$M)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	'25-34 Tot.
Cobb Lake WTP*	\$0.13	\$0.18	\$0.16	\$0.17	--	--	--	--	--	--	\$0.62
Emer. Wtr. Sys. Connx.	--	--	--	--	--	\$0.49	\$4.54	\$4.20	\$5.00	--	\$14.23
NISP Program	\$0.50	--	--	--	--	--	--	--	--	--	\$0.50
Southline Water Loop	\$1.50	--	--	--	--	--	--	--	--	--	\$1.50
<i>Esc. Average (2034+)*</i>	--	--	--	--	--	--	--	--	--	\$1.69	\$1.69
Total by Year	\$2.12	\$0.18	\$0.16	\$0.17	\$0.00	\$0.49	\$4.54	\$4.20	\$5.00	\$0.00	\$16.85

*As capital expenses beyond 2034 have not been estimated by the town, the average for the included items over the 10-year CIP, exclusive of planned bonding principal, is carried forward through the end of the POA at a 3.5% CAGR based on the ENR CCI (see footnote 23).

²³ Approximately the 5-year average movement of Engineering New Record's Construction Cost Index (ENR CCI) for the period 2019-2024. ([link](#))

Existing Debt Service

The Town is currently debt free and has been since 2021.²⁴ The BCM formula accounts for existing debt when calculating bonding capacity, but due to the Town’s debt-free status, the BCM results do not change when accounting for debt. Once the BCM incorporates a bond, that annual bond payment will be treated as existing debt when making the assessment for subsequent bonds.

Summary of Forecasted Expenditures

The Town’s non-bond-related expenditures are summarized in **Table 12**. Operating expenses are the only cost category that continue across the entire duration of the POA. However, the BCM incorporates bond payment estimates associated with the capital infrastructure planned following each item’s expected timeline.

Table 12. Summary of Annual Expenditures over POA by Decade & Demand Scenario (\$M)

Expense Type & Item	2025	2035			2045			2055		
	All Scen.	Low	MP	High	Low	MP	High	Low	MP	High
Operating										
Oper. & Maintenance	\$1.96	\$3.45	\$3.50	\$3.64	\$5.74	\$5.90	\$6.35	\$9.39	\$9.79	\$10.95
Capital										
Cobb Lake WTP	\$0.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Emer. Water Connx.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
NISP Program	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Southline Water Loop	\$1.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Escalated Avg. CapEx	\$0.00	\$1.74	\$1.74	\$1.74	\$2.46	\$2.46	\$2.46	\$3.47	\$3.47	\$3.47
Totals	\$4.09	\$5.20	\$5.25	\$5.38	\$8.20	\$8.36	\$8.81	\$12.86	\$13.26	\$14.42

Forecasted Net Revenues & Funds Available for Debt Service (FADS)

Table 13 summarizes the inputs required for the calculation of forecasted FADS by equations 3–4 (page 2) and reports the resulting forecasted FADS by decade and demand scenario. Note that the 10-year average of net revenues is a strictly forward-looking rolling average and that the forecasted FADS is equal to this value in each year due to the lack of any existing debt service by the Town. Under the high bookend demand scenario the FADS is nearly twice that of the low scenario in 2025 and is nearly three-times the low by 2055.

²⁴ 2 *Ibid.*

Table 13. Calculation of Forecasted FADS over POA by Decade & Demand Scenario (\$M)

Financial Metric	2025			2035			2045			2055		
	Low	MP	High	Low	MP	High	Low	MP	High	Low	MP	High
Revenues	\$5.13	\$5.13	\$5.13	\$7.28	\$8.71	\$9.86	\$12.46	\$15.54	\$18.35	\$19.22	\$24.95	\$30.69
Expenditures	\$4.09	\$4.09	\$4.09	\$5.20	\$5.25	\$5.38	\$8.20	\$8.36	\$8.81	\$12.86	\$13.26	\$14.42
Net Revenues	\$1.04	\$1.04	\$1.04	\$2.09	\$3.46	\$4.48	\$4.26	\$7.18	\$9.53	\$6.36	\$11.69	\$16.28
10-Yr Average*	\$1.59	\$2.26	\$2.73	\$3.16	\$5.19	\$6.77	\$5.16	\$9.06	\$12.31	\$6.36	\$11.69	\$16.28
Existing Debt Service	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Forecasted FADS†	\$1.59	\$2.26	\$2.73	\$3.16	\$5.19	\$6.77	\$5.16	\$9.06	\$12.31	\$6.36	\$11.69	\$16.28

*10-year forward-looking average of net revenues—inclusive of current year and the 9 subsequent years.

†Forecasted Funds Available for Debt Service is calculated as the 10-year forward-looking average net revenues less same-year existing debt service.

Results – Estimating Debt Capacity

With the model fully built out through 2055, Severance’s financial capacity was estimated in terms of the additional debt service the WF can take on while staying within a set DSCR of 1.25. The DSCR calculation takes forecasted FADS over existing debts and represents the WF’s ability to generate enough cash to satisfy its financial obligations. Although the State of Colorado has a DSCR requirement of 1.10 for state water loans, a target ratio of 1.25 is used to allow for more conservative planning. The forecasted FADS is converted to an approximated maximum bond payment by adjusting it by the 1.25 DSCR (see Equation 2 on page 2). The present value of the maximum bond payment discounted by the assigned coupon rate over the term yields the estimated bond principal.

The results using the Most Probable demand scenario across the POA are shown in **Table 14** below. The 20-year bond scenario assumes an interest rate of 4.44%, while the 30-year bond scenario assumes an interest rate of 4.68%—both obtained from the BondWave yield index for an AA-rated municipality.²⁵ As an example, in 2026 the WF could take on an additional annual debt payment of \$2.0 million while staying within the 1.25 DSCR target. Assuming a bond is applied for in 2026 and funds are allocated in 2027, a 20-year bond with a principal of \$26.2 million could be issued as soon as 2027. Alternatively, a 30-year bond could be issued for \$31.9 million in the same year. Results under the Low and High Bookend demand scenarios are shown in **Table 15** and **Table 16**.

The results of this financial analysis suggest that the Town of Severance’s WF has bonding capacity to take on additional debts. This indicates the Town has an ability to make water purchases and/or investments in new water supplies and associated infrastructure projects in the coming years, allowing the Town to prepare for future water demands projected in the 2025 Demand Analysis. The WF’s ability to take on additional debt is entirely reliant on its FADS, which is largely affected by revenue, operating and maintenance costs, capital costs, and existing debt service. Future revenue and expenses are highly uncertain over long periods (10+ years) and as such significant uncertainty is incorporated in the BCM. Despite this limitation, this financial assessment provides insight into the WF’s future financial capacity that can be used for planning and budgeting purposes. More detailed financial models will be developed for select water supply alternatives in the Town’s Water Supply Master Plan that will outline the recommended timing and financial structure of water

²⁵ <https://emma.msrb.org/ToolsAndResources/MarketIndicators>

acquisitions and water project investments based on the bonding capacity identified in this memorandum.

Table 14. Bonding Capacity Results – Most Probable Demand Scenario (\$M)

Year	WF Annual Account Metrics			Bonding Capacity Calculations		
	Average Net Revenues	Existing Debt Service	Forecasted FADS	Max Bond Payment	Bond Principal	
					20-Yr (4.0%)	30-Yr (4.5%)
2025	\$2.3	\$0.0	\$2.3	\$1.8	\$23.6	\$28.8
2026	\$2.5	\$0.0	\$2.5	\$2.0	\$26.2	\$31.9
2027	\$2.5	\$0.0	\$2.5	\$2.0	\$26.7	\$32.5
2028	\$2.6	\$0.0	\$2.6	\$2.1	\$27.1	\$33.1
2029	\$2.6	\$0.0	\$2.6	\$2.1	\$27.5	\$33.5
2030	\$2.7	\$0.0	\$2.7	\$2.2	\$28.3	\$34.6
2031	\$2.9	\$0.0	\$2.9	\$2.3	\$30.6	\$37.3
2032	\$3.5	\$0.0	\$3.5	\$2.8	\$37.1	\$45.2
2033	\$4.1	\$0.0	\$4.1	\$3.3	\$43.3	\$52.8
2034	\$4.8	\$0.0	\$4.8	\$3.9	\$50.5	\$61.6
2035	\$5.2	\$0.0	\$5.2	\$4.2	\$54.3	\$66.3
2036	\$5.6	\$0.0	\$5.6	\$4.5	\$58.2	\$71.0
2037	\$5.9	\$0.0	\$5.9	\$4.8	\$62.1	\$75.8
2038	\$6.3	\$0.0	\$6.3	\$5.1	\$66.1	\$80.6
2039	\$6.7	\$0.0	\$6.7	\$5.4	\$70.0	\$85.3
2040	\$7.1	\$0.0	\$7.1	\$5.6	\$73.9	\$90.1
2041	\$7.4	\$0.0	\$7.4	\$5.9	\$77.7	\$94.8
2042	\$7.8	\$0.0	\$7.8	\$6.2	\$81.7	\$99.7
2043	\$8.2	\$0.0	\$8.2	\$6.6	\$85.9	\$104.7
2044	\$8.6	\$0.0	\$8.6	\$6.9	\$90.2	\$110.0
2045	\$9.1	\$0.0	\$9.1	\$7.2	\$94.8	\$115.6
2046	\$9.5	\$0.0	\$9.5	\$7.6	\$99.5	\$121.3
2047	\$9.7	\$0.0	\$9.7	\$7.8	\$101.8	\$124.1
2048	\$10.0	\$0.0	\$10.0	\$8.0	\$104.1	\$127.0
2049	\$10.2	\$0.0	\$10.2	\$8.1	\$106.5	\$129.9
2050	\$10.4	\$0.0	\$10.4	\$8.3	\$109.0	\$132.9
2051	\$10.7	\$0.0	\$10.7	\$8.5	\$111.5	\$136.0
2052	\$10.9	\$0.0	\$10.9	\$8.7	\$114.1	\$139.2
2053	\$11.2	\$0.0	\$11.2	\$8.9	\$116.8	\$142.4
2054	\$11.4	\$0.0	\$11.4	\$9.1	\$119.5	\$145.8
2055	\$11.7	\$0.0	\$11.7	\$9.4	\$122.3	\$149.2

Table 15. Bonding Capacity Results – Low Bookend Demand Scenario (\$M)

Year	WF Annual Account Metrics			Bonding Capacity Calculations		
	Average Net Revenues	Existing Debt Service	Forecasted FADS	Max Bond Payment	Bond Principal	
					20-Yr (4.0%)	30-Yr (4.5%)
2025	\$1.6	\$0.0	\$1.6	\$1.3	\$16.7	\$20.3
2026	\$1.7	\$0.0	\$1.7	\$1.4	\$17.8	\$21.7
2027	\$1.6	\$0.0	\$1.6	\$1.3	\$16.8	\$20.5
2028	\$1.5	\$0.0	\$1.5	\$1.2	\$15.8	\$19.3
2029	\$1.4	\$0.0	\$1.4	\$1.1	\$14.7	\$18.0
2030	\$1.4	\$0.0	\$1.4	\$1.1	\$14.2	\$17.3
2031	\$1.4	\$0.0	\$1.4	\$1.2	\$15.2	\$18.5
2032	\$1.9	\$0.0	\$1.9	\$1.5	\$20.3	\$24.7
2033	\$2.4	\$0.0	\$2.4	\$1.9	\$25.1	\$30.6
2034	\$2.9	\$0.0	\$2.9	\$2.4	\$30.8	\$37.5
2035	\$3.2	\$0.0	\$3.2	\$2.5	\$33.1	\$40.3
2036	\$3.4	\$0.0	\$3.4	\$2.7	\$35.4	\$43.1
2037	\$3.6	\$0.0	\$3.6	\$2.9	\$37.6	\$45.9
2038	\$3.8	\$0.0	\$3.8	\$3.0	\$39.8	\$48.5
2039	\$4.0	\$0.0	\$4.0	\$3.2	\$41.9	\$51.1
2040	\$4.2	\$0.0	\$4.2	\$3.4	\$43.9	\$53.5
2041	\$4.4	\$0.0	\$4.4	\$3.5	\$45.8	\$55.9
2042	\$4.6	\$0.0	\$4.6	\$3.7	\$47.8	\$58.3
2043	\$4.8	\$0.0	\$4.8	\$3.8	\$49.8	\$60.7
2044	\$5.0	\$0.0	\$5.0	\$4.0	\$51.8	\$63.2
2045	\$5.2	\$0.0	\$5.2	\$4.1	\$54.0	\$65.8
2046	\$5.4	\$0.0	\$5.4	\$4.3	\$56.2	\$68.5
2047	\$5.5	\$0.0	\$5.5	\$4.4	\$57.2	\$69.8
2048	\$5.6	\$0.0	\$5.6	\$4.5	\$58.3	\$71.2
2049	\$5.7	\$0.0	\$5.7	\$4.5	\$59.5	\$72.5
2050	\$5.8	\$0.0	\$5.8	\$4.6	\$60.6	\$73.9
2051	\$5.9	\$0.0	\$5.9	\$4.7	\$61.7	\$75.3
2052	\$6.0	\$0.0	\$6.0	\$4.8	\$62.9	\$76.7
2053	\$6.1	\$0.0	\$6.1	\$4.9	\$64.1	\$78.2
2054	\$6.2	\$0.0	\$6.2	\$5.0	\$65.3	\$79.7
2055	\$6.4	\$0.0	\$6.4	\$5.1	\$66.5	\$81.2



Table 16: Bonding Capacity Results – High Bookend Demand Scenario (\$M)

Year	WF Annual Account Metrics			Bonding Capacity Calculations		
	Average Net Revenues	Existing Debt Service	Forecasted FADS	Max Bond Payment	Bond Principal	
					20-Yr (4.0%)	30-Yr (4.5%)
2025	\$2.7	\$0.0	\$2.7	\$2.2	\$28.6	\$34.9
2026	\$3.1	\$0.0	\$3.1	\$2.5	\$32.2	\$39.3
2027	\$3.2	\$0.0	\$3.2	\$2.6	\$33.8	\$41.2
2028	\$3.4	\$0.0	\$3.4	\$2.7	\$35.4	\$43.2
2029	\$3.5	\$0.0	\$3.5	\$2.8	\$36.9	\$45.0
2030	\$3.7	\$0.0	\$3.7	\$3.0	\$38.9	\$47.4
2031	\$4.0	\$0.0	\$4.0	\$3.2	\$42.2	\$51.5
2032	\$4.8	\$0.0	\$4.8	\$3.8	\$49.8	\$60.7
2033	\$5.5	\$0.0	\$5.5	\$4.4	\$57.2	\$69.8
2034	\$6.3	\$0.0	\$6.3	\$5.0	\$65.7	\$80.1
2035	\$6.8	\$0.0	\$6.8	\$5.4	\$70.9	\$86.4
2036	\$7.3	\$0.0	\$7.3	\$5.8	\$76.2	\$92.9
2037	\$7.8	\$0.0	\$7.8	\$6.2	\$81.5	\$99.4
2038	\$8.3	\$0.0	\$8.3	\$6.7	\$87.0	\$106.1
2039	\$8.8	\$0.0	\$8.8	\$7.1	\$92.5	\$112.8
2040	\$9.4	\$0.0	\$9.4	\$7.5	\$98.1	\$119.6
2041	\$9.9	\$0.0	\$9.9	\$7.9	\$103.6	\$126.4
2042	\$10.5	\$0.0	\$10.5	\$8.4	\$109.5	\$133.5
2043	\$11.1	\$0.0	\$11.1	\$8.8	\$115.6	\$141.0
2044	\$11.7	\$0.0	\$11.7	\$9.3	\$122.0	\$148.8
2045	\$12.3	\$0.0	\$12.3	\$9.8	\$128.8	\$157.0
2046	\$13.0	\$0.0	\$13.0	\$10.4	\$135.8	\$165.7
2047	\$13.3	\$0.0	\$13.3	\$10.6	\$139.2	\$169.8
2048	\$13.6	\$0.0	\$13.6	\$10.9	\$142.7	\$174.0
2049	\$14.0	\$0.0	\$14.0	\$11.2	\$146.3	\$178.4
2050	\$14.3	\$0.0	\$14.3	\$11.5	\$150.0	\$182.9
2051	\$14.7	\$0.0	\$14.7	\$11.8	\$153.8	\$187.6
2052	\$15.1	\$0.0	\$15.1	\$12.1	\$157.7	\$192.4
2053	\$15.5	\$0.0	\$15.5	\$12.4	\$161.8	\$197.3
2054	\$15.9	\$0.0	\$15.9	\$12.7	\$166.0	\$202.4
2055	\$16.3	\$0.0	\$16.3	\$13.0	\$170.3	\$207.7



Memorandum

To: Nicholas Wharton
From: WestWater Research
Date: July 30, 2025
Re: Demand Analysis Technical Memorandum

Introduction

The Town of Severance (“Severance” or “the Town”) is developing a Water Supply Master Plan (Master Plan) to estimate the Town’s future water demands, assess potential water supply opportunities, and provide recommendations regarding water project investments and water supply portfolio expansion. WestWater Research, LLC (WestWater) has been retained by Severance to facilitate and support the Master Plan’s development, including conducting technical assessments. In this technical memorandum, WestWater estimates Severance’s future water demands on a five-year timestep following a methodology deployed in other regional water demand studies¹ and utilizing the Town’s historic water use data. Understanding the Town’s future water demand is a requirement for long-term water supply planning as it will inform decisions around management and expansion of the Town’s water portfolio, the need (or lack thereof) for future infrastructure projects, and associated budgetary needs. The results of this study forecast the Town’s future water demand at build-out under a range of scenarios, allowing for planning based on risk tolerance, and supporting the establishment of intermediate planning targets.

Methodology

To estimate the Town of Severance’s future water demands, WestWater took a land-based approach that considered the impact of local factors on water demand such as home size, lot size, climate, and price and adjusted demand projections based on a range of predicted future conditions. Demand estimates started on a per tap basis and then used the Town’s suggested future dwelling unit density ranges and future zoning designations within the Town’s Water Service Area (WSA) to predict the total number of taps served by the Town at build-out, again utilizing a range of potential future conditions. Finally, progression toward the total future demand was broken out on a five-year time-step utilizing the Town’s predicted growth rate and population projections. The data sources, summary statistics, data manipulation, and model development are described below with results discussed in the following section.

¹ This demand analysis is modeled after the *Fort Collins Water Supply Vulnerability Study* (2019) and the *Greeley Integrated Water Resources Plan* (2023) and includes methodology deployed by WestWater in master planning efforts for the Town of Wellington and Town of Firestone.

Data

Data for the demand analysis included water use data provided by the Town, home and lot size details sourced from parcel data from the Weld County Assessor's Office, climate projections from the Greeley Integrated Water Resource Plan (2023) and price elasticity coefficients from Sebri 2013.^{2,3} Initial steps taken to clean and organize the data for analysis are described below.

Water Use Data Preparations

Raw water use data was structured as monthly water use (in 10's of gallons) recorded by account from May 2019 through May 2025, with each account representing a single tap. Accounts were categorized as residential or commercial and were flagged where the account utilized non-potable water for irrigation. Seven accounts were removed from the original data set that were for lots which have not yet been developed and inaccurately reflected water readings (likely from when pipes/meters were first installed). Accounts were then matched to their respective Weld County parcel by address and building size (square feet) and lot size (square feet) data were joined to water use data. Prior to account removals, the raw water use data included records for 2,914 taps. After filtering, the data from 2,907 taps remained for analysis.

Total monthly water use was then separated into its seasonal components, referred to as indoor and outdoor water use, by estimating the typical indoor water use in a given year for a given account (averaging the water use for each account for the non-irrigation months of December, January, February, and March in a given year) and removing it from the total water use for that account for the months of April through November.^{4,5}

Water Use Data Overview

In **Figure 1**, the total annual water demand across the five complete years of data (2020-2024) is shown by customer type, ranging from 546 acre-feet (AF) in 2023 to 623 AF in 2022, and averaging 591 AF across the five-year period of record. On average, single-family residential use comprises 95% (561 AF) of total annual water demand in Severance, followed by commercial water demand at 4% (22 AF) and all other⁶ use types at 1% (8 AF) of total demand.

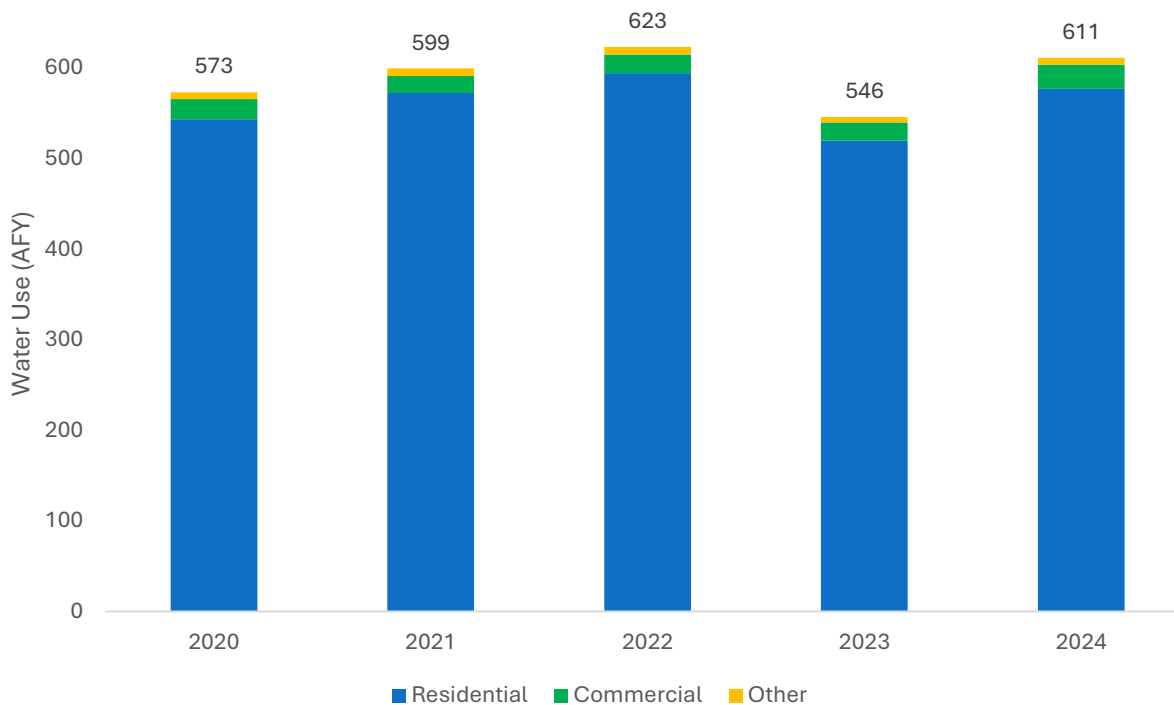
² Sebri, Maamar. (2013). A meta-analysis of residential water demand studies. *Environmental, Development and Sustainability*. 16(3), 499-520.

³ A meta-analysis performed by Maamar Sebri in 2013 reviewed 100 studies which included 638 price elasticity estimates to better understand the relationship between residential water demand and price, among other variables. Coefficients from the reviewed studies ranged from -3.054 to -0.002, averaging -0.365 with a median of -0.291. The coefficients reflect a percent change in water demand per a percent change in price and suggest water use declines as price increases. The mean and median values from the meta-analysis are used in this study as the High Bookend and Most Probable price elasticity coefficients.

⁴ In months April through November where the average indoor water use was greater than the total water use, no outdoor water use was assumed, and the month's total water use was taken as its indoor water use component to avoid introducing a negative outdoor water use and artificially deflating indoor water use. Likewise, in months April through November where total water use equaled zero, zero was maintained as the indoor and outdoor water use and the calculated average indoor use was not introduced. In the same way, this avoided introducing a negative outdoor water use and artificially inflating indoor water use.

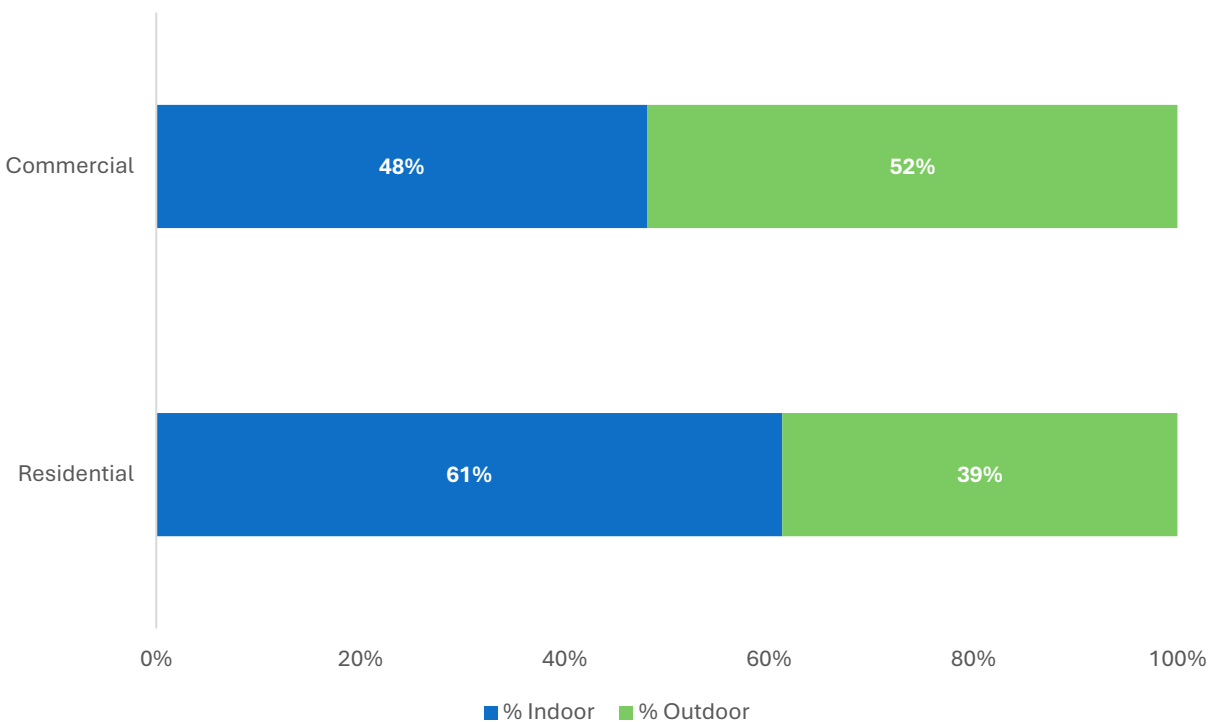
⁵ Whereas this seasonal separation largely reflects indoor versus outdoor water use for residential customers, seasonal variation can occur for a variety of reasons in the commercial sector. Nonetheless, the terminology "indoor" versus "outdoor" water use is used throughout this memorandum.

⁶ Hydrant and Irrigation taps were grouped with taps that were unable to match to a water use category to comprise the "Other" water use category.

Figure 1: Total Annual Water Use by Customer Type

Seasonal water use⁷ also varies by customer type, with commercial water uses having the greatest proportion of seasonal (labeled as outdoor) water use (52% of total water use) compared to single-family residential water users using 39% of total water use for outdoor purposes. Additional seasonal water use for residential customers typically consists of outdoor water use for lawn and ornamental irrigation. Additional seasonal water use for commercial customers is not so clearly defined. This additional use can be related to increased production, increased services, and building cooling in addition to any outdoor watering. **Figure 2** shows the percentage split in seasonal water use, labeled as indoor and outdoor water use to account for the usage types typical of residential customers, by customer type for the 2019 to 2025 period.

⁷ Seasonal water use is defined as additional water use above baseline levels and is typical of the months between April and November.

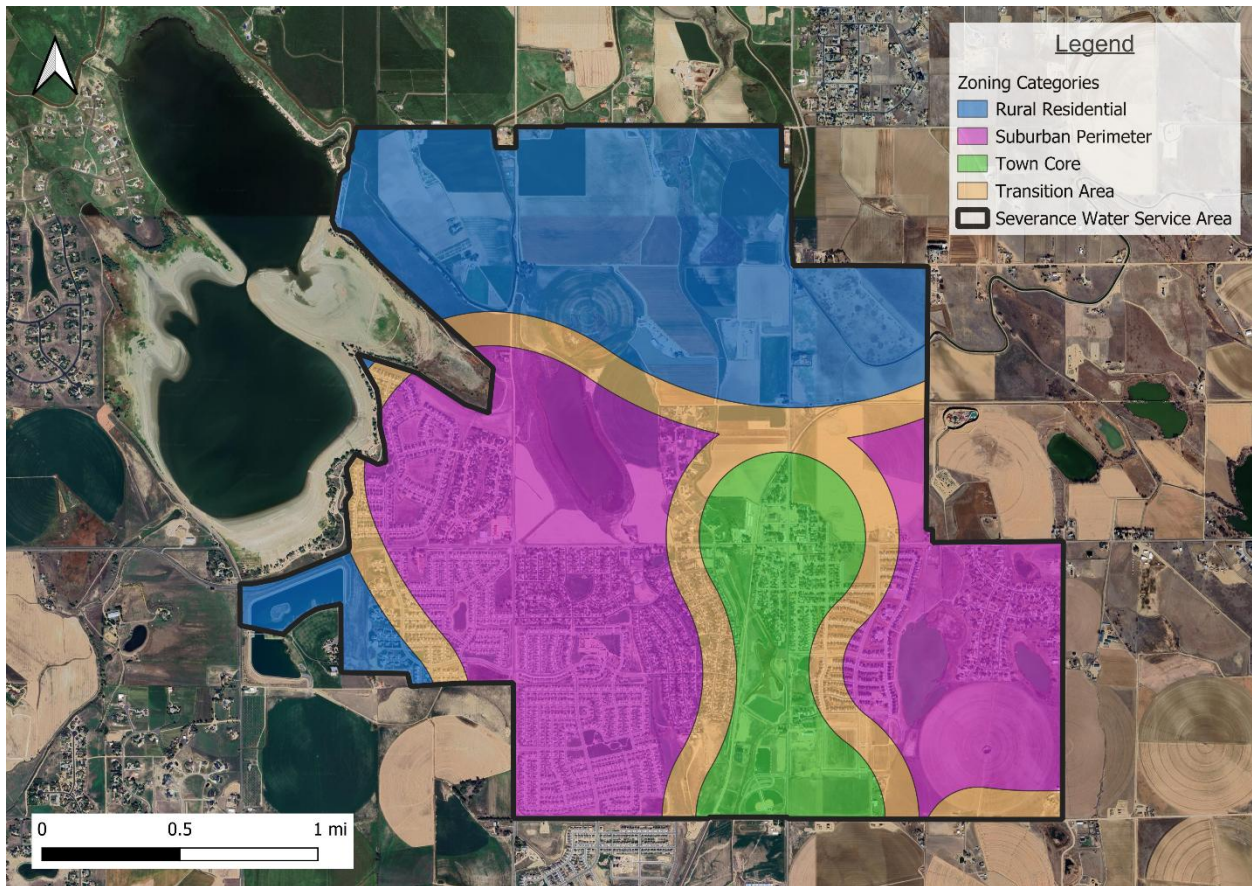
Figure 2: Percent Indoor/Outdoor Use by Customer Type

Land Use Data Preparations and Overview

The Town's zoning designations were recategorized as residential or commercial in order to summarize the total number of acres expected to be developed under each water use type. The "Town Core" zoning category is assumed to be developed in the future as 60% residential and 40% commercial. The Rural-Residential and Suburban Perimeter zoning categories are projected to be developed entirely as single-family residential while Development Nodes are assumed to be entirely industrial. These future land use zoning categories within the Town's WSA are shown in **Figure 3**. The recategorization of each zoning category to its associated water use type in **Table 1** alongside the total number of acres within the WSA under each category. The Town's current developed areas are categorized as 98% residential (856 acres) and 2% commercial (20 acres). The total zoned lands across the WSA follow a similar distribution with 95% residential (3,092 acres), and 5% commercial (159 acres).

Table 1: Summary of Total Acres by Zoning Category

Zoning Category	Use Type	Total Acreage Within WSA	Acres With Existing Taps
Suburban Perimeter	Residential	1,830	600
	Commercial	6	6
Town Core	Residential	229	72
	Commercial	153	14
Rural Residential	Residential	1,033	184
Total		3,251	876

Figure 3: Map of Future Land Use Categories in the Town WSA

Model Development

The steps taken to estimate future municipal water demands at build-out for the Town of Severance are listed below and described in the following sections.

1. Estimate Current per Tap Water Use
2. Summarize Undeveloped Acres by Land Use Category
3. Build Range of Scenarios
4. Estimate Total Number of Taps at Build-out
5. Adjust per Tap Water Use for Future Conditions
6. Sum Demands at Build-out
7. Scale Demands to Population Growth

Step One: Estimate Current per Tap Water Use

Before water demands can be adjusted for future conditions, they must first be defined under current conditions. Using the raw water use data provided by the Town and Weld County parcel data, the number of taps and acres being served by existing taps is summarized in **Table 2**. From there, the average total annual water use (2020–2024) by customer type is used to estimate the Town's

current demand per tap and demand per acre. These demand estimates are further broken down into indoor and outdoor demands. Annual water demand per tap has historically been highest for commercial water users at 0.75 AF per tap, with residential users at 0.21 AF per tap. On a land-basis, water demand remains higher for commercial water users at 1.10 AF per acre, with residential users at 0.69 AF per acre.

Table 2: Current Demand by Tap and by Acreage

	Residential	Commercial
Taps		
Total Taps	2,838	31
Taps With Non-Pot	1,730	0
Taps without Non-Pot	1,108	31
Acreage		
Acres	856	20
Total Taps per Acre	3.32	1.56
Taps With Non-Pot Irrigation per Acre	2.02	0.00
Taps Without Non-Pot Irrigation per Acre	1.29	1.56
Demand By Tap		
Mean Metered Demand (AF) ⁸	562	22
Total Demand per Tap (AF)	0.21	0.75
Indoor Demand per Tap (AF)	0.12	0.35
Outdoor Demand per Tap (AF)	0.21	0.39
Demand by Acreage		
Total Demand per Acre (AF)	0.69	1.10
Indoor Demand per Acre (AF)	0.43	0.52
Outdoor Demand per Acre (AF)	0.26	0.58

Note that indoor and outdoor demand per tap in **Table 2** do not sum to total demand per tap. This is the result of different subsets of data being used to calculate indoor and outdoor demand per tap respectively. For example, total residential demand per tap is calculated as the total residential demand divided by the total number of residential taps across the period of record. Since all residential taps use indoor water, indoor demand per tap is similarly calculated as the average total indoor demand divided by the total number of taps for a given customer type. Outdoor demand per tap, however, is calculated as the total outdoor demand divided by only the number of taps without non-potable water for irrigation. Likewise, total demand per acre is calculated as the average total demand divided by the total number of acres assigned to each customer type. The indoor and outdoor components are estimated using the percent distribution between indoor and outdoor use for each customer type shown in **Figure 2** above.

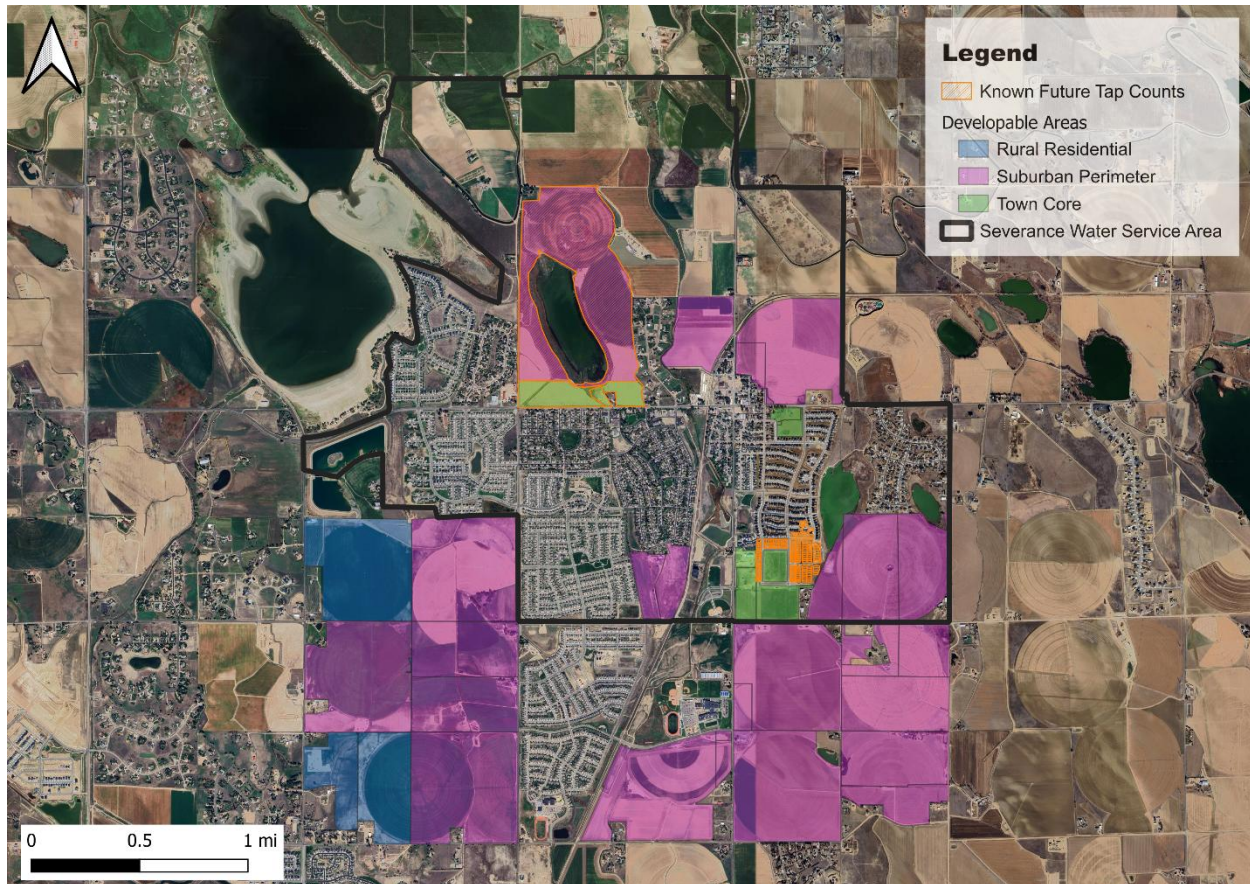
Step Two: Summarize Undeveloped Acres by Land Use Category

Estimating Severance's total future water demand will ultimately involve modeling the water demand per tap for each customer type, separating indoor and outdoor water use, and extrapolating that water demand across the number of taps expected to be served by the Town at build-out. The total number of taps at build-out includes the 2,907 known taps as of 2025 plus taps that will be established in Severance's currently undeveloped areas. Undeveloped areas were identified within Severance's WSA as well as additional lands south of the Town's WSA but within the Town's Growth

⁸ Weighted average by number of taps in a given year.

Management Area (GMA) that may potentially be annexed and served by the Town.⁹ **Figure 4** shows the parcels identified as potentially developable for which future tap counts were estimated at build-out.

Figure 4: Undeveloped Areas Potentially Served by Severance at Build-out



The acreage totals under these parcels are summarized in **Table 3**. Acreages are broken into total and developable acres to denote the fact that some undeveloped acres will be reserved for other purposes. Here, it is assumed that 25% of undeveloped acres will be reserved for open space and another 20% of undeveloped acres will be used as right-of-way spaces. A 45% reduction was taken from the total future acres to obtain acreage estimates that will be developed with taps. In addition, the acreages for undeveloped areas that were already subdivided or have known future tap counts (e.g., Northgate Lakes) were subtracted out from the totals in **Table 3** and the actual number of taps expected under those acreages were utilized.

⁹ Lands outside the Town of Severance's WSA are served by North Weld County Water District. Although the Town of Severance does not currently intend to service these lands, the parcels identified south of the Town's WSA in Figure 3: Map of Future Land Use Categories in the Town WSA were identified by Town staff as having some potential to be annexed and are included for consideration in this demand analysis.

Table 3: Future Developable Acreage

Land Use Category	Water Service Area	GMA	Water Service Area	GMA
	Future Total Acres		Future Developable Acres	
Town Core	50	0	27	0
Suburban Perimeter	403	1,350	222	742
Rural Residential	0	260	0	143
Total	453	1,610	249	886

Step Three: Build Range of Scenarios

A range of scenarios were established to capture a Low Bookend, Most Probable, and High Bookend of future water estimates (**Table 4**). Under the Low Bookend, the lowest likely future water demand is estimated for a scenario with a decrease in home and lot size, the greatest increase in the cost of water, and no change in climate. Under the High Bookend, the highest likely future water demand is estimated for an alternate scenario with an increase in home size, no change in lot size or the cost of water, and the greatest increase in climate. Likewise, the Low Bookend scenario estimates future tap counts using the low-end density ranges while the High Bookend estimates tap counts in a high-density scenario. In between the bookends is the Most Probable scenario with no change in home size, a slight reduction in lot size, a moderate increase in climate and the cost of water, and moderate density for future taps. The developable areas used to estimate future tap counts were also brought into the range of scenarios. Under the Low Bookend and Most Probable scenarios, it is assumed that Severance will only serve future taps within their WSA. In the High Bookend scenario, tap counts served by the Town are expanded to include those immediately south of the Town's WSA boundary.

Table 4: Scenario Descriptions

Scenario	Description		
	Low Bookend	Most Probable	High Bookend
Home Size ¹⁰	1,500 ft ²	1,900 ft ²	2,400 ft ²
Lot Size ¹¹	6,300 ft ²	8,400 ft ²	9,750 ft ²
Price elasticity	Elasticity = -0.3. Rates increase at 2x Most Probable increase	Elasticity = -0.2. Rates increase at 10% (2025-2029), then 5% (2030-2039), then 2.5%	No response
Climate	No change in outdoor water demand	Outdoor water demand increases in response to 2°F warmer climate	Outdoor water demand increases in response to 5°F warmer climate
Tap Density	Low Density	Moderate Density	High Density
Development Area	Development occurs only within WSA	Development occurs only within WSA	Development expands south into GMA

Step Four: Estimate Total Number of Taps at Build-out

Returning to the process started in Step Two, for the remaining undeveloped acreages, future tap count estimates were established by multiplying the number of acres under each zoning category

¹⁰ Most Probable home size was set as the average home size for homes built since 2010 in Severance. High and Low Bookends were set within the Town's minimum and maximums from municipal code and are based on likely sizes for future builds.

¹¹ Most Probable lot size was set as the average lot size for homes built since 2010 in Severance. High and Low Bookends were set within the Town's minimum and maximums from municipal code and are based on likely sizes for future builds.

(reclassified as residential or commercial (**Table 1**) by the Town's target tap densities (**Table 5**). These future tap counts for undeveloped areas were added to the known existing and known future tap counts to estimate the total number of taps at build-out. Tap density ranges, listed in **Table 5**, were established from the Town's municipal code and applied to each land use type reclassified as residential or commercial water use.

Table 5: Tap Density Expressed in Taps per Acre by Land Use Type

Land Use Category	Classification	Percent	Taps per Acre		
			Low Bookend	Most Probable	High Bookend
Rural Residential	Residential	100%	0.1	0.17	0.8
Suburban Perimeter	Residential	100%	4.5	5.2	7
Town Core	Total	100%	8	10	15
	Residential	60%	4.8	6	9
	Commercial	40%	3.2	4	6

Step Five: Adjust per Tap Water Use for Future Conditions

To estimate per tap water demands in the future, the current indoor and outdoor demands for each customer type (**Table 2**) were adjusted based on likely future conditions. Adjustment factors included home size, lot size, price elasticity, and climate, and are summarized in **Table 6** below. Key assumptions behind the selection of these adjustment factors are that indoor water use is likely to decrease as home size decreases. Outdoor water use is likely to increase as lot size increases. Total water use is likely to decrease as the cost of water increases, and outdoor water use is likely to increase as average temperatures increase. These assumptions are supported by statistical analyses and by academic literature, described separately in the *Estimating Water Demands* section of this report.

Table 6: Adjustment Factor Descriptions

Adjustment Description	Factor Name	Rationale	Method	Use Classes	In/Out
Residential indoor demand a function of home area	Home Size	Indoor water use increases with home size	Regression of TOS mean indoor use per tap vs home size in square feet	SF, MF	Indoor
Residential outdoor demand a function of lot area	Lot Size	Outdoor water use increases with irrigable area	Regression of TOS mean outdoor use per tap vs lot size in square feet	SF	Outdoor
Total water use a function of water rates	Price Elasticity	Residential usage decreases with price	Literature values	SF, MF & Com	Indoor + Outdoor
Outdoor use a function of irrigation water demand	Climate	Outdoor water use increases with temperature	Literature (FC WSVS & Greeley IWRP)	SF, MF, & Com	Outdoor

Step Six: Sum Demands at Build-out

Building on Steps Four and Five, total water demand at build-out was estimated by summing the products of tap count and water demand per tap for each customer type under each planning scenario. The general calculation for estimating total demand is expressed by **eq. (1)**. Total demand by customer type is expressed by **eq. (5)-(7)**, and is the sum of total demand for undeveloped areas estimated on a tap per acre basis plus total demand for existing taps or undeveloped areas with known future tap counts. **Equations (5)-(10)** outline how demands were estimated independently using the tap-density approach for undeveloped acres and using known tap counts for each customer type respectively.

$$Total\ Demand = \sum (totD_{SF}, totD_{MF}, totD_{Com}) \quad (1)$$

$$totD_{SF} = totAD_{SF} + totKD_{SF} \quad (2)$$

$$totD_{MF} = totAD_{MF} + totKD_{MF} \quad (3)$$

$$totD_{Com} = totAD_{Com} + totKD_{Com} \quad (4)$$

$$totAD_{SF} = Ac_{SF}(totT/Ac_{SF} \times inD/T_{SF} + nnpT/Ac_{SF} \times outD/T_{SF}) \quad (5)$$

$$totAD_{MF} = Ac_{MF}(totT/Ac_{MF} \times inD/T_{MF} + nnpT/Ac_{MF} \times outD/T_{MF}) \quad (6)$$

$$totAD_{Com} = Ac_{Com} \times totT/Ac_{Com}(inD/T_{Com} + outD/T_{Com}) \quad (7)$$

$$totKD_{SF} = (inT_{SF} \times inD/T_{SF}) + (outT_{SF} \times outD/T_{SF}) \quad (8)$$

$$totKD_{MF} = (inT_{MF} \times inD/T_{MF}) + (outT_{MF} \times outD/T_{MF}) \quad (9)$$

$$totKD_{Com} = (inT_{Com} \times inD/T_{Com}) + (outT_{Com} \times outD/T_{Com}) \quad (10)$$

Where:

SF = Single-family

MF = Multi-family

Com = Commercial

$totAD_{(custType)}$ = Total demand for new taps in undeveloped acres for each customer type

$totKD_{(custType)}$ = Total demand for existing or known future tap counts for each customer type

$totD_{(custType)}$ = Total demand for each customer type

$Ac_{(custType)}$ = Acres assigned to each customer type

$totT/Ac_{(custType)}$ = Total taps per acre by customer type

$nnpT/Ac_{(custType)}$ = Taps without non-potable water use per acre by customer type

$inD/T_{(custType)}$ = Indoor demand per tap by customer type

$outD/T_{(custType)}$ = Outdoor demand per tap by customer type

$inT_{(custType)}$ = Known number of existing and planned future taps with indoor water use

$outT_{(custType)}$ = Known number of existing and planned future taps with outdoor water use

Step Seven: Scale Demands to Population Growth

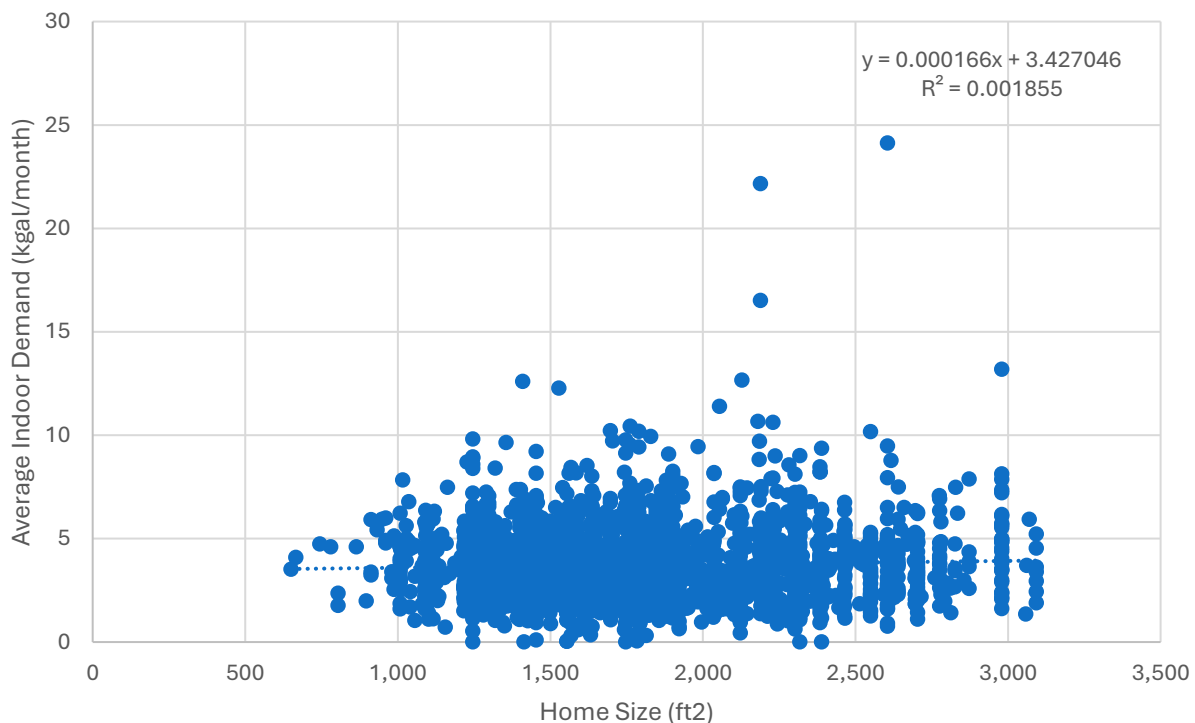
To estimate how total water demand evolves over time, the forecasted demand at build-out was scaled to the Town's projected population using five-year intervals. This was done by first estimating the number of residential taps in each year based on the historical ratio of residents per tap. The proportion of residential taps in each interval relative to the total number of residential taps at build-out was then used to scale the total water demand for that year. Commercial and multi-family demands were assumed to grow proportionally with residential development. Finally, the resulting annual demand values—expressed initially at the customer tap—were adjusted upward to account

for water losses in the treatment and distribution system, producing a total projected demand at the treatment plant for each interval.

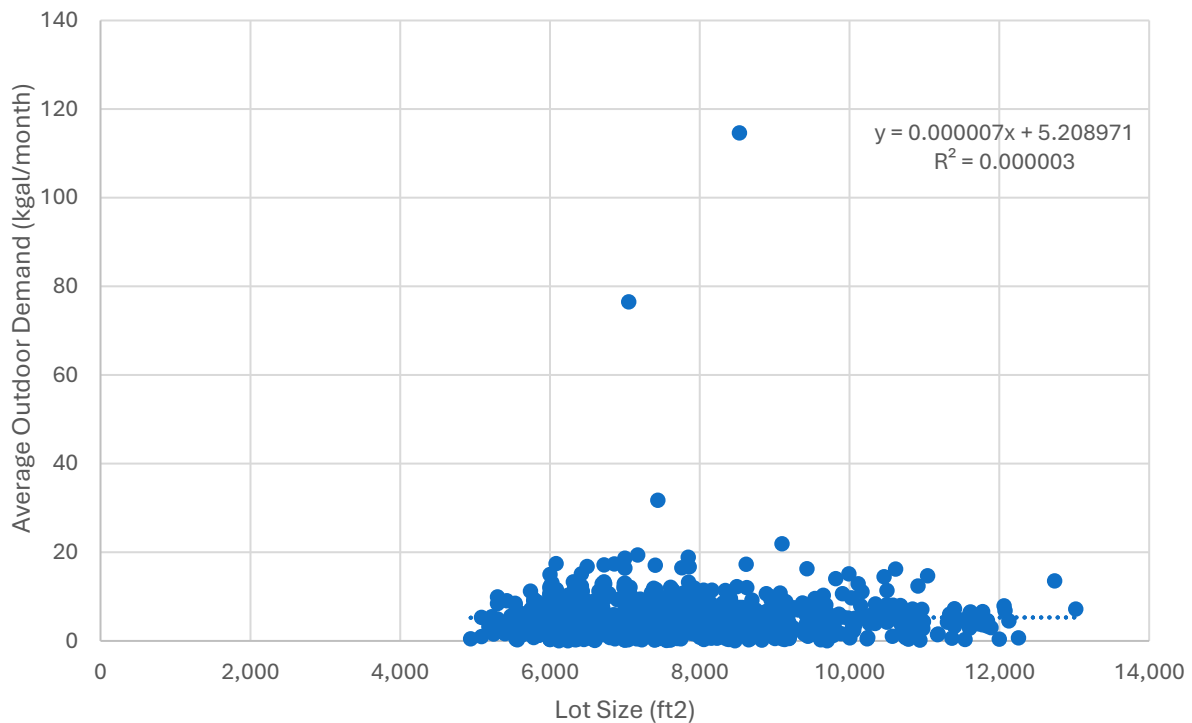
Estimating Water Demands

To estimate future water demands per tap, introduced in Step Five, relationships were defined between water use and home size, lot size, price (water rates), and climate. Linear regressions were built to determine the relationship between home size and indoor water demand for different customer types in Severance as well as for the relationship between lot size and outdoor water demand. Upon analysis, it was determined that there was an insufficient sample size to return meaningful results for commercial customer types (indoor $n = 26$, outdoor $n = 24$ after removing outliers). However, models were built for residential indoor and outdoor water use, the data and regressions for which are shown in **Figure 5** and **Figure 6** respectively. Prior to building each regression, outliers were removed using the interquartile range for home size and lot size data.

Figure 5: Single-family Residential Indoor Water Use



In **Figure 5**, the relationship between home size and average indoor water use for residential accounts is shown, with each point representing the average monthly indoor water use across the period of record (May 2019 – May 2025) for a given account. In **Figure 6**, the relationship between lot size and average outdoor water use for residential accounts is shown for the same period of record. Although each regression had a low R-squared (0.002 and 0.000003 respectively), they provide insight into the relationship between home and lot size and water use to an extent that can be utilized as an adjustment factor when estimating the Town’s future water demand on a per tap basis.

Figure 6: Single-family Residential Outdoor Water Use

The regression coefficients from the above trendlines are summarized in **Table 7**. The coefficients suggest, for example, that for every square footage increase in home size, single-family residential indoor water use increases 0.0000061 AF per year per tap. Likewise, for every square footage increase in lot size, single-family residential outdoor water use increases by 0.0000003 AF per year per tap.

Table 7: Regression Coefficients

Model	Model Coefficients	Units	Adjusted Coefficient	Adjusted Units
Residential (Indoor)	0.000166	kgal/mo/tap/bldg ft ²	0.0000061	AF/yr/tap/bldg ft ²
Residential (Outdoor)	0.000007	kgal/mo/tap/lot ft ²	0.0000003	AF/yr/tap/lot ft ²

Using the residential regression coefficients from **Table 7** and the adjustment factors and scenarios described in **Table 4**, adjustments were made to the current indoor and outdoor water demands per tap shown in **Table 2**, to generate estimates of per tap water demand under the future Low Bookend, Most Probable, and High Bookend scenarios. In a stepwise fashion, a percent change in indoor and outdoor water use for each customer type was calculated by:

1. **Home Size:** A typical home size was set for each of the modeled scenarios, and the indoor regression coefficient was then used to estimate the associated change in water use per residential tap based on the change in home size from the current average (1,900 ft²). A percent change in water demand from the current indoor water demand per tap could then be calculated for residential water users. Building size was assumed to have no effect on

commercial water demand and was not used as an adjustment factor when estimating future indoor commercial water demand.

2. **Lot Size:** A typical lot size was set for each of the modeled scenarios, and the outdoor regression coefficient was then used to estimate the associated change in water use per residential tap based on the change in lot size from the current average (8,400 ft²). A percent change in water demand from the current outdoor water demand per tap could then be calculated for residential water users. Lot size was assumed to have no effect on commercial water demands and was not used as an adjustment factor when estimating future outdoor water demand for these customer types.
3. **Price Elasticity:** Insufficient data were available to statistically model the relationship between Severance's water rates and water demand (n=5 years) and instead the median coefficient (representing the percent change in water demand for every percent increase in price) from the Sebri meta-analysis (2013)¹² on price elasticity of demand was used as the adjustment factor for price in this study. Price elasticity was assumed to be uniform across customer types.
4. **Climate:** A 0%, 12%, and 25% increase in outdoor water demand was applied to the low, most probable, and high bookend scenarios respectively for each customer type.¹³

The percent change components were then added together and applied to current indoor and outdoor water demands for each customer type to get the Low Bookend, Most Probable, and High Bookend water demands per tap expected at build-out. The results of the adjustment process and final demand projections are discussed in the *Results*.

¹² Sebri, Maamar. (2013). A meta-analysis of residential water demand studies. *Environmental, Development and Sustainability*. 16(3), 499-520.

¹³ Percent change in future outdoor water demand under different scenarios was taken from the Greeley Integrated Water Resources Plan (2023).

Results

The final steps for forecasting the Town of Severance's projected future water demands involve taking the results of the adjustment process and applying the demand estimates (demand/tap) to the total number of taps classified for each customer type at build-out, as outlined in Step Six. Total demand at build-out is then scaled to the Town's forecasted population at five-year intervals and expressed in terms of total demand at the treatment plant.

Demand per Tap

The results of the adjustment process described in the *Step Seven: Scale Demands to Population Growth*

To estimate how total water demand evolves over time, the forecasted demand at build-out was scaled to the Town's projected population using five-year intervals. This was done by first estimating the number of residential taps in each year based on the historical ratio of residents per tap. The proportion of residential taps in each interval relative to the total number of residential taps at build-out was then used to scale the total water demand for that year. Commercial and multi-family demands were assumed to grow proportionally with residential development. Finally, the resulting annual demand values—expressed initially at the customer tap—were adjusted upward to account for water losses in the treatment and distribution system, producing a total projected demand at the treatment plant for each interval.

Estimating Water Demands section above are shown in **Table 8**. Indoor and outdoor water demands are reported separately instead of as a total water demand per tap to account for the fact that not all taps currently utilize potable water for outdoor water use. This report solely estimates the Town's future potable water needs and operates under the assumption that future non-potable water needs will be met by developers bringing agricultural water for outdoor irrigation. Under the Most Probable scenario, future per tap demands for single-family residential water use was estimated at 0.32 AF per tap where potable water is required for both indoor and outdoor water use. These estimates, however, represent water use directly at the consumer's tap and not the amount of water that needs to be dedicated for treatment to meet the per tap demand. A larger volume amount, estimated in the following sections, is needed at the Town's water treatment facility to account for non-revenue water losses (18%).¹⁴

¹⁴ Total non-revenue water is estimated at 18.1%, a combination of 10% losses through the North Weld County Water District system and an additional 9% losses through the Town of Severance's distribution system.

Table 8: Estimated Future Water Demands per Tap by Customer Type

Use Category	Demand per Tap (AF)			
	Current	Low Bookend	Most Probable	High Bookend
Residential				
Indoor	0.12	0.08	0.11	0.13
Outdoor	0.21	0.14	0.21	0.26
Multi-family¹⁵				
Indoor	0.13	0.09	0.12	0.13
Outdoor	0.00	0.00	0.00	0.00
Commercial				
Indoor	0.35	0.24	0.31	0.35
Outdoor	0.40	0.27	0.40	0.50

Forecast Future Demand

To use the future per tap demand estimates to forecast total future demand, the demand per tap ranges were multiplied by a range of expected future taps at build-out. Calculating the quantity of future taps under different build-out scenarios began with multiplying tap densities from **Table 5** by developable acreage values from **Table 3** to determine the number of future taps for undeveloped parcels under each growth scenario. The resulting value were then added to the number of existing taps plus the number of taps associated with known planned developments to determine total projected tap counts at build-out.

This process resulted in commercial tap count estimates that were higher than reasonably expected for the Town of Severance (200 to 380 commercial taps within the WSA at build-out). An alternative approach for estimating commercial tap counts using the existing population per commercial tap was explored. In 2025, there is an estimated 350 residents per commercial tap in Severance. This demand analysis uses a 30-year planning horizon and assumes build-out will be achieved by 2055, at a projected population of almost 16,000. Using the same proportion of residents to commercial taps as in 2025 would suggest 46 commercial taps will be established in Severance at build-out. This estimate likely underpredicts the number of future commercial taps but sets a reasonable scale for tap count. Assuming that commercial tap count will grow at a faster rate than population but reach a lower density than predicted based on acreage, a range of commercial tap counts of 50, 75, and 100 commercial taps were used for the Low Bookend, Most Probable, and High Bookend Scenarios.

To summarize total tap counts estimated at build-out, under the Most Probable scenario, roughly 5,250 total taps are expected within the Severance WSA, as shown in **Table 9**, including already existing taps. The High Bookend scenario is proportionally higher compared to Most Probable than the Low Bookend scenario is lower than Most Probable because it includes an expanded service area, with some future taps serviced by the Town of Severance in the Town's GMA south of the existing WSA boundary (**Figure 4**).

¹⁵ Multi-family developments typically have one tap per building. Here, water demands were estimated on a per unit basis instead of a per tap basis using the regression for indoor residential use and an average unit size of 953 ft² for units likely to be developed at Northgate Lakes. This enabled a "current demand" or baseline to be set for multi-family water use in the Town of Severance which was then adjusted using adjustment multi-family factors from a similar demand analysis completed for the Town of Wellington in 2024. Since all multi-family units in Severance will be future developments, and all future developments must use non-potable water for outdoor irrigation, multi-family outdoor water use is set to zero.

Table 9: Estimated Number of Future Taps by Scenario

Land Use Category	Classification	Total Taps at Build-out			Total Taps at Build-out Without Non-potable		
		Low Bookend	Most Probable	High Bookend	Low Bookend	Most Probable	High Bookend
Town Core	Residential	573	606	688	104	104	104
Town Core	Multi-family	195	195	195	0	0	0
Town Core	Commercial	50	75	100	31	31	31
Suburban Perimeter	Residential	4,187	4,342	4,741	999	999	999
Rural Residential	Residential	31	31	146	5	5	5
Totals	Total	5,035	5,249	5,870	1,139	1,139	1,139
	<i>Residential</i>	<i>4,790</i>	<i>4,979</i>	<i>5,575</i>	<i>1,108</i>	<i>1,108</i>	<i>1,108</i>
	<i>Multi-family</i>	<i>195</i>	<i>195</i>	<i>195</i>	<i>0</i>	<i>0</i>	<i>0</i>
	<i>Commercial</i>	<i>50</i>	<i>75</i>	<i>100</i>	<i>31</i>	<i>31</i>	<i>31</i>

From there, the Low Bookend, Most Probable, and High Bookend water demands per tap estimated in **Table 8** can be applied to forecast the total water demand by customer type across a range of scenarios for the Town of Severance. Crossing three additional scenarios with the ranges of taps expressed above results in a matrix of estimates. In **Table 10**, the low bookend tap density-low bookend water demand combination is shown for the overall Low Bookend scenario. The most probable tap density-most probable water demand combination is shown for the overall Most Probable scenario, and the high bookend density-high bookend water demand combination is shown as the overall High Bookend Scenario. The Most Probable scenario forecasts a future at-the-tap water demand at build-out of 843 AF within a range of 586 AF to 1,076 AF if more conservative assumptions are made and service is expanded to lands south of the existing WSA.

Table 10: Summary of Forecasted Total at-the-tap Water Demands at Build-out

Classification	Current	Projected at Build-out		
		Low Bookend	Most Probable	High Bookend
Residential	561	548	784	1,000
Commercial	22	20	36	50
Multi-family	0	17	23	26
Other	8	N/A	N/A	N/A
Total	591	586	843	1,076

Water Demands Over Time

Thus far, the demand analysis has projected total at-the-tap future water demand at build-out for the Town of Severance using the land-based approach described above. For planning purposes, this total demand is broken into annual demand at five-year intervals and expanded to cover non-revenue water losses. First, to estimate demand over time, the total water demand for Severance is scaled to follow the Town's expected population growth.¹⁶ The ratio of the number of residents per

¹⁶ Population projections were provided at five-year intervals through 2055 for the Town of Severance and are shown and extrapolated on an annual basis in **Appendix A**.

tap is used to estimate the number of residential taps expected at five-year intervals.¹⁷ It is assumed that commercial demands will proportionally increase alongside residential demands, and therefore demand is scaled based on the residential tap counts. The proportion of residential taps estimated in a given year to the total number of residential taps estimated at build-out is taken and applied to the total water demand forecasted at build-out. This results in a proportional at-the-tap water demand estimate for a given year based on residential tap count. These demands are converted to a total water demand at Severance's water treatment plant, assuming an 18% loss of water through the treatment and distribution processes. In **Table 11**, the total forecasted water demand at the treatment plant is summarized in five-year intervals.

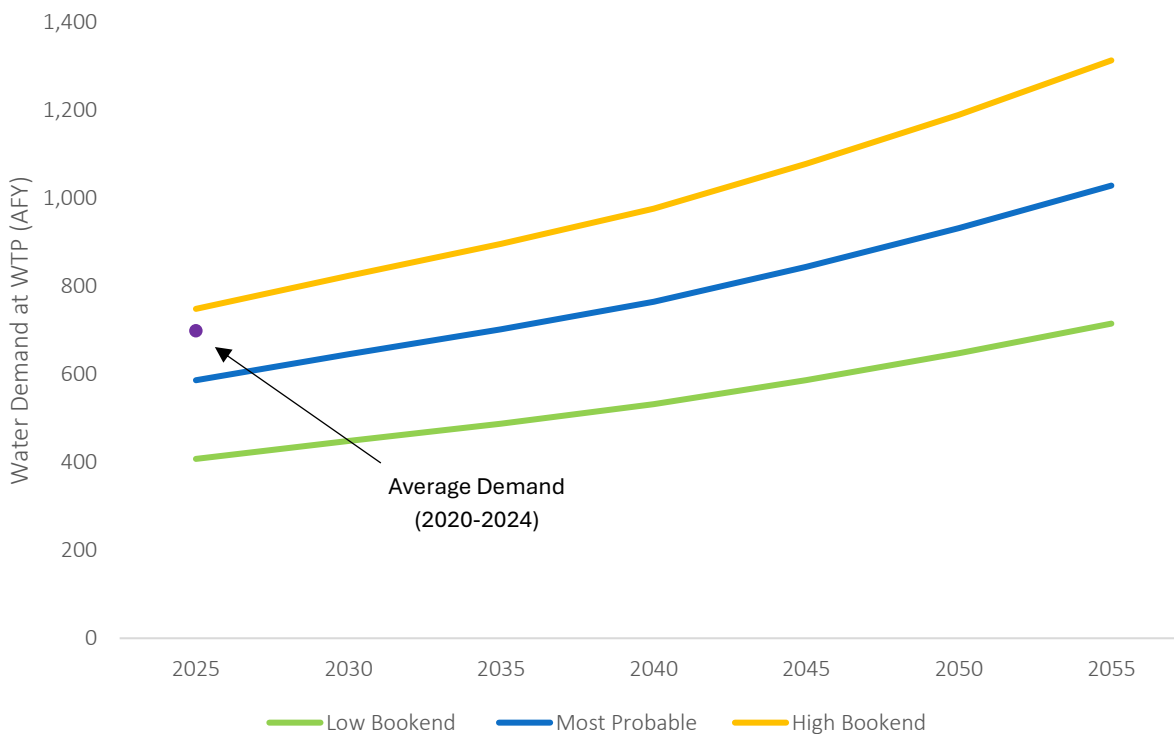
Table 11: Forecasted Total Water Demand at the Treatment Plant

Year	Population	Residential Taps	Demand (AFY)		
			Low Bookend	Most Probable	High Bookend
2025	10,859	2,838	408	587	749
2030	11,609	3,124	449	646	824
2035	12,262	3,398	488	702	897
2040	12,977	3,702	532	765	977
2045	13,911	4,086	587	845	1,078
2050	14,912	4,511	648	932	1,190
2055	15,985	4,979	715	1,029	1,314

Using these estimates, the Town can expect a Most Probable water demand at the treatment plant of approximately 1,029 AF at a population of 15,985. **Table 11** and **Figure 7** show projections through 2055, with **Figure 7** providing a visual representation of the range of future water demands across planning scenarios. Future water demands are expected to range from roughly 715 AF to 1,314 AF per year as the Town reaches a population of approximately 15,985 in 2055.

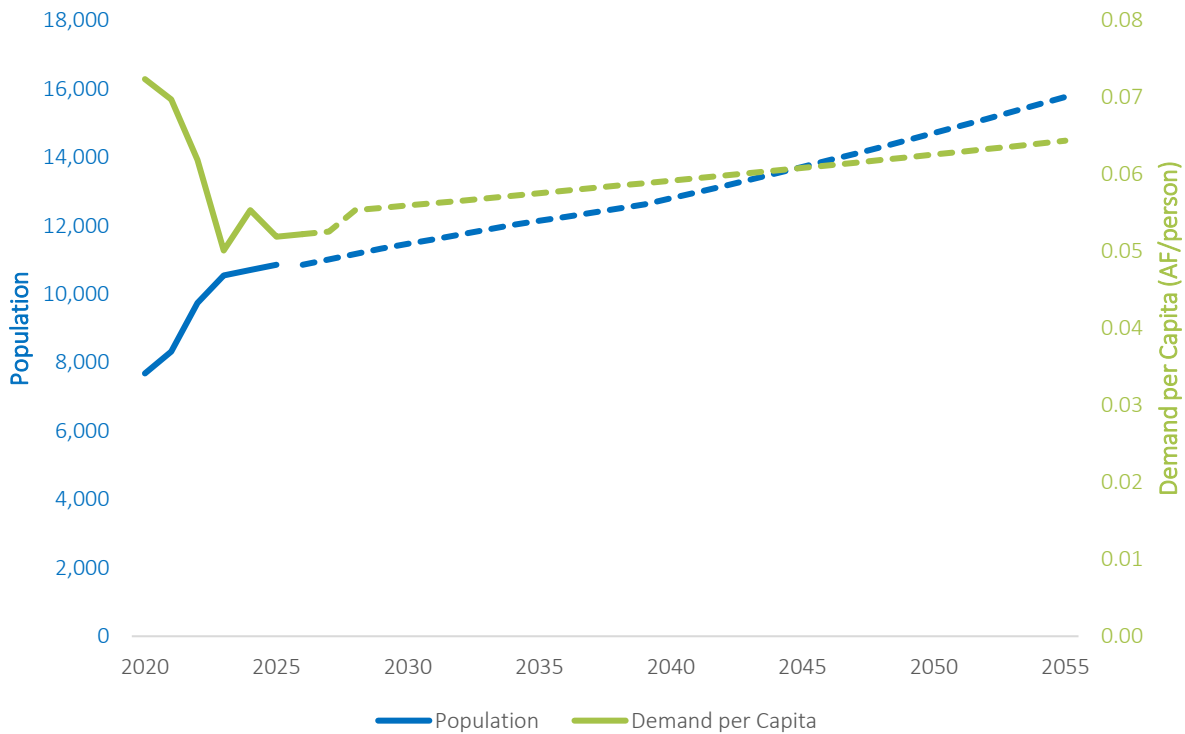
¹⁷ Using the Town's 2025 population estimate of 10,859 and the current number of residential taps (2,838) gives a population per residential tap of 3.83. At build-out, a total of 4,979 residential taps are predicted under the Most Probable scenario. Assuming build-out is achieved in thirty years, or in 2055, and given the 2055 population estimate of 15,985 residents provides a future population per tap of 3.21. Scaling this ratio over time and applying it to the Town's population gives the number of residential taps expected at five-year intervals.

Figure 7: Range of Future Water Demands at the WTP



Over the planning period, the Town of Severance is expected to experience a 47% increase in population. During this time, however, demand is projected to increase 75%, with per capita demands increasing from 0.052 AF/person in 2025 to 0.064 AF/person in 2055. The increase in per capita demand is the result of an increase in commercial taps during the planning period and a rise in average temperatures leading to an increase in outdoor water use. **Figure 8** shows population and water demand per capita trends for the Town of Severance.

Figure 8: Per Capita Demand Compared to Population Growth



Conclusions and Planning Implications

The demand forecast presented in this memorandum provides a comprehensive outlook on Severance's future water needs, highlighting the sensitivity of demand to development patterns, climate, and pricing strategies. Under the Most Probable scenario, water demand at build-out is expected to reach 1,029 AF per year. Compared to the Town's current average demand at the water treatment facility of 721 AF (591 AF at the tap), this constitutes an increase in annual demand of roughly 300 AF by 2055. This technical memorandum is intended to give a detailed overview of the data, methodology and assumptions that went into the Town's future demand projections. An evaluation of this future demand with respect to the Town's existing water supply portfolio will be provided in the complete Water Supply Master Plan. These findings should be revisited periodically as development progresses and more data becomes available.

Appendix A: Population Projections

Year	Population	Growth Taper %
2023	10,552	NA
2024	10,705	1.45%
2025	10,859	1.45%
2026	11,016	1.45%
2027	11,176	1.45%
2028	11,337	1.45%
2029	11,472	1.19%
2030	11,609	1.19%
2031	11,747	1.19%
2032	11,887	1.19%
2033	12,029	1.19%
2034	12,145	0.97%
2035	12,262	0.97%
2036	12,381	0.97%
2037	12,501	0.97%
2038	12,622	0.97%
2039	12,798	1.40%
2040	12,977	1.40%
2041	13,159	1.40%
2042	13,343	1.40%
2043	13,529	1.40%
2044	13,718	1.40%
2045	13,911	1.40%
2046	14,105	1.40%
2047	14,303	1.40%
2048	14,503	1.40%
2049	14,706	1.40%
2050	14,912	1.40%
2051	15,121	1.40%
2052	15,332	1.40%
2053	15,547	1.40%
2054	15,765	1.40%
2055	15,985	1.40%

Note: Estimates were provided by the Town of Severance in five-year increments starting with 2023. Blue values indicate WestWater extrapolation.