WATER RESOURCES ANALYSIS

A collaborative effort between Newton County, the Newton County Water & Sewerage Authority, and the City of Covington

Original - September **2024**
Updated - December 2024

DISCLAIMER

The stakeholders responsible for the preparation of this document wish to provide users with instructions for use of the document and the information herein. The intent of this section is to identify assumptions made in the development of this document and to caution against making policy and/or budgetary decisions solely on the projections and analyses presented herein. Readers should use this document within the context of the notes and assumptions below:

- The intent of this document is to **assist** stakeholders with making decisions regarding water and sewer infrastructure based on impending development.
- The water and sewer capacity gap analysis should be updated annually to determine variations in capacity requirements.
- The One Water Resources Analysis should be updated no less than every three (3) years, or as significant changes are identified in the gap analysis
- Population projections are based on the most recent data published by the Georgia Governor's Office of Planning and Budget. Stated water demand and sewer flow projections from various, large, industrial users, in conjunction with Newton County Economic Development fluctuated vastly and on numerous occasions during the development of this report. The accuracy of such projections will become more apparent over the next several years.
- The projections and gap analyses presented herein were based on assumptions regarding population growth and water demand and sewer flow rates per person and by given land uses. The assumptions used were consistent with industry standard practice, but when applied at scale and over larger time horizons are likely to generate increasing margins of error. These assumptions tend to err on the side of conservatism. The compounding effects of conservative estimates should be considered with the findings presented herein.
- The findings of this document are based on engineering judgement and the best information available.
- The findings of this document will continue to evolve with shifts in growth, capacity demand, technological advancement, and regulatory policy.
- It is recommended that this document not be used alone for decision-making with regard to capital improvements. Other factors may need to be evaluated to justify a decision on growth and capital expenditures.
- This document may be used to guide discussions and planning efforts among key stakeholders.
- Stakeholders and/or third parties are responsible for verifying and justifying the need for any project identified and/or excluded in this document. This document is a road map to assist with planning the future of water resources in Newton County.

EXECUTIVE SUMMARY

Located approximately 30 miles from Atlanta along Interstate-20 (I-20), Newton County is likely to see continued significant growth over the next several decades. This is exacerbated by the growing interest in additional industrial development along the I-20 corridor between Atlanta and Augusta. Newton County Water Resources, the City of Covington, and the Newton County Water and Sewerage Authority have initiated a cooperative, proactive planning effort to safeguard the longevity and sustainability of Newton County's water resources. The One Water Resources Analysis (OWRA) establishes a baseline of existing conditions, models future scenarios, and evaluates potential improvement alternatives to address capacity needs. The OWRA shall be a living document, evolving as necessary due to changes in environmental, regulatory, and political circumstances.

A vital component to supporting this growth is the availability of water supply and water reclamation. Currently, Newton County Water Resources (NCWR) is responsible for the majority of potable water production in Newton County. NCWR even supports potable water production for distribution to multiple neighboring communities. The majority of water distribution as well as wastewater collection, conveyance, and treatment is managed by the City of Covington (Covington) and the Newton County Water and Sewerage Authority (NCWSA). Water resource providers in Newton County recognize the importance of proactively planning to ensure water availability, sustainability, and stewardship for the future. Such planning efforts are important at the local and regional levels. This is especially true in Newton County, where three (3) separate entities share the responsibilities of managing this limited resource. The strategies employed by one will have implications for the others. Furthermore, mismanagement by any will negatively impact all, and most importantly, the ratepayers. Therefore, a cooperative effort allows for the most responsible and economical management of Newton County water resources. Newton County is located in the Middle Ocmulgee Water Planning Region. Localized planning efforts such as the OWRA are encouraged in the *Middle Ocmulgee Regional Water Plan* (2023) and are important for supplementing the broader, more regionally-focused findings of the latter.

The OWRA Stakeholders enlisted the help of two (2) consulting firms, GWES, LLC and Carter & Sloope, Inc. to conduct an analysis of Newton County's water resources with regard to projected supply, demand, potential gaps, and potential solutions. Evaluations of potential improvements focused on maximizing the useful life of existing infrastructure. Stakeholder workshops produced a myriad of conceptual improvements for consideration and discussion among participants.

Through this analysis, it was determined that the following three (3) items will need to be addressed in the short term (10 - 15 years) with disposal of treated wastewater as the limiting factor:

- Additional raw water supply to Cornish Creek Water Treatment Plant (CCWTP)

- Increased wastewater treatment and disposal at both NCWSA plants (Yellow River WPCP and A. Scott Emmons WRF)
- Increased wastewater treatment for Covington

It determined that discharging treated effluent to Lake Varner and initiating the utilization of reuse water for industrial demand provides the most benefit for water resources within the community, because it solves both the raw water supply and treated wastewater discharge challenges through a mutually beneficial approach.

The Indirect Potable Reuse Guidance Document, released by the Georgia Environmental Protection Division (EPD) in July 2022, identifies Lake Varner as a reservoir that is exempt from an indirect potable reuse (IPR) determination because Lake Varner has substantial storage capacity to accommodate IPR. Not only does this approach provide a solution for water and wastewater, but it is also the most economical. Initiating the utilization of reuse water for industrial demands will help to further reduce water demand, provide for disposal of treated effluent, and reduce the use of potable water for non-potable applications.

A matrix of immediate action items for each entity is included on the following page. In addition, a timeline summarizing potential gaps by entity is included.

A technical report is provided as an attachment, which includes details of the gap analysis, improvement alternatives evaluations, and recommendations.

In conclusion, the entities responsible for this analysis recognize that the following concepts are critical to the utility of this document and the successful management of Newton County water resources:

1. ***Collaboration*** is the major throughline for this effort. The three (3) entities involved are sharing the same resource and are either directly or indirectly impacted by the practices of one another. Collaborative planning will allow for the maximization of shared resources and the most effective expenditure of ratepayer dollars.
2. The OWRA is a ***living document***, which must evolve with local planning efforts, population and demand projections, technological advancements, etc. The OWRA should be evaluated and revised, as necessary, on a recurring basis of no later than every three (3) years. The OWRA should be reevaluated as necessary to account for significant changes to any factors affecting water resources.

Two (2) public meetings were held at the A. Scott Emmons Water Reclamation Facility to present findings of the OWRA and answer questions. Those meetings were held on September 30, 2024 and October 14, 2024. Attendance information and PowerPoint presentations are included as attachments.

WATER RESOURCES PLANNING TIMELINE

Immediate Action Matrix

ENTITY	NEED/CHALLENGE	ACTION ITEM
NCWR	Potential water supply deficit in 2035	Begin preliminary engineering and regulatory coordination for IPR utilizing treated effluent from a City-owned WRF
City of Covington	Potential wastewater treatment capacity gap by 2035	Coordinate with NCWSA to apply for WLA in the Yellow River and Alcovy River
	Potential wastewater treatment capacity gap by 2035	Begin property acquisition investigation for future site of Eastside WRF
	Location to discharge treated effluent	Determine whether immediate capacity needs will be addressed by Covington WRF expansion or Eastside WRF construction
	Location to discharge treated effluent	Begin preliminary engineering and regulatory coordination for IPR utilizing treated effluent from a City-owned WRF
	Potential water supply deficit in 2035	Develop strategic reuse water customers with existing and future industries
NCWSA	Potential wastewater treatment capacity gap by 2035	Coordinate with the City of Covington to apply for WLA in the Yellow River and Alcovy River
	Potential wastewater treatment capacity gap by 2035	Begin preliminary engineering for YRWRF expansion
	Potential wastewater treatment capacity gap by 2035	Begin preliminary engineering for ASEWRF expansion
	Potential water supply deficit in 2035	Continue developing strategic reuse water customers with existing and future industries

2025

NCWR
14.5 MGD Expansion

2035

NCWR
IPR from City-owned WRF

City of Covington
Eastside WRF 2.0 MGD Construction
IPR from WRF to Lake Varner

NCWSA
ASEWRF Expansion
YRWRF Expansion
IWRF Expansion
YRWRF IPR to Lake Varner

2050

City of Covington
Eastside WRF Expansion

NCWSA
ASEWRF Expansion
YRWRF Expansion

2075

City of Covington
Eastside WRF Expansion

NCWSA
YRWRF Expansion

Covington georgia

Attachment A:

One Newton Water Resources Analysis, Technical Report

WATER RESOURCES ANALYSIS

Technical Report

August 2024

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Appendix

Abbreviations

AAD	annual average day
AADF	annual average daily flow
ASEWRF	A. Scott Emmons Water Reclamation Facility
ASP	aerated static pile
CCWTP	Cornish Creek Water Treatment Plant
cfs	cubic feet per second
DPR	direct potable reuse
EPD	Georgia Environmental Protection Division
GPD	gallons per day
IDA	Industrial Development Authority
IPR	indirect potable reuse
IWRF	industrial wastewater reclamation facility
LAS	land application system
MDD	maximum daily demand
MGD	million gallons per day
NCWR	Newton County Water Resources
NCWSA	Newton County Water and Sewerage Authority
OPB	Governor's Office of Planning and Budget
OWRA	One Water Resources Analysis
PFAS	per- and polyfluoroalkyl substances
PFOS	perfluorooctane sulfonate
RO	reverse osmosis
SMP	sludge management plan
UF	ultrafiltration
WLA	wasteload allocation
WRF	water reclamation facility
WTP	water treatment plant
YRCS	Yellow River Conveyance System
YRWPCP	Yellow River Water Pollution Control Plant

1 SCOPE

The scope of this analysis are as follows:

1. **Define Current Permitted Capacities** – There are currently five (5) water and/or wastewater treatment facilities in the County with permits regulated by the Georgia Environmental Protection Division (EPD). This task identifies permit details for each facility, including but not limited to capacity limitations.
2. **Perform Gap Analysis** – This task includes comparisons of projected future water demands and wastewater flows to the current and future permitted capacities. These comparisons identify at which times permitted capacities may be exceeded and additional capacity would be needed.
3. **Evaluate Improvement Alternatives** – This task includes the identification and evaluation of viable alternatives to bridge gaps identified in the gap analysis. In addition to capacity challenges associated with withdrawal, treatment, and discharge of water, this phase also focuses on biosolids management as well as opportunities to implement emerging water industry practices such as indirect potable reuse (IPR) and direct potable reuse (DPR). Alternatives are evaluated on their technical suitability for meeting a given need as well as associated challenges, including but not limited to the financial investment required. Life-cycle costs are calculated in this task for alternative comparisons and budgetary planning.
4. **Make Recommendations** – This task includes recommendations for meeting short-term and long-term needs based on findings of the gap analysis and alternatives evaluation.

During the course of developing the One Water Resources Analysis (OWRA), stakeholders participated in five (5) workshops for collaboration during each phase, with the final workshop consisting of a presentation to the community's elected officials. Stakeholders also met with EPD to discuss the project and preliminary findings and to obtain any available feedback that may impact the OWRA. Additionally, the stakeholders invited input from the Newton County Industrial Development Authority (IDA), who provided a presentation on planned development in Newton County for incorporation into the OWRA. A summary of stakeholder meetings is provided in **Table 1** below. A map of existing facilities is included after **Table 1.**

Table 1: Stakeholder Meetings Summary		
Date	**Meeting Description**	**Stakeholders Involved**
11/28/2022	**Workshop #1**: Review of project purpose, scope, and next steps.	• City of Covington • NCWR • NCWSA • GWES • Carter and Sloope
2/10/2023	**Workshop #2**: Evaluation of water and wastewater projections and preliminary gap analysis. Discussion of potential alternative solutions.	• City of Covington • NCWR • NCWSA • GWES • Carter and Sloope
5/3/2023	**EPD Coordination**: Presentation to EPD on project purpose, preliminary findings, and discussion of future permitted capacities.	• EPD • NCWSA • GWES • Carter and Sloope
6/5/2023	**IDA Meeting**: Presentation by IDA on planned development areas.	• Newton County Industrial Development Authority • City of Covington • Newton County (County Manager) • NCWSA • GWES • Carter and Sloope
6/5/2023	**Workshop #3**: Review of revised gap analysis, potential alternatives, and budgetary cost estimates.	• City of Covington • NCWSA • GWES • Carter and Sloope
12/7/2023	**Workshop #4**: Review of biosolids management evaluation and alternatives.	• City of Covington • NCWR • NCWSA • GWES • Carter and Sloope
4/17/2024	**Workshop #5**: Review of preliminary findings and changes to gap analysis since Workshop #4.	• City of Covington • NCWR • NCWSA • GWES • Carter and Sloope

Cornish Creek WTP
NCWR

Williams St. WTP
City of Covington

A. Scott Emmons
Industrial WRF
NCWSA

A. Scott Emmons WRF
NCWSA

Covington WRF
City of Covington

Yellow River WRF
NCWSA

Covington LAS
City of
Covington/NCWSA

Water Production Facility

Industrial Wastewater Reclamation Facility

Wastewater Reclamation Facility

Land Application System

0 2.5 5 10 Miles

Water and Wastewater Facilities in Newton County

One Water Resources Analysis

Figure 1

August 2024

2 POTABLE WATER TREATMENT AND DISTRIBUTION

2.1 Existing Conditions

At this time, Newton County Water Resources (NCWR) produces nearly all potable water in Newton County for distribution to customers including the Newton County Water and Sewerage Authority (NCWSA) and the cities of Covington, Mansfield, Newborn, Oxford, and Porterdale. NCWR also supplies neighboring Walton County with a majority of their potable water. Additionally, NCWR provides potable water to the Jasper County Water Authority and Alcovy Shores.

The City of Covington owns the Williams Street WTP, which was constructed in 1947 and is permitted to withdraw and treat a 24-hour maximum of 4.5 MGD and a monthly average of 4.0 MGD of water from City Pond. Water is withdrawn from the Alcovy River to supply City Pond (Permit ID 107-0410-03). The Williams Street WTP is not currently used every day but is operated on high demand days to maintain supply and pressure in downtown Covington. Due to the age of the facility and expense of upgrading, NCWR and the City of Covington have determined that combining this treatment capacity with the current upgrade at the Cornish Creek WTP (CCWTP) is more cost effective than upgrading the Williams Street WTP. EPD has indicated that these withdrawal and treatment permit capacities can be reallocated to Lake Varner and the CCWTP, respectively. NCWR is currently in the process of modifying these permits.

The NCWR owns and operates the CCWTP, which is permitted to withdraw water from Lake Varner (Permit ID 107-0410-04). Surface water is withdrawn from the Alcovy River to supply Lake Varner under a separate surface water withdrawal permit (Permit ID 107-0410-06). The NCWR is currently implementing a 14.5 MGD upgrade to the CCWTP, which will increase permitted capacity to 39.5 MGD (24-hour maximum). Permitted capacities of all potable water production facilities are included in **Table 2**.

Table 2: Water Production Facilities in Newton County (2024)							
Facility	Permit #	Permittee	Source	24-Hr Max	Monthly Avg	Annual Avg	Notes
				(MGD)			
Williams St. WTP	107-0410-03	City of Covington	Alcovy River	4.5	4.0	N/A	Grandfathered, no 7Q10* limit
Lake Varner	107-0410-06	NCWR	Alcovy River	35.0	35.0	N/A	Non-depletable flow: 22 cfs or streamflow below Alcovy River intake
Cornish Creek WTP	107-0410-04	NCWR	Lake Varner	25.0	22.2	18.2	7Q10* flow requirement: 2.2 cfs below Cornish Creek Dam

* The lowest 7-day average flow that occurs on average once every ten (10) years

2.2 Demand Projections

Due to the successful marketing of several industrial properties in Newton County, water demand projections have increased significantly. The *Newton County Strategic Water Plan Forecasts and Capacity Evaluations (Strategic Plan*), completed by Carter & Sloope in 2019, includes detailed population growth projections along with water and wastewater projections and potential upgrades to address capacity needs. Since the *Strategic Plan* was completed, water demand projections communicated by major industries, such as Takeda and Rivian (future industry), have fluctuated. Using best available data, demand projections were updated for the OWRA using the following methods and assumptions:

- New residential water demands were developed based on updated Georgia Governor's Office of Planning and Budget (OPB) population projections and using the same water usage metrics identified in the *Strategic Plan*.
- Rivian demands were updated to a minimum potable demand at buildout of 2.0 million gallons per day (MGD), assuming reuse water production is maximized. Total maximum potable water demand will be 4.1 MGD at buildout if no reuse water is available. In November of 2023, Rivian provided the anticipated demand and flows shown in **Table 3**. Based on the April 2024 news that Rivian has indefinitely delayed construction of their Newton County facility, the schedule shown in **Table 3** was adjusted by 18 months for demand projection development.

Table 3: Rivian Water and Wastewater Services Demand (MGD)			
Service	**Q4 2026**	**Q1 2029**	**2032**
Potable Water	0.19	0.37	2.0 Peak Daily
Reuse Water	0.22	0.80	2.1 Avg. Daily 3.1 Peak Daily
Sanitary Sewer	0.08	0.13	0.68
Industrial Wastewater	0.16	0.39	1.6

- A master plan provided by the IDA for the Stanton Grove site from June 2020 was used to estimate a potential water demand of 0.3 MGD. Land use demand projections were based on water use data provided by the City of Covington for similar developments on Hazelbrand Road at I-20.
- Water demands and sewer flow projections provided by Takeda indicate a consumptive loss of between 5 – 10%, which is unusually low. As such 20% consumptive loss was used for this study based on other historically observed usage. Correspondence from Takeda indicates that water demand and wastewater flows will reach buildout conditions by 2030 and be as follows:
    - Potable demand: 1.0 MGD
    - Potential reuse demand: 0.33 MGD
    - Industrial wastewater flows: 0.85 MGD
    - Sanitary sewer flows: 0.15 MGD
- NCWR is working on a project to upgrade the Cornish Creek WTP to 39.5 MGD max daily demand (MDD), 27 MGD annual average day (AAD) with an anticipated completion in early 2027.

At this point, it was unclear how much reuse water demand may exist in the near future and how much flow may be available to support reuse production. However, industries in Stanton Springs as well as existing and potential industries serves by the City of Covington have expressed interest in utilizing reuse water to meet their sustainability goals. Therefore, a minimum and maximum demand was identified for both Rivian and Takeda to identify the minimum and maximum amount of potable water that may need to be provided, based on the amount of reuse water the industries have indicated they are willing to take. Water demand projections for industrial and larger development projects are included in **Appendix A**.

In addition, Walton County is pursuing development of their own water plant to treat water from their Hard Labor Creek Reservoir. Based on this, NCWR is anticipating that Walton County, which is currently allocated 6.25 MGD from NCWR, would substantially

reduce their water demand from Cornish Creek after 2053, when the current contract expires. It may be difficult for Walton County to supply demands for some of the southernmost portion of their system near the connection point on SR 81, so NCWR requested that demand projections assume 2.0 MGD will be necessary for Walton County after 2054.

Actual industrial growth will be affected by economic changes and technological advancements and should therefore be monitored closely. Regarding residential growth, OPB population projections, which are often used for water demand modeling may not adequately account for effects of various industry sectors. The Economic Policy Institute released *Updated employment multipliers for the U.S. economy* on January 23, 2019, which indicated that for every durable goods manufacturing job, up to 7 additional jobs may be created and for automotive manufacturing jobs, up to 14 additional jobs may be created. Since Rivian is not a traditional automotive manufacturer, it is unclear what their impact may be and how many of those additional jobs would be held by persons relying on water produced by NCWR, but it is possible that the OPB residential projections for Newton County may be low. As such, it is recommended to also keep a close watch on residential growth. Total water demand estimates are summarized in **Table 4**.

Table 4: Total Water Demand Projections

Demand	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075
Min. AAD	19.9	27.6	31.5	32.8	33.8	34.9	31.7	32.5	33.5	34.7	35.5
Max. AAD	20.6	28.9	34.1	35.4	36.4	37.8	34.3	35.1	36.1	37.3	38.1
Min. MDD	24.4	33.2	38.2	39.7	41.0	42.4	39.2	40.1	41.4	42.8	43.8
Max. MDD	25.3	34.9	42.4	44.0	45.3	46.7	43.4	44.3	45.7	47.1	48.1

2.3 Gap Analysis: Water

Developing water demand projections allows for an evaluation of existing and anticipated permitted capacities at a given facility to identify when production gaps may occur. This information can then be used to evaluate and prioritize potential facility expansions and implementation of additional resources. Water production gaps were evaluated under two (2) scenarios: (1) maximizing reuse water, and (2) without reuse water. The NCWSA is currently constructing an industrial wastewater reclamation facility (IWRF) to supply non-potable reuse water to industrial customers in east Newton County. The IWRF is anticipated to be online in 2026, and therefore, estimates of water production gaps under scenario 2 are considered conservative and unlikely. The gap analysis for water production is summarized in **Table 5** on the following page. Where potential gaps exist between water demand and permitted capacity, demand is shown in red.

Table 5: Gap Analysis: Water											
Demand/Permit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055***	**2060**	**2065**	**2070**	**2075**
Scenario 1 (maximizing reuse)											
Minimum AAD	19.9	27.6	31.5	32.8	33.8	34.9	31.7	32.5	33.5	34.7	35.5
Minimum MDD	24.4	33.2	38.2	39.7	41.0	42.4	39.2	40.1	41.4	42.8	43.8
Scenario 2 (no reuse)											
Maximum MDD	25.3	34.9	41.4	42.9	44.3	45.7	42.4	43.3	44.7	46.1	47.1
Maximum AAD	20.6	28.9	34.1	35.4	36.4	37.5	34.3	35.1	36.1	37.3	38.1
AAD permit	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
MDD permit	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5
Potential Deficit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055***	**2060**	**2065**	**2070**	**2075**
Scenario 1 (maximizing reuse)											
AAD need	-	0.6	4.5	5.8	6.8	7.9	4.7	5.5	6.5	7.7	8.5
MDD need	-	-	-	0.2	1.5	2.9	-	0.6	1.9	3.3	4.3
IPR need	0.0	0.6	4.6	5.8	6.9	8.0	4.8	5.5	6.5	7.7	8.5
Scenario 2 (without reuse)											
AAD need	-	1.9	7.1	8.4	9.4	10.5	7.3	8.1	9.1	10.3	11.1
MDD need	-	-	1.9	3.4	4.8	6.2	2.9	3.8	5.2	6.6	7.6

*Starting 2054, Walton County demand is reduced to 2.0 MGD AAD & MDD due to contract expiration

While the gap analysis above was developed under valid assumptions, the demand projections used are assumed to be worst case scenarios, in which industrial demands are maximized. Using recent industrial water usage data gathered by the City of Covington and NCWSA, industrial demand was recalibrated to generate low-end, or best case, estimates. **Table 6** shows a gap analysis, assuming low-end demand projections and maximization of reuse water. **Appendix B** shows adjusted water demand projections for industrial and larger development projects.

Table 6: Low End Gap Analysis: Water											
Demand (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055***	**2060**	**2065**	**2070**	**2075**
AAD	17.4	20.5	25.1	26.8	27.7	30.0	25.1	25.8	26.7	27.8	28.5
MDD	21.2	24.3	30.1	32.2	33.4	36.3	30.9	31.7	32.9	34.2	35.1
Potential Deficit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055***	**2060**	**2065**	**2070**	**2075**
AAD	0.0	0.0	0.0	0.0	0.7	3.0	0.0	0.0	0.0	0.8	1.5
MDD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 1 and **Figure 2** show the range of AAD and MDD estimates, respectively, for water compared to permit capacity through 2075.

Figure 1: Annual Average Day Demand vs. Permit Capacity

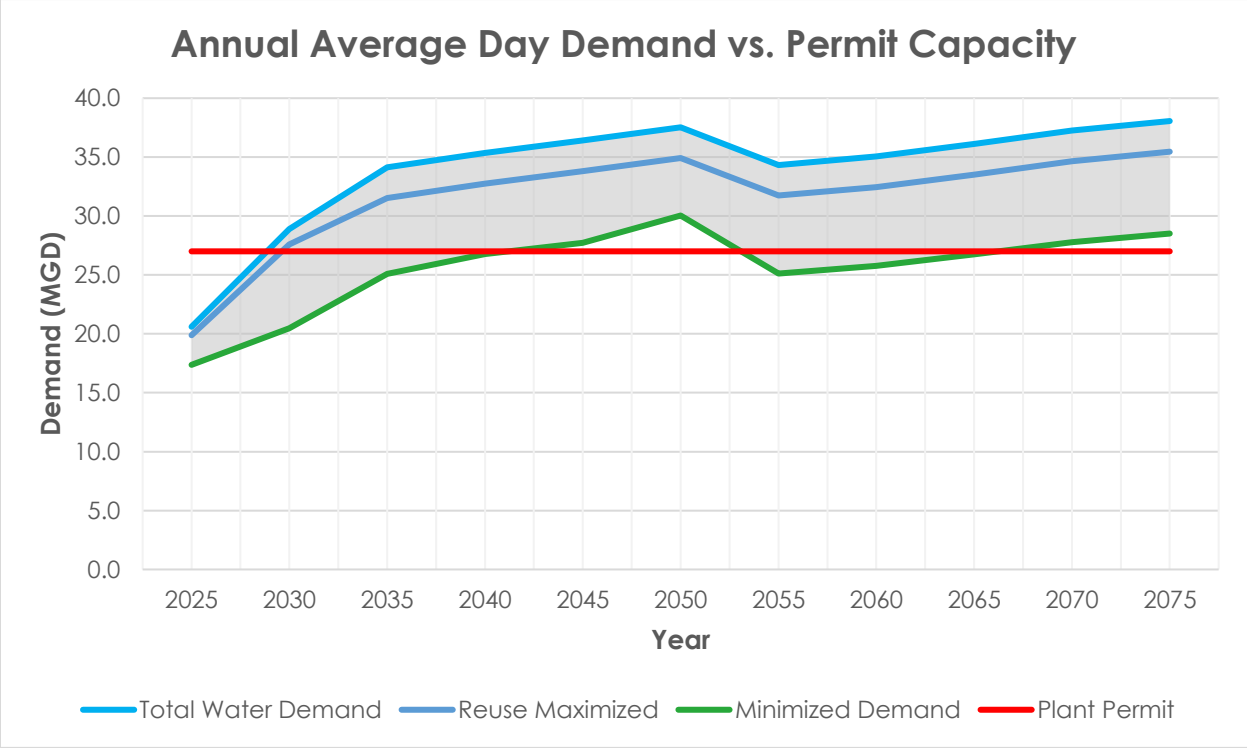
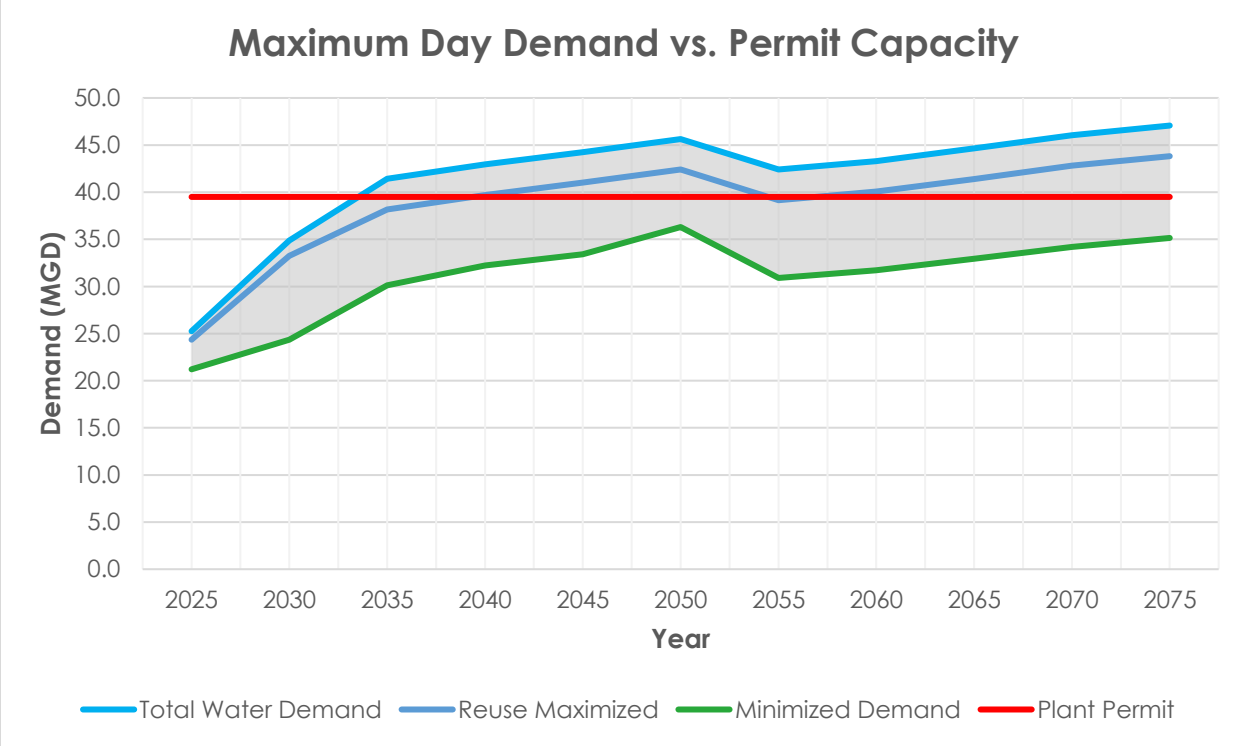


Figure 2: Maximum Day Demand vs. Permit Capacity



2.4 Improvement Alternatives Evaluation

2025

By 2025, capacity deficits are not expected for water production in Newton County. As a result of the 14.5 MGD expansion of the CCWTP, currently in design, potable water supply is estimated to be sufficient for projected demands until approximately 2030-2035.

2035

Indirect Potable Reuse (IPR)

The gap analysis indicates a potential water production deficit by 2030. Further evaluation and close monitoring of actual growth will be necessary. However, planning for additional source water solutions should begin immediately.

One Water stakeholders are evaluating the feasibility of indirect potable reuse (IPR) in addressing potential source water gaps. Initial coordination with EPD suggests that they would be supportive and able to provide planning guidance. Utilizing treated effluent from a City-owned WRF or NCWSA-owned WRF may be viable. Depending on the WRF and EPD permitting requirements, treatment upgrades may be necessary. At this time, coordination among stakeholders suggests that a City of Covington-owned WRF may be a good candidate. Potential requirements for this improvement may include:

- WRF treatment upgrades
- Potential treatment upgrades at the CCWTP
- Additional reporting requirements at Lake Varner and the CCWTP
- Agreement between the NCWR and WRF owner on cost sharing

This concept is further discussed in Section 3.2.

Direct potable reuse (DPR) was briefly discussed with EPD. Currently, EPD is not prepared to provide guidance to entities on DPR. Given the limited use of DPR, the practice has not been thoroughly evaluated by EPD with regard to developing any formal regulations or standard guidelines.

Bear Creek Reservoir

Newton County has previously evaluated the option of constructing an approximately 1,200-acre reservoir to store surface waters to meet future potable water demands. The project was determined to be cost-prohibitive but has remained a topic of interest regarding future water supply in Newton County. Continued monitoring of water demand projections is necessary prior to further development of plans for a new reservoir. Alternatives which maximize the utility of existing infrastructure and

incorporate reuse options are more likely to meet the objectives of the OWRA. However, this alternative was included in the OWRA for stakeholder review. Should the Bear Creek Reservoir project be further evaluated, it will require:

- EPD permitting
- USACE permitting
- Potential land acquisition
- Design and construction

2050

IPR at Lake Varner

By 2050, water demand projections suggest that the need for additional source water could be up to 8 MGD, with reuse water consumption maximized. This evaluation suggests that IPR to Lake Varner must be initiated prior to 2050 to meet demands.

2075

At this time, water demand projections at 2075 are subject to great variability caused by unknowns. Continued monitoring and updates to regional water planning documents, such as the OWRA, will be necessary for responsible water resource management. The environmental and political landscapes affecting water resources in 2075 are unknown at this time. Similarly, technological advancements and industry standards may have changed drastically. While specific solutions cannot be reliably identified at this time horizon, it is likely that a shift toward renewable, sustainable, and conservative water resource management practices will be common industry-wide and an important focal point for Newton County water resource managers.

2.5 Cost Analysis

The CCWTP 14.5 MGD expansion project currently in design is anticipated to cost $125 million. For comparison, construction of the Bear Creek Reservoir and a new treatment facility was estimated to cost approximately $125 million in 2014. Assuming 3.3% inflation, in 2024 dollars, this estimate is adjusted to approximately $173 million. In 2035 dollars, the estimate is increased to approximately $250 million.

Regarding IPR, cost sharing between entities will be an important discussion and should consider immediate and potential future benefits to each entity. While the NCWR may have a more immediate need for IPR, WRF owners will likely have a future need for additional discharge locations as wasteload allocations (WLA) are depleted.

2.6 Funding

Funding may be accomplished through low interest loans through the Georgia Environmental Finance Authority (GEFA), issuance of municipal bonds, or federal loan programs such as those provided through the Water Infrastructure Finance and Innovation Act (WIFIA).

3 WASTEWATER COLLECTION AND TREATMENT

3.1 Existing Conditions

The City of Covington owns and operates the Covington Water Reclamation Facility (Covington WRF), which is permitted to treat and land apply 5.6 MGD of effluent under the land application system (LAS) permit GAJ020055.

In western Newton County, The NCWSA owns and operates the Yellow River Water Pollution Control Plant (YRWPCP), which is permitted to treat and land apply 4.0 MGD of effluent under the LAS permit GAJ020013. EPD previously issued a WLA of 4.4 MGD of treated effluent from the YRWPCP to the Yellow River. However, stream discharge infrastructure has yet to be constructed at the YRWPCP, and the 4.4 MGD WLA was not renewed. Recent correspondence from EPD (May 2023) suggested the WLA may be available for renewal.

Treated effluent from Covington WRF and the YRWPCP is currently land-applied at the Covington LAS. The City and the NCWSA jointly own the LAS, and the City is responsible for operation and management of the facility.

On the eastern side of their service area, the NCWSA owns and operates the A. Scott Emmons Water Reclamation Facility (ASEWRF), which is permitted to discharge up to 1.25 MGD of treated effluent to the Little River. The NCWSA is also in the process of constructing the ASEWRF Phase 2A – IWRF. The IWRF will provide ultrafiltration (UF) and reverse osmosis (RO) treatment of industrial wastewater from nearby industries. The reclaimed water will be distributed back to industrial users as non-potable reuse water. The IWRF will have an initial production capacity of 2.1 MGD, with the ability for expansion to 5.5 MGD.

Table 7: Wastewater Treatment Facilities in Newton County (2024)				
Facility	**Permit #**	**Permittee**	**Permitted Weekly Avg (MGD)**	**Permitted Monthly Avg (MGD)**
Yellow River WPCP	GAJ020013	NCWSA	5.0	4.0
A. Scott Emmons WRF	GA0050304	NCWSA	1.56	1.25
Covington WRF	GA02-055	City of Covington	7.0	5.6

Another major component of the NCWSA's wastewater treatment strategy is the Yellow River Conveyance System (YRCS). The YRCS consists of approximately 15 miles of pressurized main and a pumping network, designed to convey flows from eastern Newton County to the YRWPCP; this system provided for the treatment of wastewater through conveyance to YRWPCP prior to construction of the ASEWRF. The ASEWRF, located on the same site as the YRCS influent pump station, is capable of diverting flows to the YRCS. Therefore, the YRCS serves as a measure of redundancy in the event that the ASEWRF is temporarily out of service or otherwise unable to accept flows.

There are several areas where flow is conveyed from NCWSA to Covington or vice versa, but there is a net flow of approximately 50,000 gallons per day from Covington collection and conveyance infrastructure to NCWSA's YRWPCP. The City of Oxford sends approximately 35% of their flow to the Covington WRF and 65% to NCWSA's YRWPCP, whereas 100% of flow from the City of Porterdale goes to the NCWSA's YRWPCP.

3.2 Flow Projections

Wastewater flows were not updated in the 2022 *Water Demand Forecasting Summary*, so information from the *Strategic Plan* was utilized with the same methodology as those projections. Assumptions from the *Strategic Plan* were utilized as the basis and were updated as necessary (see **Table 8** below). Since the Stanton Springs area is separated from the rest of the NCWSA system, is relatively new, and is limited to eastern Newton County, different assumptions were used for this portion of their system.

Table 8: Summary of Sewer Flow Assumptions							
Assumption	**2025**	**2030**	**2035**	**2045**	**2055**	**2065**	**2075**
Residential Per Capita Flow (gpd)	60	60	60	60	60	60	60
Inflow / Infiltration	30%	28%	25%	20%	20%	20%	20%
Stanton Springs I/I	12%	15%	17%	19%	20%	20%	20%
Uncertainty Factor	2%	5%	8%	12%	15%	18%	20%
CII Reserve[1]	2%	5%	8%	11%	13%	15%	15%
MMADF/AADF Ratio	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Commercial/Institutional/Industrial Demand as Percentage of Residential Usage							
Covington	90%	100%	100%	100%	100%	100%	100%
NCWSA	30%	30%	30%	30%	30%	30%	30%
Oxford	20%	20%	20%	20%	20%	20%	20%
Porterdale	50%	50%	50%	50%	50%	50%	50%

[1]CII Reserve is a safety factor used to account for unplanned Commercial, Industrial, and Institutional land use

In 2015, approximately 11.2% of the total county population was served by Covington sewer, whereas approximately 16% was served by NCWSA. The percentage of the population served by sewer is anticipated to grow, but at this point the total population with on-site (septic) treatment is anticipated to grow at a much slower rate and would most likely occur in the more remote areas of the County. Populations estimated to be served by Covington or NCWSA sewer are detailed in **Table 9**. Total sewer flow projections are summarized in **Table 10** below.

Table 9: Percentage of Newton County Population Served by Sewer									
Year	Total Population (pop.)	Covington Sewer		NCWSA Sewer		Oxford Sewer		Porterdale Sewer	
		% of Total	Pop.	% of Total	Pop.	% of Total	Pop.	% of Total	Pop.
2020	112,843	12%	13,541	16%	18,055	3%	2,821	1%	1,354
2025	122,924	13%	15,980	17%	20,897	2%	2,857	1%	1,500
2030	134,468	14%	18,826	18%	24,204	2%	2,931	1%	1,667
2035	146,708	15%	22,006	19%	27,875	2%	3,008	1%	1,834
2045	169,245	17%	28,772	21%	35,541	2%	3,097	1%	2,149
2055	186,808	19%	35,494	23%	42,966	2%	3,101	1%	2,410
2065	205,115	21%	43,074	25%	51,279	2%	3,097	1%	2,687
2075	228,828	23%	52,631	27%	61,784	1%	3,135	1%	3,043

Table 10: Sewer Flow Projections														
Flow Source	2025		2030		2035		2045		2055		2065		2075	
	AAD	MMAD	AAD	MMAD	AAD	MMAD	AAD	MMAD	AAD	MMAD	AAD	MMAD	AAD	MMAD
Covington	2.5	3.4	3.2	4.5	3.9	5.4	5.2	7.2	6.6	9.3	8.4	11.8	10.5	14.6
NCWSA West	2.0	2.8	2.5	3.4	2.9	4.1	4.8	6.7	6.0	8.4	7.5	10.5	9.2	12.9
NCWSA East Discharge to sanitary	0.5	0.7	2.6	3.6	3.5	5.0	3.8	5.4	4.3	6.0	4.5	6.3	4.6	6.4
NCWSA East Discharge to IWRF	0.9	1.2	1.1	1.6	2.3	3.3	2.3	3.3	2.3	3.3	2.3	3.3	2.3	3.3
Oxford	0.3	0.5	0.4	0.5	0.4	0.6	0.4	0.6	0.4	0.6	0.5	0.6	0.5	0.7
Porterdale	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.4	0.4	0.5
Flows to Treatment Facilities	**6.4**	**9.0**	**9.9**	**13.9**	**13.3**	**18.6**	**16.8**	**23.5**	**20.1**	**28.1**	**23.6**	**33.1**	**27.5**	**38.5**
Covington WRF[1]	2.5	3.6	3.3	4.6	3.9	5.5	5.2	7.3	6.7	9.4	8.5	11.9	10.6	14.8
Yellow River WPCP[1,2]	2.5	3.4	2.9	4.1	3.4	4.8	5.3	7.5	6.6	9.3	8.2	11.4	9.9	13.9
A Scott Emmons WRF	0.5	0.7	2.6	3.6	3.5	5.0	3.8	5.4	4.3	6.0	4.5	6.3	4.6	6.4
IWRF	0.9	1.2	1.1	1.6	2.3	3.3	2.3	3.3	2.3	3.3	2.3	3.3	2.3	3.3
Potential Reuse Water Need[3]	0.2		0.7		3.4		TBD							

[1]Includes flow from Oxford
[2]Includes flow from Porterdale
[3]Based on latest industry projections in Stanton Springs

3.3 Gap Analysis: Wastewater

Wastewater treatment capacity gaps were evaluated by entity. Two (2) scenarios are presented for the City of Covington, with regard to an apparent gap occurring around 2035: (1) construction of a new WRF by 2035, and (2) expansion of the existing Covington WRF by 2035. NCWSA wastewater treatment gap analyses are separated by east and west service areas.

The new WRF evaluated for the City of Covington is projected to be located in the Alcovy River sewershed based on growth patterns and potential wasteload allocation availability. Additionally, the Dried Indian Creek sewershed is anticipated to be adequately served by the Covington WRF through the 2075 analysis period.

Potential discharge locations for treated effluent are difficult to project beyond existing approved WLAs and verbal correspondence with EPD. Assumptions regarding potential WLAs were made based on necessary treatment upgrades. However, based on what is known about existing WLAs, initial feedback from EPD, and the apparent need for IPR within the next ten (10) years, gaps in discharge capacity for treated effluent are not anticipated in the foreseeable future.

Based on the need for IPR to supplement raw water and as a solution to potential WLA challenges for the YRWPCP, Covington WRF, and the future Alcovy River WRF, it is recommended that stakeholder evaluate a joint facility to provide advanced treatment prior to discharge to Lake Varner. There may be available land at either the YRWPCP or the Covington LAS. Required space for an advanced treatment facility should also be considered during property acquisition efforts for the Alcovy River WRF.

The wastewater gap analyses are presented in the tables below. Cells are highlighted yellow where capacity upgrades are projected.

Table 11: Covington Wastewater Treatment Gap Analysis - Scenario 1											
Flow/Permit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
Covington MMAD Flow	3.6	4.6	5.5	6.4	7.3	8.4	9.4	10.7	11.9	13.4	14.8
Covington MMAD Permit	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Covington WRF Treatment	3.6	4.6	4.4	5.1	4.9	4.2	4.7	5.3	4.1	4.5	5.0
Eastside WRF MMAD Permit			2.0	2.0	6.0	6.0	6.0	6.0	10.0	10.0	10.0
Eastside WRF Treatment			1.1	1.3	2.4	4.2	4.7	5.3	7.9	8.8	9.8

Table 12: Covington Wastewater Treatment Gap Analysis - Scenario 2											
Flow/Permit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
Covington MMAD Flow	3.6	4.6	5.5	6.4	7.3	8.4	9.4	10.7	11.9	13.4	14.8
Covington MMAD Permit	5.6	5.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Covington WRF Treatment	3.6	4.6	5.5	6.4	7.3	7.5	7.5	7.5	7.5	7.5	7.5
Eastside MMAD Permit						2.0	2.0	5.0	5.0	8.0	8.0
Eastside WRF Treatment						0.9	1.9	3.2	4.4	5.9	7.3

Table 13: West NCWSA Gap Analysis											
Flow/Permit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
Yellow River MMAD Flow[1]	3.56	5.12	6.02	9.01	9.1	10.27	11.19	12.27	13.35	14.57	15.79
Yellow River MMAD Permit	4	6.2	6.2	10	10	12	12	16	16	16	16

[1]Starting in 2035, Table 14 assumes flows the permitted capacity of ASEWRF are conveyed to YRWPCP through the YRCS, up to 1.9 MGD (YRCS capacity)

Table 14: East NCWSA Gap Analysis											
Flow/Permit (MGD)	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
A. Scott Emmons MMAD Flow	1.0	3.6	5.0	5.2	5.4	5.7	6.1	6.2	6.3	6.4	6.4
A. Scott Emmons MMAD Permit	1.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
IWRF MMAD Flow	1.3	1.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
IWRF MMAD Permit	2.1	2.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5

3.4 Improvement Alternatives Evaluation

2025

By 2025, existing wastewater infrastructure is anticipated to be adequate for projected flows. The IWRF, currently in design and anticipated to be complete in 2026, will address increased wastewater treatment needs in east Newton County in the near future.

2035

City of Covington

Treated Effluent to Lake Varner for IPR

As described in Section 2.3, supplemental source water for potable water production may be necessary by 2030. Should this scenario become a reality, based on initial stakeholder coordination, the Covington WRF may be the best location for the sourcing of treated effluent. If necessary, this alternative may require:

- Treatment upgrades at the WRF to meet reuse standards
- Construction of pumping and piping network to convey treated effluent to Lake Varner
- EPD permitting
- Agreement between the NCWR and the City of Covington on cost sharing of operations and maintenance of infrastructure

Eastside WRF

By 2035, the City of Covington will likely require additional wastewater treatment capacity. Due to a limited footprint, capacity expansion at the Covington WRF may not be a viable option. Instead, a new wastewater treatment facility may be a reasonable alternative solution. As mentioned above, growth patterns in the City's eastern service area suggest that locating a new facility in east Covington with a discharge into the Alcovy River should be considered. This improvement would require:

- EPD approval of a WLA for discharge to the Alcovy River
- Land acquisition to locate new WRF

Should the necessity of IPR be delayed to 2035, the Eastside WRF may be a good candidate for the sourcing of treated effluent, as the design could include treatment to reuse standards. This alternative may require:

- Construction of pumping and piping network to convey treated effluent to Lake Varner

- EPD permitting
- Agreement between the NCWR and City on cost sharing of operations and maintenance of infrastructure

City of Covington Industrial Non-Potable Reuse

In addition to providing reuse water for further treatment at the CCWTP, reuse water from the Covington WRF or Eastside WRF could provide a source of non-potable reuse water for industries on the east side of the City. Conveyance infrastructure could be constructed as a standalone project or could be coupled with conveyance infrastructure to Lake Varner. These projects could be phased based on water needs at the time. This alternative would require:

- Construction of pumping and piping network to convey treated effluent to industrial users
- EPD permitting
- Negotiated service agreements with industrial users

Covington WRF Expansion

As previously mentioned, coordination with City staff indicated that expanding capacity at the Covington WRF may not be feasible due to space limitations. Additionally, it is anticipated that the current permitted capacity (5.6 MGD) will be adequate to serve the Dried Indian Creek sewershed through the 2075 analysis period. Therefore, this alternative was not included in evaluations. However, subsequent correspondence from City staff has suggested an interest in further evaluation of the feasibility of an expansion. The City plans to continue vetting this option.

NCWSA

YRWPCP Expansion

As with the City of Covington, the NCWSA is likely to require wastewater treatment capacity expansions by 2035. In their western service area, the YRWPCP is anticipated to require an expansion in permitted capacity by 2030. The NCWSA has the space available at the YRWPCP. Additionally, preliminary engineering has been completed for a 2.2 MGD expansion. A capacity increase at the YRWPCP will require a new discharge location or a modification to the existing LAS discharge agreement with the City of Covington. Discharge alternatives evaluated are summarized as follows:

- Yellow River – EPD approval of a WLA for discharge to the Yellow River
- Covington LAS – An agreement to transfer LAS discharge capacity between the City of Covington and the NCWSA

- Lake Varner IPR - Construction of pumping and piping network to convey treated effluent to Lake Varner. This alternative would also require further treatment and would be subject to EPD requirements for IPR. This alternative could be useful to provide supplemental source water, in addition to that from a City of Covington-owned WRF, should a gap in supply and demand continue to appear probable.

ASEWRF Expansion

In eastern Newton County, projected wastewater flows indicate that a 1.25 MGD expansion may be necessary by 2030. An additional expansion of 1.25 MGD may be necessary by 2035. While much of this growth is anticipated in industrial development, a capacity expansion at the ASEWRF provides redundant treatment capacity in the case that flows cannot be accepted at the IWRF, due to unexpected maintenance or an unforeseen peak flow event. If projections continue to show additional capacity will be necessary by 2030 and 2035, it would be most economical to complete a 2.5 MGD expansion by 2030. Expansion of the ASEWRF would be an effective use of available land and treatment infrastructure. This improvement would require:

- EPD approval of a WLA increase for discharge to the Little River
- Engineering and construction

IWRF Expansion

As with domestic wastewater, industrial wastewater projections suggest that an expansion of the IWRF may be necessary by 2035. However, industrial wastewater projections are considered highly conservative and subject to significant variability. For these reasons, the alternative was not included in cost analyses. Actual flows must be monitored as development continues. However, the IWRF is designed for seamless upgrades by adding additional RO and UF skids as needed, so implementing an upgrade could occur relatively quickly and efficiently. Additional flows may require updated and/or new service agreement negotiations with industrial customers.

Stanton Springs LAS

Another scenario for increasing discharge capacity in eastern Newton County is the construction of a LAS in the Stanton Springs area. The NCWSA owns approximately 300 acres adjacent to the ASEWRF, which may be viable for land application of wastewater. However, further evaluation is necessary to determine the viability of this concept. This alternative would not resolve treatment capacity needs but could supplement treatment expansions by providing additional discharge capacity. This alternative would require:

- Construction of LAS storage and distribution infrastructure

- EPD approval
- Potential additional land acquisition

2050

City of Covington

Eastside WRF Expansion

Based on the City's land use planning around industrial and commercial growth on the east side of the City in the Alcovy River basin, new wastewater flows between 2035 and 2050 are anticipated to be concentrated in the Alcovy River basin. This finding suggests that treatment capacity expansion will be necessary by 2050. Planning the details of an expansion would not be prudent at this time. However, an expansion may require:

- EPD permitting
- Land acquisition
- Identification of discharge location
- Engineering and construction

NCWSA

YRWPCP Expansion

Based on growth projections, by 2040, and again by 2050, further expansion of the YRWPCP is anticipated to be necessary. Existing land available at the YRWPCP may be adequate for an expansion without land acquisition. As with the expansion projected as needing to occur by 2030, discharge of treated effluent will present a challenge. The same alternative solutions may exist in 2040. However, the longevity of the Covington LAS is unknown, and therefore, this may no longer be an option. Soil and groundwater monitoring at the Covington LAS is required for permit compliance. EPD uses monitoring trend data to regulate the LAS as well as to determine when a "carrying capacity" has been reached for the LAS based on soil and groundwater conditions. At such a time, permitted discharges may be limited or eliminated altogether.

ASEWRF Expansion

Beyond 2035, additional wastewater treatment capacity at the ASEWRF may be necessary. However, expansions will be contingent upon growth in east Newton County. Given the projected 2.5 MGD capacity increase by 2035 and the high potential for variability in industrial flow projections, detailed evaluation of further upgrades was not warranted at this time. Continued monitoring of actual growth is recommended.

2075

A detailed analysis of potential improvement projects approximately 50 years out would likely become obsolete well before then. Therefore, this evaluation assumes that the previous capacity gaps identified are addressed by each milestone year. By 2075, further expansion of treatment capacity in eastern Covington may be necessary, based on growth pattern projections. For the purposes of developing recommendations, it was assumed that additional treated effluent flows would be discharged for IPR.

3.5 Cost Analysis

Costs of potential improvements were estimated at milestone years for each entity. Cost analyses focus on the major improvements evaluated and discussed during stakeholder meetings and do not represent all possible alternatives. However, regardless of the improvements which will eventually occur, these costs analyses are believed to represent useful budgetary planning estimates.

For improvements projected to occur by 2035, cost estimates included 20-year life cycle cost analyses. These analyses provide an estimate of capital expenditures (i.e., design and construction), periodic costs (i.e., equipment replacement), and annual costs (i.e., operations and maintenance) over a 20-year period.

For improvements projected to occur after 2035, cost evaluations were limited to capital expenditures. Life cycle cost evaluations made this far in advance are not likely to be a useful planning tool. Additionally, potential advancements in technology and industry practice could significantly impact the accuracy of such life cycle costs. Capital costs, more easily and accurately estimated, provide entities with benchmark projections.

Assumptions were made based on current industry metrics for wastewater improvements and operations. The following assumptions were used in generating life cycle costs:

- $20/gallon for wastewater treatment facility construction and expansion
- 3.3% annual inflation – (average from 1914-2023)
- Periodic equipment replacements/upgrades every 15 years based on data from similarly sized facilities in Georgia
- Annual costs, including operation and maintenance based on data from similarly sized facilities in Georgia

Wastewater improvement cost evaluations are summarized in the tables below for each entity by the following milestone years: 2035, 2050, 2075.

Table 15: City of Covington Cost Evaluations			
Year	**Improvement**	**Capital Cost**	**Life Cycle Cost**
2035	Eastside WRF 2.0 MGD Construction	$56,000,000	$76,000,000
	IPR from WRF to Lake Varner[1]	$24,000,000	$30,000,000
2050[2]	Eastside WRF 4.0 MGD Expansion	$181,000,000	
2075[2]	Eastside WRF 4.0 MGD Expansion	$406,000,000	

[1]Potential option for IPR at Lake Varner · Costs may be shared by NCWR.
[2]Cost estimates at this time horizon are subject to significant variability. However, these estimates suggest continued infrastructure expansions may be cost prohibitive, further illustrating the importance of reuse water and other more sustainable solutions.

Table 16: Newton County Water & Sewerage Authority Cost Evaluations			
Year	**Improvement**	**Capital Cost**	**Life Cycle Cost**
2035	ASEWRF 2.5 MGD Expansion	$70,000,000	$112,000,000
	YRWPCP 2.2 MGD Expansion	$61,000,000	$83,000,000
	IWRF 3.4 MGD Expansion	$71,000,000	$128,000,000
	YRWPCP IDPR to Lake Varner[1]	$19,000,000	$24,000,000
2050[2]	ASEWRF 1.25 MGD Expansion	$57,000,000	
	YRWPCP 5.8 MGD Expansion	$262,000,000	
2075[2]	YRWPCP 4.0 MGD Expansion	$406,000,000	

[1]Potential option for IPR at Lake Varner · Costs may be shared by NCWR.
[2]Cost estimates at this time horizon are subject to significant variability. However, these estimates suggest continued infrastructure expansions may be cost prohibitive, further illustrating the importance of reuse water and other more sustainable solutions.

3.6 Funding

Funding may be accomplished through low interest loans through GEFA, issuance of municipal bonds, or federal loan programs such as those provided through WIFIA.

3.7 Biosolids Management

Biosolids are currently managed separately by each entity, using a variety of dewatering and disposal methods. Below is a summary of methods used by entity:

- City of Covington
  - Covington WRF: belt press and landfill disposal, land application

- NCWSA
  - YRWPCP: centrifuge and landfill disposal
  - ASEWRF: rotary press and landfill disposal

The City of Covington is permitted by EPD to dispose of biosolids by land application at agronomic rates at sites identified in their Sludge Management Plan (SMP). However, biosolids production rates exceed that which can be readily accepted or is desired by site owners.

Sludge produced by the CCWTP was considered negligible and not included in these evaluations. However, alum sludge produced at WTPs may have multiple beneficial uses for wastewater treatment. Further evaluation to determine the viability of WTP sludge use to supplement wastewater treatment applications in Newton County is recommended.

3.7.1 Biosolids Projections

Biosolids production estimates were generated for City and NCWSA facilities, based on the flow projections identified in Section 3.2 and the alternatives evaluated in Section 3.2. **Table 17** below summarizes these estimates.

Biosolids production projection tables are included in **Appendix C**.

Table 17: City of Covington and NCWSA Biosolids Production Estimates

Wet Sludge Production [tons/year]						
Year	**Covington WRF (LAS)**	**Eastside WRF (Stream Discharge/IPR)**	**YRWPCP (LAS)**	**YRWPCP (Stream Discharge/IPR)**	**ASEWRF**	**Total**
2035	3,104	2,839	4,055	2,146	5,342	**17,487**
2050	3,836	5,235	4,460	6,406	6,158	**26,095**
2075	5,966	10,048	4,460	12,227	6,898	**39,600**

Table 18 below summarizes annual cost estimates for biosolids disposal at milestone years.

Table 18: Annual Biosolids Disposal Cost Estimates[1]		
Year	**Covington**	**NCWSA**
2035	$390,000	$760,000
2050	$970,000	$1,810,000
2075	$3,840,000	$5,650,000

[1]Assumes tipping fees are $45/ton in 2023. Assumes annual inflation of 3.3%. Values rounded up to the nearest $10,000.

3.7.2 Biosolids Management Challenges

Major challenges to biosolids management include but are not limited to:

- Costs of hauling
- Landfill tipping fees
- Disposal of contaminated sludge (i.e., PFAS, PFOS)

In addition to a continual rise in hauling costs and tipping fees, OWRA stakeholders must contend with increased restrictions on levels of various constituents found in biosolids. As regulators continue to address the threats of emerging contaminants such as per- and polyfluoroalkyl substances (PFAS) and perfluorooctane sulfonate (PFOS), not only are wastewater and water treatment facilities likely to see new permit requirements, but also sources, such as landfills, will be subject to strengthening regulations. Evaluating and planning to implement alternative biosolids management solutions, especially those which reduce dependency on landfill disposal, should be prioritized by OWRA stakeholders.

3.7.3 Biosolids Management Alternatives

A key objective for OWRA stakeholders, as noted above, is to reduce dependency on landfill disposal of biosolids. Alternatives that produce Class A biosolids (40 CFR 503), which can be commercially marketed or disposed of with minimal cost, are preferred.

While biosolids are currently managed individually by entity, shared solutions may be mutually beneficial and should be considered. Some alternatives would only have the potential to be economically viable if implemented collectively by multiple entities within Newton County. Some may even require consideration to regional biosolids management, in which biosolids would be imported from entities outside of the County.

Various alternatives for producing Class A biosolids were reviewed at a conceptual level to identify potential applications, pros and cons, and relative costs. Below is a review of concept evaluations.

Sludge Drying

Sludge drying consists of utilizing a heat source to evaporate water in sludge, thus increasing the solids content of the sludge. Various dryer products are available with a range of energy and footprint requirements. In general, self-contained thermal dryers, often powered by natural gas or electricity, have a relatively small footprint but higher energy costs. Solar dryers, on the other hand, typically require a much larger footprint but have lower energy requirements.

Thermal or solar dryers may be viable solutions for OWRA stakeholders and may be best suited for a shared facility where biosolids volume would be greater. Both options are most energy-efficient when operations are sustained over long periods with the frequency of startups minimized.

The City and the NCWSA have previously evaluated dryer options for a shared facility. A proposal from Merrell Bros, received in April of 2021, includes thermal and solar drying options, in which Merrell Bros proposed to design, construct, operate, and provide biosolids marketing and distribution services. Their proposal included pilot program options. The City of Covington and the NCWSA plan to further evaluate these options and the potential for a shared facility.

Composting

Composting consists of the biological degradation of organic matter and can produce Class A biosolids. Sludge composting is often conducted as an aerated static pile (ASP), in which biosolid piles, often combined with a carbon source such as mulch, are exposed to blown air, allowing aerobic biological degradation to occur. These piles are often organized in rows and may be covered or uncovered.

Compared to dryer technologies, composting can be relatively simple and inexpensive. Required footprint may be significantly larger than that of a solar dryer. Challenges with open air composting include runoff management, moisture control (especially if uncovered), and odor control. Should moisture content be a problem during wetter periods, producing Class A biosolids may be a challenge. However, if Class B biosolids are produced, these may potentially be utilized for slope stabilization at the Newton County landfill, instead of incurring the tipping fees associated with wasting of unclassified biosolids.

Incineration

Incineration of sludge includes exposing sludge to extreme temperatures, resulting in the burning off of volatile compounds and an ash end-product. Incineration can be

used to break the strong carbon-fluorine bond found in PFAS and PFOS, which will continue to become more important as regulations target these compounds. Additionally, the volume of solids is significantly reduced compared with other biosolids management alternatives, and the end-product may be commercially marketed.

Challenges with incineration include air quality concerns and permitting, high capital investment, and high energy costs. Additionally, incineration is most economical with large volumes of sludge, not likely to be produced by Newton County entities alone. Incineration may only be viable if a regional solution is considered, in which sludge is accepted from entities outside of Newton County.

A variety of factors will affect the suitability of a given biosolids management alternative for a given objective. Such factors may include but are not limited to:

- Desired end product
- Input quality (i.e., solids %)
- Chain of custody for emerging contaminants
- Available energy sources
- Operational structure (i.e., number of shifts, duration of equipment use)
- Seasonal conditions
- Contract negotiations for shared facilities

Given the many factors involved, detailed side-by-side cost comparisons are not appropriate at this stage. However, of the concepts reviewed above, it can be reasonably assumed that from a capital expenditure perspective, composting would likely be least expensive, incineration the most expensive, and drying options would have a range of costs somewhere in between.

4 ADDITIONAL CONSIDERATIONS

This section summarizes concepts that were discussed among stakeholders while developing the OWRA but were not included in milestone year evaluations or cost analyses. This section was included for the purpose of record-keeping and as a resource for continued discussions as the OWRA evolves.

Reversal of the Yellow River Conveyance System

Reversing the direction of flow in the YRCS would allow for flows to be sent to eastern Newton County from the YRWPCP. Additionally, other connection points in the City of Covington could be established. This scenario could be beneficial for increasing capacity of treatment facilities in the City of Covington and western Newton County and increase potential reuse production in eastern Newton County at the IWRF.

Discharge to the South River and Jackson Lake

Previous coordination with EPD has verbally indicated the potential for a WLA of 1.0 MGD in the South River. However, historical TMDLs indicate that new discharges to the watershed may not be likely or may include strict permit conditions.

5 CONCLUSIONS

This document establishes a baseline for water resource planning in Newton County. Water resource managers in the County have initiated and formalized a collaborative effort to responsibly manage water resources for the betterment of future generations.

It is believed that the methods used to project water demand and wastewater flows error toward conservative estimates. Such is beneficial for planning-level analyses, as it encourages proactiveness. This approach aligns with the OWRA purpose of responsible water resource planning, allowing resource managers to adequately prepare and budget for future circumstances. However, continued updates to these projections are necessary to adjust for actual, realized demands and flows. This component, the "living" nature of the OWRA, is critical. Not only could realized demands and flows be lower than projected, but they could also be higher due to unforeseen interest by one or more large industrial users, for example.

A high level of communication and collaboration between community stakeholders including but not limited to elected officials, community planners, and utility owners and operators, is key to sustainable growth and utility management. As industrial development continues, early communication and negotiations with existing and potential customers will also be an important component to successful water and wastewater planning.

Continued collaboration between the City of Covington and the NCWSA regarding the use and management of the Covington LAS site will be critical to maximize its utility for Newton County water resource managers. As described in the OWRA, adjusting the discharge rates allocated to each entity may be beneficial under future circumstances. Additionally, the LAS properties may have value as real estate for other improvement alternatives identified in the OWRA.

The OWRA focuses on major infrastructure planning for the City of Covington, NCWR, and the NCWSA, but does not explicitly address infrastructure in smaller communities within the County. However, the stakeholder group involved with development of the OWRA shall offer guidance and engage collaboratively with these communities, and neighboring communities, as necessary to promote responsible water resource management within Newton County and at the regional level.

This initial document establishes baseline growth and demand projections, identifies where potential gaps in water production and wastewater treatment may occur in the absence of planned improvements, and identified potential solutions to prevent the occurrence of any water resource gaps. The utility of this document will rely on routine updates, which will allow the plan to evolve with changing circumstances.

A timeline of potential upgrade milestones over the next 20 years is proved below:

2030

- NCWR: Water Production - Source Water and Treatment
- NCWSA: Wastewater Treatment - Eastern service area

2035

- City of Covington: Wastewater Treatment - Eastern service area
- NCWSA: Wastewater Treatment - Western service area

2045

- City of Covington: Wastewater Treatment - Eastern service area
- NCWSA: Wastewater Treatment - Western service area

6 RECOMMENDATIONS

It is recommended that this document be updated at least once every three (3) years.

EPD insights on WLA and other regulatory parameters will be necessary to guide planning efforts. It is recommended that water resource managers seek input from EPD early and often as the OWRA evolves and improvement plans progress.

Planning for specific wastewater capacity upgrade improvements should begin no later than the point at which annual average daily flow (AADF) reaches 80% of a facility's permitted capacity. Land acquisition efforts, when necessary, should occur as soon as possible, regardless of permit capacity.

Consider using the OWRA as a means of satisfying the planning document requirement in the service agreement between the NCWR and the NCWSA. Assuming all stakeholders approve of this scenario, update as necessary to meet requirements of the service agreement.

It is recommended that community leaders and elected officials formally adopt this document and initiate proactive efforts to prevent the potential gaps identified in this document. Continued evaluations will be necessary to determine appropriate action, especially over longer planning horizons. However, there are several important water

resource needs that require immediate attention. Recommendations for immediate action are as follows:

NCWR

- Begin preliminary engineering and regulatory coordination for IPR utilizing treated effluent from a City-owned WRF

City of Covington

- Coordinate with NCWSA to apply for WLA in the Yellow River and Alcovy River
- Begin property acquisition investigation for future site of Eastside WRF
- Determine whether immediate capacity needs will be addressed by Covington WRF expansion or Eastside WRF construction
- Begin preliminary engineering and regulatory coordination for IPR utilizing treated effluent from a City-owned WRF
- Develop strategic reuse water customers with existing and future industries

NCWSA

- Coordinate with the City of Covington to apply for WLA in the Yellow River and Alcovy River
- Begin preliminary engineering for YRWPCP expansion
- Begin preliminary engineering for ASEWRF expansion
- Continue developing strategic reuse water customers with existing and future industries

Appendix A:

Water Demand Projections for Industrial and Large Developments

Water Demand Projections for Industrial and Large Developments												
Industry / Development Name	**System Serving**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
Meta – Morning Hornet Data Center	**NCWSA**	0.20	0.36	0.36	0.36	0.36	0.45	0.45	0.45	0.45	0.45	0.45
Takeda (minimum potable demand)	**NCWSA**	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Takeda (maximum potable demand)	**NCWSA**	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Meta - Baymare Data Center	**NCWSA**	0.32	0.64	0.64	0.64	0.64	0.96	0.96	0.96	0.96	0.96	0.96
Rivian (minimum potable demand)	**NCWSA**	0.19	0.37	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Rivian (maximum potable demand)	**NCWSA**	0.41	1.17	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10
Stanton Grove & Historic Heartland	**NCWSA**	0.05	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
General Mills Expansion	**Covington**	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Nisshinbo Expansion	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Three Rings Ph. II	**Covington**	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Alcovy Road Retail Center	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Baker Farm (Project Lighthouse)	**Covington**	0.26	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Campbell Property	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Ashley Capital - Phase 1	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ashley Capital - Phase 2	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ashley Capital - Rail-served	**Covington**		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Absolics -5G (SVM) and N (HVM)	**Covington**	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Absolics Phase 2	**Covington**		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ryan Lowe (PEC)	**Covington**		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Covington Town Center	**Covington**	0.05	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
80 Acre Farm	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Lochridge - LPC Covington	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lochridge - Jane Alexander	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Airport Road (Archer)	**Oxford**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Jane	**Oxford**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Moore St	**Oxford**	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Summary of Industrial and New Development Water Demand Projections by Service Provider												
		2025	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
NCWSA minimum		**1.26**	**3.31**	**4.94**	**4.94**	**4.94**	**5.35**	**5.35**	**5.35**	**5.35**	**5.35**	**5.35**
NCWSA maximum		**1.98**	**4.61**	**7.54**	**7.54**	**7.54**	**7.95**	**7.95**	**7.95**	**7.95**	**7.95**	**7.95**
City of Covington		**0.93**	**3.98**	**4.38**	**4.38**	**4.38**	**4.38**	**4.38**	**4.38**	**4.38**	**4.38**	**4.38**
City of Oxford		**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**
	Total minimum	**2.30**	**7.40**	**9.43**	**9.43**	**9.43**	**9.84**	**9.84**	**9.84**	**9.84**	**9.84**	**9.84**
	Total maximum	**3.02**	**8.70**	**12.03**	**12.03**	**12.03**	**12.44**	**12.44**	**12.44**	**12.44**	**12.44**	**12.44**

Appendix B:

Adjusted Demand Projections for Industrial and Large Developments

Adjusted Water Demand Projections for Industrial and Large Developments												
Industry / Development Name	**System Serving**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
Meta – Morning Hornet Data Center	**NCWSA**	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Takeda (minimum potable demand)	**NCWSA**	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Takeda (maximum potable demand)	**NCWSA**	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Meta - Baymare Data Center	**NCWSA**	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Rivian (minimum potable demand)	**NCWSA**	0.06	0.37	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Rivian (maximum potable demand)	**NCWSA**	0.06	1.17	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10
Stanton Grove & Historic Heartland	**NCWSA**	0.05	0.05	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
General Mills Expansion	**Covington**	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Nisshinbo Expansion	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Three Rings Ph. II	**Covington**	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Alcovy Road Retail Center	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Baker Farm (Project Lighthouse)	**Covington**	0.26	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Campbell Property	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Ashley Capital - Phase 1	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ashley Capital - Phase 2	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ashley Capital - Rail-served	**Covington**		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Absolics -5G (SVM) and N (HVM)	**Covington**	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Absolics Phase 2	**Covington**		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ryan Lowe (PEC)	**Covington**		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Covington Town Center	**Covington**	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
80 Acre Farm	**Covington**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Lochridge - LPC Covington	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lochridge - Jane Alexander	**Covington**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Airport Road (Archer)	**Oxford**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Jane	**Oxford**	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Moore St	**Oxford**	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

Summary of Industrial and New Development Water Demand Projections by Service Provider											
	2025	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**	**2075**
NCWSA minimum	**0.80**	**1.11**	**3.65**	**3.65**	**3.65**	**3.65**	**3.65**	**3.65**	**3.65**	**3.65**	**3.65**
NCWSA maximum	**1.10**	**2.21**	**6.05**	**6.05**	**6.05**	**6.05**	**6.05**	**6.05**	**6.05**	**6.05**	**6.05**
City of Covington	**0.93**	**2.22**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**
City of Oxford	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**
Total minimum	**1.84**	**3.44**	**6.26**	**6.26**	**6.26**	**6.26**	**6.26**	**6.26**	**6.26**	**6.26**	**6.26**
Total maximum	**2.14**	**4.54**	**8.66**	**8.66**	**8.66**	**8.66**	**8.66**	**8.66**	**8.66**	**8.66**	**8.66**

Notes:

1. Projections identified in pink are calibrated based on recent metering data
2. City of Covington totals after 2025 are reduced by 30%

Appendix C:

Biosolids Production Projections

Biosolids Production Projections - One Water Resources Analysis

9/22/2023 Updated 10/26/2023 - C. Peden
By: C. Peden Updated 3/20/2024 - C. Carpenter
C&S Project: N2075.040

Yellow River WRF (LAS)

Year	Permited Flow Rate [MGD]	Future Flow Rate [MGD]	Sludge Yield[1]	Influent BOD [mg/L][2]	Effluent BOD[3] [mg/L]	Dry Sludge Production - Permitted Flow Rate [tons/year]	Dry Sludge Production - Future Flow Rate [tons/year]	Wet Sludge Production - Permitted Flow Rate [tons/year]	Wet Sludge Production - Future Flow Rate [tons/year]
2035	4.0	4.00	0.60	240	18	811	811	4,055	4,055
2050	4.4	4.40	0.60	240	18	892	892	4,460	4,460
2075	4.4	4.40	0.60	240	18	892	892	4,460	4,460

Yellow River WRF (Stream Discharge/IDPR)

Year	Permited Flow Rate [MGD]	Future Flow Rate [MGD]	Sludge Yield[1]	Influent BOD [mg/L][2]	Effluent BOD[4] [mg/L]	Dry Sludge Production - Permitted Flow Rate [tons/year]	Dry Sludge Production - Future Flow Rate [tons/year]	Wet Sludge Production - Permitted Flow Rate [tons/year]	Wet Sludge Production - Future Flow Rate [tons/year]
2035	0	2.00	0.60	240	5	0	429	0	2,146
2050	4.4	5.97	0.60	240	5	944	1,281	4,721	6,406
2075	4.4	11.39	0.60	240	5	944	2,445	4,721	12,227

Emmons WRF

Year	Permited Flow Rate [MGD]	Future Flow Rate [MGD]	Sludge Yield[1]	Influent BOD [mg/L][2]	Effluent BOD[4] [mg/L]	Dry Sludge Production - Permitted Flow Rate [tons/year]	Dry Sludge Production - Future Flow Rate [tons/year]	Wet Sludge Production - Permitted Flow Rate [tons/year]	Wet Sludge Production - Future Flow Rate [tons/year]
2035	5	4.98	0.60	240	5	1,073	1,068	5,365	5,342
2050	6	5.74	0.60	240	5	1,288	1,232	6,438	6,158
2075	7.5	6.43	0.60	240	5	1,610	1,380	8,048	6,898

Covington WRF (LAS)

Year	Permited Flow Rate [MGD]	Future Flow Rate [MGD]	Sludge Yield[1]	Influent BOD [mg/L][2]	Effluent BOD[5] [mg/L]	Dry Sludge Production - Permitted Flow Rate [tons/year]	Dry Sludge Production - Future Flow Rate [tons/year]	Wet Sludge Production - Permitted Flow Rate [tons/year]	Wet Sludge Production - Future Flow Rate [tons/year]
2035	5.6	2.91	0.70	210	10	1,193	621	5,966	3,104
2050	5.6	3.60	0.70	210	10	1,193	767	5,966	3,836
2075	5.6	5.60	0.70	210	10	1,193	1,193	5,966	5,966

Eastside WRF (Stream Discharge/IDPR)

Year	Permited Flow Rate [MGD]	Future Flow Rate [MGD]	Sludge Yield[1]	Influent BOD [mg/L][2]	Effluent BOD[4] [mg/L]	Dry Sludge Production - Permitted Flow Rate [tons/year]	Dry Sludge Production - Future Flow Rate [tons/year]	Wet Sludge Production - Permitted Flow Rate [tons/year]	Wet Sludge Production - Future Flow Rate [tons/year]
2035	3	2.60	0.70	210	5	655	568	3,276	2,839
2050	5	4.79	0.70	210	5	1,092	1,047	5,460	5,235
2075	10	9.20	0.70	210	5	2,184	2,010	10,921	10,048

[1] Assumed Sludge Yield Coefficient of 0.60 for YRWRF and ASEWRF; Estimate Sludge Yield Coefficient for CWRF is 0.68 - used 0.7 to be conservative
[2] 2022 Influent BOD averaged 240 mg/L for YRWRF and 210 mg/L for CWRF
[3] Average Effluent BOD from 2020-2021 = 18 mg/L; Permit limit = 50 mg/L
[4] Assumed Effluent BOD permit value
[5] Average Effluent BOD from 2020-2022 = 10 mg/L; Permit limit = 50 mg/L

Attachment B:

October 14, 2024 Public Meeting Sign-In Sheet

Public Meeting

October 14, 2024 @ 6:30p

Newton County Water & Sewerage Authority, Newton County Water Resources, City of Covington

***One Water Resources Analysis* (OWRA)**

Sign In

Name	Address	Phone / Email
		adam.mcdaniel@ospreymill.com
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		jking@cityofcovington.org
		fbaggett@cityofcovington.org
		d1@ncwsa.us
		d2@ncwsa.us
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		em@ncwsa.us
		hedgar@edgarfirm.com
		la@ncwsa.us
		tmc@ncwsa.us

Attachment C:

Public Meeting PowerPoint Presentations:
September 30, 2024
&
October 14, 2024

OneWater Resources

September 30, 2024

Covington georgia

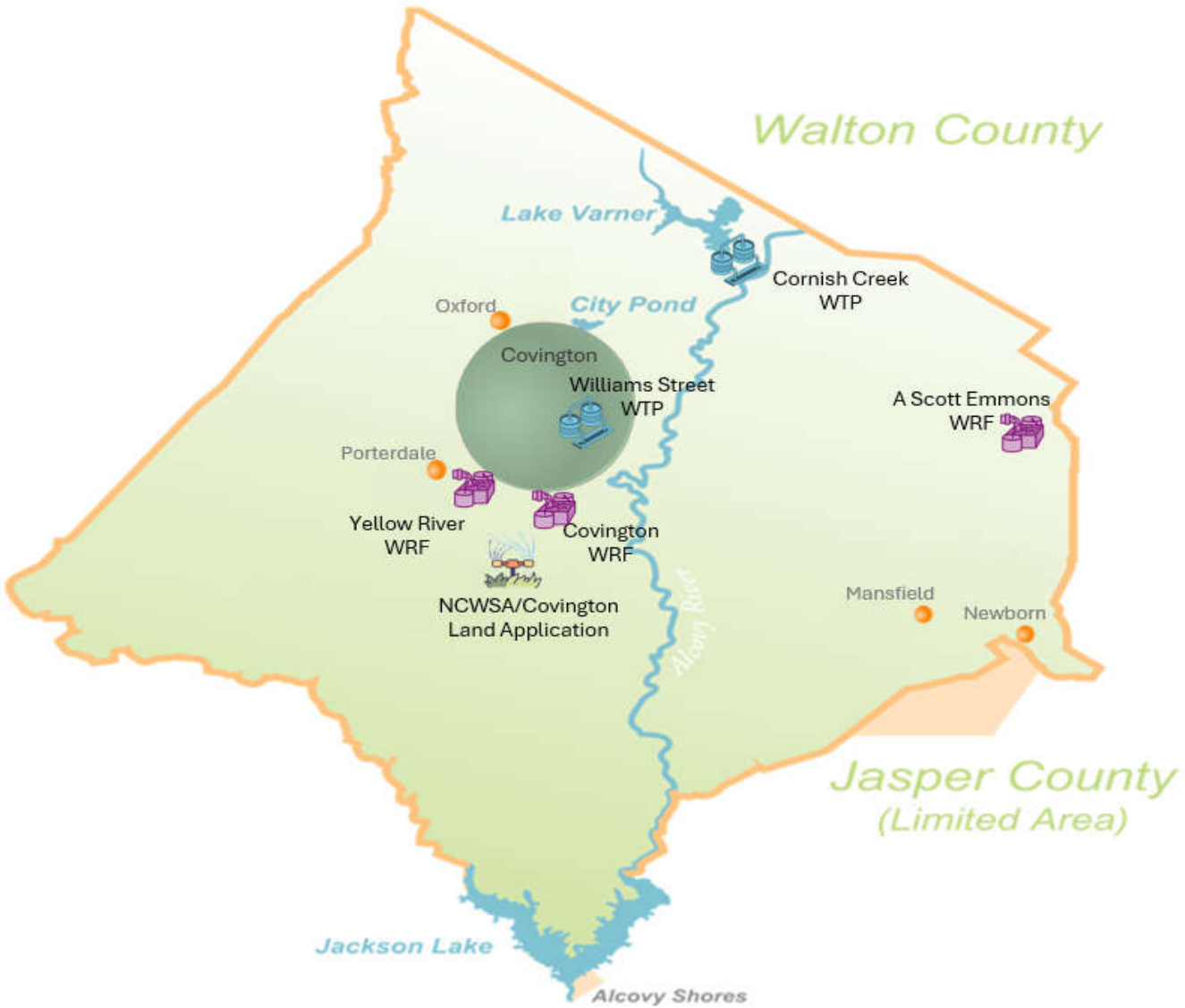
NEWTON COUNTY GEORGIA WATER RESOURCES 1821

NCWSA NEWTON COUNTY WATER & SEWERAGE AUTHORITY

Carter & Sloope CONSULTING ENGINEERS

GWES CIVIL • ENVIRONMENTAL • TRANSPORTATION ENGINEERING

Newton County Water Facilities



Goals of OneWater

- Identify water & sewer needs for the future
- Identify needed improvements for both water and wastewater
- Maximize water reuse opportunities
- Meet planning requirements of the Consecutive System Agreement

POPULATION GROWTH

Residential Population

Current Population	120,000
2050 Projection	180,000
2075 Projection	225,000

Industrial Growth

Expansion of Existing Industries and Addition of New Industries

7.4 – 8.7 MGD growth 2022 to 2030 (average day demands)

Additional 2 – 3.4 MGD by 2035 (average day demands)

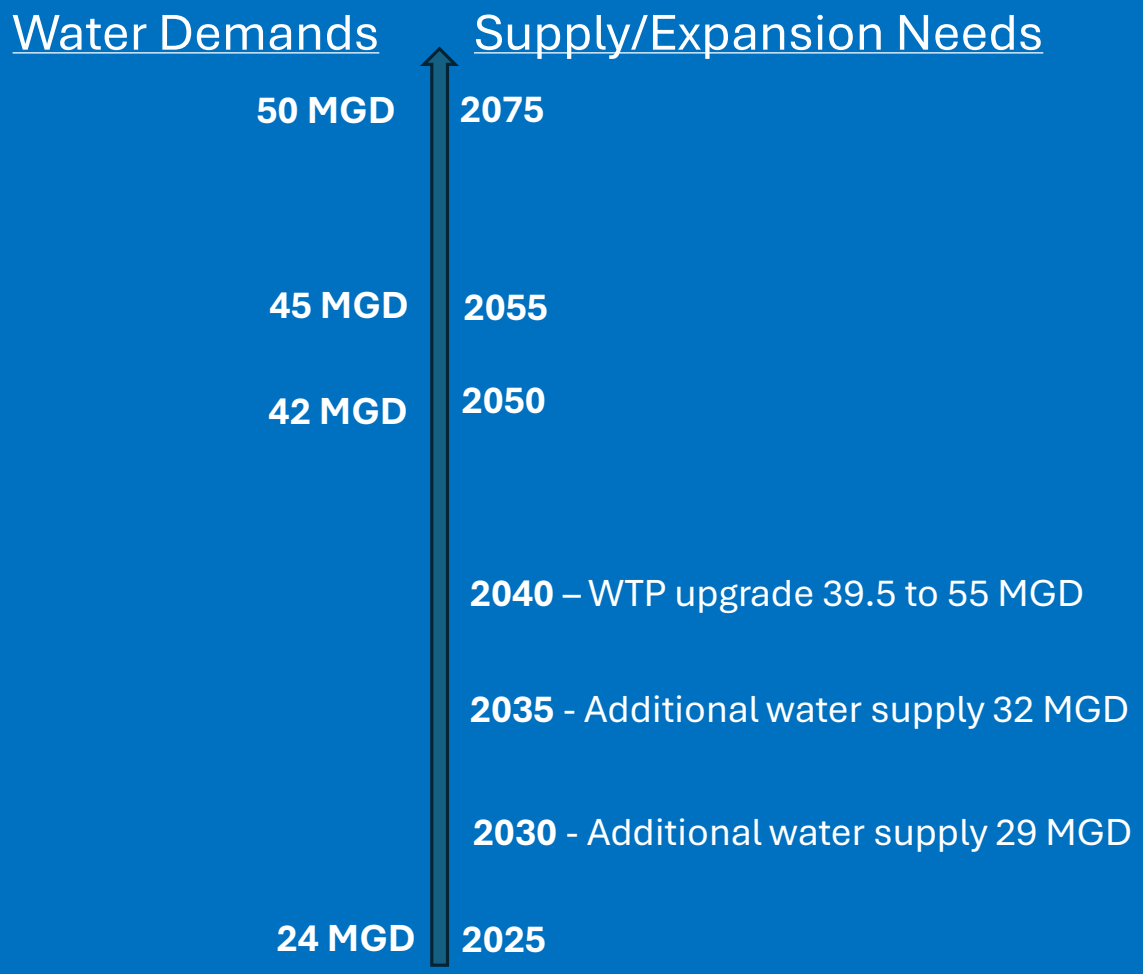
Water Supply to support expected growth

Cornish Creek WTP currently being upgraded to 39.5 MGD permitted capacity

Treatment plant upgrade will meet peak day demands until 2035-2040

Williams St WTP will be decommissioned

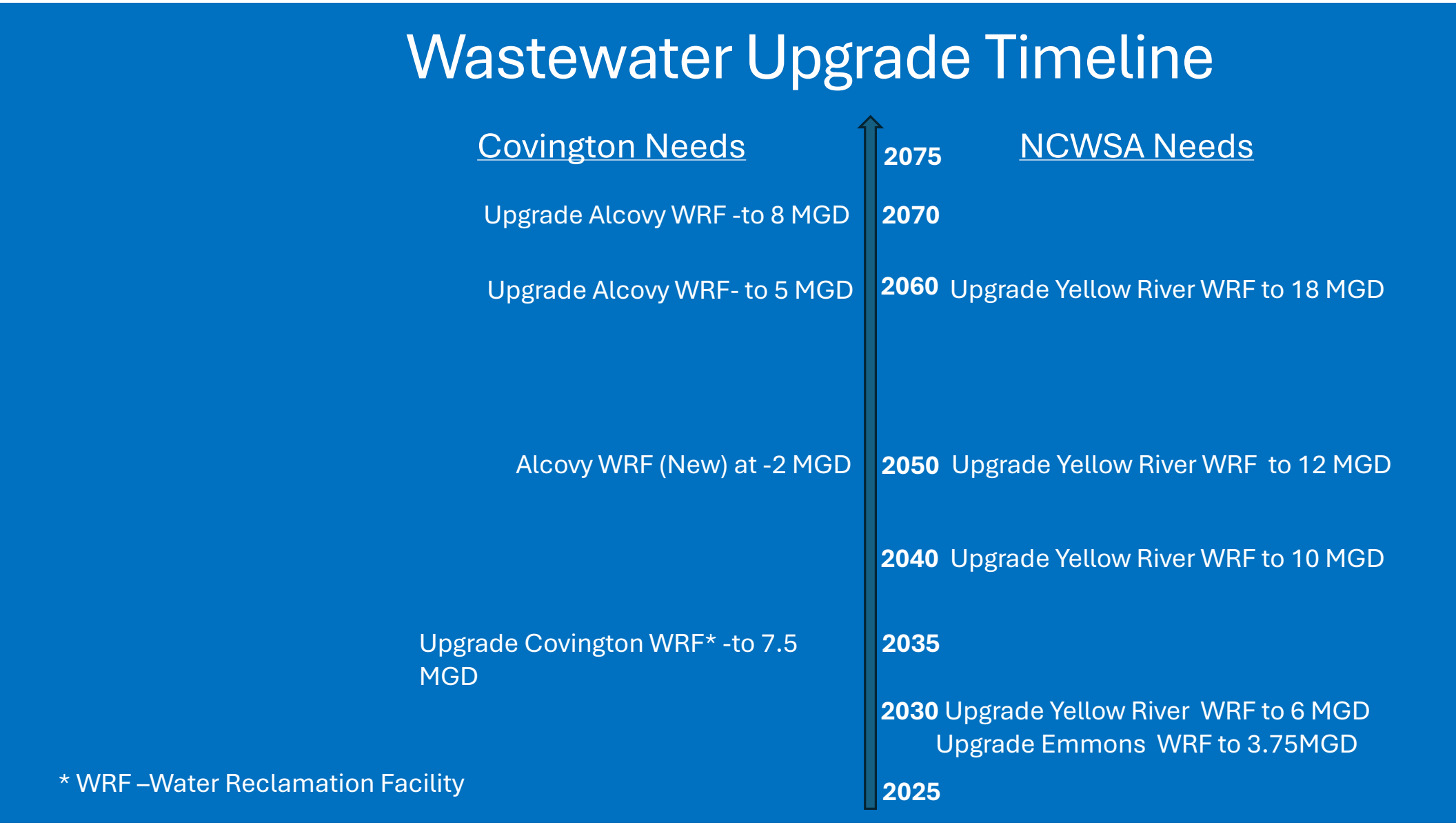
Water Upgrade Timeline



Wastewater?

Utilize	Fully utilize existing Covington and Yellow River WRFs
Develop	Develop new treatment capacity for Covington in Alcovy Basin
Expand	Expand A. Scott Emmons WRF to 3.75 MGD by 2030

Wastewater Upgrade Timeline



* WRF –Water Reclamation Facility

Wastewater Discharges

Maximize existing Land Application and A. Scott Emmons WRF discharge

Currently requesting discharges into Yellow River, Alcovy River, and Lake Varner from Georgia EPD

Implement industrial reuse

Takeaways


Additional source water
Identify wastewater treatment upgrades & discharges
Identify potential location of Alcovy River WRF

OneWater Resources Q&A

October 22, 2024

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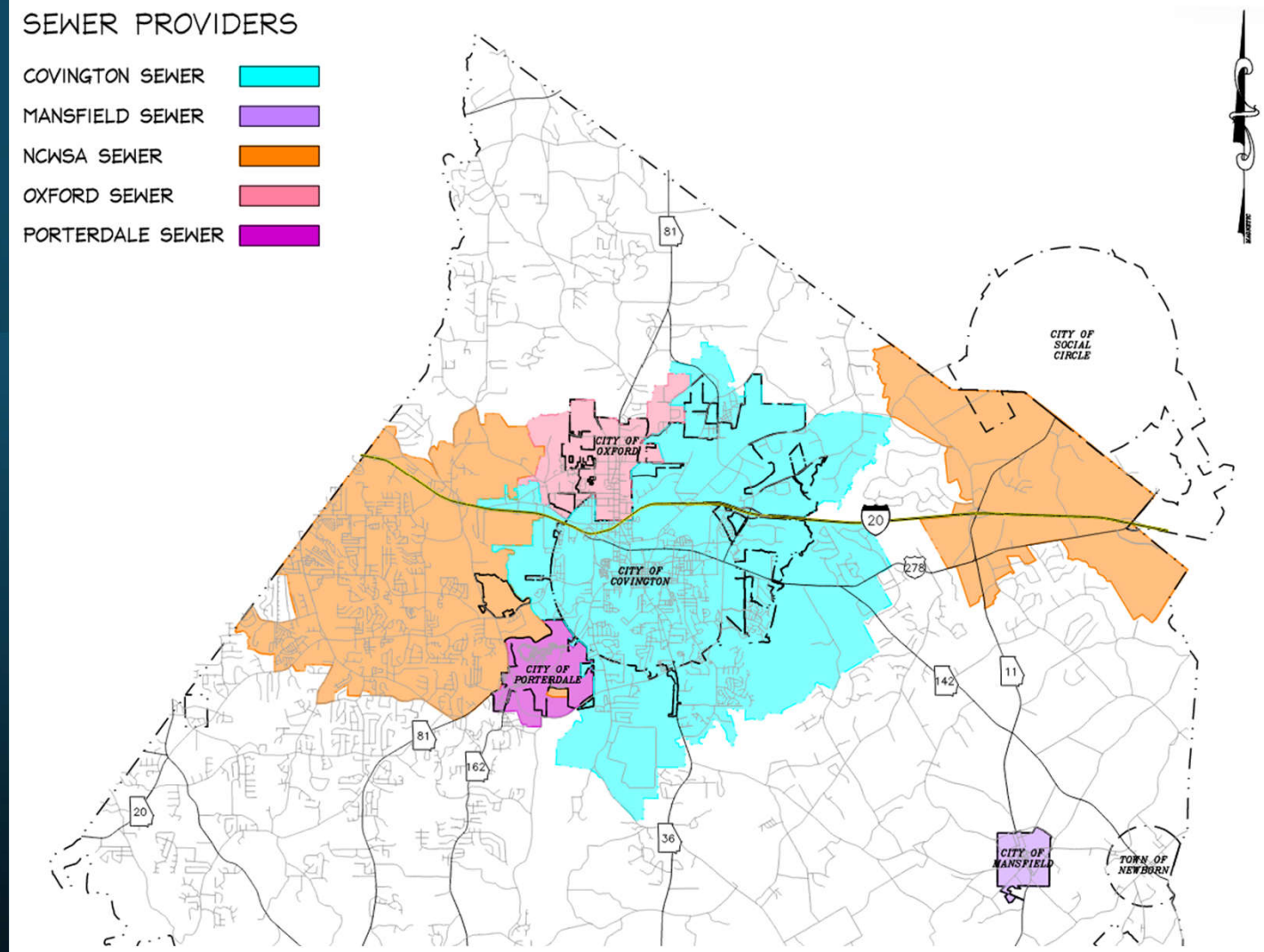
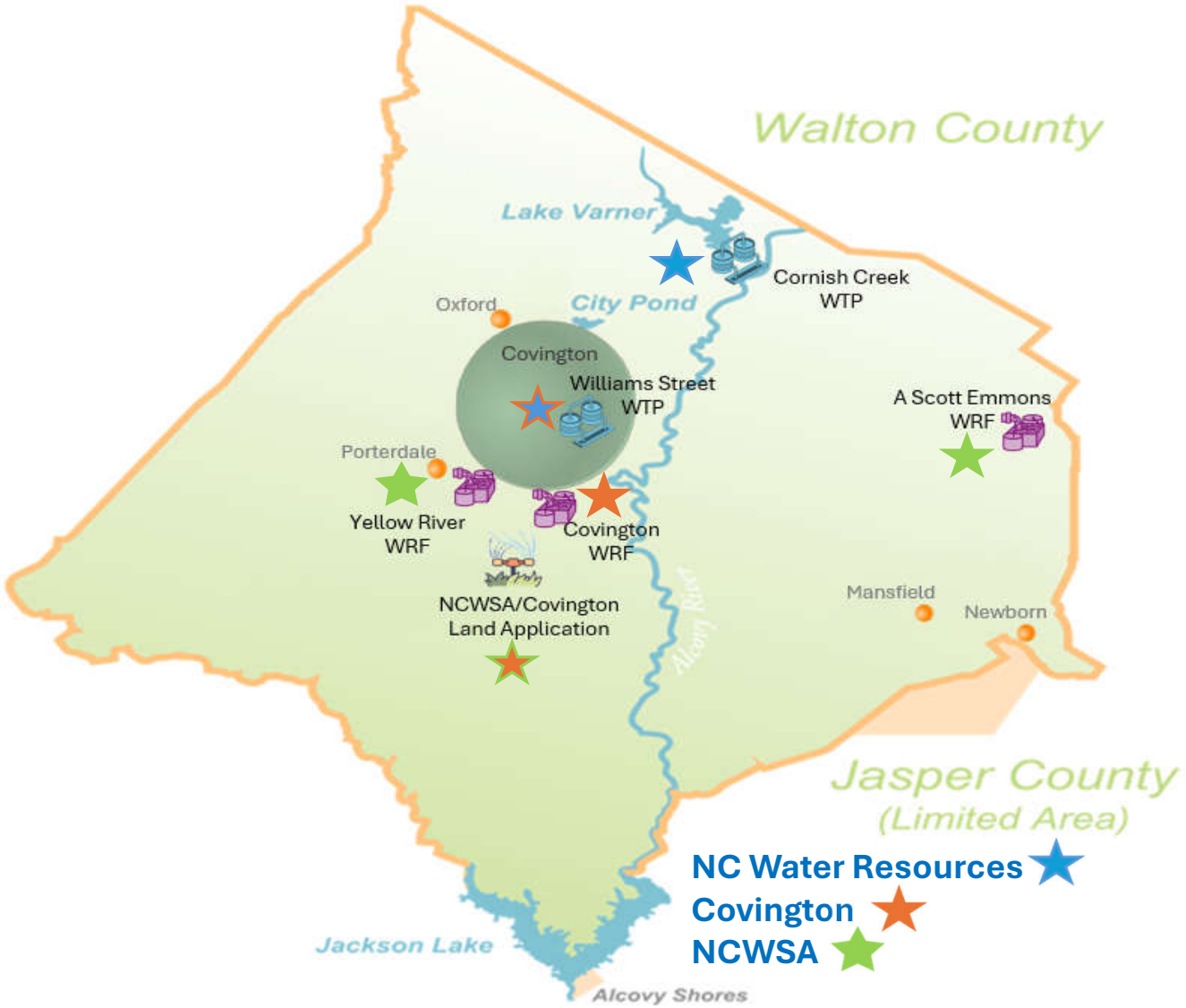
SERVICE AREA PROVIDERS



Newton County Water Facilities



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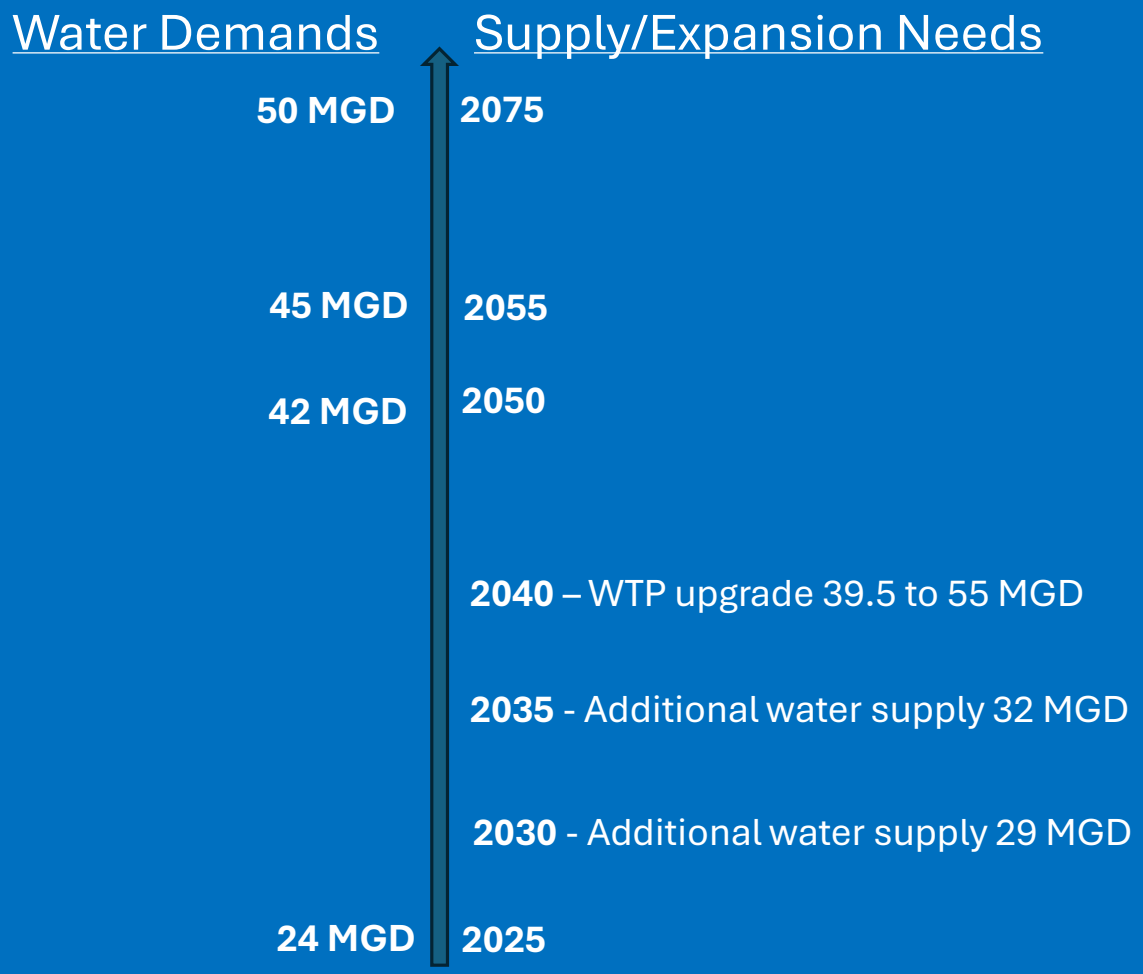
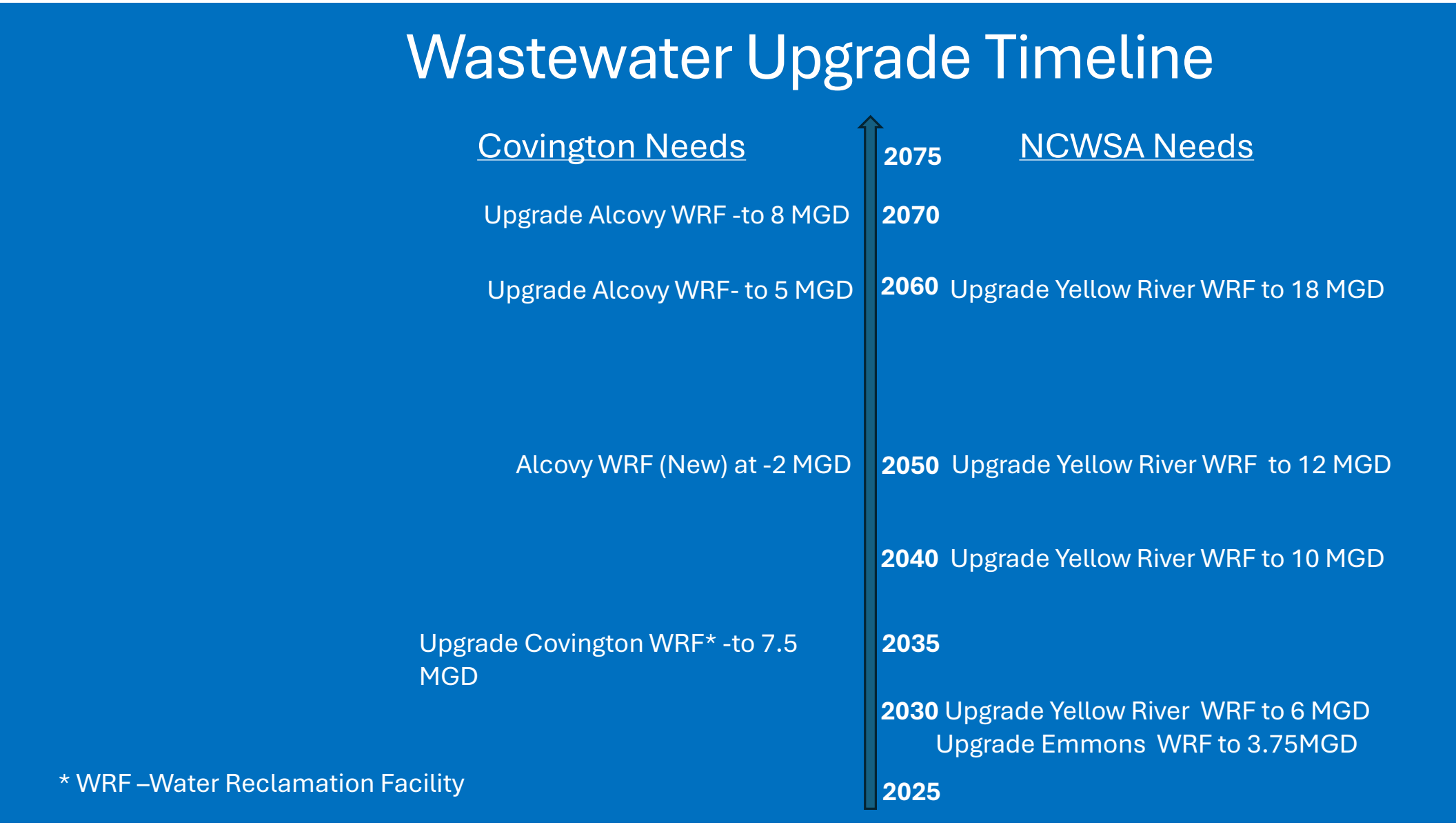


Wastewater Upgrade Timeline



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Next Steps

- Re-Evaluate One Water Resources Planning Analysis Every Year
- Complete Current Projects Under Construction
- Begin Planning for Infrastructure Improvements Identified for 2030

Questions?