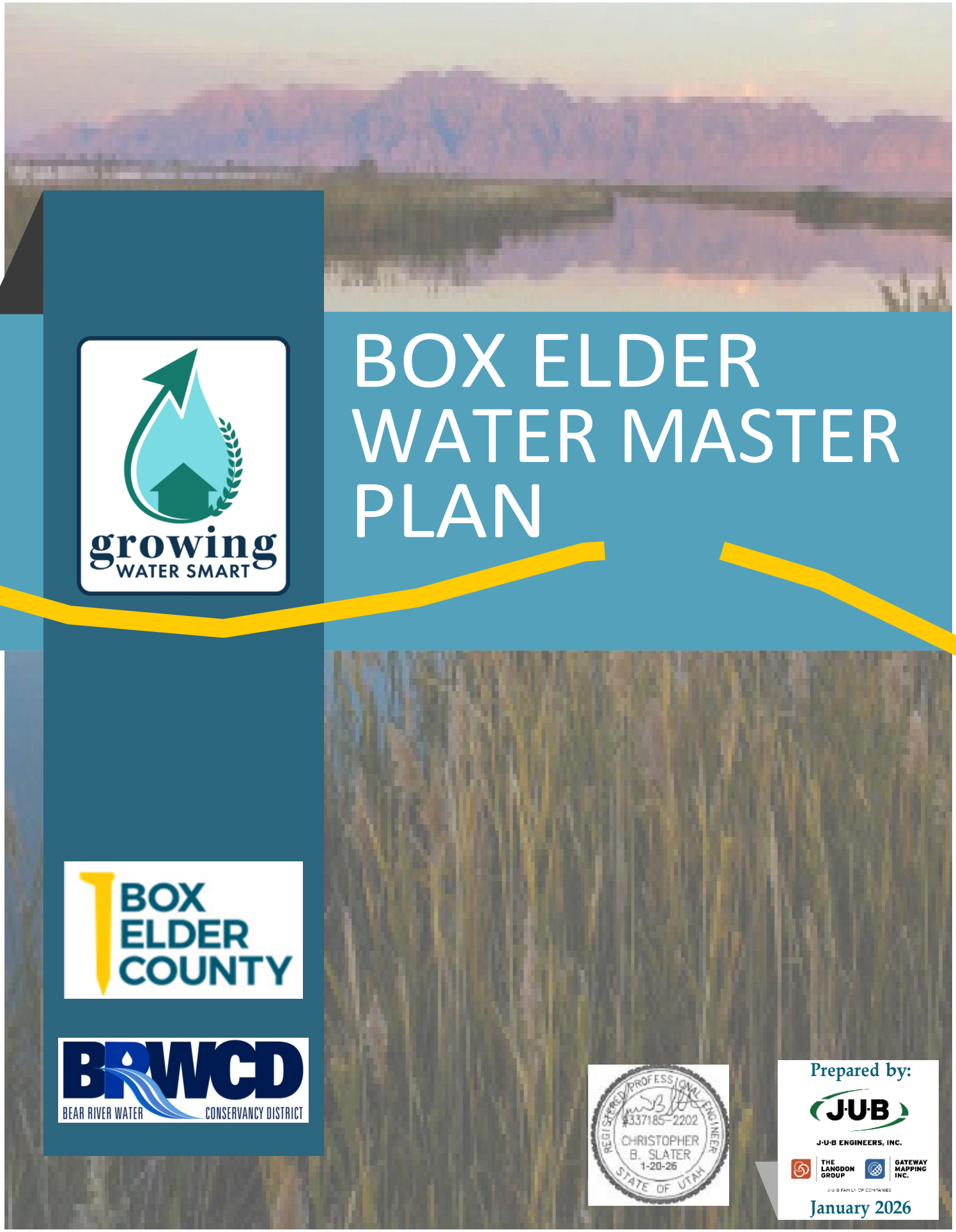


BOX ELDER WATER MASTER PLAN

growing WATER SMART

BOX ELDER COUNTY

BRWCD
BEAR RIVER WATER CONSERVANCY DISTRICT

REGISTERED PROFESSIONAL ENGINEER
#337185-2202
CHRISTOPHER B. SLATER
1-20-26
STATE OF UTAH

Prepared by:

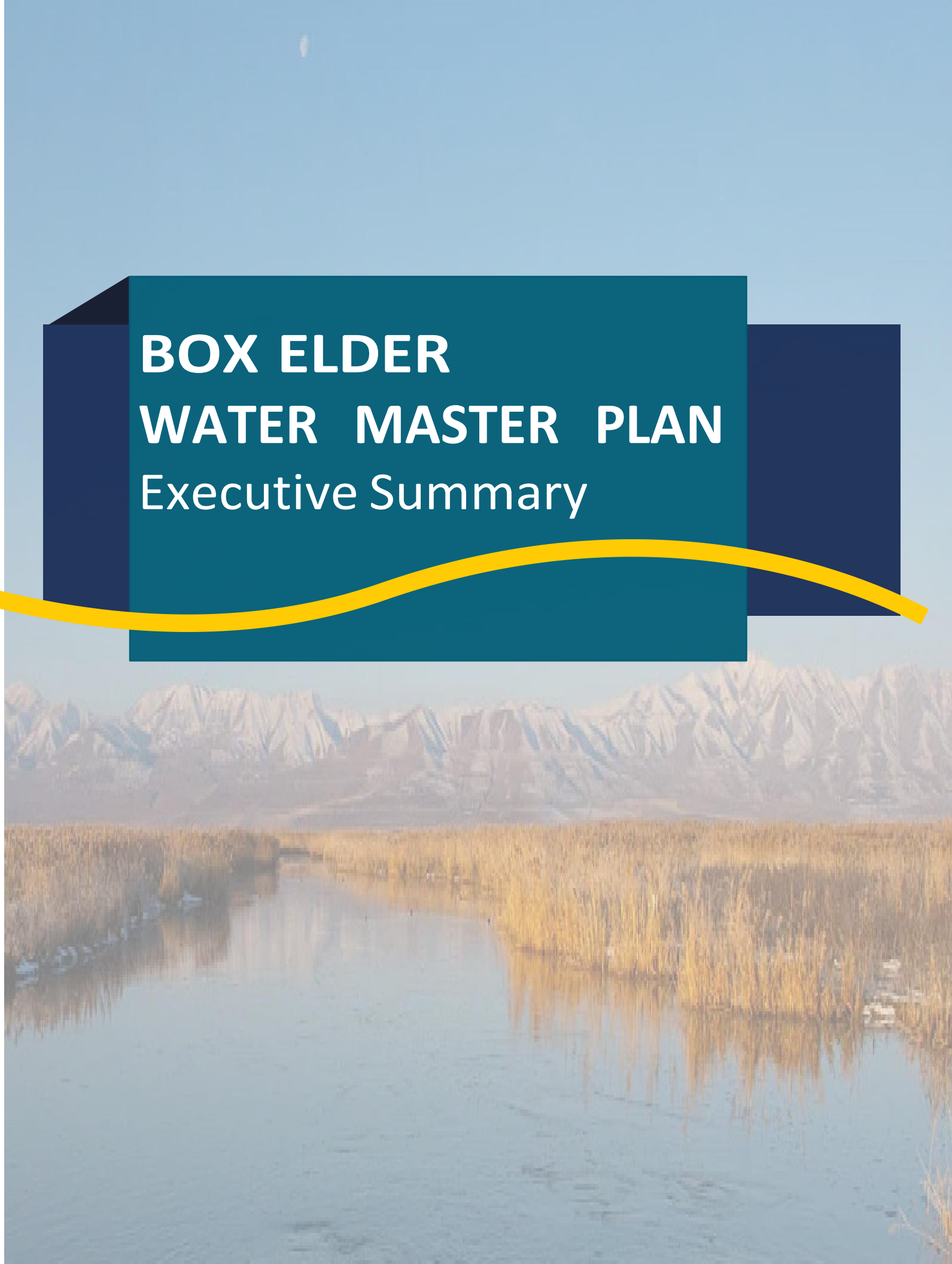
J·U·B ENGINEERS, INC.

THE LANGDON GROUP

GATEWAY MAPPING INC.

J·U·B FAMILY OF COMPANIES

January 2026



BOX ELDER WATER MASTER PLAN

Executive Summary

4TH LARGEST IN UTAH BY AREA Box Elder County

5,746 TOTAL SQUARE MILES

934 SQUARE MILES of County is water

65,006 2025 Population of Box Elder County

70% of residents live on eastern side of County

43% of County is Agricultural lands

BACKGROUND

Box Elder County initiated this Water Master Plan in response to a need for coordinated, county-wide water management including cooperation with land use planners and water resource planners. Planning was organized across seven regions to reflect local conditions. The process integrated local knowledge through over 50 interviews and multiple regional meetings with planners, municipalities, irrigation systems, private systems, and environmental groups.

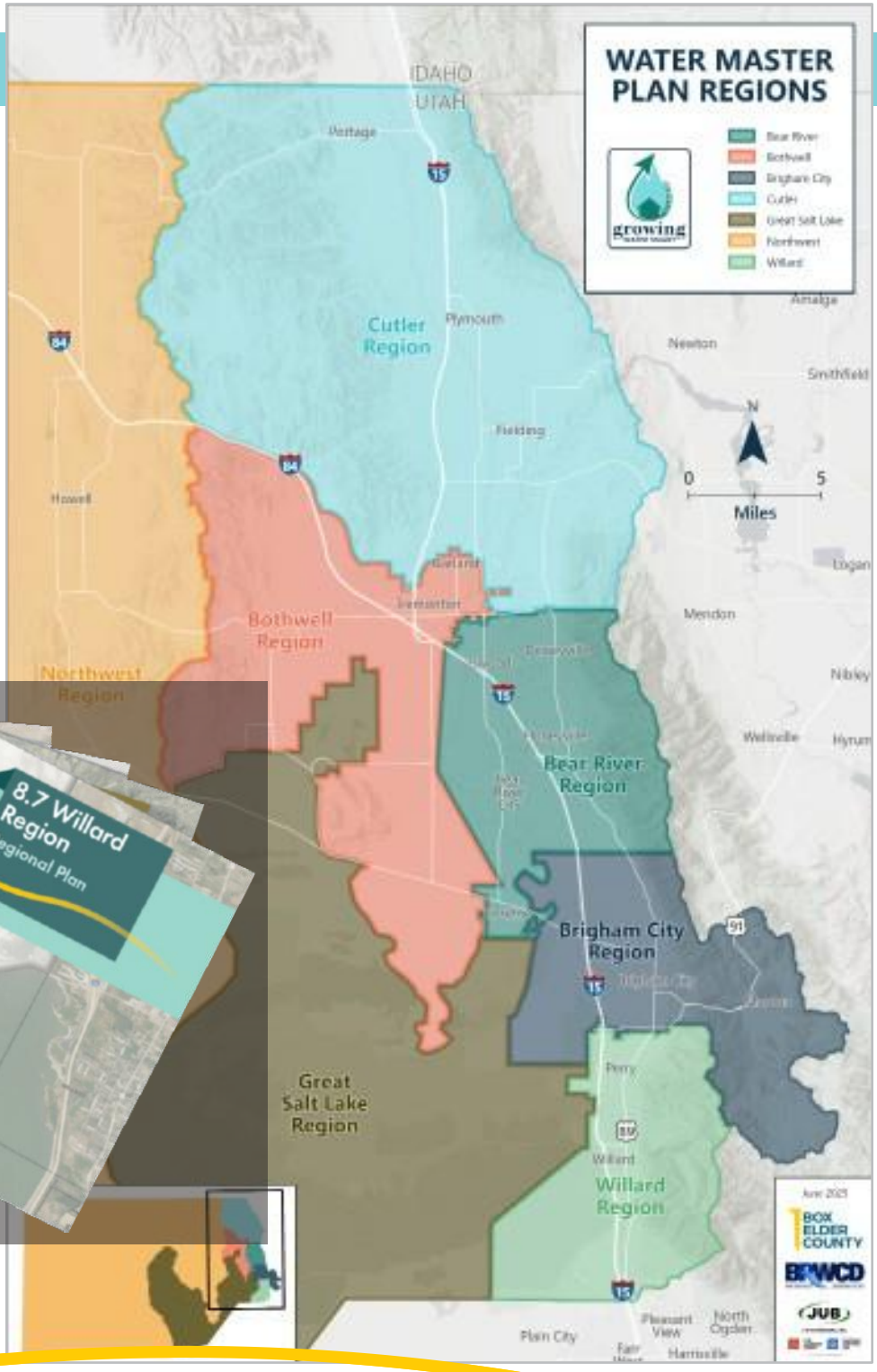
Plan Purpose:

The Box Elder Water Master Plan provides a strategic blueprint for managing our precious Box Elder County water resources; ensuring a reliable supply for our communities now and in the future.

The Master Plan process included identification of actions for local systems to consider as part of the regional plans. It also included an evaluation and development of a list of recommended regional actions and a list of recommended countywide actions.

Regions

Seven regions within the county were created as part of this planning effort to address distinct conditions and varying needs across the county. The plan includes a regional plan for each of the individual regions based on the information and data gathered and evaluated.

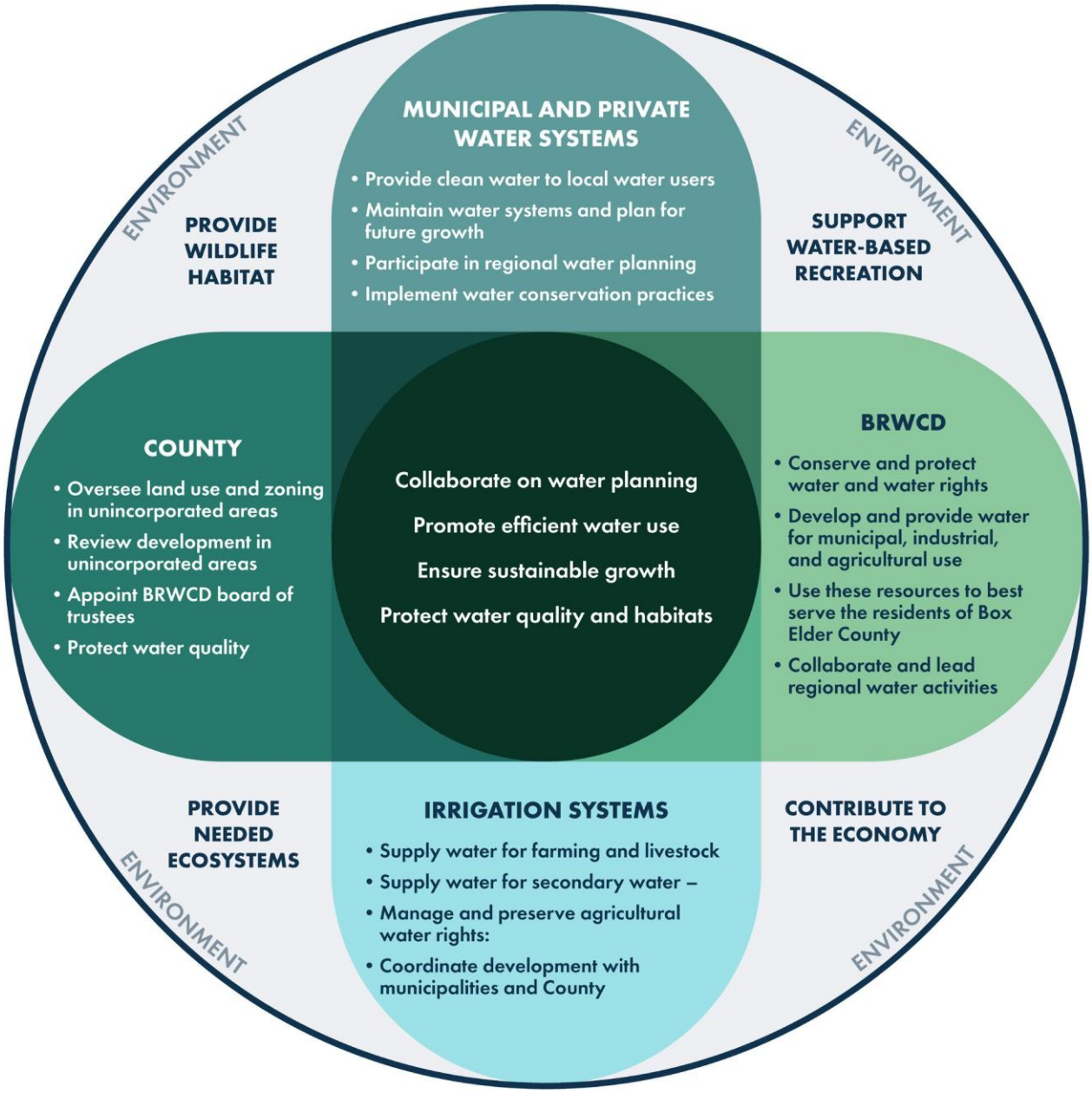


Roles of Water Users in the Plan Process

The Plan unites Box Elder County, BRWCD, municipalities, private systems, irrigation companies, and environmental partners to align land use and water planning.

Box Elder County and BRWCD operate as distinct entities with separate governance structures, yet their missions often intersect, particularly in the realm of water resource management and sustainable development. The County oversees land use and development in unincorporated areas, ensuring that growth aligns with zoning ordinances and long-term infrastructure planning. Meanwhile, BRWCD focuses on conserving, developing, and supplying water for municipal, industrial, and agricultural needs across the county. Both entities collaborate on water planning initiatives, promote efficient water use, and work to ensure that development occurs sustainably. This cooperative relationship is essential for balancing growth and meeting the evolving needs of Box Elder County's residents.

Roles of the County and BRWCD



Roles of Water Users

Municipal and private drinking water systems maintain infrastructure and plan for future drinking water needs. The county's irrigation systems play a vital role in supporting agriculture, preserving water rights, and coordinating with municipalities to balance urban development with farming needs. Environmental water needs are also a priority especially for sustaining habitats, recreation, and the local economy.

Overall, successful water management in the county depends on collaboration among the county, BRWCD, municipalities, private systems, irrigation companies, and environmental stakeholders to promote sustainable growth and protect vital water resources.

1. ENGAGED STAKEHOLDERS

GOAL: Build shared understanding and trust through broad participation with communities and stakeholders

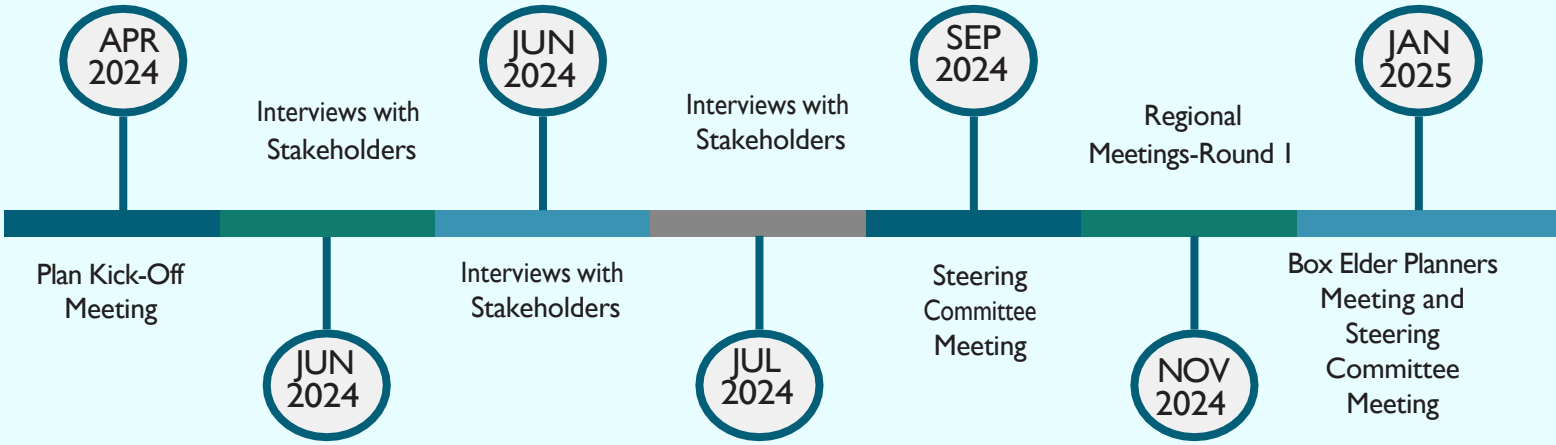
The planning team launched a countywide engagement process—It was an essential priority, as part of a Water Master Plan to meet the needs of all users, to engage as many different water users as possible across the entire county to fully understand the challenges and needs facing each of them.

Plan Kick-off Meeting

The Master Plan process began with a Plan Kickoff Meeting designed to gather initial input from a diverse audience of stakeholders across the county. The goal of this meeting was to introduce the planning process, define the scope, and begin identifying the most pressing water issues and concerns across the County.

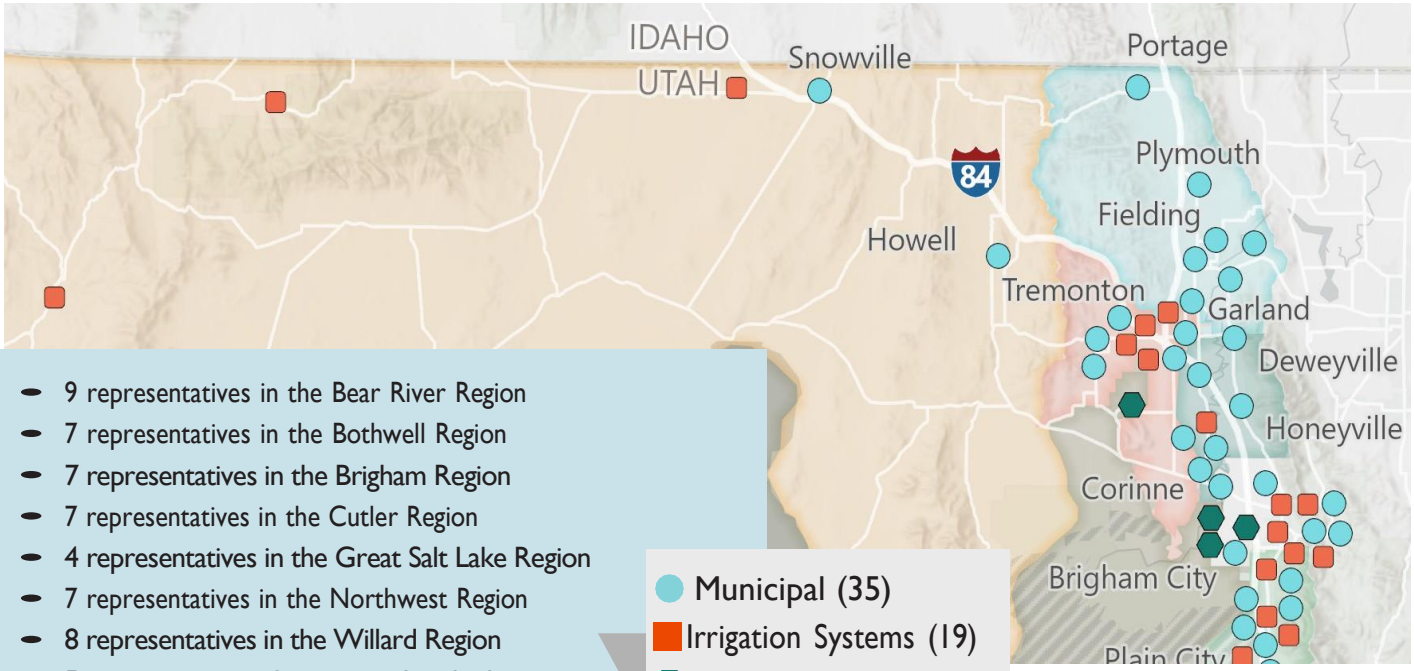
Created a Steering Committee

The Steering Committee was established as a core working group to guide the Master Plan process and ensure that key entities were represented in decision-making. Its primary purpose was to provide essential technical expertise, political support, and direction throughout the planning effort, ensuring the final recommendations were informed and broadly supported.



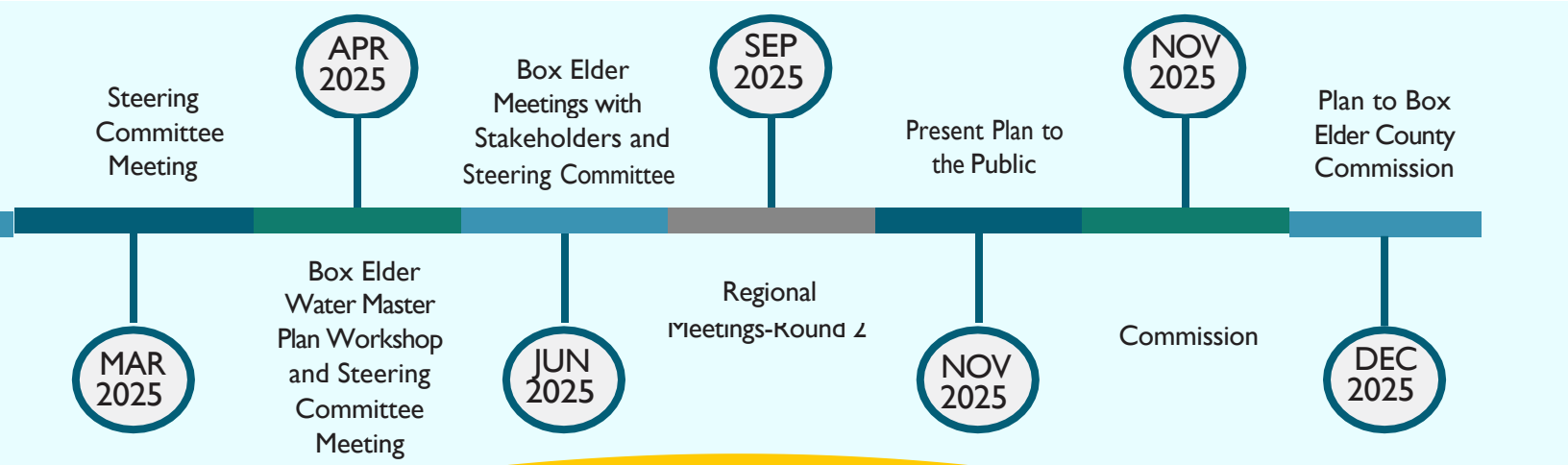
Interviewed Over 50 Stakeholders

Conducted interviews with key stakeholders to gather input across municipal, water districts, irrigation companies, agricultural operators, environmental groups and the public.



Held Two Rounds of Regional Meetings

The Master Plan included two rounds of regional meetings within the seven distinct areas to ensure a thorough understanding of local conditions. These sessions were crucial for identifying specific local and regional challenges and needs, enabling the planning team to accurately tailor solutions to the unique issues facing each area.



2. COLLECTED & ANALYZED INFORMATION

GOAL: Understand existing and future water supplies throughout the County

To establish a shared understanding of current and future conditions, the team analyzed population growth, water supply and demand, infrastructure capacity, water rights, and conservation potential. Growth hot spots and resource gaps were mapped to inform each region's strategy.

RADAR Exercise

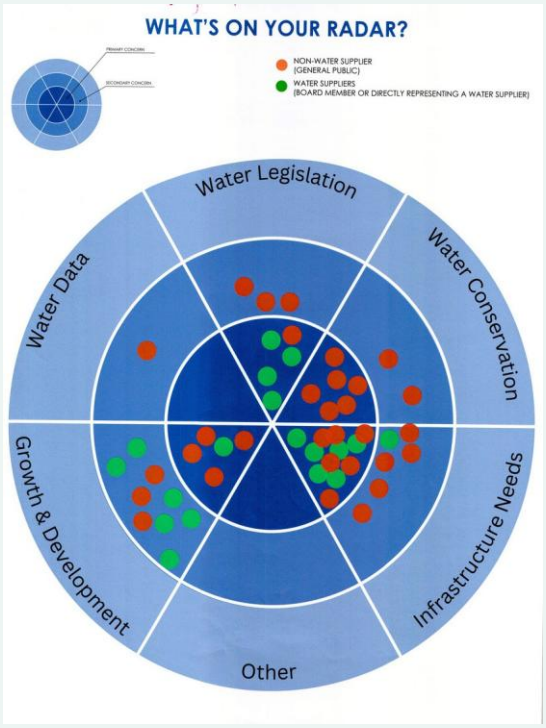
The RADAR Exercise was an activity held during the Public Kick-off Meeting where attendees placed dots on specific categories to provide their input on the concerns and priorities facing their respective regions. The outcomes of this exercise were vital, as they helped guide the subsequent development of stakeholder interview questions, regional meeting agendas, and the criteria used in the prioritization matrix.

Met with Community Planners

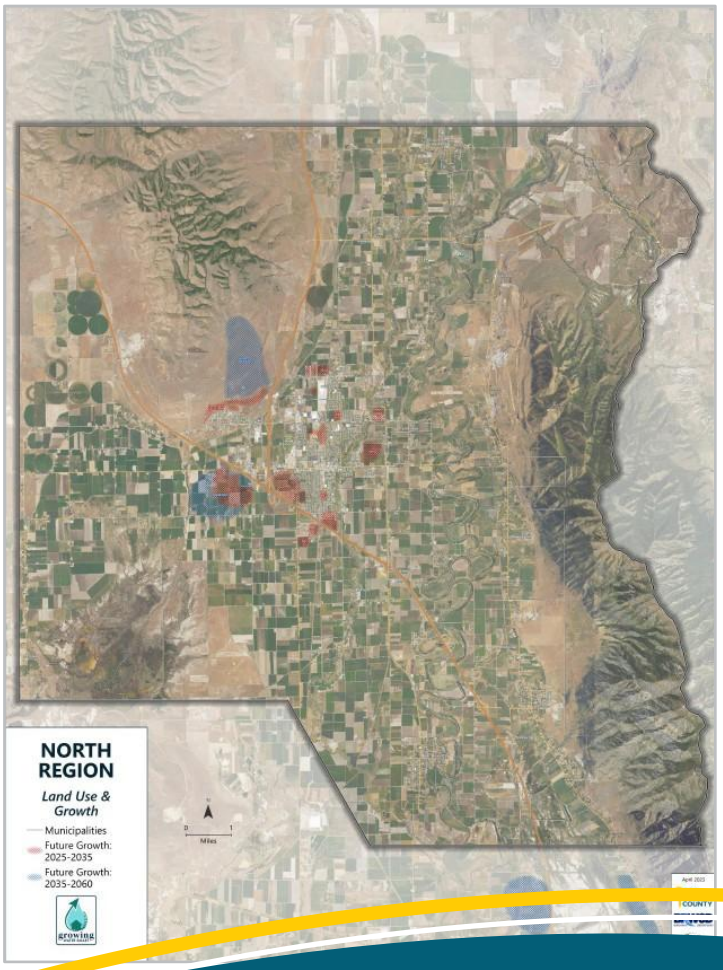
As an integral part of the planning process, the team held meetings with community planners from across the ounty. This was essential to ensure that the Master Plan's water strategies were fully integrated and aligned with existing and future land use and development goals outlined in municipal and county general plans.

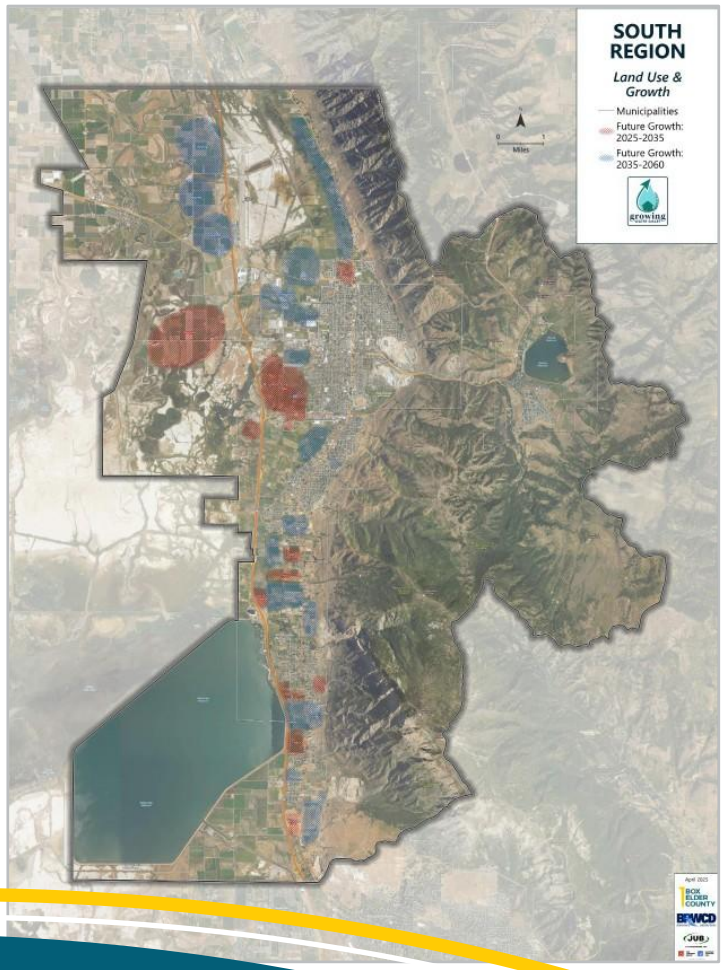
Analyzed Growth

The team dedicated time to analyze future growth projections and development trends across the county, which is a necessary step for any long-range infrastructure plan. By understanding where and how the population is expected to expand, the Master Plan could accurately forecast future water demand and ensure that strategies for supply and infrastructure could support this anticipated expansion.



Water Demand Increase: South Area					
Public Water Supplier	Estimated 2035 Units	Residential Use (gpcd) (DWRe)	Total Use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Brigham City	1,150	140	7,703	523	7
Perry	600	53	1,963	103	5
South Willard	600	55	108	107	99
Willard	650	197	958	416	43
Water Demand Increase: North Area					
Garland	230	99	352	74	21
Tremonton	3,185	124	2,923	1,283	44





3. EVALUATED ACTIONS & STRATEGIES

GOAL: Identify and prioritize actions and strategies for long term county-wide water management

Best Management Practices (BMPs) were translated into candidate actions and scored with a multi-objective framework. This process prioritized actions with the highest shared benefit.

Infrastructure Improvements: Upgrade critical facilities, improve irrigation efficiency, and expand data monitoring networks.

Water Supply & Rights Management: Identify and responsibly develop new sources; require new development to bring water; support conversion of agricultural water where feasible; monitor groundwater trends.

Water Management & Education: Strengthen inter-entity coordination; educate water users and developers; inform the public on legislation; align land use with water availability; monitor septic impacts.

INFRASTRUCTURE

- Replace aging infrastructure
- Improve connectivity between municipal systems
- Improve water measurement and monitoring
- Standardize secondary water requirements
- Improve irrigation efficiency

SUPPLY

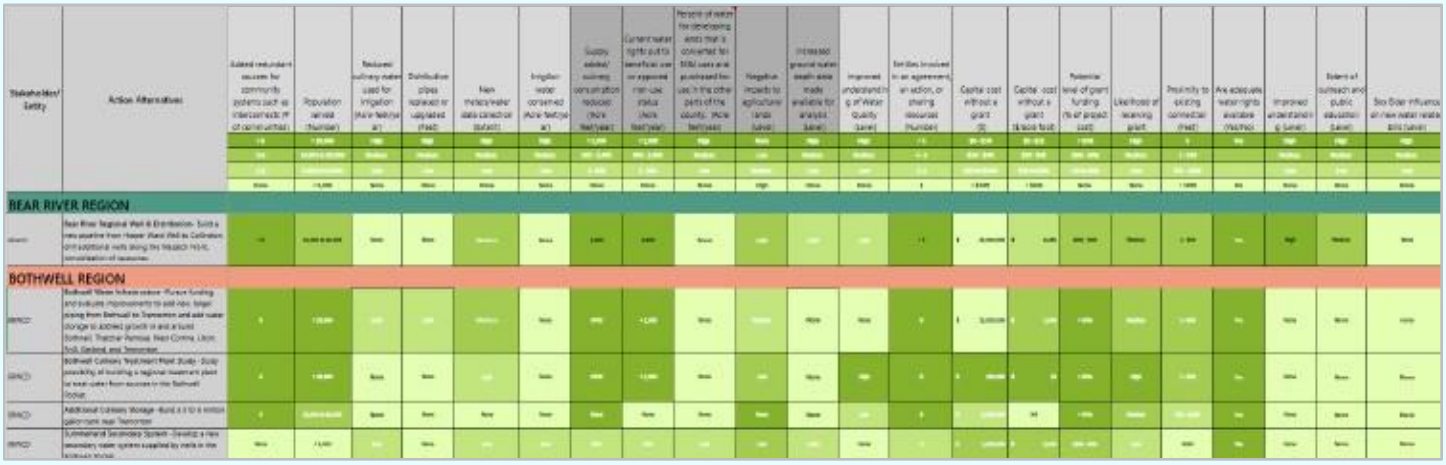
- Identify water sources & develop water responsibly
- Ensure new development brings their own water
- Improve conversion of agricultural water to municipal uses
- Preserve agricultural lands
- Monitor groundwater levels

MANAGEMENT

- Strengthen coordination & agreements between water entities
- Educate water users & developers on conservation & efficient management
- Imform public of proposed water legislation
- Develop long-term funding strategies for water infrastructure
- Protect water rights
- Align land use planning & zoning with water sustainability goals
- Monitor effects of septic systems on groundwater & lot densities

A range of potential actions, such as new wells, distribution piping, conservation planning, were evaluated conceptually based on the desired best management practices/objectives. The results for each action were color-coded indicating their effectiveness.

Actions that were more effective were colored darker than those that were less effective. The following table shows some of the actions evaluated and is only shown to illustrate the process that was followed.



Recommended regional and county-wide actions listed in the Master Plan report are presented using a standard framework referred to as the IRAR framework. IRAR is an acronym that stands for Issue, Rule, Analysis, and Recommendation.

IRAR Framework Analysis

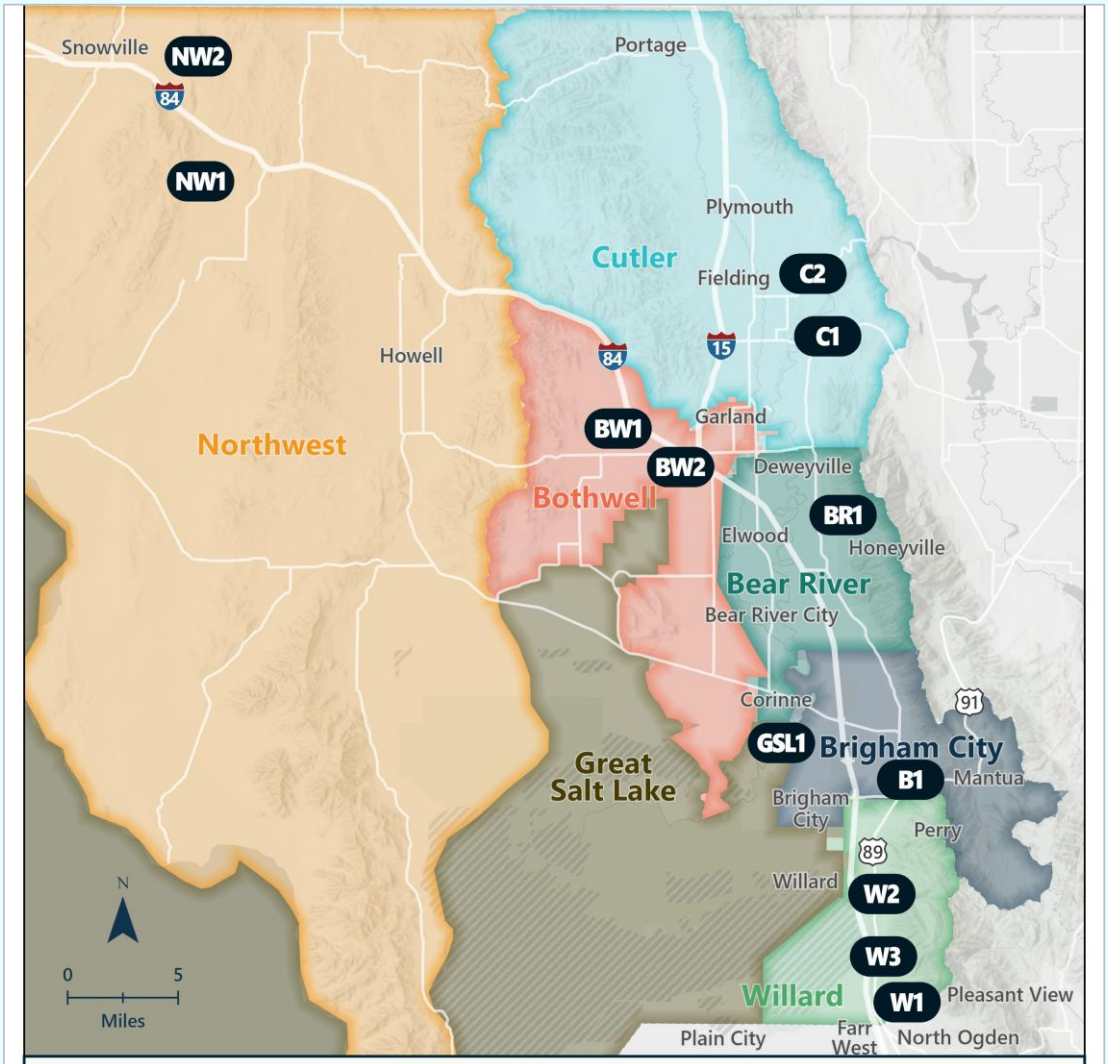
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines steps

4. DEVELOPED A RECOMMENDED ACTION PLAN

GOAL: Deliver a coordinated roadmap of regional and county-wide actions for sustained, adaptive implementation.

Regional Actions

Evaluation identified 12 Regional Actions with significant cross-jurisdictional impact. These actions are prioritized for collaborative implementation, supporting a unified and flexible approach across the county.



REGIONAL ACTIONS

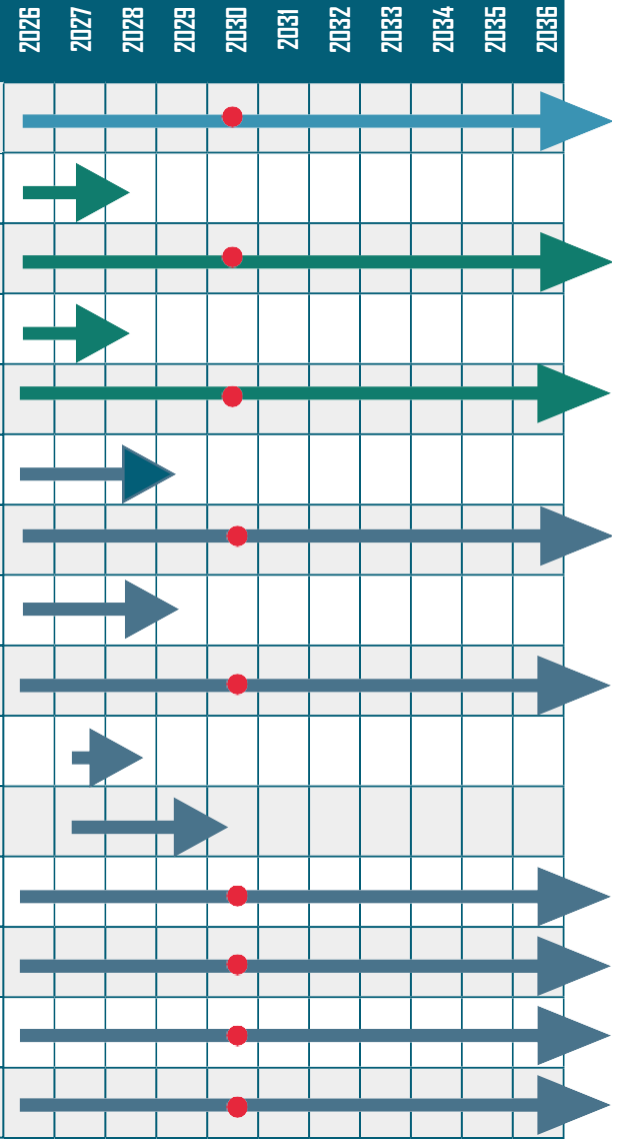
- **BR1** Evaluate pipe from Harper Ward to Collinston and new wells
- **BW1** Pursue funding & evaluate larger pipe improvements & storage from Bothwell to Tremonton
- **BW2** Evaluate plant near Tremonton to treat Bothwell water
- **B1** Work with Brigham to secure funding to study & implement use of irrigation water for sprinkler irrigation
- **C1** Explore UKON / BRWCD partnership to construct a water treatment plant
- **C2** Local groundwater level monitoring
- **GSL1** Meter outflows from refuge to GSL
- **NW1** Assist in water rights tracking, grant writing, & operator certifications
- **NW2** Idaho groundwater monitoring
- **W1** Equip and connect an existing well
- **W2** Evaluate community interconnections
- **W3** Seek funding to replace infrastructure at Coleman, Hot Springs, and Fox Hill

County-Wide Actions

In addition to the Regional Actions, the evaluation identified a separate category of county-wide actions that possess a broader scope of impact across multiple regions. These crucial actions were assigned to either Box Elder County or the BRWCD to lead, recognizing their roles as the foundational partners in county-wide water governance and ensuring that the most impactful projects are implemented at the highest level of coordination.

Figure 9-B: Timeline of Recommended Actions

Entity	Action
	#1 Solidify Roles of Box Elder County and BRWCD
County	#2 Develop and Implement a Water Exaction Policy
County	#3 Update Land Use & Zoning
County	#4 Complete a Septic System Density Study
County	#5 Manage Diversity & Key Experience on BRWCD Board
BRWCD	#6 Standardize Local Water Project Funding
BRWCD	#7 Sponsor Aging Infrastructure Replacement Projects
BRWCD	#8 Draft Potential City Water Exaction Policy Template
BRWCD	#9 Continue Evaluating Legislative & Water Policy
BRWCD	#10 Develop Secondary Water Standards
BRWCD	#11 Complete a Water Conservation Education Effort
BRWCD	#12 Provide Water Grant Notices
BRWCD	#13 Coordinate with BRCC and Other Irrigators in the County
BRWCD	#14 Provide Stakeholder Coordination
BRWCD	#15 Improve Groundwater Level Database



* ● Milestone Check-in

This living plan supports flexible, region-specific actions within a unified county-wide vision. Implementation will proceed through defined milestones, with periodic review and adjustment as conditions evolve.

Water Master Plan Recognition

Project Leads

Scott Lyons, Box Elder County Community Development Director
Chance Baxter, BRWCD General Manager
Chris Slater, J-U-B Engineers
Quinn Dance, J-U-B Engineers
Josh King, J-U-B Engineers, The Langdon Group
Emily Benson, J-U-B Engineers, The Langdon Group
Emily Mead, J-U-B Engineers

Key Stakeholders

JL Nicholas, Corrine City Public Works
Bruce Nelson, Mayor Honeyville City
Tyler Pugsley, Brigham City Public Works Director
Lyle Holmgren, Mayor of Tremonton
Joe Summers, Bothwell Water
Lesley Kendrick, Deweyville Mayor
Marcus Abel, Town of Mantua Public Works Director
Steve Woerner, Elwood Town
Kelly Lemmon, Collinston Water United
Jeremy Kimpton, Willard City
Riggin Holmgren, Bear River City & ACME Water
Linda Bourne, Garland Mayor
Robert Barnhill, Perry City, City Administrator
Chuck Earl, Fielding Mayor
Brodie Calder, UKON Board Member
Derek Oyler, UKON President
Randy Udy, Bear River Canal
Steve Norman, West Corrine Water Company
Monica Holdaway, Box Elder County Chamber of Commerce
Stephanie Tugaw-Madson
Trevor Nielson, General Manager Bear River Canal Company
Tim Munns, Agricultural Representative
Shane Baton, Mayor Corrine City
Kendral Norman, Corrine City Recorder
PJ Botts, Mayor Brigham City
Jeff Humprey, General Manager Pineview Water Systems
Troy McNeely, Public Works Director Honeyville City
Lesley Kendrick, Mayor Town of Deweyville
Shane Perkins, Marble Hills Water Company
Mike Waite, Brigham City Water Superintendent
Don Wallentine, Town of Mantua Board Member
Blaine Anderson, Sunset Park Water Company
Jon Webb, Sunset Park Water Company
Richard Garrett, Collinston Water United
Kyle Potter, Collinston Water United
Nathan Spackman, Town of Deweyville
Joe Summers, Bothwell Cemetery & Water Corporation

Steering Committee

Madeline Brown, Willard City Planner (Willard Region)
Jay Capener, Bear River Canal Company (Cutler Region)
Randy Udy, Bear River Canal Company (Cutler, Bear River, Brigham, Bothwell Regions)
Steve Norman, West Corrine Water Company (Bothwell Region)
Monica Holdaway, Box Elder County Chamber of Commerce (Brigham Region)
Stephanie Tugaw-Madson (Brigham Region)
Trevor Nielson, Bear River Canal Company (Cutler, Bear River, Brigham, Bothwell Regions)
Chance Baxter, BRWCD General Manager
Tim Munns (Northwest Region)
Bruce Nelson, Honeyville Mayor (Bear River Region)
Lyle Holmgren, Mayor of Tremonton (Bothwell Region)
Scott Lyons, Box Elder County Community Development Director
Boyd Bingham, Box Elder County (Northwest, All Regions)

Community Planners

Jeremy Kimpton, Willard City
Madeline Brown, Willard City
Brittany Alfau, Bear River Association of Governments
Tony Elkins, Brigham City
Ryan Halverson, UDOT Region 1
Christy Dahlberg, Wasatch Front Regional Council
Natalie Tippets, Bear River Health Department
Bob Barnhill, Perry City

Scott Lyons, Box Elder County Community Development Director
Jeff Seedall, Tremonton City
Bill Cobabe, Tremonton City
Marcus Wager, Box Elder County
Mark Bradley, Brigham City

BRWCD Board Members

Lyle Holmgren, Mayor of Tremonton
Joe Summers, Bothwell Cemetery & Water Corporation
Lesley Kendrick, Mayor Town of Deweyville
Kelly Lemmon, Collinston Water United
Brodie Calder, UKON Board Member
Jay Capener, Bear River Canal Company
Tim Munns, Agricultural Representative
Chance Baxter, BRWCD General Manager
DJ Bott, Mayor Brigham City
Boyd Bingham, Box Elder County

Stakeholder Interviews

IRRIGATION WATER

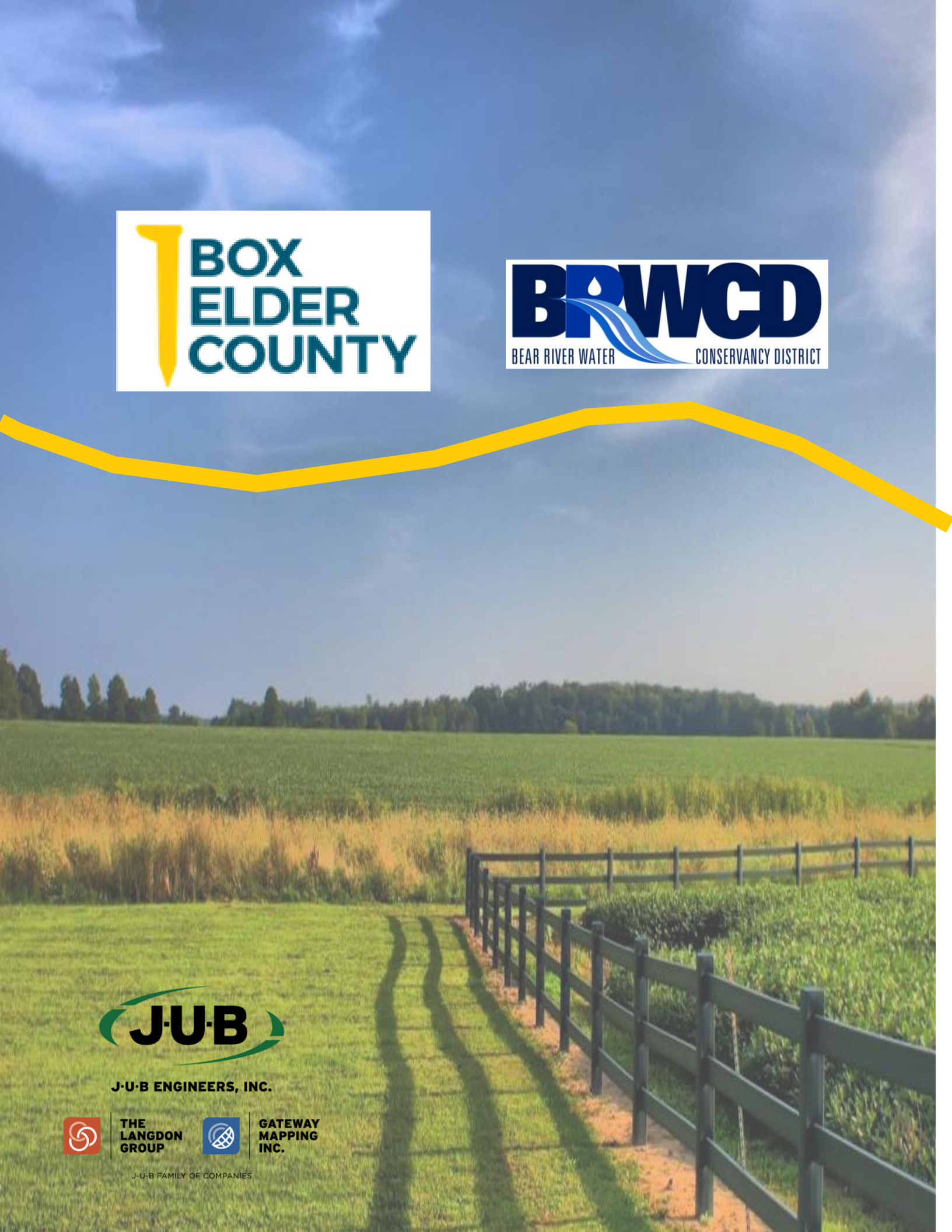
Mantua Irrigation
Box Elder Creek Water Users Association
Harper Irrigation Company
North String Irrigation
Bigfield Irrigation
Pineview Water Systems
Bear River Canal Company
Highland Ditch Company
Central Canal Company
Ferry Farms
3 Mile Creek Irrigation
Blue Creek Irrigation
Taylor Farms
The Rose of Snowville
North Side Raft River Irrigation Companies
Spencer Land and Livestock
Poulson Farms
6d Land and Livestock
Willard Irrigation

GREAT SALT LAKE ENTITES

Bear River Migratory Bird Refuge
Salt Creek Waterfowl Management Area (UDWiR)
Bear River Club Company
Chesapeake Duck Club

CULINARY WATER

Brigham City Corporation
Mantua Culinary Water Systems
ACME Water Company
Collinston Water System
Corrine City Corporation
Deweyville Municipal Water System
Elwood Town
Harper Ward Water System
Honeyville Municipal Water System
West Corrine Water Company
Bothwell Cemetery and Water Corporation
Garland City Corporation
Sunset Park Water Company
Thatcher (Marble) Hills Water Company
Thatcher-Penrose Service District
Tremonton City Corporation
Beaver Dam Water System
Nucor Steel Corporation
Riverside North Garland Water Company
Portage Municipal Water System
UKON Water Company
Willow Creek Water Company
East Grouse Creek Pipeline Company
Howell Town Water Department
Northrop Grumman
Snowville City Water System
BRWCD South Willard System
Coleman Mobile Home Court
Fox Hill Mobile Home Community
Hot Springs Trailor Court
Perry City Water System
South Willard Water Company
Willard City Water System
Plymouth Town


BOX ELDER COUNTY
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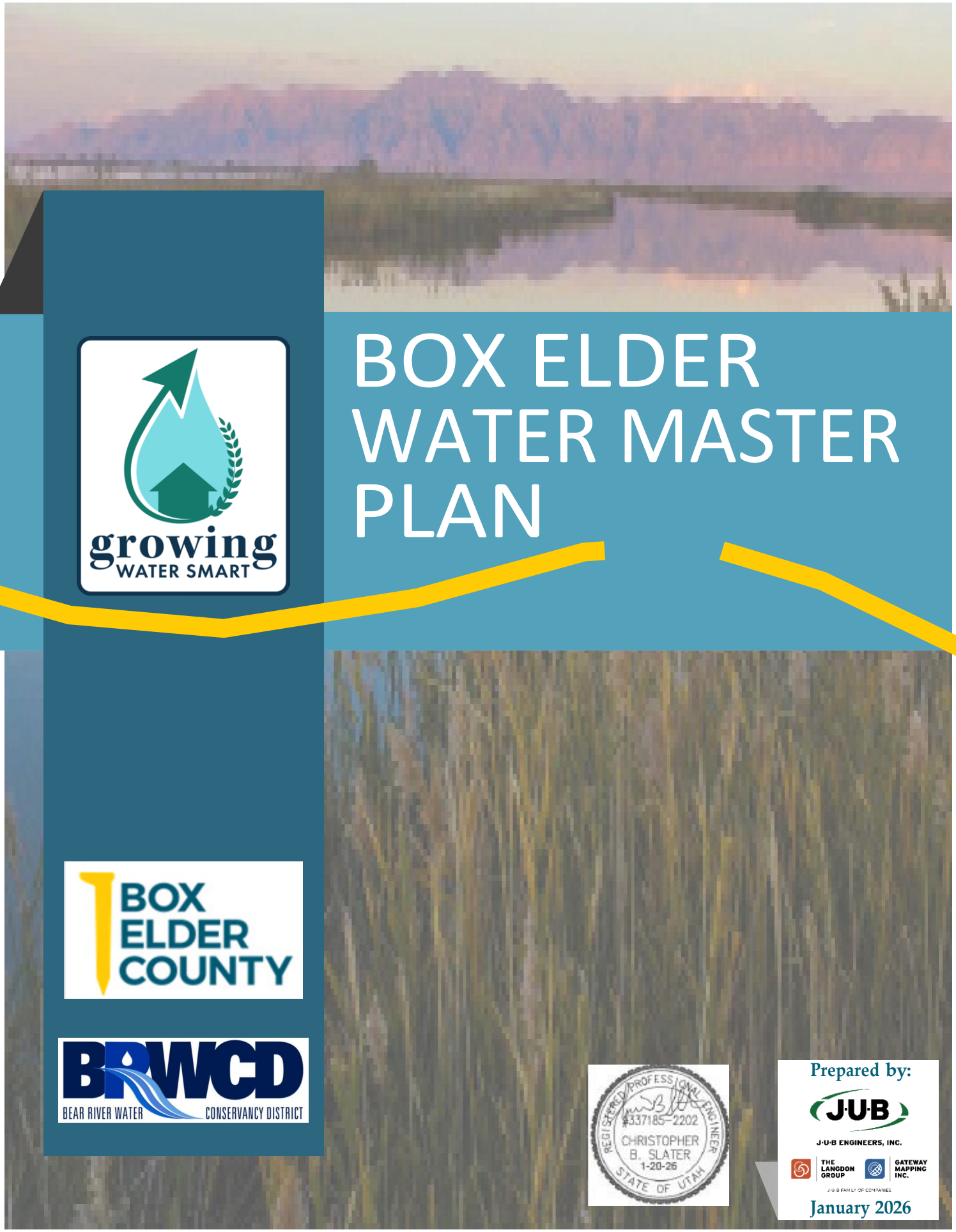

BOX ELDER WATER MASTER PLAN

growing WATER SMART

BOX ELDER COUNTY

BRWCD
BEAR RIVER WATER CONSERVANCY DISTRICT

REGISTERED PROFESSIONAL ENGINEER
#337185-2202
CHRISTOPHER B. SLATER
1-20-26
STATE OF UTAH

Prepared by:

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January 2026

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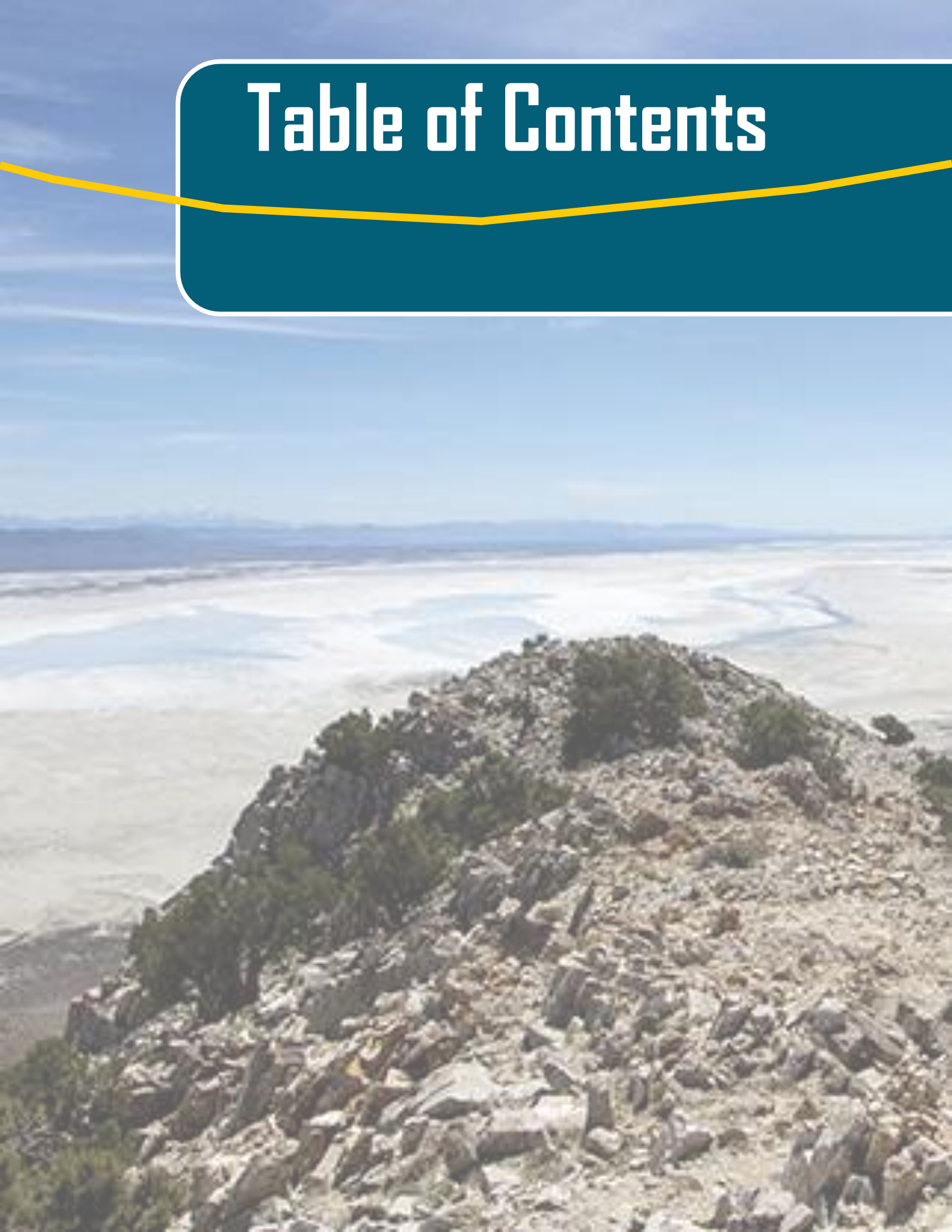

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Chapter 2 Public Process

Chapter 5 Existing Water Supplies & Demands

Chapter 6 Future Water Supply & Demand Forecasting

Chapter 7 Evaluation of Potential Actions

List of Common Acronyms & Abbreviations

AF - Acre-Feet

APA - Agricultural Protection Areas

B - Brigham Region

BMPs - Best Management Practices

BOR - Bureau of Reclamation

BR - Bear River Region

BRCC - Bear River Canal Company

BRWCD - Bear River Water Conservancy District

BW - Bothwell Region

C- Cutler Region

County - Box Elder County

CDC - Chesapeake Duck Club

CWMP - County Water Master Plan

District - Bear River Water Conservancy District

DNR - Department of Natural Resources

DWRe - Utah Division of Water Resources

DWRi - Utah Division of Wildlife Resources

EIS - Environmental Impact Statement

GIS - Geographic Information System

GSL -Great Salt Lake

IRAR - Issue, Rule, Analysis, Recommendations

M&I - Municipal and Industrial

NRCS - Natural Resource and Conservation Service

NW - Northwest Region

PDR - Preliminary Design Report

POD - Point of Diversion

PWS - Public Water Supplier

SCADA - Supervisory Control and Data Acquisition

TDR - Time Domain Reflectometry

TDS - Total Dissolved Solids

W - Willard Region

WMA - Waterfowl Management Area

List of Common Acronyms & Abbreviations

B - Brigham Region

BMPs - Best Management Practices

BOR – Bureau of Reclamation

BR - Bear River Region

BRCC - Bear River Canal Company

BRWCD - Bear River Water Conservancy District

BW - Bothwell Region

C- Cutler Region

County - Box Elder County

CDC - Chesapeake Duck Club

CWMP – County Water Master Plan

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DWRe – Utah Division of Water Resources

DWRi - Utah Division of Wildlife Resources

EIS - Environmental Impact Statement

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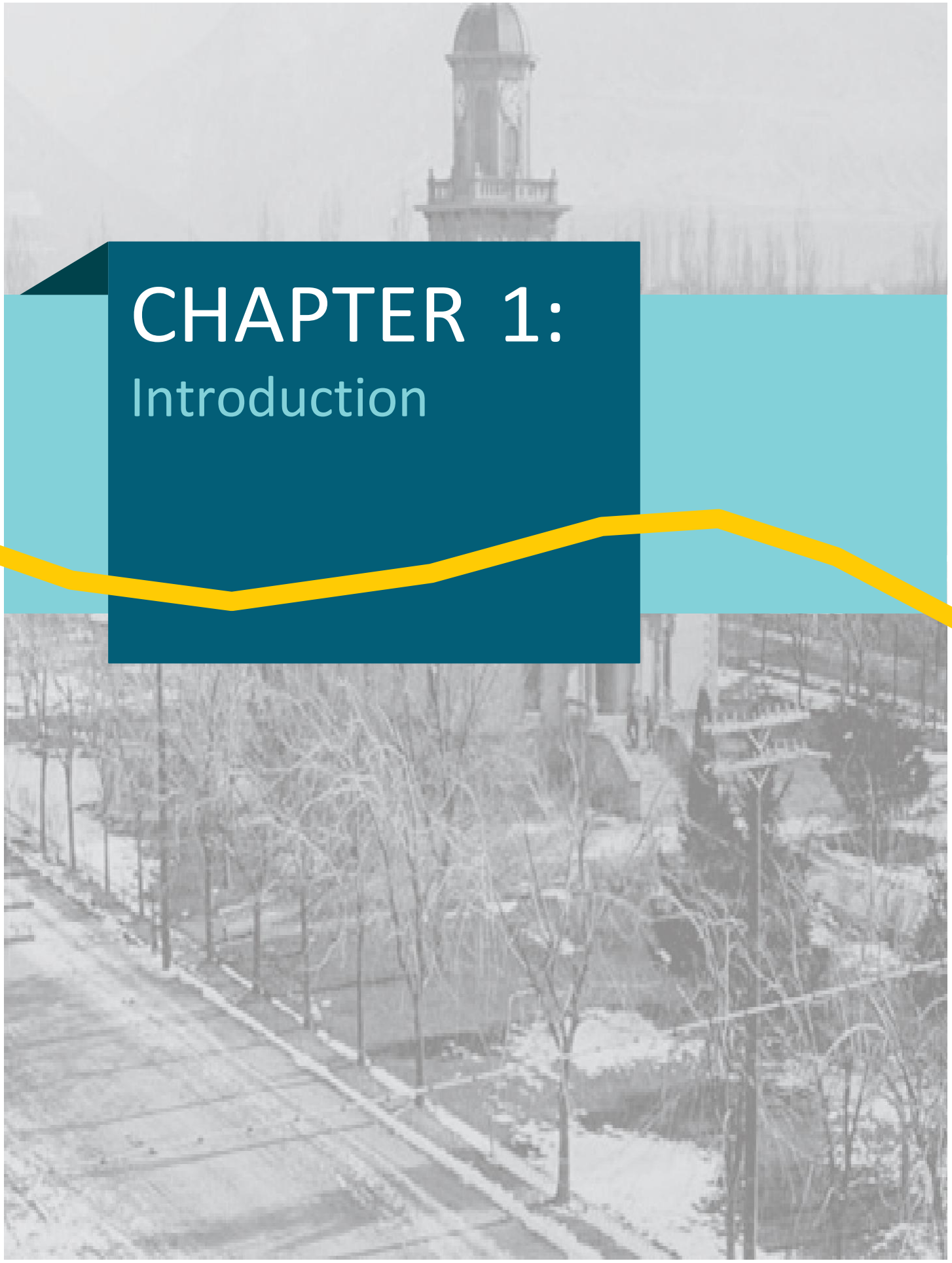


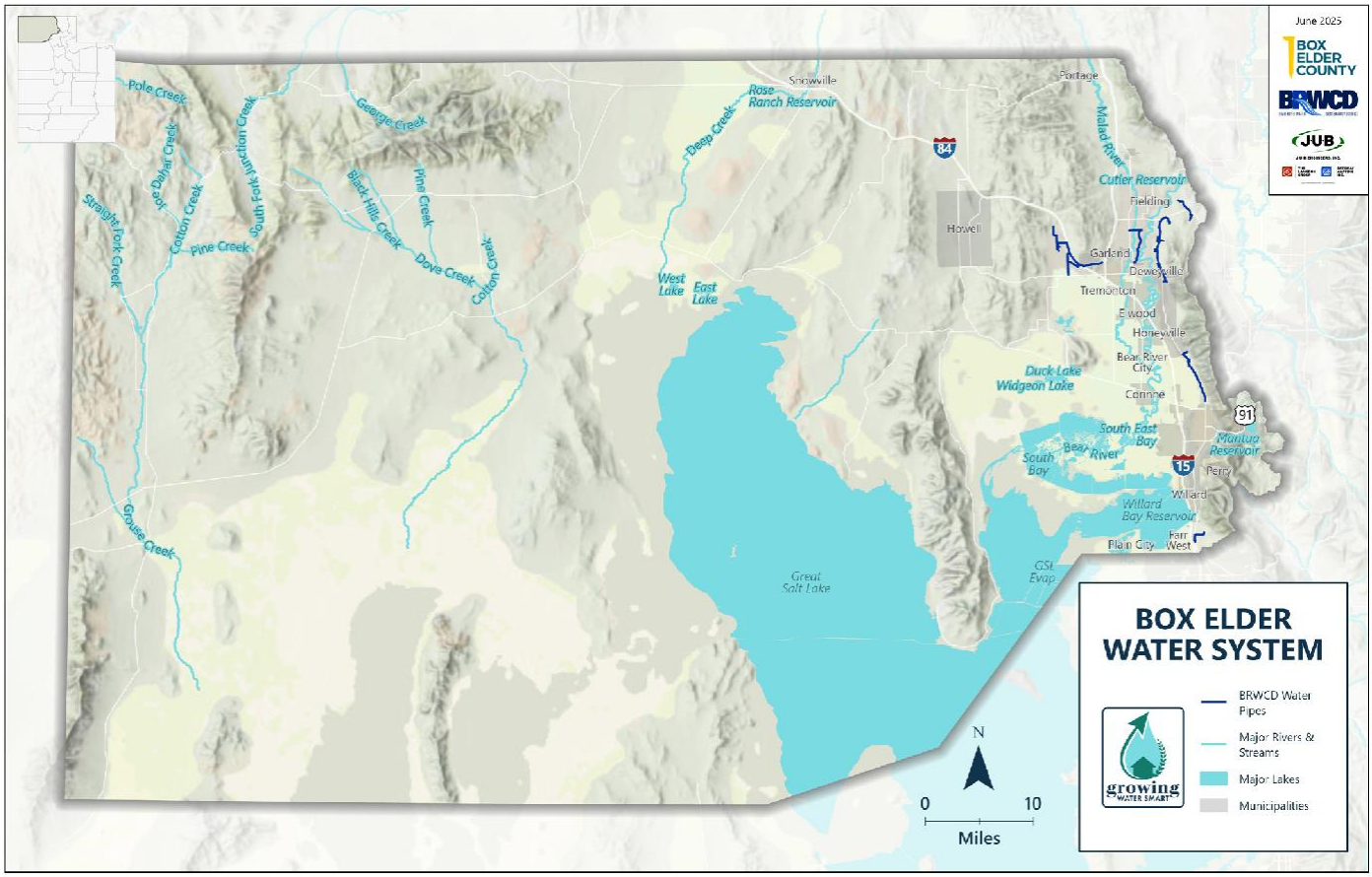
CHAPTER 1:
Introduction

1.1 Background

Box Elder County, like many other counties in Utah, is growing, and with that growth, it is essential to have a plan to manage water efficiently as one of its most important resources. It has been said "the demise of several civilizations has been traced directly to failed regional water management" (Peru, Mesopotamia) (Artzy and Hillel 1988; Ortloff et al. 1985). Good planning will aid in the preservation of agricultural lands and allow for growth related water needs to be met. This plan is a county-wide plan and builds on previous water planning efforts made in the County. As the population increases, local and regional water planning for Box Elder County residents is vital to maintain this resource and meet agricultural, municipal, and environmental needs.

The land area of the county is extensive, with most of the population along the eastern side of the county between the Great Salt Lake and the mountains to the east. Figure 1-A: Box Elder Water System Map gives an overview of the County and the water systems that Bear River Water Conservancy District (BRWCD or District) operates. Regional planning is advantageous, allowing individual water entities to identify common needs. These needs can then be more effectively achieved through collaboration.

Figure 1-A: Box Elder Water System Map



The plan purpose has been developed and refined based on input and feedback from water stakeholders throughout the County. This plan builds on previous water planning efforts in the County and addresses requirements of Utah Senate Bill 110 (2022) to include water planning as a component of the County General Plan.

Other, more specific goals of the plan include

- Understanding the past and current Box Elder County water situation through data collection and gathering of information from key stakeholders.
- Defining the role(s) of BRWCD and Box Elder County related to water and growth in the County.
- Evaluating recent water legislation and regulations that affect Box Elder County and identifying strategies to monitor and guide future legislation.
- Identifying future water needs
- Identifying regional water strategies and goals
- Developing county-wide prioritized water strategies and Best Management Practices (BMPs) to meet future needs

1.2 Plan Purpose:

The Box Elder Water Master Plan provides a strategic blueprint for managing our precious Box Elder County water resources; ensuring a reliable supply for our communities now and in the future.

1.3 Water Master Plan Regions

Box Elder County spans a large and varied landscape, from mountainous areas to agricultural valleys and desert regions. As part of this master plan, the County has been split into seven regions to facilitate more effective water resource planning and management. Regional planning helps identify collaborative opportunities between neighboring water entities, reflects diverse characteristics and water needs, and helps address local needs and priorities within a broader county-wide framework.

The region boundaries are not the same as the boundaries for the areas BRWCD Board of Trustees represent. They were determined through a collaborative process involving county planners, BRWCD, and local stakeholders. Considerations for the boundaries included:

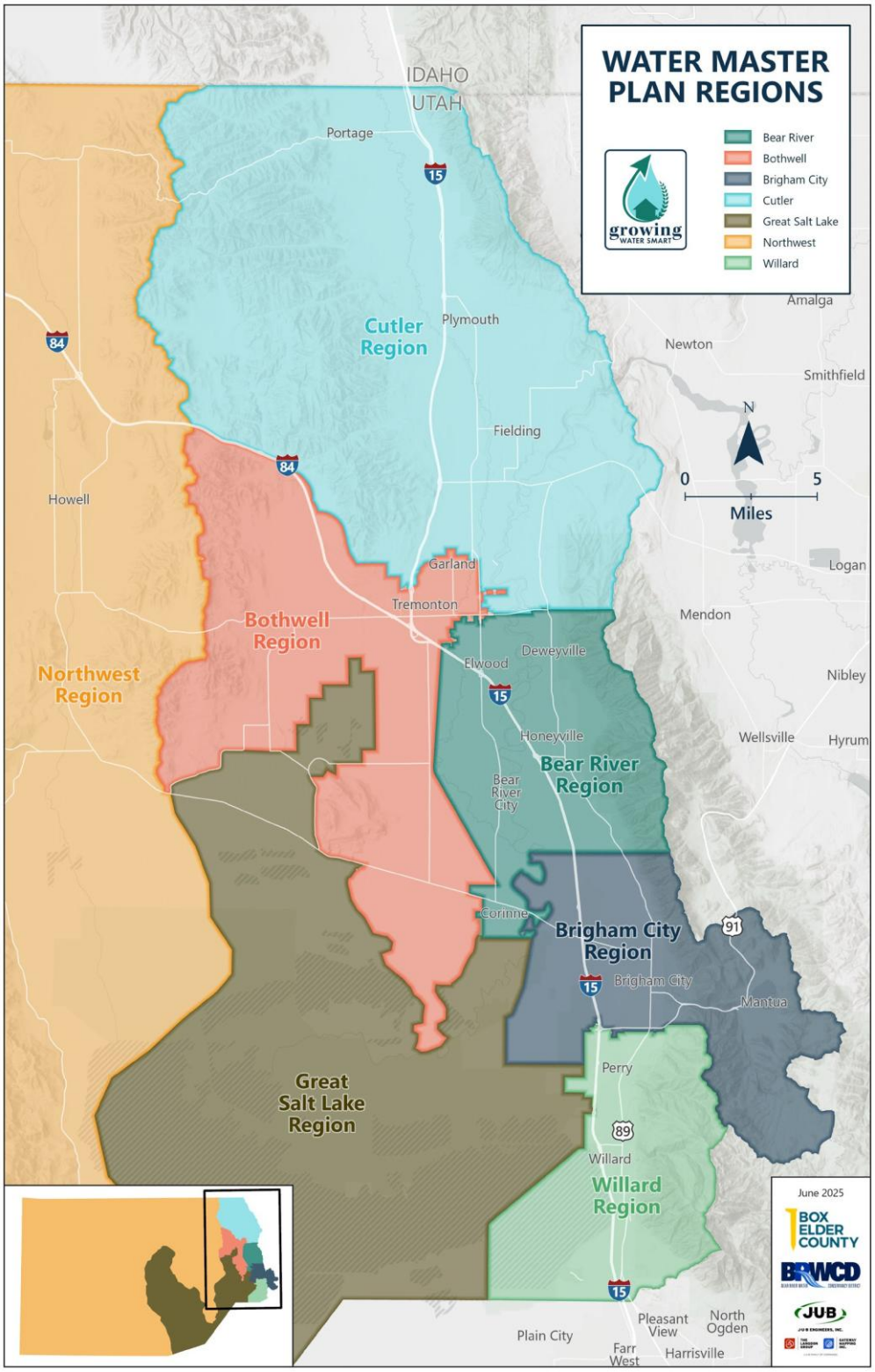
- Existing water system service areas
- Municipal boundaries
- Irrigation company delivery zones
- Topography and watershed delineations
- Projected growth areas

1.3.1 Seven Regions

See Figure 1-B: Water Master Plan Regions Map

- Bear River Region
- Bothwell Region
- Brigham Region
- Cutler Region
- Great Salt Lake Region
- Northwest Region
- Willard Region

Figure 1-B: Water Master Plan Regions Map



1.4 Key Groups & Entities

This plan is not a BRWCD plan. It is a Box Elder County Plan created to provide guidance and recommendations for collaborative efforts between land use planning and water resource planning to manage the County water resources wisely.

The plan is sponsored by Box Elder County and BRWCD and is informed through input from many stakeholders, including representatives from:

- Box Elder County
- BRWCD
- Municipal and private water systems
- Irrigation systems
- Environmental and other key stakeholders

1.4.1 Box Elder County Commission

The Box Elder County Commission is the primary governing body of Box Elder County and is made up of three elected residents who own property within Box Elder County. Combined, these individuals are responsible for ensuring that development in unincorporated areas of the county aligns with County zoning ordinances and long-term growth plans.

The County Commission appoints members to the Planning Commission. The Planning Commission is an advisory and regulatory body made up of seven volunteer county residents focused on land use and development that advises the County Commission on planning-related issues by:

- Reviewing and recommending zoning changes, subdivision approvals, and land use proposals to the County Commission
- Ensuring development aligns with the Land Use Management and Development Code

The Planning Commission makes recommendations, but the County Commission has the final authority to approve or deny zoning changes and development plans.

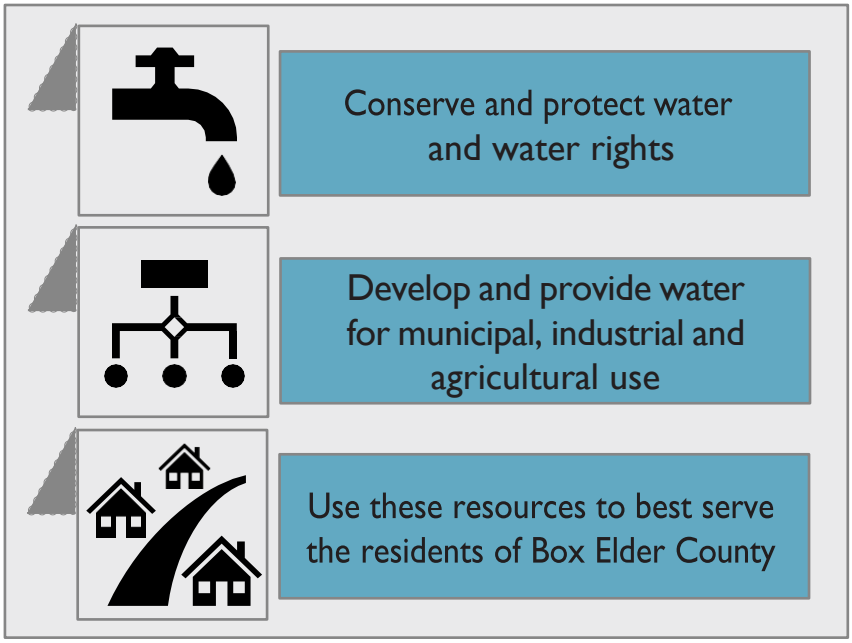
The County Commission does not develop or provide water, but has many responsibilities that affect water management. The commission:

- Conducts long-term planning to address future growth and development needs, ensuring that infrastructure and services are adequately provided
- Checks that developments in unincorporated areas have adequate water supply and infrastructure
- Ensures that new developments transpire in a sustainable way
- Seeks to limit environmental impacts by ensuring that development projects comply with environmental regulations to protect water quality and prevent pollution

- Coordinates County development with potential local water suppliers and BRWCD
- Checks that development does not negatively impact groundwater quality
- Located away from vulnerable recharge zones
- Complies with water availability and quality standards

1.4.2 Bear River Water Conservancy District

The Bear River Water Conservancy District was established on September 8, 1988, by court decree under the guidelines of the Utah Water Conservancy Act. The creation of BRWCD was driven by the need to manage and develop water resources effectively within Box Elder County, Utah. The mission of the district is to:



Over the years, BRWCD has played a crucial role in the management of water resources to meet the growing demands from residential, commercial, and industrial users. BRWCD is committed to developing and providing water for various uses and aims to utilize these resources in a manner that best serves the residents of the county.

Key objectives of BRWCD include:

- Water Conservation: Implementing strategies to conserve water and promote efficient usage
- Local Water System Support: Providing support to local water systems to evaluate and develop new water infrastructure or replace aging infrastructure
- Water Development: Developing and maintaining new water sources and infrastructure to meet the changing water demands in the county
- Water Protection: Safeguarding water rights and ensuring the quality of water resources
- Water Supply: Assisting in making water available for both incorporated and unincorporated areas of Box Elder County
- State and Federal Coordination: Coordinating with state and federal agencies on water-related projects

The District plays a key role in the county as it facilitates collaboration between water users and managers and leads regional water resource planning, conservation efforts, infrastructure projects, and other regional water activities.

1.4.2.1 Box Elder County & BRWCD Structural Relationship

BRWCD is a political subdivision of the State of Utah, not a department of Box Elder County. It is a quasi-municipal corporation with its own Board of Trustees, governance structure, and legal authority.

While Box Elder County does not control BRWCD, it does make the appointments of the BRWCD board members, and one of the county commissioners serves on the BRWCD board.

The Box Elder County Commission appoints members (trustees) to the board pursuant to the procedures outlined in UCA §§17B-1-304 and 17B-2a-1005(3).

The BRWCD Board may consist of up to 11 trustees. These 11 trustees represent the following:

Eight trustees represent eight geographic regions (one board member per region). These regions do not have the same boundaries as the regions used in the Master Plan.

1. Willard, Perry, Mantua
2. Brigham City
3. Honeyville, Deweyville
4. Bear River City, Corinne
5. Tremonton, Garland
6. Portage, Plymouth, Fielding, Riverside
7. Bothwell, Thatcher, Howell
8. Western Box Elder County (All areas west of the Bothwell-Thatcher-Howell area)

There are three additional trustee members:

9. A member of the Box Elder County Commission
10. A representative of the Bear River Canal Company
11. A representative of independent water companies/systems that provide water in Box Elder County, but outside incorporated cities and towns.

Trustees serve staggered four-year terms to ensure continuity. Reappointments or replacements are made as terms expire or vacancies occur. The BRWCD notifies the County Commission of any vacancies on the board that will occur. Appointments are made during public County Commission meetings. A Trustee will continue to serve until the Trustee's successor has been duly appointed and qualified. There are no term limits.

The County Commission can't remove Trustees, but they may be removed for cause by a two-thirds vote after a hearing. At the end of a term, the trustee position is considered vacant, and the incumbent may be reappointed or replaced following the same process. A board member may continue to serve until a successor is appointed and qualified.

If the County Commission appoints one of its own members who meets all qualifications, the public notice and selection procedures may be bypassed.

1.4.2.2 Overlapping Responsibilities

Box Elder County and BRWCD operate as distinct entities with separate governance structures, yet their missions often intersect, particularly in the realm of water resource management and sustainable development.

The County oversees land use and development in unincorporated areas, ensuring that growth aligns with zoning ordinances and long-term infrastructure planning. Meanwhile, BRWCD focuses on conserving, developing, and supplying water for municipal, industrial, and agricultural needs across the County.

Figure 1-C: District and County Overlapping Responsibilities highlights their overlapping responsibilities, emphasizing their shared commitment to regional water stewardship. Both entities collaborate on water planning initiatives, promote efficient water use, and work to ensure that development occurs sustainably. They also share a responsibility to protect water quality. This cooperative relationship is essential for balancing growth and meeting the evolving needs of Box Elder County's residents.

Figure 1-C: District and County Overlapping Responsibilities

1.4.3 Municipal & Private Water Systems

Many water users in Box Elder County are served by a mix of municipal (public) and private water systems. These water systems deliver necessary water for use by residents and businesses. Municipal systems are operated by cities and towns such as Brigham City, Tremonton, Garland, Perry, and others. These systems are responsible for:

- Providing clean culinary (drinking) water to residents within their jurisdiction.
- Maintaining their infrastructure, including wells, storage tanks, pipelines, and treatment facilities

- Planning for future local growth, ensuring water supply and infrastructure can support expanding populations
- Planning, promoting, and implementing water conservation strategies

There are private water systems that have the same responsibilities. Some private systems, such as UKON Water, Riverside North Garland, West Corrine Water, and ACME, are larger and serve communities that cover fairly large geographic areas. Others are much smaller and may only have a handful of connections such as trailer park communities or subdivisions not served by municipalities. These systems sometimes have limited resources.

Both types of systems are essential to the County's water landscape and were actively involved in the master planning process to seek solutions to challenges. It is important that these local and private systems coordinate with county and regional entities such as BRWCD to plan and seek local and regional solutions for a more secure water future.

1.4.4 Irrigation Water Systems

Box Elder County is a significant agricultural hub in Utah, known for its diverse and productive farming activities. The County ranks highly in the state for various crops and livestock production. Agricultural and irrigation systems are foundational to the County's economy, culture, and land use. These systems are responsible for delivering water to farms, orchards, and ranches across the county, supporting one of Utah's most productive agricultural regions. Irrigation companies and systems:

- Supply water for farming and livestock: Irrigation companies such as Bear River Canal Company (BRCC), Pineview Water Systems, and others manage extensive canal and ditch networks that distribute water to agricultural lands for farming and livestock. They maintain aging infrastructure, including canals, headgates, siphons, and pipelines, often requiring upgrades to improve efficiency and reduce water losses. Many irrigation systems also support environmental water needs, such as maintaining wetlands and riparian habitats critical for wildlife and migratory birds.
- Supply water for secondary water: Irrigation companies deliver irrigation water to existing and future secondary water systems for outdoor use in developed areas reducing the demand on higher quality drinking water sources.
- Manage and preserve agricultural water rights: Irrigation companies often hold and manage senior water rights and work to ensure that water remains tied to the land and is used for its intended agricultural purposes. Cooperation between irrigation companies, municipalities, and BRWCD is needed to protect these water rights.
- Coordinate development with municipalities and the County: As urban development expands, irrigation systems play a key role in preserving agricultural water use and coordinating with municipalities to avoid conflicts related to water access and infrastructure.

These systems are vital not only for food production but also for sustaining the county's rural character and ecological health.

1.4.5 Environmental Water

There are many environmental water needs in Box Elder County. Adequate water is necessary to support and enhance wildlife habitats, particularly for migratory birds and other species that rely on wetlands and riparian areas. Maintaining water levels in lakes and rivers is essential for recreational activities such as fishing, hunting, boating, and bird watching, which are vital for local tourism and community well-being. Ensuring good water quality is critical for both human consumption and ecological health.

The Great Salt Lake (GSL) is a unique and vital ecosystem, supporting a diverse range of wildlife, including millions of migratory birds. However, the lake has been facing significant challenges due to declining lake levels. Working together to improve water levels in the lake is increasingly more important.

Environmental water needs must be considered alongside municipal and agricultural demands to ensure long-term sustainability and to:

- Provide Wildlife Habitat: Wetlands, rivers, and riparian zones provide critical habitat for migratory birds and native species. The Bear River Migratory Bird Refuge, Salt Creek Waterfowl Management Area, and other managed and natural habitats depend on reliable water flows to sustain biodiversity.
- Support Water-Based Recreation: The GSL and Bear River support fishing, hunting, boating, birdwatching, and other recreation.
- Provide Needed Ecosystems: Healthy ecosystems help filter pollutants, recharge aquifers, and maintain clean water supplies for human and ecological use.
- Contribute to the Economy: Maintaining good water levels in the Bear River and GSL is essential to the local economy. These water bodies support agriculture, recreation, and wildlife habitats, but they also sustain the brine shrimp industry, which is a significant economic driver in northern Utah.

1.4.6 Collaborative Roles & Responsibilities

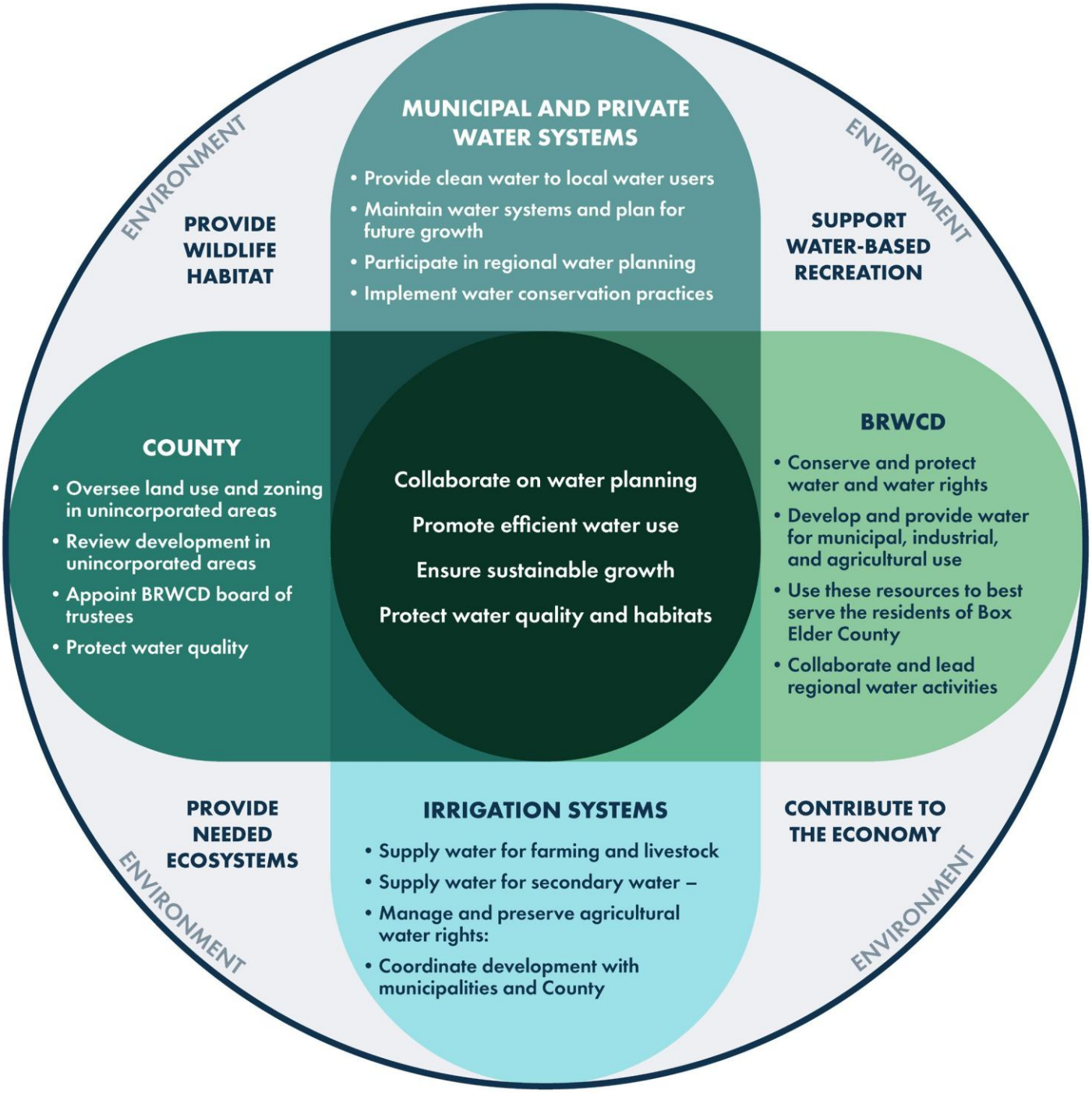
These key groups, entities, and water users in the county each play distinct but overlapping roles in managing water resources. These joint roles include:

- Collaborating on water planning and development
- Promoting efficient water use
- Ensuring sustainable growth
- Protecting water quality and habitats in the county

Working together, these entities can create a unified approach to water management, balancing growth with resource protection, aligning land and water planning, and ensuring that both human and environmental needs are met across the County.

Figure 1-D: Collaborative Roles & Responsibilities illustrates the interrelated roles and responsibilities of these entities within the environment that provides so many resources to meet various water related needs in the County.

Figure 1-D: Collaborative Roles & Responsibilities



1.5 Related Planning Collaborative Efforts

There are many other related planning efforts that are happening at various stages throughout Box Elder, while this county-wide water master plan is being completed, and some that were finished in recent years. The County completed the County General Plan Vision 2050 in 2021, and BRCC and BRWCD are the lead sponsors for the Lower Bear River Watershed Plan Environmental Impact Statement (EIS) that is being completed while this master plan is being completed.

1.5.1 County General Plan Vision 2050

The Box Elder County General Plan Vision 2050 and the County Water Master Plan are interconnected, particularly in response to Utah Senate Bill 110 (2022), which mandates the integration of water use and preservation into land use planning by the end of 2025. The general plan outlines a strategic growth 2050 Vision Scenario that emphasizes concentrating development within existing towns and cities, preserving agricultural lands, and maintaining the county's rural character. This vision directly informs the Water Master Plan, which forecasts future water demands based on projected population growth and development patterns.

To comply with SB 110, the Water Master Plan includes detailed consultations with municipalities, canal companies, and water systems across the county. It evaluates how development may impact water demands and proposes conservation strategies for both existing and future development.

This water master plan provides the foundation for water resource management to help ensure that growth is supported by adequate and sustainable water infrastructure. These plans create a unified strategy for managing Box Elder County's future development and water needs.

1.5.2 Lower Bear River Watershed Plan

BRWCD is currently partnered with BRCC and other local sponsors in cooperation with the Natural Resources Conservation Service (NRCS) to complete the Lower Bear River Watershed Plan (Watershed Plan). The result of this plan will be a draft EIS that is projected to be finished in 2026. The Watershed Plan is also sponsored by the following additional co-sponsors:

- Tremonton City
- Bear River City
- Highland Ditch Company
- Central Canal Company
- Bear River Club Company (Bear River Club)
- Chesapeake Duck Club (CDC)
- Utah Division of Wildlife Resources (DWiR)

The Watershed Plan focuses more than this master plan does on improvements to agricultural and environmental water supplies and deliveries. It also includes secondary water developments that would reduce demands on local municipal culinary water supplies.

1.6 Report Purpose

This report documents the steps that were taken to complete this Plan. It outlines the collaborative stakeholder process, the integration of water uses with land use planning. The report is built on extensive stakeholder engagement, including input from a steering committee and from over 50 interviews and fourteen regional meetings. It evaluates existing water supplies and infrastructure, forecasts future demands based on projected growth, and identifies regional and local challenges. The plan provides tailored recommendations and BMPs for each of the seven delineated regions, and culminates in a prioritized list of regional and county-wide actions.

CHAPTER 2:
Public Process

2.1 Introduction

The creation of the County Water Master Plan (CWMP or the Plan) was rooted in an inclusive public process that engaged stakeholders from all corners of Box Elder County. This robust outreach effort ensured that local perspectives, regional needs, and system-specific challenges shaped every step of the planning process.

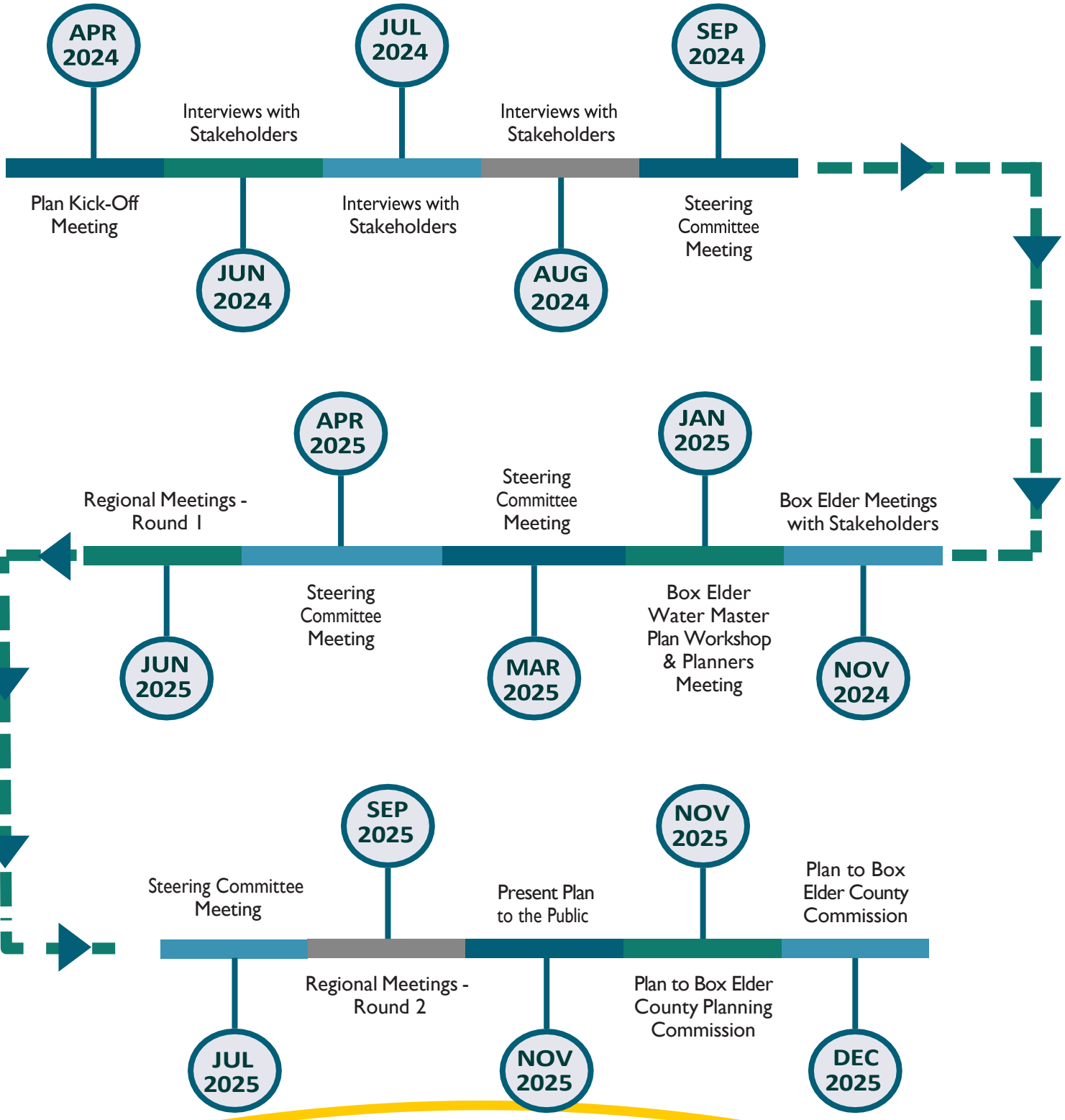
The public process featured:

- Coordination with a Steering Committee, which included County, district, and planning representatives to ensure alignment and oversight.
- An open house to introduce the plan process and to gather initial input from the public.
- Over fifty individual interviews with municipalities, canal and irrigation companies, community water systems, agricultural operators, developers, and private water users.
- Two rounds of seven regional meetings, structured by hydrologic and political geography, to confirm challenges and refine regional strategies.
- A growth projection workshop with planners from throughout the County.
- Follow-up interviews and focused sessions with select communities (e.g., Brigham City, Perry, Mantua) to validate input and clarify recommendations.
- Integration of stakeholder feedback into every major section of this plan, including regional project lists, BMPs, prioritization matrices, and implementation strategies.
- Presentation of the plan to the public, the County Planning Commission, and the County Commission.

This engagement process built trust, transparency, and enabled compliance with legislative requirements for stakeholder input in planning (e.g., SB110, SB76, and Utah Code Ann. 17-79-403). Stakeholder voices from rural systems and small irrigation entities to large cities and complex systems directly informed recommendations on regional equity, funding strategies, secondary water planning, and coordination frameworks.

The Master Plan was developed using a bottom-up, community-driven approach. From inception, the goal was to reflect the diversity of needs and priorities across the County by prioritizing local voices, regional coordination, and the autonomy of community water systems. Through active engagement of stakeholders, water providers, agricultural representatives, and city and district leaders, this CWMP offers a unifying yet flexible path forward (see Figure 2-A: Public Process Phases).

Figure 2-A: Public Process Phases



2.2 Steering Committee

2.2.1 Roles of Committee

The Steering Committee served as a sounding board and strategic advisor, keeping stakeholder values and practical implementation at the center of the CWMP. Composed of representatives from the region and the District and County, the committee met periodically throughout 2024–2025 and participated in regional meetings. See Appendix 2-A: Steering Committee.

Steering Committee

Region	Irrigation Water
Bear River Region	Bruce Nelson
Bothwell Region	Lyle Holmgren, Steven Norman
Brigham Region	Monica Holdaway, Stephanie Tugaw-Madson
Culter Region	Jay Capener
Great Salt Lake Region	Chance Baxter
Northwest Region	Tim Munns, Boyd Bingham
Willard Region	Madeline Brown
At Large	Trevor Nielson (Cutler, Bear River, Brigham, Bothwell Regions)
	Randy Udy (Cutler, Bear River, Brigham, Bothwell Regions)
	Chance Baxter (All), Scott Lyons (All), Carl Mackley (All)

The follow-up Steering Committee meetings and small-group briefings were conducted with key committee members to align on direction, share progress updates, and obtain targeted feedback on implementation strategies. These efforts bolstered overall committee engagement and alignment.

The committee's responsibilities included:

1. Helping improve public engagement by promoting attendance and recruiting local engagement, input, and reviews
2. Verifying that stakeholder input from interviews and both rounds of regional meetings were clearly traced and incorporated into the Plan
3. Reviewing regional and county-wide project lists and the prioritization matrix

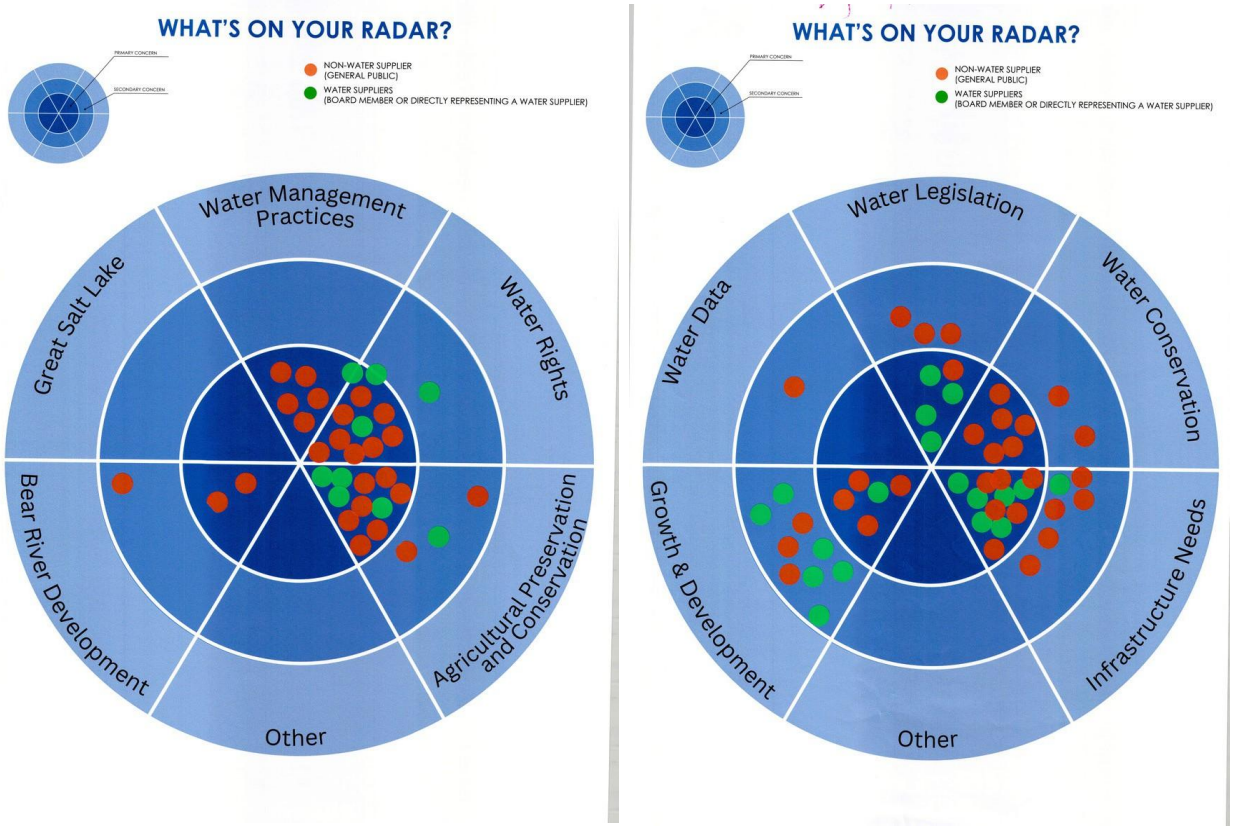
2.3 Plan Kick-off Meeting

The Master Plan process officially began with a Plan Kickoff Meeting held on April 11, 2024, at the USU Brigham campus. This event served as the public launch of the project, introducing the planning process and defining its scope to a diverse audience that included members of the Steering Committee, key stakeholders, and the general public. The goal of hosting the meeting was to foster initial collaboration and begin identifying the most pressing, overarching water issues and concerns across the County.

2.3.1 RADAR Exercise

At the Public Kickoff Meeting, public attendees engaged in an exercise to provide their input on specific categories for each region. Individuals were asked to put a dot on each category that best represented what they were concerned about in their region. The radar exercise results helped guide the subsequent key stakeholder interview questions, regional meeting agendas, and prioritization matrix development. Figure 2-B: RADAR Exercise below shows the themes found in the exercise. The presentation slides from this open house and the results of the radar exercise for each region are included in Appendix 2C Kickoff Meeting Notes.

Figure 2-B: RADAR Exercise



2.4 Key Stakeholder Interviews

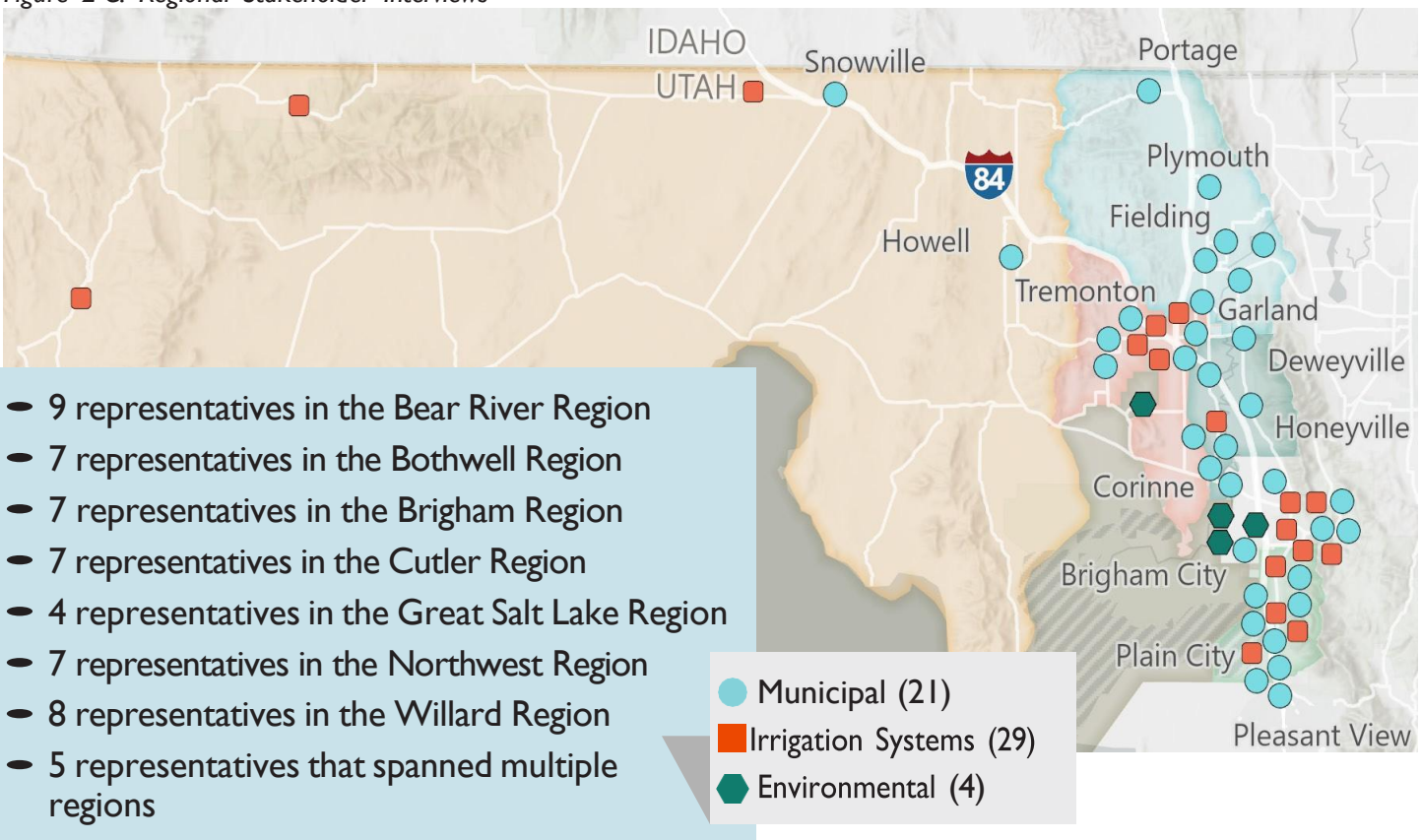
Over fifty interviews were held with stakeholders across a broad cross-section of the County. The goals of these interviews were as follows:

1. Prioritize inclusion of communities across all regions, including under-served and unincorporated areas, and those with agricultural and environmental water interests. Participants represented a mix of system sizes, governance types, and geographic contexts.

2. Ensure the CWMP was developed from the ground up by understanding and reflecting the diverse needs and priorities of the County's communities, interests, and stakeholders. In these interviews the project team sought to gain a greater understanding of the past and current water situation in the County, future system needs and strategies, BMPs, opportunities, hopes, ideas, and concerns. The interviews were also used to gather input on the BRWCD's role in the community and across jurisdictional lines and stakeholder interests.

The map below, in Figure 2-C: Regional Stakeholder Interviews, indicates the representatives interviewed from across the County either representing individual entities, water/irrigation companies or businesses.

Figure 2-C: Regional Stakeholder Interviews



2.4.1 Key Themes

This section synthesizes what we heard across more than fifty stakeholder interviews into a set of recurring themes that anchor the Plan: infrastructure condition and redundancy, supply diversity and source protection, growth and land-use coordination, data/measurement, conservation and demand management, water rights administration, and drought readiness. We present these as current strengths to leverage, weaknesses to resolve, opportunities to pursue, and threats to manage-to directly inform BMPs, regional actions, and county-wide recommendations. See Appendix 2C: Stakeholder Interviews.

Strengths found across the County included:

- Existing Water Sources: Communities have established water sources, including wells and springs, providing a foundation for meeting current water demands.
- Local Knowledge and Experience: Stakeholders possess deep knowledge of local water systems, including historical data, which can aid in effective water management and planning.
- Collaboration Willingness: There is a willingness among stakeholders to engage with the County and regional bodies, showing potential for collaborative problem-solving and regional planning.
- Redundancy and Emergency Interconnects: Some communities have existing emergency interconnects and redundant systems, offering a baseline for enhancing water supply reliability.
- Commitment to Agricultural Water Rights: A strong emphasis on preserving agricultural water rights ensures the protection of critical water uses, reflecting a community commitment to balanced resource management.

Concerns found across the County included:

- Aging Infrastructure: Outdated pipelines, wells, and storage facilities are prone to inefficiencies and water loss, increasing maintenance costs and operational challenges.
- Limited Water Supply Diversity: Heavy reliance on a limited number of wells and springs makes many communities vulnerable to supply disruptions, particularly during droughts or mechanical failures.
- Inadequate Preparedness for Growth: Current infrastructure and water supplies are nearing capacity, making it difficult to support new developments and population growth without significant investments.
- Limited Public Awareness: There is a need for more extensive public education on water conservation practices and the importance of sustainable water use, which could hinder conservation efforts.
- Lack of Comprehensive Drought Management: Existing strategies may not be sufficient to manage prolonged droughts or extreme water shortages, posing risks to long-term water availability.

Opportunities that could best benefit the County included:

- Infrastructure Upgrades and Modernization: Investing in new pipelines, storage tanks, and treatment facilities can enhance efficiency, reduce water loss, and meet growing demand.
- Water Reuse Programs: Developing secondary water systems and exploring options for treated wastewater reuse can provide a sustainable supply for non-potable uses such as irrigation, easing the pressure on potable water sources.
- Drought-Resilient Planning: Implementing comprehensive drought management strategies can help safeguard water supplies and build resilience against climate change and water shortages.
- Regional Collaboration: Strengthening partnerships between municipalities, regional bodies, and state agencies can facilitate shared infrastructure projects and a unified approach to water management challenges.
- Public Education and Engagement: Launching public outreach campaigns on water conservation can foster community support for sustainable practices, contributing to long-term resource management.

Threats against the County water supplies were identified:

- Climate Change and Drought: Increasing frequency and severity of droughts due to climate change threaten water availability, putting additional stress on already limited supplies.
- Over-development: Rapid population growth and urban expansion may outpace current water infrastructure and supplies, potentially leading to overuse and depletion of water resources.
- Water Rights Conflicts: Tensions between agricultural, residential, and commercial water use could escalate, especially if urban development pressures divert water away from agricultural uses.
- Regulatory Changes: Potential changes in water management regulations or stricter state requirements could impact water rights, supply management, and the County's ability to implement certain aspects of the master plan.
- Infrastructure Failures: Aging infrastructure increases the risk of breakdowns, leaks, and supply interruptions, which could severely affect water delivery to communities if not addressed.

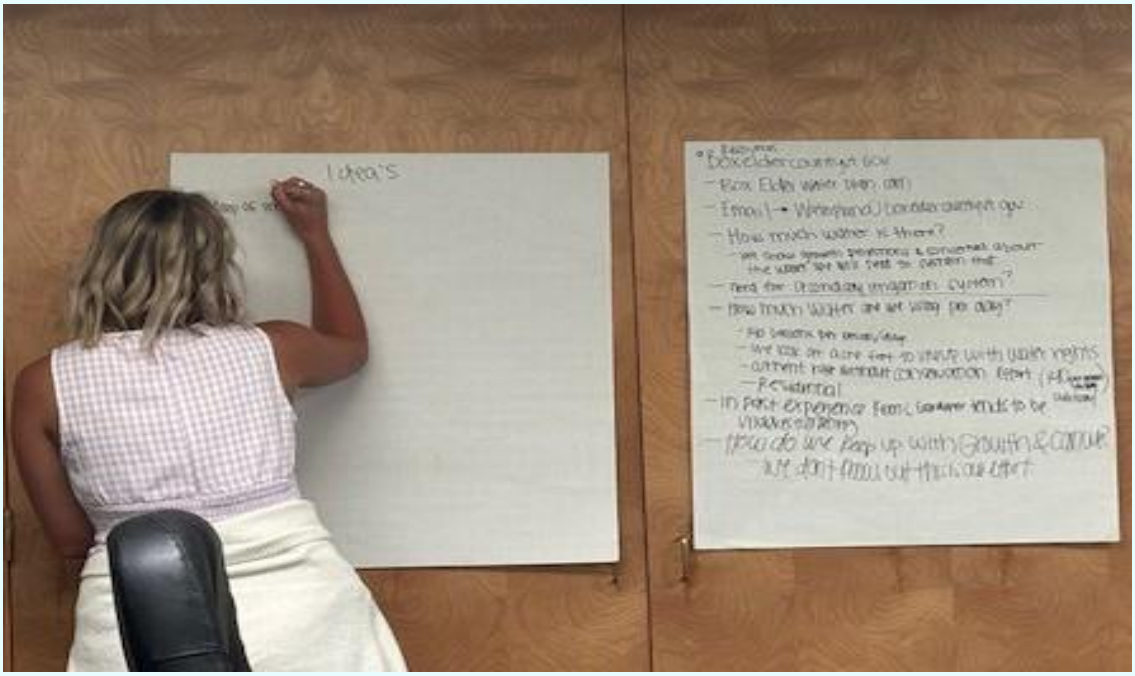
The **strategic context** found through the interviews:

- The vision for the Water Master Plan should focus on building a reliable, diversified, and sustainable water supply system that accommodates growth, prioritizes agricultural water rights, and is resilient to climate challenges.
- The County should leverage its strengths, such as local knowledge and collaboration potential, while addressing weaknesses like infrastructure and supply diversity.
- Opportunities in infrastructure upgrades, water reuse, and public education should be pursued to mitigate threats from climate change, over-development, and regulatory changes.

2.5 Regional Meetings

The regional meetings were a critical part of the County Water Master Plan's design, intended to validate local challenges, ground-truth data, and ensure that strategies were refined by on-the-ground operators and stakeholders across the seven master plan regions.. The process involved two distinct rounds. Round 1 meetings focused on surfacing core issues, such as infrastructure needs and water rights, and mapping the diverse needs of the community and agricultural sectors.

Round 2 meetings served to obtain feedback on potential solutions, actions, recommendations and to clarify the specific roles of partners—including the County, BRWCD, municipalities, and irrigation companies—and confirm near-term, actionable projects. The ultimate goal of these meetings was to create regional summaries that paired identified "Concerns and Challenges" with "Future Strategies & BMPs," thereby creating a clear, direct bridge to the final tables of Local and Recommended Actions found in the plan's Chapter 9. (See Appendix 2D: Regional Meetings Round 1 & Round 2 for full details.)



2.5.1 Regional Concerns, Challenges & Future Strategies

An overview of concerns and challenges from each region is summarized below.

Bear River Region

Concerns & Current Challenges:

Stakeholders validated aging infrastructure, supply variability (springs and wells), limited redundancy, and pressure/fire-flow gaps—especially where growth is outpacing system capacity. They also raised worries about individual well drilling impacting existing users and asked for stronger, clearer coordination among the County, BRWCD, cities, and canal companies on growth and water-rights protection.

Future Strategies & BMPs:

Priorities include looping lines and storage, securing/modernizing sources (new wells, spring upgrades), secondary systems to offload culinary demand, inter-local emergency interties, conservation education, and a clear water-exaction policy to keep irrigation water with converted land. Stakeholders also supported a transparent, criteria-based funding process and routine regional coordination to align projects, permits, and rights administration.

Bothwell Region

Concerns & Current Challenges:

The region redefined the need for notable aging-infrastructure actions (undersized/old pipes, limited redundancy), water-quality constraints (high TDS in the north), and storage/supply limitations that stress growth readiness. Participants worried about irrigation water being separated from the land as development occurs and emphasized growing demand near existing infrastructure rather than dispersed rural sprawl.

Future Strategies & BMPs:

Stakeholders prioritized drilling/optimizing wells, adding meters/SCADA, expanding storage, setting water-exaction policies (for both irrigation and culinary supplies), and pursuing feasibility studies for regional conveyance and treatment. Conservation education, drought management, clustering/compact growth, and standardized funding/prioritization criteria were elevated for quicker grant readiness.

Brigham Region

Concerns & Current Challenges:

Key issues were reiterated that include aging/undersized infrastructure, spring maintenance/leakage, limited redundancy (backup power for wells), and additional storage/transmission needed on the north and west to serve growth and annexation areas. Coordination gaps and over-irrigation complaints surfaced, as did the need to integrate water planning with general plan/annexation policy and to manage stormwater/secondary systems responsibly.

Future Strategies & BMPs:

Actions discussed: develop entities and emergency connections, add storage and north-end transmission, advance pressurized irrigation where feasible, pursue data cleanup and metering, and align code/annexation policies with water-wise landscaping and future reuse. A follow-up data review and continued County–BRWCD–city coordination were requested to sharpen priorities and improve funding competitiveness.

Cutler Region

Concerns & Current Challenges:

The region reported significant quality/quantity issues (e.g., arsenic exceedances), well-interference, and long service areas with small user bases that strain finances. Private-well impacts from nearby development, limited monitoring/enforcement, and uncertainty around subdivision wells were recurring concerns, alongside the need for clearer County/BRWCD roles and growth management through zoning.

Future Strategies & BMPs:

Stakeholders favored improved monitoring (depth/quality), impact evaluation for new wells, targeted treatment feasibility, stronger zoning/septic-density controls, and structured regional coordination. Conservation education, water-rights protection/administration, and standardized funding/prioritization were highlighted, with emphasis on aligning projects to state funding pathways and local fiscal realities.

Great Salt Lake Region

Concerns & Current Challenges:

With few public suppliers and many private/irrigation users, challenges center on sparse measurement, complex water-rights priority (e.g., Refuge's senior rights), and the risk of unintended consequences from metering changes (priority calls). Growth along the Hwy-38 corridor may be underestimated; agricultural preservation pressures are rising; and coordination across BRCC, duck clubs, Refuge, DNR, and County can be inconsistent.

Future Strategies & BMPs:

Priorities include smart metering/monitoring (with careful rights analysis), formalized operating agreements, policies to keep water with converted lands (exactions), groundwater-policy updates (Cache-style management), and targeted agricultural preservation tools (PDR/TDR). A county-wide education effort on agency roles, legislative tracking, and grant-readiness was also encouraged to improve project delivery and trust.

Northwest Region

Concerns & Current Challenges:

Cross-border dynamics with Idaho, inherited/right-name issues, limited growth (but significant replacement needs), and gaps in groundwater monitoring/quality data stood out. Septic density, agricultural viability, and the need for better state–local data sharing also surfaced.

Future Strategies & BMPs:

Stakeholders proposed a water-rights clinic/education program, interstate coordination, standardized funding/prioritization, groundwater monitoring standards, and targeted infrastructure replacement. Emphasis on keeping rights current/in beneficial use, improving data transparency, and prioritizing regional over isolated projects was consistent.

Willard Region

Concerns & Current Challenges:

Rapid growth (nearly 1,000 AF additional need over 10 years) intersects with aging infrastructure, chlorination/quality issues, and confusion about County vs. BRWCD vs. municipal roles. Septic density and transitions to sewer in developing areas are a persistent risk; secondary-meter roll-outs also created communication and allocation concerns.

Future Strategies & BMPs:

Recommended moves: additional storage and treatment (e.g., Perry), secondary-system build-out/standards, regional interconnects (e.g., South Willard well + emergency links), and a standardized project-funding process with public scoring. Land-use updates (zoning/septic policies), legislative monitoring, and routine tri-entity coordination were emphasized to align growth with capacity.

2.5.2 Identified Best Management Practices (BMPs)

The BMPs are proven policies, programs, design standards, or operational practices that measurably improves water stewardship. In this plan, BMPs are considered because they are feasible, cost-effective, and scalable in Box Elder County, with clear metrics for implementation and performance.

The BMPs described below were identified and refined through robust dialogue with water system operators, local officials, and agricultural stakeholders during the interview process, as well as regional workshops. The participants identified opportunities to improve landscape standards, enforce conservation ordinances, and share education of resources. Their on-the-ground experience shaped the actions proposed in this plan. The BMPs were grouped into various categories that best encapsulated the priorities of the County.

Regional Meeting Take Aways

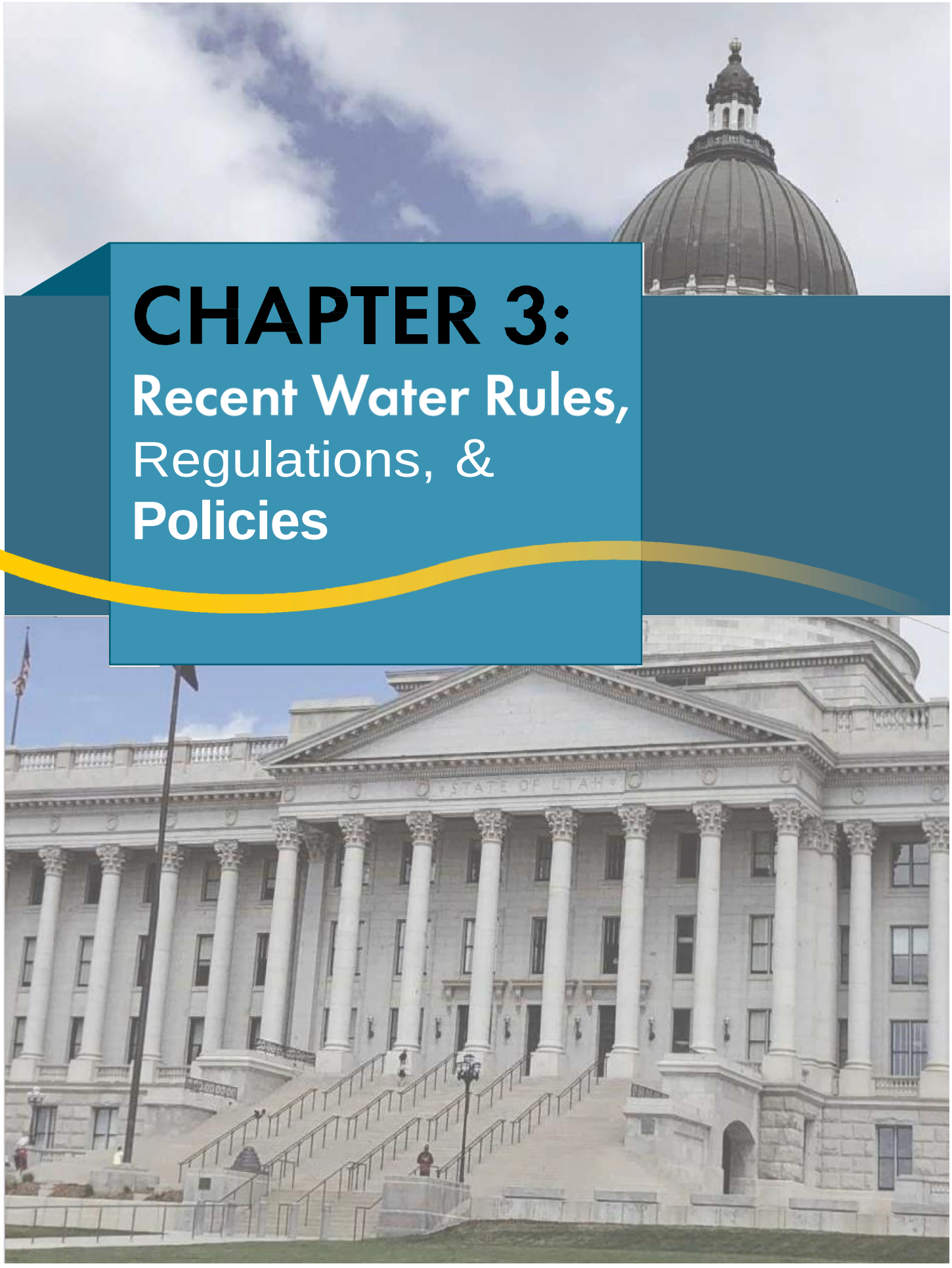
Category	Best Management Practices (BMPs)
Infrastructure	Improve water infrastructure to reduce water loss, enhance water conservation and usage efficiency, as it benefits both the Great Salt Lake and local irrigators. Regarding zoning, it is a significant issue, particularly in Willard, where property owners are always seeking valuable information. Zoning and general plan updates, adequate zoning for water use, and pushing for water-wise landscaping and xeriscaping standards. Metering secondary water systems and tiered water rates are also seen as effective strategies, as well as implementing checks on water meters. Upgrading SCADA systems and distribution lines, and implementing infrastructure improvements to reduce water loss.
Water Rights	Water legislation to manage water rights and usage in conjunction with effective management of water rights. Keeping water rights with the land, protecting senior water rights by ensuring that new developments bring their own water.
Agriculture	Ensuring proper practice continues concerning developed land, smart systems for parks and public spaces, improving efficiency and ensuring flows from food irrigation. As well as utilizing agriculture, smart controller incentives, the use of drip agriculture in residential areas. Preserving agricultural lands and orchards, agricultural preservation, converting agricultural water to municipal use.
Water Management	Water management is a top priority, such as overall efficient water management practices, understanding the impacts of new wells on existing sources, and developing drought management and resilience practices. Education and transparency to keep the public informed and engaged are important while the community plans for the impact of annexation by municipalities through coordination with other stakeholders. Water quality strategies, particularly related to septic systems, and improving water measurement and monitoring through SCADA systems. Using center pivots, flow meters, and monitoring wells to manage water use efficiently.
Growth & Development	Managing growth and development responsibly, ensuring compliance with new regulations, and developing more water sources. Responsible water and well development and understanding the impact of new wells on existing water sources. Water quality strategies to address the impact of development on water quality. The importance of understanding water capacities for future generations and planning for regional growth through coordination between the County and the district. Developing new water sources, increasing storage capacity, and ensuring a reliable water supply. Density clustering to manage development and preserve water resources.
Water Conservation & Quality	Water conservation policies and measures that include conservation of agricultural water for municipal uses, conserving residential water and utilizing water data in conservation efforts. As well as better water measurement and data collection and, implementing efficient water use practices. Education on preserving and protecting water resources and educating the community on water conservation and efficient water use. There is a need for conservation and proper planning to ensure that the water supply remains sustainable.
Legislation	New water laws and regulations are always being developed in Utah. Many of these laws can impact water users in Box Elder County.

2.6 Planners Meeting

A dedicated Planners Meeting was convened on January 9, 2025, bringing together community planners from all nine municipalities across the county. This meeting was critical to the Master Plan process because it ensured that the water strategies being developed were fully integrated and aligned with existing and future land use and development goals outlined in municipal and county general plans. The result of this coordination was a plan that helped safeguard against potential conflicts by linking anticipated future growth projections with sustainable water availability, infrastructure needs, and conservation strategies. See Appendix 2-E: Planners Meeting.

2.7 Presentation of the Plan

The final phase of the County Water Master Plan involved a sequence of presentations to review the draft and formalize recommendations. This schedule included a Public Meeting on November 6, 2025 at the USU Brigham City campus, which provided the community with an opportunity to review the final draft of the plan and offer final input. Following this, the portion of the report regarding Integration of Water Use and Land Use Planning presented to the County Planning Commission on November 20, 2025 for their review and deliberation regarding alignment with land use goals. The process culminated with the final presentation to the BRWCD Board and the Box Elder County Commission on January 28 , 2026 for official consideration and adoption.



CHAPTER 3:
Recent Water Rules, Regulations, & Policies

3.1 Introduction

Water law and policies in Utah are in a state of continuous evolution, reflecting the dual pressures of persistent drought and rapid population growth across one of the nation's driest states. The legislative sessions from 2022 to 2025 have been particularly transformative, yielding numerous House and Senate bills that are fundamentally altering water rights, conservation mandates, and infrastructure funding. These changes, driven by the need to secure a reliable water future and safeguard critical resources like the Great Salt Lake, directly impact all corners of the state. For Box Elder County, which sits at the confluence of major watersheds like the Bear River and has a significant agricultural base, these new statutes are reshaping how water is managed, allocated, and used by its residents, farmers, and municipalities.

3.2 Recent 2022-2025 Key Water Legislation

S.B. 110 (2022) Water As Part of a General Plan

This landmark legislation fundamentally linked land use planning with water conservation. SB 110 requires all counties, including Box Elder County, to adopt a Water Use and Preservation Element into their General Plans by December 31, 2025. This means Box Elder County's Master Plan must now proactively address how future development will affect water demand, detail methods for reducing per-capita water use in both new and existing developments and actively plan for a sustainable water supply rather than assuming one will be available. For a rapidly growing, mixed-economy county like Box Elder, this mandates a structural shift in how municipal and county planning commissions approve development projects, directly influencing housing density and conservation ordinances. This Plan aims to fulfill this requirement.

S.B. 76 (2023) Water Amendments-Coordinated Water Resource Planning

SB 76 strengthened water management by mandating better coordination between local land use planning and water supply planning, building on the 2022 SB 110.

Key Requirement: The bill requires counties and municipalities (like Box Elder County) to formally consult with the Division of Water Resources, the Division of Drinking Water, the Department of Agriculture, and local water providers (e.g., water districts, irrigation companies) while creating their Water Use and Preservation Elements.

Planning Focus: It specifically requires counties to consider and plan for the regionalization (coordination or consolidation) of public water systems to improve efficiency.

Impact: It ensures that development plans are realistically tied to available water and distribution capacity, thereby making integrated water planning mandatory and collaborative.

Funding: The bill provided grants and ongoing funding to state agencies to help local governments comply with these new coordination requirements.

3.3 Legislative Changes

Representative Casey Snider's HB 280 (Water-Related Changes) has undergone significant evolution, initially aiming to establish a substantial, potentially $1 billion per year, state fee on water users to fund an estimated $40 billion in statewide water infrastructure needs over 40 years. This proposal faced considerable opposition, leading to a major amendment: the controversial fee provision was downgraded to a study on the financing of water infrastructure, while the overall bill retained its focus on mandating better state coordination for water project prioritization and planning. Complementing this, SB 211 (Generational Water Infrastructure Amendments) is poised to pass, creating a centralized water leadership structure: it establishes a Water District Water Development Council composed of the four largest water conservancy districts to guide state water priorities, and a Utah Water Agent who is empowered to negotiate with other states and help mandate how water resources are used across Utah for long-term needs.

3.4 2025 Legislation

H.B. 41 (2025) State Water Policy Amendments

House Bill 41 significantly expands Utah's official state water policy to create a more comprehensive framework for managing water resources, recognizing the state's arid nature. The amended policy emphasizes key strategies like water conservation, infrastructure development, water reuse with regional considerations, and protecting drinking water watersheds. Key additions include provisions supporting water banking, saved water strategies, maintaining stream flows for ecosystem health, and addressing declining water levels in major lakes, such as the Great Salt Lake. It encourages all state agencies to align their activities with these principles and mandates an annual review by the Legislature's Natural Resources, Agriculture, and Environment Interim Committee. This bill could connect to issues in Box Elder County by prioritizing the protection of the watersheds that feed the Bear River, which is a major water source for the county, and by supporting local efforts to implement new water conservation or reuse programs

H.B. 46 (2025) Water Rights Application Amendments

House Bill 46 modifies the administrative process and time frames related to applications before the State Engineer, particularly concerning the lapse and reinstatement of water right applications. The bill addresses how applicants are notified if their application lapses for failure to comply with a provision or order, and it outlines the process for seeking reinstatement within a 60-day window upon a showing of reasonable cause. Crucially, the bill clarifies that if a lapsed application is reinstated, its priority date is typically changed to the date of the reinstatement request, except in cases of fraud or mistake by the state engineer. This legislation could impact Box Elder County by establishing stricter rules for maintaining water right claims, forcing local developers, farmers, or municipalities to be more diligent in progressing their water projects to prevent losing their valuable original priority dates.

H.B. 47 (2025) Public Lands Watering Rights Amendments

House Bill 47 focuses on livestock watering rights on public lands, primarily by modifying provisions related to these rights. The bill addresses administrative actions concerning water rights when a federal land management agency reduces livestock grazing Animal Unit Months (AUMs). It explicitly prohibits a public land agency from conditioning the issuance or renewal of a grazing permit on the transfer of a water right directly to the agency. Furthermore, the bill amends language related to Public Water Reserve No. 107 claims, which are historically significant claims for water holes and springs on public land. This bill directly connects to Box Elder County's substantial agricultural and ranching interests by clarifying and strengthening the rights of local ranchers to utilize and protect their existing water rights for livestock on federal grazing allotments.

H.B. 81 (2025) Flouride Amendments

House Bill 81 makes significant changes regarding the fluoridation of public drinking water systems in Utah. The bill prohibits the addition of fluoride to water that will be introduced into a public water system, effective May 7, 2025. It also prevents political subdivisions from enacting or enforcing ordinances that require or permit fluoridation. As a companion measure, the bill allows pharmacists to prescribe fluoride supplements and directs the Division of Professional Licensing to establish guidelines for this prescription process. For Box Elder County, this bill would halt any existing or planned programs to add fluoride to municipal water supplies, potentially affecting the dental health strategies of local health departments that had previously relied on community water fluoridation.

H.B. 89 (2025) Water Transfer Amendments

House Bill 89 amends Utah's probate law to clarify procedures for the transfer of a deceased person's personal property via a small estate affidavit, which is used for estates valued under $100,000. The critical modification is the explicit exclusion of

water company shares of stock from being transferred through this simplified small estate affidavit process. Instead, shares of stock in a water company must be transferred through other specific legal mechanisms, such as under the Uniform Commercial Code. This measure ensures that the transfer of these particular assets, which represent a right to water, undergoes a more robust and trackable legal process. This could affect Box Elder County by requiring residents, especially in rural areas served by local mutual water companies, to use more formal probate procedures to correctly convey water shares upon the death of an owner, preventing potential conflicts over water rights.

H.B. 174 (2025) Water Rights Restricted Account

House Bill 174 modifies the provisions governing the Water Rights Restricted Account, a state fund used to support the Division of Water Rights' management activities, particularly for water rights adjudications. The bill expands the allowable uses of the funds to explicitly include obtaining legal support for the division's activities, in addition to funding technical staff, equipment, studies, and water measurement infrastructure. It also maintains a cap of $8,000,000 on the account's balance at the end of a fiscal year, with any excess funds being transferred to the Water Resources Conservation and Development Fund. In Box Elder County, where the Bear River is a major adjudicated water source and water rights are complex, this bill is important because it provides the State Engineer's office with more resources, including legal support, to efficiently administer, adjudicate, and measure the water rights within the county.

H.B. 243 (2025) Agricultural Water Optimization Amendments

House Bill 243 amends the Agricultural Water Optimization program to enhance state efforts toward efficient agricultural water use. The bill modifies the program's dedicated account to allow funding for both grants to improve efficiency and for research into farm economics, obstacles to optimization, and methods for measuring water savings. It also reduces the required non-state matching fund percentage (from 50% to 25% for certain high-efficiency projects, such as subsurface drip irrigation). Grant recipients are required to install water measurement devices and report their water usage to the State Engineer. For Box Elder County, a major agricultural center, this bill provides greater financial incentive through lower matching requirements and increased research to help local farmers and irrigation districts adopt new, more efficient, and cost-effective irrigation technologies.

H.B.274-5th Sub. (2025) Water Amendments

House Bill 274 introduces significant requirements for retail water suppliers and secondary water suppliers aimed at water conservation. The bill mandates that secondary water suppliers (those providing non-culinary water, often for irrigation) fully implement metering of all end-users by January 1, 2030, and establish tiered conservation rate structures that encourage efficient use. Retail culinary water suppliers are also required to consider water conservation when setting rates, including incorporating conservation efforts into the highest usage block units by July 1, 2027. This directly impacts Box Elder County by requiring its local secondary water providers and municipalities to invest in metering infrastructure and transition to tiered pricing, which will affect the billing and water use habits of residents and agricultural users.

H.B.285-1st Sub. (2025) Water Infrastructure Modifications

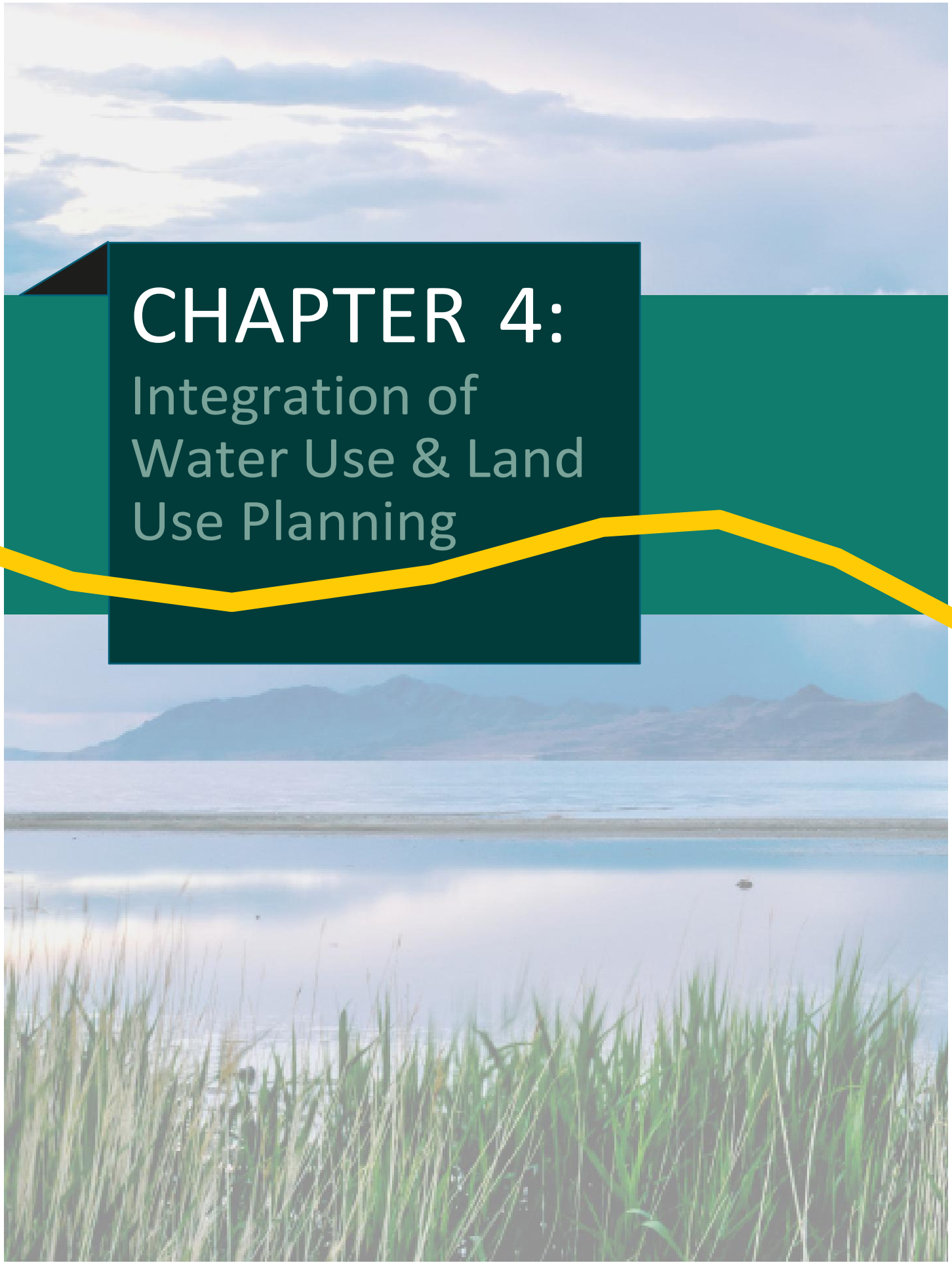
House Bill 285 creates a more systematic approach to state water infrastructure planning and funding. It establishes a new requirement for the Water Development Coordinating Council to adopt a comprehensive Water Infrastructure Plan and a written prioritization process for ranking and funding projects. Crucially, the bill mandates that public water systems and water conservancy districts develop formal capital asset management plans and reserve funding analyses by July 1, 2028, to ensure long-term maintenance. For Box Elder County, this legislation means that local water entities will have new state-mandated planning and financial requirements, but they will also benefit from a more structured and transparent state process for securing financial assistance for necessary large-scale water projects, like new pipelines or treatment plants.

H.B.311-3rd Sub. (2025) Watershed Amendments

House Bill 311 addresses several aspects of water management and administration, with a focus on clarifying the employment status and benefits of water commissioners, who are responsible for distributing water from river systems. The bill clarifies that a full-time water commissioner is treated as an employee of the Division of Water Rights, making them eligible for health and retirement benefits, and exempting them from certain state personnel acts. It also allows the state water agent to include facilities and land in negotiations for water augmentation projects and permits the Board of Water Resources to contract for such projects. This legislation could impact Box Elder County by helping the State Engineer retain experienced, high-quality water commissioners (particularly important for managing the Bear River) by offering more stable employment and benefits, thereby ensuring the fair and efficient distribution of water rights.

3.5 Looking Ahead

Water right policies in the Western United States, including Utah, are primarily governed by the doctrine of Prior Appropriation, often summarized as "first in time, first in right." This fundamental policy grants a water user the right to a specific amount of water based on the date they first put the water to a beneficial use, and users with older rights have priority during times of drought. Traditionally, a central element of this system has been the "use it or lose it" rule, which mandates that water must be continually used for an approved purpose or the right may be forfeited. However, modern legislation, such as that passed in Utah, is increasingly amending these policies to allow for a new beneficial use: instream flows and conservation, enabling water rights holders to dedicate or lease water to remain in rivers and streams, or flow to terminal lakes like the Great Salt Lake, without losing their historical rights. Furthermore, recent legal and policy recommendations, frequently discussed in regional and county meetings, have emphasized that water rights protection must be kept at the forefront of all new water and land-use planning decisions.



CHAPTER 4:
Integration of Water Use & Land Use Planning

4.1 Introduction

In 2022, Senate Bill (SB) SB 110 was passed by the State legislature, which required most municipalities and all counties to develop a water use and preservation element that is integrated with the land use planning and development of the general plan. This legislation was then incorporated into Utah Code 10-9a-403 for municipalities and 17-79-403 for counties. The timeframe for implementation is by December 31, 2025.

To meet SB110 requirements, this plan documents consultations with community water systems, canal companies, and municipalities across Box Elder County. The structured interview and regional meeting process ensured active participation from systems within unincorporated and rural areas, fulfilling both the intent and letter of the law.

Therefore, part of this master planning effort will be utilized to fulfill these planning requirements. The effort needs to include:

1. The effect of permitted development or patterns of development on water demand and infrastructure
2. Methods for reducing water demand and per capita consumption for existing development
3. Methods for reducing water demand and per capita consumption for *future* development
4. Modifications that can be made to a local government's operations to reduce or eliminate wasteful water practices

4.2 County Water Element Checklist

The Utah Division of Water Resources has created materials and provides documents that support municipalities and counties in meeting this legislation. A "County Water Element Checklist (Checklist)" has been provided, which outlines the four items above, along with recommended coordination with agriculture entities and consultations with community water systems. Throughout this planning effort, stakeholder engagement has been vital, with 56 different stakeholders being interviewed.

4.2.1 Development Impact

Development will have an impact on water demand, as well as create a need for new infrastructure. Therefore, it is critical to understand the existing reliable supplies to serve current development, along with creating a plan for future development. Box Elder County does not own or operate any water supplies or water systems, but has regular coordination with public water suppliers. In portions of the unincorporated County, the BRWCD supplies culinary water.

Figure 4-A: Public Water Supplier Data Table below is a summary of the Division of Water Resources data from 2022. Additional details related to this data is included in Chapter 5: Existing Water Supplies & Demands. Within this planning effort, there was an extensive review of existing reliable supplies of various public water suppliers. This analysis provided helpful information for current and future planning needs and is described in more detail in Chapter 6: Future Water Supply & Demand.

Chapter 6: Future Water Supply & Demand, breaks the growth areas into the north and south regions, but the summary table below combines that information. In addition to the defined growth areas within the Public Water Suppliers (PWS) listed in the table, there should also be consideration for the single-lot construction that will occur within the unincorporated county or within smaller communities. This impact was quantified by applying a 1% increase in Total Use. This equated to an additional increase of 77 AF. This has been added to the table above. The impact of this single-lot construction may seem minimal but should be monitored and understood. The documentation above allows the County to have a reasonable amount of water that should be planned for by various PWS. This generally outlines a "water budget" that can be used for future planning documents.

Figure 4-A: Public Water Supplier Data Table

Water Demand Increase

Public Water Supplier	Estimated 2035 Units	Residential Use (gpcd) (DWRe)	Total Use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Brigham City	1,150	140	7,703	523	7
Perry	600	53	1,963	103	5
South Willard	600	55	108	107	99
Willard	650	197	958	416	43
Garland	230	99	352	74	21
Tremonton	3,185	124	2,923	1,283	44
TOTAL	**6,415**			**2,506**	

4.2.2 Water Reduction for Existing & Future Development

Within this planning effort, a significant amount of time was spent receiving feedback on best management practices (BMPs) that could be implemented or adopted to promote smart water planning throughout the county. Some of the BMPs and discussion topics included improved water policy, updated landscape incentives/standards, improved and focused water use education, and others. The Public Process portion outlines the coordination and engagement that were completed regarding the BMPs.

4.2.3 Water Modifications

At the forefront of water reduction methods is water conservation through landscape incentives. The DWRe has launched a Landscape Incentive Program that provides compensation to residents within an eligible location. They have reached out to Box Elder County in hopes of listing them as an eligible location for this incentive. This incentive will require the adoption of the following landscape standards:

Propose Landscape Standards

- No lawn in parking strips or areas less than eight feet in width
- No more than 50 percent of front or side yard landscaped areas in new residential developments shall be lawn
  - Lawn limitations do not apply to small residential lots with less than 250 square feet of landscaped area
- In new commercial, industrial, institutional, and multi-family development common area landscapes, lawn areas shall not exceed 20 percent of the total landscaped area outside of active recreation areas

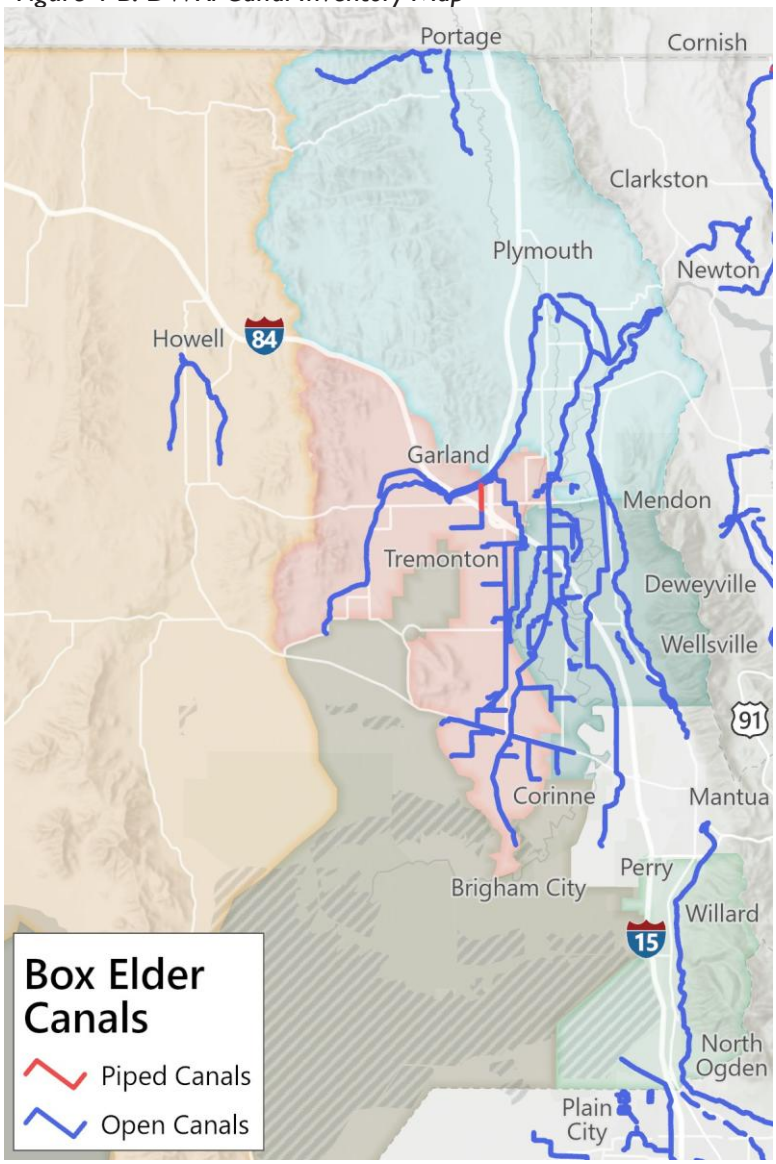
4.2.4 Agricultural Systems

The legislation asks to provide the following: "Process for identifying irrigation canal/ditch companies that have delivery systems within the county boundaries, along with a notification to these entities." The following figure, Figure 4-B: DWRi Canal Inventory Map, illustrates the existing canal inventory that the Division of Water Rights (DWRi) maintains for the canal systems within our study area. The DWRi also maintains a database of contacts for canal companies throughout the state, https://waterrights.utah.gov/canalinfo/canal_owners.asp.

As outlined in the Public Process portion of this report, a significant outreach and engagement effort was undertaken as part of this planning effort. This effort included specific stakeholder interviews with the following agricultural entities within Box Elder County.

Box Elder County does utilize agricultural protection zones (APA) within the unincorporated county. These zones are good first step that is being utilized to facilitate protection areas. These zones are regularly changing as property owners request entering into or existing an APA for the property they own. Due to the regular changes, a current map will not being provided within this report, but a current zoning map can be referred to on the County GIS website.

Figure 4-B: DWRi Canal Inventory Map



Stakeholder Interviews: by Region of County

Region	Irrigation Water	Culinary Water
Bear River Region	Bear River Canal Company (BRCC) Highland Ditch Company Central Canal Company	ACME Water Company Collinston System (BRWCD) Corrine City Corporation Deweyville Municipal Water System Elwood Town Harper Ward Water System (BRWCD) Honeyville Municipal Water System West Corrine Water Company
Bothwell Region	Bear River Canal Company (BRCC) Ferry Farms 3 Mile Creek Irrigation	Bothwell Cemetery & Water Corporation Garland City Corporation Sunset Park Water Company Thatcher (Marble) Hills Water Company Thatcher-Penrose Service District
Brigham Region	Mantua Irrigation Box Elder Creek Water Users Association Harper Irrigation Company North String Irrigation Bigfield Irrigation Pineview Water Systems	Brigham City Corporation Mantua Culinary Water Systems
Culter Region	Bear River Canal Company (BRCC)	Beaver Dam Water System (BRWCD) Collinston Water System (BRWCD) Nucor Steel Corporation Plymouth Town Portage Municipal Water System Riverside North Garland Water Company UKON Water Company Willow Creek Water Company
Great Salt Lake Region	Bear River Migratory Bird Refuge Salt Creek Waterfowl Management Area Bear River Club Company Chesapeake Duck Club	N/A
Northwest Region	Blue Creek Irrigation Taylor Farms The Rose of Snowville North Side Raft wRiver Irrigation Companies Spencer Land and Livestock Poulson Farms 6d Land and Livestock	East Grouse Creek Pipeline Company Howell Town Water Department Northrup Grumman Snowville City Water System
Willard Region	Willard Irrigation 3 Mile Creek Irrigation Pineview Water Systems	Perry City Willard City Water System Coleman Mobile Home Court Fox Hill Moble Home Community Hot Springs Trailer Court

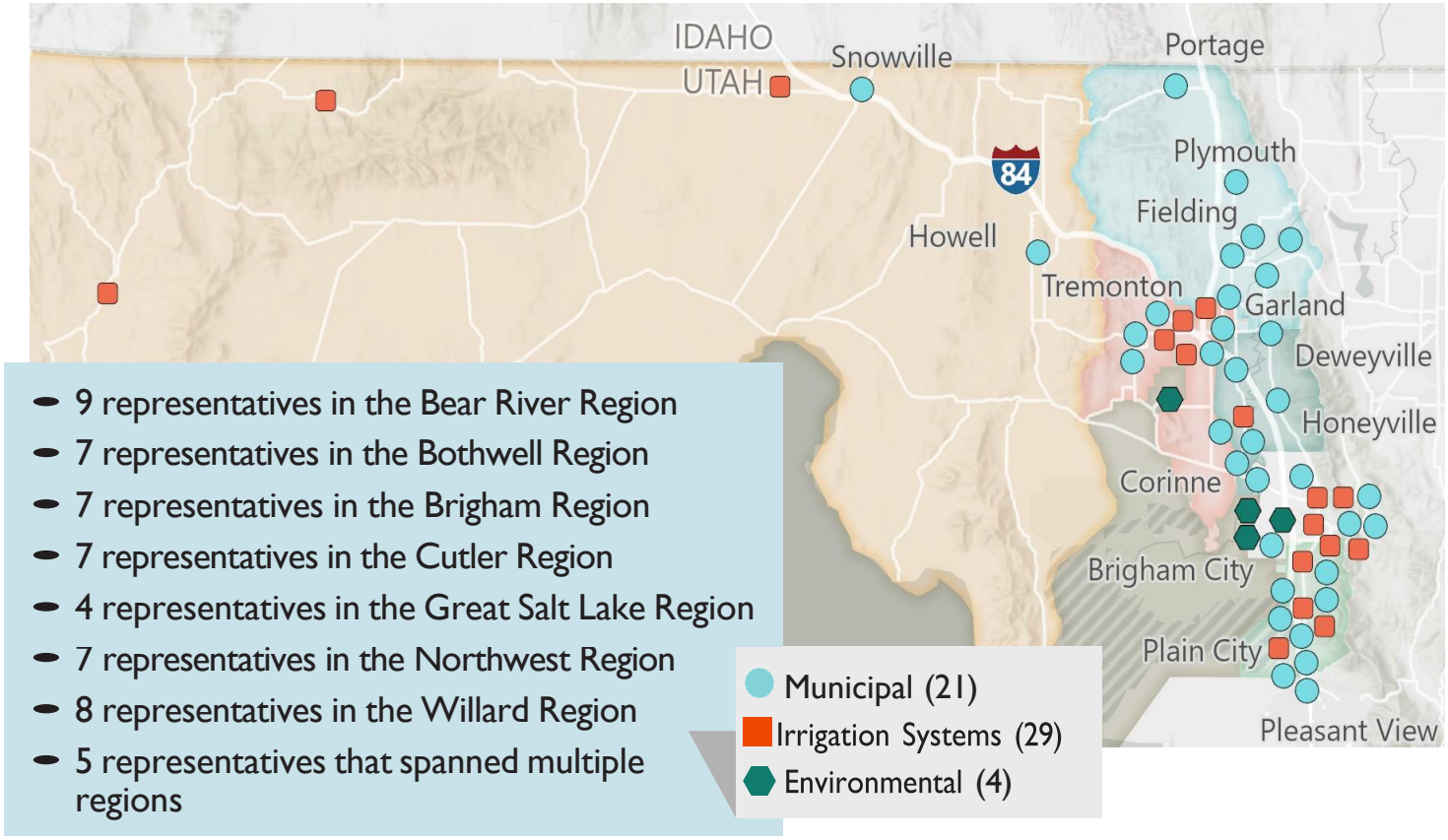
4.2.5 Public Water Systems

The legislation asks to provide the following: "Documentation of consultations with a minimum of all community water systems within unincorporated areas of the county."

As outlined in the Public Process portion of this report, a significant outreach and engagement effort was undertaken with this planning effort. This effort included specific stakeholder interviews with the following community water systems within Box Elder County, and is notated by county region. See Figure 4-C: Box Elder Stakeholder Interviews Map.

Additional municipalities, Bear River City and Fielding, along with a public group, Collinston Water United, were also engaged in the planning process. Refer to the Public Process chapter which outlines the results of these interviews.

Figure 4-C: Box Elder Stakeholder Interviews Map



The Master Plan's planning component relied on detailed water demand projections and usage data from the Utah Division of Water Resources (DWRi) and municipalities, specifically utilizing the 2021 Utah State Water Plan. Key metrics, including Residential potable gallons per capita per day (gpcd) and Total Potable Supply, were reviewed and discussed directly with each of the 28 Public Water Suppliers (PWS) during stakeholder interviews, emphasizing the need for regular review and updating of their water usage reporting. See Figure 4-D: Public Water Supplier Data Table on the following page.

Figure 4-D: Public Water Supplier Data Table

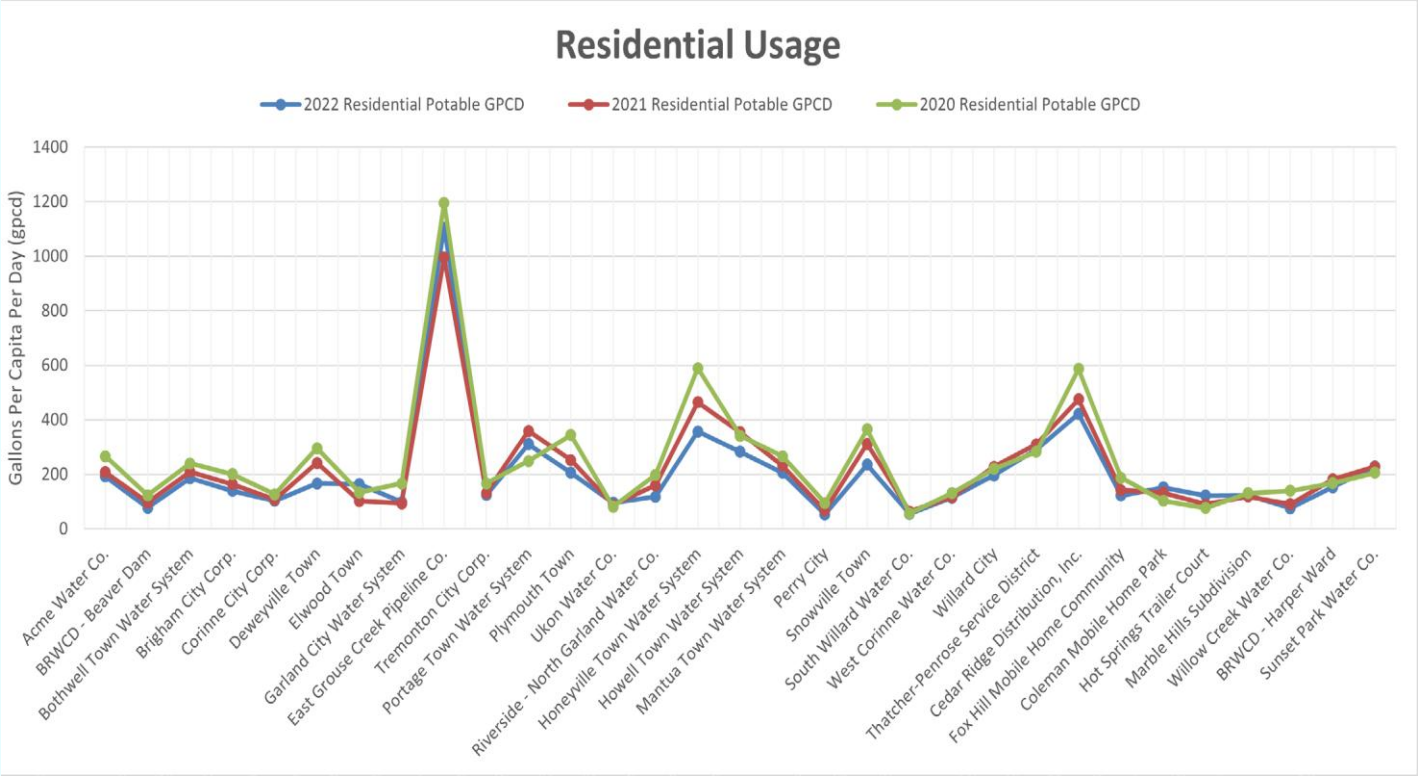
Public Water Supplier Data

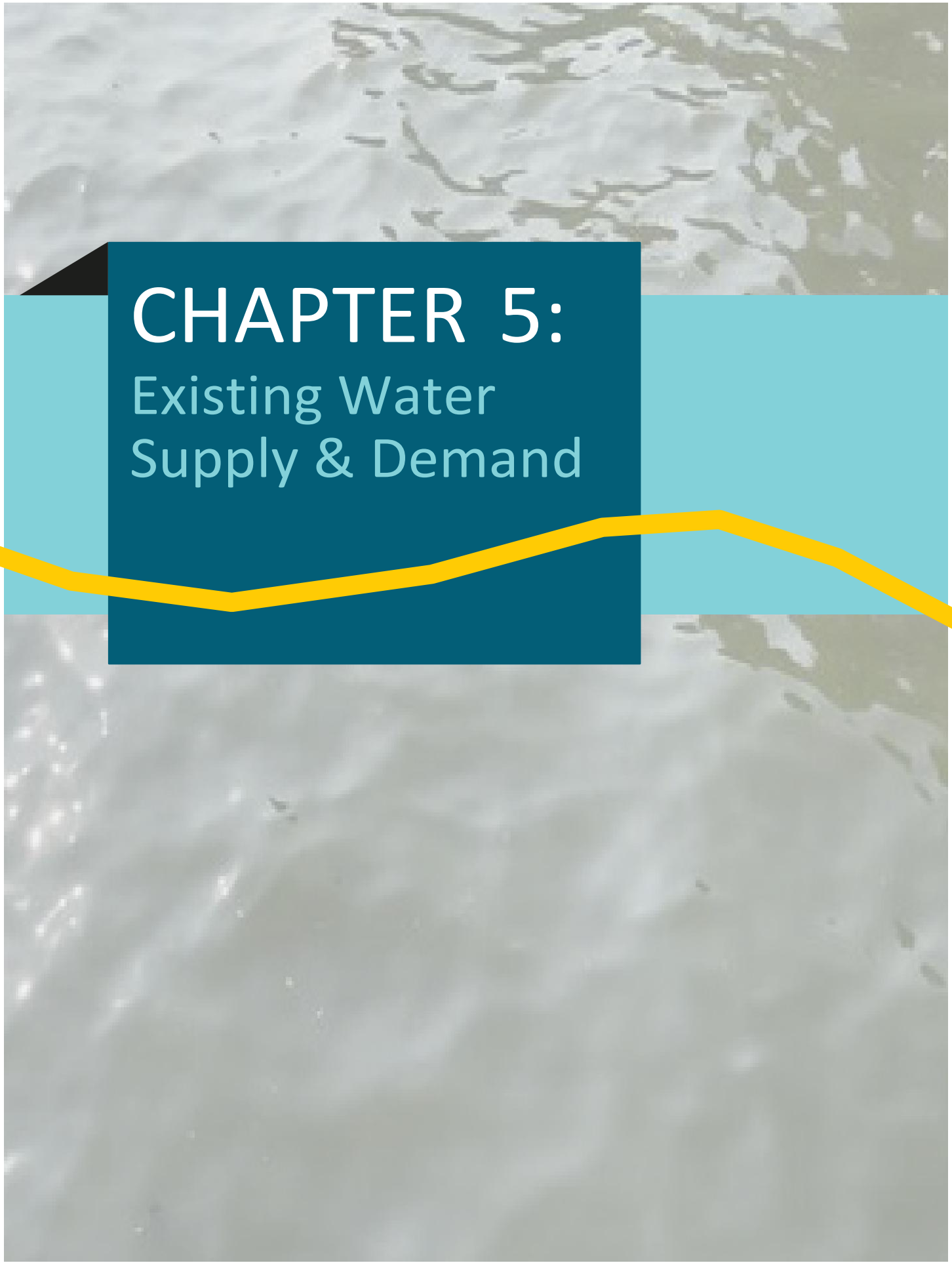
Public Water Supplier	Residential Potable GPCD	Total Potable Use (AF)	Total Potable Supply (AF)
ACME Water Company	192	252	1089.5
Brigham City Corporation	140	6,126	21,958
Bothwell Cemetery & Water Corporation	186	70	210
Coleman Mobile Home Park	152	10	16
Corrine City Corporation	103	126	303
Deweyville Town	167	104	652.9
East Grouse Creek Pipeline Company	1105	61	92
Elwood Town	164	290	1057
Garland City Water System	99	352	2080
Honeyville Town Water System	357	767	1186
Howell Town Water System	283	97	195.9
Mantua Town Water System	206	306	907.9
Marble Hills Subdivision	124	44	0
Perry City	53	442	1452.7
Plymouth Town	206	150	388.2
Portage Town Water System	311	116	176.6
Snowville Town	236	106	129.1
South Willard Water Company	55	108	638.5
Sunset Park Water Company	229	10	35
Thatcher-Penrose Service District	291	166	336.5
Tremonton City Corporation	124	2586	4802
UKON Water Company	96	177	217.9
West Corrine Water Company	114	701	781
Willard City	197	589	1775.5

Within this planning effort, there was an extensive review of existing reliable supplies of various public water suppliers. This analysis provided helpful information for current and future planning needs and is described in more detail in Chapter 6: Future Water Supply & Demand.

For comparison purposes, the Residential Use (gpcd) from 2020, 2021 and 2022 were analyzed and are shown in the graph below. Generally speaking, the usage for many of the public water suppliers decreased over this three year period. See *Figure 4-E: Multi-Year Residential Usage Graph.*

Figure 4-E: Multi-Year Residential Usage Graph





CHAPTER 5:
Existing Water Supply & Demand

5.1 Introduction

To plan for future water needs, a clear picture of the current water supply and demands is required. In Box Elder County, the water needs can be split into three main categories.

- Municipal and Industrial (M&I)
- Agricultural
- Environmental

It is important to understand each of these water categories to manage water supplies efficiently. Each of the three categories is explained in more depth below.

5.2 Existing M & I Water Data

To compile existing water data, resources from two state agencies were primarily utilized, the Division of Water Rights (DWRi) and the Division of Water Resources (DWRe). Each of these agencies serves different roles and responsibilities related to water data and is under the umbrella of the Department of Natural Resources (DNR). Additional information was also gathered during the stakeholder interviews as described in previous sections.

5.2.1 Division of Water Rights Data

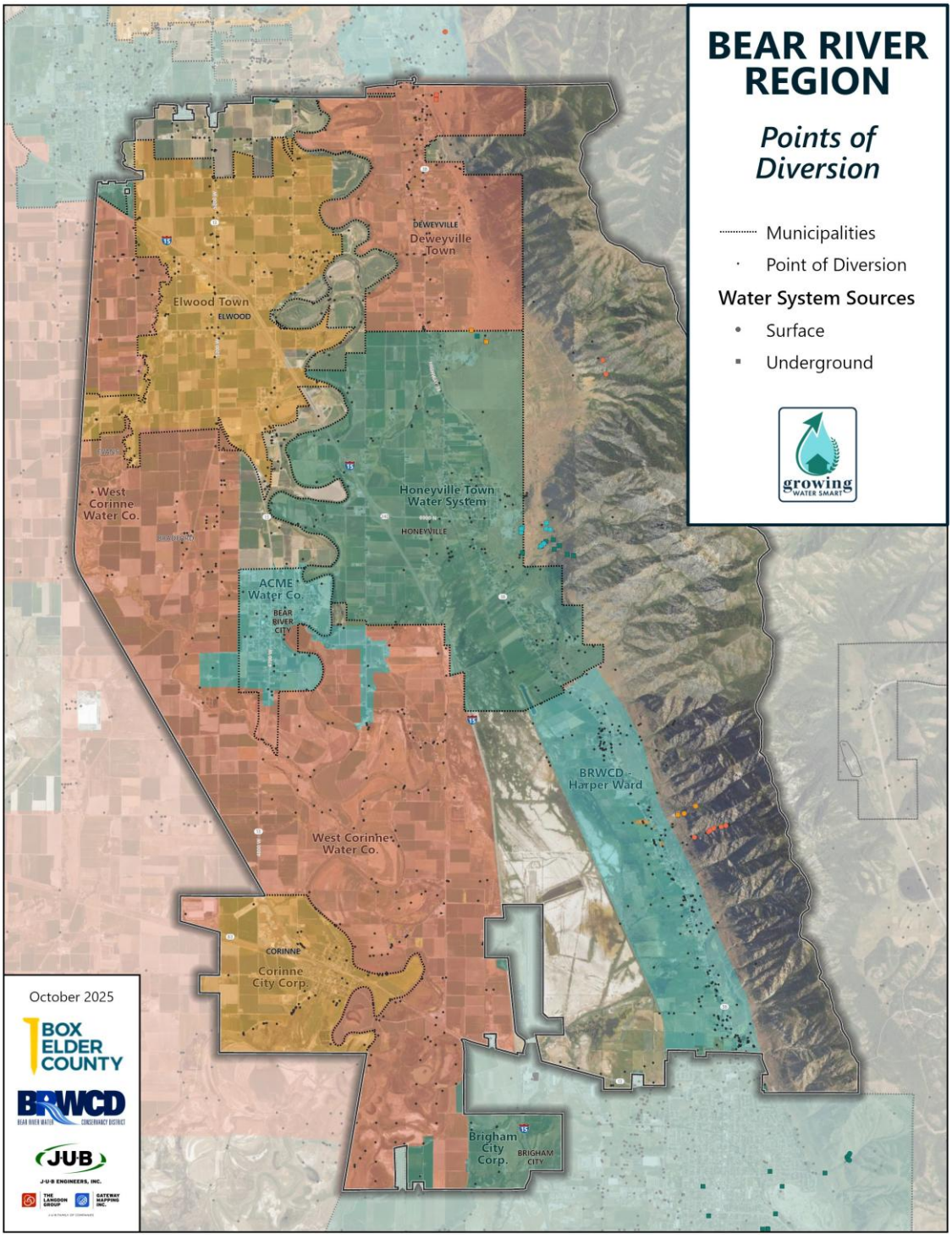
According to the DWRi website, the agency "Administers the measurement, appropriation, apportionment, and distribution of the State's valuable water resources."

DWRi provides a database for existing water rights and gathers existing water data from municipalities. This data is gathered based on self-reporting by municipalities on an annual basis. The following resources within DWRi were utilized when gathering existing water data (Utah Water Use Program):

- Water Rights: This included source information for each municipality.
- Public Water Supplier (PWS) Information: This included annual water usage data reported to the agency for the previous years, water system information, Utah Water Use Data Form, and other related information.
- Culinary Water Service Area: This included service area boundaries that are determined in collaboration with PWS. There are also quick links to the PWS system information.
- Canal Inventory Data (Canal Inventory): This included canal company distribution information as reported by the companies.

Appendix 5-A: Water System Maps. includes maps of each of the Master Plan regions that show documented PWS diversion points, culinary water service areas, and the points of diversion (POD) based on data from DWRi. Below is an example of one of the region maps (see Figure 5-A: Bear River Region Map).

Figure 5-A: Bear River Region Map



5.2.2 Division of Water Resources Data

According to the DWRe website, the mission of the agency is to "Plan, conserve, develop, and protect Utah's water resources".

The planning component of this mission includes water demand projections, and water usage based on reporting from DWRi and municipalities. Data from the most recent Utah State Water Plan (2021) was utilized within this planning document and will be discussed in more detail. The following is some of the information for the 28 PWS throughout Box Elder County within the State Water Plan (see Figure 5-B: Public Water Supplier Data Table).

- Residential potable gallons per capita per day (gpcd)
- Total Potable Use
- Total Potable Supply (potable wells supply + potable springs supply + potable surface supply)

It should be noted that for each of the PWS within this report, it is recommended to complete a regular review of water usage and reporting. During the stakeholder interview process, the information below was reviewed and discussed with each PWS.

Figure 5-B: Public Water Supplier Data Table

Public Water Supplier Data

Public Water Supplier	Residential Potable GPCD	Total Potable Use (AF)	Total Potable Supply (AF)
ACME Water Company	192	252	1089.5
Brigham City Corporation	140	6,126	21,958
Bothwell Cemetery & Water Corporation	186	70	210
Coleman Mobile Home Park	152	10	16
Corrine City Corporation	103	126	303
Deweyville Town	167	104	652.9
East Grouse Creek Pipeline Company	1105	61	92
Elwood Town	164	290	1057
Garland City Water System	99	352	2080
Honeyville Town Water System	357	767	1186
Howell Town Water System	283	97	195.9
Mantua Town Water System	206	306	907.9
Marble Hills Subdivision	124	44	0
Perry City	53	442	1452.7
Plymouth Town	206	150	388.2
Portage Town Water System	311	116	176.6
Snowville Town	236	106	129.1
South Willard Water Company	55	108	638.5
Sunset Park Water Company	229	10	35
Thatcher-Penrose Service District	291	166	336.5
Tremonton City Corporation	124	2586	4802
UKON Water Company	96	177	217.9
West Corrine Water Company	114	701	781
Willard City	197	589	1775.5

5.3 Agricultural Water Resources

Agriculture plays a crucial role in the local economy and communities throughout the County. The current and future availability and management of water resources are vital for sustaining agricultural activities. The County's farms produce a variety of crops, including grains, hay, and other crops, along with livestock farming.

Water for agricultural use in Box Elder County is primarily supplied by local irrigation companies and water districts with the Bear River Canal Company being the largest agricultural water supplier. Effective management of the water and how future growth occurs in the county are key to ensuring that water resources continue to meet the agricultural needs in the County.

The value of crops in Box Elder County extends beyond monetary terms and encompasses several important aspects including:

Food Security: Crops provide essential nutrients and calories, contributing to the food security in the county.

Soil Health: Crop rotation and the cultivation of diverse crops help maintain soil health and fertility. This practice prevents soil erosion and promotes sustainable farming.

Community: Agriculture fosters a sense of community and shared purpose among residents.

Cultural Heritage: Farming practices and crop cultivation are often tied to the cultural heritage of the region. They preserve traditional knowledge and practices passed down through generations.

Employment: Agriculture provides employment opportunities for many residents, supporting livelihoods and contributing to the local economy.

Preservation of agriculture and the open areas in the county is important. Focusing on development adjacent to existing developed areas and clustering of developments can help preserve the open areas. As the County continues to develop, the irrigation demands for agriculture will decrease and municipal and industrial water demands will increase. Efficient conversion of water for agricultural purposes to M&I uses will be very important. It should be noted that most of the water under water rights BRCC uses for irrigation cannot be used for indoor use, but could be used for outdoor irrigation of lawns and gardens.

5.4 Environmental Water Resources

Box Elder County faces several environmental water challenges that affect both the natural ecosystem and the local community. These concerns include the degradation of water quality, scarcity and overuse of water resources, and the growing impacts of climate change. Addressing these issues requires a multifaceted approach. One key strategy is to improve water quality through nutrient management practices in agriculture, such as using buffer strips and controlling fertilizer application to reduce runoff. Additionally, regular monitoring and stricter enforcement of water quality regulations can help identify and mitigate sources of contamination.

Enhancing the water supply is important. Promoting conservation techniques like drip irrigation and soil moisture sensors can optimize agricultural water use and minimize waste. Upgrading infrastructure, including modernizing irrigation systems and developing secondary water systems for non-potable uses, can further improve water efficiency. Ultimately, tackling environmental water concerns in Box Elder County will require collaborative efforts among local authorities, farmers, and the broader community.

5.4.1 Great Salt Lake (GSL)

The GSL is a critical natural resource in Utah that faces significant environmental challenges that impact Box Elder County. These concerns include declining water levels, water quality issues, and the broader ecological impacts on the region. Some key concerns include:

Salinity Changes: As water levels drop, the salinity of the lake increases, which can disrupt the delicate balance of the lake's ecosystem. This affects brine shrimp and other organisms that are crucial for the food web

Pollution: Nutrient runoff from agriculture and urban areas contributes to water quality degradation, promoting harmful algal blooms and other issues

Habitat Loss: The shrinking lake threatens the habitats of migratory birds and other wildlife that rely on the Great Salt Lake for breeding and feeding

Dust Emissions: Exposed lake beds can become sources of dust storms, which pose health risks to nearby communities and contribute to air quality problems

Some things that could be done to help address these concerns include:

Efficient Irrigation: Implementing advanced irrigation techniques, such as drip irrigation and soil moisture monitoring, can reduce water usage in agriculture and increase efficiency

Water Leasing Programs: Encouraging agricultural water users to lease water rights to the state for environmental purposes

Wetland Restoration: Restoring wetlands around GSL can help improve water quality, provide wildlife habitat, and buffer against water level fluctuations

Habitat Protection: Protecting and enhancing critical habitats for migratory birds and other wildlife can mitigate some of the ecological impacts of declining water levels

Addressing the water concerns related to GSL in Box Elder County will require a comprehensive approach that includes water conservation, habitat restoration, and policy changes. Collaborative efforts between government agencies, local communities, and stakeholders are essential.

5.4.2 Lower Bear River Watershed Planning

Some of the agricultural and environmental water resource concerns in Box Elder are being addressed as part of the Lower Bear Watershed Plan EIS. BRWCD has partnered, in a separate, but complementary effort to this Plan, with the Bear River Canal Company (BRCC) and other local sponsors in cooperation with the Natural Resources Conservation Service (NRCS) to complete this plan. A draft Environmental Impact Statement is being prepared for the watershed as part of this plan. The local co-sponsors in this Plan are:

- Tremonton City
- Bear River City
- Highland Ditch Company
- Central Canal Company
- Bear River Club Company (Bear River Club)
- Chesapeake Duck Club (CDC)
- Utah Division of Wildlife Resources (UDWiR)

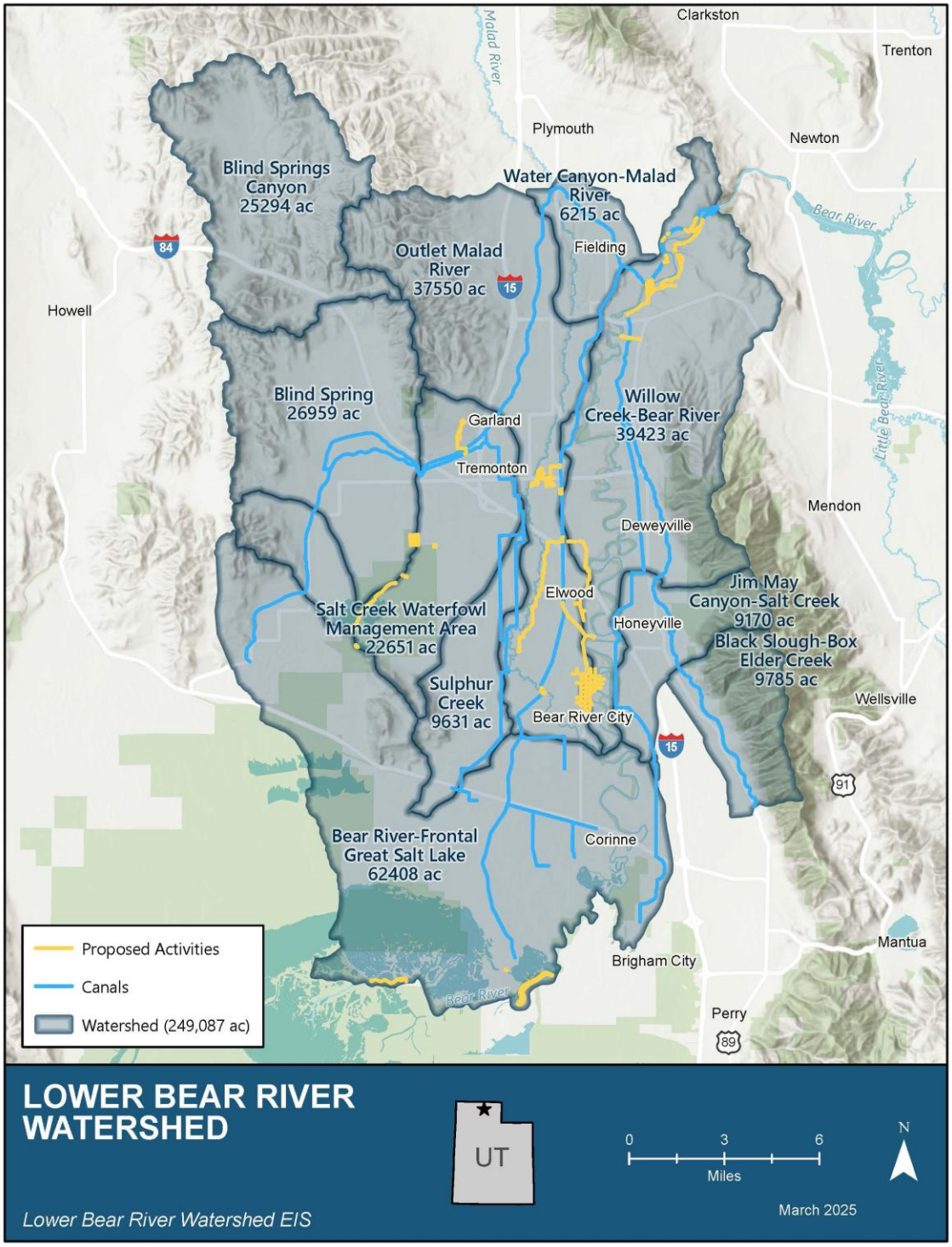
This plan is focused on agricultural and environmental water resources in generally the same part of the county that is served by BRCC. The draft proposes activities that provide benefits and opportunities related to agricultural and environmental water needs

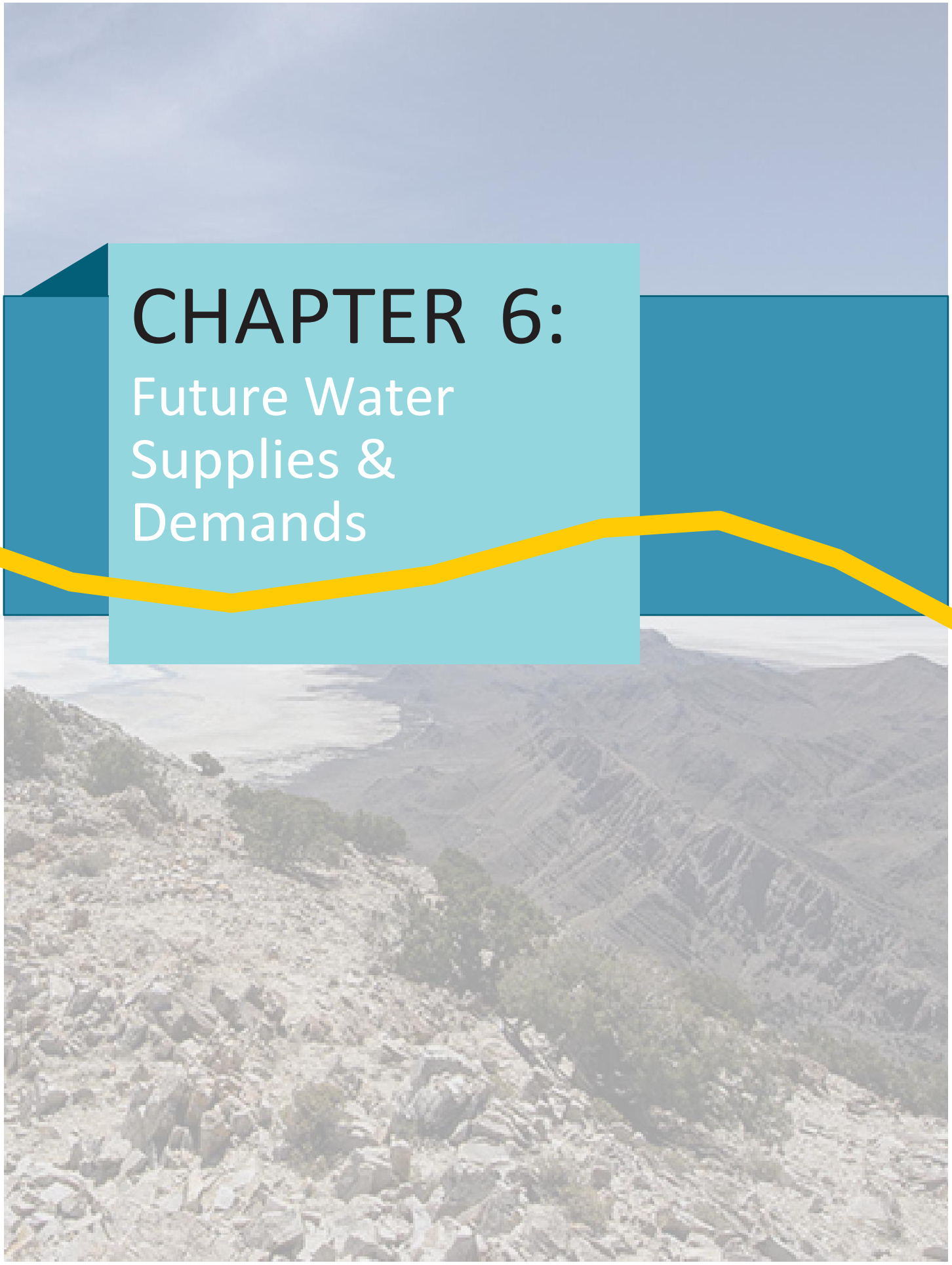
The two main purposes of the Lower Bear River Watershed Plan are agricultural water management improvement and watershed protection. Through the draft EIS process, a preferred alternative has been identified. The Preferred Alternative includes:

- BRCC canal improvements in the canyon below Cutler Reservoir
- BRCC siphon improvements to an old siphon west of Bear River City
- Tremonton and Bear River City secondary water improvements
- Highland Ditch and Central Canal Company piping
- Bear River Duck Club, Chesapeake Duck Club, and Salt Creek Waterfowl Management Area (WMA) levees and Salt Creek WMA sediment basin improvements

The draft actions outlined in the watershed plan would improve agricultural water management by addressing deficiencies in the agricultural water delivery system, improving reliability and efficiency, and developing secondary water systems for growing communities with limited water resources within the watershed. They also would help protect the watershed and key habitat areas. Improvements such as levee construction, sediment removal, and bank stabilization are being evaluated to reduce flooding, erosion, sediment, agriculture-related pollution, and maintain and enhance wetlands and wildlife habitat around the edges of GSL. Figure 5-C: Watershed Boundaries below shows the watershed boundaries along with the draft plan proposed activities.

Figure 5-C: Watershed Boundaries





CHAPTER 6:

Future Water Supplies & Demands

6.1 Introduction

As stakeholder interviews were completed, existing data was gathered and compiled, the next step to the master planning process was to provide future projections of growth and demand. The following sections outline various sources used to assist in creating a realistic and agreed upon growth pattern and demand.

6.2 Future Demand Process

6.2.1 State of Utah

The Kem C. Gardner Policy Institute is a reliable resource when population data is needed throughout the State of Utah. They cover everything from demographics, population projections, census research and other various population and household characteristics. This data is generally provided at a county level, but some areas of the state are analyzed at a more detailed level. For this report Box Elder County is analyzed at the county level.

A low, baseline and high population projection has been determined for Box Elder County by the Institute. Within this report the baseline scenario was utilized in the water supply and demand forecasting. Figure 6-A: Basis for Evaluation of Actions Table below summarizes these projections:

Figure 6-A: Basis for Evaluation of Actions Table

Basis for Evaluation of Actions

Rank	Timeframe	Population	Households
Low	2025-2060	12,683	11,319
Low	2025-2035	6,334	3,941
Low	2035-2060	6,348	7,379
Baseline	2025-2060	26,730	16,990
Baseline	2025-2035	8,216	4,506
Baseline	2035-2060	18,514	12,484
High	2025-2060	39,160	22,446
High	2025-2035	11,270	5,637
High	2035-2060	27,890	16,809

6.2.2 Box Elder County General Plan

In recent years the County updated the General Plan and adopted that plan in November 2021. This document provided a great resource that will be used for many years and provided a clear vision for the County to consider as they grow and move forward. This 2050 Vision was used as a backbone for future demand and is shown in Appendix 6-A: General Plan Vision 2050 Vision for further detail. The 2050 Vision Statement reads:

Plan Purpose:

"At the north end of the vibrant Wasatch Front, Box Elder County's communities and countryside have served us well for generations. Together we have enjoyed a high quality of life in our small towns, surrounded by productive working lands and the natural beauty of the mountains and the Great Salt Lake. As we look to the future together, we view these assets as the foundation to our future".

Together, we will:

- Enhance our towns and cities, focusing most of our new growth there, providing a nurturing place for future generations to grow up, with convenient access to goods and services and family-sustaining jobs for those who wish to work in our County.
- Support our farmers and ranchers to continue doing what they do best, stewarding the land for productive food production, whether cultivating orchards, farms or ranches.
- Care for our natural lands and resources while enhancing access, so the experience of our natural world can continue to be a part of life in Box Elder County.
- Continue to build bridges to our larger region, so we can enjoy the benefits of nearby access to the assets of a large metropolitan area—from access to great jobs and an international airport to cultural and arts venues.
- Work together, because "we have a lot of common ground."

6.2.3 Box Elder Community Planners

Following the Kem C. Gardner Policy Institute population projections above and adhering to the 2050 Vision from the general plan were the basis of determining future growth and water demands. In January 2025 many of the community planners and the county met together with the project team. At this meeting the intent was to place, within approximate locations, where the projected households/units could be located. With many of the community planners present, it was possible to gather input on active development applications, understand growth trends within their communities and understand where existing infrastructure is or planned to be. See Appendix 2-E: Planners Meeting.

The group broke into two regions, north and south, with the boundary generally described as communities north and west of Brigham City in the north and the remaining to the south. The baseline projections shown above were the target units to plan for:

2025-2035 = 4,506 units
2035-2060 = 12,484 units

When planning and describing the units above and in the tables later in this chapter, these units may include single-family detached, multi-family or others. In this planning scenario, the type of unit is not critical to the projection since the tables in the following sections break it down to a per capita water use.

6.2.3.1 North Area

In adhering to the county 2050 Vision of placing growth within developed communities, the communities seeing most of the growth in this region were Garland and Tremonton. The table below summarizes the units along with the water demand increases those units would require (see Figure 6-B: North Area Water Demand Table). The supplementary graphic also shows a visual representation of where this growth is anticipated based on recommendations from the planners group (see Figure 6-C: North Region Growth Map). Full-scale figures can be found in Appendix 6-B: Regional Growth Maps.

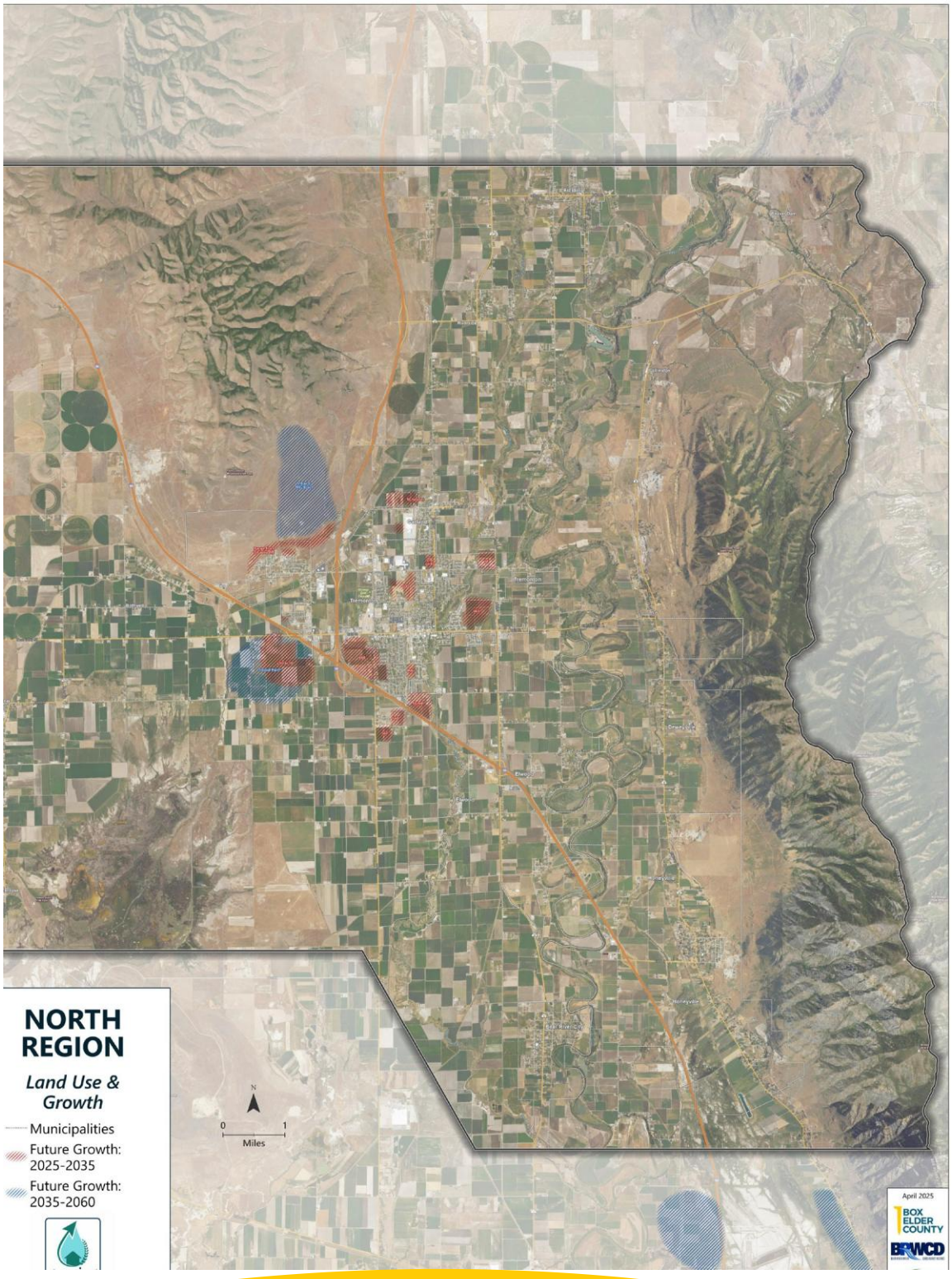
Figure 6-B: North Area Water Demand Table

Water Demand Increase: North Area

Public Water Supplier	Estimated2035 Units	Residential Use (gpcd) (DWRe)	Total Use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Garland	230	99	352	74	21
Tremonton	3,185	124	2,923	1,283	44
TOTAL	3,415			1,357	

These numbers include residential water use only and do not include commercial and industrial growth. When commercial/ industrial developments are proposed, water systems should determine how much water use is proposed prior to approval of each of those developments.

Figure 6-C: North Region Growth Map



6.2.3.2 South Area

In adhering to the county 2050 Vision of placing growth within developed communities, the communities seeing most of the growth in this region were Brigham City, Perry, South Willard, and Willard. The table below summarizes the units along with the water demand increases those units would require (see Figure 6-D: South Area Water Demand Table). The supplementary graphic also shows a visual representation of where this growth is anticipated based on recommendations from the planners group (see Figure 6-E: South Region Growth Map). Full-scale figures can be found in Appendix 6-B: Regional Growth Maps.

Figure 6-D: South Area Water Demand Table

Water Demand Increase: South Area

Public Water Supplier	Estimated 2035 Units	Residential Use (gpcd) (DWRe)	Total Use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Brigham City	1,150	140	7,703	523	7
Perry	600	53	1,963	103	5
South Willard	600	55	108	107	99
Willard	650	197	958	416	43
TOTAL	3,000			1,149	

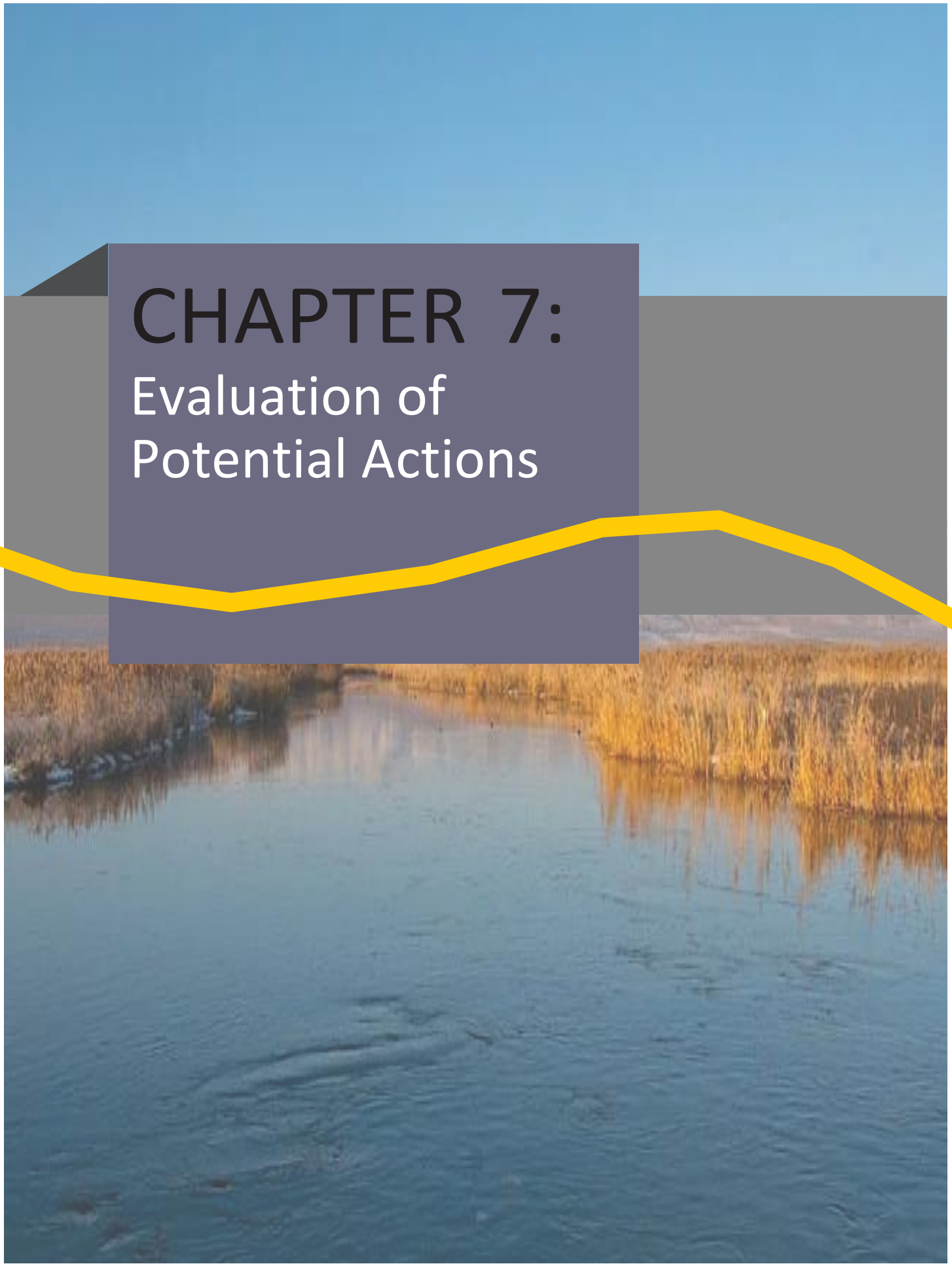
These numbers include residential water use only and do not include commercial and industrial growth. When commercial/ industrial developments are proposed, water systems should determine how much water use is proposed prior to approval of each of those developments.

Figure 6-E: South Region Growth Map

6.3 Future M & I Demand

Overall, M&I demand projections could include two scenarios. The preferred scenario is described above and follows the General Plan Vision 2050 that is outlined in the current county general plan. Based on community planner input, this scenario would add 6,415 units by 2035 which would increase the residential use by 2,506 AF. This increased demand is anticipated to occur within or adjacent to Tremonton, Garland, Brigham City, Perry, South Willard and Willard.

In addition to the defined growth areas described above, there should also be consideration for the single-lot construction that will occur within the unincorporated county or within smaller communities. This impact was quantified by applying a 1% increase in Total Use in the PWS table from Chapter 5: Existing Water Supplies & Demands. This equated to an additional increase of 77 AF beyond the 2,506 AF detailed above. The impact of this single-lot construction may seem minimal but should be monitored and understood.

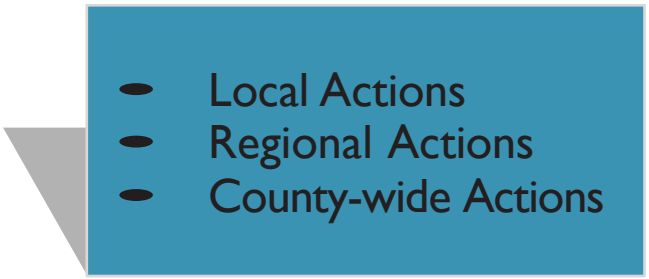


CHAPTER 7:
Evaluation of Potential Actions

7.1 Introduction

To ensure the effective management, preservation, and development of water for current and future needs, an evaluation of alternatives was completed. This chapter explains the evaluation process. The alternatives or potential actions evaluated herein are based on ideas and strategies that were largely brought forward by key water stakeholders and water managers from within the County.

When dealing with water issues, there are a variety of interest groups with different water priorities. As such, a rational planning procedure was followed based on a multi-objective approach to evaluate potential actions. The evaluation is based on conceptual data and is a living document that may be updated over time as more detailed information is made available.



7.1.1 Local Actions

Many ideas for water related actions were suggested and discussed during the interview process with water operators and managers. These ideas were evaluated to determine if they were actions that should be focused on and carried out by the individual entities or if they were more regional in nature, meaning that they would require coordination between multiple entities. If they were determined to be actions that the individual entity could do, they were classified as potential local actions. These actions were not evaluated further as part of this plan, but are listed in each of the included regional plans, found in Chapter 8: Regional Plans, and can be completed as part of local water planning efforts that are ongoing and as funding becomes available. The list of potential local projects may be referenced as the water entities seek grants or other funding assistance in the future.

7.1.2 Regional Actions

Ideas and potential actions that will benefit multiple water systems and require coordination between multiple systems and/or BRWCD, but do not directly benefit users across the entire County are classified as regional actions. These actions were evaluated further as explained below to see which ones do a better job than others meeting the desired Best Management Practices (BMPs) within the county and regions.

7.1.3 County-Wide Actions

County-wide actions are actions that were evaluated based on the desired BMPs and found to be actions that would benefit a large portion of, or the entire County. These actions were also evaluated further as explained in this chapter.

7.2 Objectives of Actions

Objectives were identified for use in the evaluation of potential actions based on information gathered in the key stakeholder interviews and stakeholder meetings related to BMPs and other key desires, and based on the projected water supply needs. The identified challenges and needs in the county can be summarized and categorized into the following three major categories:

Best Management Practices:

- Infrastructure
- Supply
- Water Management

7.2.1 Infrastructure

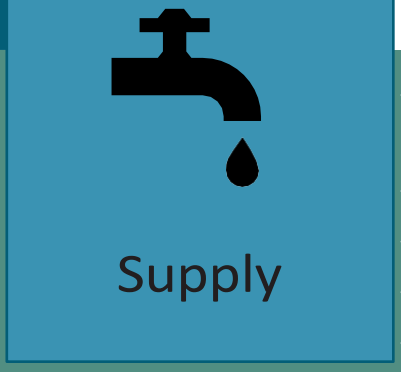
Many systems are aging with key pieces of infrastructure needing to be upgraded or replaced in order to continue to deliver secure and reliable water to users. The following BMPs summarize those that were identified through the stakeholder process.

Infrastructure

- Benefit as many users as possible
- Replace or upgrade aging infrastructure
- Improve connectivity between municipal systems
- Improve water data collection and analysis
- Improve irrigation efficiency and optimization
- Reduce demand on culinary systems

7.2.2 Supply

The water resources in Box Elder County are limited and precious for M&I, agricultural, and environmental uses. Some areas of the county are developing, and with that growth come some challenges and opportunities. Adequate and reliable water supplies are needed to meet future M&I demands while preserving agricultural lands. The following supply related BMPs summarize those that were identified through the stakeholder process.



- Provide adequate and reliable water supply now and in the future
- Improve conversion process to protect agricultural rights
- Protect water rights
- Preserve agricultural lands
- Monitor groundwater levels

7.2.3 Management

Thoughtful and deliberate management of the county water resources is needed to put the available water resources to their best possible use and ensure a secure water future. The following water management related BMPs summarize those that were identified through the stakeholder process. The infrastructure, supply, and management BMPs are all utilized and listed as "Objectives" in the evaluation of regional and county-wide alternatives, along with related objectives that fit within the identified BMPs

- Provide adequate and reliable water supply now and in the future
- Improve conversion process to protect agricultural rights
- Protect water rights
- Preserve agricultural lands
- Monitor groundwater levels

7.3 Metrics

Metrics are used to measure how well a given alternative meets each objective. While many metrics were initially evaluated, some were changed or removed during the evaluation process as new information dictated. *Figure 7-A: Evaluation Objectives & Metrics* shows the final objectives used in the analysis and their corresponding metrics, some of which have more than one. For the full Metrics evaluation, see Appendix 7-A: Evaluation of Actions Matrix.

Figure 7-A Evaluation Objectives & Metrics

Evaluation Objectives & Metrics

	Objective	Metric
Infrastructure	Improve connectivity between municipal systems & provide redundant sources	Added redundant sources for community systems, such as interconnects (# of communities)
	Benefit as many residents as possible	Population served (number)
	Reduce demand on culinary systems	Reduced culinary water used for irrigation (acre-feet/year)
	Replace or upgrade aging infrastructure	Distribution pipes replaced or upgraded (feet)
	Improve water data collection and analysis	New meters/water data collection (extent)
	Improve irrigation efficiency/optimization	Volume gained through optimization (acre-feet/year)
Supply	Provide adequate, reliable culinary supply now and in the future	Supply added/culinary consumption reduced (acre-feet/year)
	Protect water rights	Current water rights put to beneficial use or approved non-use status (acre-feet/year)
	Improve the conversion process to protect agricultural rights	Percent of water for developing lands that is converted for M&I uses and purchased for use in other parts of the County (acre-feet/year)
	Preserve agricultural lands	Negative impacts to agricultural lands (level)
	Monitor groundwater levels	Increased groundwater depth data made available for analysis (level)

	Objective	Metric
Management	Protect and manage water quality	Improved understanding of water quality (level)
	Strengthen coordination & agreements between entities, focus on regional projects	Entities involved in an agreement, an action, or sharing resources (number)
	Minimize costs/develop funding strategies	Capital costs without grant ($ and $/acre-foot), potential level of grant funding (% of project cost), likelihood of receiving grant
	Partner with development to align land use planning and zoning for smart growth	Proximity to existing connection (feet), adequate water rights available (yes/no)
	Improve understanding of impacts to the Great Salt Lake	Improved understanding (level)
	Improve water management through public education and outreach	Extent of outreach and public education (level)
	Advocate and inform the public of ongoing/proposed water legislation	Box Elder County influence on new water related legislation (level)

7.4 Key Objectives of Metrics

The objectives used to evaluate the alternatives were not weighted because of the diversity of the stakeholders. What is very important to one stakeholder may not be as important to another stakeholder. However, during the stakeholder input process it became evident that there are a few key objectives that were important to a large group of the stakeholders. These are:

- Focus on regional projects
- Provide adequate culinary supply
- Replace aging infrastructure
- Protect water rights
- Preserve agriculture
- Manage growth and development
- Monitor water legislation

7.4.1 Focus on Regional Projects

The County or BRWCD should focus on coordinating and completing projects that involve multiple water entities. Individual communities focus on local water issues and managing their own systems. The County is primarily focused on land use development in the County and BRWCD is focused on providing resources, planning, or infrastructure needed to meet water needs in the County.

7.4.2 Provide Adequate Culinary Supply

As the population in the county continues to increase, there is a continued need to identify and develop new water sources, utilize water more efficiently, and to convert water from existing uses into new uses. Individual water systems should continue to be proactive in water resource planning at the local level. There are also opportunities for multiple water systems to combine together or with BRWCD to create regional water projects that help meet the demands of multiple communities. Having a redundancy of sources is valuable to allow for continued water delivery if a source or some water system components fail. Also, planning and creating systems that can water yards using non-potable water will reduce the demands on culinary systems.

7.4.3 Replace Aging Infrastructure

There are many culinary water systems throughout the County that are aging with pipes and other components nearing the end of their useful life. Plans need to be in place to strategically replace this infrastructure before it fails.

7.4.4 Protect Water Rights

There are a lot of water rights in the county and the water associated with those rights needs to be protected through being put to beneficial use or placed in an approved non-use status.

7.4.5 Preserve Agriculture

Box Elder County has a rich agricultural community that needs to be protected and preserved. Agricultural water needs to continue to be put to beneficial use, and agricultural lands should be preserved where possible. The Lower Bear Watershed plan and Environmental Impact Statement (EIS) is being completed while this plan is being completed. The EIS focuses primarily on efforts that will help preserve agriculture with projects that improve irrigation delivery systems. These projects are not evaluated as part of this plan, but have been evaluated and defined in the Lower Bear Watershed EIS.

7.4.6 Manage Growth and Development

It is important that growth happens in a planned, practical, and smart way. Smart growth means planning ahead so that development happens in the right places, with the right infrastructure, and without compromising the rural character, open space, or quality of life in the County. Un-zoned areas need to be assigned land use (zoning) designations.

7.4.7 Monitor Legislation

State-level water legislation evolves annually, directly impacting Box Elder County water users. The current political focus on restoring the Great Salt Lake has superseded previous discussions about Bear River Development. However, Box Elder County holds a critical allocation from the Bear River Development that must be protected. Amidst these competing priorities, it is essential that Box Elder County's water rights and interests are not overlooked but are instead clearly understood and defended.

7.5 Action Types Evaluated

A variety of regional project actions were evaluated, including:

- Culinary wells
- Culinary distribution and interconnects
- Storage
- Secondary Water Systems
- Water Treatment
- Metering
- Conservation planning
- Water Reuse
- Replacement of aging water infrastructure
- Zoning
- Water exaction
- Others

7.5.1 Conceptual Costs

Some opinions of probable cost are listed as part of the evaluation of most of the mitigation measures. All the costs are very conceptual and therefore rough and were listed solely as a tool to help evaluate and compare different types of actions. These costs should not be used in budgeting or further planning of projects without first completing a more complete opinion of probable cost.

7.6 Evaluation Results

The results of the evaluation are shown in Appendix 7-A: Evaluation of Actions Matrix which color codes actions based on how well they meet the given objectives. The actions were evaluated at a very conceptual level; therefore, there is a significant level of uncertainty in the values calculated for the evaluation.

A color key is shown just below the metrics and gives four ranges of values for each metric. Each action is bracketed into one of four levels of attainment for each objective because of the level of uncertainty in the evaluation of alternatives. The four levels are indicated by green colors that are lighter for lower attainment levels and darker for higher attainment levels. The strength of a given action can be determined by looking across a row for the given action and comparing how dark the cells are for that action with the cells for other evaluated actions. Actions that have darker cells are stronger than actions with lighter cells

7.6.1 Evaluation Uncertainty

As mentioned above, there is a level of uncertainty in the analysis done for the evaluation of the conceptual mitigation measures, such as:

- Unknown exact project locations
- Number of communities that will choose to participate in a project
- Amount of water that can be developed through a project
- Detailed costs that will be associated with each action
- Recommended actions

7.7 IRAR Framework

Recommended regional and County-Wide actions given in this plan in the subsequent chapters are presented using a standard framework referred to as the IRAR framework. IRAR is an acronym that stands for Issue, Rule, Analysis, and Recommendation. Figure 7-B: IRAR Framework below provides a description of each of the IRAR components

This approach helps ensure recommendations are grounded in stakeholder input, legal and policy frameworks, and technical analysis. The process was followed because it is transparent, adaptable, and responsive to the diverse needs of Box Elder County.

The recommended regional actions relevant to each region are presented using the IRAR framework in Chapter 8: Regional Plans. They are also listed in Chapter 9: Recommendations along with the county-wide recommendations.

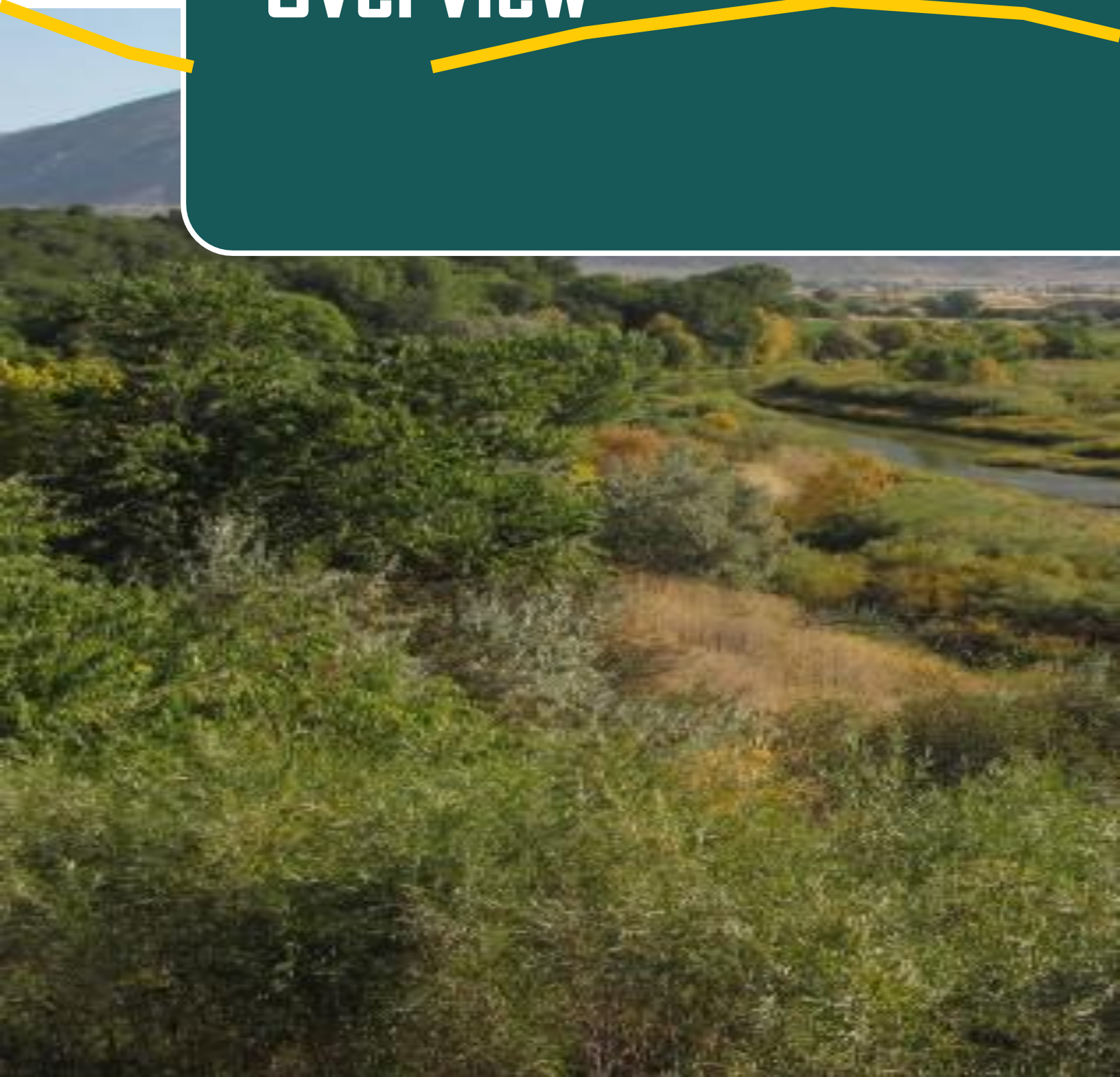
Figure 7-B: IRAR Framework

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

CHAPTER 8:
Regional Plans

- Bear River Region
- Bothwell Region
- Brigham Region
- Cutler Region
- Great Salt Lake Region
- Northwest Region
- Willard Region

Regional Plans Overview

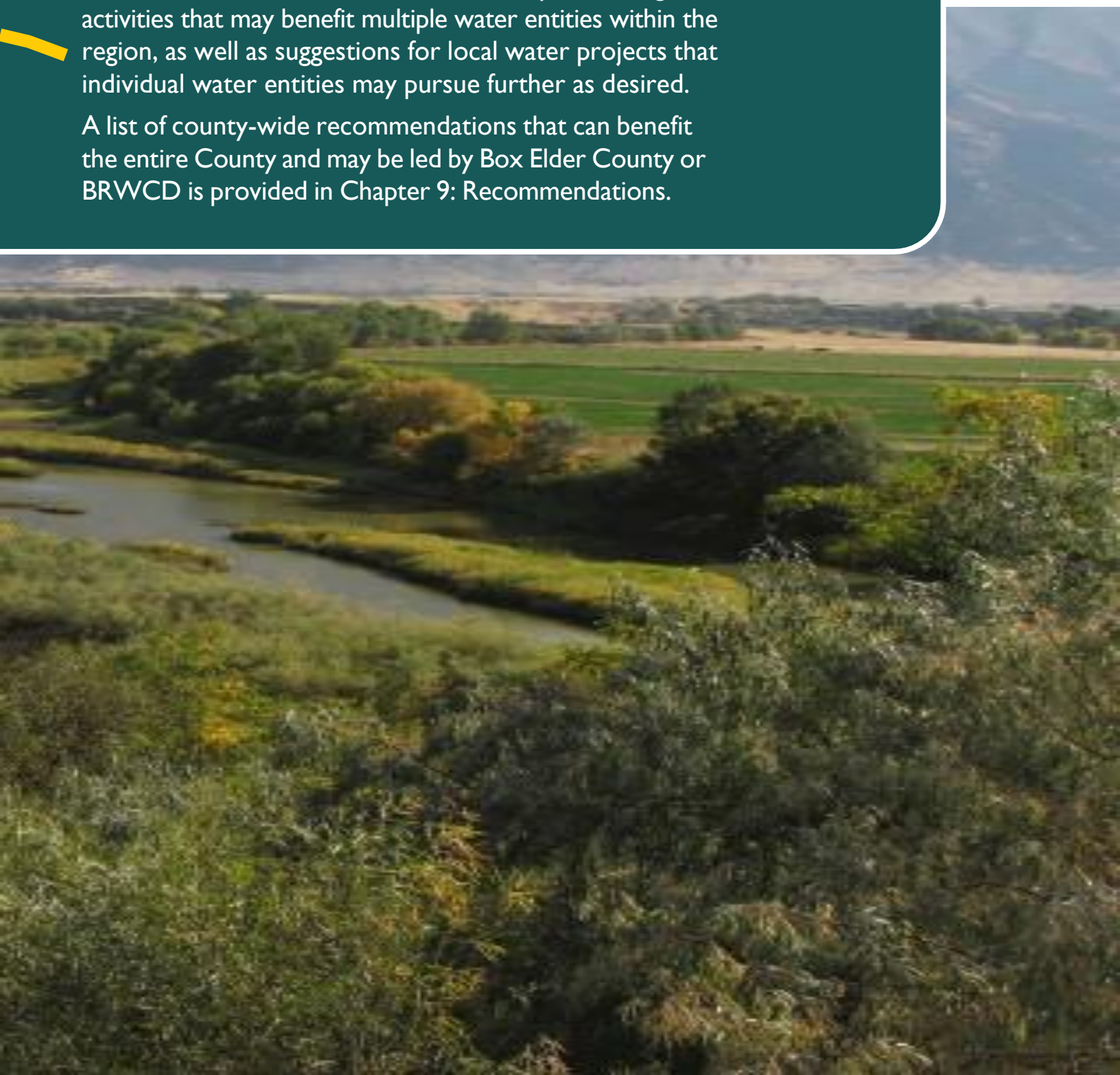


Plans for each of the regions that make up the County are included in this section.

These plans are based on input gathered through key stakeholder interviews and public meetings held for each region and based on the evaluation of water resources and growth projections specific to each region.

Recommendations are included in this chapter for regional activities that may benefit multiple water entities within the region, as well as suggestions for local water projects that individual water entities may pursue further as desired.

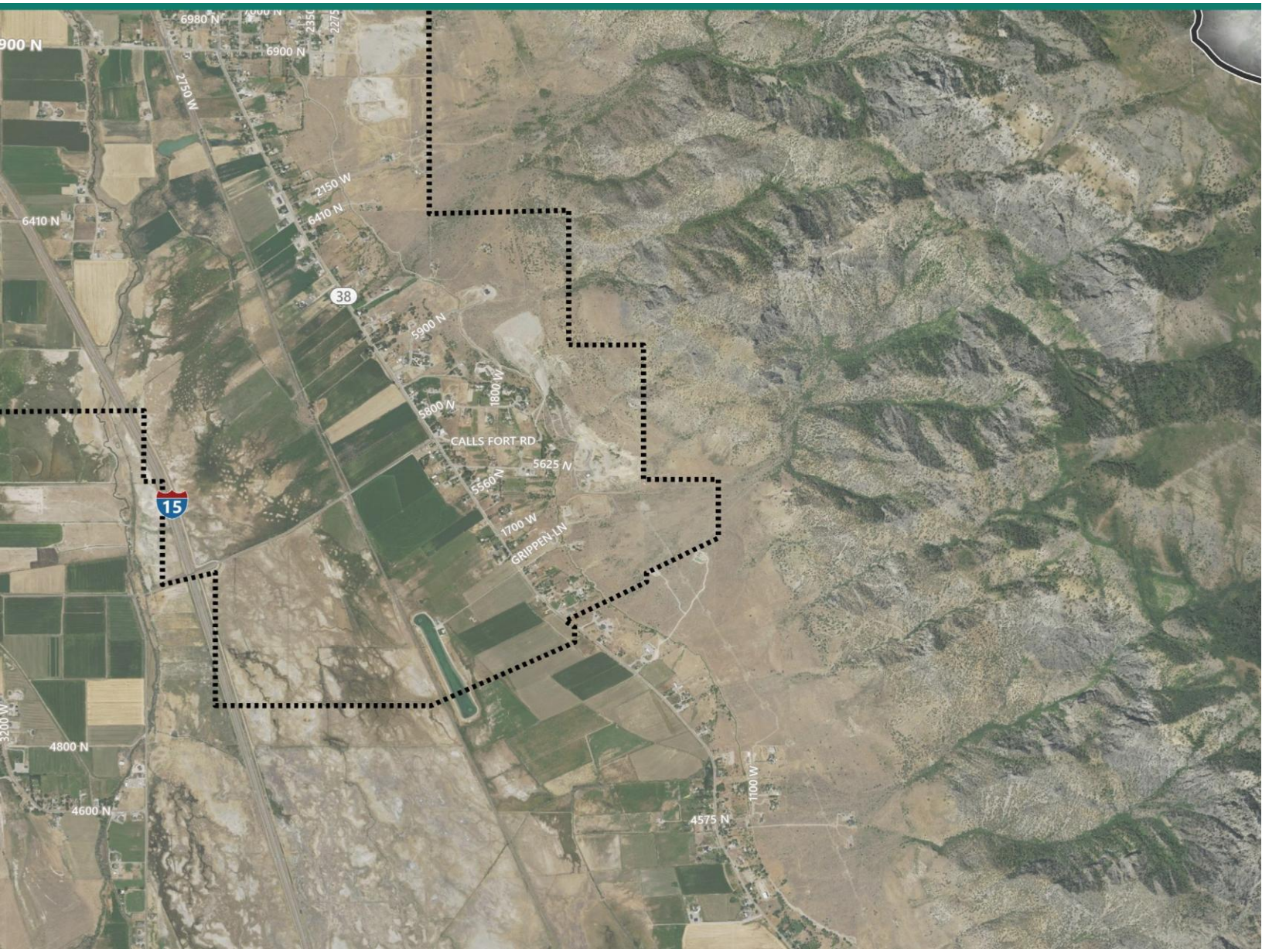
A list of county-wide recommendations that can benefit the entire County and may be led by Box Elder County or BRWCD is provided in Chapter 9: Recommendations.



8.1 Bear River Region

Regional Plan


8500 N


6980 N
6900 N
2750 W
2150 W
6410 N
6410 N
38
5900 N
5800 N
1800 W
CALLS FORT RD
5625 N
5560 N
15
1700 W
GRIPPEN LN
3200 W
4800 N
4600 N
1100 W
4575 N

Overview

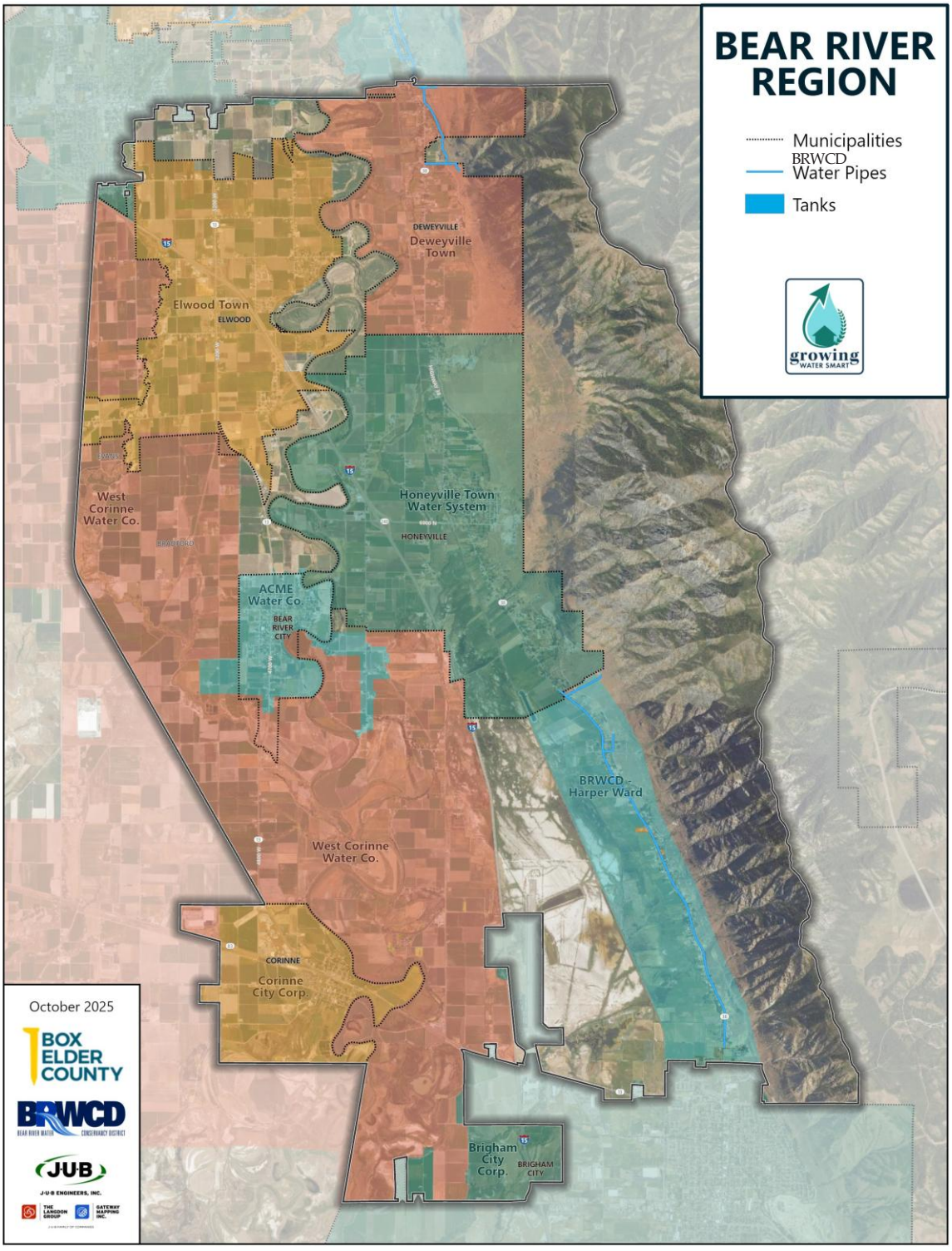
The Bear River Region covers an eastern portion of the county north of Brigham City and south of Collinston and Tremonton, stretching from the Wasatch Mountains on the east to the railroad corridor near 6800 West on the west. It includes several incorporated and unincorporated communities such as Bear River City, Deweyville, Elwood, Honeyville, Harper Ward, and Corinne. It is served by a mix of municipal, private, and BRWCD-operated water systems. Two private water companies, West Corinne Water Company and ACME Water Company, are included in this area. West Corinne Water serves unincorporated areas of the region on the west side. ACME Water Company serves Bear River City and some of the unincorporated county areas near Bear River City. BRWCD serves the unincorporated Harper Ward area.

While projected growth in this region is modest compared to other areas of the county, water infrastructure and supply challenges remain a priority. Aging infrastructure, limited source redundancy, and concerns about groundwater impacts from new development need to be addressed.

The region relies heavily on spring and well sources and there is a need for improved system interconnectivity, monitoring of groundwater levels, and improved coordination with BRWCD and Bear River Canal Company (BRCC). Regional strategies focus on enhancing water reliability, protecting water rights, and supporting sustainable development through collaborative efforts between BRWCD, municipalities, and private systems.

Figure 8.1-A: Bear River Region Map provides an overview of the region with the existing BRWCD culinary water infrastructure. The incorporated cities and each of the private systems in this region own and operate their own water systems and infrastructure which are not shown on the map.

Figure 8.1-A: Bear River Region Map



Water Systems

Water systems in the Bear River Region serve both incorporated and less populated unincorporated areas. Culinary water is provided by a mix of municipal and private systems, including ACME Water Company, Corinne City Corporation, Deweyville Municipal Water System, Elwood Town, Harper Ward Water System (operated by BRWCD), Honeyville Municipal Water System, and West Corinne Water Company. These systems vary in size and capacity, with some serving larger communities and others supporting more rural or sparsely populated areas.

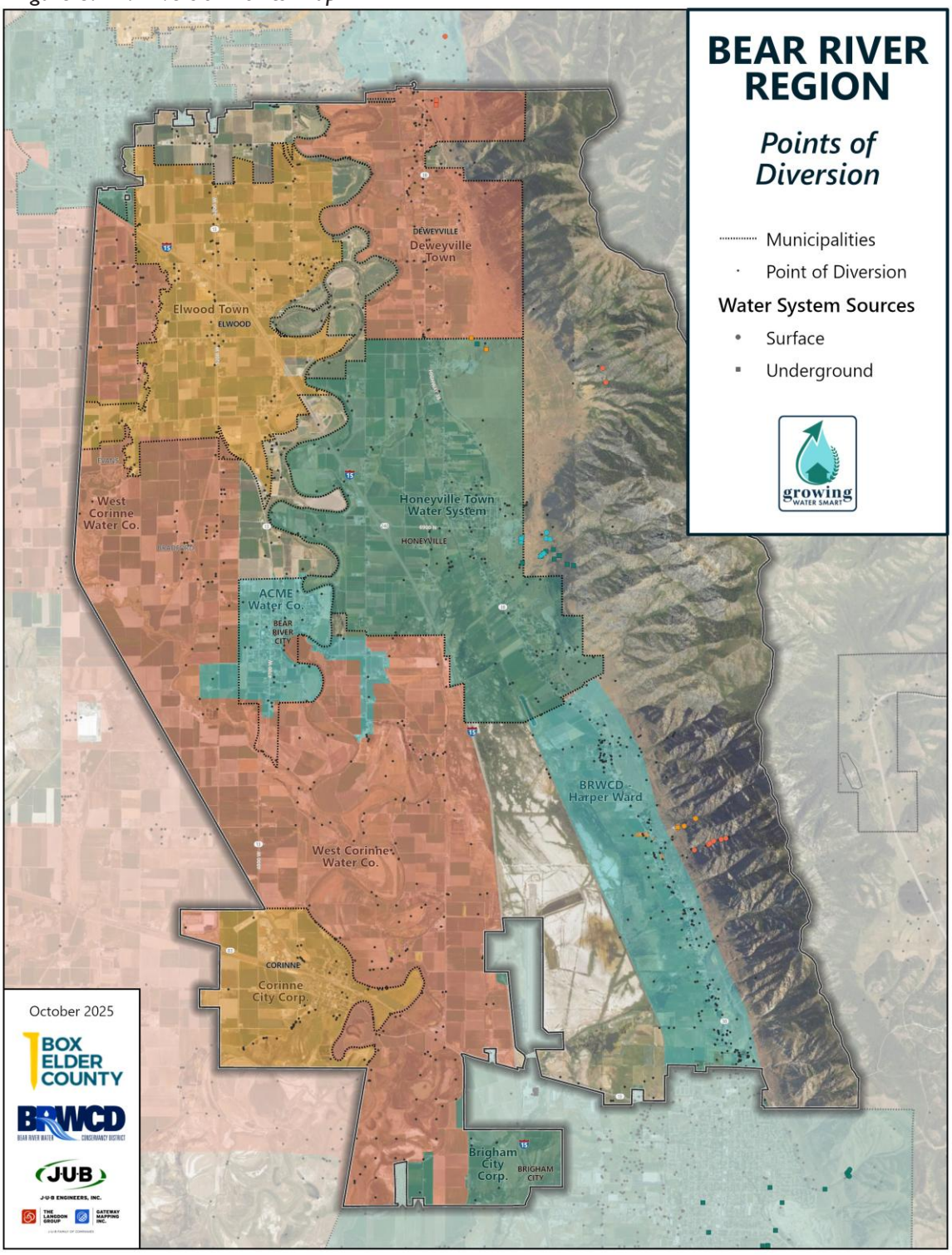
Irrigation water in the region is primarily delivered through the Bear River Canal Company, Highland Ditch Company, and Central Canal Company. These systems play a critical role in supporting agricultural activities and maintaining water availability for farming and livestock operations. Additional irrigation needs are met through smaller delivery systems and irrigation wells distributed throughout the region.

Bear River Region	
Irrigation Water	**Culinary Water**
Bear River Canal Company	ACME Water Company
Highland Ditch Company	Collinston System (BRWCD)
Central Canal Company	Corrine City Corporation
	Deweyville Municipal Water System
	Elwood Town
	Harper Ward Water System (BRWCD)
	Honeyville Municipal Water System
	West Corrine Water Company

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the County. These points of diversion are included in a database maintained by the DWRi . The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.1-B: Diversion Points Map shows the rough location of the diversions in this region.

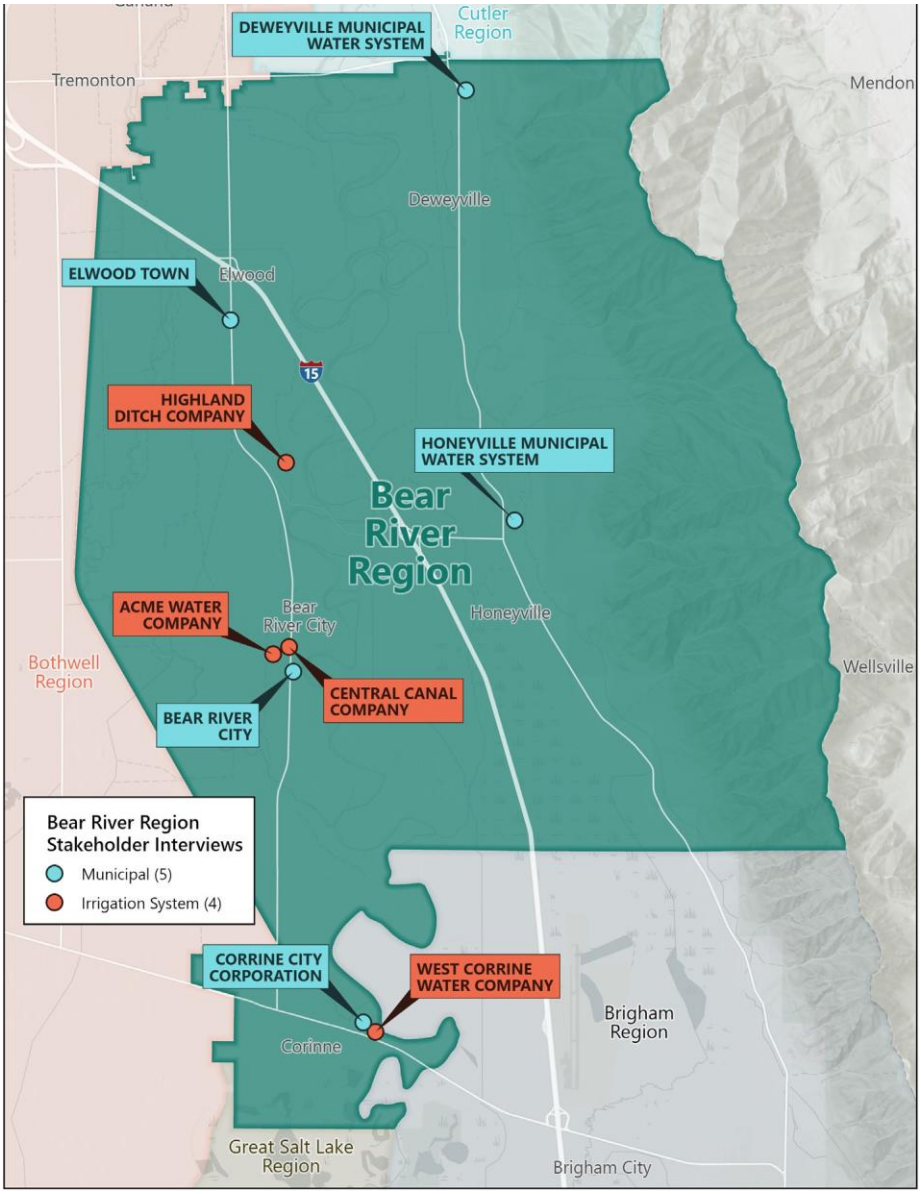
Figure 8.1-B: Diversion Points Map



Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Bear River Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

Figure 8.1-C: Stakeholder Interviews Map

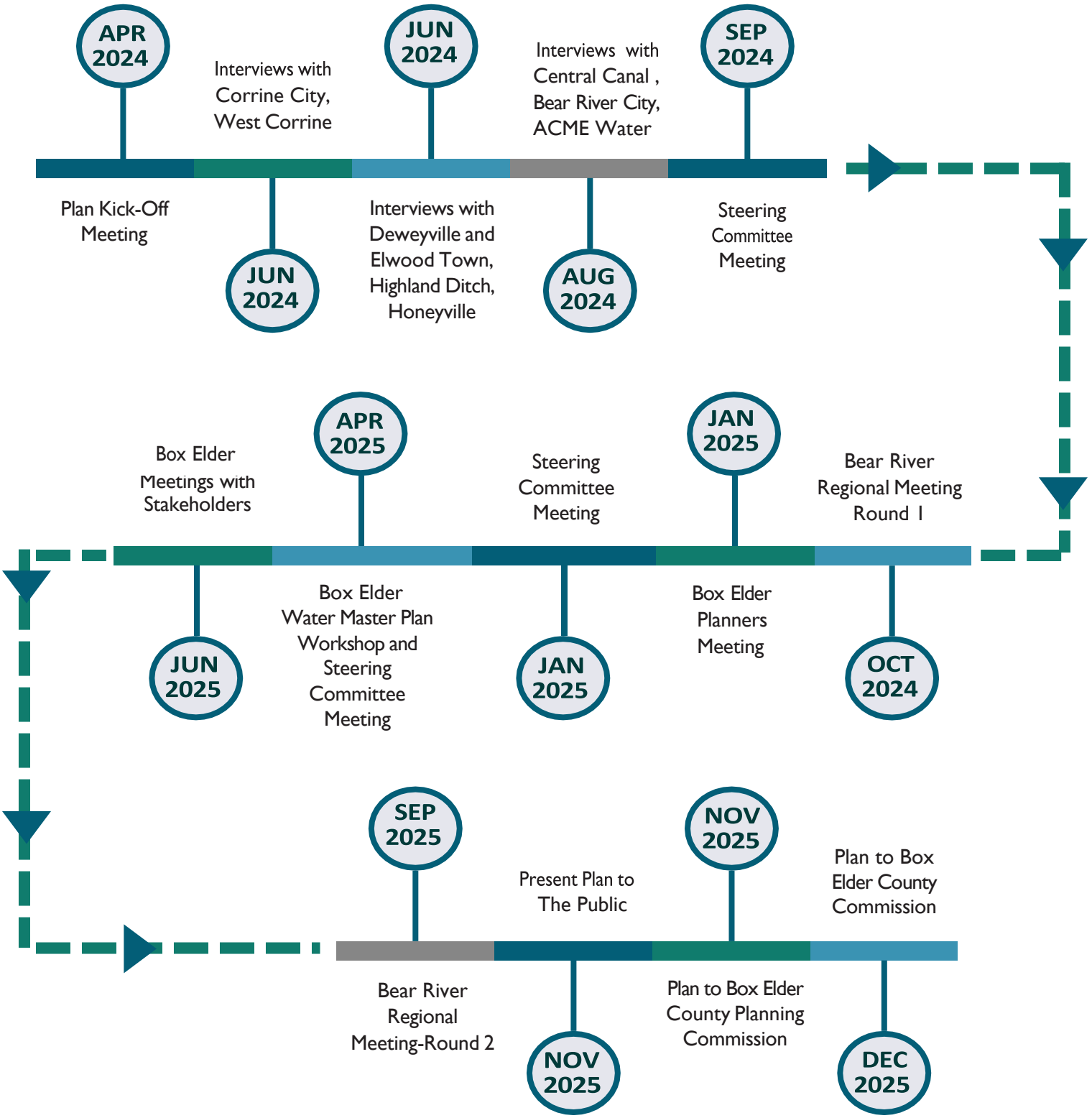


The outreach process included over 50 individual interviews with a diverse range of stakeholders such as municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Bear River Region specifically, nine representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

The map in Figure 8.1-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located

The timeline in Figure 8.1-D: Public Process Phases illustrates the public process followed.

Figure 8.1-D: Public Process Phases



Projected Growth

The growth in this region is projected to be much smaller than other areas in the County. Community planners and other representatives from the cities, the water district and the steering committee met on January 9, 2025 for a workshop as documented in Chapter 2: Public Process of the Master Plan report. In the meeting the attendees worked together to identify areas in the County they felt most likely to develop in the future.

Based on the General Plan Vision 2050 growth scenario in the County general plan, most growth was anticipated to occur in the County's more populated areas. This would protect agricultural areas while locating growth near existing infrastructure.

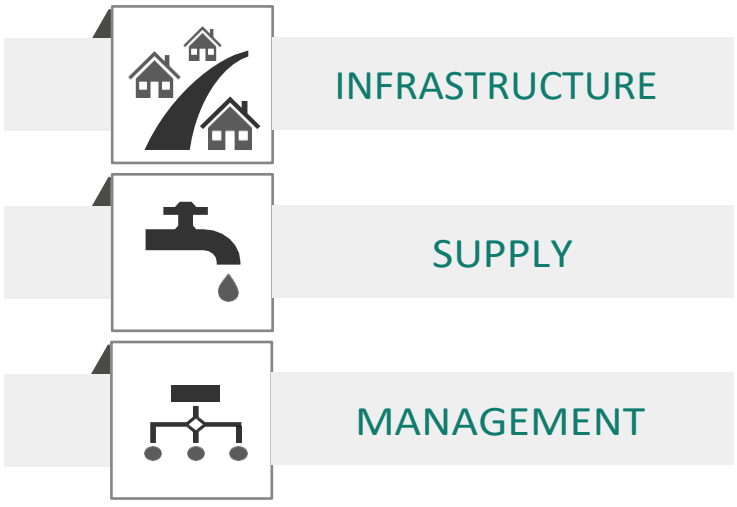
The community planners outlined multiple areas for development that may occur in the next ten years and beyond. The planners estimated that growth in this region will be much lower than in areas projected to grow faster in the Willard, Brigham, and Bothwell Regions.

It has been assumed that overall growth in this region will be approximately 1% per year. With that said, at the second regional meeting, the mayor of Deweyville indicated that they anticipate about 30 homes in Deweyville over the next ten years, and Collinston will likely have more. So there will be localized areas that see growth within the region. There could also be some commercial and industrial growth in the region. This non-residential growth is harder to predict but should be considered alongside residential growth, as communities plan water resources for the future.

Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

Summary of Concerns and Challenges

Within the stakeholder interviews and the regional outreach meetings it was highlighted that there are many challenges and concerns related to water. Generally, these fit within three major categories:



Specific Existing Challenges

EXISTING

Infrastructure

- Lack of system redundancies
- Aging and insufficient infrastructure
- Leaks and breakdowns that compromise water service reliability

Supply

- Spring variability in flows
- Multiple wells drilled in unincorporated areas, potentially impacting water quality and supply

Management

- Management of water resources amidst varying demands from agricultural, residential, and industrial users, including the complexities of water rights management.
- Keeping water rights with the land
- Need for education and water conservation

Potential Future Strategies

Future growth in this region needs to be monitored carefully and processes need to be in place to make sure that water is provided (brought) with the land in new developments. Work with the county to re-assess the county's annexation policy to help cities in the annexation process. Existing water systems components need to be evaluated and prioritized for replacement so older infrastructure that is close to failing can be replaced. Focus on actions that will improve water conservation. Identify ways to encourage new growth near existing water system infrastructure and discourage growth that is further away from existing infrastructure.

FUTURE

Infrastructure

- Diversifying sources and supply
- Improving reliability and redundancy of systems

Supply

- Securing new water sources and enhancing the capacity of existing springs and other sources

Management

- Reassessing the County's annexation policy to make it less burdensome for cities
- Developing water exaction processes and policies
- Obtaining grant assistance for future water projects

Identified Best Management Practices (BMPs)

Top BMP's identified during the stakeholder process for this region include:

- Maintain local control and input in managing water resources
- Coordinate with the BRWCD for wholesale water and grant assistance for some water systems
- Educate water users on water conservation and management practices
- Monitor groundwater levels in areas with shallow wells
- Create local agreements with nearby cities
- Strengthen land use coordination to protect recharge zones

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan Report outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this Regional Plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire County. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

- UPGRADING AGING INFRASTRUCTURE
- SECURING NEW WATER SOURCES
- INCREASING SYSTEM REDUNDANCIES
- IMPROVING WATER QUALITY
- PROTECTING WATER RIGHTS

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

Local Action Recommendations

During the interview process, water system managers were asked about potential water projects or actions they could pursue in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in-depth as the regional projects were.

Therefore, this allows the planning/evaluation effort to stay at the county/regional level as desired, while also including a local list within the regions of projects that should be considered at the local level.

The list of local projects below is not comprehensive, as many individual water systems may have master plans that include additional projects. The list includes projects that were specifically mentioned in the stakeholder interviews. Many of the details of these local projects need additional information to complete a comprehensive analysis. See Figure 8.1-E: Identified Local Actions.

Figure 8.1-E: Identified Local Actions

Bear River Region: Identified Local Actions

Entity	Action
ACME/Bear River City	Replace 1,800 feet of steel pipe with PVC pipe
ACME/Bear River City	Upgrade springs
ACME/Bear River City	New storage tank
ACME/Bear River City	Lead and Copper Rule compliance
Corrine City	Loop a waterline to solve fire flow issues within industrial park
Corrine City	Drill a secondary productive well
Town of Deweyville	Develop a new water source
Town of Deweyville	Add infrastructure to accommodate new growth
Elwood Town	Build a secondary water system for the Town
Elwood Town	Build a new water tank
Honeyville City	Replace lead joint pipes
Honeyville City	Upgrade system pipes
Honeyville City	Increase reservoir capacity in south part of City
Honeyville City	Construct secondary water system

Regional Action Framework

Many water challenges are regional in nature, meaning they involve more than one water system and can be better addressed through collaborative efforts of multiple water systems or entities.

The potential actions were initially screened to determine if they were regional in nature, meaning that they include, serve, or benefit multiple water entities. If they are regional in nature, they were evaluated in more detail.

The regional actions recommended for this region as a result of the evaluation are presented using the IRAR framework shown in Figure 8.1-F: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.1-F: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.1-G: Recommended Region-Specific Actions Map and listed in Figure 8.1-H: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region.

The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

Figure 8.1-G: Recommended Region Specific Actions Map

Figure 8.1-H: Recommended Region Specific Actions Table

Bear River Region: Recommended Region-Specific Actions	
Action:	**Bear River Regional Distribution and/or Well Project (BR1)**
Entity:	**BRWCD**
Issue	Communities in the Bear River Region and up into the Cutler Region face limited supply and water source redundancy. During periods of drought some of the sources that are currently used to serve these areas become strained, necessitating an additional source to help in those times. An area of concern for water supply is around Collinston based on existing available water sources in this area.
Rule	Water systems must meet minimum state requirements related to water supplies and pressures.
Analysis	Multiple well sites have been evaluated and others may be evaluated. Coordination between neighboring communities and BRWCD can lead to solutions. This project is regional and could benefit multiple entities It helps provide adequate culinary supply, and some redundancies, and it helps protect available existing water rights in the area through putting them to beneficial use.
Recommendation	Evaluate a new pipeline from the new Harper Ward Well to Collinston and the potential for additional or consolidation of wells and sources **(5–10 years).**

Regional Plan Implementation

Local entities in the Bear River Region should focus on replacing and upgrading aging infrastructure to maintain reliable water service and prepare for future growth. System managers must ensure that user rates are set at levels that support these improvements and provide long-term sustainability. Any systems that have not recently conducted a water rate evaluation should do so promptly to confirm that rates are adequate for ongoing operations and planned upgrades.

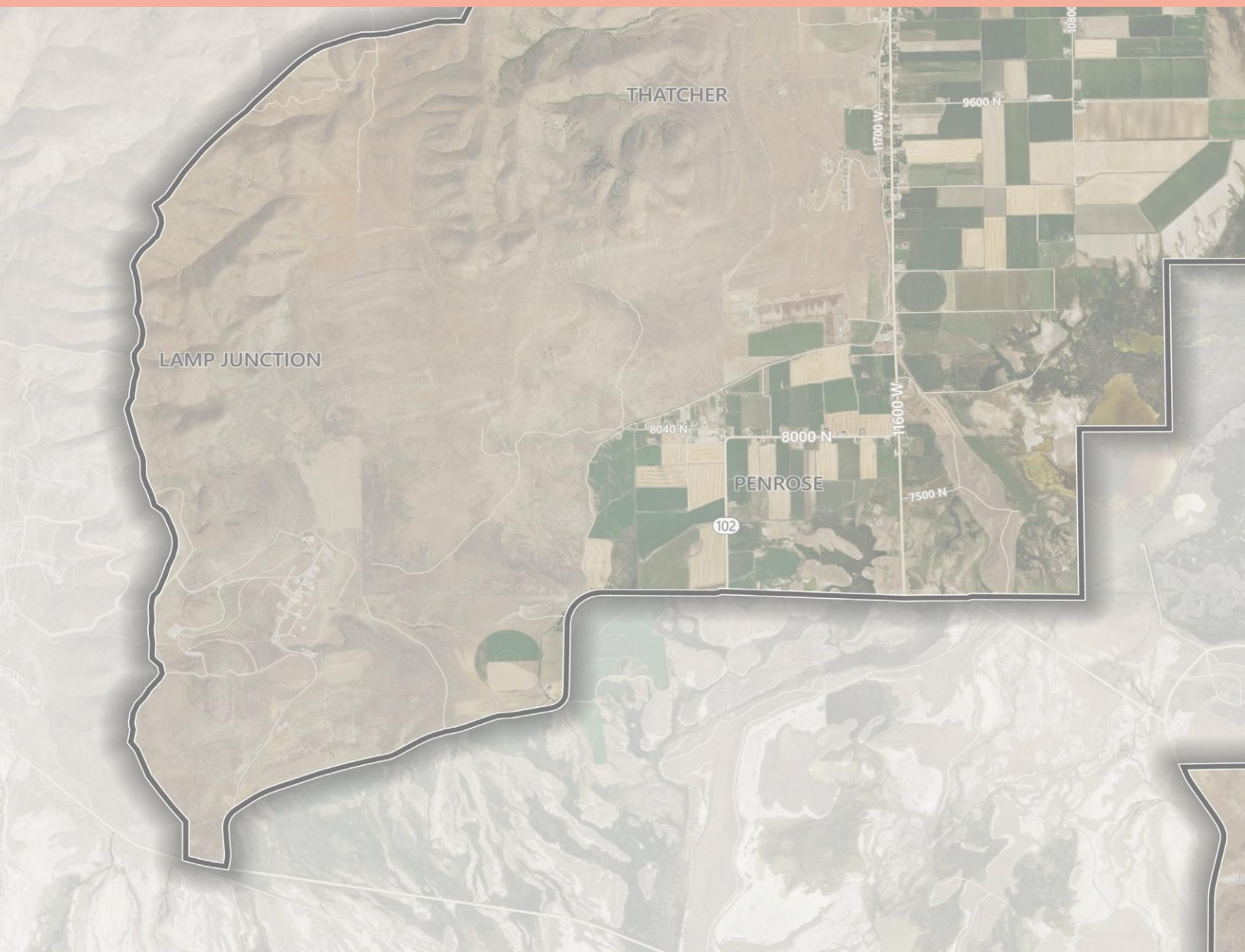
The regional recommended action for this area is designed to address supply limitations and improve system redundancy. While the region currently relies heavily on spring and well sources, these supplies can become strained during drought or peak demand periods. Additional sources and improved interconnections will be necessary to enhance reliability and meet future needs. Water planners should continue long-range planning in close coordination with BRWCD and neighboring communities to ensure that strategies align with projected growth and infrastructure priorities.

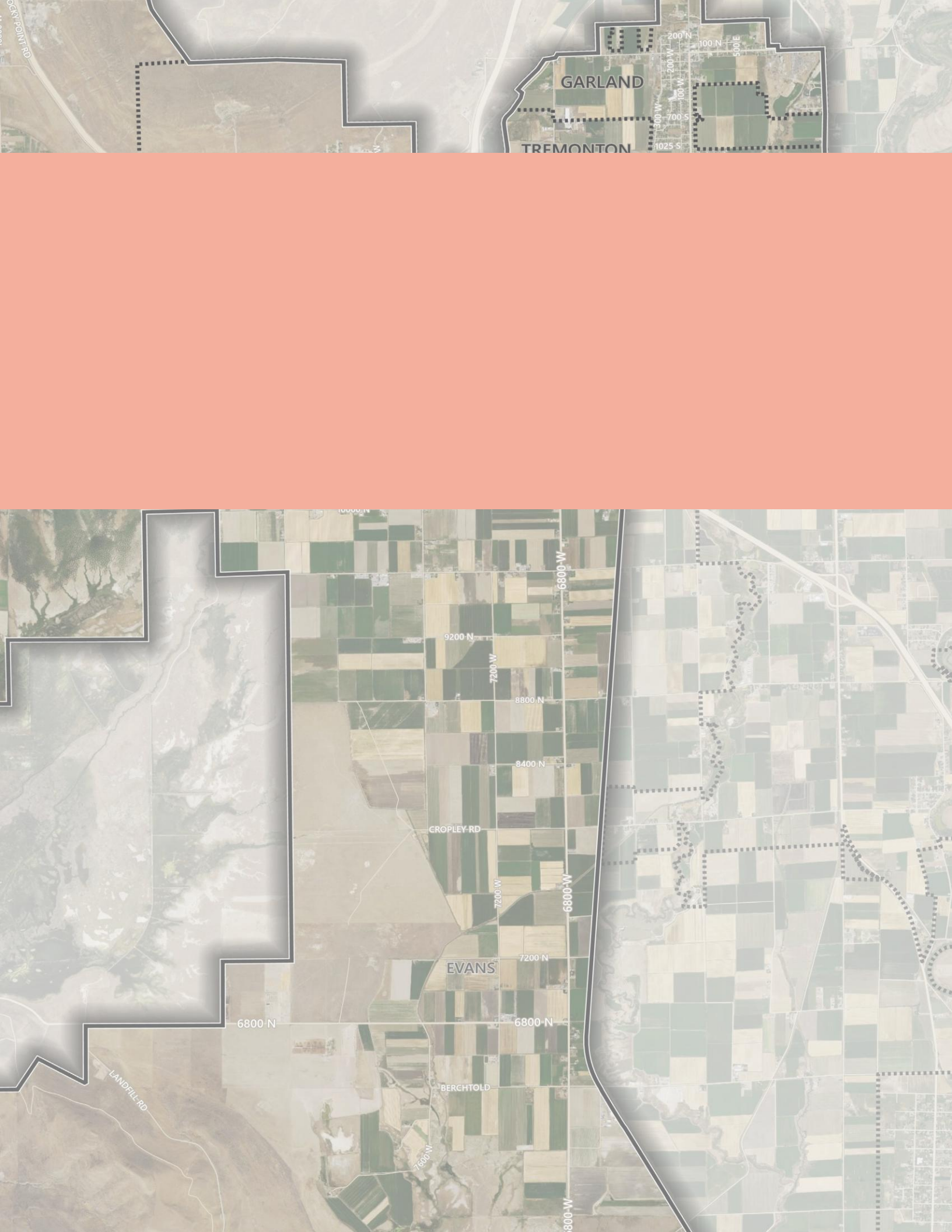
Implementation of the regional project will occur in the next five to 10 years. Success will depend on ongoing collaboration among BRWCD, local water system managers, and irrigation company leaders. Infrastructure readiness, growth pressures, and stakeholder input will guide project prioritization.

Water exaction policies should be developed and implemented if not already in place before rapid growth occurs. These policies will help ensure that water remains tied to the land and provide greater flexibility for future water planning.

8.2 Bothwell Region

Regional Plan




GARLAND
TREMONTON
200 N
100 N
500 E
200 W
100 W
300 W
700 S
1025 S
9200 N
7200 W
8800 N
8400 N
6800 W
CROPLEY RD
7200 W
6800 W
EVANS
7200 N
6800 N
6800 N
LANDFILL RD
BERCHTOLD
7600 W
6800 W

Overview

The Bothwell Region, located just north of the Great Salt Lake, includes the incorporated cities of Tremonton and Garland, as well as the unincorporated communities of Bothwell, Thatcher, Penrose, and parts of the West Corinne Water Company service area. This region is expected to experience significant growth over the next decade, particularly near Tremonton and Garland.

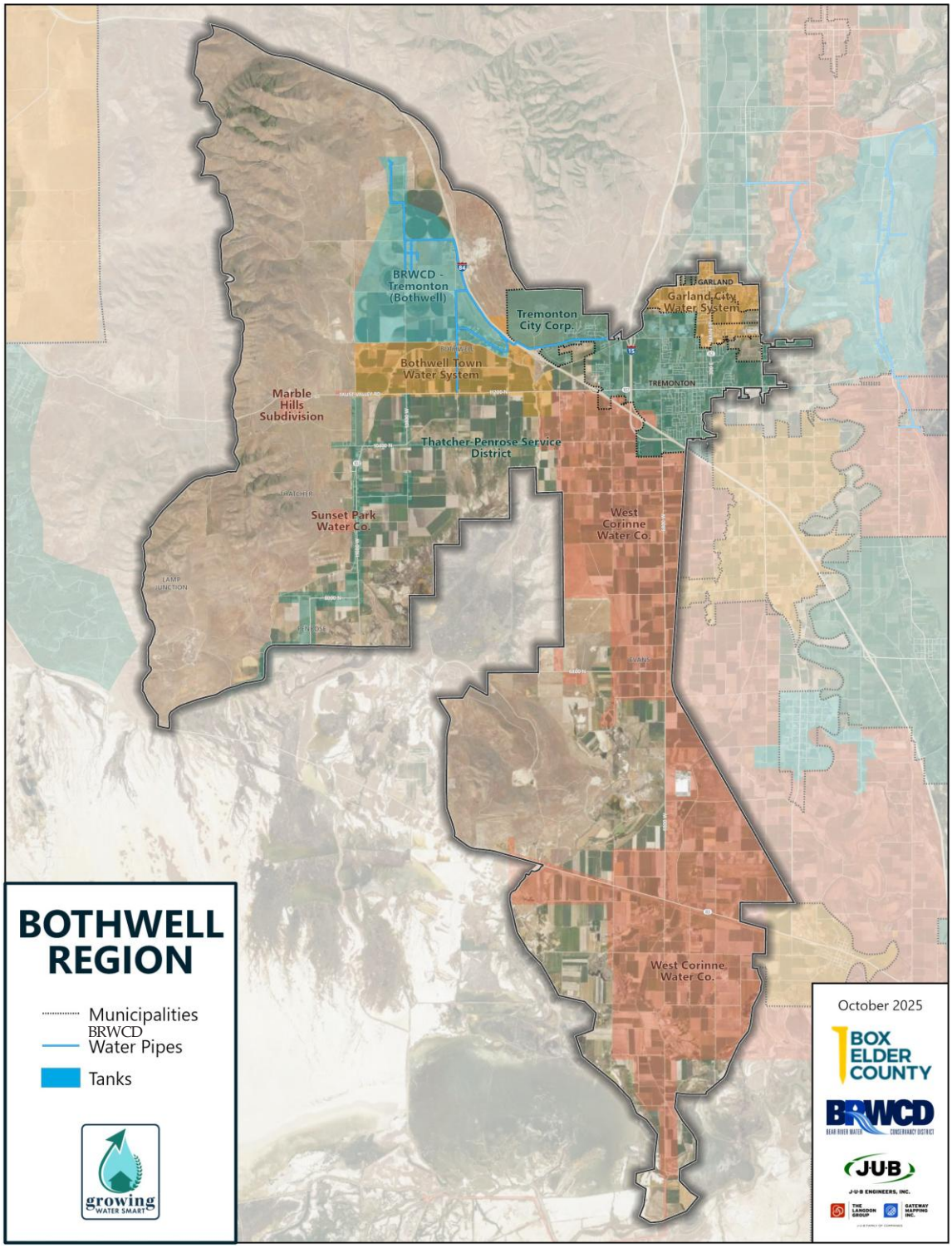
Tremonton has already faced strain on its culinary water resources due to past growth, prompting the development of a secondary water system to reduce demand. However, additional water sources and infrastructure will be needed to support future growth.

Outside the cities, the region remains largely rural, with extensive farmland irrigated primarily by Bear BRCC canals. Some areas such as the Bothwell pocket are above the BRCC canals and relying on high yield wells.

Planning efforts in the Bothwell Region have emphasized the importance of water conservation, infrastructure upgrades, and regional collaboration. Key strategies include expanding secondary systems, improving water quality through potential treatment facilities, and leveraging high-capacity sources in the Bothwell pocket to meet growing demand. Coordination with BRCC and other stakeholders will be essential to ensure sustainable water management as development continues.

Figure 8.2-A: Bothwell Region Map provides an overview of the region along with existing BRWCD culinary water infrastructure. The two incorporated cities and each of the private systems in this region own and operate their own water systems and infrastructure which are not shown in the map.

Figure 8.2-A: Bothwell Region Map



Water Systems

The region's culinary water systems include municipal providers like Tremonton and Garland in the more populated areas. Smaller systems like Thatcher-Penrose Service District, Bothwell Cemetery and Water Corporation, Sunset Park, and Thatcher Hills serve less populated areas of the region. The west half of the West Corrine Water Company is in the Bothwell region and delivers culinary water to users across a large mostly rural service area.

Irrigation water is provided largely through the BRCC and other smaller delivery systems and irrigation wells.

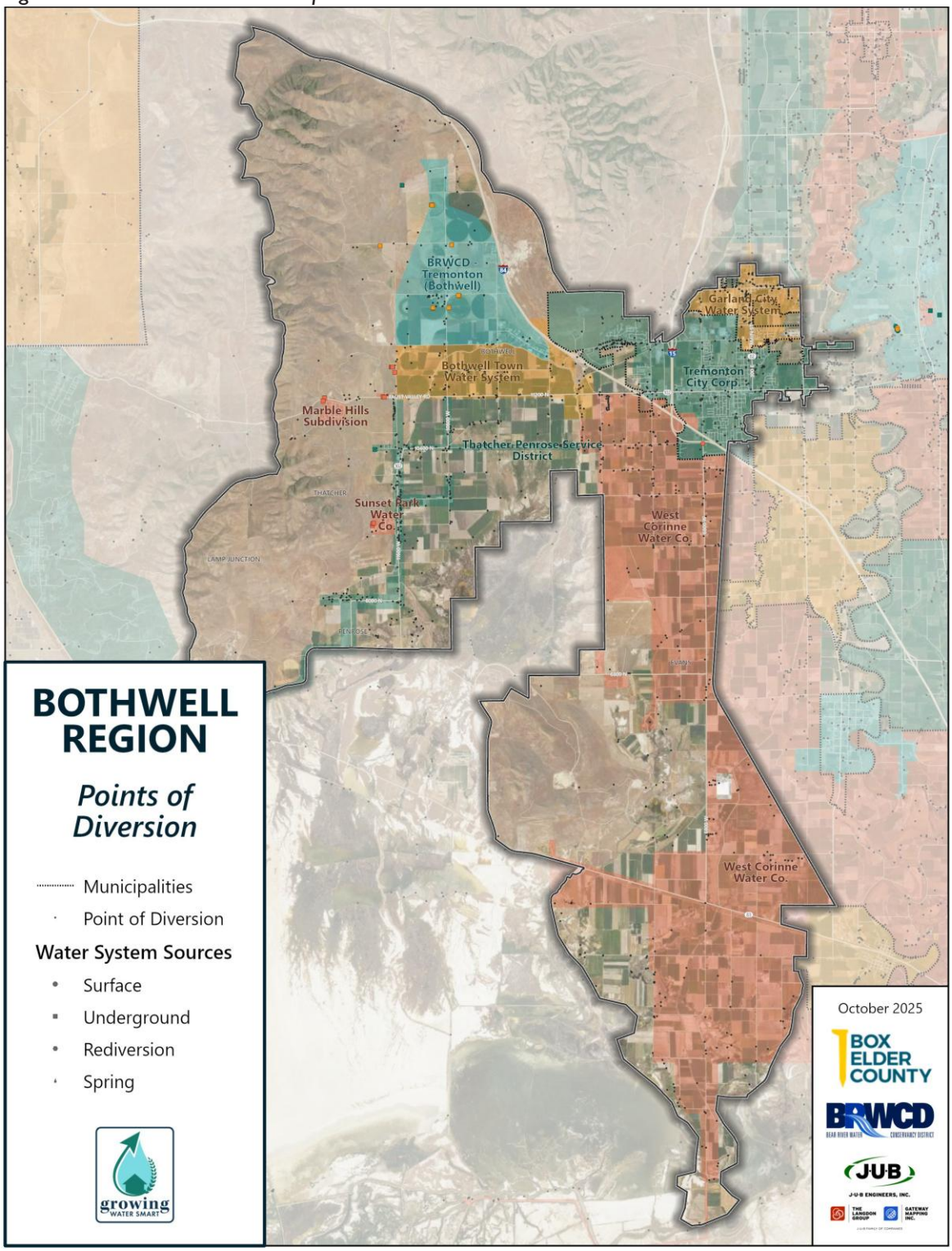
Bothwell Region Water Systems

Irrigation Water	Culinary Water
Bear River Canal Company	Bothwell Cemetery & Water Corporation
Ferry Farms	Garland City Corporation
3 Mile Irrigation	Sunset Park Water Company
	Thatcher (Marble) Hill Water Company
	Thatcher-Penrose Service District
	Tremonton City Corporation
	West Corrine Water Company (western half of service area)

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the county. These points of diversion are included in a database maintained by the DWRi . The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.2-B: Diversion Points Map shows the rough location of the diversions in this region.

Figure 8.2-B: Diversion Points Map

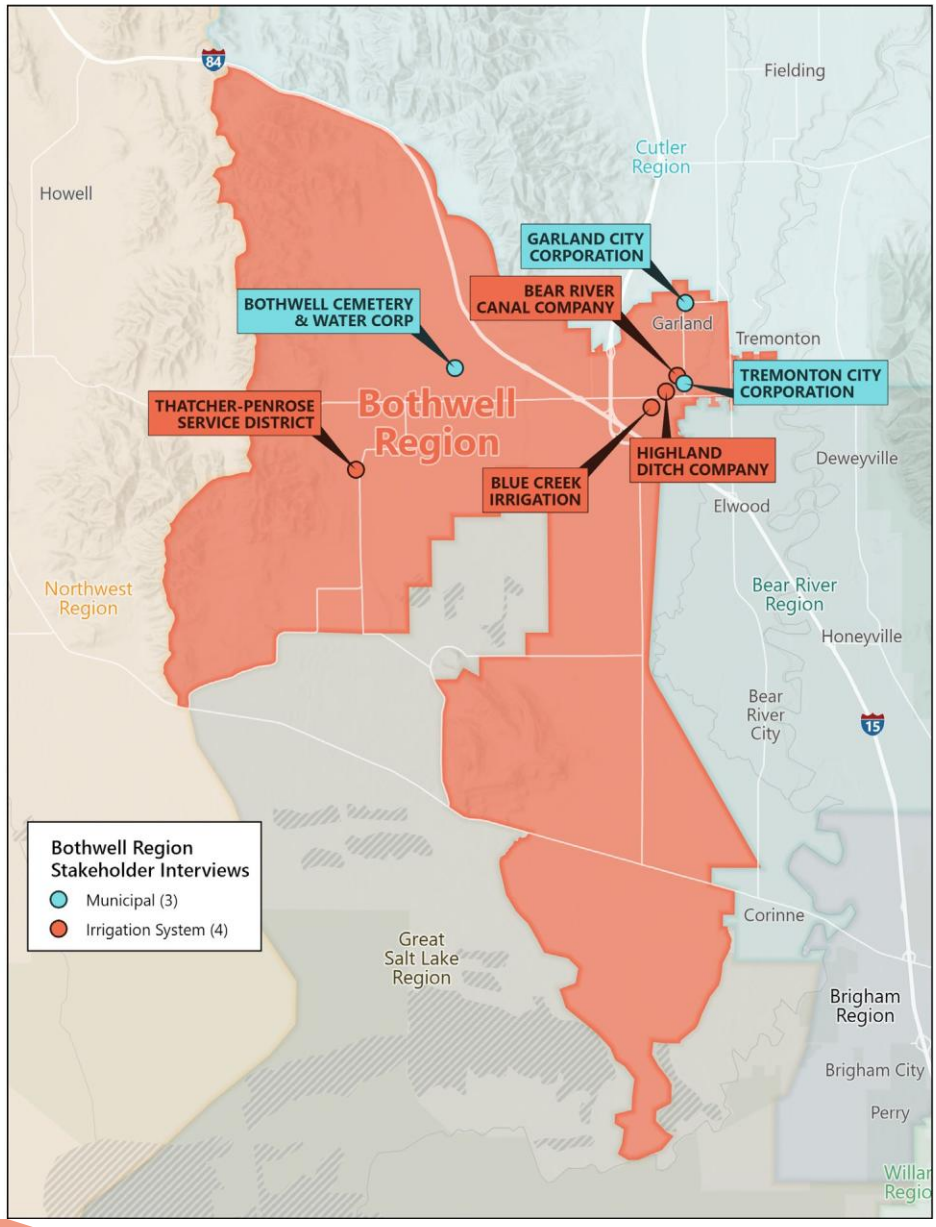


Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Bothwell Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with diverse stakeholders, including municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Bothwell Region specifically, seven representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

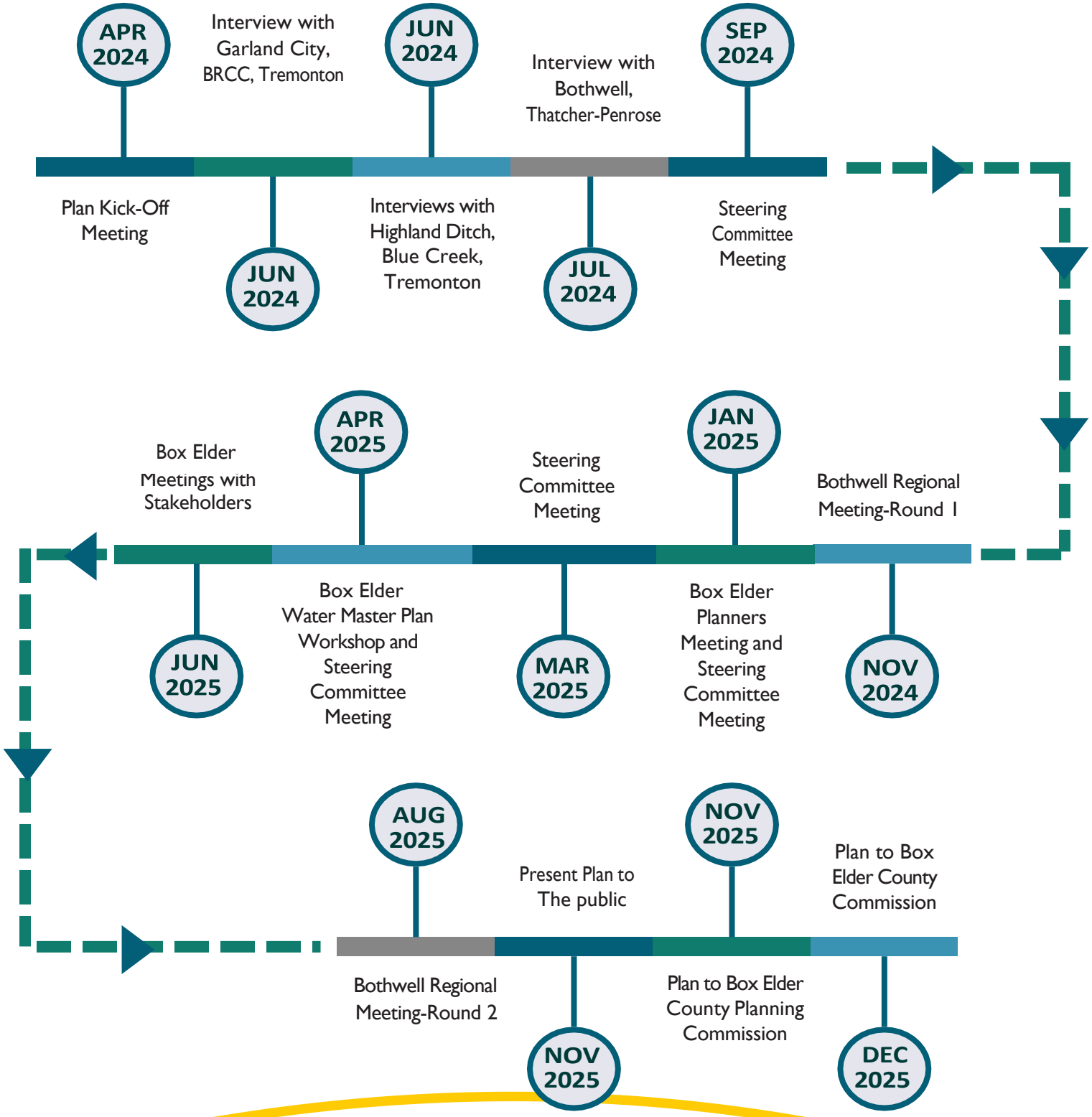
Figure 8.2-C: Stakeholder Interviews Map



The map in Figure 8.2-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located

The timeline in Figure 8.2-D: Public Process Phases illustrates the public process followed.

Figure 8.2-D: Public Process Phases



Projected Growth

The growth in this region is projected to be greater than many other areas of the county. Community planners and other representatives from the cities, the water district and the steering committee met on January 9, 2025 for a workshop meeting as documented in Chapter 6: Future Water Supplies & Demands the Master Plan report. In the meeting the attendees worked together to identify areas in the county they felt are most likely to develop in the future. Based on the General Plan Vision 2050 plan from the county general plan, most of the growth was anticipated to be within the more populated areas of the county. This would protect agricultural areas while locating growth near existing infrastructure.

Therefore, the community planners outlined multiple areas for developments that may occur in the next ten years and then beyond ten years. The areas that were noted to be likely to develop by the year 2035 in this region are shown in red in Figure 8.2-E: Future Growth Map. Other areas noted that could possibly develop beyond year 2035 are also shown on the map in blue. A key note from the community planners was, it is much more difficult to anticipate accurately where the growth may occur beyond year 2035.

Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

Figure 8.2-E: Future Growth Map

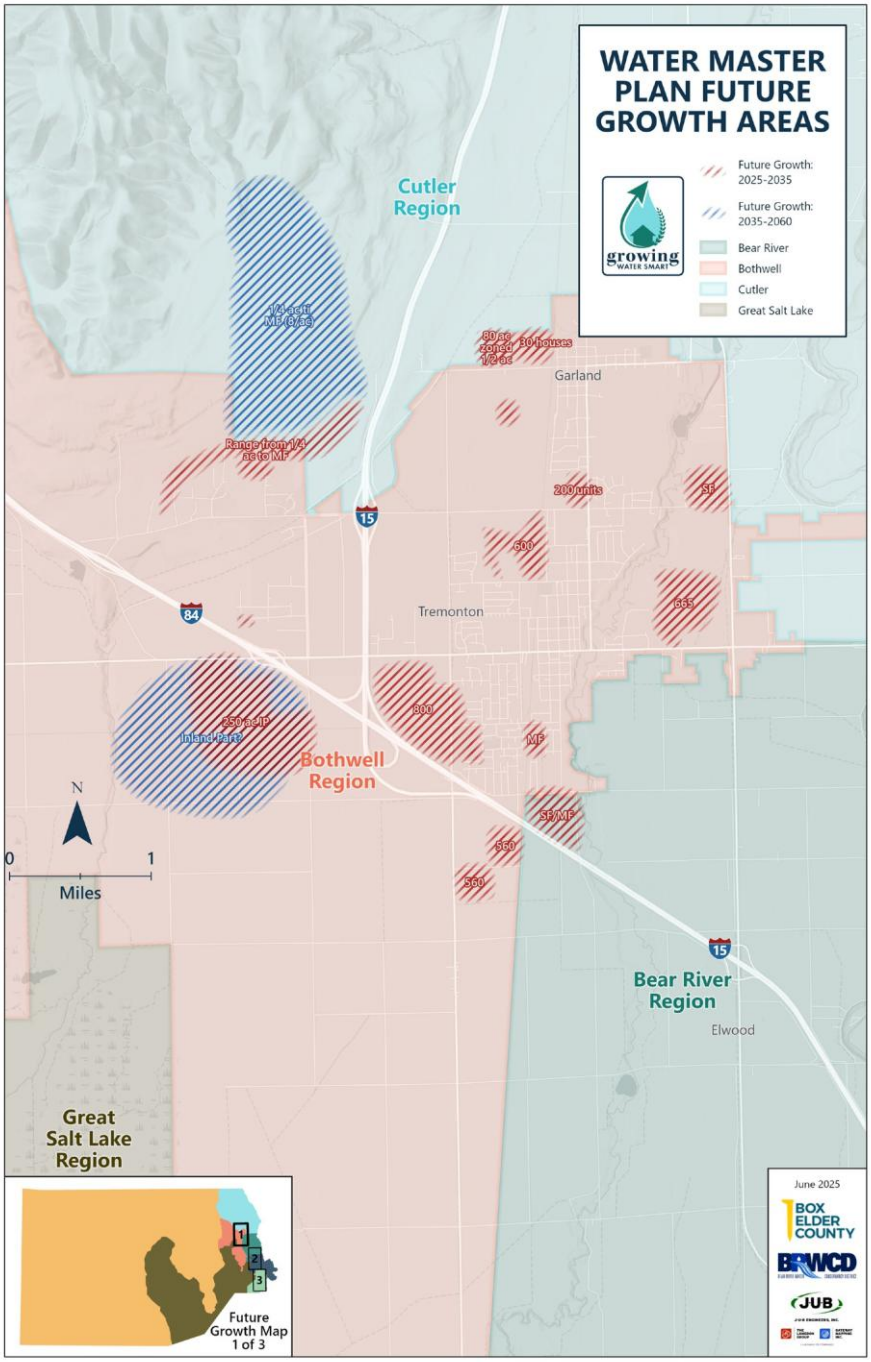


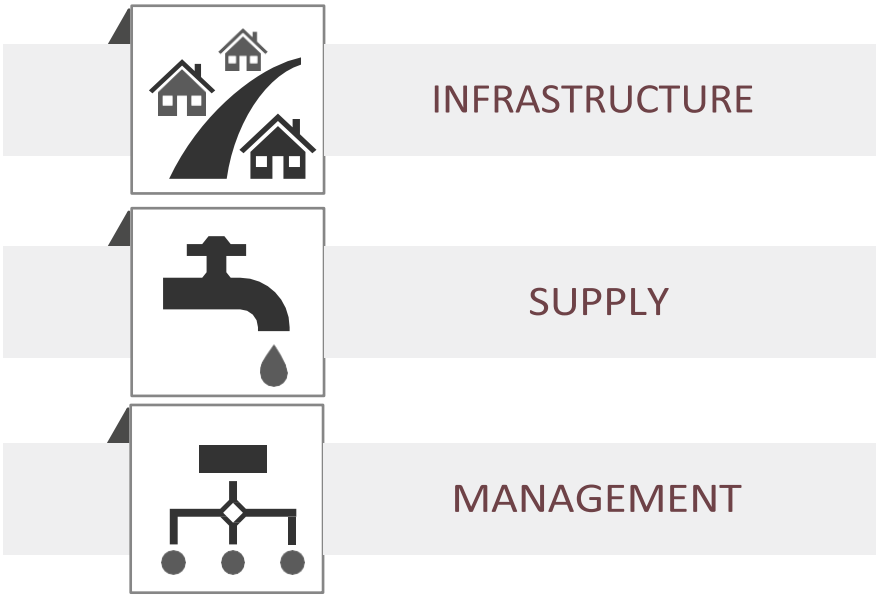
Figure 8.2-F: Projected Units Table lists the estimated units to be added by 2035 within the region by City and the estimated water needed to serve the projected units. Other areas in the region that are not listed will also grow, but it has been assumed for this report that the growth in those areas will be at a much smaller rate of 1% (See Chapter 6). These growth projections are slightly higher than the Kem C. Garner projections. Some stakeholders in the county stated that the Kem C. Garner growth projections have been low in the past.

Figure 8.2-F: Projected Units Table

Public Water Supplier (PWS)	2035 Units	Residential Use (gpcd) (DWRe)	Total use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Garland	230	99	352	74	21
Tremonton	3,185	124	2,923	1,283	44
TOTAL	**3,415**			**1,357**	

Summary of Concerns and Challenges

There are many challenges and concerns related to water. Throughout the stakeholder process a wide variety of water related issues were identified, but many of them fit within the following three major categories:



Specific Existing Challenges

Specific existing regional concerns and challenges within the three major categories for the Bothwell Region are as follows:

EXISTING

Infrastructure

- Diversifying sources and supply
- Improving reliability and redundancy of systems

Supply

- Securing new water sources and enhancing the capacity of existing springs and other sources

Management

- Reassessing the County's annexation policy to make it less burdensome for cities
- Developing water exaction processes and policies
- Obtaining grant assistance for future water projects

Potential Future Strategies

Future growth in this region will require actions that improve water conservation, reduce culinary water demands, replace aging infrastructure, provide new culinary water sources, storage and distribution, and improve how water is managed. More specific efforts could include expanding the secondary water system in Tremonton, considering secondary water for Garland, developing, potentially treating, and delivering more culinary water to the Tremonton area from the Bothwell Pocket.

FUTURE

Infrastructure

- Add needed new water infrastructure to meet future demands
- Upsize and upgrade aging infrastructure to prevent service disruptions

Supply

- Secure new sources
- Enhance capacity of existing sources
- Prepare for anticipated increases in demands
- Increase redundancies and emergency supplies

Management

- Develop water management strategies
- Improve water quality
- Protect water rights

Identified Best Management Practices (BMPs)

The following BMPs summarize those that were identified by stakeholders in this region through the stakeholder process. Many of the BMPs listed are regional in nature, while some also apply to the county as a whole.

Top BMPs identified during the stakeholder process for this region include:

- Promote water conservation policies through education efforts (leverage community groups for conservation outreach)
- Be responsible about water development (promote early integration of water into subdivision planning)
- Address the impact of new wells on existing sources
- Promote efficient water management
- Develop drought management practices
- Update water quality strategies, particularly related to septic systems
- Be transparent and educate and keep the public informed and engaged
- Promote density clustering to manage development and preserve water resources
- Improve conversion of agricultural water to municipal uses
- Improve water infrastructure
- Develop a long term funding strategy for water infrastructure
- Coordinate with BRCC when doing water planning or new water projects in region

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan Report outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

- UPGRADING AGING INFRASTRUCTURE
- SECURING NEW WATER SOURCES
- INCREASING SYSTEM REDUNDANCIES
- IMPROVING WATER QUALITY
- PROTECTING WATER RIGHTS

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

Local Action Recommendations

During the stakeholder interview process, water system managers were asked about potential actions that could be pursued in their local areas. The list of local actions below is not completely comprehensive, as many of the individual water systems may have master plans that include other projects. The list includes actions that were specifically mentioned in the stakeholder interviews and that could be completed by local water systems. See Figure 8.2-G: Identified Local Actions.

These actions can be completed as part of local water planning efforts that are ongoing and as funding becomes available. BRWCD may assist with local actions as they find they are able to and dependent on a set of district project funding criteria that should be developed. The district may also be able to help identify potential funding sources to help local entities complete actions. BRWCD is aware of and respects the desire for individual systems to maintain autonomy and the ability to manage their own systems but is very willing to assist where it can.

Figure 8.2-G: Identified Local Actions

Bothwell Region: Identified Local Actions

Entity	Action
Local Water Systems	Replace Aging Infrastructure - Identify and replace well components and old transmission lines, including deteriorating cast iron water mains. Upsize to serve future needs. Evaluate Water Rates - Evaluate water user rates if a recent evaluation has not been completed. Ensure adequate funds will be available to maintain water systems.

Regional Action Framework

Many water challenges are regional in nature, meaning they involve more than one water system and can be better addressed through collaborative efforts of multiple water systems or entities.

The potential actions were initially screened to determine if they were regional in nature, meaning that they include, serve, or benefit multiple water entities. If they are regional in nature, they were evaluated in more detail.

The regional actions that are recommended for this region as a result of the evaluation are presented using the IRAR framework shown in Figure 8.2-H: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.2-H: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.2-I: Recommended Region-Specific Actions Map and listed in Figure 8.2-J: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region.

The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

8.2-I: Recommended Region Specific Actions Map

8.2-J: Recommended Region Specific Actions Table

Bothwell Region: Recommended Region-Specific Actions

Action:	Bothwell Water Infrastructure (BW1)
Entity:	BRWCD/Tremonton City
Issue	Substantial projected growth pressure in and around Tremonton is outpacing current culinary water storage and conveyance capacities
Rule	Infrastructure planning needs call for regional efforts to meet future demands.
Analysis	Water sources that produce significant amounts of water exist in the Bothwell Pocket. Some of these sources will need to be improved and increased water line transmission capacity is needed to meet future demands. This system can benefit many water systems, will support a large number of people that will need water adjacent to existing infrastructure and existing developed areas. It helps provide needed culinary supply, and it protects water rights.
Recommendation	Pursue funding and evaluate improvements to add new, larger piping from Bothwell to Tremonton and add water storage to address growth in and around Tremonton (1–5 years).

Bothwell Region: Recommended Region-Specific Actions

Action	Bothwell Culinary Water Treatment Plant Study (BW2)
Entity	BRWCD
Issue	Some Bothwell sources are of lesser quality than many drinking water sources.
Rule	Water that meets drinking water standards and meets the expectations of those who use the water is needed.
Analysis	Stakeholders discussed potential Bothwell water treatment options and emphasized shared infrastructure ideas. This is a regional project as it may benefit many water systems, it will serve a large number of people, helps provide needed culinary supply, puts existing water rights to beneficial use, and improves water quality.
Recommendation	Study the possibility of building a regional treatment plant near Tremonton to treat water from sources in Bothwell (1–5 years).

Regional Plan Implementation

Local entities in this region should focus on replacing and upgrading existing infrastructure. Systems managers will need to charge users appropriate rates to support the needed upgrades in order to be successful in this effort. Systems that have not completed a recent water rate evaluation should do so to make sure that the rates are set appropriately for a sustainable system moving forward.

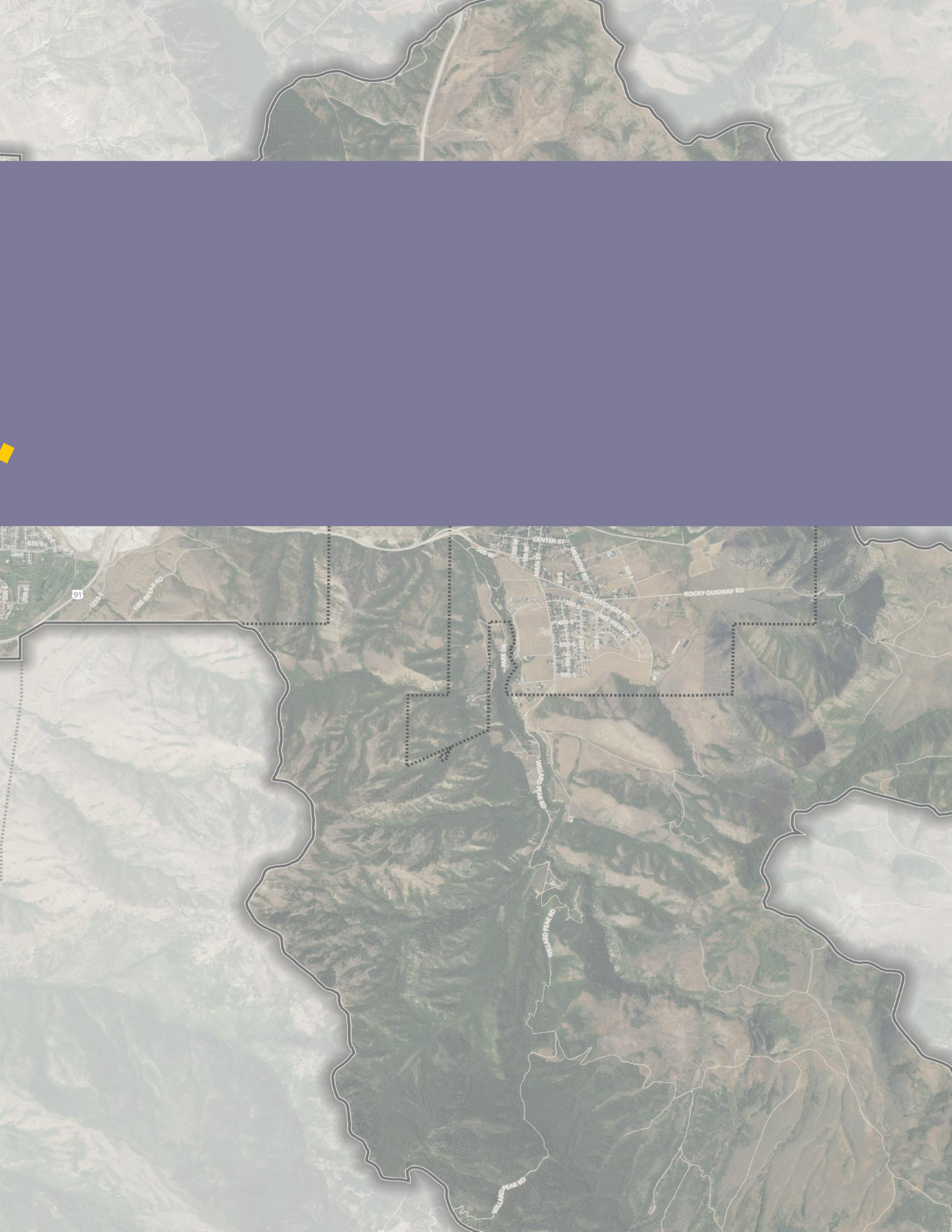
The two regional recommendations for this region will help meet the projected growing demands around Tremonton and Garland which are projected to grow substantially. There is a lot of water in the Bothwell pocket, but it will need to be delivered to the populated areas and may need to be treated to certain levels depending on the results of the treatment study. Water planners in this regions should continue to do long range planning in cooperation with BRWCD in the future to be prepared to meet the ever-changing demands.

The two regional recommended actions are planned to be implemented in phases over multiple years, beginning as early as 2026 and continuing through 2031and beyond. These actions will require ongoing coordination between BRWCD, local water system managers, and irrigation companies.

Local water exaction policies should be developed and implemented if not already in place before rapid growth occurs. These policies will help ensure that water remains tied to the land and provide greater flexibility for future water planning.

8.3 Brigham Region

Regional Plan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FISH HATCHERY RD
LAKE VIEW DR
PARK DR
WILLARD PEAK RD
FIRE BREAK RD
91
300 W
300 S
400 S
550 S
700 S
675 S

Overview

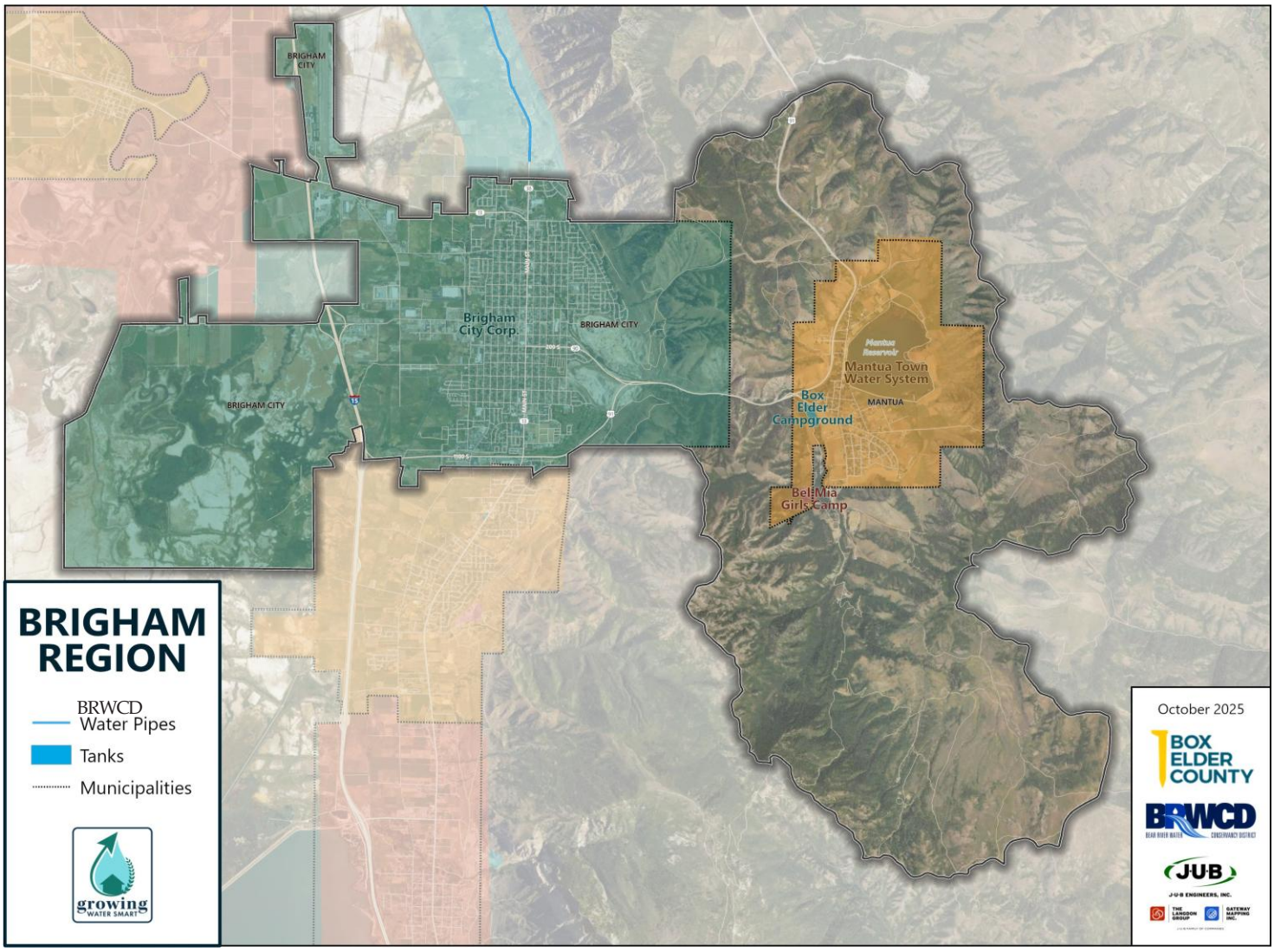
The Brigham Region is located in the eastern portion of Box Elder County and includes the incorporated cities of Brigham City and Mantua. This region is geographically defined by the Wasatch Mountains to the east and Interstate 15 to the west, with Highway 89 running through its core. It is one of the most urbanized areas in the county, with significant projected growth over the next decade, particularly in the northern and western portions of Brigham City. Mantua, while smaller and more rural, is expected to see a little bit of growth.

Culinary water services in the region are provided by Brigham City and Mantua, both of which operate their own municipal systems. Brigham City is currently undertaking major infrastructure upgrades, including the replacement of aging transmission lines from its canyon sources in Mantua, which are critical to maintaining reliable water delivery. The city is also evaluating options for implementing a secondary water system to reduce demand on its culinary supply, including the potential use of treated irrigation water for outdoor use.

Several companies, including Mantua Irrigation, Box Elder Creek Water Users Association, Harper Irrigation Company, North String Irrigation, and Bigfield Irrigation meet irrigation needs in the region.

Challenges include aging infrastructure, limited system redundancy, and the need for improved coordination between municipal and irrigation systems. Figure 8.3-A: Brigham Region Map provides an overview of the region. There is no significant BRWCD water infrastructure in this region. Each city owns and operates its own water systems and infrastructure, which are not shown on the map.

Figure 8.3-A: Brigham Region Map



Water Systems

The Brigham Region includes a mix of municipal and irrigation water systems that support both urban and agricultural water needs. Culinary water services are provided by Brigham City and the Mantua Culinary Water System, which serve the more populated areas of the region. These systems are responsible for delivering drinking water and maintaining infrastructure to support current and future growth.

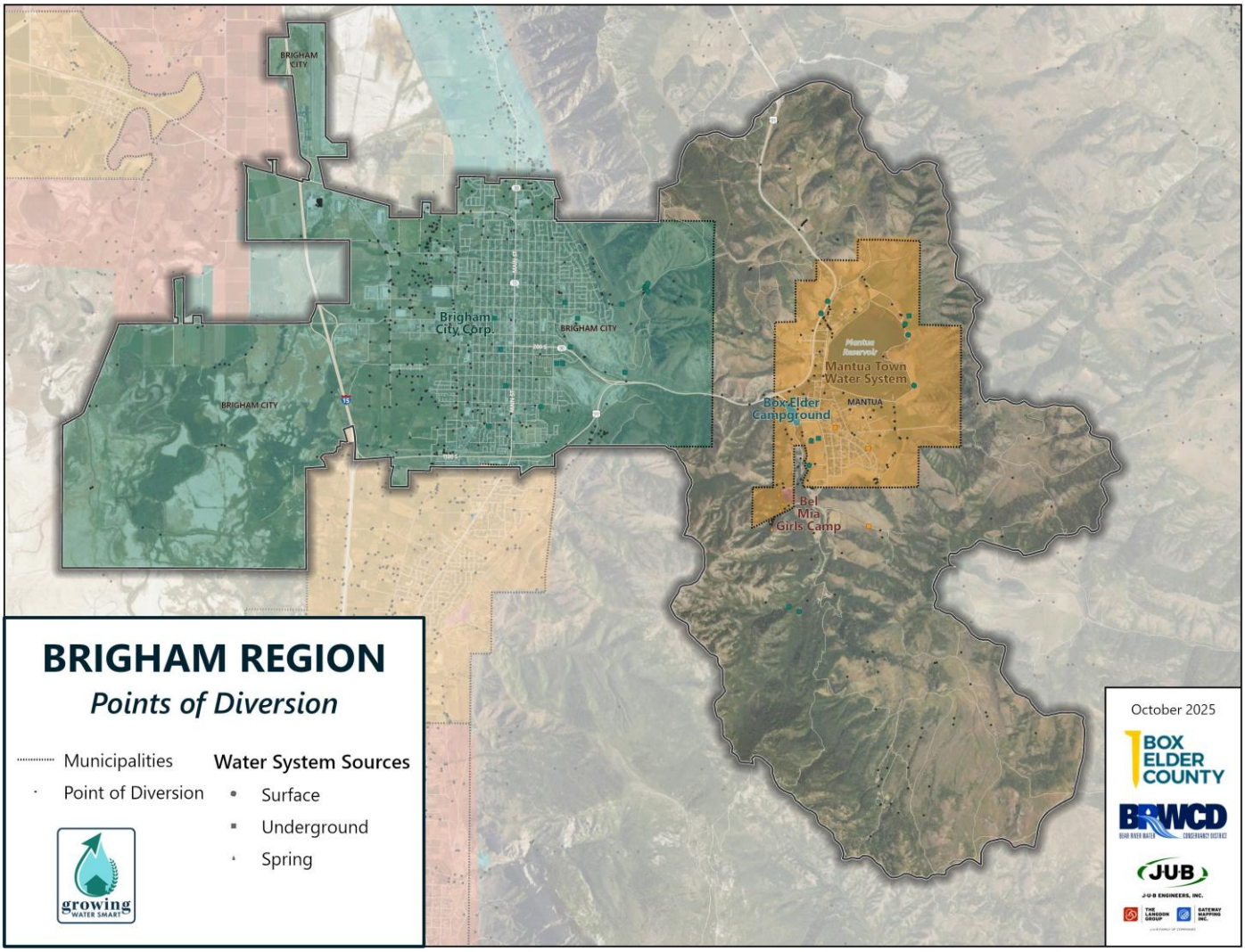
Several key entities, including Mantua Irrigation, Box Elder Creek Water Users Association, Harper Irrigation Company, North String Irrigation, and Bigfield Irrigation supply irrigation water in the region. These systems play a vital role in supporting local agriculture by distributing water for crops, orchards, and livestock. Their infrastructure and water rights are essential to maintaining the region's productivity and rural character.

Brigham Region	
Irrigation Water	Culinary Water
Mantua Irrigation	Brigham City Corporation
Box Elder Creek Water Users Association	Mantua Culinary Water System
Harper Irrigation Company	
North String Irrigation	
Bigfield Irrigation	
Pineview Water Systems	

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the county. These points of diversion are included in a database maintained by the DWRi. The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.3-B: Diversion Points Map shows the rough location of the diversions in this region.

Figure 8.3-B: Diversion Points Map



Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Brigham Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with diverse stakeholders, including municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Brigham Region specifically, seven representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

The map in Figure 8.3-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located

The timeline in Figure 8.3-D: Public Process Phases illustrates this public process that was followed.

Figure 8.3-C: Stakeholder Interviews Map

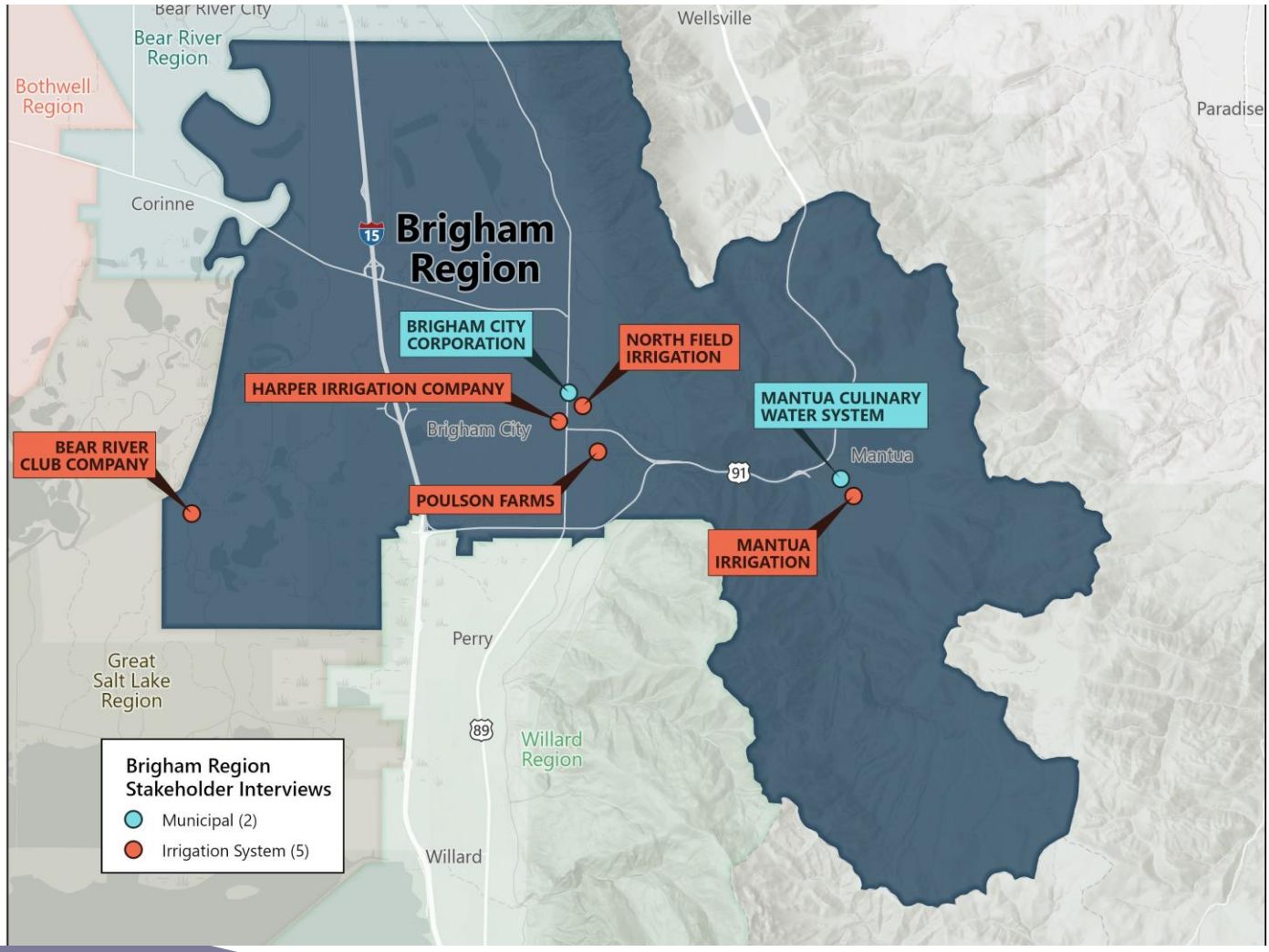
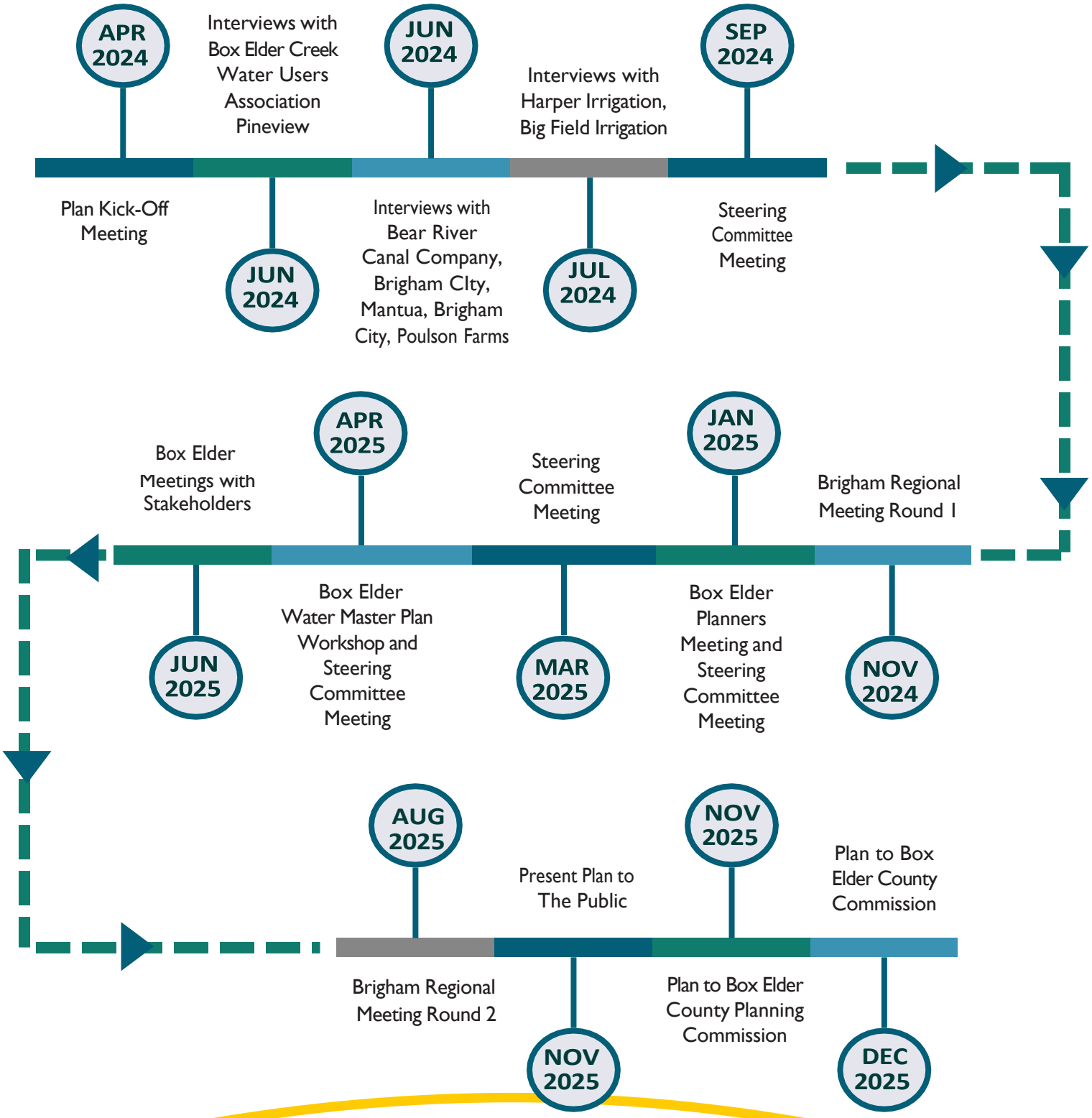


Figure 8.3-D: Public Process Phases



Projected Growth

The growth in this region is projected to be greater than many other areas of the county. Community planners and other representatives from the cities, the water district, and the steering committee met on January 9, 2025 for a workshop as documented in Chapter 2: Public Process of the master plan report. In the meeting the attendees worked together to identify areas in the county they felt are most likely to develop in the future.

Based on the General Plan Vision 2050 growth scenario in the county general plan, most growth is anticipated to occur in the County's more populated areas. This would protect agricultural areas while locating growth near existing infrastructure.

The community planners outlined multiple areas for developments that may occur in the next ten years and then beyond. The areas that were noted to be likely to develop by the year 2035 in this region and down into part of the Willard Region are shown in red in Figure 8.3-E: Future Growth Map. These growth projections are slightly higher than the Kem C. Garner projections. Some stakeholders in the county stated that the Kem C. Garner growth projections have been low in the past. The areas shown are conceptual and do not represent solidified boundaries for growth. There may be conservation easements in some of the noted locations that prevent growth in parts of these areas shown. Most of the projected growth prior to 2035 in the Brigham Region is anticipated to occur around Brigham City in two areas:

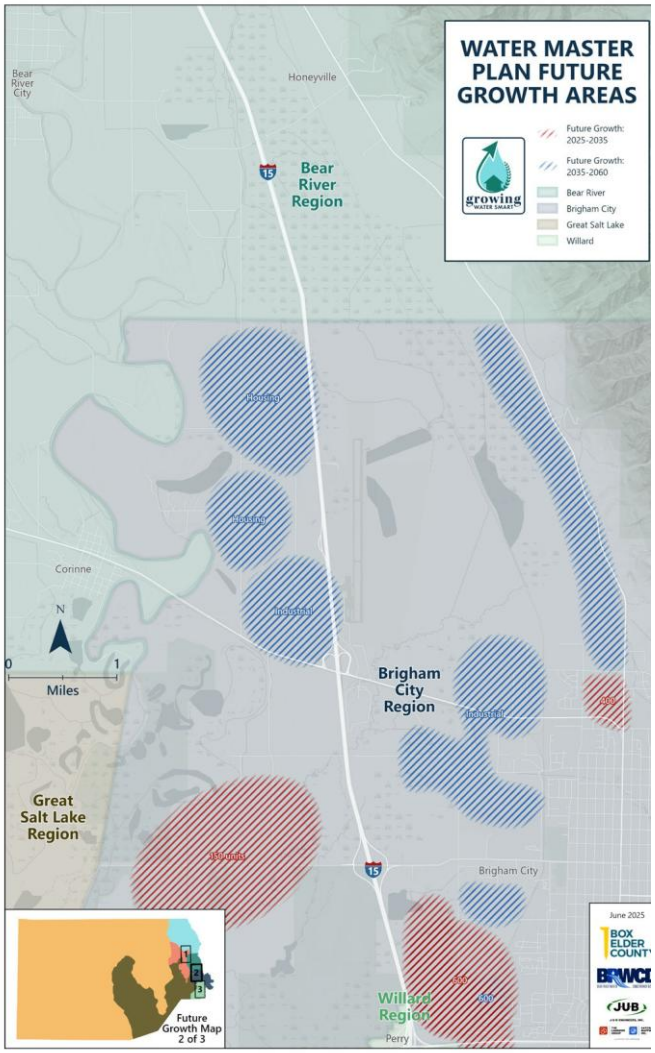
1. East of I-15 and west of the existing developed Brigham City area, between Forest Street and 1100 South (HWY 89)
2. At the north end of the City near HWY 38 and HWY 13
3. West of I-15 near Forest Street

Other areas noted that could develop beyond year 2035 are also shown on the map in blue. These areas are:

1. Along HWY 38 north of Brigham City
2. West of I-15 and north of HWY 13
3. On the north and south sides of HWY 13 just west of the current developed area of the City
4. West of the railroad tracks and east of 1200 West between 100 South and 400 South

A key note from the community planners was, it is much more difficult to anticipate accurately where the growth may occur beyond year 2035.

Figure 8.3-E: Future Growth Map



Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

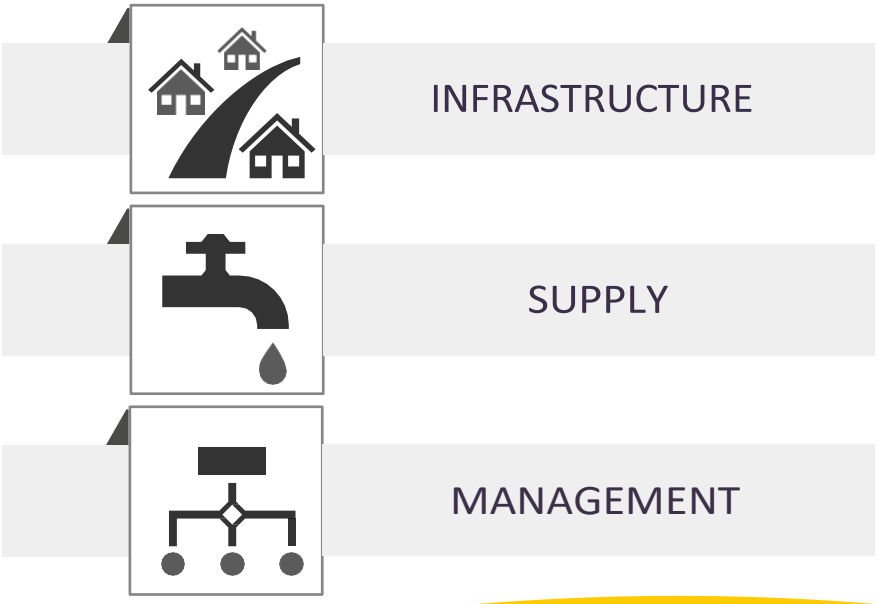
Figure 8.3-F: Projected Units Table lists the estimated units to be added by 2035 within the region and the estimated water needed to serve the projected units. Based on the General Plan Vision 2050 growth scenario in the County general plan, most growth is anticipated to occur in the County's more populated areas.

Figure 8.3-F: Projected Units Table

Public Water Supplier (PWS)	2035 Units	Residential Use (gpcd) (DWRe)	Total use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
Brigham City	1,150	140	7,703	523	7

Summary of Concerns and Challenges

There are many challenges and concerns related to water, but many of them fit within three major categories: Infrastructure Needs, Supply Issues, and Water Management Challenges.:



Specific Existing Challenges

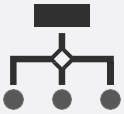
EXISTING

Infrastructure

- Maintaining ditches, lines, irrigation systems and dealing with plugs: roots and leaves often clog the system and irrigation water causes road damage, requiring significant maintenance.
- Historical flooding and changes in water flow due to infrastructure changes.

Supply

- Issues with springs along the mountainside, which has led to complaints from neighbors about water leakage.
- Need for additional storage and transmission lines to the north and west of Brigham City; Need for developing a pressurized irrigation system.
- Lack of redundancy and back up generator due to main well running almost continuously during peak months.
- Need to ensure adequate water supply, which may mean relying on another entity's overflow.



Management

- Resources used to address complaints about leakage and damage, even when the issue was not with their system but with the natural springs.
- Development has reduced water availability.
- Communication and conflict: Legal issues between entities regarding stormwater dumping, and emergency water connections and verification.
- Impact of new developments on water supply, including managing water-flow and preventing over-irrigation.

One significant concern for the Brigham City system has been the deterioration of the transmission lines in the canyon that deliver water from the Mantua sources. These lines are critical to ensuring that Brigham can provide the water needed to meet its users' demands. Brigham City is currently replacing these water lines.

Potential Future Strategies

Future growth in this region (specifically in Brigham) will require actions to improve water conservation, reduce culinary water demand, expand the water distribution area, replace aging infrastructure, provide new culinary water sources, and improve water management.

More specific efforts could include building and maintaining a secondary water system in Brigham or simply paying the costs associated with using culinary water for outdoor use. These outdoor watering options are currently being evaluated.

The irrigation companies in this region have aging infrastructure and need to replace or upgrade many of the water delivery facilities. Stakeholders suggested that BRWCD develop and implement a more formal project scoring system to more effectively and equitably evaluate projects to receive BRWCD support. The district should consider establishing a committee of public works directors or other water experts in the county to prioritize projects based on technical merit.

FUTURE

Infrastructure

- Water infrastructure and transmission lines to meet future growth
- Upsizing and upgrades required for aging infrastructure to meet future demand and prevent service disruptions

Supply

- Securing new water sources and enhancing the capacity of existing sources to prepare for anticipated increases in water demand

Management

- Reassessing the County's developing water management strategies, including communication and collaboration
- Improvement in water quality, water rights, and management
- Increase redundancy and emergency supply

Identified Best Management Practices (BMPs)

Top BMPs identified during the stakeholder process for this region include:

- Improve infrastructure
- Improve education to enhance water conservation and usage efficiency as it benefits both the Great Salt Lake and local irrigators
- Implement proper irrigation practices
- Check water meters
- Upgrade SCADA systems
- Make zoning updates to promote better usage of water
- Utilize smart irrigation systems for parks and public spaces
- Enhance general plan and annexation policy integration
- Address unmetered connections and track non-revenue water
- Review zoning ordinances for water-wise landscaping
- Develop interconnections between municipal systems
- Protect wildlife habitat on the east benches

Evaluation of Actions

Chapter 7: Evaluations of the County Water Master Plan Report outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

- UPGRADING AGING INFRASTRUCTURE
- SECURING NEW WATER SOURCES
- INCREASING SYSTEM REDUNDANCIES
- IMPROVING WATER QUALITY
- PROTECTING WATER RIGHTS

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

Local Action Recommendations

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in-depth as the regional projects were.

Therefore, this allows the planning/evaluation effort to stay at the county/regional level as desired, while also including a local list within the regions of projects that should be considered at the local level.

The list of local projects below is not comprehensive, as many individual water systems may have master plans that include additional projects. The list includes projects that were specifically mentioned in the stakeholder interviews. Many of the details of these local projects need additional information to complete a comprehensive analysis. See Figure 8.3-G: Identified Local Actions.

Figure 8.3-G: Identified Local Actions.

Brigham Region: Identified Local Actions

Entity	Action
Brigham City	Replace aging infrastructure in existing water systems
Brigham City	Add storage, transmission lines in the north/west to accommodate growth
Brigham City	Add redundancy and backup generators for well during peak months
Brigham City	Develop pressurized irrigation systems or use treated water for outdoor watering
Box Elder Creek	System maintenance-jetting water delivery system
Mantua/Mantua Irrigation	Culvert replacement
Mantua/Mantua irrigation	Conservation education
Bigfield Irrigation	Replace old head gates

Regional Action Framework

Many water challenges are regional in nature, meaning they involve more than one water system and can be better addressed through collaborative efforts of multiple water systems or entities.

The potential actions were initially screened to determine if they were regional in nature, meaning that they include, serve, or benefit multiple water entities. If they are regional in nature, they were evaluated in more detail.

The regional actions recommended for this region as a result of the evaluation are presented using the IRAR framework shown in Figure 8.3-H: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.3-H: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.3-I: Recommended Region-Specific Actions Map and listed in Figure 8.3-J: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region. The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

Figure 8.3-I: Recommended Region Specific Actions Map

Figure 8.3-J: Recommended Region Specific Actions Table

Brigham Region: Recommended Region-Specific Actions

Action:	Brigham Seconday Water Infrastructure Funding (BW1)
Entity:	BRWCD/Brigham City
Issue	As Brigham City continues to develop, there are irrigation water shares that historically were being used for agricultural purposes that are now not being put to beneficial use. Brigham City is seeking effective methods to meet outdoor demands and put irrigation water shares to beneficial use. This could be accomplished through building a secondary system or possibly treating irrigation water to be used in the existing culinary water system.
Rule	Under Utah law, beneficial use is the foundation of all water rights, as established in Utah Code § 73-1-3, meaning water must be actively used for a legitimate purpose, such as irrigation, to maintain the overarching irrigation share rights.
Analysis	This action serves a large number of people in an already developed area. It would either reduce demand on the culinary water system or add additional supply to feed the existing culinary water system. It would improve the efficiency of the delivery of this irrigation water as it may benefit many water systems. It would protect irritation water rights by putting water shares to beneficial use, and it improves water quality. Brigham City is evaluating methods to most effectively put local irrigation water resources to use and seeking effective methods to provide water for outdoor watering needs. One method would be to build a stand-alone secondary water system. Another method may be to treat irrigation water for use in the existing culinary water distribution system. During this planning process, the City proposed cost-sharing or grant acquisition strategies to help fund water upgrades. This project would help provide adequate culinary supply by reducing culinary demands. With the northeast area of the city growing, it could be a possible priority location to evaluate for a secondary water system.
Recommendation	Work with Brigham City to secure funding to study and implement the use of irrigation water for sprinkler irrigation of yards. Plan to evaluate the treatment of irrigation water for use in the culinary system versus the construction and operation and maintenance of a new secondary water system and the feasibility of each alternative. (1-5 years)

Regional Plan Implementation

Local entities in the Brigham Region should focus on replacing and upgrading aging infrastructure to maintain reliable water service and prepare for anticipated growth.

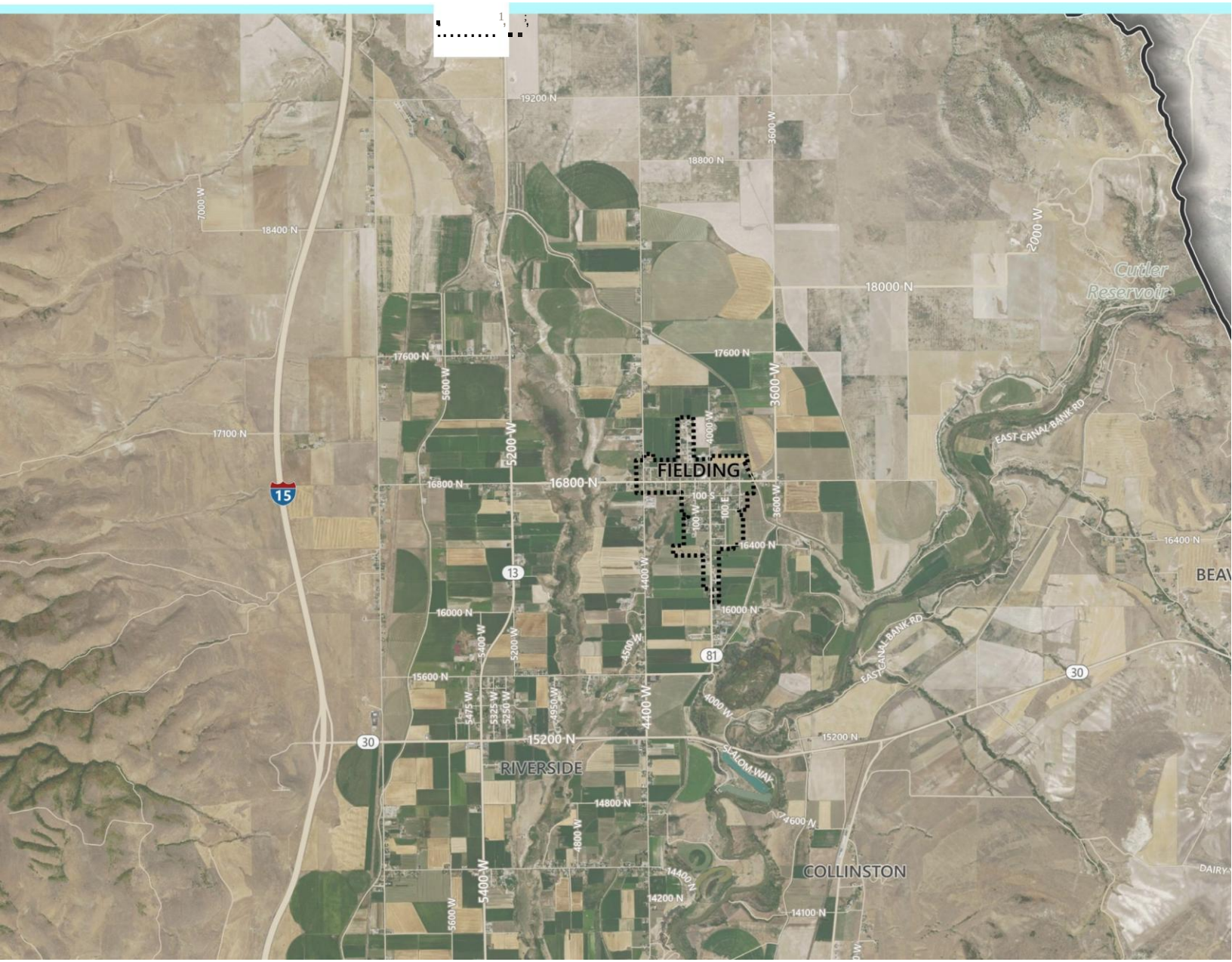
The regional recommendation for this area aims to address supply constraints and improve system redundancy. Brigham City currently relies on canyon sources and aging transmission lines, which are critical to its culinary water supply. These lines are being replaced, but additional improvements will be needed to support future development. Secondary water systems or treated irrigation water for outdoor use are being considered to reduce demand on culinary sources. Water planners should continue long-range planning in close coordination with BRWCD, Box Elder County, Pineview Irrigation, and other irrigation companies to ensure strategies align with projected growth and infrastructure priorities.

Implementation of the regional action could begin as early as 2026 and continue through 2031 and beyond. Success will depend on ongoing collaboration among BRWCD, Brigham City, and irrigation company leaders. Infrastructure readiness, growth pressures, and stakeholder input will guide project prioritization.

8.4 Cutler Region

Regional Plan


SHAKIE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4400 W
4000 W
3600 W
2000 W
FIELDING
RIVERSIDE
COLLINSTON
Cutler Reservoir
EAST CANAL BANK RD
SLALOM WAY
15
30
13
81

Overview

The Cutler Region occupies the northeastern corner of Box Elder County. It includes the incorporated communities of Fielding, Plymouth, and Portage, as well as the unincorporated areas of Collinston, Beaver Dam, and Riverside. Bordered by the Bear River to the west and the Cache County line to the east, this region is largely rural and agricultural, with limited projected growth over the next decade. While development pressures are lower than some regions, water infrastructure and supply challenges remain a priority.

Culinary water services in the region are provided by a mix of municipal systems and private water companies, including BRWCD operated systems in Beaver Dam and Collinston, as well as Riverside North Garland Water Company, UKON Water Company, Willow Creek Water Company, and Nucor Steel Corporation. These systems vary in size and capacity, with some facing issues related to aging infrastructure, limited source, and water quality concerns such as arsenic levels.

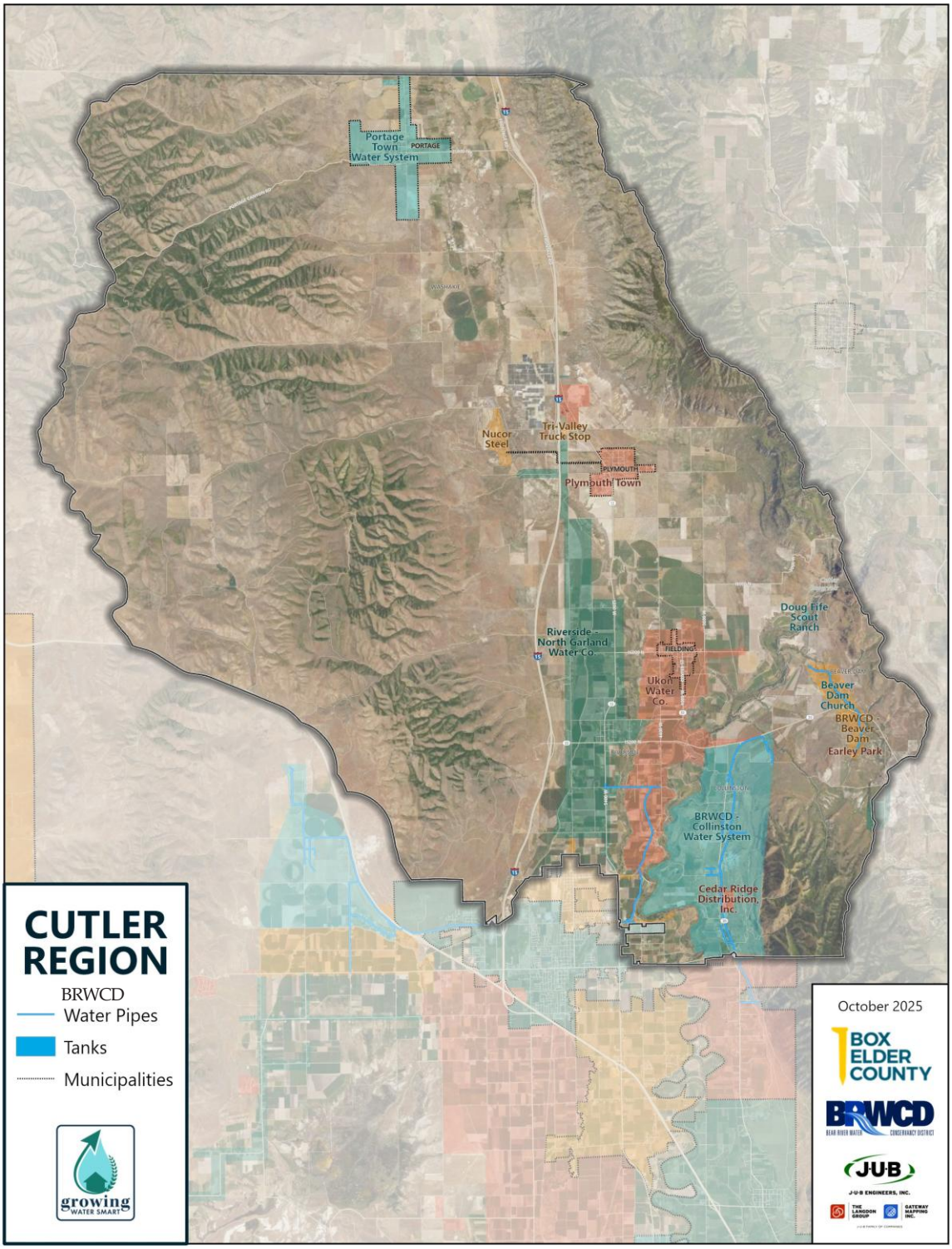
Irrigation water is primarily delivered by the Bear River Canal Company, which plays a vital role in supporting the region's agricultural economy.

Stakeholder interviews and regional meetings highlighted several key concerns in the Cutler Region, including the potential impacts of new wells on existing groundwater sources, the need for improved zoning and land use planning, and the importance of protecting senior water rights.

Planning efforts in the Cutler Region emphasize the importance of responsible water development, infrastructure upgrades, and regional collaboration. Coordination between BRWCD, local municipalities, private water systems, and irrigation entities will be essential to address current challenges and support sustainable water resource management in the future.

Figure 8.4-A: Cutler Region Map provides an overview of the region along with existing BRWCD culinary water infrastructure. A few private water companies (Riverside, North Garland Water Company and UKON Water Company) serve parts of the unincorporated area in this region and UKON Water Company also serves Fielding.

Figure 8.4-A: Cutler Region Map



Water Systems

A combination of municipal, private, and industrial culinary water systems serves the Cutler Region. These include the Beaver Dam Water System and Collinston Water System, both operated by BRWCD, as well as systems managed by Nucor Steel Corporation, Plymouth Town, Portage Municipal Water System, Riverside North Garland Water Company, Ukon Water Company, and Willow Creek Water Company. These systems vary in size and capacity, supporting both residential and industrial users across the region's rural communities.

Irrigation water in the region is primarily delivered by the Bear River Canal Company, which plays a vital role in supporting agricultural operations. The canal system provides water for crop irrigation and livestock, helping sustain the region's agricultural economy and rural character.

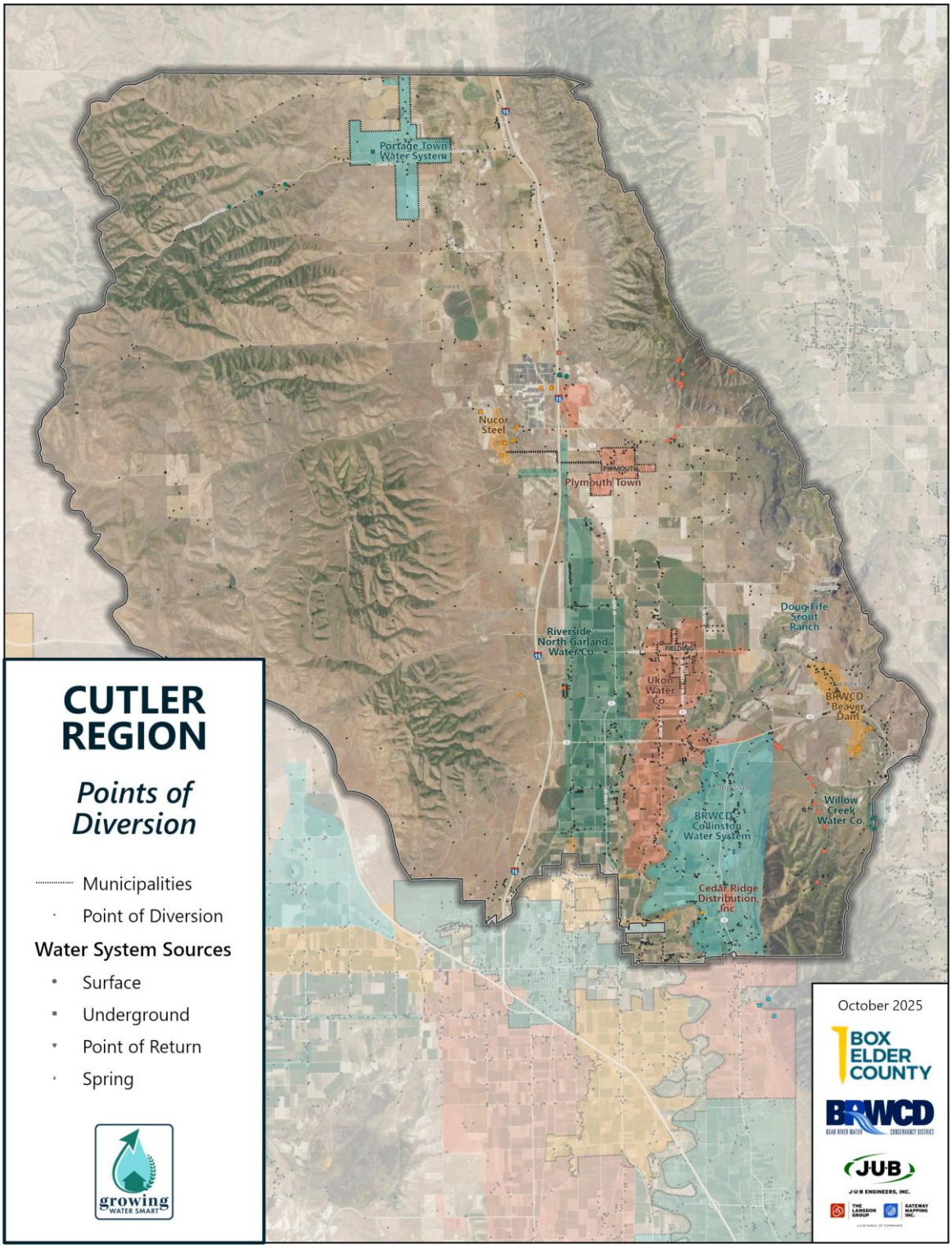
Cutler Region

Irrigation Water	Culinary Water
Bear River Canal Company	Beaver Dam Water System (BRWCD) Collinston Water System (BRWCD) Nucor Steel Corporation Plymouth Town Portage Municipal Water System Riverside North Garland Water Company UKON Water Company Willow Creek Water Company

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the county. These points of diversion are included in a database maintained by the DWRi. The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.4-B: Diversion Points Map shows the rough location of the diversions in this region

Figure 8.4-B: Diversion Points Map



Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Cutler Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with a diverse range of stakeholders such as municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Cutler Region specifically, seven representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

The map in Figure 8.4-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located

The timeline in Figure 8.4-D: Public Process Phases illustrates the public process followed.

Figure 8.4-C: Stakeholder Interviews Map

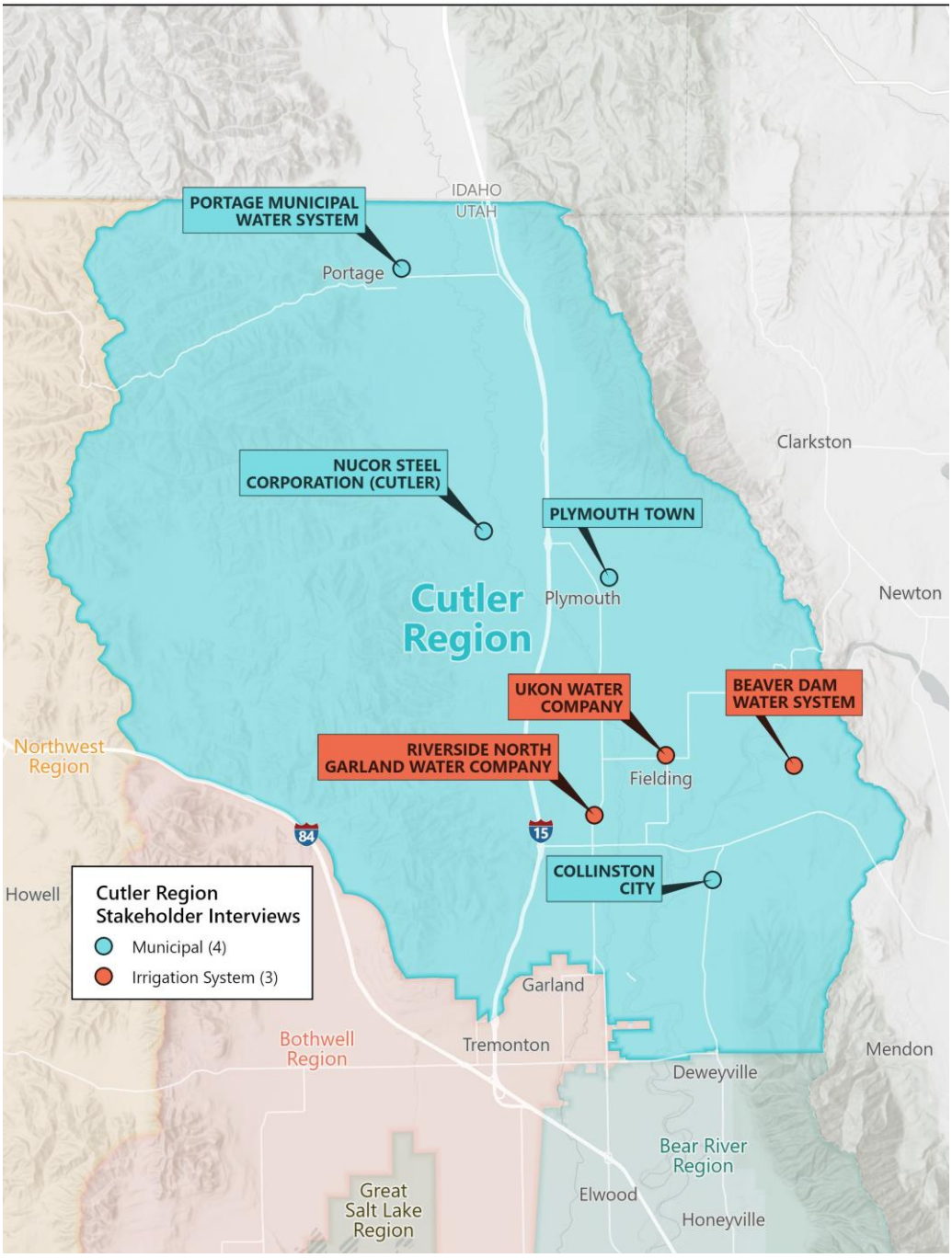
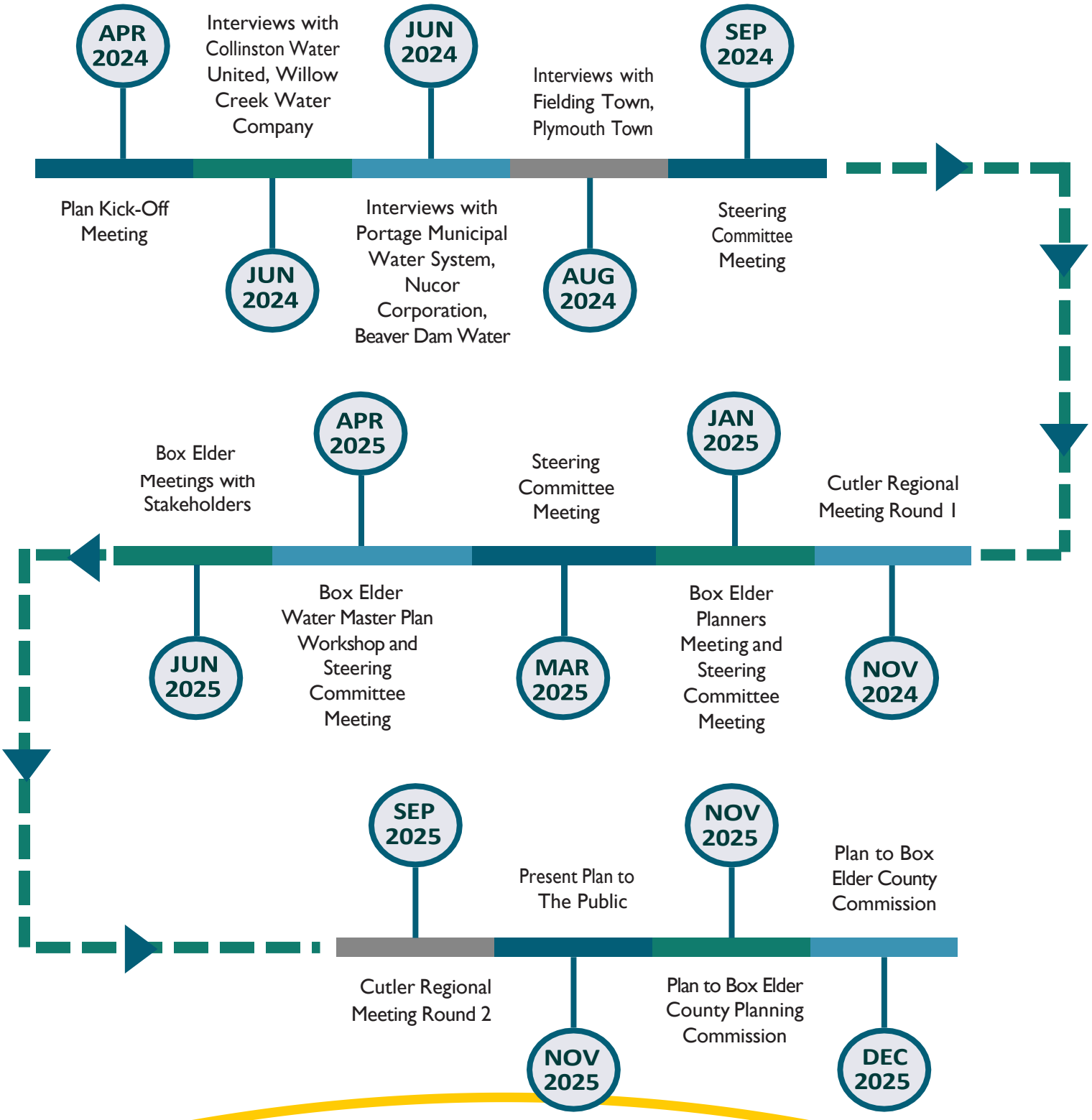


Figure 8.4-D: Public Process Phases



Projected Growth

The growth in this region is projected to be much lower than in other areas of the county. Community planners and other representatives from the cities, the water district, and the steering committee met on January 9, 2025, for a workshop, as documented in Chapter 2: Public Process of the master plan report. In the meeting, the attendees worked together to identify areas in the county they felt were most likely to develop in the future.

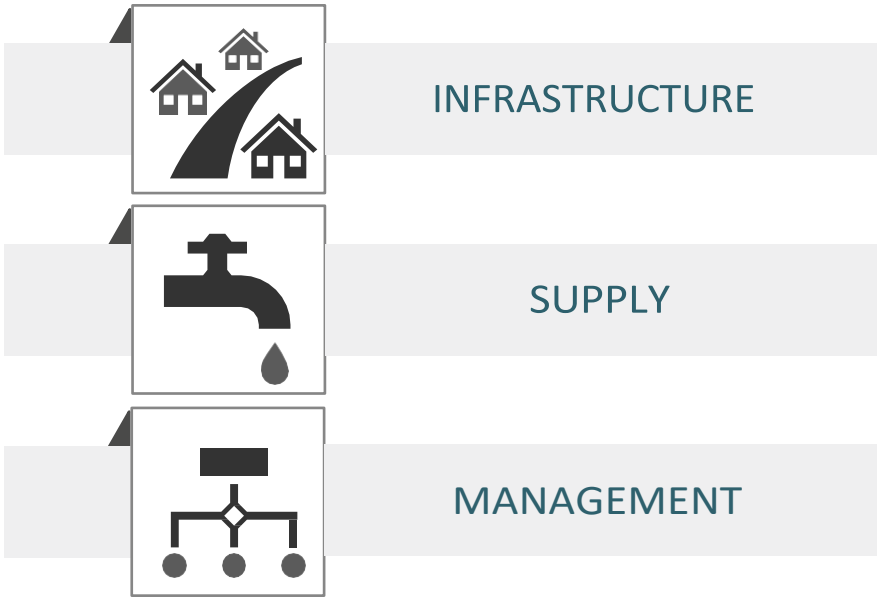
Based on the Vision 2050 growth scenario in the county general plan, most growth is anticipated to occur in the county's more populated areas. This would protect agricultural areas while locating growth near existing infrastructure. The community planners outlined multiple areas for development that may occur in the next ten years and beyond. The planners estimated that growth in this region will be much lower than in areas projected to grow faster in the Willard, Brigham, and Bothwell regions.

It has been assumed that the overall growth in this region will be approximately one percent per year. With that said, there will be localized areas that see more growth within the region. There could also be some commercial and industrial growth in the region. This non-residential growth is harder to predict but should be considered alongside residential growth as communities plan for future water resources.

Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

Summary of Concerns and Challenges

There are many challenges and concerns related to water, but many of them fit within three major categories:



Specific Existing Challenges

Specific existing regional concerns and challenges include:

EXISTING

Infrastructure

- Aging and insufficient infrastructure, particularly with water delivery systems which are under pressure from increased demand and maintenance
- Leaks and breakdowns compromise water service reliability

Supply

- Over-reliance on limited water sources which are not sustainable with current consumption rates
- Deeper wells needed as shallower wells are no longer viable, escalating costs and technical challenges
- Water has been over appropriated in some areas

Management

- Management of water resource amidst varying demands from agricultural, residential, and industrial users, including the complexities of water rights management.
- Costs associated with serving large service areas with relatively few users.
- Coordination between multiple water entities is often inefficient, leading to delayed or conflicting actions.

Potential Future Strategies

Future growth in this region needs to be monitored carefully, and processes need to be in place to make sure that water is provided (brought) with the land in new developments. Existing water systems components need to be evaluated and prioritized for replacement so older infrastructure that is close to failing can be replaced. Focus on actions that will improve water conservation. Improved metering and technology to monitor water use can help with conservation along with education about water conservation. Identify ways to encourage new growth near existing water system infrastructure and discourage growth farther away from it.

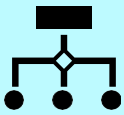
FUTURE

Infrastructure

- Urgent upgrades for aging infrastructure to meet demands and prevent service disruptions
- Investment in new technologies and materials to enhance the efficiency of water infrastructure

Supply

- Develop water sources to diversify water supply against future shortages and climate variability
- Expansion of water reuse and recycling practices to maximize existing water resources



Management

- Develop robust water management strategies that incorporate advanced technologies for monitoring and conservation, ensuring sustainable water usage
- Improve water rights management to ensure fair distribution and use of water resources

Identified Potential Best Management Practices

Top BMPs identified during the stakeholder process for this region include:

- Protect senior water rights
- Improve irrigation efficiency
- Ensure that new developments bring their own water
- Be responsible with water development
- Improve zoning and land use planning to use water resources appropriately.
- Preserving agricultural lands and orchards
- Fully evaluate potential impacts of new wells on existing sources prior to developing new wells
- Implement advanced metering and educate water users on water conservation and management practices
- Identify new potential source areas
- Identify water re-use and other strategies to manage drought conditions
- Review septic system densities and lot sizes

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan Report outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

- Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.
- Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.
- County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

- UPGRADING AGING INFRASTRUCTURE
- SECURING NEW WATER SOURCES
- INCREASING SYSTEM REDUNDANCIES
- IMPROVING WATER QUALITY
- PROTECTING WATER RIGHTS

Local Action Recommendations

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in-depth as the regional projects were.

Therefore, this allows the planning/evaluation effort to stay at the county/regional level as desired but also include a local list within in the regions of projects that should be considered at the local level.

The list of local projects below is not completely comprehensive, as many of the individual water systems may have master plans that include other projects. The list includes projects that were specifically mentioned in the stakeholder interviews. Many of the details of these local projects need additional information to complete a comprehensive analysis. See Figure 8.4-E: Identified Local Actions.

Figure 8.4-E: Identified Local Actions

Cutler Region: Identified Local Actions

Entity	Action
Collinston	Apply for a grant to convert flood irrigation to sprinkler irrigation
Fielding Town	Replace 6-inch line from well to the storage reservoir
Fielding Town	Replace old transmission lines
Plymouth Town	Replace lines too small for fire flows
Plymouth Town	Do a study to assess water demands
Plymouth Town	Develop a new water source
Portage	Update chlorination system
Portage	Update water meters to digital
Riverside North Garland	Equip newly purchased well
Riverside North Garland	Upsize small distribution pipes to 6-inch
Riverside North Garland	Develop a billing structure for fire hydrants that serve residents not connected to system
Willow Creek Irrigation	Support development of a new water source and infrastructure
Willow Creek Irrigation	Upgrade metering system, remote read system to detect leaks
Willow Creek Irrigation	Re-drill existing well and upgrade pump house to eliminate secondary water system and reduce maintenance
Nucor Steel Corporation	Drill new well adjacent to Well #5 for redundancy

Regional Action Framework

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature — meaning they did not benefit multiple water systems or entities —they were not evaluated in more detail.

The regional actions that are recommended for this region as a result of the evaluation are presented using the IRAR framework shared in Figure 8.4-F: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.4-F: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.4-G: Recommended Region-Specific Actions Map and listed in Figure 8.4-H: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region.

The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

Figure 8.4-G: Recommended Region Specific Actions Map

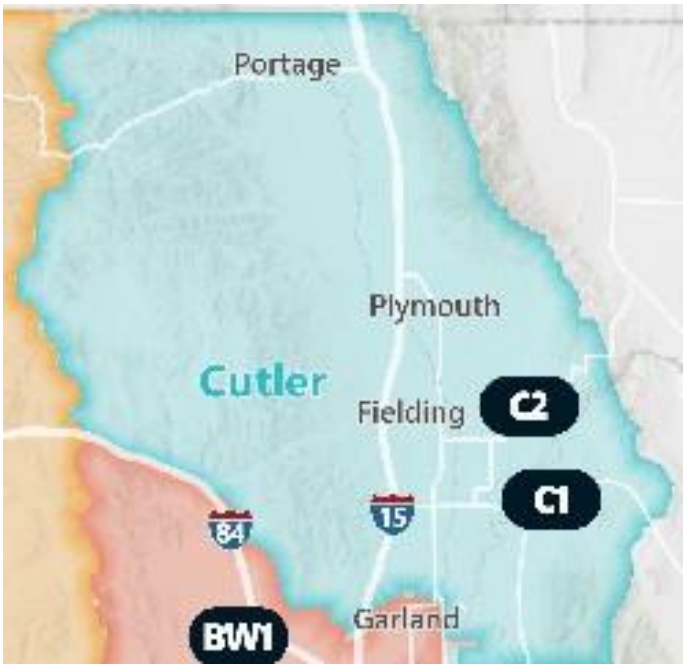


Figure 8.4-H: Recommended Region Specific Actions Table

Cutler Region: Recommended Region-Specific Actions

Action:	UKON Aresenic Treatment Plant (C1)
Entity:	BRWCD/UKON
Issue	Arsenic levels in the UKON system pose health risks and limit long-term use of some sources.
Rule	Drinking water rules mandate treatment of arsenic above safe thresholds.
Analysis	Stakeholder discussions revealed shared interest between UKON and BRWCD to explore a regional solution. This action helps provide adequate water supply and improves water quality.
Recommendation	Explore a partnership between UKON and BRWCD to construct a treatment plant to remove arsenic (1–5 years).
Action	Local Groundwater Level Monitoring (C2)
Entity	BRWCD/Fielding
Issue	Many residences in the Fielding area and other areas in the Cutler Region utilize individual wells for their water source. Some residents have reported reductions in water production from their wells as growth around them occurs and have concerns about not having enough water supply after other wells are drilled in the area.
Rule	Individual wells are regulated under a legal framework managed by the Utah Division of Water Rights. As of May 10, 2022, all water wells in Utah, regardless of depth, are regulated by the State Engineer. If a new well interferes with an older, legally established water right, the older right typically takes precedence. If a newly drilled well reduces the water supply of an existing well, the affected homeowner may have legal options and may: • Verify their water rights status with the Division of Water Rights • Document the reduction in water supply and any nearby drilling activity • Consult a water rights attorney to explore legal remedies • Contact the Division of Water Rights for guidance or to file a formal complaint
Analysis	While individual stakeholders may seek solutions to their induvial situations, BRWCD could consider monitoring water levels in some wells near Fielding to gather a better understanding of effects of new wells on existing wells. BRWCD may also promote a groundwater management plan in the Cutler Region with DWRi to help address these issues. These actions would improve water usage data, be a great step to gaining better understanding of local groundwater depths, could be completed at a relatively low cost as compared to infrastructure projects, and could potentially help understand impacts to GSL from new wells.
Recommendation	Individual homeowners: look for individual remedies for their situations including coordination with and potential connection to existing water systems in the area. BRWCD: Temporary groundwater level monitoring and data evaluation in the Fielding area in select wells with BRWCD equipment and promote a groundwater management plan for this region with the state (1–10 years).

Regional Plan Implementation

Local entities in the Cutler Region should prioritize replacing and upgrading aging infrastructure to maintain reliable water service. System managers should ensure that user rates are set at levels that support these improvements and provide long-term sustainability. Any systems that have not recently conducted a water rate evaluation should do so promptly to confirm that rates are adequate for ongoing operations and planned upgrades.

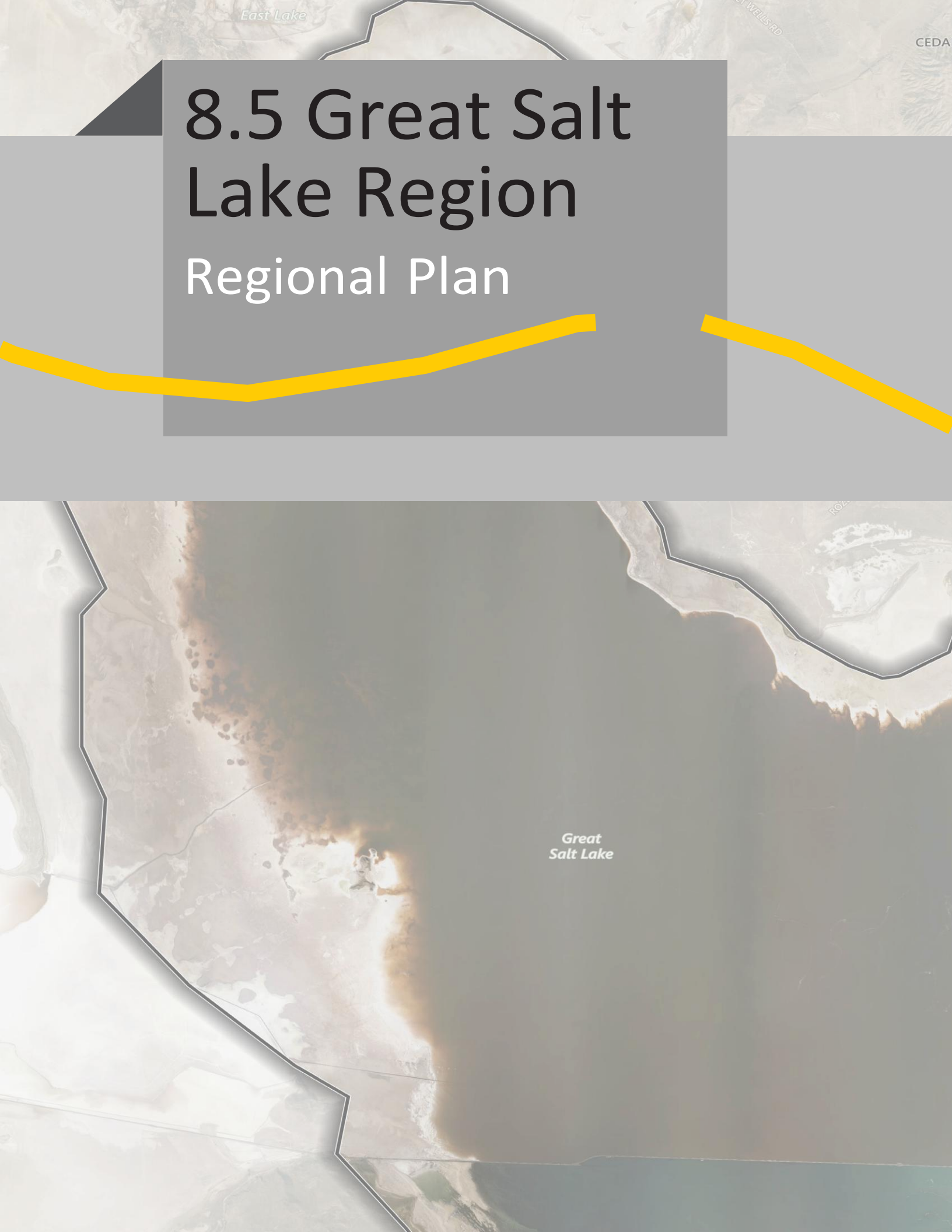
Systems in the Cutler Region should also consider cross-training or shared operator support for smaller systems to improve operational resilience. Water quality remains a concern, particularly related to arsenic and septic system impacts, so proactive measures and treatment planning are important.

Growth should be managed carefully to avoid exceeding available water supplies. Zoning of the unincorporated areas in this region that currently have no zoning assigned is very important to guide future growth. A moratorium on building could be considered if water supply issues are not resolved. Additionally, implementing groundwater monitoring and promoting a regional groundwater management plan could help protect aquifer sustainability and reduce conflicts between new and existing wells. Municipalities in this region should also focus on establishing water exaction policies before rapid growth occurs to ensure water remains tied to the land and provide flexibility for future planning.

The recommended regional actions for this area focus on addressing water quality concerns and enhancing groundwater management.

8.5 Great Salt Lake Region

Regional Plan



R SPRINGS

ATK
Promontory
Plant

THATCHER

Sunset Park
Water Co.

Water System

PROMONTORY

PROMONTCi>RY
POIN11

WAR

WEST WARREN

Overview

The Great Salt Lake region includes the Great Salt Lake itself and key habitat areas along its shoreline. While this region does not contain incorporated cities or traditional culinary water systems, it plays a vital role in environmental water management and supports significant ecological, recreational, and agricultural functions. The region includes the Bear River Migratory Bird Refuge, Salt Creek Waterfowl Management Area, Bear River Club Company, and Chesapeake Duck Club, all of which rely on consistent water flows to maintain wetland habitats and support migratory bird populations.

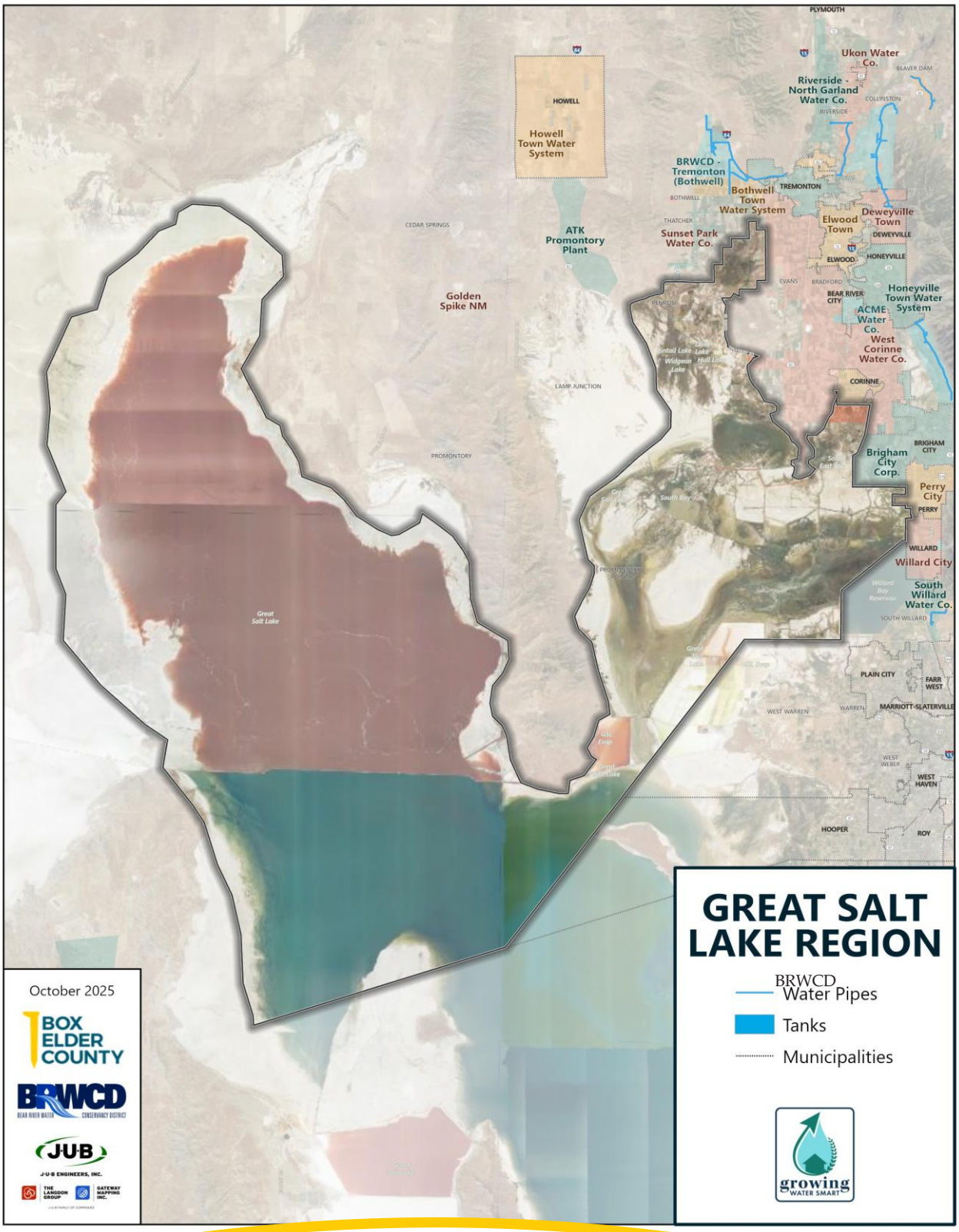
The Great Salt Lake Region will not experience direct population growth or urban development. However, it is highly impacted by upstream water use and land development throughout the county. Water planning in this region focuses on preserving environmental flows, improving water measurement and monitoring, and coordination between canal companies and refuge managers to ensure sustainable water delivery.

Stakeholder interviews and regional meetings identified several key concerns, including declining lake levels, salinity changes, habitat loss, and the need for improved coordination between agricultural and environmental water users.

While the region may not face traditional infrastructure challenges, its ecological significance makes it a critical component of the county-wide water strategy. Continued engagement with refuge managers, irrigation entities, and state agencies will be essential to protect the lake's health.

Figure 8.5-A: Great Salt Lake Region Map provides an overview of the region.

8.5-A: Great Salt Lake Region Map



Water Systems

While the Great Salt Lake Region does not contain traditional culinary or irrigation water systems, it encompasses several critical waterfowl habitats that play a vital role in regional ecology and conservation. These areas are essential for supporting migratory bird populations and maintaining the health of the Great Salt Lake ecosystem.

Key waterfowl areas in this region include the Bear River Migratory Bird Refuge, a 74,000-acre sanctuary managed by the U.S. Fish and Wildlife Service. Located where the Bear River meets the Great Salt Lake, it provides freshwater wetlands that serve as a vital stopover for millions of birds along the Pacific and Central Flyways. The Salt Creek Waterfowl Management Area, overseen by the Utah Division of Wildlife Resources, spans approximately 24,000 acres and offers prime habitat for waterfowl and shorebirds, including trumpeter swans, sandhill cranes, and pelicans. The Bear River Club Company, established in 1909, is a private hunting and conservation organization that manages waterfowl habitat and supports duck and wildlife management efforts in the Bear River Marsh area. Similarly, the Chesapeake Duck Club, founded in 1903, manages over 4,000 acres of wetlands and waterfowl-friendly agricultural lands. The club actively engages in habitat restoration, invasive species control, and water level management to support sustainable waterfowl populations.

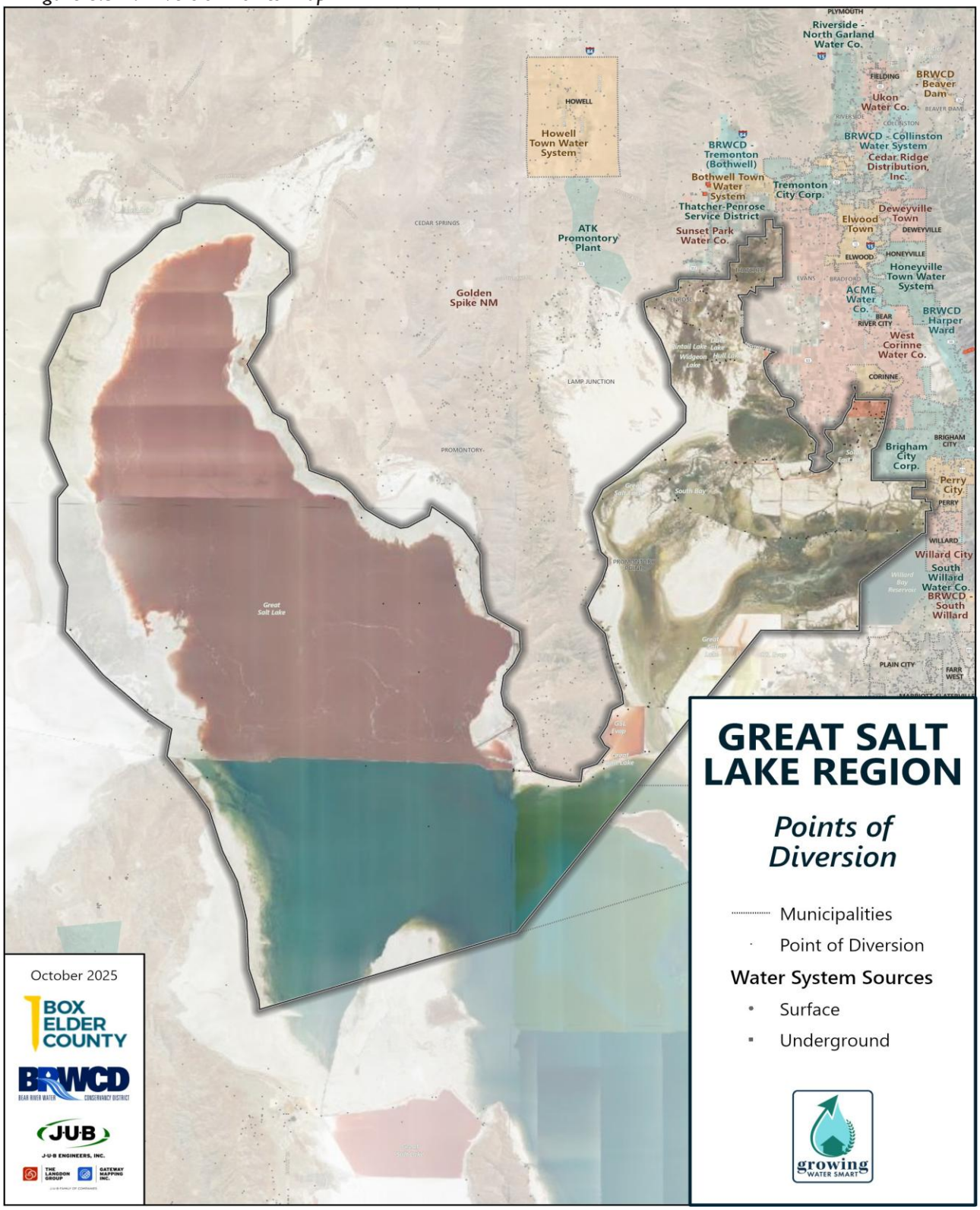
These areas, through both public stewardship and private conservation efforts, contribute significantly to recreation, the preservation of wetland ecosystems, and the protection of migratory bird species in Box Elder County.

Great Salt Lake Region
Water Entity
Bear River Club Company
Chesapeake Duck Club
Bear River Migratory Bird Refuge
Utah Department of Natural Resources

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the county. These points of diversion are included in a database maintained by the DWRi . The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.5-B: Diversion Points Map shows the rough location of the diversions in this region.

Figure 8.5-B: Diversion Points Map



Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Great Salt Lake Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with diverse stakeholders, including municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Great Salt Lake Region specifically, four representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies. The map in Figure 8.5-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located. The timeline in Figure 8.5-D: Public Process Phases illustrates the public process followed.

Figure 8.5-C: Stakeholder Interviews Map

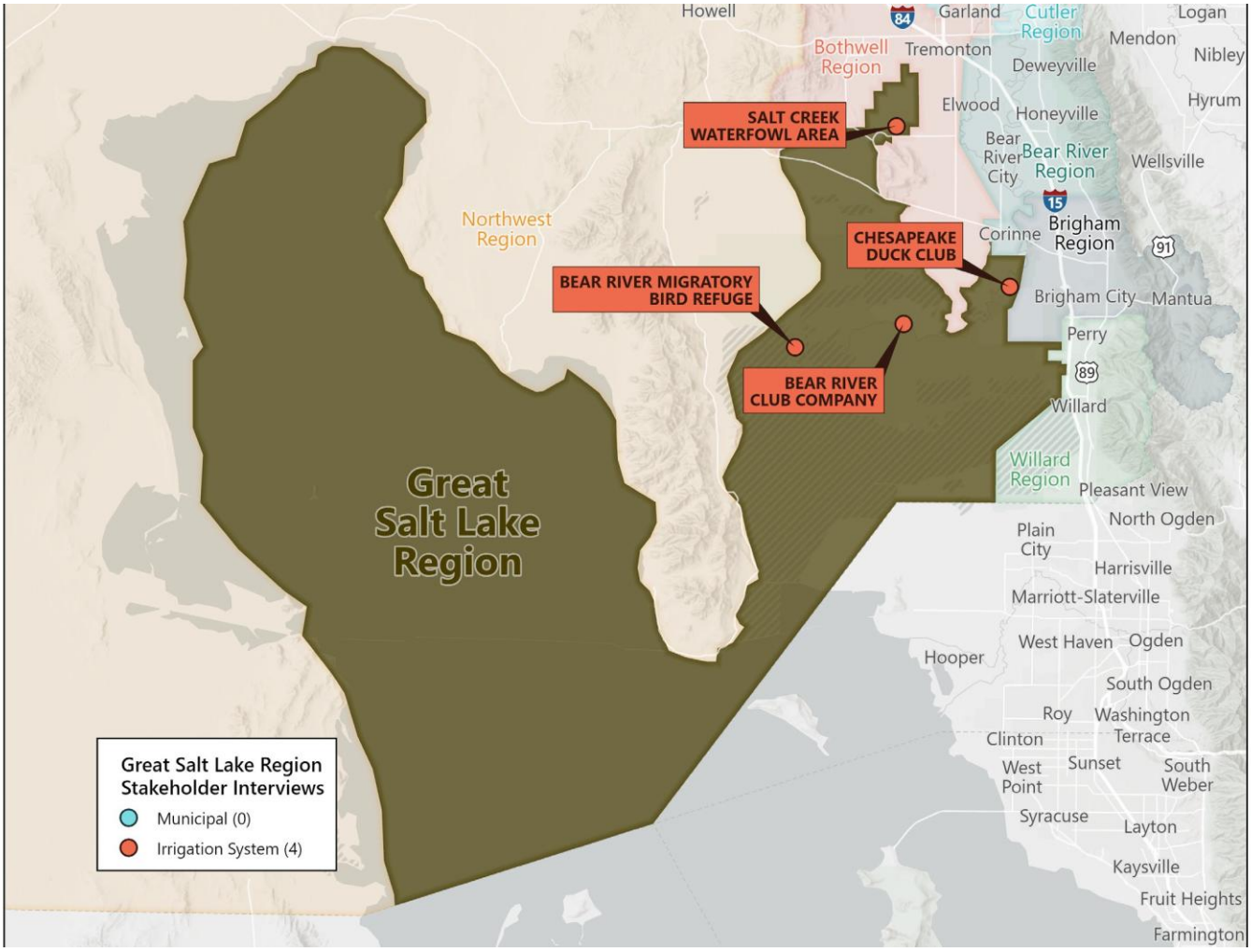
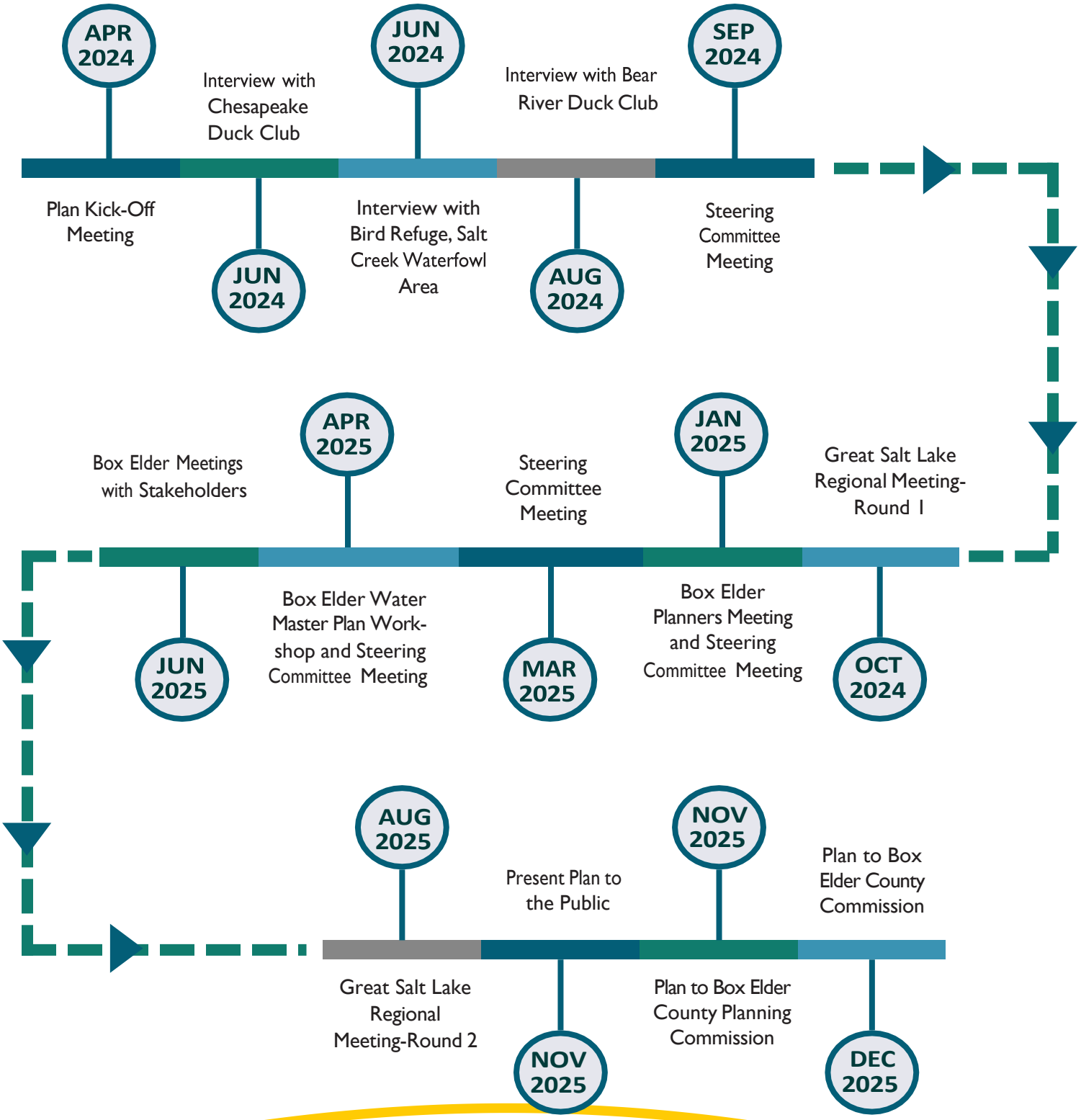


Figure 8.5-D: Public Process Phases



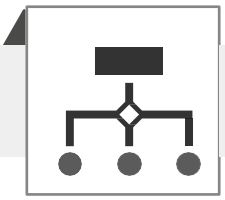
Projected Growth

Growth will not occur in this region, but it is located downstream of all the other regions and is therefore likely to be affected in some way by any growth in the County. County and City planners, and other representatives from the cities, the water district, and the steering committee, met on January 9, 2025, for a workshop meeting, as documented in Chapter 2: Public Process of the master plan report. In the meeting, the attendees worked together to identify areas in the county they felt were most likely to develop in the future.

Summary of Concerns and Challenges

INFRASTRUCTURE

SUPPLY



MANAGEMENT

Specific Existing Challenges

Specific existing regional concerns and challenges within the three major categories for the Great Salt Lake Region are as follows:

EXISTING

Infrastructure

- Increasing storage to ensure reliable supply at critical times

Supply

- Utilizing conservation strategies that balance municipal and agricultural impacts

Management

- Keeping water rights updated and legally in the proper name
- Putting water to beneficial use to preserve water rights

Potential Future Strategies

Responsible well development, improved water monitoring near the lake, potential updates to area policies or the implementation of a groundwater management plan

FUTURE

Infrastructure

- Increase storage to ensure supply at critical times

Supply

- Collaborate in long-term water source protection

Management

- Utilize conservation strategies that focus on environmental needs and impacts

Identified Best Management Practices (BMPs)

Top BMPs identified during the stakeholder process for this region include:

- Improve water management practices of existing sources
- Develop wells in a responsible way
- Improve water metering (measure return flows)
- Implement efficient water use/waterwise landscaping
- Protect spring water rights
- Evaluate land use policy impacts on recharge of wetlands
- Strengthen coordination between canal companies and bird refuge
- Include duck clubs in long-term water resource coordination

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan Report outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

UPGRADING AGING INFRASTRUCTURE

SECURING NEW WATER SOURCES

INCREASING SYSTEM REDUNDANCIES

IMPROVING WATER QUALITY

PROTECTING WATER RIGHTS

Local Action Recommendations

During the interview process, water system managers were asked about potential water projects or actions they could pursue in their respective regions. This stakeholder outreach yielded a strong list of beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in-depth as the regional projects were.

Therefore, this allows the planning/evaluation effort to stay at the county/regional level as desired but also include a local list within in the regions of projects that should be considered at the local level.

The list of local projects below is not comprehensive, as many individual water systems may have master plans that include additional projects. The list includes projects that were specifically mentioned in the stakeholder interviews. Many of the details of these local projects need additional information to complete a comprehensive analysis. See Figure 8.5-E: Identified Local Actions.

8.5-E: Identified Local Actions

Great Salt Lake Region: Identified Local Actions

Entity	Action
Bear River Bird Refuge	Increase water storage to allow for reliable water sources during critical times
Bear River Club	Reduce footprint of the Great Salt Lake with dikes to reduce evaporation
Bear River Club	Improve efficiency of existing resources
Bear River Bird Refuge	Bear River Development reservoir for late season flows

Regional Action Framework

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in more detail.

The regional actions that are recommended for this region as a result of the evaluation are presented using the IRAR framework shared in Figure 8.5-F: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.5-F: IRAR Framework Table

IRAR Framework

Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.5-G: Recommended Region-Specific Actions Map and listed in Figure 8.5-H: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region.

The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

Figure 8.5-G: Recommended Region Specific Actions Map

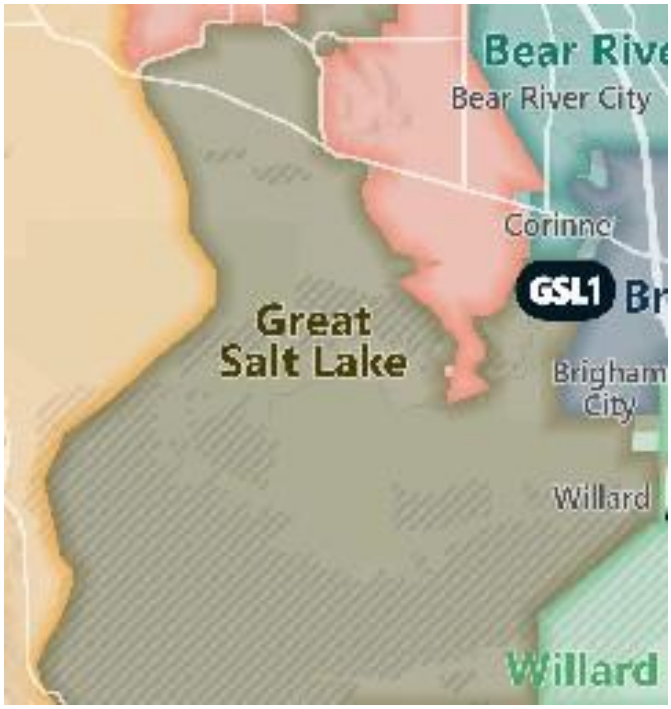


Figure 8.5-H: Recommended Region Specific Actions Table

Great Salt Lake Region: Recommended Region-Specific Actions

Action:	Meter Refuge Outflows (GSL1)
Entity:	**Bear River Bird Refuge**
Issue	Wetland management and water flow to the Great Salt Lake (GSL) depend on reliable outflow data from the Bear River Migratory Bird Refuge and other upstream sources. Currently, outflows from the Refuge are not adequately metered, making it difficult to quantify how much water is reaching the GSL. This lack of data limits effective environmental water management, habitat preservation, and long-term planning for the lake's health.
Rule	Several policies and legislative mandates support the need for improved flow monitoring. Regional environmental policy encourages monitoring to support ecosystem health. Federal and state conservation goals emphasize the importance of maintaining wetland habitats and inflows to the GSL for migratory birds and biodiversity.
Analysis	The planning team coordinated directly with the Bear River Refuge and other environmental stakeholders. These discussions confirmed the need for upgraded metering to better understand and manage outflows. Additional metering would help improve water data for informed decision making, supports GSL health, and is relatively low cost to implement as compared to other evaluated actions.
Recommendation	Begin to install flow meters on the outflows from the Bear River Migratory Bird Refuge to the Great Salt Lake. This action will: • Provide critical data for managing environmental flows. • Support state and regional conservation goals. • Enable better coordination between the refuge, canal companies, and state agencies. • Help track the effectiveness of upstream conservation and water use policies. (1–10 years).

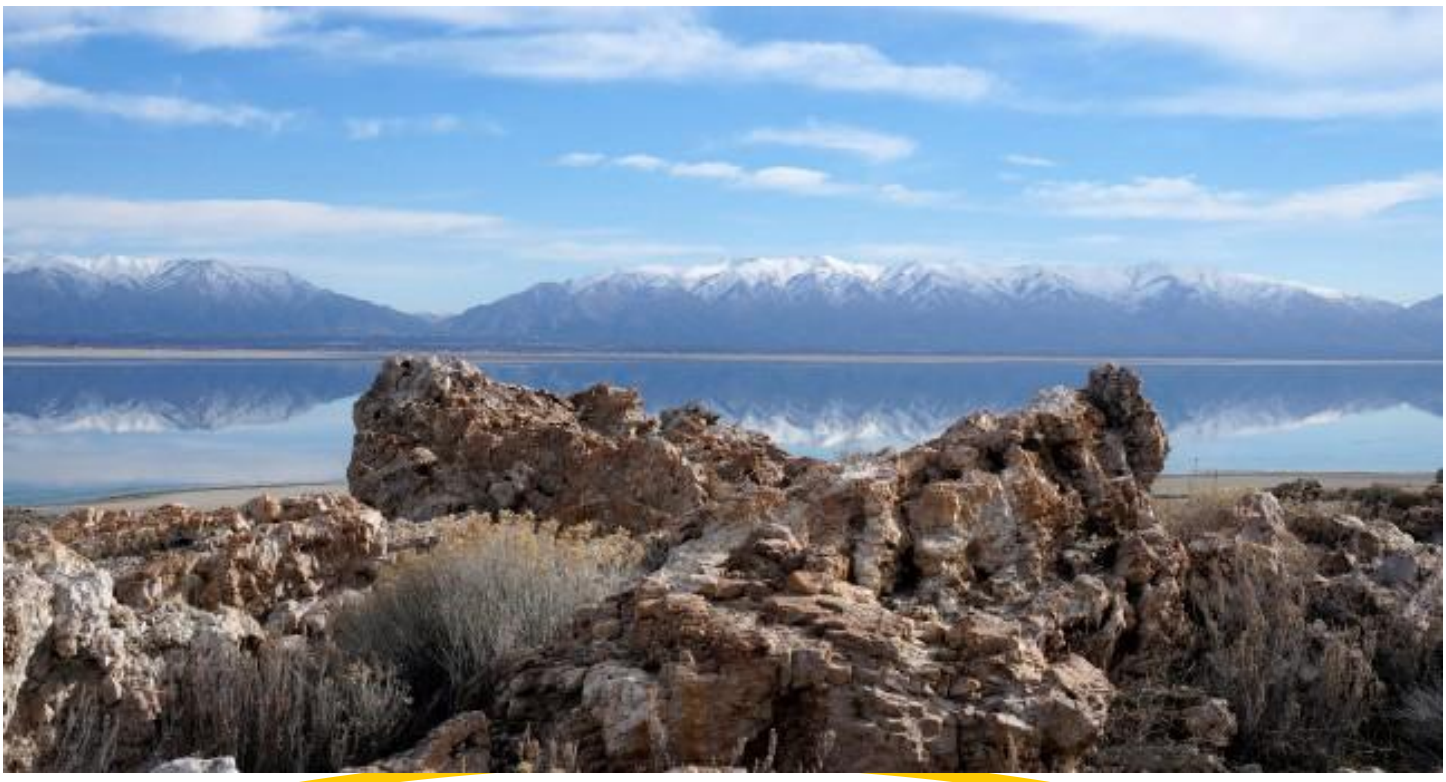
Regional Plan Implementation

The Great Salt Lake Region does not include traditional culinary water systems but plays a critical role in environmental water management and habitat preservation. Local entities and stakeholders should focus on improving water measurement, maintaining wetland habitats, and coordinating with upstream water users to improve inflows to the lake. Public education and outreach could help build awareness of the lake's ecological importance and the need for sustainable water management.

These efforts are essential to support migratory bird populations, maintain ecological health, and reduce risks associated with declining lake levels.

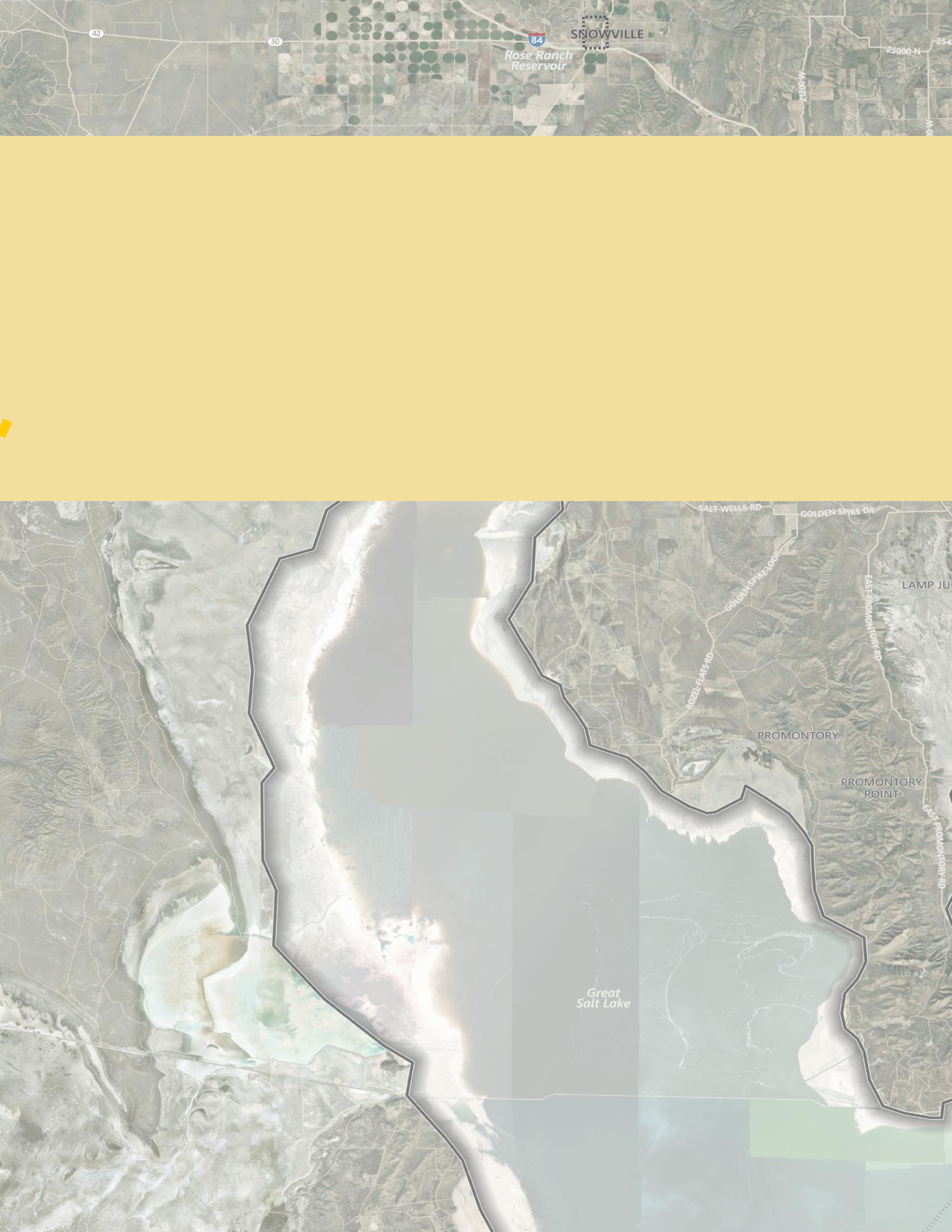
The regional recommendation for this area emphasizes metering outflows from the Bear River Migratory Bird Refuge and other managed wetlands. Accurate flow measurement will help track water deliveries to the lake, support habitat management, and guide future policy decisions. Coordination between refuge managers, irrigation companies, and BRWCD will be critical to ensure that environmental water needs are balanced with agricultural and municipal demands.

Implementation of the regional action will begin as early as 2026 and continue through 2036.



8.6 Northwest Region

Regional Plan


42
30
84
SNOWVILLE
Rose Ranch Reservoir
25000 N
21200 W
SALT WELLS RD
GOLDEN SPIKE DR
GOLDEN SPIKE LOOP
EAST PROMONTORY RD
ROZEL FLATS RD
PROMONTORY
PROMONTORY POINT
Great Salt Lake

Overview

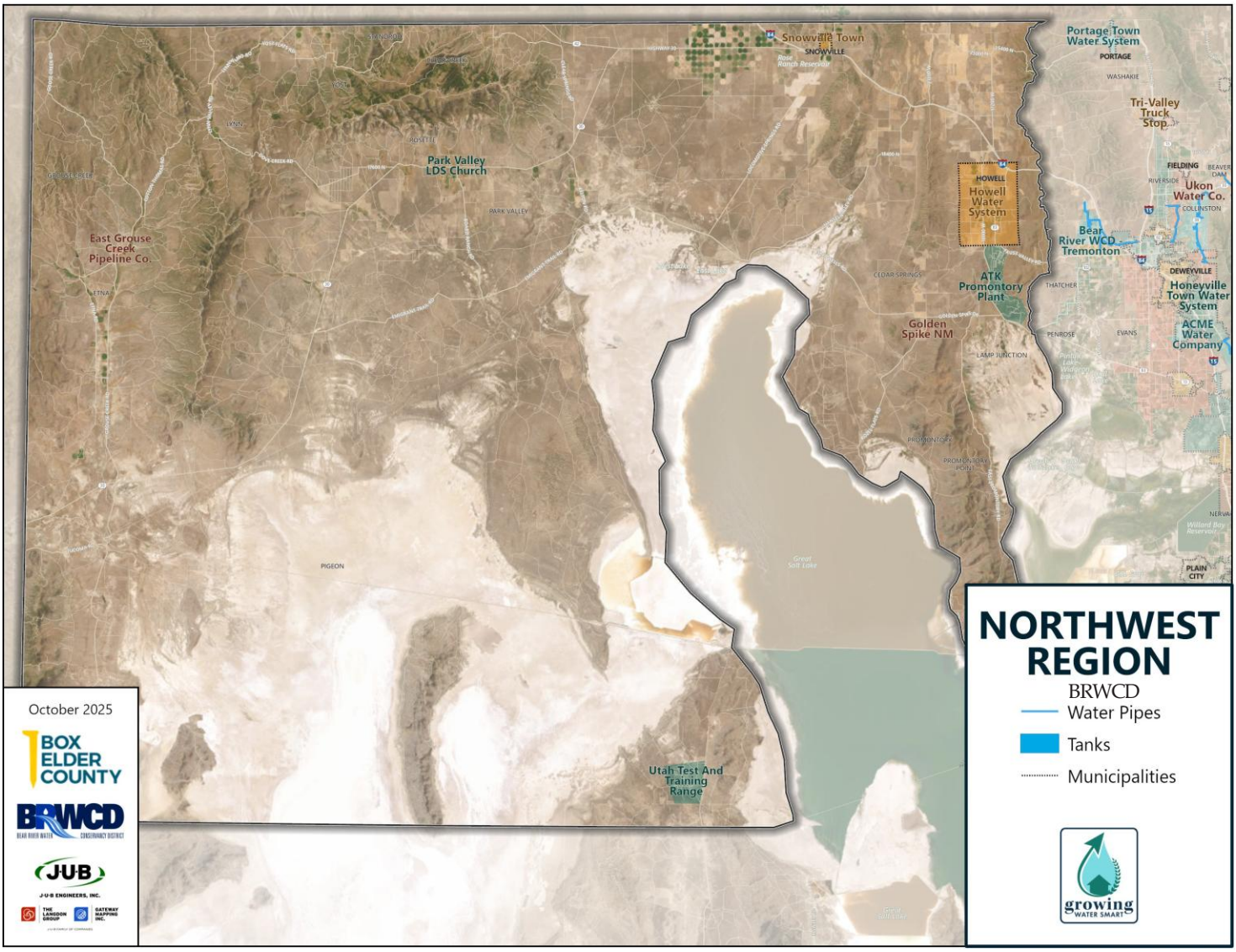
The Northwest Region covers the expansive and remote northwest corner of Box Elder County, including the communities of Snowville, Howell, Park Valley, Grouse Creek, and surrounding unincorporated areas. This region is characterized by its vast geography, low population density, and strong agricultural identity. While growth projections for the next decade remain minimal, but the region plays a vital role in the county's agricultural economy and water resource landscape.

Culinary water services are provided by small municipal and private systems such as Snowville City Water System, Howell Town Water Department, East Grouse Creek Pipeline Company, and Northrop Grumman. These systems often face challenges related to aging infrastructure, limited resources, and the need for improved metering and monitoring.

Irrigation water is delivered by a variety of entities, including Blue Creek Irrigation, North Side Raft River Irrigation Companies, and several ranching operations, all of which are critical to sustaining agricultural productivity in the region.

Planning efforts in the Northwest Region emphasize local autonomy, agricultural preservation, and proactive water management. Given the region's limited growth and infrastructure, support from BRWCD in the form of technical assistance, grant coordination, and water rights tracking will be essential. Figure 8.6-A: Northwest Region Map provides an overview of the region.

Figure 8.6-A: Northwest Region Map



Water Systems

Water systems in the Northwest Region primarily serve small, rural communities and agricultural operations across a large and remote landscape. Culinary water is provided by a mix of municipal and private systems, including the East Grouse Creek Pipeline Company, Howell Town Water Department, Northrop Grumman, and the Snowville City Water System. These systems vary in size and capacity, with some serving residential populations and others supporting industrial or specialized uses.

Irrigation water in the region is delivered through a diverse set of providers, including Blue Creek Irrigation, Taylor Farms, The Rose of Snowville, North Side Raft River Irrigation Companies, Spencer Land and Livestock, Poulson Farms, 6d Land and Livestock, Grouse Creek Irrigation, and West Grouse Irrigation. These systems are essential for sustaining the region's agricultural productivity, supporting crops and livestock across the County's most remote and least populated areas.

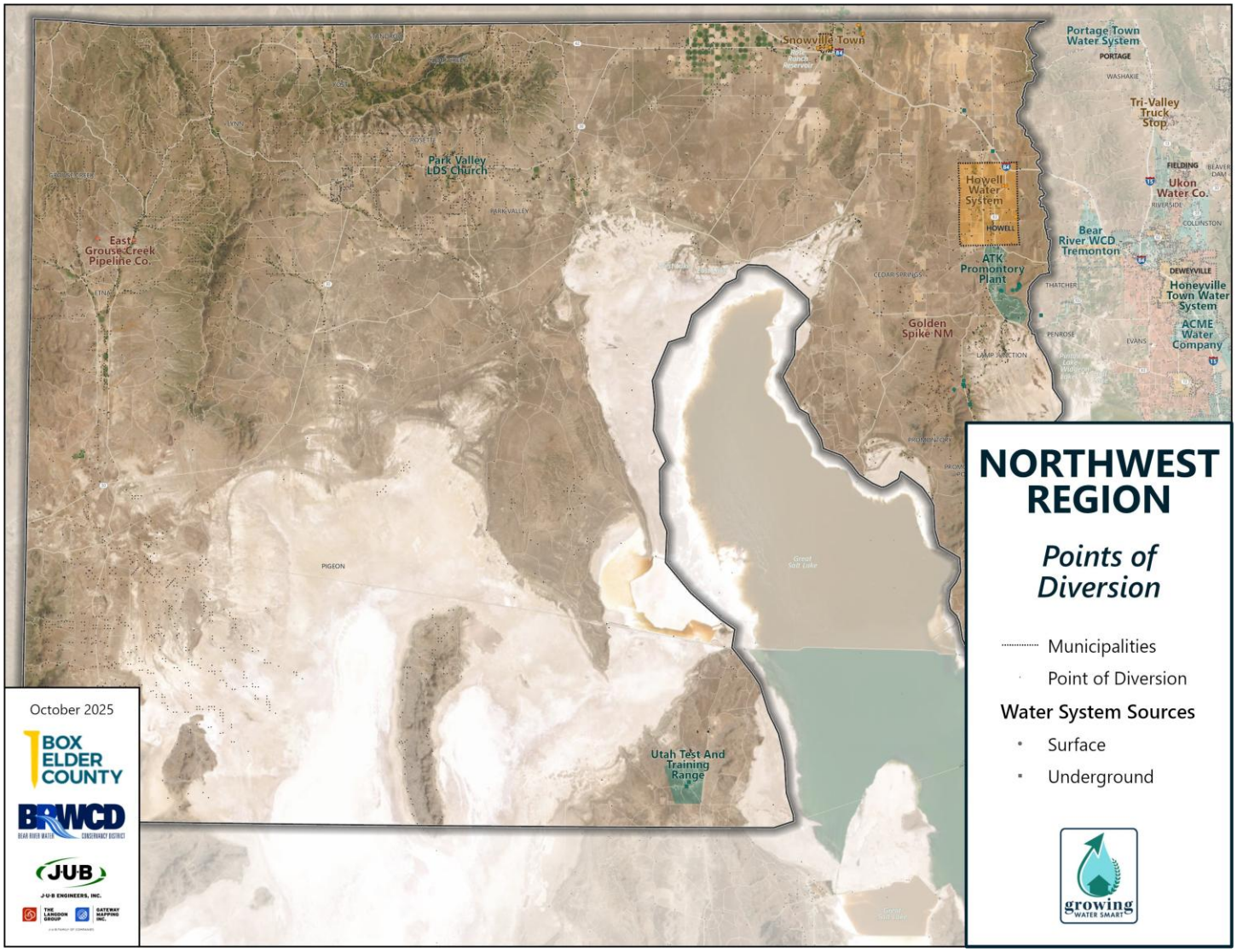
Northwest Region

Irrigation Water	Culinary Water
Blue Creek Irrigation	East Grouse Pipeline Company
Taylor Farms	Howell Town Water Department
The Rose of Snowville	Northrop Grumman
North Side Raft River Irrigation Companies	Snowville City Water System
Spencer Land and Livestock	
Poulson Farms	
6d Land and Livestock	

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the County. These points of diversion are included in a database maintained by the DWRi . The diversion points are categorized as surface, underground, re-diversion, or as springs. *Figure 8.6-B: Diversion Points* Map shows the rough location of the diversions in this region.

Figure 8.6-B: Diversion Points Map



Planning Process

The public outreach process for this Plan was designed to ensure that voices across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Northwest Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with a diverse range of stakeholders including municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Northwest Region specifically, seven representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

The map in Figure 8.6-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located.

The timeline in Figure 8.6-D: Public Process Phases illustrates the public process followed.

Figure 8.6-C: Stakeholder Interviews Map

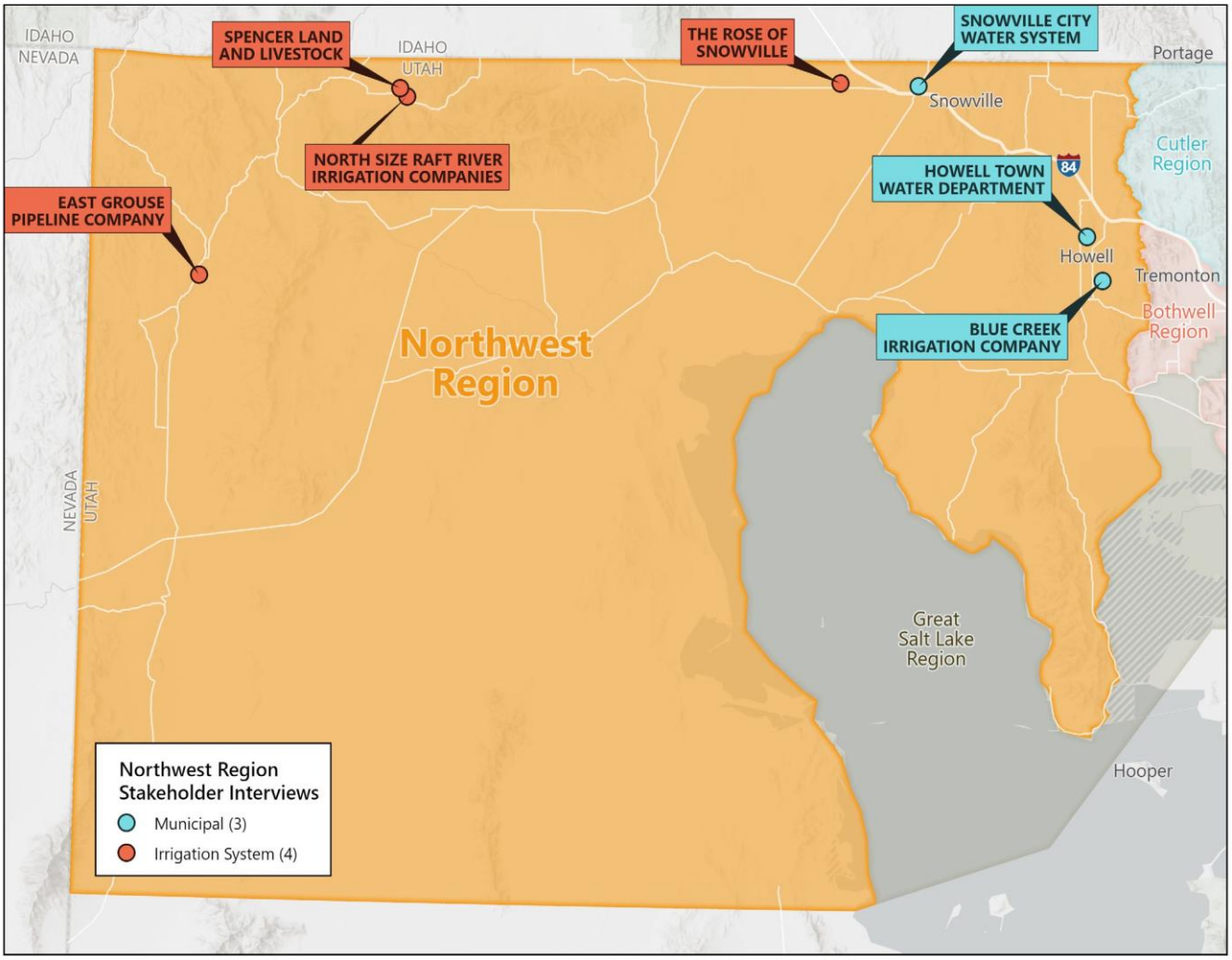
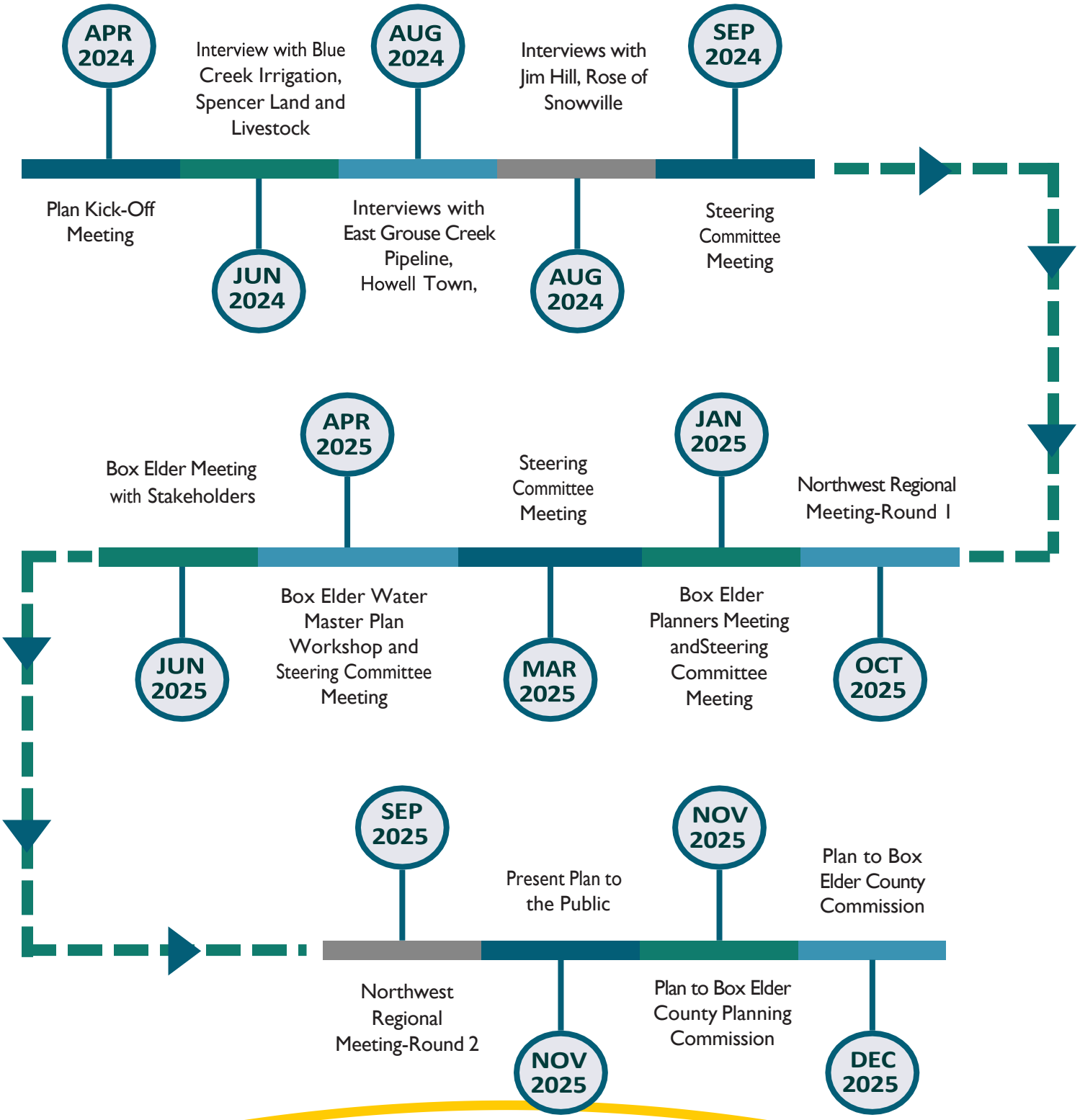


Figure 8.6-D: Public Process Phases



Projected Growth

The growth in this region is projected to be much lower than in other areas of the county. Community planners and other representatives from the cities, the water district, and the steering committee met on January 9, 2025, for a workshop, as documented in Chapter 2: Public Process of the master plan report. In the meeting, the attendees worked together to identify areas in the county they felt were most likely to develop in the future.

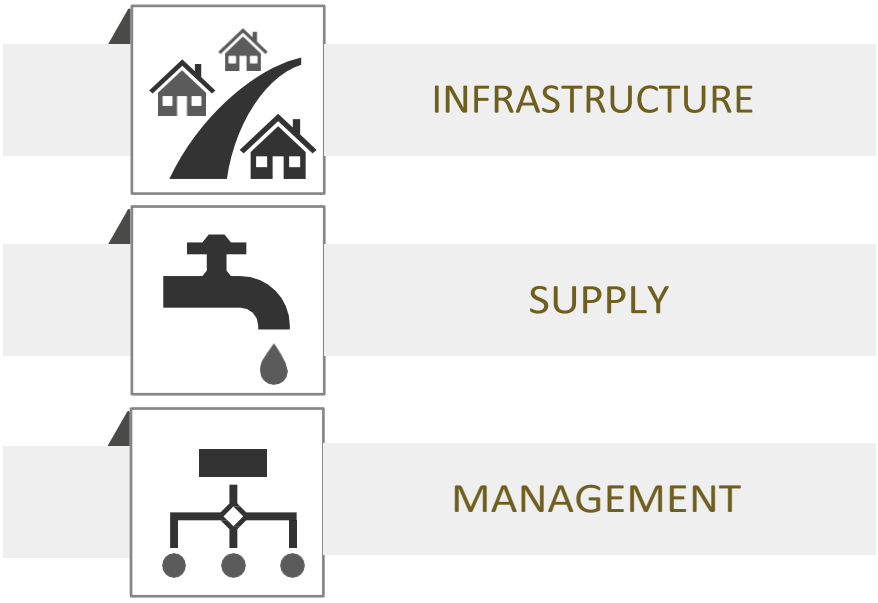
Based on the General Plan Vision 2050 growth scenario in the county general plan, most growth is anticipated to occur in the county's more populated areas. This would protect agricultural areas while locating growth near existing infrastructure. The community planners outlined multiple areas for development that may occur in the next ten years and beyond. The planners estimated that growth in this region will be much lower than in areas projected to grow faster in the Willard, Brigham, and Bothwell regions.

It has been assumed that the overall growth in this region will be approximately one percent per year. With that said, there will be localized areas that see more growth within the region. There could also be some commercial and industrial growth in the region. This non-residential growth is harder to predict but should be considered alongside residential growth as communities plan for future water resources.

Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

Summary of Concerns and Challenges

There are many challenges and concerns related to water, but many of them fit within three major categories:



Specific Existing Challenges

Specific existing regional concerns and challenges include:

EXISTING

Infrastructure

- Compliance with new state regulations

Supply

- Water quality
- Not enough source-have had to ration

Management

- Keeping water rights updated and legally in the proper name
- Putting water to beneficial use to preserve water rights

Potential Future Strategies

Preservation of agricultural lands is very important in this region including the monitoring of new water legislation. Staying aware of new regulations, how water is managed, and anything related to how the Great Salt Lake will be managed. Education about water conservation is needed and valuable. Of utmost importance in this region is the monitoring and protection of water rights in the region. Monitoring any changes related to water rights and new appropriations is valuable to protect the water.

FUTURE

Infrastructure

- Increase storage, new meters, backflow prevention, routine maintenance, conservation projects

Supply

- Some communities are considering new sources; or focusing on conservation and maximizing current supply
- Address water quality

Management

- Conveyance of water rights
- Put water to beneficial use
- Increase water data

Identified Best Management Practices (BMPs)

The following BMPs summarize those that were identified by stakeholders in this region through the stakeholder process. Many of the BMPs listed are regional in nature, while some also apply to the county as a whole.

- Understand water capacities for future generations
- Improve understanding of existing water supplies
- improve irrigation efficiency
- Track water right activity in the region
- Educate water users on water conservation and management practices
- Establish water supply thresholds for new growth areas

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

UPGRADING AGING INFRASTRUCTURE

IMPROVING WATER QUALITY

SECURING NEW WATER SOURCES

PROTECTING WATER RIGHTS

INCREASING SYSTEM REDUNDANCIES

Local Action Recommendations

During the stakeholder interview process, water system managers were asked about potential actions that could be pursued in their local areas. The list of local actions below is not completely comprehensive, as many of the individual water systems may have master plans that include other projects. The list includes actions that were specifically mentioned in the stakeholder interviews and that could be completed by local water systems.

These actions can be completed as part of local water planning efforts that are ongoing and as funding becomes available. BRWCD may assist with local actions as they find they are able to and dependent on a set of district project funding criteria that should be developed. The district may also be able to help identify potential funding sources to help local entities complete actions. BRWCD is aware of and respects the desire for individual systems to maintain autonomy and the ability to manage their own systems but is very willing to assist where it can. See Figure 8.6-E: Identified Local Actions.

See Figure 8.6-E: Identified Local Actions

Northwest Region: Identified Local Actions

Entity	Action
Taylor Farms/Rock Canyon/ UGC Land	Improve methods of landowner notification changes to water regulations/applications
Grouse Creek Irrigation Waterline	Replace all meters and stands with backflow preventers and install air relief valves
Grouse Creek Irrigation Waterline	Drill a new well
Grouse Creek Irrrigation Waterline	Acquire additional rights for existing wells
Howell Town	Obtain funding to do water conservation projects
Howell Town	Build a reservoir/pipeline
Snowville	Secondary irrigation system for Snowville-use low quality well for secondary
The Rose of Snowville	Drill another well on the Anderson property
Yost	Construct a small reservoir on the Raft River

Regional Action Framework

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in more detail. The regional actions that are recommended for this region as a result of the evaluation are presented using the IRAR framework shared in Figure 8.6-F: IRAR Framework Table and will require coordination between BRWCD and local water entities.

Figure 8.6-F: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.6-G: Recommended Region-Specific Actions Map and listed in Figure 8.6-H: Recommended Region-Specific Actions Table. Additional county-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region.

The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available.

Figure 8.6-G: Recommended Region Specific Actions Map

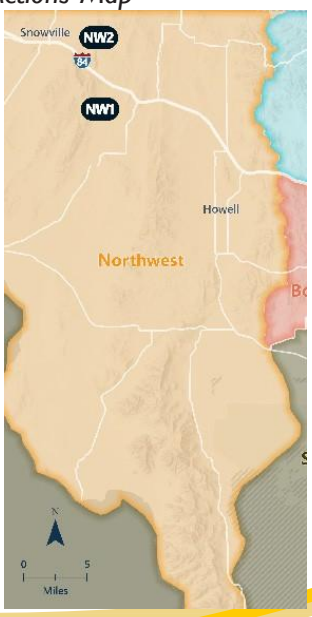


Figure 8.6-H Recommended Region Specific Actions Table

Northwest Region: Recommended Region-Specific Actions

Action:	Water Rights Management & Tracking (NW1)
Entity:	**BRWCD**
Issue	Small, rural systems in the Northwest Region often lack the staffing, and financial resources to effectively track water rights, seek grants, comply with regulatory requirements, and manage water system operations.
Rule	Utah law requires water rights to be put to beneficial use or placed in an approved non-use status to remain valid.
Analysis	Stakeholder interviews and regional meetings revealed strong interest in assistance for water rights tracking and transfers. The region has limited growth projections, but agricultural preservation and water rights protection are high priorities. Monitoring and managing water rights can help ensure long-term sustainability and compliance. Coordination with the Utah Northern Region Water Rights Engineer was identified as a valuable resource, especially for communities like Snowville. This action would serve a large number of residents and recreators, improve water data collection, improve irrigation efficiency, and is relatively inexpensive to implement.
Recommendation	Continue and expand BRWCD technical assistance to support water rights tracking, grant writing, and operator certification for small systems in the Northwest Region. Host an annual water rights clinic in Snowville with the Utah Northern Region Water Rights Engineer to assist with water rights transfers, questions, and education. Promote regional coordination and data sharing to improve understanding of water rights status and protect existing rights. (ongoing)
Action	**Inter-State Groundwater Coordination (NW2)**
Entity	**BRWCD**
Issue	Local stakeholders expressed concern about limited monitoring of groundwater wells just across the border in Idaho, which may impact shared aquifer levels and regional groundwater sustainability. .
Rule	Cross-border groundwater management is not formally regulated but is increasingly recognized as a best practice in regional water planning.
Analysis	Concerns were raised about Idaho wells near the border not being monitored as actively, which could affect groundwater levels and water availability in Utah. Collaboration with Idaho water users was started many years ago but has not been happening since. This action helps improve water data collection and analysis, does not have large negative impacts on agricultural lands, would involve many water entities, would be relatively low in cost to implement, and would improve water management through education.
Recommendation	Initiate outreach to Idaho water users and relevant agencies to explore collaborative groundwater monitoring and data sharing across the border. Consider forming a joint working group or informal partnership to better understand aquifer conditions and promote sustainable groundwater management in the shared region. (ongoing)

Regional Plan Implementation

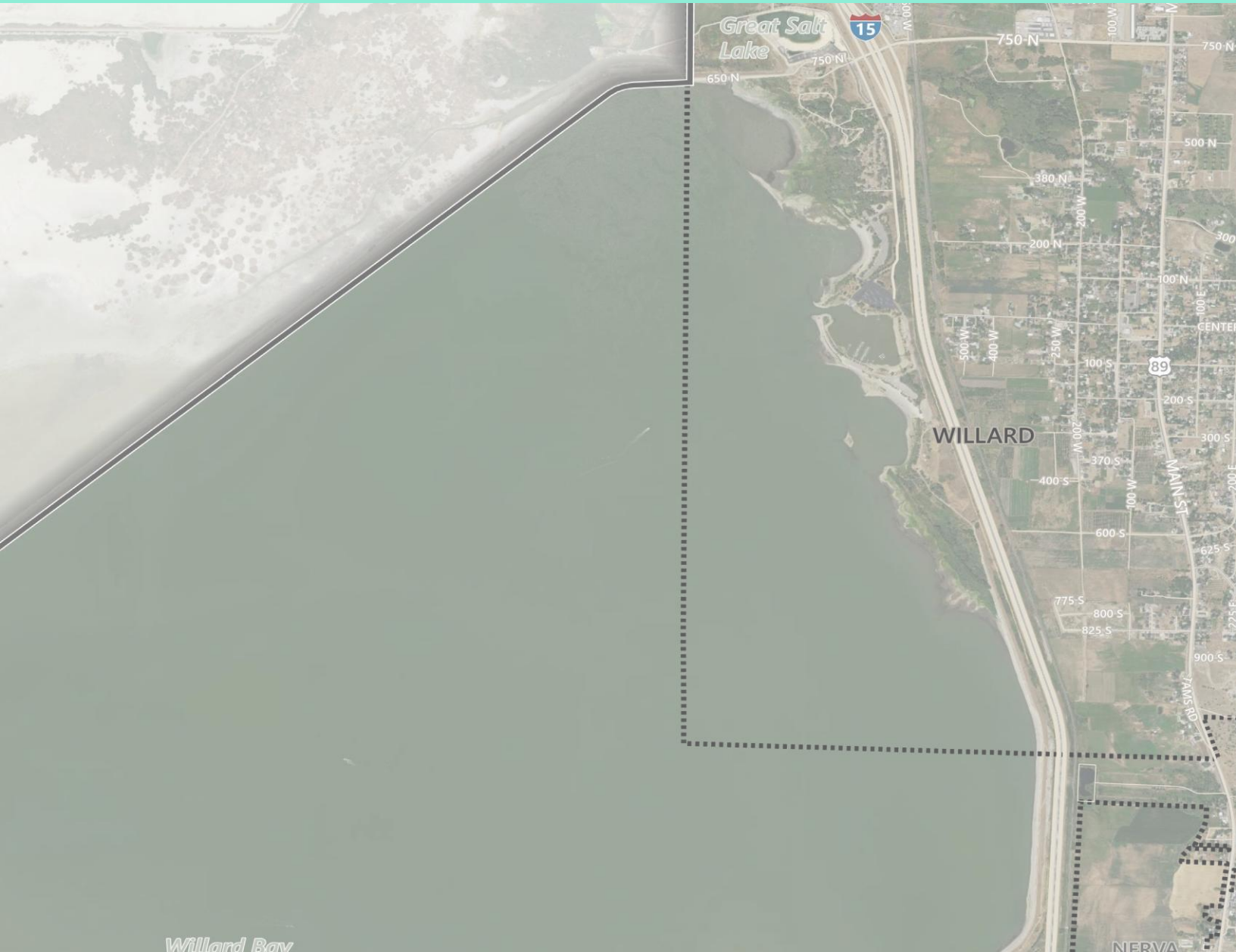
Preservation of agricultural lands and water rights is critical in this region. Local systems should consider shared operator support and cross-training to improve resilience. Monitoring groundwater levels and coordinating with Idaho water users will help protect aquifer sustainability. Growth must be managed carefully to avoid exceeding available water supplies, and zoning updates for unincorporated areas will help guide development. Education on water conservation and irrigation efficiency should be prioritized to maintain long-term resource security.

The regional recommendations for this area emphasize technical assistance and water rights management. Many small systems lack the staffing and expertise to track water rights, apply for grants, and comply with regulatory requirements. BRWCD can play a key role in providing technical support, grant-writing assistance, and operator resources. Additionally, concerns about groundwater sustainability near the Idaho border highlight the need for improved monitoring and cross-border coordination.

Implementation of the regional actions will occur beginning as early as 2026 and be ongoing. Success will depend on collaboration among BRWCD, local water systems, and agricultural stakeholders. Project prioritization will be guided by infrastructure readiness, water rights protection, and stakeholder input.

8.7 Willard Region

Regional Plan




EAK RD
300 E
HAUL RD
300 E
6850 S
7150 S

Overview

The Willard Region is located in the southeastern corner of Box Elder County and includes the incorporated cities of Perry and Willard, as well as the unincorporated area of South Willard. It is bounded by the Wasatch Mountains on the east and Willard Bay to the west. This region is traversed by two major transportation corridors: Interstate 15 and Highway 89. It is one of the fastest-growing areas in the county, with significant residential development anticipated over the next decade.

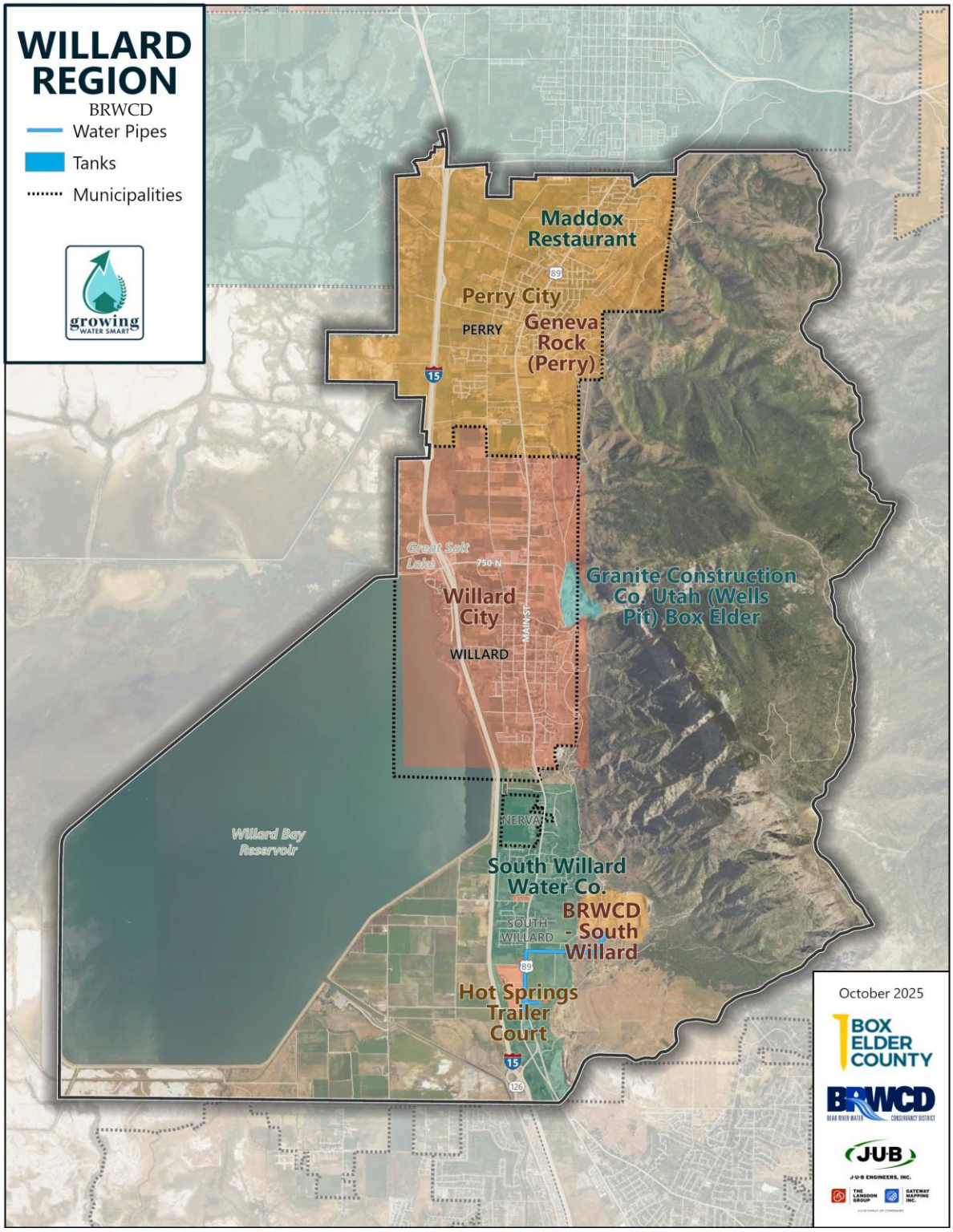
Culinary water services are provided by Perry City, Willard City, South Willard Water Company and the BRWCD operated South Willard system. Additional service is provided to mobile home communities such as Coleman, Fox Hill, and Hot Springs. These systems face challenges related to aging infrastructure and limited storage capacity

Irrigation water is delivered by Pineview Water Systems, Willard Irrigation, and 3 Mile Creek Irrigation, which are essential for both agricultural and secondary water uses.

Stakeholder interviews and regional meetings identified several key concerns, including the need for responsible water use, improved water measurement and monitoring, and better coordination between cities and BRWCD.

Figure 8.7-A: Willard Region Map provides an overview of the region along with existing BRWCD culinary water infrastructure. Each of the cities and private water systems own and operate their own systems and infrastructure which are not shown in the map

Figure 8.7-A: Willard Region Map



Water Systems

The Willard Region is served by a combination of municipal, private, and mobile home community culinary water systems. These include the BRWCD-operated South Willard System, Perry City Water System, South Willard Water Company, and Willard City Water System, which provide drinking water to the region's growing residential areas. Smaller systems such as Coleman Mobile Home Court, Fox Hill Mobile Home Community, and Hot Springs Trailer Court serve localized populations.

Irrigation water in the region is primarily delivered by Pineview Water Systems, Willard Irrigation, and 3 Mile Creek Irrigation. These systems are essential for supporting agricultural operations and secondary water use, particularly for outdoor irrigation in developed areas. Their continued operation is critical to preserving the region's agricultural heritage and managing water resources efficiently as development expands.

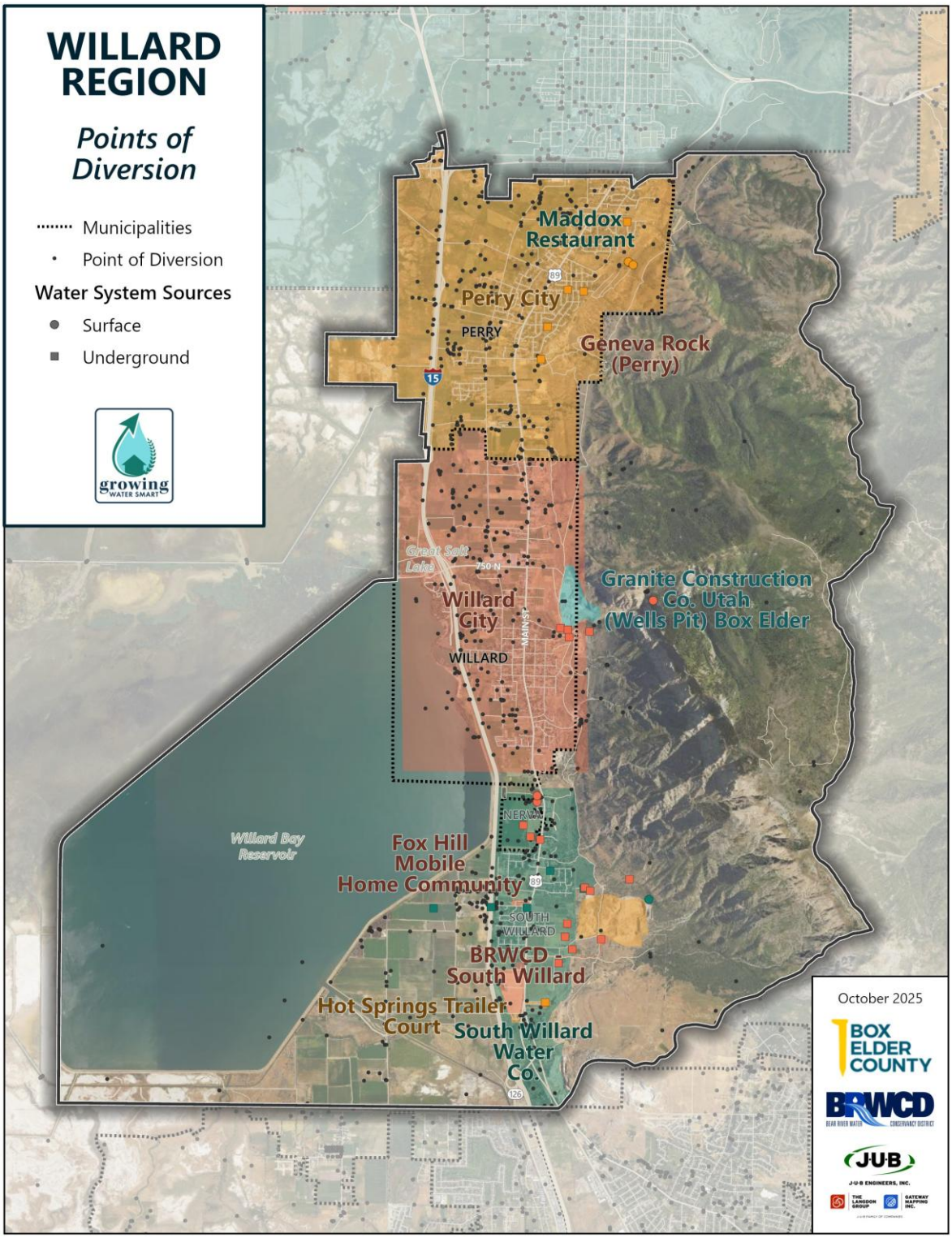
Willard Region

Irrigation Water	Culinary Water
Pineview Water Systems	BRWCD South Willard System
Willard Irrigation	Coleman Mobile Home Court
3 Mile Creek Irrigation	Fox Hill Mobile Home Community
	Hot Springs Trailer Court
	Perry City Water System
	South Willard Water Company
	Willard City Water System

Water Points of Diversion

There are many documented points of diversion (PODs) throughout the county. These points of diversion are included in a database maintained by the DWRi . The diversion points are categorized as surface, underground, re-diversion, or as springs. Figure 8.7-B: Diversion Points Map shows the rough location of the diversions in this region.

Figure 8.7-B: Diversion Points Map



Planning Process

The public outreach process for this plan was designed to ensure that the voices of stakeholders across the county were heard and integrated into the planning framework. It began with the formation of a Steering Committee composed of representatives from each of the seven planning regions, including the Willard Region. This committee played a critical role in guiding the process, reviewing progress, and ensuring alignment with local needs and values.

The outreach process included over 50 individual interviews with a diverse range of stakeholders such as municipalities, irrigation companies, private water systems, agricultural operators, and environmental groups. In the Willard Region specifically, eight representatives were interviewed, and two regional meetings were held to identify challenges, gather input, and refine strategies.

The map in Figure 8.7-C: Stakeholder Interviews Map shows where the interviewed stakeholders were located

The timeline in Figure 8.7-D: Public Process Phases illustrates this public process that was followed.

Figure 8.7-C: Stakeholder Interviews Map

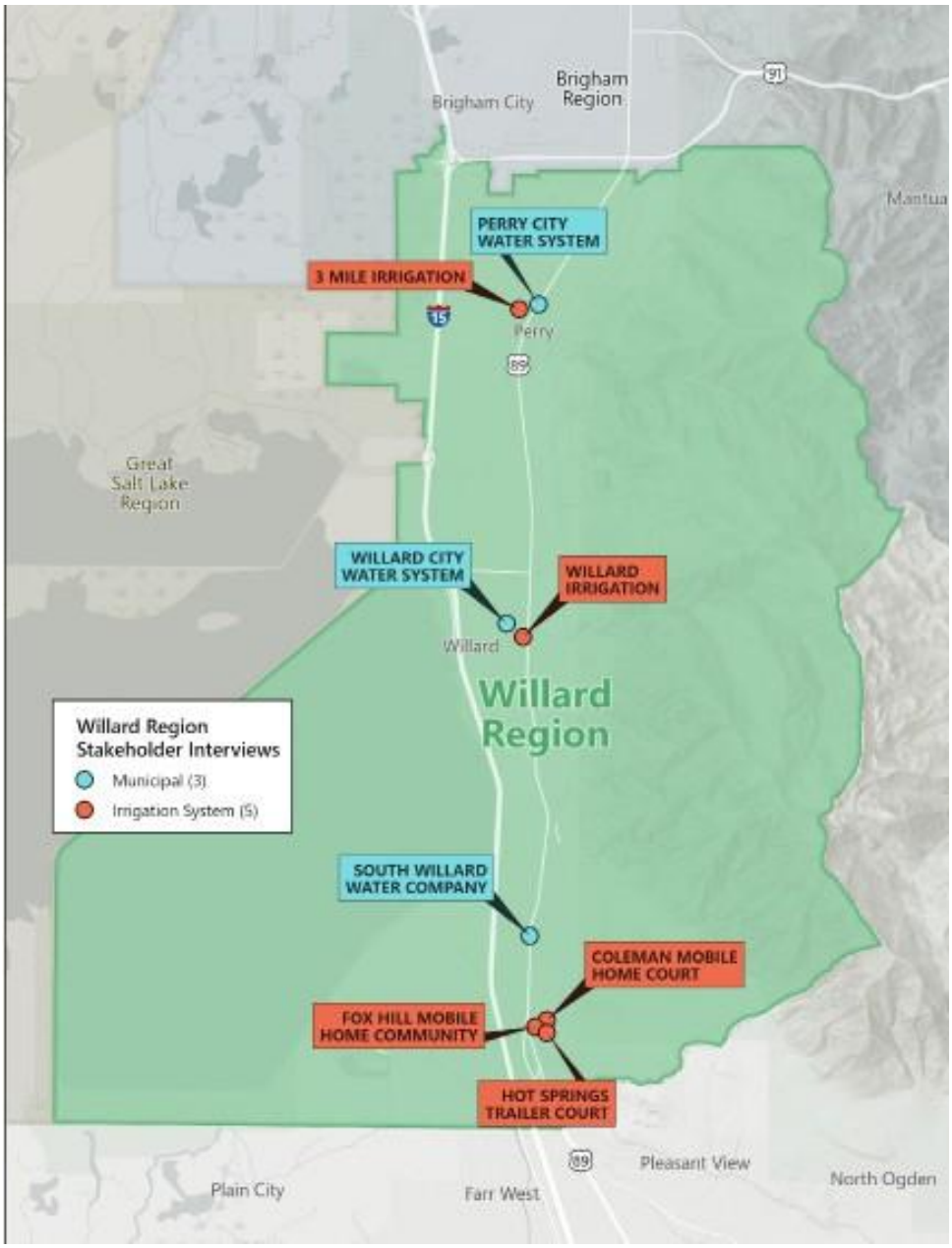
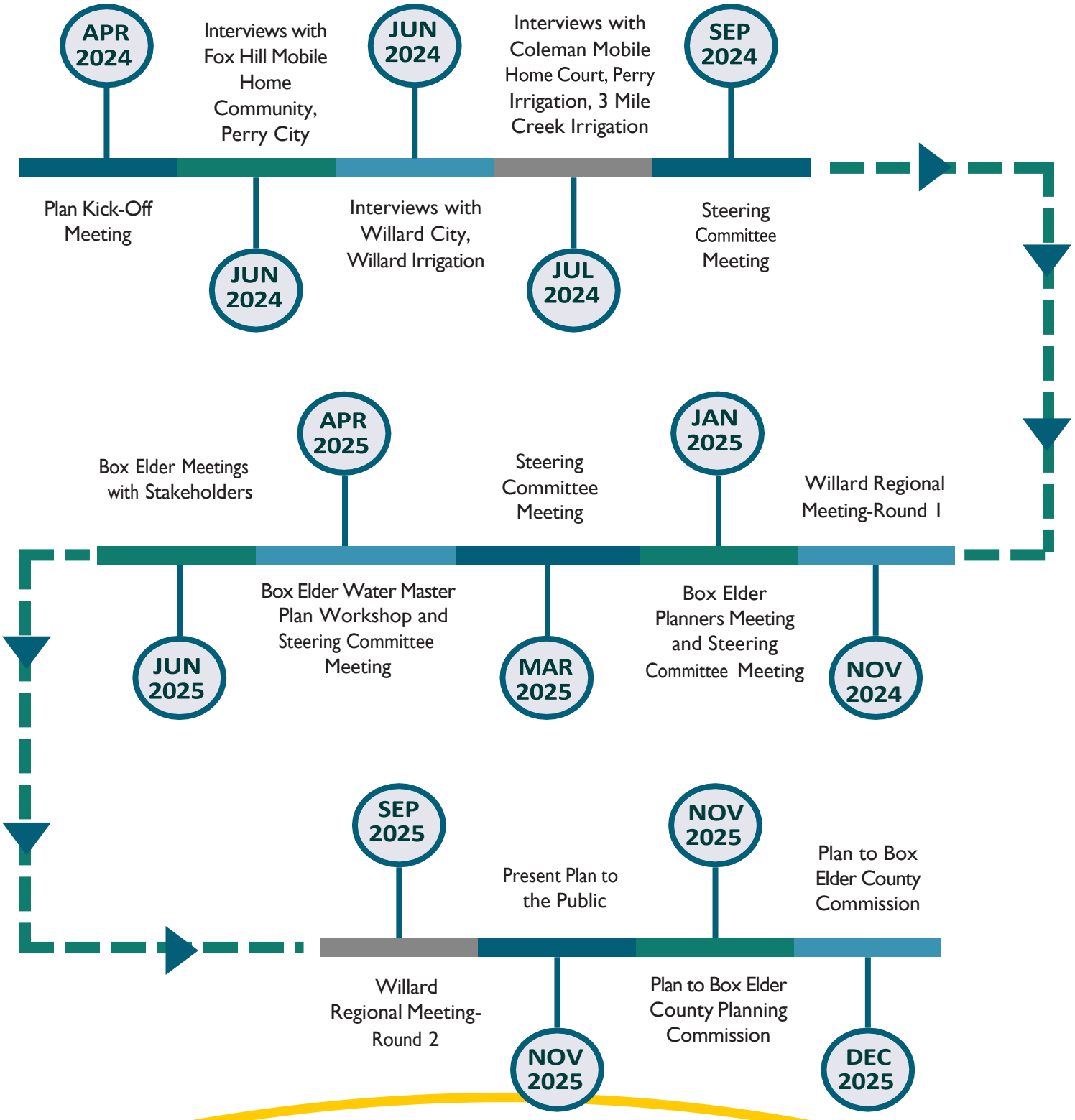


Figure 8.7-D: Public Process Phases



Projected Growth

The growth in this region is projected to be greater than many other areas of the county. There is an increasing number of proposed developments in the region. Community planners and other representatives from the cities, the water district, and the steering committee met on January 9, 2025 for a workshop meeting as documented in Chapter 2: Public Process of the master plan report. In the meeting the attendees worked together to identify areas in the county they felt are most likely to develop in the future.

Based on the General Plan Vision 2050 growth scenario from the county general plan, most of the growth is anticipated to be within the more populated areas of the county. This would protect agricultural areas while locating growth near existing infrastructure.

The community planners outlined multiple areas for developments that may occur in the next ten years and then beyond ten years. The areas that were noted to be likely to develop by the year 2035 in this region are shown in red in Figure 8.7-E: Future Growth Map. The areas shown are conceptual and do not represent solidified boundaries for growth. There may be conservation easements in some of the noted locations that prevent growth through parts of these areas that are shown. Most of the projected growth prior to 2035 is anticipated to occur between I-15 and Highway 89 with some potential growth east of Highway 89.

Other areas noted that could possibly develop beyond year 2035 are also shown on the map in blue. A key note from the community planners was, it is much more difficult to anticipate accurately where the growth may occur beyond year 2035.

Figure 8.7-E: Future Growth Map

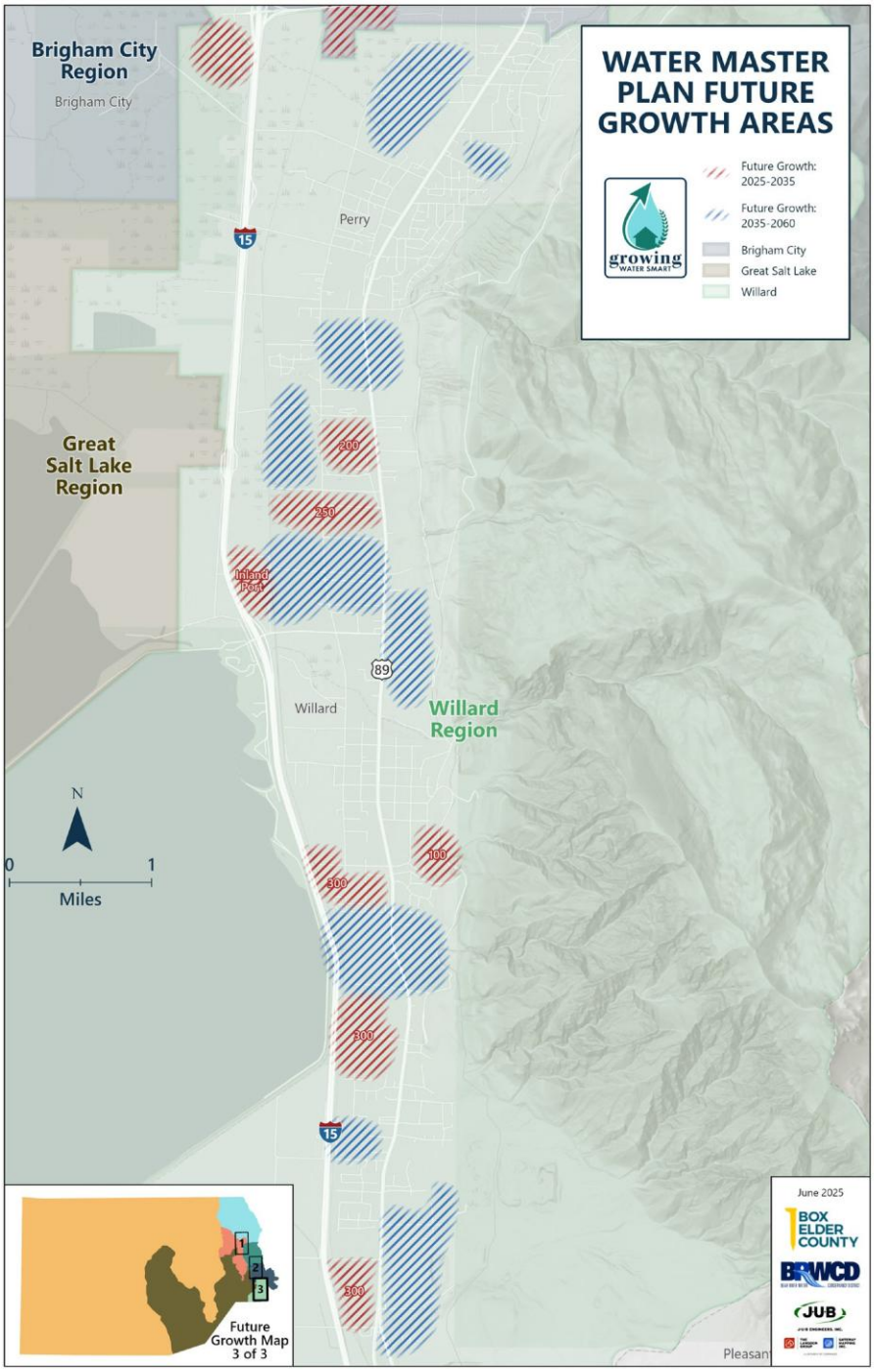


Figure 8.7-F: Projected Units Table lists the estimated units to be added by 2035 within the region and the estimated water needed to serve the projected units. Other cities in the region that are not listed will also grow, but it has been assumed for this report that the growth in those cities will be at a much smaller rate (See Chapter 6: Future Water Supply & Demand Forecasting).

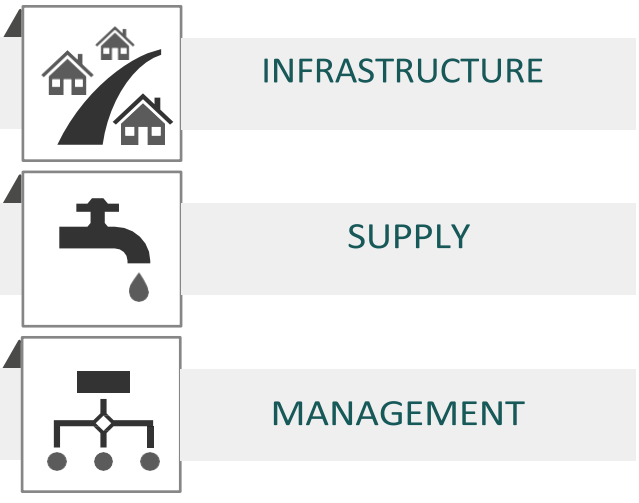
Although non-residential water demands can vary, the Master Plan uses a general projection of 800–1,000 gallons per acre per day for non-residential flows, based on averages in other communities. This projection is essential for accurately forecasting demand and ensuring adequate water and infrastructure are planned to support these non-residential users as the County expands.

Figure 8.7-F: Projected Units Table

Public Water Supplier (PWS)	2035 Units	Residential Use (gpcd) (DWRe)	Total use (AF) (DWRe)	Increased Residential Use (AF)	% Increase of Total Use
South Willard	600	55	108	107	99
Willard	650	197	958	416	43
Perry	600	53	1,963	103	5
TOTAL	1,850			626	

Summary of Concerns or Challenges

There are many challenges and concerns related to water, but many of them fit within three major categories: Infrastructure Needs, Supply Issues, and Water Management Challenges.



Specific Existing Challenges

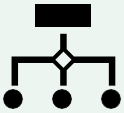
EXISTING

Infrastructure

- Aging infrastructure that could lead to potential contamination issues.
- The water system's aging pipes require frequent replacements.
- There is no adequate infrastructure to meet the demands of future developments.

Supply

- Perry City has faced challenges with high Total Dissolved Solids (TDS) in Well Number Three, which has led to its limited use. Well Number One also has poor recharge, making it unreliable.
- Transitions from well water to Bear River due to compliance and water quality issues.
- Chlorination issues and the need for additional water sources to meet future demand.



Management

- Mobile homes have gone without water when power is out.
- Dealing with political challenges related to funding and development, as some council members are not keen on seeing more development.
- Handling the expense of maintaining a water system.
- Ensuring that existing residents are not put on water rations due to new developments.

Potential Future Strategies

Future growth in this region will require actions that improve water conservation, replace aging infrastructure, provide new water sources, and improve how water is managed. Other efforts could focus on replacing old water system components, and looking for opportunities to expand existing secondary water that is delivered through the Pineview Systems or other sources to reduce the use of culinary water for irrigation.

FUTURE

Infrastructure

- Water infrastructure and transmission lines to meet future growth
- Upsize and upgrade aging infrastructure to meet future demand and prevent service disruptions

Supply

- Secure new water sources and enhance the capacity of existing sources to prepare for anticipated increase in water demand

Management

- Develop new water management strategies
- Improve water quality, water rights, and water management
- Increase redundancy and emergency supply

Identified Potential Best Management Practices

- Ensure responsible water use
- Educate the public about water conservation
- Implement infrastructure improvements and xeriscaping standards to reduce water loss
- Improve water measurement and monitoring through SCADA systems
- Ensure compliance with regulations
- Promote landscaping and irrigation smart controller incentives
- Improve interconnectivity between systems
- Standardize secondary water system requirements
- Improve city and water district coordination

Evaluation of Actions

Chapter 7: Evaluation of Potential Actions of the County Water Master Plan outlines the methodology used to assess and prioritize water-related actions across Box Elder County. The evaluation is grounded in a multi-objective planning framework that incorporates stakeholder input, technical analysis, and regional priorities. The evaluation categorizes potential actions into three levels:

Local Actions - Actions that could or should be completed by individual entities are classified as local actions. These actions were not evaluated in depth as part of this plan but are listed in this regional plan.

Regional Actions - Involve or benefit multiple water entities and were evaluated to see which actions will do a better job meeting the desired objectives (BMPs). The recommended regional actions that are pertinent to this region are listed in this regional plan as well as Chapter 9: Recommendations of this report.

County-wide Actions - Actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire county. These actions are not listed in this regional plan but are documented in Chapter 9: Recommendations.

To assess the regional actions, the planning team identified a set of objectives based on the stakeholder interviews and technical needs. These objectives are grouped into three major categories:

1. Infrastructure
2. Supply
3. Management

Each evaluation category includes specific goals such as:

- UPGRADING AGING INFRASTRUCTURE
- SECURING NEW WATER SOURCES
- INCREASING SYSTEM REDUNDANCIES
- IMPROVING WATER QUALITY
- PROTECTING WATER RIGHTS

These objectives were then paired with metrics to measure how well each proposed action meets the desired outcomes. Each action was evaluated across the full set of metrics, and results were visualized using a color-coded matrix. The full matrix is included in Appendix 7-A: Evaluation of Actions Matrix.

Local Action Recommendations

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in more detail. See Figure 8.7-G: Identified Local Actions.

These actions can be completed as part of local water planning efforts that are ongoing and as funding becomes available. BRWCD may assist with local actions as they find they are able to and dependent on a set of district project funding criteria that should be developed. The district may also be able to help identify potential funding sources to help local entities complete actions. BRWCD is aware of and respects the desire for individual systems to maintain autonomy and the ability to manage their own systems but is very willing to assist where it can.

Figure 8.7-G: Identified Local Actions

Willard Region: Identified Local Actions

Entity	Action
Perry City	Treat all water sources with chlorination
Perry City	Equip Well #5
Perry City	Build a 2-million gallon tank at south end of City
3 Mile Creek Irrigation	pipe an open cement ditch
Willard City/Willard Irrigation	Develop a secondary water system
Willard City	Add vents to existing pump houses

Regional Action Framework

During the interview process, water system managers were asked about potential water projects or actions that could be pursued in their respective regions. This stakeholder outreach led to a good list of many beneficial projects. With this outreach effort, many of the suggested actions were local in nature, meaning that they were projects that would benefit only a given water system but may not involve or improve multiple water systems. Since these projects were not regional in nature, meaning that they do not benefit multiple water systems or entities, they were not evaluated in more detail. The regional actions that are recommended for this region as a result of the evaluation are presented using the IRAR framework shared in Figure 8.7-H: IRAR Framework Table and will require coordination between BRWCD and local water entities

Figure 8.7-H: IRAR Framework Table

IRAR Framework	
Issue	Identifies the water-related problem, challenge, or need. These were derived from stakeholder interviews, regional meetings, and technical assessments
Rule	Refers to applicable laws, policies, best practices, planning mandates, or standards that may be relevant to the issue or recommendation
Analysis	Describes how the evaluated actions align with BMPs (objectives) identified through the stakeholder process and technical objectives
Recommendation	Proposes actionable strategies, identifies responsible parties, and outlines some next steps

Regional Recommendations

The recommended regional actions are shown in Figure 8.7-I: Recommended Region-Specific Actions Map and listed in Figure 8.7-J: Recommended Region-Specific Actions Table. Additional County-wide actions are listed in Chapter 9: Recommendations of this report, along with a repeated list of regional projects sorted by region. The regional action evaluation table for the entire county is included in Appendix 7: Evaluation of Actions Matrix and is based on conceptual data. Actions in the table are sorted by region. It is a living document that may be updated over time as more detailed information about projects or desired evaluation criteria is made available

Figure 8.7-I: Recommended Region Specific Actions Map

Figure 8.-J: Recommended Region Specific Actions Table

Willard Region: Recommended Region-Specific Actions

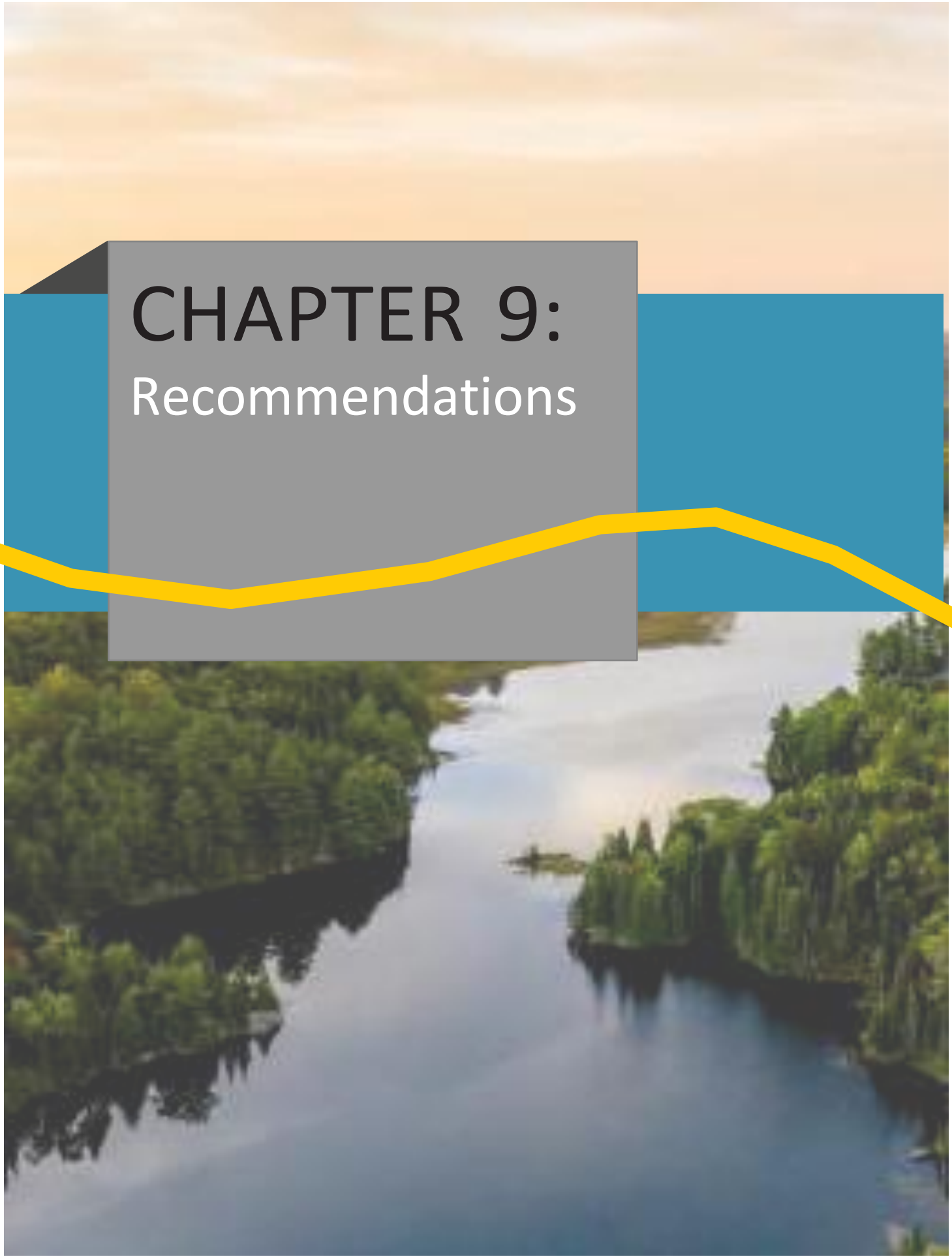
Action:	Equip South Willard Well (W1)
Entity:	**BRWCD**
Issue	Rapid growth in the South Willard area is placing increased demand on existing water infrastructure. To ensure reliable service and meet future needs, additional water sources and system redundancy are needed.
Rule	Utah drinking water standards require redundancy and emergency capacity for public water systems.
Analysis	The South Willard Well #2 project is construction-ready and was identified as a high priority during regional meetings. It supports culinary water supply adequacy, protects water rights by putting them to beneficial use, has adequate available water rights, and enhances system resilience. The area is projected to add hundreds of new housing units, making this infrastructure very important.
Recommendation	Equip the existing South Willard Well #2 with a pump house and connect it to the existing distribution system (2026).
Action	**Willard Region Interconnects (W2)**
Entity	**BRWCD/Willard/Perry**
Issue	Water systems in Willard, Perry, and South Willard operate independently, with limited interconnectivity and backup capacity. Without interconnections the systems are more vulnerable during system failures or emergencies than if interconnects were in place.
Rule	Regionalization principles support interconnectivity to improve system resilience.
Analysis	Interconnects would allow water sharing during outages, improve redundancy, and support regional collaboration. This action aligns with growth projections and infrastructure optimization goals and would not require much new infrastructure to make the connections.
Recommendation	Evaluate potential interconnections between Willard and South Willard, and between Willard and Perry. Seek joint grant funding (Ongoing)
Action	**Replace Small Water Systems (W3)**
Entity	**BRWCD/Coleman/Hoy Springs/Fox Hills**
Issue	Small public systems like Coleman and Hot Springs parks face challenges with aging infrastructure and inconsistent water quality.
Rule	State and federal funding programs promote consolidation or replacement of outdated systems to ensure compliance with drinking water standards and long-term sustainability.
Analysis	Interviews with park managers and water system data highlighted an urgent need for system upgrades. This project would benefit multiple systems, helps provide adequate culinary water supply and replaces aging infrastructure.
Recommendation	Pursue grant funding to replace water infrastructure at Coleman, Hot Springs, and Fox Hill parks. (1-5 years)

Regional Plan Implementation

Local entities in the Willard Region should prioritize planning for rapid growth. This area is one of the fastest-growing regions in Box Elder County and water systems must prepare for significant increases in demand. System managers should review water rates to ensure they support infrastructure upgrades and future capacity needs.

The regional recommendations for this area focus on adding new sources, improving system interconnectivity, and replacing small, outdated systems. Equipping the South Willard Well and creating interconnections between Willard, Perry, and South Willard will provide redundancy and emergency backup capacity. Additionally, replacing infrastructure in small systems such as Coleman, Hot Springs, and Fox Hill trailer parks will improve reliability and water quality. Coordination with Pineview Irrigation and other irrigation companies is very important to use the water resources in this region efficiently.

Implementation of the regional projects could occur in phases beginning as early as 2026. Success will depend on collaboration among BRWCD, municipalities, and private system operators. Shared grant applications for SCADA and telemetry upgrades could improve system monitoring and operational resilience. Project prioritization will be guided by growth pressures, infrastructure readiness, and stakeholder input.



CHAPTER 9:
Recommendations

9.1 Introduction

The recommended actions outlined in this chapter represent a synthesis of the technical findings, regional water needs, and robust stakeholder engagement that were part of this master planning process. Each was developed through a consistent framework that links locally identified challenges, best management practices (BMPs), and feasible implementation paths. This structure allows the plan to serve as both a regional planning document and an actionable roadmap for future decision-making.

9.1.1 Local Action Identification

Actions that were determined could or should be completed by individual entities were classified as local actions. These actions were not evaluated as part of this plan but are listed in each of the regional plans that are included in Chapter 8: Regional Plans. These actions can be completed as part of local water planning efforts that are ongoing and as funding becomes available.

BRWCD should assist with local projects as they find they are able to and dependent on a set of criteria that should be developed. BRWCD is aware and respects the desire for individual systems to maintain autonomy and the ability to manage their own systems but is very willing to assist where it can.

9.1.2 Regional Action Identification

Actions that involve or benefit multiple water entities were evaluated as explained in Chapter 7: Evaluation of Actions to see which actions will do a better job meeting the desired objectives (BMPs) within the county and regions. The regional actions that are within a given region are listed in each of the regional plans included in Chapter 8: Regional Plans using the Issue, Rule, Analysis, Recommendation (IRAR) format that is explained in Chapter 7: Evaluation of Actions. They are listed again here in Chapter 9: Recommendations.

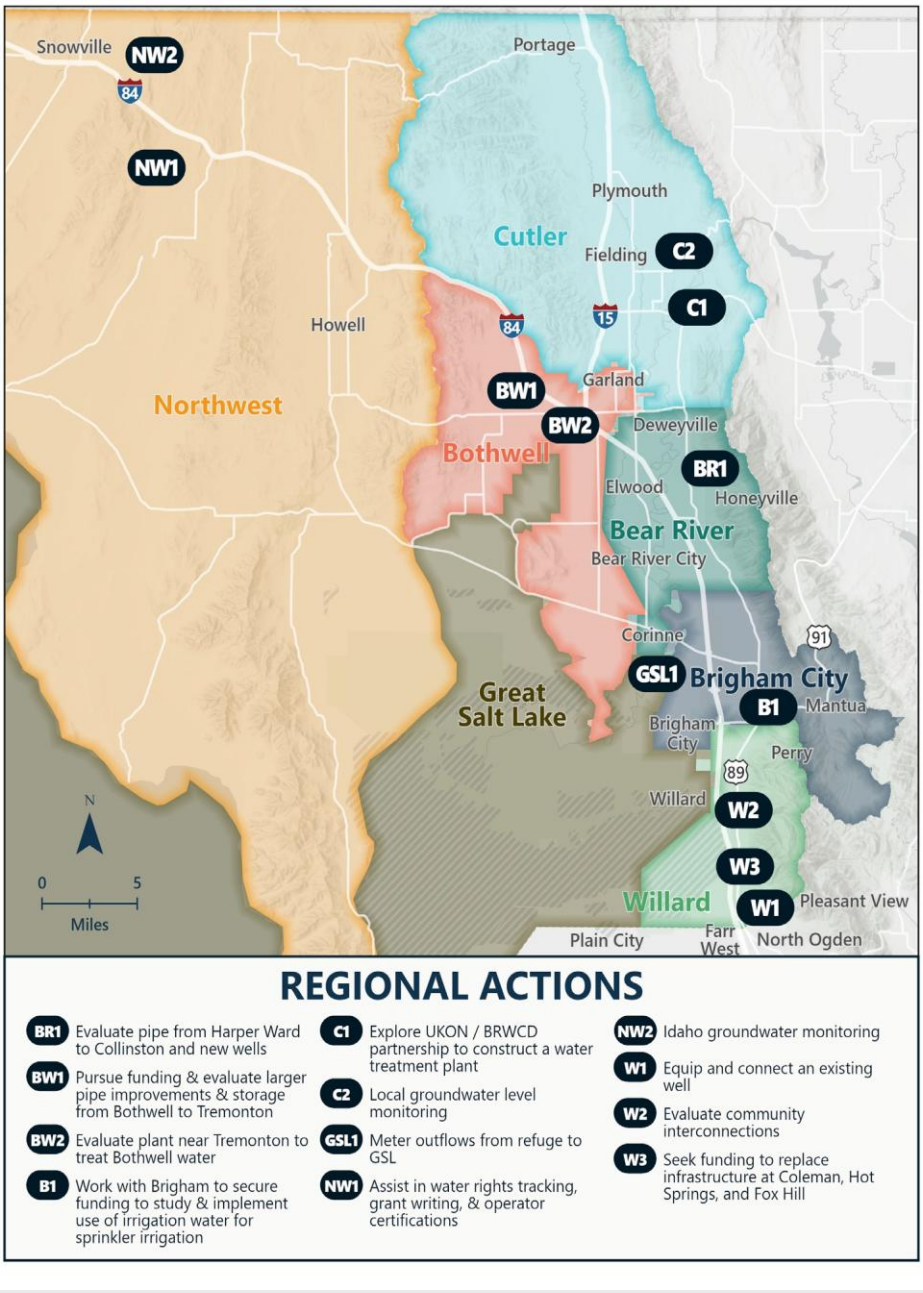
9.1.3 County-Wide Action Identification

County-wide actions are actions that were evaluated based on the desired BMPs and determined to be actions that would benefit large portions of, or the entire County. These actions were evaluated as explained in Chapter 7: Evaluation of Actions The county-wide actions are listed here in Chapter 9: Recommendations using the Issue, Rule, Analysis, Recommendation (IRAR) format that is explained in Chapter 7: Evaluation of Actions.

9.2 Regional Actions

The regional actions that are recommended through this master planning process are shown in *Figure 9-A: Recommended Regional Actions Map below.*

Figure 9-A: Recommended Regional Actions Map



Bear River Region: Recommended Region-Specific Projects

Action:	9.2.1 Bear River Regional Distribution and/or Well (BR1)
Entity:	BRWCD
Issue	Communities in the Bear River Region and up into the Cutler Region face limited supply and water source redundancy. During periods of drought some of the sources that are currently used to serve these areas become strained, necessitating an additional source to help in those times. An area of concern for water supply is around Collinston based on existing available water sources in this area.
Rule	Water systems must meet minimum state requirements related to water supplies and pressures.
Analysis	An area of concern for water supply is around Collinston based on existing available water sources in this area. Multiple well sites have been evaluated and others may be evaluated. Coordination between neighboring communities and BRWCD can lead to solutions. This project is regional and could benefit multiple entities, It helps provide adequate culinary supply, and some redundancies, and it helps protect available existing water rights in the area through putting them to beneficial use.
Recommendation	Evaluate a new pipeline from the new Harper Ward Well to Collinston and the potential for additional or consolidation of wells and sources (5–10 years).

Bothwell Region: Recommended Region-Specific Projects

Action:	9.2.2.1 Bothwell Water Infrastructure (BW1)
Entity:	**BRWCD/Tremonton City**
Issue	Substantial projected growth pressure in and around Tremonton is outpacing current culinary water storage and conveyance capacities.
Rule	Infrastructure planning needs call for regional efforts to meet future demands.
Analysis	Water sources that produce significant amounts of water exist in the Bothwell Pocket. Some of these sources will need to be improved and increased water line transmission capacity is needed to meet future demands. This system can benefit many water systems, will support a large number of people that will need water adjacent to existing infrastructure and existing developed areas. It helps provide needed culinary supply, and it protects water rights.
Recommendation	Pursue funding and evaluate improvements to add new, larger piping from Bothwell to Tremonton and add water storage to address growth in and around Tremonton (1–5 years).
Action	**9.2.2.2 Bothwell Culinary Treatment Plant Study (BW2)**
Entity	**BRWCD**
Issue	Some Bothwell sources are of lesser quality than many drinking water sources.
Rule	Water that meets drinking water standards and meets the expectations of those who use the water is needed.
Analysis	Stakeholders discussed potential Bothwell water treatment options and emphasized shared infrastructure ideas. This is a regional project as it may benefit many water systems, it will serve a large number of people, helps provide needed culinary supply, puts existing water rights to beneficial use, and improves water quality.
Recommendation	Study the possibility of building a regional treatment plant near Tremonton to treat water from sources in Bothwell (1–5 years).

Brigham Region: Recommended Region-Specific Projects

Action:	9.2.3 Secondary Water Funding (BR1)
Entity:	BRWCD/Brigham City
Issue	As Brigham City continues to develop, there are irrigation water shares that historically were being used for agricultural purposes that are now not being put to beneficial use. Brigham City is seeking effective methods to meet outdoor demands and put irrigation water shares to beneficial use. This could be accomplished through building a secondary system or possibly treating irrigation water to be used in the existing culinary water system.
Rule	Under Utah law, beneficial use is the foundation of all water rights, as established in Utah Code § 73-1-3, meaning water must be actively used for a legitimate purpose, such as irrigation, to maintain the overarching irrigation share rights.
Analysis	This action serves a large number of people in an already developed area. It would either reduce demand on the culinary water system or add additional supply to feed the existing culinary water system. It would improve the efficiency of the delivery of this irrigation water as it may benefit many water systems. It would protect irritation water rights by putting water shares to beneficial use, and it improves water quality. Brigham City is evaluating methods to most effectively put local irrigation water resources to use and seeking effective methods to provide water for outdoor watering needs. One method would be to build a stand-alone secondary water system. Another method may be to treat irrigation water for use in the existing culinary water distribution system. During this planning process, the City proposed cost-sharing or grant acquisition strategies to help fund water upgrades. This project would help provide adequate culinary supply by reducing culinary demands. With the northeast area of the city growing, it could be a possible priority location to evaluate for a secondary water system.
Recommendation	Work with Brigham City to secure funding to study and implement the use of irrigation water for sprinkler irrigation of yards. Plan to evaluate the treatment of irrigation water for use in the culinary system versus the construction and operation and maintenance of a new secondary water system and the feasibility of each alternative. (1-5 years).

Cutler Region: Recommended Region-Specific Projects

Action:	9.2.4 UKON Aresenic Treatment Plant (CR1)
Entity:	**BRWCD/UKON**
Issue	Arsenic levels in the UKON system pose health risks and limit long-term use of some sources.
Rule	Drinking water rules mandate treatment of arsenic above safe thresholds.
Analysis	Stakeholder discussions revealed shared interest between UKON and BRWCD to explore a regional solution. This action helps provide adequate water supply and improves water quality.
Recommendation	Explore partnership between UKON and BRWCD to construct a plant to remove arsenic (1–5 years).
Action	**9.2.5 Local Groundwater Level Monitoring (CR2)**
Entity	**BRWCD/Fielding**
Issue	Many residences in the Fielding area and other areas in the Cutler Region utilize individual wells for their water source. Some residents have reported reductions in water production from their wells as growth around them occurs and have concerns about not having enough water supply after other wells are drilled in the area.
Rule	Individual wells are regulated under a legal framework managed by the Utah Division of Water Rights. As of May 10, 2022, all water wells in Utah, regardless of depth, are regulated by the State Engineer. If a new well interferes with an older, legally established water right, the older right typically takes precedence. If a newly drilled well reduces the water supply of an existing well, the affected homeowner may have legal options and may: - Verify their water rights status with the Division of Water Rights - Document the reduction in water supply and any nearby drilling activity - Consult a water rights attorney to explore legal remedies - Contact the Division of Water Rights for guidance or to file a formal complaint
Analysis	While stakeholders may seek solutions to their individual situations, BRWCD could consider monitoring water levels in some wells near Fielding to gather a better understanding of effects of new wells on existing wells. BRWCD may also promote a groundwater management plan in the Cutler Region with DWRi to help address these issues. These actions would improve water usage data, be a great step to gaining better understanding of local groundwater depths, could be completed at a relatively low cost as compared to infrastructure projects, and could potentially help understand impacts to GSL from new wells.
Recommendation	Individual homeowners: look for individual remedies for their situations including coordination with and potential connection to existing water systems in the area. BRWCD: Temporary groundwater level monitoring and data evaluation in the Fielding area in select wells with BRWCD equipment and promote a groundwater management plan for this region with the state (1–10 years).

Great Salt Lake Region: Recommended Region-Specific Projects

Action:	9.2.6 Meter Refuge Outflows (GSL1)
Entity:	Bear River Bird Refuge
Issue	Wetland management and water flow to the Great Salt Lake (GSL) depend on reliable outflow data from the Bear River Migratory Bird Refuge and other upstream sources. Currently, outflows from the Refuge are not adequately metered, making it difficult to quantify how much water is reaching the GSL. This lack of data limits effective environmental water management, habitat preservation, and long-term planning for the lake's health.
Rule	Several policies and legislative mandates support the need for improved flow monitoring. Regional environmental policy encourages monitoring to support ecosystem health. Federal and state conservation goals emphasize the importance of maintaining wetland habitats and inflows to the GSL for migratory birds and biodiversity.
Analysis	The planning team coordinated directly with the Bear River Refuge and other environmental stakeholders. These discussions confirmed the need for upgraded metering to better understand and manage outflows. Additional metering would help improve water data for informed decision making, supports GSL health, and is relatively low cost to implement as compared to other evaluated actions.
Recommendation	Begin to install flow meters on the outflows from the Bear River Migratory Bird Refuge to the Great Salt Lake. This action will: • Provide critical data for managing environmental flows. • Support state and regional conservation goals. • Enable better coordination between the refuge, canal companies, and state agencies. • Help track the effectiveness of upstream conservation and water use policies. (1–10 years).

Northwest Region: Recommended Region-Specific Projects

Action:	9.2.7 Water Rights Management & Tracking (NW1)
Entity:	**BRWCD**
Issue	Small, rural systems in the Northwest Region often lack the staffing, and financial resources to effectively track water rights, seek grants, comply with regulatory requirements, and manage water system operations.
Rule	Utah law requires water rights to be put to beneficial use or placed in an approved non-use status to remain valid.
Analysis	Stakeholder interviews and regional meetings revealed strong interest in assistance for water rights tracking and transfers. The region has limited growth projections, but agricultural preservation and water rights protection are high priorities. Monitoring and managing water rights can help ensure long-term sustainability and compliance. Coordination with the Utah Northern Region Water Rights Engineer was identified as a valuable resource, especially for communities like Snowville. This action would serve a large number of residents and recreators, improve water data collection, improve irrigation efficiency, and is relatively inexpensive to implement.
Recommendation	Continue and expand BRWCD technical assistance to support water rights tracking, grant writing, and operator certification for small systems in the Northwest Region. Host an annual water rights clinic in Snowville with the Utah Northern Region Water Rights Engineer to assist with water rights transfers, questions, and education. Promote regional coordination and data sharing to improve understanding of water rights status and protect existing rights. (Ongoing)
Action	**9.2.8 Inter-State Groundwater Coordination (NW2)**
Entity	**BRWCD**
Issue	Local stakeholders expressed concern about limited monitoring of groundwater wells just across the border in Idaho, which may impact shared aquifer levels and regional groundwater sustainability.
Rule	Cross-border groundwater management is not formally regulated but is increasingly recognized as a best management practice in regional water planning.
Analysis	Concerns were raised about Idaho wells near the border not being monitored as actively, which could affect groundwater levels and water availability in Utah. Collaboration with Idaho water users was started many years ago but has not been happening since. This action helps improve water data collection and analysis, does not have large negative impacts on agricultural lands, would involve many water entities, would be relatively low in cost to implement, and would improve water management through education.
Recommendation	Initiate outreach to Idaho water users and relevant agencies to explore collaborative groundwater monitoring and data sharing across the border. Consider forming a joint working group or informal partnership to better understand aquifer conditions and promote sustainable groundwater management in the shared region. (Ongoing)

Willard Region: Recommended Region-Specific Projects

Action:	9.2.8.1 Equip South Willard Well (W1)
Entity:	BRWCD
Issue	Rapid growth in the South Willard area is placing increased demand on existing water infrastructure. To ensure reliable service and meet future needs, additional water sources and system redundancy are needed.
Rule	Utah drinking water standards require redundancy and emergency capacity for public water systems.
Analysis	The South Willard Well #2 project is construction-ready and was identified as a high priority during regional meetings. It supports culinary water supply adequacy, protects water rights by putting them to beneficial use, has adequate available water rights, and enhances system resilience. Local planners anticipate hundreds of new housing units over the next decade in this area, making this infrastructure very important.
Recommendation	Equip the existing South Willard Well #2 with a pump house and connect it to the existing distribution system. (2026)
Action	9.2.8.2 Willard Regional Interconnects (W2)
Entity	BRWCD/Willard/Perry
Issue	Water systems in Willard, Perry, and South Willard operate independently, with limited interconnectivity and backup capacity. Without interconnections the systems are more vulnerable during system failures or emergencies than if interconnects were in place.
Rule	Regionalization principles support interconnectivity to improve system resilience.
Analysis	Interconnects would allow water sharing during outages, improve redundancy, and support regional collaboration. This action aligns with growth projections and infrastructure optimization goals and would not require much new infrastructure to make the connections.
Recommendation	Evaluate potential interconnections between Willard and South Willard, and between Willard and Perry. Seek joint grant funding .(Ongoing)

Willard Region: Recommended Region-Specific Projects

Action:	9.2.8.3 Replace Small Water Systems (W3)
Entity:	BRWCD/Coleman/Hot Springs/Fox Hills
Issue	Small public systems like Coleman, Hot Springs, and Fox Hills parks struggle with aging infrastructure and inconsistent water quality.
Rule	State and federal funding programs promote consolidation or replacement of outdated systems to ensure compliance with drinking water standards and long-term sustainability.
Analysis	Interviews with park managers and water system data highlighted an urgent need for system upgrades. This project would benefit multiple systems, helps provide adequate culinary water supply, and replaces aging infrastructure.
Recommendation	Seek funding through grant programs to replace water infrastructure at Coleman, Hot Springs, and Fox Hill communities (Ongoing).

9.3 County-Wide Recommendations

The following County-wide recommendations were identified through the planning process, were evaluated, and were found to be applicable across the entire county or across a large portion of the county. These are actions that the County staff or the Box Elder Water Conservancy District can help facilitate with assistance from the local water managers and stakeholders. They are presented using the same IRAR format that the regional actions were presented with and are listed in three major categories:

1. One action that both Box Elder County and BRWCD should carry out
2. Actions that Box Elder County should carry out
3. Actions that BRWC should carry Out

9.3.1 Box Elder County and BRWCD Recommendations

#1 Solidify Roles of Box Elder County and BRWCD (2026-ongoing)	
Issue	Residents and stakeholders often misunderstand the distinct roles of Box Elder County and Bear River Water Conservancy District (BRWCD), leading to confusion about responsibilities related to water governance, infrastructure, and development coordination.
Rule	The County Planning Commission appoints BRWCD board members and oversees developments in unincorporated areas. The County does not develop or provide water but does coordinate county development with potential local water suppliers and BRWCD. BRWCD is a quasi-municipal corporation under the Utah Water Conservancy District Act and is responsible for water conservation, development, and supply
Analysis	Box Elder County is the land use authority for unincorporated areas, managing zoning, growth, and infrastructure such as roads and stormwater. BRWCD is the water governance entity, tasked with conserving water, protecting water rights, and developing water infrastructure for municipal, industrial, and agricultural use. BRWCD focuses on its mission to: • Conserve and protect water and water rights • Develop and provide water for municipal, industrial, and agricultural use • Use these resources to best serve the residents of Box Elder County Both entities share responsibilities in water quality protection, planning, and coordination. Stakeholder interviews emphasized the need for clearer communication and collaboration to avoid duplication and improve efficiency. A graphic demonstrating the individual and collaborative responsibilities of BRWCD and the County is included in Chapter 1: Introduction.
Recommendation	BRWCD and Box Elder County should both utilize the County and district roles through graphic in a handout, and post it on the BRWCD and the County websites to clarify responsibilities and support ongoing education.

9.3.2 Box Elder County Recommendations

#2 Develop and Implement a Water Exaction Policy for Unincorporated Areas (2026-2027)	
Issue	In the unincorporated areas of Box Elder County, agricultural lands are increasingly being converted to urban uses without clear policies to retain or manage associated irrigation water shares. This creates risks of water rights being lost, underutilized, or fragmented, and limits the ability to plan for long-term water supply and infrastructure needs.
Rule	Under Utah law, exactions are permitted given they meet legal standards established to protect constitutional rights. All local governments may impose exactions, including local districts such as BRWCD which provide utility service to meet water needs. Counties can require developers to dedicate irrigation water shares to a public water provider or a conservancy district.
Analysis	Leaders from neighboring counties advised Box Elder to act now to exact water to protect if for use in Box Elder. Stakeholder interviews and communication with the Utah Division of Water Rights emphasized the importance of proactive water rights management. Cities are limited to using water within their service boundaries, which restricts flexibility in water transfers and long-term planning in the county. In contrast, BRWCD has broader authority and abilities for protecting water rights as they serve the entire county, including filing extensions and managing beneficial use timelines. The District can hold water for future use, transfer it to growing communities, and coordinate with irrigation companies. A formal exaction policy would allow the District to "shepherd" water resources, ensuring they remain available and protected as development occurs. BRWCD can turn exacted water over to communities as they grow into those areas where the water was previously exacted.
Recommendation	Draft and adopt a Box Elder County water exaction ordinance for unincorporated areas that requires developers to dedicate irrigation water shares to BRWCD. Include provisions for BRWCD to have first right of refusal to purchase or lease excess water not needed for immediate development for use in the County. Consider drafting a parallel exaction policy template for small cities to voluntarily transfer water to BRWCD, enabling broader service coverage and long-term water protection because BRWCD is more able to put water to beneficial use because of it's broader coverage. Coordinate with irrigation companies and the Division of Water Rights to ensure compliance and sustainability. This policy should be integrated into zoning and subdivision ordinances and reviewed annually to adapt to changing growth patterns and water legislation.

9.3.2 Box Elder County Recommendations

#3 Update Land Use & Zoning (ongoing)	
Issue	Dispersed development in unincorporated areas of Box Elder County increases infrastructure costs, complicates water supply and management, and creates land use conflicts. Many areas within the county remain unzoned, making it difficult for water providers to plan and serve future growth effectively.
Rule	The Box Elder General Plan emphasizes: • Concentrated growth near existing infrastructure and services • Preservation of agricultural land and open space in rural areas • Encouragement of infill development and higher-density housing in and around cities like Brigham City, Tremonton, and Garland
Analysis	Stakeholder input and coordination with the Division of Water Rights highlight the need for zoning updates, density clustering, and water-wise development standards. Unzoned areas allow uncontrolled development, which can lead to inefficient water use, increased infrastructure costs, and loss of agricultural lands. Development near existing infrastructure is more cost-effective and allows water systems to leverage existing sources and operational expertise. Most projected growth over the next decade is expected near Garland, Tremonton, Brigham, Perry, Willard, and South Willard.
Recommendation	Assign zoning designations to areas of the county that currently are not defined to help water providers plan accordingly. Update land use and zoning regulations to protect agricultural land and water resources. Focus on promoting growth in, or near established communities with existing infrastructure to help preserve agricultural areas and serve users at a lower cost per building unit.

9.3.2 Box Elder County Recommendations

#4 Complete a Septic System Density Study (2026-2027)	
Issue	High concentrations of septic systems in unincorporated areas of Box Elder County—especially in regions with shallow groundwater—pose a risk of contaminating drinking water wells. Many areas lack sufficient data to determine where septic system density may exceed safe thresholds, making it difficult to manage development and protect water quality.
Rule	Developers must submit a Subdivision Septic System Feasibility Application to Bear River Health Department to prevent over-concentration of septic systems in areas where soil or groundwater conditions are not suitable. Box Elder County uses zoning ordinances and land use planning to help manage septic system density.
Analysis	An evaluation to estimate safe septic system densities would help protect water sources for many residents in the unincorporated areas of the county and would benefit water quality.
Recommendation	Complete a study to identify density limits on septic systems to help prevent water contamination. Assess cumulative impacts on groundwater and drinking water wells, identify areas at higher risk of contamination, establish density thresholds and buffer zones, and inform updates to zoning, subdivision, and land use ordinances. Coordinate with the Bear River Health Department, BRWCD, and local water providers. Prioritize areas with rapid development or shallow aquifers.

9.3.2 Box Elder County Recommendations

#5 Manage Diversity & Key Experience on BRWCD Board (ongoing)	
Issue	There is a risk that future appointments to the BRWCD board may result in a lack of diversity, technical expertise, or balanced representation. This could affect the board's ability to effectively govern and respond to the county's evolving water needs.
Rule	The Box Elder County Commission appoints members to the board pursuant to the procedures outlined in UCA §§17B-1-304 and 17B-2a-1005(3). The members serve staggered four-year terms with no term limits. Appointees must be registered voters, residents of Box Elder County, and reside in the geographic area they represent.
Analysis	A variety of different backgrounds should be maintained and considered as new board members are appointed. The backgrounds and knowledge of existing board members and potential new board members should be considered and evaluated to maintain the desired variety and diversity of trustees. Each candidate must be a registered voter, a resident within the County boundaries, and a resident of the specific area they are appointed to represent.
Recommendation	Create and maintain a board expertise file that documents the background and related experience of each of the active board members. When appointing new board members, reference the file and see that the board has members with experience in each of the following categories. • Water law, management or conservation • Agriculture or irrigation • Public administration or local government • Engineering, planning, or environmental science • Construction and/or infrastructure development People with other related backgrounds could be considered if adequate experience related to the these categories and a diverse balance is maintained. Appointees should be willing and able to commit time to meetings, planning efforts, and community engagement for the duration of their term.

9.3.2 Box Elder County Recommendations

#6 Standardize Local Water Project Funding (2026-2028)	
Issue	There is inconsistency and perceived bias in how local projects are selected for BRWCD funding.
Rule	Public funding programs should follow clearly defined criteria to ensure fairness, transparency, and accountability.
Analysis	Interviews highlighted the need for a standardized, equitable process that fosters trust. A structured review committee and clear scoring system will provide consistency, transparency, and trust.
Recommendation	Create a review committee that reports to the BRWCD board to develop and implement an improved and more standardized process to identify local capital or operation and maintenance projects for BRWCD to support, or fund based on a set criteria and input from a funding committee. Prepare a written manual that outlines items such as: • The role of the funding committee • Selection criteria and project prioritization system • Explanation of who is eligible to apply • Consideration of Rural vs Urban designations and definitions • Project eligibility requirements • Local match requirements • Sources of funding for projects • Determination of yearly funds • Application schedule and deadlines • Application process • Project scoring system • Project recommendation process • Project administration process definition • Ensure that the project selection process is completed prior to the start of each BRWCD budget year to allow for timely inclusion in financial planning. Pilot the program for the first year and then refine the process and criteria based on feedback. Track metrics such as number of funded projects, geographic distribution, and completion rates.

9.3.3 Bear River Water Conservancy District Recommendations

#7 Sponsor Aging Infrastructure Replacement Projects (2026-ongoing)	
Issue	Many communities in Box Elder County report aging and deteriorating pipes, storage tanks, and system controls. These aging components pose risks to water quality, system reliability, and the ability to support future growth.
Rule	The 2025 amendments to Utah's state water policy emphasize the timely replacement of aging or inefficient infrastructure for drinking water, wastewater, stormwater, and general water resources.
Analysis	Stakeholder interviews and regional meetings consistently identified aging infrastructure as a top concern. Many systems are nearing or have exceeded their useful life, and replacement is critical to maintaining service reliability, protecting public health, and ensuring compliance with state and federal regulations. Funding limitations are a major barrier for local systems, especially smaller and rural providers. A coordinated approach led by BRWCD can help prioritize needs, and secure funding.
Recommendation	Develop a countywide Aging Infrastructure Replacement Priority List in partnership with local water systems. Use the scoring system developed through the Local Water Project Funding Program to ensure transparent and equitable project selection. Lead coordination efforts, assist with grant applications, and provide technical support. Encourage local systems to submit infrastructure data and participate in the process. Seek funding through state and federal programs (e.g., DWRe, BOR, NRCS), leveraging local match contributions. Track progress using metrics such as: • Number of projects funded • Miles of pipe replaced • Geographic distribution of improvements Review and update the priority list annually to reflect changing conditions, new data, and emerging needs.

9.3.3 Bear River Water Conservancy District Recommendations

#8 Draft Potential City Water Exaction Policy Template (2026-2028)	
Issue	Many cities in Box Elder County currently lack formal policies to retain water rights or irrigation shares when agricultural land is converted to residential or commercial use. Without such policies, valuable water resources may be lost, underutilized, or fragmented, limiting long-term planning and regional water sustainability.
Rule	Water exactions are permitted under Utah law when tied to public benefit and infrastructure needs. Cities and districts may require developers to dedicate water rights or shares to public entities.
Analysis	Stakeholders and water managers emphasized the urgency of implementing water exaction policies before rapid growth complicates water management. Cities are limited to using water within their service boundaries, while BRWCD has broader flexibility to manage, transfer, and protect water rights across the county.
Recommendation	Prepare a draft water exaction policy with legal counsel assistance to offer to interested cities to consider adopting if they currently do not have a policy. Focus on tools that allow for secondary water systems to be considered in future developments. Encourage cities to adopt a policy and provide technical assistance and outreach to help cities understand the benefits and implementation steps.

9.3.3 Bear River Water Conservancy District Recommendations

#9 Continue Evaluating Legislative & Water Policy (ongoing)	
Issue	Utah's water policy landscape is rapidly evolving. Many policies impact water users in Box Elder County. In the past there have been discussions related to Bear River development, issues related to the Great Salt Lake, and other issues related to how water is governed or managed in the state. Without active monitoring and engagement, local interests may not be represented adequately.
Rule	DWRe and other groups in the state monitor water legislation in the state. These groups advise lawmakers and collaborate with other agencies and stakeholders to draft or refine legislation.
Analysis	Stakeholders across the county expressed a need for real-time legislative updates, advocacy tools, and coordinated monitoring. Legislative changes affect water rights, infrastructure funding, and conservation. BRWCD has a lobbyist who can assist with tracking and responding to these developments. Early consultation with irrigation companies and other stakeholders is essential to ensure local water needs are protected.
Recommendation	Assign a legislative liaison, attend water policy meetings, participate in working groups, and share summaries with stakeholders. Use dashboards and newsletters to track key bills and impacts and to receive feedback from Box Elder Residents related to those bills. Utilize BRWCD's lobbyist to advocate for local concerns and coordinate with state agencies.

9.3.3 Bear River Water Conservancy District Recommendations

#10 Develop Secondary Water Standards (2027)	
Issue	Secondary Water (pressure Irrigation) systems can extend and protect water resources in the County. Many communities in Box Elder currently do not have any standards to help ensure good secondary system infrastructure is installed, but are considering secondary water systems for their long-term water planning. Countywide standards will provide secondary systems are built in a sound and consistent way and will improve long-term operability.
Rule	Local governments and districts have the authority to establish construction and design standards for new infrastructure.
Analysis	Stakeholder input and feedback from managers of secondary systems in other counties highlight the importance of early adoption of standardized specifications. Uniform standards improve system reliability, reduce maintenance costs, and ensure compatibility across jurisdictions. Regional growth projections indicate rising outdoor water use, making secondary systems a critical tool for long-term water sustainability.
Recommendation	Create a standard set of specifications and drawings for secondary systems including design, materials, installation, and operational requirements. Encourage their use within the county for new secondary systems. Encourage adoption of these standards by municipalities, developers, and irrigation companies.

9.3.3 Bear River Water Conservancy District Recommendations

#11 Complete a Water Conservation Education Effort (2027-2029)	
Issue	Many water systems in Box Elder County lack awareness of available grant opportunities that could support infrastructure upgrades, conservation efforts, and planning initiatives.
Rule	Box Elder County faces limited water resources, and many residents lack awareness of efficient watering practices. Without targeted education, opportunities to reduce municipal and agricultural water use may be missed, threatening long-term water sustainability.
Analysis	UDWRe requires systems with more than 500 connections to submit updated water conservation plans every five years to remain eligible for state funding. The DWRe Bear River Regional goal is to reduce M&I per capita water use by 14% by 2030, using 2015 as the baseline year.
Recommendation	Launch a public outreach and education campaign using stakeholder input. Include topics such as: • Water-wise landscaping • Irrigation audits and smart controllers • Leak detection and repair • Rate-based conservation incentives • Promote participation in the DWRe Landscape Incentive Program, which requires adoption of the following standards: • No lawn in parking strips or areas less than 8 feet wide • No more than 50% of front and side yard landscaped areas in new residential developments shall be lawn • Exemption for small residential lots with less than 250 square feet of landscaped area • In new commercial, industrial, institutional, and multifamily developments, lawn areas shall not exceed 20% of total landscaped area outside active recreation zones • Develop educational materials, host workshops, and integrate messaging into local media, school programs, and community events • Track effectiveness using metrics such as: • Per capita water use reductions • Participation in incentive programs • Public awareness surveys before and after campaign

9.3.3 Bear River Water Conservancy District Recommendations

#12 Provide Water Grant Notices (ongoing)	
Issue	Funding agencies such as BOR, NRCS, DWRe, and other federal or state agencies have programs that can help provide financial assistance for water related projects and studies.
Rule	Funding agencies such as BOR, NRCS, DWRe and other federal or state agencies have programs that can help provide financial assistance for water related projects and studies.
Analysis	Stakeholder interviews and regional meetings revealed gaps in grant awareness Proactive outreach and centralized communication can help bridge this gap, supporting county-wide water goals.
Recommendation	Inform water systems of grant opportunities that they can consider to aid in funding needed improvements using emails, information on the BRWCD website, or through other outreach. Include key details such as: • Grant deadlines and eligibility criteria • Application instructions and support resources • Contact information for technical assistance

9.3.3 Bear River Water Conservancy District Recommendations

#13 Coordinate with BRCC and Other Irrigators in the County (ongoing)	
Issue	Development pressures and infrastructure expansion in Box Elder County are increasingly encroaching on irrigation corridors, threatening the ability of irrigation companies such as BRCC, Pineview, and others to deliver non-potable water and maintain agricultural water rights-of-way.
Rule	Utah state statute requires notification of irrigation companies for any development occurring within 100 feet of their canals. SB110 (2022)
Analysis	Stakeholder interviews and regional meetings revealed that irrigation companies are often excluded from early development discussions, leading to conflicts, infrastructure disruptions, and loss of access to water delivery corridors. Collaborative planning is essential to protect irrigation easements, ensure continued delivery of non-potable water, and preserve agricultural water rights.
Recommendation	Protect irrigation rights of ways and easements. Maintain regular communication and data sharing between BRWCD, County planners, and irrigation entities. Establish formal coordination protocols between BRWCD, Box Elder County, BRCC, and other irrigation companies. Emphasize protection of irrigation rights-of-way and easements in all development reviews. Include irrigation companies in regional planning meetings and stakeholder coordination efforts.

9.3.3 Bear River Water Conservancy District Recommendations

#14 Provide Stakeholder Coordination (2026-ongoing)	
Issue	Effective water management in Box Elder County requires ongoing collaboration among diverse stakeholdersincluding: BRWCD, Box Elder County, municipalities, irrigation companies, private water systems, and environmental groups. Without continued engagement, regional planning efforts risk fragmentation, reduced trust, and misalignment related to legislative and infrastructure needs.
Rule	While no specific statutory rule mandates this, best practices in public engagement and planning underscore its importance.
Analysis	The master planning process included over 50 stakeholder interviews, two rounds of meetings with the seven regions, and steering committee input. These efforts revealed strong interest in continued coordination to address growth, infrastructure, water rights, conservation, and legislative changes. Stakeholders emphasized the value of transparency, shared updates, and collaborative decision-making. Coordination also supports grant applications, data sharing, and alignment with Box Elder County's General Plan Vision 2050.
Recommendation	Schedule annual stakeholder coordination meetings beginning in 2026. Include County officials, municipal water managers, irrigation companies, private systems, and environmental stakeholders. Use the meetings to: • Share legislative updates and policy changes • Review regional and countywide project progress • Discuss funding opportunities and joint applications • Promote education and outreach efforts

9.3.3 Bear River Water Conservancy District Recommendations

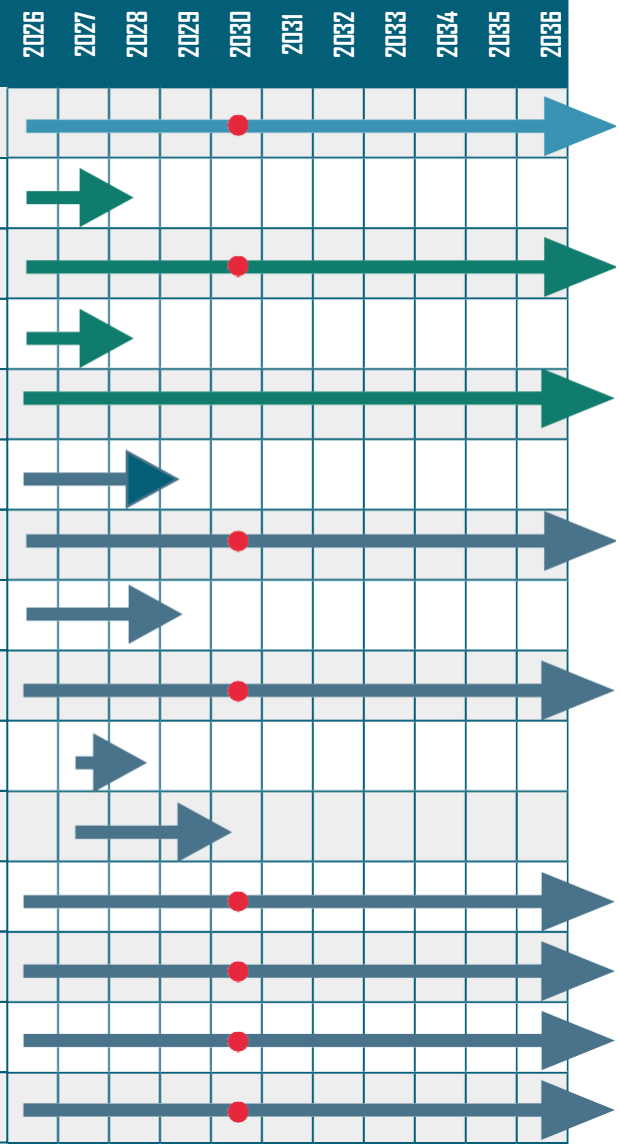
#15 Improve Groundwater Level Database (2026-ongoing)	
Issue	Box Elder County has a large number of municipal, private, and agricultural wells. Stakeholders have reported declining well yields and concerns about how new wells may affect existing groundwater levels. Currently, there is no centralized system to monitor or analyze groundwater trends, making it difficult to understand aquifer sustainability or resolve well interference disputes.
Rule	Individual wells are regulated under a legal framework managed by the Utah Division of Water Rights. As of May 10, 2022, all water wells in Utah, regardless of depth, are regulated by the State Engineer. If a new well interferes with an older, legally established water right, the older right typically takes precedence. No specific statute mandates local groundwater monitoring and Utah Water Rights law governs well permitting and prioritizes senior rights. Best practices in water management support long-term aquifer monitoring and data transparency.
Analysis	Stakeholders across multiple regions, including Cutler, and Northwest, emphasized the lack of data and the need for better understanding of groundwater trends. However, building a comprehensive groundwater level database will require significant time, coordination, and resources. Many systems do not currently collect or report well level data, and data standardization will be a challenge. Using a phased approach will lay the foundation for future groundwater management and planning..
Recommendation	Use a phased approach to lay a foundation for future groundwater management and planning. Start by: - Identifying priority areas with known groundwater concerns - Requesting voluntary data submissions from municipal systems and private well owners - Establishing basic data formats and reporting protocols - Coordinating with the Utah Division of Water Rights (DWRi) to access existing datasets Then expand the database by: - Seeking grant funding for monitoring equipment and staffing - Installing level loggers in strategic wells - Partnering with irrigation companies and agricultural users - Promote participation through outreach and education, emphasizing the long-term benefits of data sharing. Use the database to: - Monitor aquifer trends - Support groundwater management plans - Inform well permitting and development reviews

9.4 Implementation

The implementation of County-Wide Actions will be spearheaded by either the Box Elder County Commission and/or BRWCD. These partners are tasked with leading crucial policy development, coordination, and infrastructure initiatives that affect multiple regions. An estimated schedule to implement these actions is given in Figure 9-B: Timeline of Recommended Actions. Because the plan is designed to be a living document, implementation will be an ongoing process of continuous adaptation and re-evaluation, ensuring the water management strategies remain relevant to the county's evolving needs and growth over time.

Figure 9-B: Timeline of Recommended Actions

Entity	Action
	#1 Solidify Roles of Box Elder County and BRWCD
County	#2 Develop and Implement a Water Exaction Policy
County	#3 Update Land Use & Zoning Regulations
County	#4 Complete a Septic System Density Study
County	#5 Manage Diversity & Key Experience on BRWCD Board
BRWCD	#6 Standardize Local Water Project Funding
BRWCD	#7 Sponsor Aging Infrastructure Replacement Projects
BRWCD	#8 Draft Potential City Water Exaction Policy Template
BRWCD	#9 Continue Evaluating Legislative & Water Policy
BRWCD	#10 Develop Secondary Water Standards
BRWCD	#11 Complete a Water Conservation Education Effort
BRWCD	#12 Provide Water Grant Notices
BRWCD	#13 Coordinate with BRCC and Other Irrigators in the County
BRWCD	#14 Provide Stakeholder Coordination
BRWCD	#15 Improve Groundwater Level Database



* ● Milestone Check-in