

H₂Oquirrh

A Vision for Salt Lake County's
Southwest Waterways

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Prepared by

DESIGNWORKSHOP

1390 Lawrence Street, Suite 100
Denver, Colorado 80204
303.623.5186





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A person is riding a bicycle on a paved path that winds through a lush, green wooded area. The path is dark asphalt with a white line marking. The rider is wearing a dark t-shirt and shorts. The trees are tall and leafy, with some bare branches visible in the upper part of the frame. The sky is overcast. A large, semi-transparent dark blue rectangle is overlaid on the right side of the image, containing the chapter title and content list.

INTRODUCTION

In this Chapter:

- » Project Overview
- » Planning Context

PROJECT OVERVIEW

PURPOSE OF THE PLAN

The intricate network of waterways, washes, and canals in Southwest Salt Lake County plays a pivotal role in shaping the region's natural and built environments. As the demand for water resources evolves with the region's growth and development, understanding the existing conditions of the waterways becomes paramount in charting a sustainable and resilient future. The study area encompasses a diverse and rapidly growing region, extending from the Oquirrh Mountains down to the meandering course of the Jordan River, including the communities of the City of Bluffdale, Copperton Metro Township, Herriman City, Riverton City, South Jordan City, and the City of West Jordan.

Wasatch Front Regional Council (WFRC) and Salt Lake County (SLCo) are working together to plan for the future of the Oquirrh range's waterways. With the challenges of rapid population growth and development, it is important to look into the future of these creeks and washes now in order to preserve them as natural and community assets in the future. WFRC and SLCo have partnered with consultants at Design Workshop (landscape architecture and planning) and LimnoTech (environmental and water resources engineering) to provide analysis and planning services to support the creation of this plan. This planning process includes each municipality as an important stakeholder, and the final plan will provide recommendations and resources for managing the southwest waterways in the future. These recommendations may be included in future plans for the municipalities or the county, as necessary to promote sustainable preservation and development projects.

This report is a comprehensive analysis of the physical, environmental, and socio-economic aspects of the regional waterways in Southwest

Salt Lake County. By delving into the intricacies of these water systems, we aim to create a foundation of knowledge that will inform the development of a robust and forward-thinking vision plan. This shared understanding is the first step to ensuring the sustainable management of water resources for current and future generations. This report serves as a crucial step in the path toward a thoughtful and inclusive planning process that seeks to balance the diverse needs of the community while safeguarding the ecological integrity of these invaluable water resources.

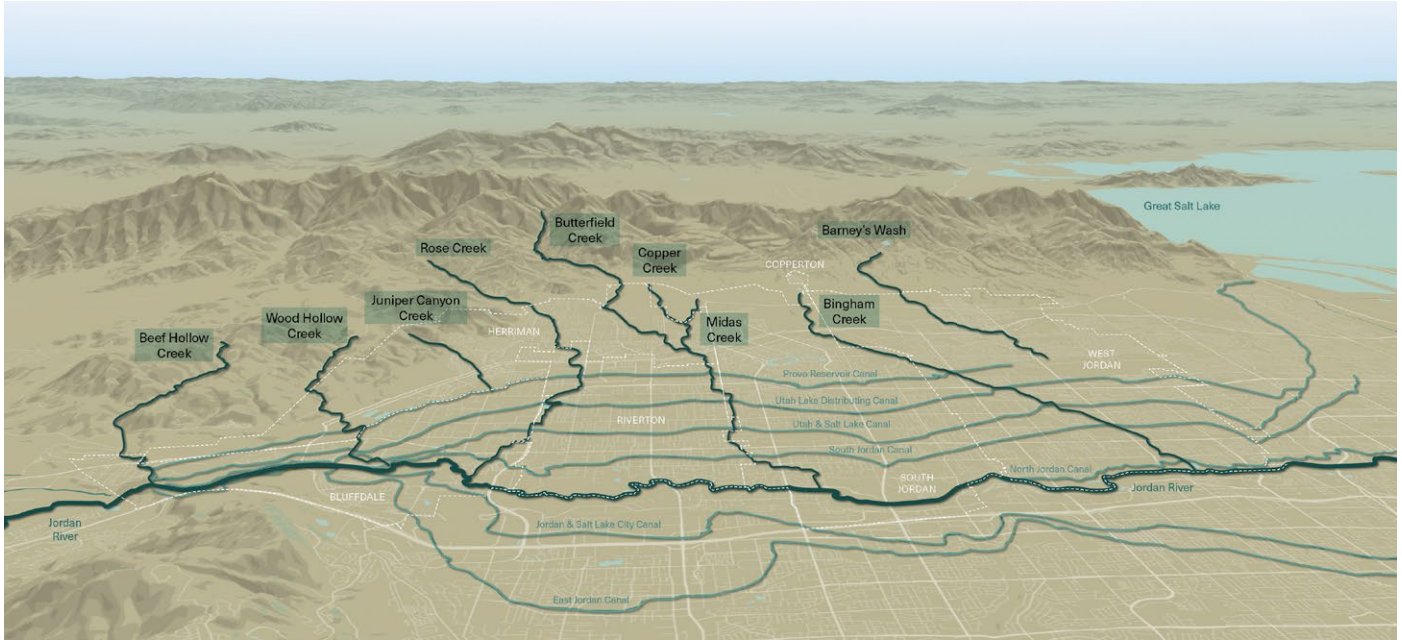
The following pages demonstrate the interplay between the natural and human elements that shape the waterways. From the natural features that influence water flow to the ecosystems that rely on these aquatic habitats, there exists a complex tapestry that constitutes the waterways of Southwest Salt Lake County. The examination of existing infrastructure, water quality, and recreational uses provides a holistic understanding of the challenges and opportunities that lie ahead.

WHY NOW?

The development of a vision plan for the regional waterways of Southwest Salt Lake County is timely in the context of the current historical moment. The following outlines several factors which underscore the urgency and necessity of such a plan, including the dynamic interplay between human activities, environmental considerations, and the overarching need for sustainable resource management.

Population Growth and Urbanization: The Salt Lake region is experiencing significant population growth and urbanization, leading to increased demands on water resources for residential, commercial, and industrial purposes. A shared vision is essential to anticipate and manage the impacts of urban development on water quality, quantity, and overall ecosystem health.

Climate Change: Climate change is a pressing issue in the region, with unpredictable weather patterns, altered precipitation regimes, and rising temperatures which impact water availability and ecosystem dynamics. A vision plan should consider adaptive strategies to address these climate-



The H2Oquirrh Waterways

induced challenges and ensure the resilience of the waterways in the face of changing environmental conditions.

Ecological Preservation: The region's waterways harbor a diversity of ecosystems that contribute to the overall health of the environment. With increasing human activities, there is a need to balance development with ecological preservation. A vision plan will outline strategies for protecting and restoring critical habitats and ensuring the sustainability of these natural resources.

Community Engagement and Equity: Inclusive community engagement is vital for the success of any planning initiative. A vision plan provides a platform to involve diverse stakeholders, including residents, businesses, and environmental organizations, in decision-making processes. This inclusivity ensures that the plan reflects the needs and values of the entire community and promotes equitable access to water resources.

The development of a vision plan for the regional waterways in Southwest Salt Lake County is not merely a response to current challenges but a forward-looking strategy to proactively address the complex and interconnected factors listed above. It is an opportunity to shape the future of

the region in a manner that safeguards its natural resources, enhances resilience, and fosters a thriving community.

WFRC and SLCo are the primary organizers of this intergovernmental and regional scale project. Each municipality has defined goals and strategies for managing the waterways through their own planning efforts, but this plan represents an opportunity to create a vision across city boundaries and tackle issues collectively. Representatives from WFRC, SLCo, and each municipality, as well as other key stakeholders have been instrumental in providing information and data to the project team to curate an accurate understanding of the existing conditions and opportunities the within the waterways.

PLANNING CONTEXT

STUDY AREA

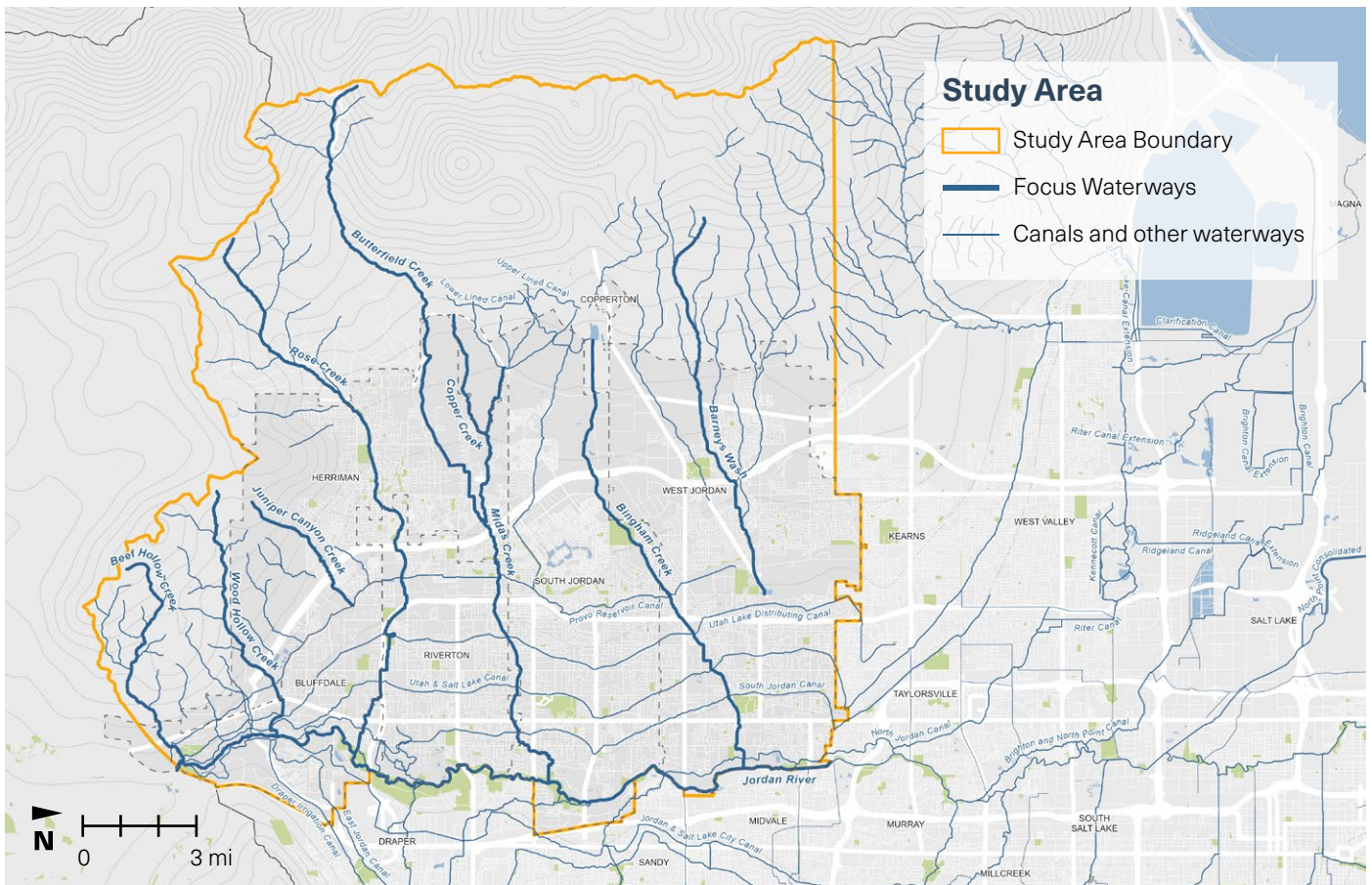
The study area spans from the Oquirrh Mountains to the Jordan River and encompasses a complex and dynamic landscape, at the intersection of urban development, natural landscapes, and interconnected waterways. The following section highlights key aspects of the environment.

The area of interest for the H2Oquirrh Vision Plan totals 183 square miles of southwest Salt Lake County and includes the nine major creeks and washes flowing from the Oquirrh mountains to the Jordan River, as well as significant urban and natural assets surrounding the waterways. The waterways included in this study are Beef Hollow Creek, Wood Hollow Creek, Butterfield Creek, Midas Creek, Copper Creek, Juniper Canyon Creek, Rose Creek, Bingham Creek, and Barney's Wash. The area of interest also considers the canals that intersect these waterways, and municipalities that surround the waterways, including the City of Bluffdale, Copperton Metro Township, Herriman City, Riverton City, South Jordan City, and the City of West Jordan. The combination of

municipal, county, and natural resource boundaries used to create the area of interest reflects the plan's intent to respond to challenges in both the natural and built environment. The following includes an assessment of the land use typologies and characteristics within the area of interest.

Geographic Features: The Oquirrh Mountains are the most prominent geological feature and provide a scenic backdrop to the study area. The word Oquirrh originates from a Goshute native American word meaning "shining mountains." The Oquirrh Mountains and adjacent foothills define the western edge of the Salt Lake Valley, cascading into a mix of suburban and urban landscapes and defining the topographical character of the region. As the land slopes downwards, it gives rise to a network of waterways that play a crucial role in shaping both the environment and the communities in which they traverse.

Waterways and Watersheds: A key focus of the study area is the system of waterways that originates



Project study area

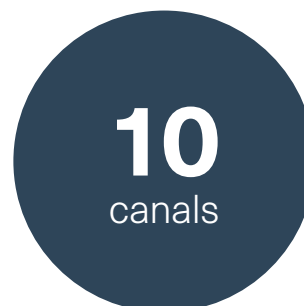
from the Oquirrh Mountains and flows to the Jordan River. These watercourses include small creeks, washes, and man-made canals to serve as vital conduits for stormwater runoff and contribute to the formation of watersheds that sustain diverse ecosystems. Understanding the hydrological connectivity and dynamics of these waterways is fundamental to comprehending the region's water management challenges and opportunities.

Communities: The City of Bluffdale, Copperton Metro Township, Herriman City, Riverton City, South Jordan City, and the City of West Jordan are vibrant communities, each with its own character and growth trajectory. The population expansion and urban development in these areas contribute to increased demands on water resources, necessitating a thoughtful and comprehensive approach to water management.

Urban-Suburban Interface: The study area captures the interface between urban and suburban environments in southwest Salt Lake Valley. As neighborhoods expand and urban centers develop, the management of water resources becomes increasingly complex. Balancing the needs of a growing population with the preservation of natural habitats and water quality is a critical aspect of the vision plan.

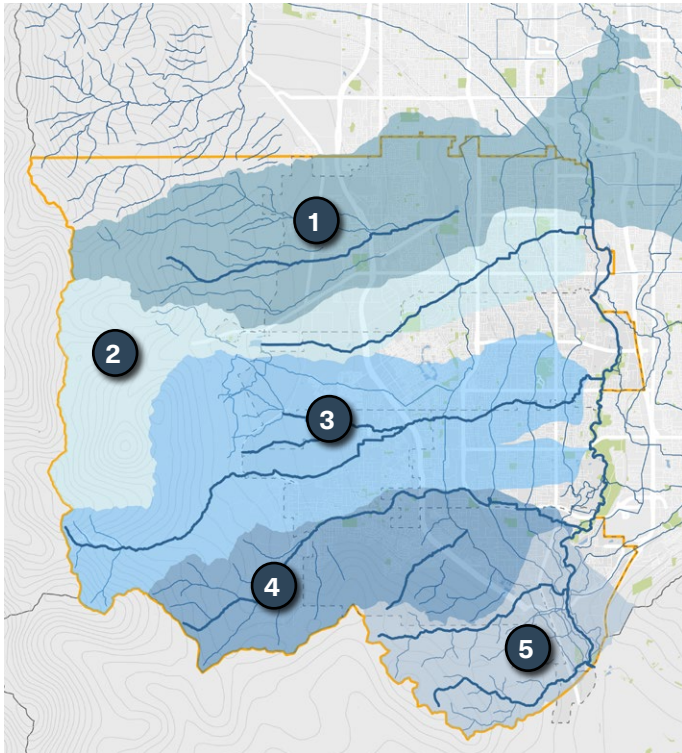
Cultural and Recreational Significance: The waterways in the study area are both functional components of the hydrological system as well as significant cultural and recreational assets. Parks, trails, and green spaces along these watercourses provide recreational activities and contribute to the well-being and of residents. Preserving and enhancing these features is vital for fostering a sense of community and promoting a high quality of life.

The communities, varied topography, and interconnected waterways require an integrated and forward-looking approach to water management and urban planning. The development of a vision plan for this region is crucial for ensuring the sustainable coexistence of urban development, environmental preservation, and community well-being.



THE WATERWAYS OF SOUTHWEST SALT LAKE COUNTY

The 9 creeks and washes emerging from the Oquirrh Range in Salt Lake County feeding into the north-flowing Jordan River are Beef Hollow Creek, Wood Hollow Creek, Juniper Creek, Rose Creek, Butterfield Creek, Copper Creek, Midas Creek, Bingham Creek, and Barney's Wash. They are divided into 5 watersheds and total 72 miles of stream length. The five watersheds are the Wood Hollow-Jordan River Watershed, the Rose Creek Watershed, the Midas-Butterfield Creek Watershed, the Bingham Creek Watershed, and the Barney's Wash-Jordan River Watershed. Each waterway is described on the following pages.



- 1 Barney's Wash-Jordan River Watershed
- 2 Bingham Creek Watershed
- 3 Midas-Butterfield Creek Watershed
- 4 Rose Creek Watershed
- 5 Wood Hollow-Jordan River Watershed

BARNEY'S WASH-JORDAN RIVER WATERSHED

Area: 50.6 miles

2011 population: 152,405

2040 population estimate: 255,603



Barney's Wash at Bacchus Highway

BARNEY'S WASH

- Total Stream Length: 8.5 miles
 - Buried: 1.0 miles
 - Impaired: No Data
- Flow type: Intermittent
- Cities Flowed Through: City of West Jordan

Barney's Wash is a primarily dry creek that stretches from the Oquirrh Range through the City of West Jordan, terminating around the South Valley Regional Airport and Jordan Landing Employment District. There is no consistent flow of water in Barney's Wash, and it does not reach the Jordan River. Although the wash does not have consistent water flow, there is still a lot of natural open space in the surrounding area and provides habitat for wildlife.

BINGHAM CREEK WATERSHED

Area: 36.2 miles

2011 population: 51, 594

2040 population estimate: 145,424

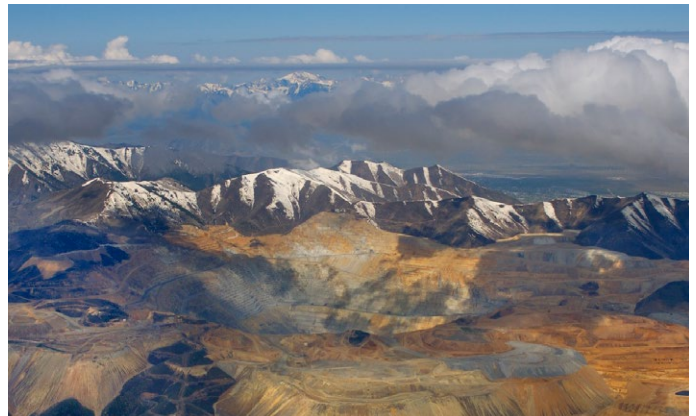


Bingham Creek adjacent to the Glenmoor Golf Course

BINGHAM CREEK

- Total Stream Length: 10.2 miles
 - Buried: 1.6 miles
 - Impaired: 4.4 miles (Selenium, Total Dissolved Solids)
- Flow type: Intermittent
- Cities Flowed Through: South Jordan City, City of West Jordan, Copperton Metro Township

Bingham Creek drains a 36.2 square mile basin, in which much of the Kennecott Copper Mine (also known as the Bingham Canyon Mine) can be found. As one of the largest open-pit mines in the world radical modifications to the natural drainage patterns have occurred in the upper portion of this subwatershed. What once flowed from high in the Oquirrh Mountains is now little more than a drainage ditch with high intermittent flow. It is not until the creek reaches the Utah Distributing Canal, which



Kennecott Copper Mine

crosses over the creek at approximately 3300 West 11800 South, that more regular flows are introduced into the channel. From this point flowing to the Jordan River, canal exchange flows provide year-round water in the creek. The highest flows are seen when canal flow reaches seasonal maximum, but this does not generally increase the creek water level more than six inches.

MIDAS-BUTTERFIELD CREEK WATERSHED

Area: 50.3 miles

2011 population: 54,384

2040 population estimate: 146,849



Oquirrh Lake at Daybreak

BUTTERFIELD CREEK

- Total Stream Length: 11.4 miles
 - Buried: 2.2 miles
 - Impaired: 6.2 miles (E. coli, Selenium, Total Dissolved Solids)
- Flow type: Intermittent in upper watershed, perennial (spring fed) in lower watershed
- Cities Flowed Through: Herriman City

Butterfield Creek reaches the farthest into the Oquirrh mountains of any of the southwest waterways. It originates in the Oquirrh Mountains and converges with Midas Creek at approximately 5100 West 12120 South. Butterfield Creek is undeveloped until it reaches the mouth of Butterfield Canyon, where residential and commercial development begin. The creek is primarily characterized by recreation and conservation, with hikers, bikers, and equestrians



Butterfield Creek at Butterfield Trailhead Regional Park

taking advantage of the trails in the area. In 2023, Butterfield Trailhead Regional Park opened and is increasing access to these trails. However, high levels of lead and arsenic have been found in Butterfield Creek due to historic mining activities. The Environmental Protection Agency and Kennecott have participated in cleanup of contaminated soils along the creeks .



Midas Creek pedestrian bridge

MIDAS CREEK

- Total Stream Length: 10.1 miles
 - Buried: 0.7 miles
 - Impaired: No Data (E. coli)
- Flow type: Intermittent in upper watershed, perennial (spring fed) in lower watershed
- Cities Flowed Through: Herriman City, Riverton City, South Jordan City

Midas Creek drains a 50.3 square mile basin, which includes Butterfield Creek and several gulches. Midas Creek once drained a larger basin. Prior to excavation of the Kennecott Copper Mine, the eastern portion of the mine originally had slopes that drained into Midas Creek. As the land surface has changed, drainage patterns have changed, resulting in tributary area being routed to Bingham Creek.

COPPER CREEK

- Total Stream Length: 2.7 miles
 - Buried: 0.0 miles
 - Impaired: No Data
- Flow type: Intermittent
- Cities Flowed Through: Herriman City, South Jordan City

Copper Creek is a short leg of waterway that feeds into Midas Creek. Its headwaters are close to the Kennecott Copper Mine, and the copper mining connection gives it its name. The area surrounding the creek has been identified for future development, including residential lots and an employment district.

ROSE CREEK WATERSHED

Area: 27.6 miles

2011 population: 27,235

2040 population estimate: 51,461



Rose Creek flowing through a naturalized area

ROSE CREEK

- Total Stream Length: 13.8 miles
 - Buried: 0.9 miles
 - Impaired: 7.0 miles (E. coli)
- Flow type: Perennial in upper watershed, intermittent in lower watershed
- Cities Flowed Through: City of Bluffdale, Herriman City, Riverton City

Rose Creek drains the 27.6 square mile basin with headwaters flowing from the Oquirrh Mountains. The creek has year-round flows in the upper watershed where the land is managed for irrigation, water supply, wildlife and military use. Rose Canyon and Yellow Fork Canyon have long been recreation destinations for hikers, runners, mountain bikers, equestrian riders, and birders. The 1,681-acre Rose Canyon Ranch is a protected open space in the foothills of the Oquirrhs, and Yellow Fork Canyon Park offers 800 acres of parkland. The lower watershed is rapidly urbanizing, transitioning from agricultural land use to residential and commercial land use. Creek

flow is intermittent in the valley section of the creek causing SLCo Watershed Planning and Restoration Program (WPRP) to have minimal sample sites where ephemeral flow is found.

JUNIPER CANYON CREEK

- Total Stream Length: 3.3 miles
 - Buried: 0.0 miles
 - Impaired: No Data
- Flow type: Intermittent
- Cities Flowed Through: Herriman City

Juniper Canyon Creek is the smallest standalone creek in the study area and does not reach the Jordan River. The creek flows into the Provo Reservoir Canal at the Salt Lake Community College Campus after crossing Mountain View Corridor. The creek will be the focal point of the future Juniper Canyon Recreation Area, a 72-acre open space connecting the city to the mountains.

WOOD HOLLOW-JORDAN RIVER WATERSHED

Area: 15.3 miles

2011 population: 1,742

2040 population estimate: 1,856



The Jordan River near the confluence with Beef Hollow Creek and Wood Hollow Creek

BEEF HOLLOW CREEK

- Total Stream Length: 5.8 miles
 - Buried: 0.3 miles
 - Impaired: No Data
- Flow type: Intermittent
- Cities Flowed Through: City of Bluffdale

Beef Hollow Creek is the southernmost waterway in the study area and is very close to the border of Salt Lake County and Utah County. It passes through the City of Bluffdale and the Camp Williams military area. The creek is almost entirely undeveloped, except for a road that runs parallel along the hollow and in the area surrounding Redwood Road. Beef Hollow Creek feeds into the Jordan River at the Jordan Narrows, the point at which several canals are diverted off of the River.

WOOD HOLLOW CREEK

- Total Stream Length: 6.2 miles
 - Buried: 1.2 miles
 - Impaired: No Data
- Flow type: Intermittent
- Cities Flowed Through: City of Bluffdale, Herriman City

Wood Hollow Creek is north of Beef Hollow Creek. It is primarily undeveloped aside from crossings at Mountain View Corridor and the road that runs parallel along the hollow. Wood Hollow Creek and Beef Hollow Creek are proposed to be connected to the rest of the Oquirrh front through an extension of the Bonneville Shoreline Trail.

THEMES OF RELATED PLANNING EFFORTS

This plan builds upon previous planning efforts at both the county and municipal level. Plans adopted by each municipality, WFRC, and SLCo were reviewed to gain an understanding of priority goals and ongoing initiatives that this plan can build upon. The following themes were identified by analyzing the goals and vision of each document related to community, environmental, and economic planning.

CITIZEN EDUCATION & INVOLVEMENT

- Education Programming
- Public Participation

RECREATION

- Parks & Open Space
- Equity & Inclusivity
- Facilities & Amenities

CONNECTIVITY

- Trails & Active Transportation
- Greenway Connectivity
- Multimodal Networks

HABITAT & RIPARIAN ECOLOGY

- Preservation & Protection
- Restoration & Improvement
- Daylighting Streams

WATER & RESILIENCE

- Flood Control & Green Infrastructure
- Water Quality & BMP
- Water Quantity & Infrastructure Planning

LAND USE & DEVELOPMENT

- Urban Growth & Density
- Development Centers
- Low Impact Development

COMMUNITY, PARTNERSHIPS, & FUNDING

- Community Engagement
- Partnerships
- Funding & Revenue

For a list of all plans and documents reviewed as a part of this process, please see **APPENDIX A: H2Oquirrh Plan Review Matrix** and **APPENDIX B: H2Oquirrh Plan Review Summaries**.







EXISTING CONDITIONS

In this Chapter:

- » Land Use & Built Environment
- » Outdoor Recreation & Connection to Nature
- » Natural Systems & Water Resources

CORE TOPICS

The following inventory of existing conditions in the study area has been developed through background research, digital mapping, site visits, and conversations with stakeholders. This analysis revealed three core topics that will be carried through the existing conditions report into recommendations addressing those conditions in the final plan which are Land Use & Built Environment, Outdoor Recreation & Connection to Nature, and Natural Systems & Water Resources. The findings for each of these topics is summarized in the following pages.

Land Use & Built Environment: This topic addresses human impact on land use and development, including urban growth trends, land cover, transportation systems, and culturally significant places.

Outdoor Recreation & Connection to Nature: This topic addresses the ways in which we interact with nature for leisure, including parks and trails assets and the ways we access them.

Natural Systems & Water Resources: This topic addresses the natural conditions surrounding the waterways, including waterway typologies, wildlife communities, and natural hazards.



LAND USE & BUILT ENVIRONMENT

This section discusses issues and opportunities within the southwest water ways related to Land Use and Built Environment including,

1. Urban Growth and Development
2. Open Space and Land Value
3. Land Use Planning and Decision Making
4. Transportation and Infrastructure
5. Cultural Assets

URBAN GROWTH AND DEVELOPMENT

Southwest Salt Lake County has witnessed rapid growth and urban development in recent years. As the population continues to expand, the demand for residential, commercial, and recreational spaces has intensified. Opportunities for sustainable urban planning present a canvas for thoughtful development within the region's distinctive geography.

Creeks and greenways enhance the region's aesthetic appeal and offer significant environmental and social benefits. Greenways serve as vital connectors for urban trails, providing opportunities for recreation, active transportation, and wildlife corridors. They also help mitigate the effects of urban heat islands and contribute to improved air and water quality.

Balancing the desire for urban growth with the preservation of green spaces and water resources can be complex. Open space has a proven connection to quality of life, livability, and property values, making it an essential balance to address. In focus group discussions, multimodal connections, preservation of open space, and development impacts to waterways were the top three challenges identified for this area. Each of these represents a direct link between the environment and development. Additionally, managing stormwater in an ecologically sensitive manner must become a priority, as overdevelopment can lead to flooding and water pollution issues

Creating cities with a high livability score includes how well a neighborhood offers convenient access to retail, entertainment, health care, education, and food or personal services. It also includes access to open space, tree canopy, walkability, and safety. The community of Daybreak is a great example of new urbanism in the heart of this study area. Daybreak features a variety of housing types, abundant open space, and a mixed-use core with commercial and civic amenities.

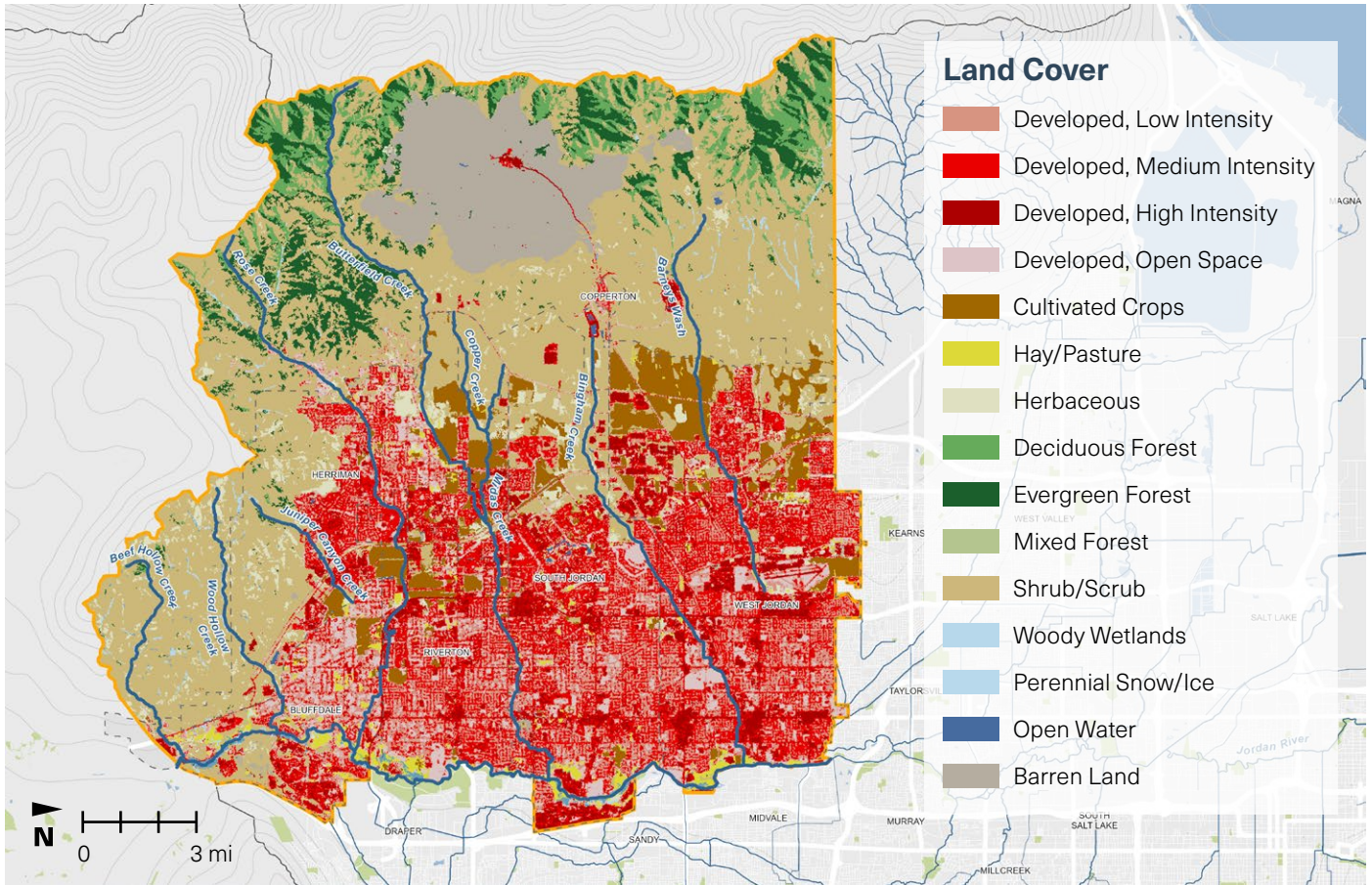
Industrial land uses have also played a significant role in the development of southwest Salt Lake County. In particular, the Kennecott Copper Mine

LAND USE SNAPSHOT

- Projections estimate that 2.2 million more people will call Utah home by 2060.
- Urban development accounts for 39% of the study area
- Only 6% of the study area is developed as urban open space.
- Natural landscape makes up less than half of the study area and is at risk of shrinking further.
- Only 1% of the study area is wetlands.



Oquirrh Lake at Daybreak



Land Cover in the study area, 2021

operated by Rio Tinto in Bingham Canyon has been a large economic driver and environmental factor since it opened in 1903.¹ The mine primarily extracts copper, but also produces gold, silver, molybdenum, and tellurium. This mine has significantly altered the landscape and hydrology of Bingham Canyon and is the world's deepest open pit mine.² The tailings from the mine impact water quality in Bingham Creek, and the land disruption creates a significant void in usable habitat for wildlife. Rio Tinto is working to manage these impacts through their sustainability efforts, including improved energy efficiency, waste management, and a goal to be carbon neutral by 2050.

OPEN SPACE AND LAND VALUE

Greenways and open spaces contribute to long-term real estate value by enhancing the aesthetics, quality

of life, and desirability of neighborhoods. They offer recreational opportunities, promote environmental sustainability, and play a crucial role in creating resilient, well-connected, and healthy communities. There should be a balance between the desire for urban growth with the preservation of green spaces and water resources. Overdevelopment can lead to flooding and water pollution issues. Therefore, managing stormwater in an ecologically sensitive manner should be a priority.

Greenways and open spaces enhance the visual appeal of a neighborhood or community. Numerous studies have shown a positive correlation between attractive landscapes and property values. A study conducted by the USDA found that a 1% increase in tree canopy coverage in a neighborhood could add value at the rate of \$277 per acre, adding up to over half a million dollars in a circular mile.³

¹ Rio Tinto Website (<https://www.riotinto.com/en/operations/us/kennecott>)

² <https://geology.utah.gov/map-pub/survey-notes/geosights/geosights-bingham-canyon-mine/>

³ Tree cover and property values in the United States: A national meta-analysis (https://www.fs.usda.gov/nrs/pubs/jrnl/2022/nrs_2022_kovacs_001.pdf)

Greenways and open spaces often serve as community gathering places, fostering social connections and a sense of belonging. The “Neighborhood Effects on the Long-Term Well-Being of Low-Income Adults” study published in the journal “Science” indicates that cohesive and connected communities tend to have higher property values.⁴

LAND USE PLANNING AND DECISION MAKING

In Southwest Salt Lake County, greenways and creeks can serve as both a remedy and a catalyst for land use decisions. When planned and managed thoughtfully, they offer a natural and sustainable solution to the challenges posed by urban expansion, promoting a healthier, more resilient, and connected community. Prioritizing water quality and preserving natural systems can guide land use decisions, ensuring sustainable and responsible development. This approach not only safeguards the region’s ecosystems but also ensures a sustainable and resilient future for the community.

Utah has already made a commitment to promoting sustainable development through Low Impact Development (LID). Permitting for construction, sewer systems, and industrial uses is managed through the Department of Environmental Quality, Division of Water Quality (DWQ). In 2020, the DWQ released an update to their LID guide, which includes a list of appropriate LID techniques for Utah. Some of these include bioretention cells or rain gardens, green roofs, permeable surfaces, and curb cuts.⁵ Salt Lake County has agreed to implement LID practices and educate others on their importance through the 2020 Stormwater Management Plan.

Focus group discussions revealed several land use and development patterns that are already raising concerns for southwest Salt Lake County. Car-centric development and trucking raise concerns for overall mobility. There were also concerns for development that focuses primarily on single family housing or that turns its back to the waterways. There are precedents

today of practices that can alleviate the burden of such development on the environment.

TRANSPORTATION & INFRASTRUCTURE

Southwest Salt Lake County is connected to the surrounding region by major corridors such as I-15, Bangerter Highway, and Mountain View Corridor. These major highways are managed by the Utah Department of Transportation (UDOT) and connect the study area to Salt Lake City, Utah County, and adjacent cities. In addition to these three corridors, other major UDOT roads in the area include Redwood Road, 9000 South, 10400 South, 11400 South, and 12600 South. The area is predominantly focused on personal vehicle transportation, and in 2021, 70.9% of Salt Lake County workers drove alone to work.⁶

The study area is serviced by Utah Transit Authority (UTA), offering options for light rail, regional rail, buses, and On Demand service. Although public transportation is a less prominent form of transportation in the area, UTA’s Five-Year Service Plan is continuing to build out the system by adding new routes and updating existing ones to better serve the area.

Rail: UTA’s TRAX service is a popular way for residents in the area to commute to Salt Lake City. TRAX’s Red Line runs from Daybreak in South Jordan to Downtown Salt Lake City and the University of Utah Medical Center. UTA also operates the FrontRunner regional rail that extends from Provo to Ogden. Transfers between the TRAX Red Line and FrontRunner can be made at Murray Central Station just north of the study area.

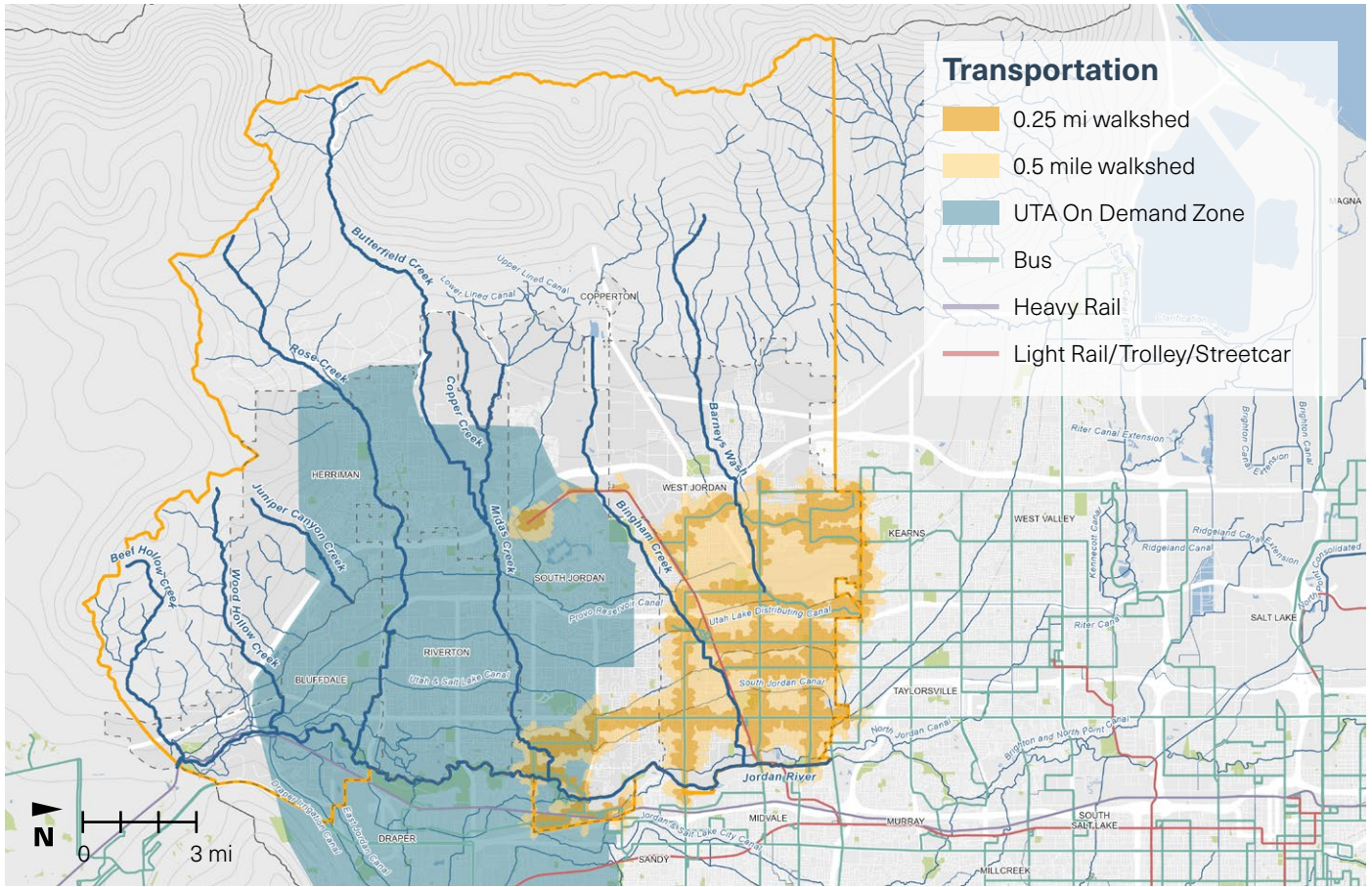
Bus: UTA’s bus service primarily serves the northern part of the study area in South Jordan and West Jordan. Most buses run every 30 minutes or more, with the exception of Route 217, which runs with frequent service (every 15 minutes) along Redwood Road.

On Demand Zones: UTA On Demand service allows riders to request a ride from corner to corner between two locations within the designated service

⁴ NEIGHBORHOOD EFFECTS ON THE LONG-TERM WELL-BEING OF LOW-INCOME ADULTS - PMC (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3491569/>)

⁵ Low Impact Development - Utah Department of Environmental Quality (<https://deq.utah.gov/water-quality/low-impact-development>)

⁶ <https://datausa.io/profile/geo/salt-lake-county-ut>



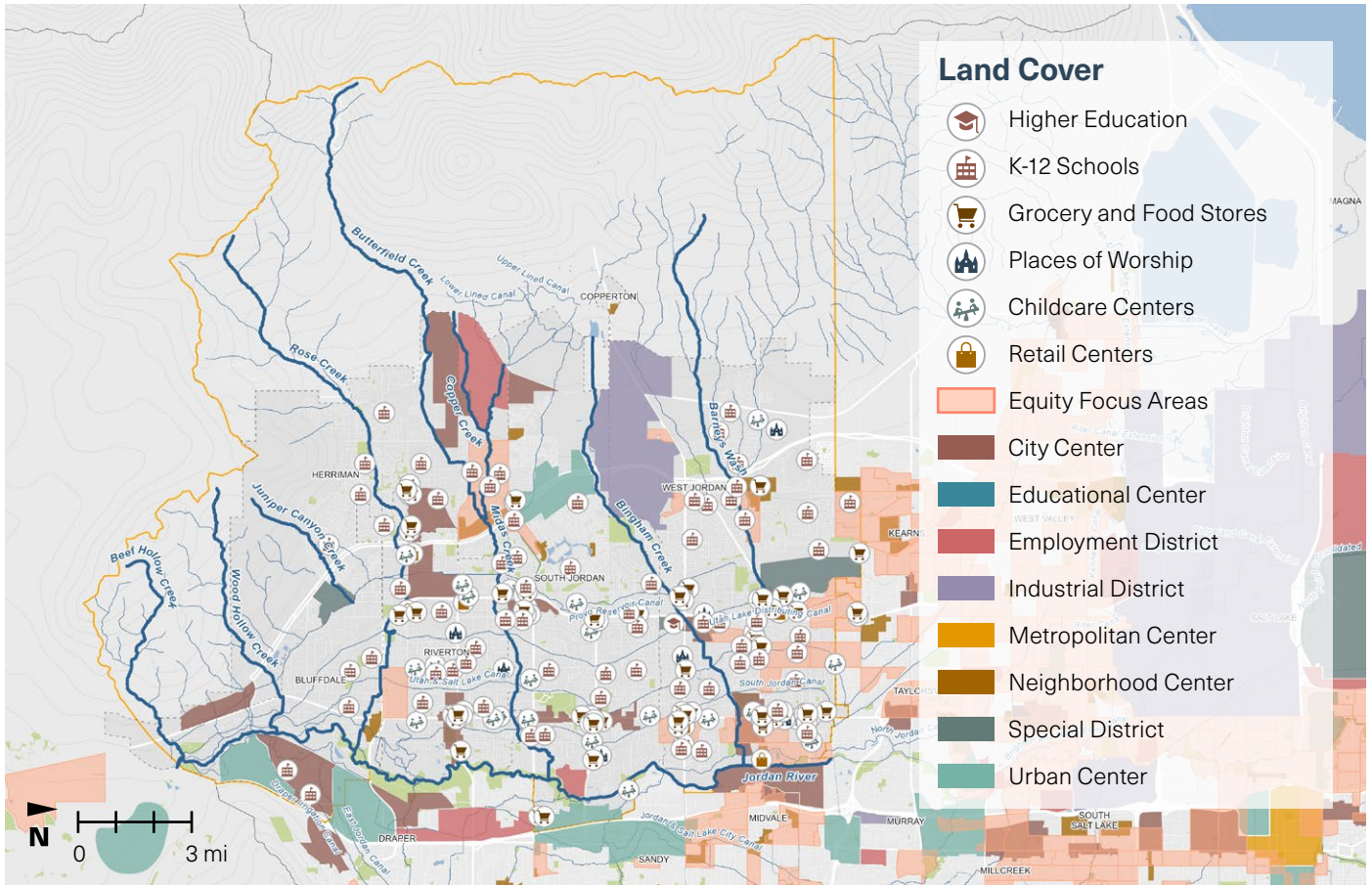
Transportation systems in the study area

area. These rides are operated with small vehicles (vans, SUVs) and may carry multiple people or parties at a time. The intent of the On Demand Zone is to connect people to other transportation options such as buses and TRAX, but can also connect people between any locations within the service area like their home or workplace. Plans to expand and update the On Demand zone will make it possible for workers and residents in the entire study area to access public transportation within a 1/4 mile of their location.

Transportation options are important for fostering sustainability in southwest Salt Lake County. Air quality and safety both improve as more people choose to commute via public transportation. With the example of Daybreak as a recent transit-oriented-development (TOD), it is apparent that options to commute via public transportation are in demand for this area. Focus group discussions revealed that the highest priority for waterway trail improvements are connections to local pathways, more multi-modal paved trails, and safe street crossings. These examples illustrate the enthusiasm around alternate

modes of transportation and reducing reliance on personal vehicles in this area. The benefits of decreasing miles traveled by solo-commuters will improve air and water quality surrounding the study area's waterways and leaves more options for low impact development (LID) and green infrastructure. The careful integration of green infrastructure, LID, and responsible land use policies is essential to maintain the region's quality of life while fostering sustainable development.

There are already new transportation investments being planned in this part of the county. In 2015, UTA announced plans to eventually expand the Red line train, which is currently a major transportation corridor terminating in Daybreak. The current proposal would have extension travel south to Herriman City, and then turn eastbound, passing through Riverton City and terminating in Draper. There are also plans to build an express bus route in this area along 5600 West.



Cultural assets in the study area

CULTURAL ASSETS

There are many community spaces and cultural assets throughout the study area that help shape the character of the region and make this a place people love to live. Connecting these assets with the open spaces and trails that surround the waterways can be an effective way to improve access to these important places.

Wasatch Choice 2050 Centers: The Wasatch Choice 2050 Vision Plan (<https://wasatchchoice.org/>) developed by WFRC identifies centers throughout the study area that municipalities are planning for or currently developing with mixed use, a walkable environment, and concentrated development. These centers are identified as important areas for new development that can invigorate the surrounding area and set a model for positive urban development. These centers are primarily located along major corridors, but all 32 within the study area also have a proximity to one or more creeks, washes, or canals.

Community Assets: Schools, places of worship, grocery stores, childcare centers, and retail centers all play an important role in the everyday life of SLCo residents. These assets indicate where people tend to gather and can be leveraged as opportunities for education around the waterways. Schools in particular benefit from close proximity to open space, and the educational value of the natural environment can benefit all age groups.

Equity Focus Areas: WFRC developed the Equity Focus Areas dataset based on two criteria: concentration of low-income households and concentration of persons identifying as members of racial and ethnic minority groups. These areas can help the plan address areas where social equity can be addressed by any improvements or developments proposed around the waterways.

OUTDOOR RECREATION & CONNECTION TO NATURE

This section discusses issues and opportunities within the southwest water ways related Outdoor Recreation and Connection to Nature including,

1. Recreation Facilities
2. Access and Connections

RECREATION FACILITIES

EXISTING FACILITIES

There are over 150 parks in the study area, ranging from pocket parks to regional open space areas. Trails are also important and abundant as they connect people to the major assets of the Oquirrh Mountains and the Jordan River through a 135-mile network of existing paved and unpaved trails. Trails such as the Bonneville Shoreline Trail and the Jordan River Parkway Trail are well loved by Utahns and have a regional draw for outdoor enthusiasts. These parks and trails utilize connections to the waterways to make outdoor spaces more enjoyable for residents and visitors, and access to water, even if intermittent, is important to the park network.

There are many types of recreation that take place along the Oquirrh front.

Hiking/Trail Running: There are an abundance of trails along the Oquirrths. These trails range from regional trails such as the Jordan River Parkway Trail and the Bonneville Shoreline Trail, to creekside trails and smaller connectors through urban areas.

Biking: Mountain biking is quickly gaining popularity in southwest Salt Lake County, especially among younger populations. The Utah High School Cycling league hosts races that serve over 7,000 student mountain bikers across Utah. Although there are fewer formal mountain biking trails on this side of the Salt Lake Valley, new trail parks such as the Butterfield Trailhead Regional Park are starting to meet the demand for new mountain bike facilities.

Horseback Riding: Equestrian uses have a long history in Salt Lake County. The agricultural traditions and heritage in this area have strong ties to keeping and riding horses, and many residents continue this to this day. Some trails in the Oquirrh mountains permit equestrian uses alongside hiking and biking.

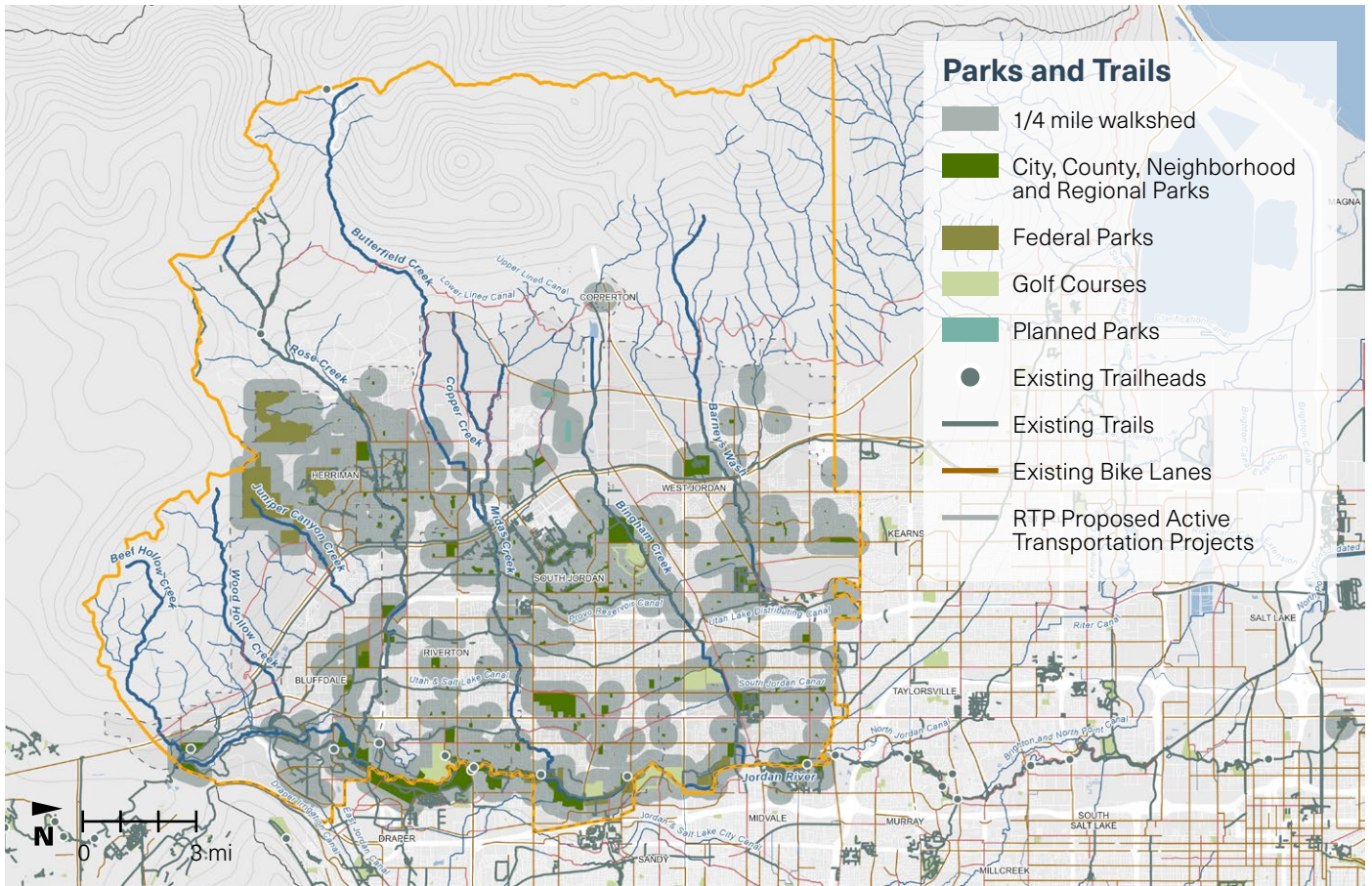
ATV/OHV: All Terrain Vehicles and Off Highway Vehicles are another popular form of recreation in Utah. There are a few trails in this area that allow ATV/OHV use, and they can also be registered for street use.

Skiing: There is a small amount of backcountry skiing that occurs in the Oquirrh Mountains, as there are no formal ski resorts on this side of the valley. There is significantly less skiing activity here as compared to the Wasatch Front, which is appealing to some skiers. Access is limited, meaning the terrain is primarily suited for advanced skiers.

Some trails are dedicated to one specific recreational use, such as mountain biking or hiking, but most are shared use trails that allow multiple types of recreation to occur simultaneously. The newly opened Butterfield Trailhead Regional Park is one noteworthy trails and open space asset along Butterfield Creek. It provides connections to 12 different trails, including a connection to Yellow Fork Canyon and serves hiking, biking, and equestrian uses.

RECREATION SNAPSHOT

- Salt Lake County manages over 90,000 acres of open space and parklands.
- Approximately 60% of the county's water supply originates from open space areas.
- There are over 1,000 miles of public trails within Salt Lake County
- Utah ranks as the second-best state for mountain biking with a total of 6,036 trails. This means around 199 trails per 100,000 people.
- Public open space in the study area includes local, state, and federal parks.



Parks and trails in the study area



Butterfield Trailhead Regional Park



Jordan River Parkway Trail



Desert Wash Way Playground and Rose Creek

RECREATION TRENDS

- Overwhelmingly, Utahns participate in hiking more than any other recreational activity, such as bicycling, running, walking and playing golf. This may be due to the high cost of some of these activities.
- Despite the high cost, skiing and snowboarding have been able to gain broad appeal. While golf is played much more frequently by those with incomes greater than \$100,000, skiing and snowboarding are more commonly enjoyed by Utahns across all income brackets
- The outdoor recreation economy in Utah grew 27.3% from 2020 to 2021, according to the BEA Outdoor Recreation Satellite Account. This year's report shows that outdoor recreation creates \$6.1 billion in value-added for Utah, accounts for 2.7% of Utah GDP and includes 66,736 jobs.
- In 2019, Salt Lake County attracted over 16 million visitors, largely due to its outdoor recreation opportunities.
- Mountain biking is quickly becoming more popular, especially among youth

PROPOSED FACILITIES

Each municipality is planning to expand their parks and trails system in order to meet the needs of residents for years to come. Future trails along the waterways and canals are already planned, as well as parks that will serve new developments and infill existing residential neighborhoods with pocket parks. Many canal trails have been proposed that would help create north-to-south connections throughout the study area and increase access to the waterways. Additionally, major expansions to the Bonneville Shoreline trail have been proposed, allowing this trail to be as connected and expansive as it is on the valley's east bench.

ACCESS AND CONNECTIONS

Proximity to greenways and open spaces provides residents with opportunities for outdoor recreation and leisure. A study by the National Association of Realtors (NAR) found that properties located near parks or recreational areas tend to have higher values, as they are seen as more desirable for active individuals and families. The Jordan River Parkway trail is a major greenway that connects communities across Salt Lake County, from Bluffdale to Salt Lake City. Many of the waterways in this study area flow into the Jordan River, and therefore share a connection to this important trail network. With numerous parks within a ¼ mile of the waterways, there are many walkable connections between open spaces that can supplement formal greenway corridors.

Walking and biking trails along the banks of creeks and canals can connect different neighborhoods and provide a safe and scenic route for residents to enjoy outdoor activities. Outdoor fitness stations, art installations, picnic areas, fishing ponds, and educational programming can help activate these spaces and create spaces of respite along the trail to improve walkability and human comfort.



Lake Avenue Park, Daybreak



Vintage Park, Bluffdale



Midas Creek Trail, Herriman

NATURAL SYSTEMS & WATER RESOURCES

This section discusses issues and opportunities within the southwest water ways related to Natural Systems and Water Resources including,

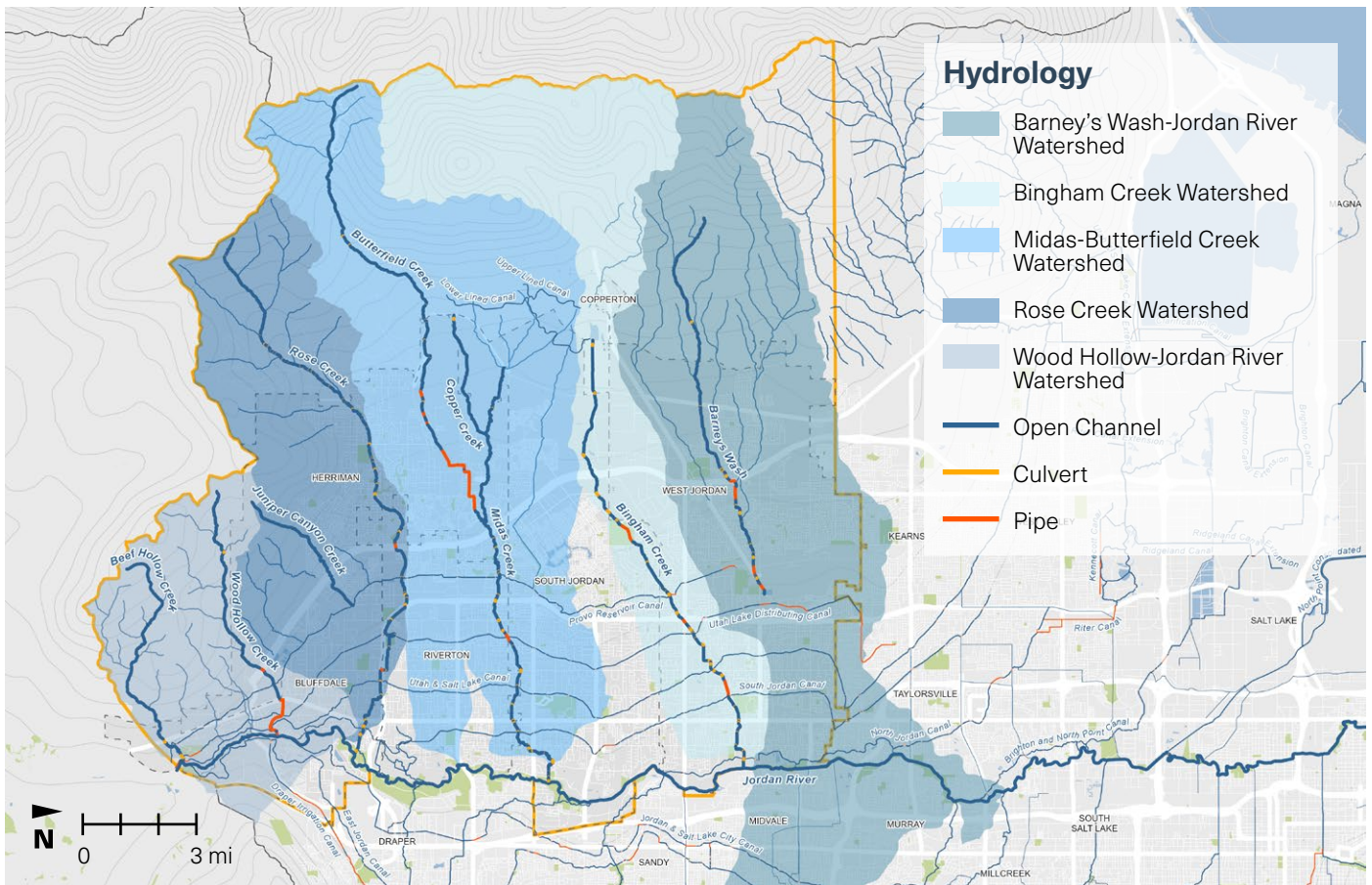
1. Hydrology
2. Wildlife Habitats
3. Natural Hazards

HYDROLOGY

Throughout the study area, the creeks, washes, and canals traverse a variety of typologies and contexts. As they flow from their headwaters in the Oquirrh Mountains into more urbanized areas, the width, adjacent uses, and waterway channel varies. There are three main typologies of waterways investigated by this plan: creeks, washes, and canals. These waterways pass through two categories of adjacent land use: open space, and rural and urban development.

ENVIRONMENT SNAPSHOT

- There are 72 miles of creeks and washes in the study area.
- Five subwatersheds of the Jordan River Watershed are included in the study area.
- All of the waterways except for Barney's Wash and Juniper Canyon Creek drain into the Jordan River, and later into the Great Salt Lake.
- None of the creeks or washes supply drinking water for Salt Lake County residents.
- The waterways are primarily ephemeral and often dry.



Parks and trails in the study area

WATERWAY TYPOLOGIES

CREEK

Creeks are waterways that support perennial or intermittent flow of water. They are tributaries to a larger stream or river, in this case the Jordan River.

The creeks in the study area include:

- Beef Hollow Creek
- Bingham Creek
- Butterfield Creek
- Copper Creek
- Midas Creek
- Rose Creek
- Wood Hollow Creek



Rose Creek

WASH

A wash is a shallow channel that allows water from storms or snowmelt to move across the landscape. They typically only have water in them seasonally depending on precipitation.

The washes in the study area include:

- Barney's Wash
- Juniper Canyon Creek

CANAL

Canals are human-made structures that affect the overall hydrology of the area. They are managed by private companies and may or may not allow public access. There are numerous canals that intersect the creeks in this area that distribute water from the Jordan River to communities across Salt Lake Valley.

The canals in the study area include:

- Draper Irrigation Canal
- East Jordan Canal
- Jordan & Salt Lake City Canal
- Provo Reservoir Canal
- Lower Lined Canal
- North Jordan Canal
- South Jordan Canal
- Upper Lined Canal
- Utah Lake Distributing Canal
- Utah & Salt Lake Canal



Barney's Wash



Welby-Jacob Canal

LAND USE TYPOLOGIES ADJACENT TO WATERWAYS

OPEN SPACE

There are two primary typologies of land use that will be pertinent to this analysis: open space and urban/rural development. In the open space condition, the creeks and washes remain in their natural state. This condition primarily exists in the upper portions of the watershed, where the waterways flow through the Oquirrh mountains and the foothills. Much of this land also serves as recreation areas for people to interact with the waterways in their natural condition. Native vegetation, riparian zones, and wildlife are important in open space areas. The potential opportunities for open space areas include protection and preservation of natural resources, remediation of riparian area and water quality, and connecting to outdoor recreation.



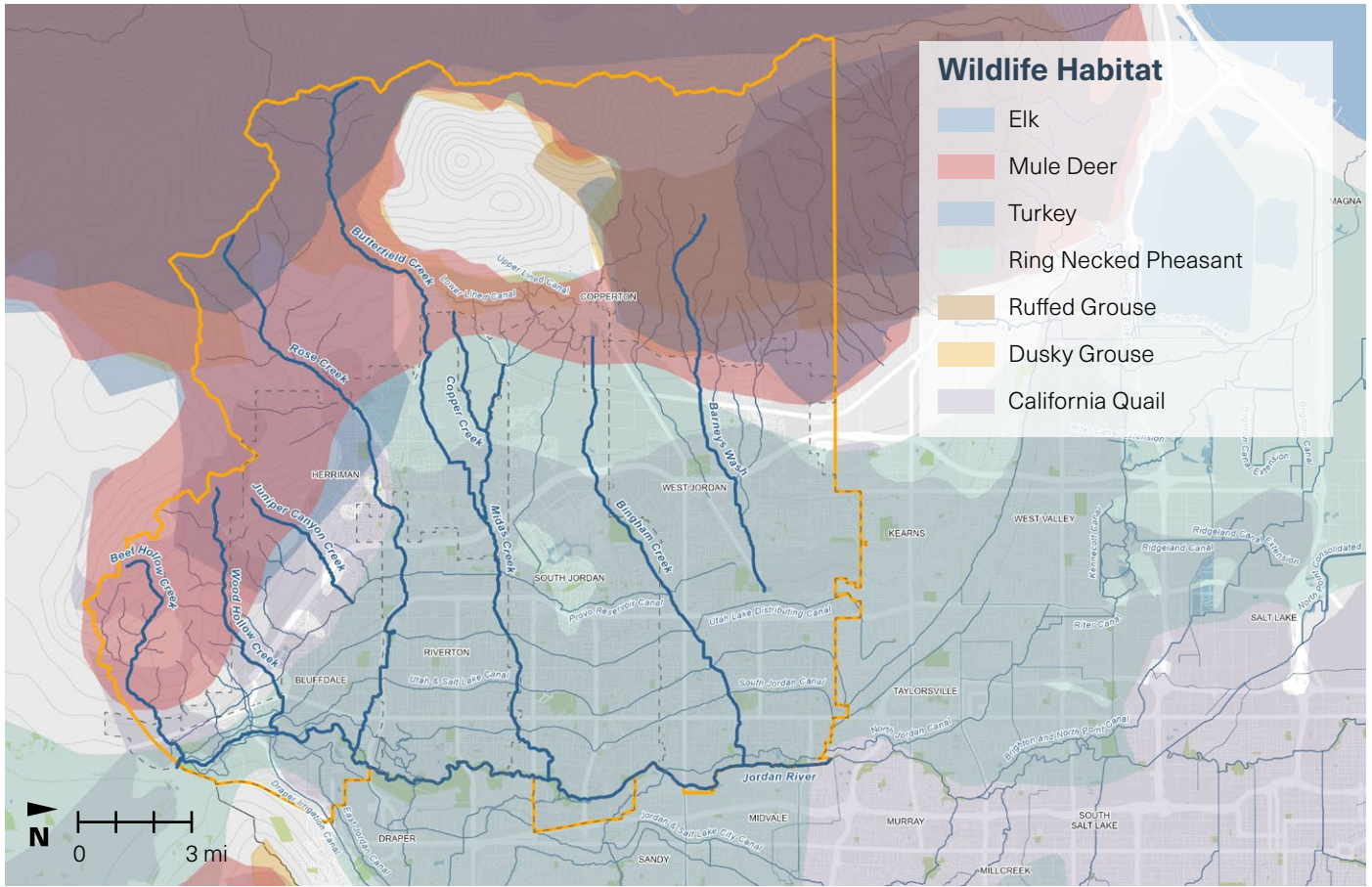
Open space conditions

URBAN AND RURAL DEVELOPMENT

As the waterways continue down into the valley, they reach various typologies of rural and urban development. In this typology, the waterways interact with residential, commercial, or civic spaces more heavily inhabited by residents and visitors of the area. The waterways may weave between properties or may be piped and sent underground. These developed areas impact water quality, flood management, and the urban green space network, including parks, bikeways, and walking paths. Areas where the waterways are visible create opportunities to foster connections between cities and their waterways to build identity and environmental stewardship.



Urban and rural development conditions



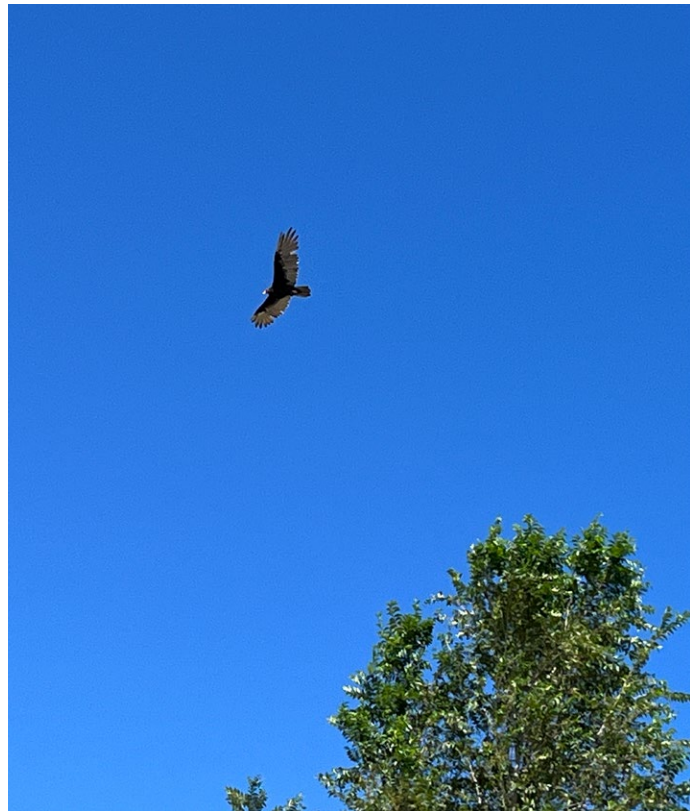
Parks and trails in the study area

WILDLIFE HABITAT

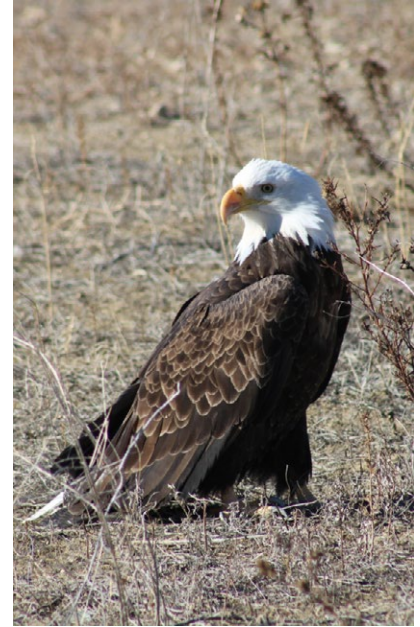
The Salt Lake Valley is surrounded by rich habitat nestled in the canyons and peaks of the Wasatch and the Oquirrh Mountains. The Oquirrh Mountains are directly adjacent to the Great Salt Lake on their northern end as well, creating important corridors for birds, elk, and other wildlife to move through.

The Utah Division of Wildlife Resources maps game species habitats that can be used as a proxy for wildlife habitat ranges. The following species have habitat that falls within the study area:

- Elk
- Mule Deer
- Turkey
- Ring Necked Pheasant
- Ruffed Grouse
- Dusky Grouse
- California Quail



Turkey vulture soaring above the South Jordan Canal



Ute Ladies' Tresses: USFWS/B. Hotze; Yellow Billed Cuckoo: Peter Pearsall/USFWS; Monarch: Gary Eslinger/USFWS; Bald Eagle: Chris Moehring/USFWS

In addition to these indicator species, there are over 40 animal and plant species that have been identified by the Department of Wildlife Resources as species of greatest concern, 5 of which are federally listed.⁷ The species that occur in Salt Lake County are reliant on the natural environment that remains here and are at risk as future development continues to impact natural land. Specific ranges of these species are not available due to sensitive conservation efforts. These species include⁸:

AMPHIBIANS

- Columbia Spotted Frog
- Northern Leopard Frog
- Western Toad

BIRDS

- American Bittern
- American White Pelican
- Bald Eagle
- Band-tailed Pigeon
- Black Rosy-finch
- Black Swift

- Burrowing Owl
- Caspian Tern
- Ferruginous Hawk
- Flammulated Owl
- Golden Eagle
- Lewis's Woodpecker
- Olive-sided Flycatcher
- Peregrine Falcon
- Snowy Plover
- Yellow Billed Cuckoo - **THREATENED**
- White-faced Ibis

FISH

- Bonneville Cutthroat Trout
- June Sucker
- Least Chub

INSECTS

- Monarch Butterfly - **CANDIDATE**

MAMMALS

- American Pika
- Canada Lynx - **THREATENED**
- Long-eared Myotis

⁷ IPaC: Explore Location resources (<https://ipac.ecosphere.fws.gov/location/SH6CMAL4NZETPJOE76IB7P2K5Q/resources#endangered-species>)

⁸ Utah's Species of Greatest Conservation Need | Species by County (<https://wildlife.utah.gov/pdf/WAP/utah-sgcn-list-by-county-10-23.pdf>)



Bonneville Cutthroat Trout: Clint Wirick/USFWS; Burrowing Owl: Dustin Casady/USFWS

- Long-legged Myotis
- Townsend's Big-eared Bat
- North American Wolverine - **THREATENED**

MOLLUSKS

- Bear Lake Springsnail
- Coarse Rams-horn
- Cross Snaggletooth
- Deseret Mountainsnail
- Desert Tryonia
- Green River Pebblesnail
- Lyrate Mountainsnail
- Mill Creek Mountainsnail
- Mitered Vertigo
- Mountain Marshsnail
- Rustic Ambersnail
- Top-heavy Column
- Utah Physa
- Western Pearlshell
- Widelip Pondsnaill
- Winged Floater

PLANTS

- Siler Pincushion Cactus
- Ute Ladies' Tresses - **THREATENED**

NATURAL HAZARDS

CLIMATE CHANGE

As climate change becomes a growing concern, areas with green infrastructure are more resilient to extreme weather events and natural disasters. The Urban Land Institute's report "Water Wise" suggests that properties in resilient communities tend to maintain their value even in the face of climate-related challenges.⁹ Drought and extreme temperatures have already been observed in Salt Lake County. Careful management of water resources, including surface and groundwater, is necessary to ensure that water can continue to serve the environment and the people of Salt Lake County.

EROSION

The banks of the waterways are fragile ecosystems of their own. There is very little area along the waterways that is officially classified as riparian (wetlands adjacent to rivers or streams), but the interface between land and water is still important. Pollution, invasive species, and human interaction can exacerbate poor conditions in areas challenged by erosion. As banks erode, the natural state of the environment changes and the additional sediments deposited into the waterways can reduce overall water quality. Currently, erosion has been identified in Yellow Fork Canyon, Midas Creek's upper watershed, and near confluences with the Jordan River.

FLOODING

While this study area has very little land designated as a 50- or 100-year floodplain by FEMA, there are still concerns about flooding that affect the waterways. Flooding in this area is caused by spring runoff from snowmelt and rain from thunderstorms. Yellow Fork Canyon, Midas Creek, and areas surrounding confluences with the Jordan River have been identified as problem areas for flooding. Even though flooding is rare, many people don't understand the risks that occur when the waterways do experience high water conditions.

⁹ Water Wise (https://knowledge.uli.org/reports/research-reports/2022/water-wise?_gl=1*dt5xfz*_ga*NDY2ODlyNDA5LjE2NTU4MjE4NjM.*_ga_HB94BQ21DS*MTY2NDk5NDIwNi4yMDUuMS4xNjY0OTk3NjI1LjAuMC4w)