Box Elder County General Plan

Adopted November 17, 2021

Acknowledgements

Thank you to everyone who participated in Box Elder Together by attending a meeting, taking a survey, spreading the word, or in any other way to make Box Elder County's future brighter!!

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...AND YOU!!!

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VISION + PUBLIC PROCESS

PART 1: INTRODUCTION

Box Elder County is at a crossroads amid a significant growth surge that is spreading north and south along the Wasatch Front. The County can choose to let development shape it, or the County can choose to shape development. Conscientiously shaping the future toward a desired vision is what planning is all about, and the effort to refresh county planning strategies is best initiated through a county's general plan – a vision for the future.

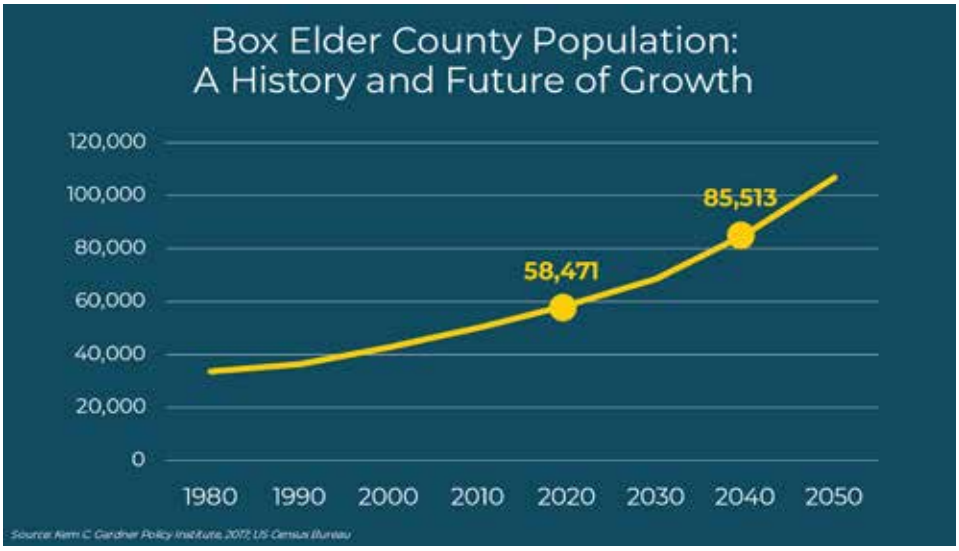
Box Elder County is located in a beautiful rural setting, but the growth that is expected could threaten the values residents hold dear unless growth is formed into patterns that honor those values. The County values a rural way of life, recreational opportunities, views and open space, and agriculture. These values could be compromised by the influx of new development if development does not meet the expectations of residents. This fact is not offered to imply that new growth is negative in some manner, but simply to suggest that new growth needs to help achieve Box Elder County's vision for the future.

A Context of Growth

While Box Elder County residents enjoy tremendous quality of life in a beautiful part of the State, the County also grapples with another reality: its context in a rapidly growing region. Utah's growth continues to be mostly homegrown due to the larger average size of our families, but the State also attracts many new residents, who come for economic opportunities and the quality of life that places like Box Elder County offer. Just like the State as a whole, Box Elder County is experiencing rapid growth, expecting to increase its population by about 27,000 new residents by 2050, for a total population of 85,000 residents. Growth is nothing new to the County. In the last 30 years, the County has experienced a steady stream of growth, just as the Wasatch Front region's population has increased. Growth is a part of Box Elder County's past, present, and future.

How Much Will We Grow?

Box Elder County is expected to increase its population by about 27,000 new residents, or 8,800 new households, by 2050, for a total population of 85,000 residents. This population projection reflects numbers developed by our state, which provides population projections as a part of its planning. The State effort is informed by local government input.



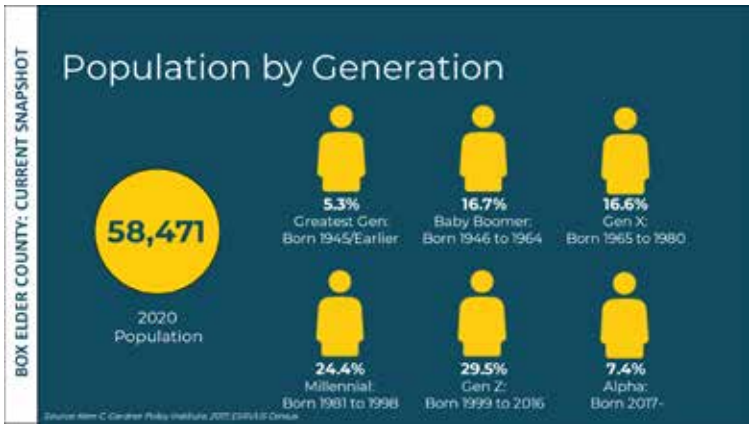
What Does Growth Look Like?

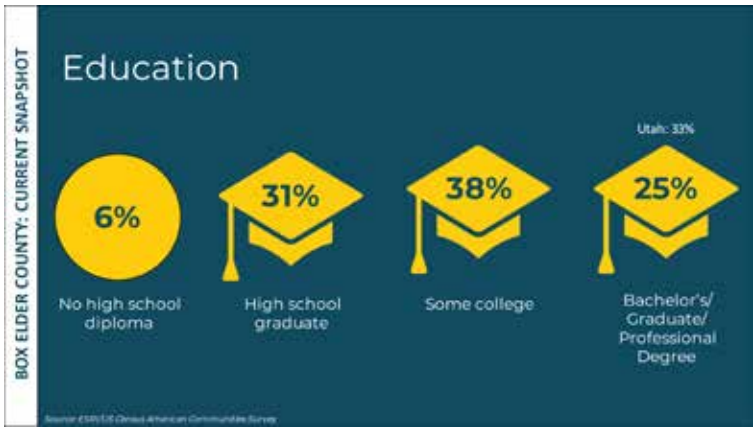
Historically, most of Box Elder County's growth occurred in the traditional population centers of Brigham City and Tremonton. In recent years, as land becomes scarcer and home prices increase in counties to the south, the County has seen increased growth in its southern communities, like Willard and Perry, and along the US 89 corridor generally. The pattern of growth has also changed somewhat over the years, from growth focused mostly within historic city grids to more corridor-style growth spread out from north to south in the County, often on what was once fruit-producing land.

Issues Surrounding Growth

As a major agricultural hub for the State, Box Elder County provides significant fruit growing capacity. It is also home to thousands of acres of farming and ranching operations. A growing population increases pressure on these productive lands, especially the remaining orchards along US 89. Increasingly, the County also attracts tourism, with unique destinations including the Bear River Waterfowl Management Area, Willard Bay State Park, Golden Spike National Historical Park, and the Spiral Jetty. Further, with the County's proximity to the State's major metropolitan area—Salt Lake City—it attracts residents who want access to good jobs but also want to live in a more rural place. Remote work opportunities, which have increased due to Covid-19 restrictions, have also created greater interest in rural but broadband served locations.

Key Facts: Population





This growth not only affects historic economic industries like agriculture, but it also affects housing affordability. As there is more demand for housing in Box Elder County, rising prices are an issue, and first-time home buyers may have a difficult time finding affordable options. Overall, the County's location and high quality of life suggest continued strong growth into the distant future. How growth is managed is a primary question for all of Box Elder County. If managed well, what residents love about the County can be preserved and enhanced.

Establishing Direction: The Role of a Vision and General Plan

General plans are the foundation that establishes direction on the "big" issues. Box Elder County's "Box Elder Together" visioning process started with a survey, a web site and then a workshop intended to ascertain issues of importance to everyone in the County. A community values assessment and a land use visioning exercise resulted in a vision map and vision principles. The vision map and principles became the foundation for this general plan.

Box Elder County's visioning process, Box Elder Together, described in Part 2 of this chapter, was a grassroots conversation about the future of the County. It provided an opportunity for residents to explore issues surrounding the County's future and, in that context, conceptualize together the future they want to create. The process identified what residents need to preserve and enhance quality of life today, but also the quality of life for the County's children and grandchildren. Finally, the process laid the foundation for the development of this general plan, which represents a road map to the future envisioned by the public. Rather than diving into the general plan update, the visioning process provided the space to ask, "*What do people want and how will our county and its cities/towns provide it?*" before moving directly to implementation strategies, which are embodied in the general plan.

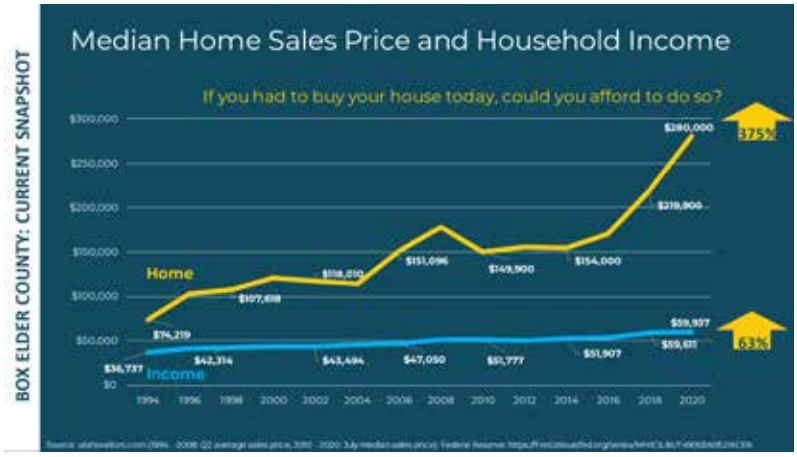
ISSUES SURROUNDING GROWTH

Commuting

Nearly 1 in 5 Box Elder County residents commute 7+ hours to and from work per week, mostly to access job opportunities to the south.

Median Household Income and Home Sales Price

This chart shows Box Elder County's median income in blue, and median home price in yellow. Income has not kept up with rising home prices.



PART 2: BOX ELDER COUNTY VISION - BOX ELDER TOGETHER

Box Elder Together Vision

On the north end of the 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 amenities 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.

Box Elder Together Guiding Principles

1. **Regional Cooperation**. Our County and its cities, towns, and communities proactively work in cooperation to take advantage of opportunities and address issues that affect all of us.
2. **General Growth Patterns**. We invest in our towns and cities that have served us well for generations. We encourage most new growth to happen in these communities, maintaining safe, vibrant, and prosperous places for future generations. We preserve and protect our agricultural and natural lands that surround our cities and towns. We encourage strategies that enable long-term agricultural pursuits and support our rural atmosphere.
3. **Agriculture & Rural Character**. Agriculture is an important part of our history, heritage, and economy, as well as an important part of our future. We actively preserve orchards and the small fruit industry as well as our farms and ranches.
    - Cluster development near cities to focus growth and protect remaining agricultural land from dispersed development.
    - Designate agricultural heritage areas to preserve options for large-acreage farming & ranching.
4. **Natural Resources**. We conserve our natural resources, which have inherent value and contribute to our quality of life in Box Elder County.
5. **Quality Neighborhoods**. We provide a variety of living options in our County and encourage the development of neighborhoods that will support residents with various incomes and through all stages of life. We protect opportunities to live in a rural atmosphere but focus most growth in new neighborhoods in our cities and towns.
    - Preserve and enhance existing neighborhoods and increase walkability.
    - Create walkable new neighborhoods with a variety of housing options and open space amenities.
6. **Downtowns & Mixed-Use Areas**. Supporting vibrant growth in downtowns and mixed-use areas enables outlying areas of Box Elder County to maintain a rural feel and our cities and towns to cultivate a lively small-town atmosphere. By focusing most of the County's jobs, shopping, dining

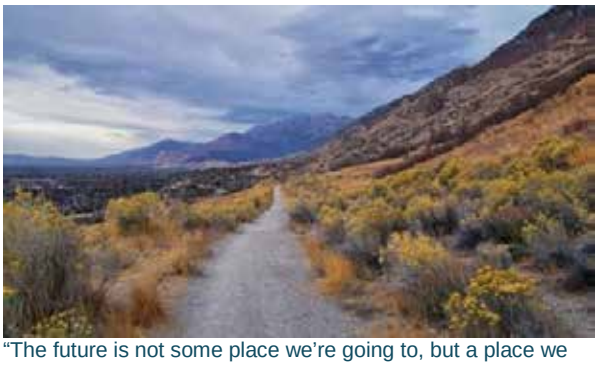
and significant residential growth in these areas rather than dispersing growth across our County, we enable the "hearts" of our various communities to thrive while preserving surrounding agricultural lands.

- Downtown Brigham City and Tremonton are the centers of activity—the destination for shopping, dining, and entertainment, supporting strong working and living environments.
- Smaller communities, including Willard and Perry, foster small, walkable districts for gathering, shopping, and dining.

7. **Jobs & Economic Development**. We are a part of one of the most vibrant regions in the country and home to a high quality of life that can attract employers. We will create more family-sustaining jobs in Box Elder County.
    - Attract and partner with employers in key industry sectors to locate in our downtowns and in industrial areas.
8. **Outdoor Recreation, Parks & Trails**. We value access to the great outdoors. We will develop a robust recreation network that improves access to recreational activities and lands.
    - Local trails connect residents to a regional network.
    - Regional trails provide access to our beautiful rural and natural setting.
9. **Transportation & Infrastructure**. We make sustainable, efficient, and convenient infrastructure choices that place Box Elder County and its communities in a strong position for the future. Infrastructure systems generally include transportation, water, sewer, waste disposal, broadband, and energy.
    - Emphasize local streets that provide efficient options for cars, bikes, and pedestrians and reduce pressure on US 89.

What is Box Elder Together?

Box Elder County's visioning process, Box Elder Together, was a grassroots conversation about the future of the County. It provided an opportunity for Box Elder County residents to explore issues surrounding the County's future and, in that context, imagine together the future they want to create. The process identified what residents need to preserve and enhance quality of life today, but also the desired quality of life for the County's children and grandchildren. The vision and principles on preceding pages are the result of the Box Elder Together process.



"The future is not some place we're going to, but a place we are creating. The paths to it are not found, they are made."
-Jane Garvey

Vision Process Goals

1. Identify, honor, and address values and "big ideas/issues."
2. Create a vision statement and principles to guide the general plan and to be a standard to weigh current and future decisions against.

A Public Stakeholder Process

The process included a large steering committee of residents and community leaders—a diverse group of people with varied ideas but with a commitment to a public process and the greater good of Box Elder County. The steering committee met regularly, ensuring the visioning process would:

1. Provide research and information to the public;
2. Seek broad public input through a variety of virtual meetings and other online opportunities;
3. Build the vision directly from public input;
4. Use transparent methods throughout, so the nexus between public input and the resulting vision was clear; and
5. Build momentum for implementation as residents and County and City/Town leaders had conversations together and built trust.

A 30,000-Foot View…

Even a minor course adjustment can have a significant long-term impact. Visioning helped residents and leaders take a 30,000-foot view of Box Elder County and to look out a few decades. It may seem hard to see the effect of a visioning process when so much is happening in the County at the present time. However, like a rudder turns a ship, even small adjustments, while they may not seem to make much difference initially, over the long term, have a giant impact on where a ship ends up. The same is true for Box Elder County.

The steering committee reviewed all feedback from the public and used it throughout the process as it worked alongside County leaders and consultants to create options for further public consideration as well as the final vision and principles.

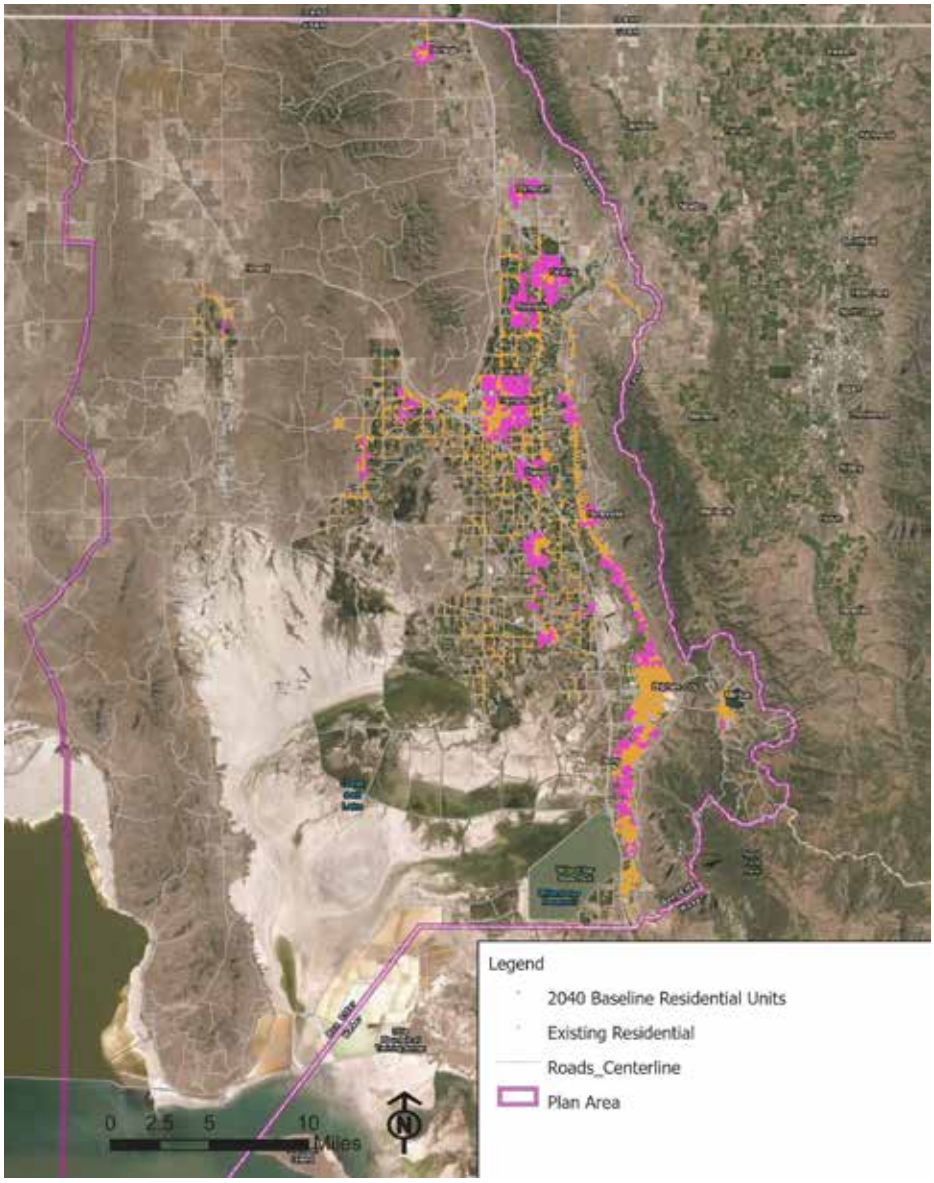
Box Elder Together's website, Boxeldertogether.com, provided transparency throughout the process, supplying project updates and project progress, while also providing ways for people to share their ideas through several online surveys. Combined with virtual events, the website delivered a locally unprecedented level of transparency and public outreach so that citizens could easily understand and trust the process.

A Scenarios Process

While the visioning process was a public process, it was also a scenarios process, which built a range of potential futures based on recent trends (trend scenario) and the public's ideas (alternative scenarios) and compared them, to explore the long-term consequences of the choices they could make today. Ideas from citizens shaped the scenarios, and feedback on those scenarios shaped the vision. The visioning process enabled residents to identify the best options while acknowledging the reality of growth.

How Will Box Elder County Grow?

Box Elder County's Trend Scenario is a picture of what growth might look like in 2050 if we simply grow in the patterns we have seen in the recent past. This scenario contains 8,800 new households, which includes the State's 2050 projection for Box Elder County. Will Box Elder County add 8,800 households by 2050? We don't know. We might by 2040, or by 2060—we just know that we are likely to grow a lot, and it will be helpful to identify the growth patterns Box Elder County residents prefer, so that when more growth comes, the County will be well prepared. The trend scenario is helpful because it shows our likely growth pattern if Box Elder County follows recent trends. We can ask proactively, "Is this how we want to grow? What does this growth pattern mean for community identity? Jobs? Recreational opportunity? Rural atmosphere and agricultural heritage? Housing affordability? Our cities?" In contrast to the 2050 trend scenario, which simply carries the current trend forward, a vision scenario charts a deliberate course toward a future that residents want.



Box Elder County Trend Scenario

In this image, recent growth trends are projected out to 2050. Each yellow dot represents an existing household, and each pink dot represents a new household. If we follow recent trends, most of our communities grow into one another along the Highway US 89 corridor, and we see

Public Meetings and Online Feedback

Kick-off Survey (August 26-October 13, 2020)

Almost 700 Box Elder County residents participated in a survey to kick off the Box Elder Together process. It consisted of several brief questions designed to help consultants and the steering committee understand public values and identify key issues for exploration in the process. In a nutshell, we learned that residents value their rural way of life, views and open space, and agriculture. We also learned they would like to see better shopping/places to eat and reasonably priced housing, but less agricultural land loss and high-density housing.

Virtual Public Workshop (October 21, 2020) and Online Survey (October 21, 2020-November 30, 2020)

Box Elder County residents participated in a public workshop to explore the County's context of growth and brainstorm options for the County's future. The workshop included a presentation outlining the visioning process, examining regional and County trends, and exploring the County's trend scenario. Next, residents expressed some initial preferences by participating in a real-time poll that gave attendees an on-the-spot feel for general values and hopes of fellow citizens. Finally, residents were asked to share their ideas about growth and related issues by taking an in-depth online survey. The survey, through a range of questions, basically was trying to identify thoughts on the following: *As we grow, what do we need to hold on to? How shall we accommodate anticipated growth?* The survey enabled residents to identify what matters most to them and to voice preferences in the context of both their values and the reality of growth. More than 500 residents took the survey, providing the steering committee and consultant with significant data that was used to inform the creation of alternative scenarios.

Trade-offs to Explore: What's the Right Balance?

As we learned more about the hopes of residents for the future, we noticed a need to identify the right balance between competing desires. For example:

Preserve agricultural land | no compact housing
There is a desire to preserve agricultural land but also a desire for no compact housing, which uses less land and could reduce development pressure on agricultural land.

No growth | more shopping/dining/jobs
There is a desire not to grow, but also a desire for more shopping dining and jobs, which typically follow growth as the market expands enough to absorb more options.

Reasonably priced housing | large lots
There is a desire for reasonably priced housing but also a desire for large lots, which tend to be more expensive than other options.

More recreational/community opportunities | less government or government intervention
There is a desire for more recreational or community opportunities, like parks and trails, but also a desire for less government or less government involvement. However, it is usually government that organizes, funds and offers these types of services.

Preserve orchards and County character | Continued growth along Highway US 89
There is a desire to preserve remaining orchards, but also tremendous growth pressure along Highway US 89, where most orchards are.

Each of these competing desires is understandable but coming to terms with how they are at odds with one another is required in order to achieve the best possible future for Box Elder County in the context of growth. What is the right balance? This was an ongoing question as we explored potential options together.

Public Open House (March 10, 2021)

The ideas from residents who participated in virtual workshop activities and/or the online survey were used as the basis for alternative scenario development. The scenarios created from public feedback explored different ways Box Elder County could grow, in contrast to the trend scenario. At a virtual open house, residents reviewed the scenarios to identify the components of each scenario they preferred and didn't prefer.

What Do Box Elder County Residents Value?

In addition to basic values, there were also a number of "big ideas" that were not a prior emphasis of planning in the County but rose to the top after hearing from residents at the workshop and reviewing online feedback. Five big ideas were identified and then explored in scenarios and companion surveys:

1. Agriculture Matters!

Agriculture in Box Elder County is a major industry and also a key component to rural character—why people love living in the County. More than 90% of survey participants agreed that "agriculture is an important part of our history, heritage and economy, as well as part of our future" and want to actively preserve orchards, the small fruit industry, and prime farmland for farming and ranching. As the County and its residents contemplate agricultural land preservation, they will need to acknowledge that property owners possess a "bundle of rights" that run with the land, including development rights, based on their zoning classification. Permanent preservation involves employing many strategies, including moving development rights and building them elsewhere, selling development rights, conservation easements, zoning for large agricultural parcels, etc. Some of these strategies require both a voluntary seller and a funding source, likely a public one.

2. Mixed-Use Towns and Cities

When asked about general growth patterns, 81% of survey participants identified a preference for a pattern that focused growth in towns and cities and reduced pressure on agricultural land. Historic population centers already contain a blend of uses and can be the focus of infill and redevelopment, which can provide space for fun shopping, dining, and entertainment areas and also a focus for new residential growth and employment. A more focused approach to growth is also more efficient, as it requires fewer miles of roads and water/sewer lines. Initially that can reduce building costs (and therefore home sales prices), and, in the long term, it reduces the cost for governments to maintain infrastructure. Fewer miles of infrastructure likely means that fewer tax dollars will be required to pay for it.

3. Neighborhoods with Housing Variety and Open Space

More than 70% of Box Elder Count participants favor new residential neighborhoods that include a variety of housing types and lot sizes and shared open spaces. In addition, most Box Elder County survey participants think that providing housing that is reasonably priced for a range of households, including young people just starting out is somewhat important or important (90%). Such neighborhoods could include not only a variety of homes but also significant open space amenities—a neighborhood a park, tree-lined streets or trails, maybe a community garden. They also explored neighborhoods that are mostly open space, with larger acreage reserved for farming, recreation, or shared equestrian facilities, with homes clustered onto a small amount of the land.

4. Family-Sustaining Jobs

With increasing commute times, more Box Elder County residents would like to see the growth of family-sustaining jobs in the county, with 75% saying "attract more family-sustaining jobs" (more-51%, substantially more-24%) and only 25% saying "Emphasize a bedroom community, with most workers working outside of the County." More jobs could mean better overall economic opportunity and less time in the car, as well as more time for family or to pursue other interests. Residents identified their top five economic sectors and desired areas for job growth. These include agriculture, technology/research and development, professional/office, manufacturing, and tourism.

5. Trails

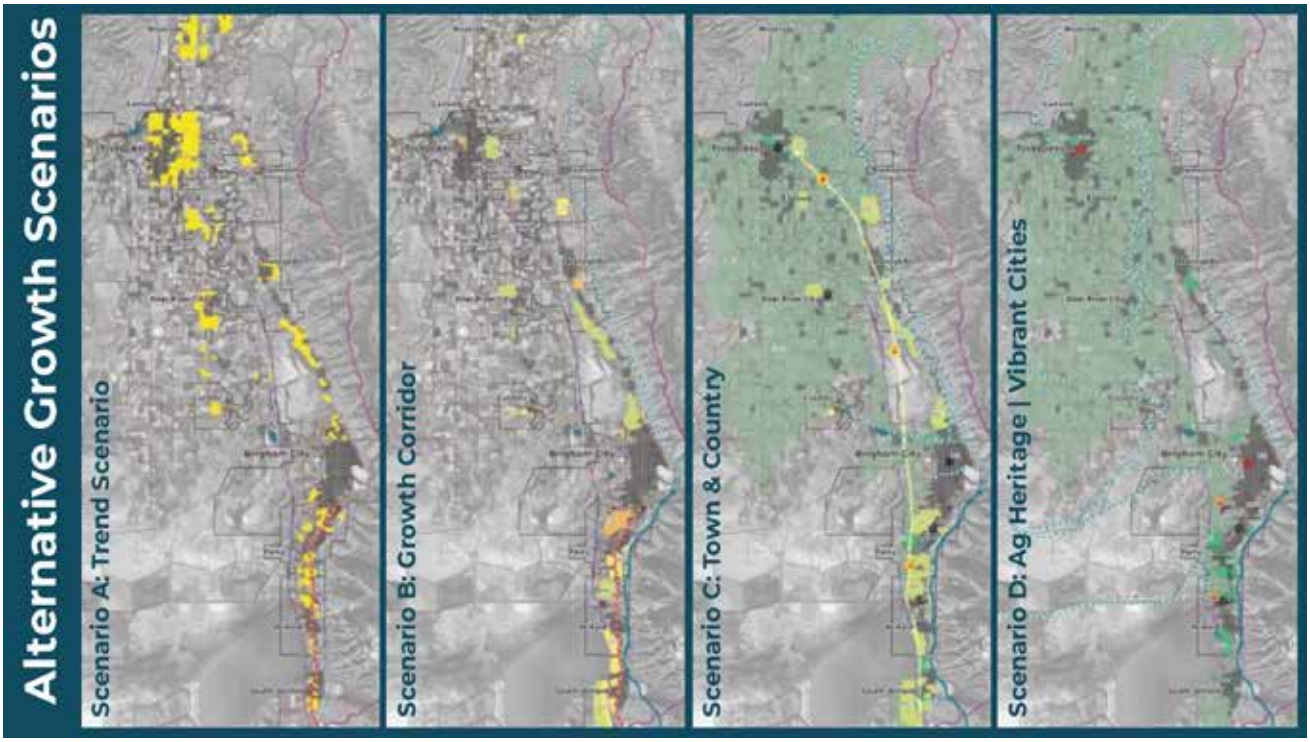
When asked about the desire for more services and amenities, trails top the list for Box Elder County survey participants. Residents see their natural surroundings as a huge contributor to quality of life, and they enthusiastically supported a regional trail system that provides access to the region's public lands. Another key piece of a trials network are local trail systems that can connect to the regional network, providing close-to-home access to a huge regional amenity.

Public Preferences: What Did We Learn?

Thousands of Box Elder Citizens Helped Create the Vision. Public Outreach Included:

- *5,000 postcards at 2020 rodeo*
- *3 public meetings*
- *3 online surveys*
- *2 real-time in-meeting polls*
- *Thousands on social media/web*
- *School district outreach*
- *1800+ survey responses*

Residents had the opportunity to weigh in on all the various components of each scenario, so we could understand which ideas resonated with the public and which did not. The emphasis was not on identifying a favorite scenario but rather on helping us understand which concepts across the scenarios made the most sense for the future of Box Elder County. Nonetheless, preferences for specific scenarios emerged, with 93% of residents preferring Scenario C or Scenario D, and only 7% preferring the Scenario A or Scenario B. Scenarios C and D explored variations of the "big ideas" that came from the public at the initial public workshop, whereas Scenario A simply projected trend, and Scenario B was judged by some residents not to be much different than Scenario B, though it did capture the feedback from some residents. Clearly, Box Elder County residents want a future that is much different than a projection of recent trends. Residents embrace a future that actively supports ongoing agricultural pursuits, enhanced recreational options, and a more focused strategy for growth.



Box Elder County residents explored growth concepts featured in four alternative growth scenarios.

The Numbers: Survey Results

Agriculture is an important part of our future?
- 94%: Actively preserve orchards and the small fruit industry
- 92%: Actively preserve prime farmland for farming/ranching

Preferred general pattern for new development?
- 81%: Growth focused in towns and cities with preserved open space

Importance of providing housing that is reasonably priced for a range of households?
- 90% somewhat important/important

Approach to economic development that makes the most sense?
- 68%: attract family-sustaining jobs
- 17%: attract substantially more family sustaining jobs
- 14%: emphasize residential growth, with most workers working outside of the County

Top services and amenities: more…
- #1: Outdoor recreation
- #2 Unique dining options
- #3 Small-scale shopping

Understanding that strategies are voluntary for landowners, preferred approach to preserving orchards?
- 59%: Rural residential clusters to preserve most remaining orchards through the development process
- 36%: Purchase development rights from remaining orchards and place conservation easements on them, using public funds matched with other sources
- 6%: No need to permanently preserve orchards

Preferred approach to preserving farm and ranch land?
- 50%: Create a large agricultural heritage area that uses large-acreage zoning to limit development to 1-2 lots per 40 acres.
- 44%: When development happens, employ rural residential clusters to preserve farm and ranch land through the development process
- 6%: No need to permanently preserve farm and ranch land

Approach to economic development that makes the most sense?
- 75%: Attract more family-sustaining jobs (more-51%, substantially more-24%)
- 25%: Emphasize bedroom community, with most workers commuting out of the County

Preferred approach to new subdivisions?
- 50%: Rural residential clusters
- 39%: Neighborhoods with open space and housing variety
- 11%: Conventional subdivisions

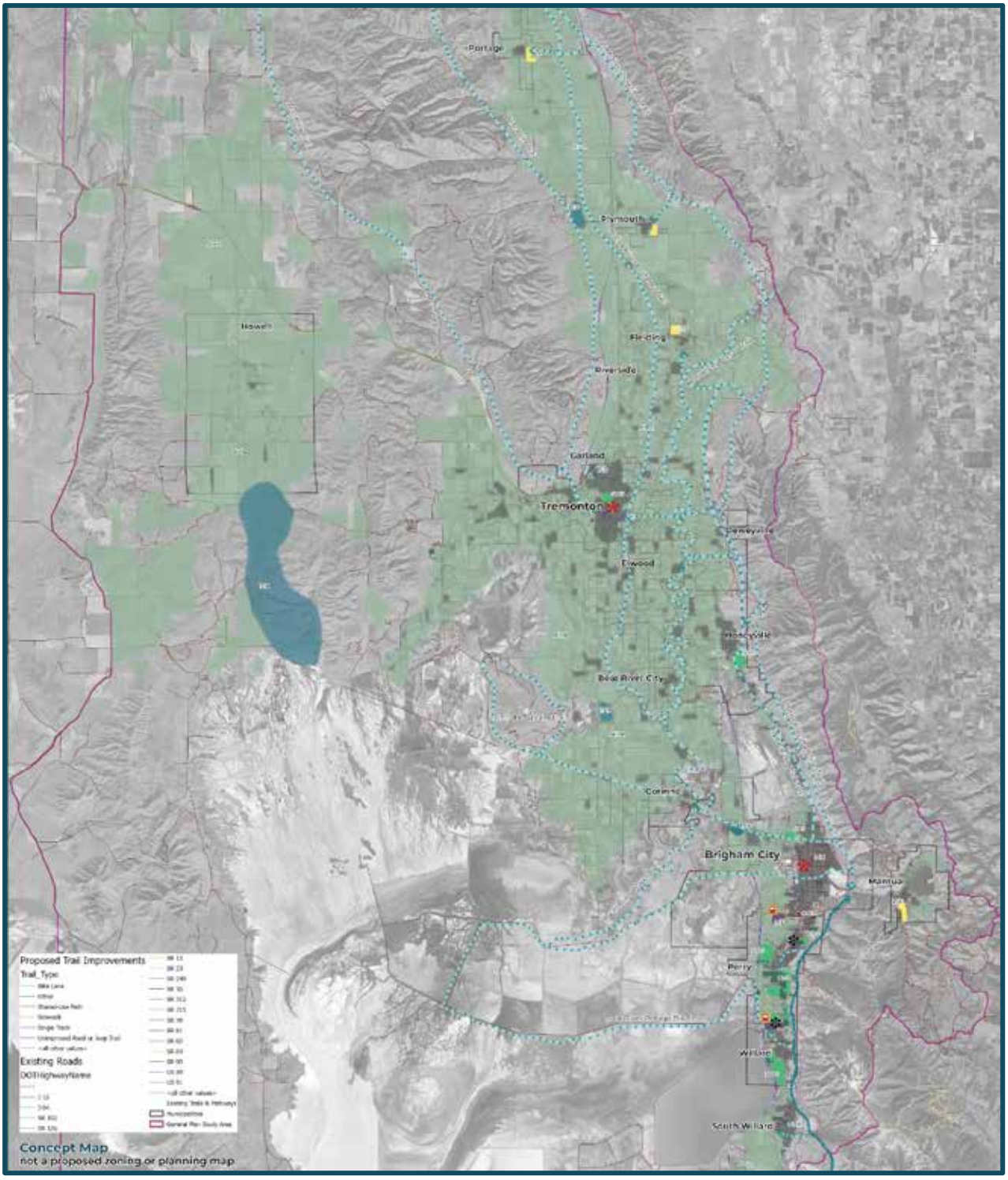
New Regional Trails?
- 68%: Average support for regional trails across scenarios

% that prefer scenarios C/D, featuring focused growth and agricultural preservation, to address the following goals/values:
- 93%: rural character
- 95%: supports ongoing agriculture
- 76%: addresses the needs of future residents, including young people, as they enter the workforce and find places to live
- 92%: preserves views and open space
- 77%: provides desired access to day-to-day needs/service, like shopping and dining
- 93%: characterizes my preferred scenario

Virtual Public Vision Celebration (May 26, 2021)

The Steering Committee, County leaders and consultants used feedback from the public's review of alternative growth scenarios to create a vision (see the vision and principles at the beginning of this chapter) that represents Box Elder County's values and hopes for the future. This vision was warmly received and celebrated at a vision celebration in May 2021 As with each step in the process, the website provided a complete summary of the process and its findings, as well as the vision itself. Box Elder County's vision represents a collective effort of thousands of citizens over many months to identify how they would like to grow between now and 2050. It's inspiring to see the common ground among Box Elder County's residents, and to know the County's future direction!

2050 Vision Scenario – Future Land Use



The vision map depicts one plausible way the vision principles listed at the beginning of part 2 of this chapter could be applied between now and 2050. Communities remain distinct from one another, separated by open space and working landscapes where possible. Most new growth happens in the cities, with significant investment in mixed-use, downtown areas. Some growth happens in smaller towns. Because of agricultural preservation efforts, fruit growing, farming and ranching thrive. Orchards along the Highway US 89 corridor are preserved with conservation easement placed during rural residential clustering or through the purchase of development rights process. An agricultural heritage area encourages the preservation of farming with a commitment to large acreage zoning. New family sustaining jobs are a part of cities and industrial areas.

Vision Map Definitions

Agricultural Heritage Area (AHA): Primary development pattern is 10-40 acre large lot agricultural use. Revisions to the zoning ordinance could create an allowance for more flexible uses and standards and clustering to promote agriculture. Consider 0.5 to 5 acre lot sizes along major roads to provide sufficient adjacent housing to larger agricultural parcels. Typical zoning classifications for large lot agricultural areas could include A-20, RR-10, and MU-40/80/160, to promote agricultural use. RR-20, RR-2 and RR-5 zones are suggested for main road frontages.

Orchard Preservation Area (OPA): Areas that need more immediate options for protection, including purchase of development rights, transfer of development rights, and rural residential clusters, to allow orchards to stay mostly intact. Agricultural ordinance flexibility and market-based cooperative strategies are recommended. Typical zoning classifications include A-20 and RR-10, but both would need revisions to promote preservation concepts.

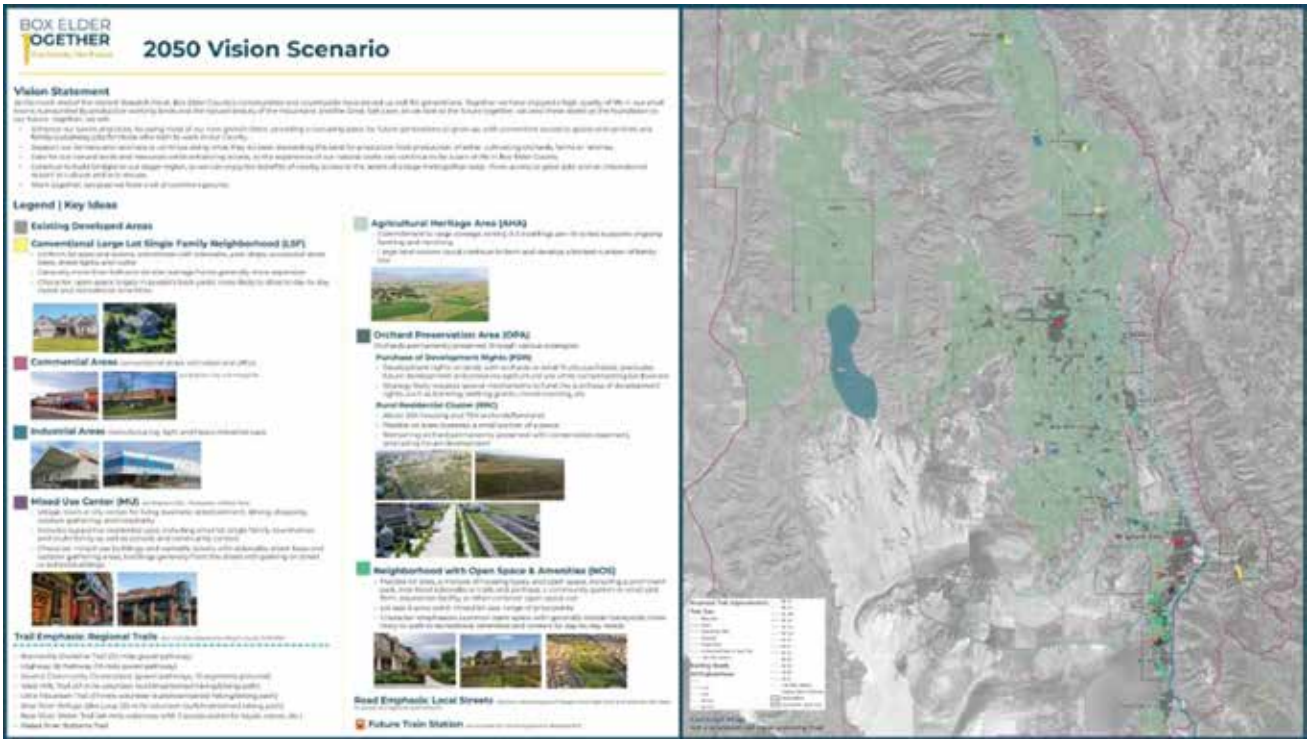
Neighborhoods with Open Space (NOS): Flexible lot sizes, a mix of housing types, pedestrian-friendly streets, and common open spaces/parks. Would require revisions to RR-20 and the R-1-20 zones.

Conventional Large Lot Single Family Neighborhoods (LSF): Mostly uniform lot sizes in the half acre range. Streets with swales and shoulder wide enough for walking/riding. Typical zoning classifications include the R-1-8 zone.

Commercial areas: Conventional commercial development with retail and offices mix. Typical zoning classifications include C-S, C-H and C-G zones.

Industrial/Manufacturing areas: A mix of light and heavy industries. Typical zoning classifications are M-G and M-FP zones.

Mixed Use Centers (MU): A mix of retail, office, and residential uses in a concentrated setting, such as in a small village, town, or city. Intensity of use varies with the setting. For example, a rural small-town atmosphere could be retained in villages and towns through a focused effort to control heights and lot coverage/setbacks. A new zone or series of zones would be needed to foster these centers in a distinct manner, though modifying the Commercial zones or the Master Planned Community zone is also a possibility.



CHAPTER 2:

General Plan Growth Pattern

We invest in our towns and cities that have served us well for generations. Encourage most new growth to happen in these communities, maintaining safe, vibrant and prosperous places for future generations.

We preserve and protect our agricultural and natural lands that surround our cities and towns. We encourage strategies that enable long-term agricultural pursuits and support our rural atmosphere.

General Growth Discussion

As part of this countywide general plan, it is important to think about the relationship of unincorporated areas to the cities and towns. As per State law, all cities, towns, and counties are required to create a general plan. These plans need to address the community's vision for the future and include their proposed future land use, transportation systems, and address housing issues. For counties, a resource management plan is also a requirement.

Communities tend to vary a lot in how often they engage in thinking about their future. Most communities have a general plan, but some are very out of date, may not meet State law, or are not on-line/available for the public to review. For example, Willard is in the process of creating their general plan, Perry completed their plan in 2019, Brigham City's is about five years old, and Tremonton's was completed in 2002. Communities also accomplish regular updates to parts of their plans when an issue arises, such as the need for a better transportation approach or a trails plan or the State required moderate income housing plan. The following are links to the incorporated community web pages, which do not always include the general plans:

- Tremonton
- Garland
- Portage
- Plymouth
- Elwood
- Deweyville
- Honeyville

- Bear River City
- Corinne
- Brigham City
- Mantua
- Perry
- Willard
- Fielding
- Howell
- Snowville

This plan suggests that most growth should occur in the cities and towns. The County can adopt policies to encourage that to happen but must continue to recognize private property rights and coordinate with the incorporated communities. An example of the need for cooperation and coordination is the concept of transfer of development rights as an agricultural preservation tool. That concept does not work well unless some of the cities and towns are willing to accept density from the unincorporated areas. In addition, one of the incorporated cities wants assurance that growth adjacent to their current boundaries reflect the policies/plans of their community. This obviously would take a high level of cooperation and coordination between the city and the County.

Unincorporated Community Plans

Within the unincorporated area of the County there are recognizable communities that have a sense of place and a shared history. These areas are generally agricultural in nature and fall within the agricultural heritage area shown on the vision map. Most have existing zoning, but some do not. To preserve the agricultural and rural way of life in these areas, zoning is essential to protect neighbors from unwanted uses that could occur where zoning does not exist. Tools to encourage agriculture to continue for the long-term future can be embedded in zoning districts. As pleasant places to live and farm, these communities are important to preserve the character of Box Elder County.

The agricultural heritage area is defined as:

> ***Agricultural Heritage Area (AHA)***: Primary development pattern is 10 to 40-acre large lot agricultural use. Revisions to the zoning ordinance could create an allowance for more flexible uses and standards and clustering to promote agriculture. Consider 0.5 to 5-acre lot sizes along major roads to provide sufficient adjacent housing to larger agricultural

parcels. Typical zoning classifications for large lot agricultural areas could include A-20, RR-10, and MU-40/80/160, to promote agricultural use. RR-20, RR-2 and RR-5 zones are suggested for main road frontages.

Several of the unincorporated communities raised concerns during a virtual open house on August 18, 2021, about the following issues:

- The development process: residents were assured that water availability and infrastructure needs are a standard part of the development process.
- Rezoning petitions: a property owner has the right to petition the County for a change of zone but is not entitled to an approval just because they applied.
- Preserving the agricultural way of life: much of this plan is intended to suggest options that could be implemented to preserve the character of rural Box Elder County. For some, housing design standards may be an option to reinforce the agricultural nature of the unincorporated areas, but the Legislature has recently mandated that single family dwellings cannot be required to meet design standards.
- Water scarcity: although any new development proposal must prove there is sufficient water, it is not always clear what the impact of a new well might be on existing wells in an area. Such issues are addressed by the water districts and the State and are not governed by the County; however, the County does require water availability letters and/or water rights to a well demonstrating sufficient flow and quality for a development approval.
- Unzoned areas: these areas were not discussed in depth but do pose an impediment to preserving the agricultural heritage of the area.
- Expansion of commercial uses in the agricultural areas: although some commercial uses are in unzoned areas, some exist in properly zoned parcels. In areas that are zoned, rezoning, with community input, will generally be necessary to expand beyond the zone boundaries. In unzoned areas, expansions simply need to meet setbacks and height restrictions, and no community input is considered.

Bothwell

Bothwell encompasses an area of unincorporated farmland along 11600 North and about 10000 West. It is mostly composed of large lots with dominant agricultural uses, including grazing and raising crops. Single family homes front along 11600 North. The area has easy access to Tremonton and is well served by the major roads, coupled with an interchange on I-84. The West Canal, the Highline Canal and the Salt Creek/Spring corridor provide potential off-road trail experiences. A cemetery and a park are located at the 11200 N and 11600 West intersection. Some wetlands that appear to be man-made impoundments are in the area to the south.

Current zoning is generally a 5-acre agricultural designation, but many of the lots are much larger. As part of the larger agricultural heritage area, 20-acre zoning is more appropriate. To assess the potential for some areas to be rezoned to the larger lot designation, a lot size analysis should be completed. Agricultural protection zones on individual properties may prevent that from occurring, since owners in such zones have the right to reject zoning changes that impact their property.

A community plan that mostly addresses how to zone the area was adopted in 2005. To address the three required elements for a General Plan, recommendations follow:

1. **Future Land Use**: as part of the agricultural heritage area large lot zoning should remain, to encourage continued agricultural activity. A GIS lot size analysis should be performed to evaluate additional zoning options.

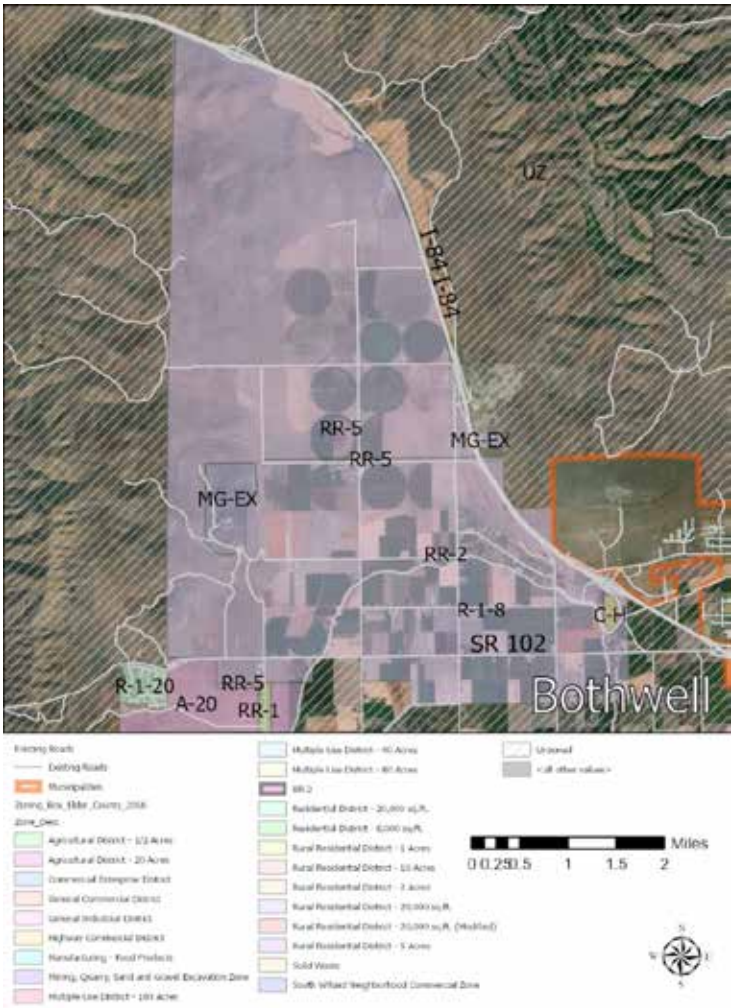
   Irrigation capabilities and water rights should be studied to assure the current system can serve the area in the future.

2. **Transportation**: the area relies on 11200 North, 10800 West, 10000 West and SR 102 as its major vehicular road system. These roads should include widened shoulders to accommodate walking and bike riding.

   Swales could provide drainage for the road surfaces and adjacent properties.

   Consider trails along the canals and the Salt Creek environs; use incentives for landowners and canal companies to encourage allowing access.

3. **Housing and Agricultural Preservation**: large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered. Education on additional techniques to provide incentives for preservation should be initiated.



Riverside

Situated west of the Malad River Bottoms, east of I-15 and straddling SR 30 (15200 North) near the intersection with 5400 West (SR13), the unincorporated community of Riverside has a long agricultural history. The area had a thriving sugar beet industry until the 1977 closure of the sugar beet plant in Garland. Since then, agricultural activities have transitioned to growing other crops and grazing. A dairy farm just north on SR 13 continues as a thriving business in the area. With 13 blocks of large lot development, a cemetery, a post office, a corner store, and other businesses, employment has transitioned to commuting to some of the larger employers in the County. The area has seen some new subdivisions. Of the unincorporated communities, only two communities have a grid/block system in place.

The area appears to be unzoned. Although there is an argument for properties to remain unzoned, which is mostly a property rights discussion, the possibility of unwanted and incompatible uses is significantly increased in areas that lack zoning. An A-20 zoning could be appropriate in Riverside.

The Box Elder County vision suggests continuing the agricultural heritage of the area and allowing for some flexible lot sizes through rural residential clustering. To meet the basic State requirements for a general plan, the following recommendations are offered:

1. **Future Land Use**: as part of the agricultural heritage area, large lot zoning should be established, with an A-20 designation or greater, which encourages continued agricultural activity. An allowance for smaller lots along the major roads is also recommended. Zoning should be based on a GIS lot size analysis.

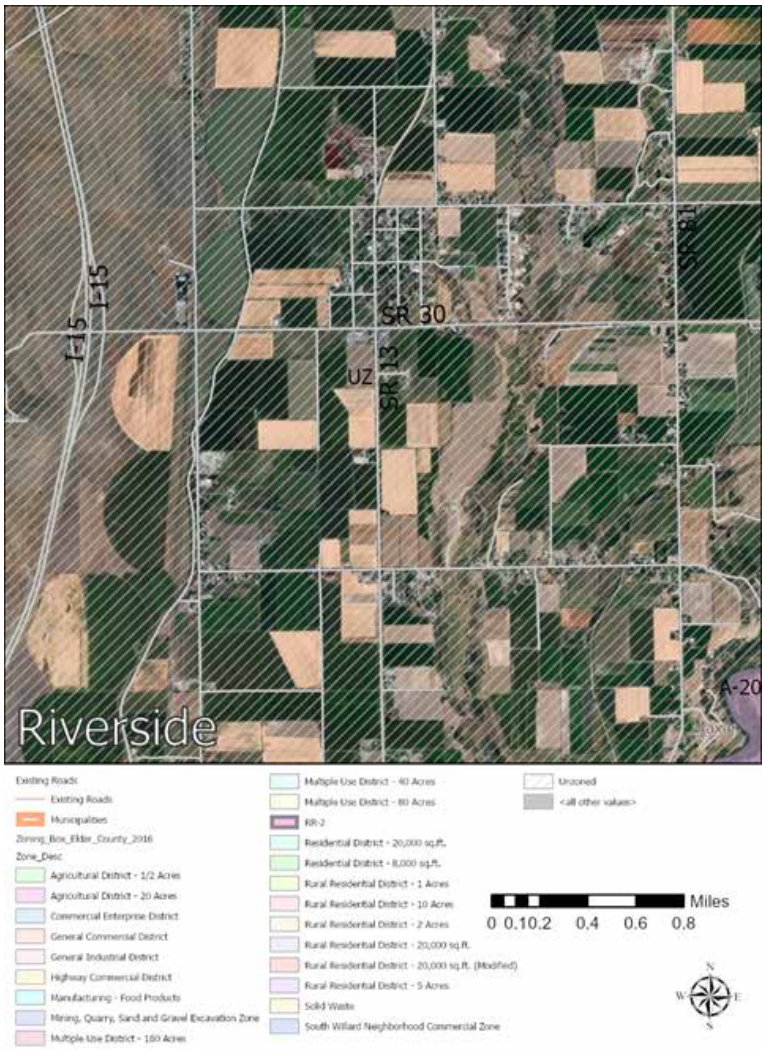
   Irrigation capabilities and water rights should be studied to assure the current system can serve the area in the future.

2. **Transportation**: little traffic is anticipated in the area. The current grid system helps disperse traffic, so SR 13 and SR 30 are not the only travel alternatives. Residents travel to Tremonton for necessities on SR 13, which handles traffic well. State roads should include widened shoulders to accommodate walking and biking.

   Swales could provide drainage for the road surfaces and adjacent properties.

   The nearby Malad River bottoms could provide an off-road trail experience.

3. **Housing**: large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered. Housing prices appear affordable compared to other areas



along the Wasatch Front and the Wellsville Mountains.

Unincorporated Fielding Area

The area around Fielding is located east of the Malad River and west of the West Canal at about 16800 North. 16800 North becomes Main Street in Fielding, which is bounded by a series of traditional blocks. Of the 18 or so blocks, most are south of Main. The community boasts an elementary school, a few commercial establishments, a cemetery, a post office, grain processing and storage, and to the south a working dairy farm. Agricultural fields and an agrarian way of life are the staples of the area, though some commute from the Fielding area to larger employers in Box Elder County. Fielding incorporated in 1914 and has a population of about 500 persons. The city council meets once a month in their town hall.

Zoning does not appear to be established in the area, but the lots are generally large. An A-20 zoning could be appropriate there, though it would not account for the commercial uses.

The Box Elder County vision suggests continuing the agricultural heritage of the area and allowing for some flexible lot sizes through rural residential clustering. To meet the basic State requirements for a general plan, the following recommendations are offered:

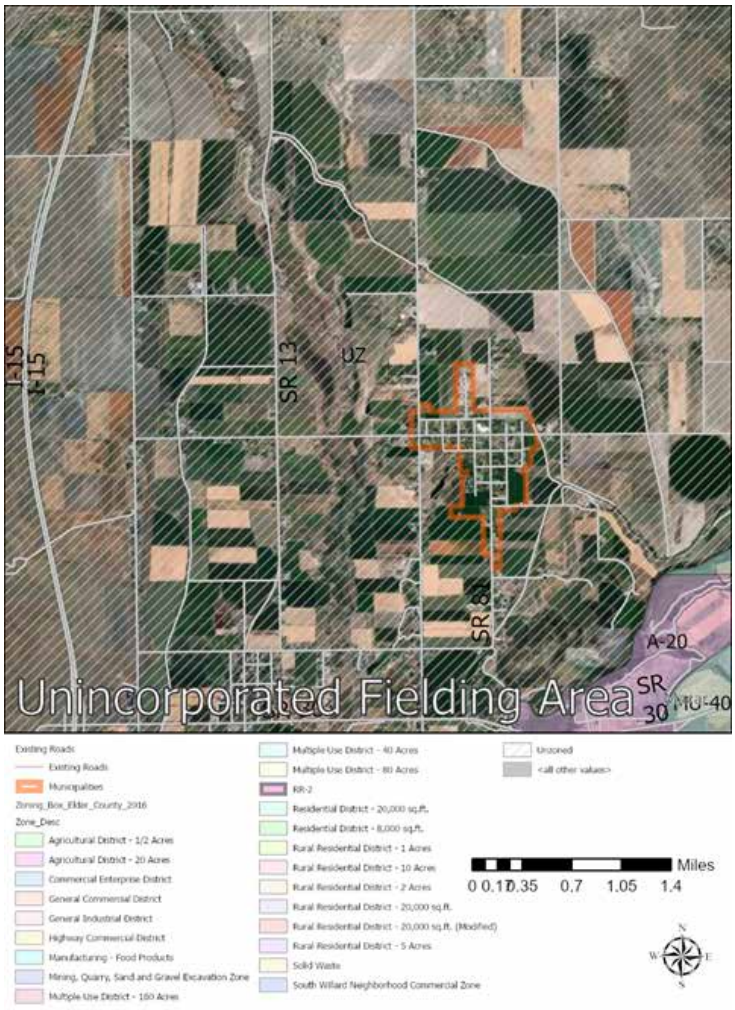
1. **Future Land Use**: as part of the agricultural heritage area, large lot zoning is recommended, with RR-20 or greater along the principal streets, and interior areas with an A-20 designation. If such zoning can be established, it will encourage continued agricultural activity.

   Irrigation capabilities and water rights should be studied to assure the current system can serve the area in the future.

2. **Transportation**: residents travel easily to Tremonton for necessities is via SR 13, SR 81, or 4400 West. These roads should include widened shoulders to accommodate walking and biking.

   Swales could provide drainage for the road surfaces and adjacent properties.

3. **Housing** - large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered. Housing prices appear affordable compared to other areas along the Wasatch Front and the Wellsville Mountains.



Beaver Dam

This smaller community spread out along the Beaver Dam Rd and SR 30 is located on the eastern edge of Box Elder County and south of the Bear River. An intermittent stream, Willow Creek, emanates from the Wellsville Mountains, providing habitat for trees in the defined stream corridor and creating a pleasant green oasis in a generally dry, desert-like area. Much of the area appears to be in dry farm use since irrigation canal systems are not established and since it is at a higher elevation than the Bear River, making getting water from the river difficult. Some gravel/sand excavation businesses are found in proximity. Its location, about halfway between Logan and Tremonton, makes it a community with reasonable commuting options for jobs and necessities.

Current zoning was established in 1996 and reflects a flexible philosophy with 2-acre zoning close to the existing roads and MU-40 in outlying areas. MU-40 is a diverse zone that is intended to preserve agriculture, but it allows for single family homes, duplexes, and triplexes on the 40-acre lots.

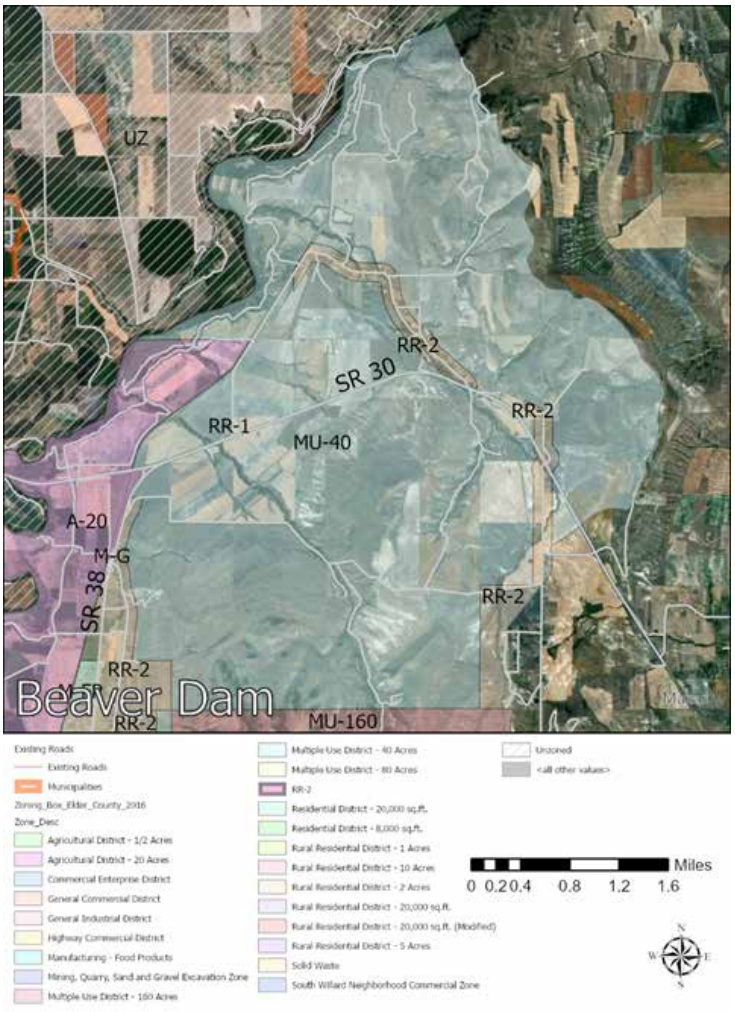
The Box Elder County vision suggests continuing the agricultural heritage of the area and allowing for some flexible lot sizes through rural residential clustering. To meet the basic State requirements for a general plan, the following recommendations are offered:

1. **Future Land Use**: as part of the agricultural heritage area, existing zoning should continue, which encourages continued agricultural activity and open space. Dry farms may or may not continue to be viable depending on drought conditions.

   Water storage and distribution systems for irrigation and culinary use should be explored.

2. **Transportation**: the area relies on SR 30 and Beaver Dam Road as its major vehicular road system. These roads should include widened shoulders to accommodate walking and biking. For the foreseeable future, given the area's population, these roads should suffice, but, if development is considered, a grid system is preferred to provide road options other than the main roads.

3. **Housing**: 2-acre, large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use/open space could also be considered.



South Willard

South Willard encompasses the unincorporated area south of Willard to the Box Elder County line. It includes several gravel pits, fruit farms with associated retail fruit outlets, some commercial uses along US 89, newer housing subdivisions, several mobile home parks, and a great view of Willard Bay to the west.

Known for its fruit stands and, in the past, for hot springs in the area, it is an important part of the Fruitway—famous throughout Utah. Unfortunately, development has begun to encroach on the orchards. The existing plan suggests an emphasis on trails, creating a neighborhood commercial district, making US 89 more multi-user friendly, and creating a community gathering space. An allowance for a planned community zoning concept was suggested and was later developed by the County.

Current zoning is generally a half-acre zone on the east side of I-15 along both sides of US 89, with scattered mining zoning for the gravel pits. Commercial zoning is in place near the interchange. With orchards having the right to subdivide to half-acre lots, strong incentives are needed to provide options for long-term retention of the fruit growers.

A community plan that does not meet State law for a general plan was adopted in 2006. To address the three required elements for a general plan, the following recommendations are offered:

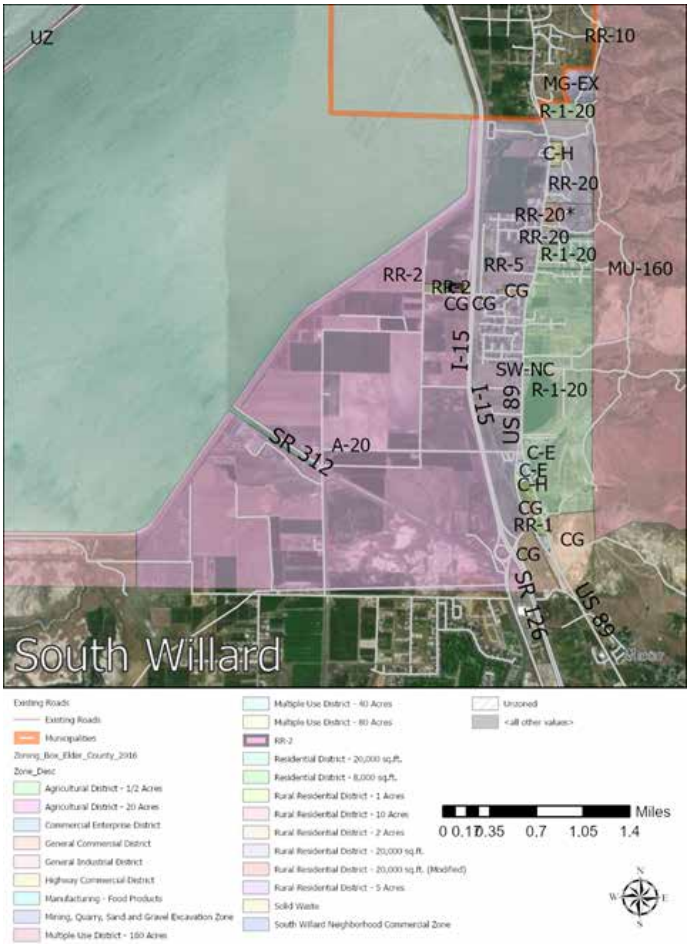
1. **Future Land Use**: stronger incentives for the fruit growers to stay in the area should be initiated. Half-acre single family development will decrease the likelihood of the orchards being preserved, so rural residential clustering should be encouraged instead.

   Existing commercial uses along US 89 should be retained, but new commercial growth should mostly occur near the interchange, where mixed uses could be introduced. Since orchards are not found west of I-15, 20-acre agricultural zoning should be retained to provide for crops and grazing.

2. **Transportation**: vehicular access is well established with I-15 access and US 89. The concept of creating parallel roads to US 89 should be considered to reduce the need to access that street for shorter trips. Wide shoulders on US 89 for pedestrians and bikes should be considered and the Southwest Active Transportation Plan should be implemented, including the Historic Orchard Trail, the Bonneville Shoreline Trial, and trailheads into the canyons.

   Swales could provide drainage for the road surfaces and adjacent properties.

3. **Housing**: housing concepts that should be encouraged include rural residential clustering to preserve orchards and open space and clustering near the interchanges to provide affordable housing options for seasonal and/or temporary workers. Mixed use could occur near the interchange.



Thatcher/Penrose

Located along SR 102 and stretching from about 10400 North to 8000 North along 11600 West, this agricultural community includes large agricultural fields, a cabinet shop, and some dairy/cattle operations. Just to the east and south there appear to be a series of wetlands emerging, that could partially be generated by agricultural watering practices. The area appears to have sufficient irrigation water from the West Canal, but any properties above the canal appear to be generally dry. Tremonton provides the nearest necessities. The communities are very close to Northrup Grumman (formerly ATK).

Although a mixture of zones is established in Thatcher, zoning is incomplete in most of the area. Thatcher has some R-1-20, R-1-8, and RR-1 zones. Penrose seems to be mostly unzoned. Although there is an argument for properties to remain unzoned, which is mostly a property rights discussion, the possibility of unwanted and incompatible uses increases in areas that lack zoning. An A-20 for interior areas, with RR-1 or RR-2 zoning along the streets, could be appropriate in Penrose.

The Box Elder County vision suggests continuing the agricultural heritage of the area and allowing for some flexible lot sizes through rural residential clustering. To meet the basic State requirements for a general plan, the following recommendations are offered:

1. **Future Land Use**: as part of the agricultural heritage area, large lot zoning should continue, including R-1-20, RR-1, and larger A-20 zones, which encourage continued agriculture. Zoning should be established on the unzoned properties to help protect agricultural heritage.

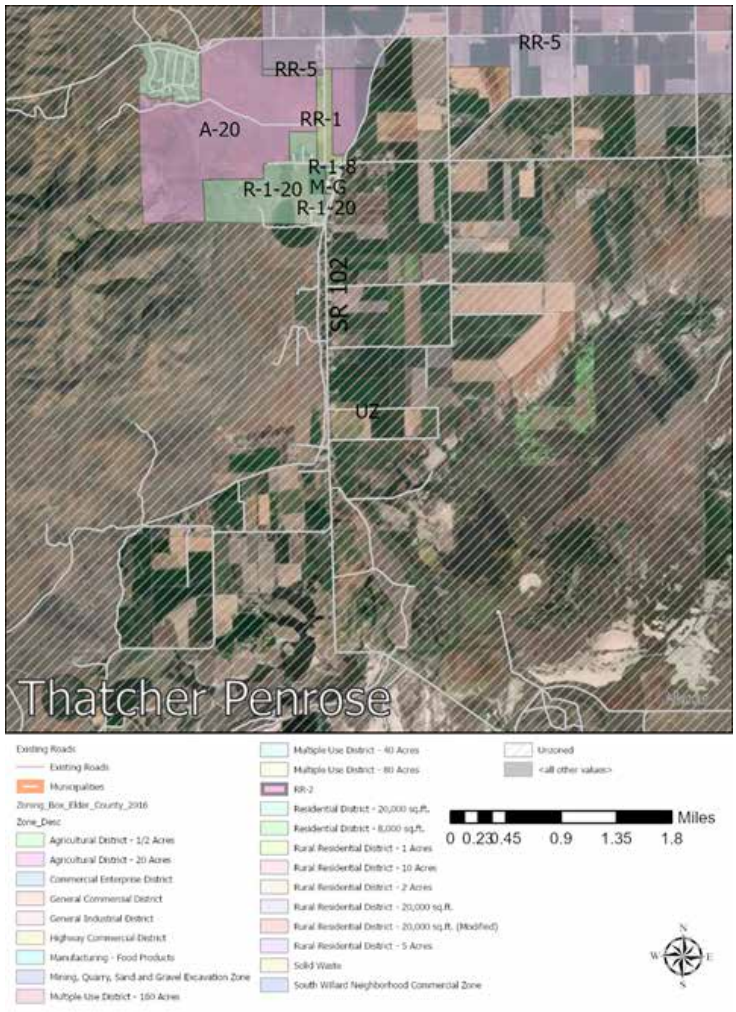
   Irrigation capabilities, water rights, and culinary system potential should be studied to assure the current system can serve the area in the future.

   Locations below the West Canal should be prioritized for housing over locations west of the canal that may not be able to access secondary water. Fruit and vegetable stands and pre-cooked, locally grown and harvested foods could be encouraged at prominent corners.

2. **Transportation**: little traffic is anticipated in the area. Traveling for necessities is likely to Tremonton and can be accommodated via SR 102. These roads should include widened shoulders to accommodate walking and bike riding.

   Swales could provide drainage for the road surfaces and adjacent properties.

3. **Housing**: medium to large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered.



Collinston

Straddling SR 38, north and south of about 14400 North, Collinston is a sparsely populated community with mostly irrigated farming adjacent to the Hammond Main Canal and dry farms and gravel pits moving up the slope from SR 38. Scattered within the area are businesses and homes. A large grain processing plant, Central Milling, provides high-end grain/flour products for artisan baking. The area has frontage roads with North 3100 West on the east side of SR 38 and N3400 West on the west side of SR 38.

Collinston is in the process of developing a community plan. The main concepts touched on in the draft plan are the need for infrastructure planning/requirements, preserving community character, housing to continue as single family detached homes, sensitive lands, beginning to reserve open spaces for future generations, enforcement of poorly kept yards, and building heights to generally remain lower than 35 feet.

Existing zoning reflects a combination of concepts, with MU-40 encompassing gravel extractions industries, dry farm, grazing operations, and food production zones. Two-acre and one-acre zones accommodate single family. An A-20 zone lies west/down slope from the canal on the north end.

To meet the State standards for a general plan, the following recommendations are offered:

1. **Future Land Use**: as part of the agricultural heritage area, large lot zoning should continue, which encourages continued agricultural activity and open space. Dry farms may or may not continue to be viable depending on drought conditions.

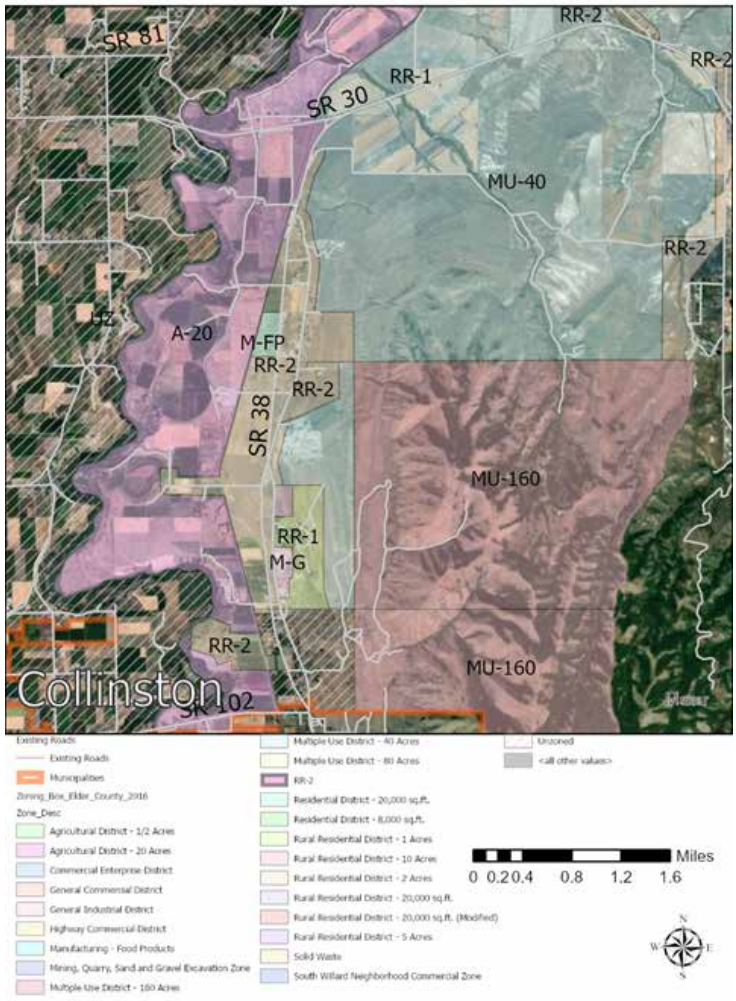
   Water storage and distribution systems for irrigation and culinary use should be explored.

   Gravel pit industries may have development conflicts (dust, noise, hours of operation) due to their prevalence in the area.

2. **Transportation**: the area relies on SR 38 and two frontage roads. These roads should include widened shoulders to accommodate walking and biking. For the foreseeable future, given the area population, these roads should suffice, but, if development is considered, a grid system, east and west of SR 38, should be considered to provide road options other than the main highway.

   Swales could provide drainage for the road surfaces and adjacent properties.

3. **Housing**: 2-acre, large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use/open space should also be considered.



East Garland

East Garland is a small community located east of the Malad River bottoms and west of the Bear River. It is served by a major canal. It has a park owned by the LDS Church on the northeast corner of 14400 North and 4400 West. This agricultural community raises various crops and includes some grazing.

The area is not zoned. Although there is an argument for properties to remain unzoned, which is mostly a property rights discussion, the possibility of unwanted and incompatible uses is highly likely in areas that lack zoning. An A-20 zone could be appropriate in East Garland, after a lot size evaluation through GIS mapping.

The Box Elder County vision suggests continuing the agricultural heritage of the area and allowing for some flexible lot sizes through rural residential clustering. To meet the basic State requirements for a general plan, the following recommendations are offered:

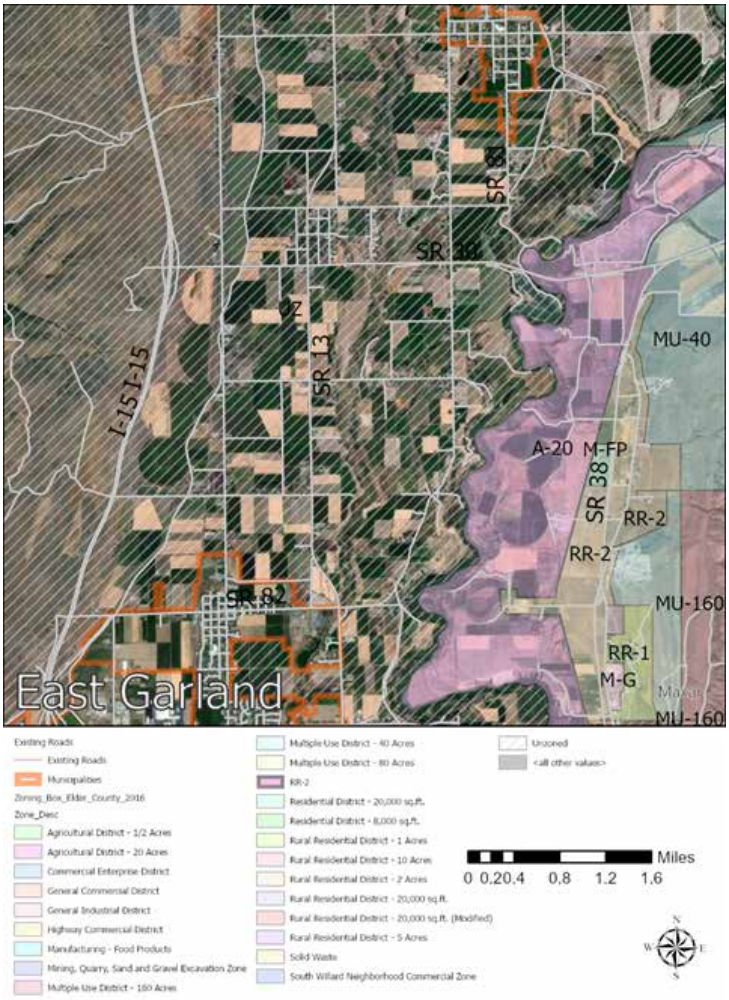
1. **Future Land Use**: as part of the agricultural heritage area, large lot A-20 zoning should be established to encourage continued agricultural activity with an allowance for smaller lots along major roads.

   Irrigation capabilities, water rights, and culinary system potential should be studied to assure the current system can serve the area in the future.

2. **Transportation**: little traffic is anticipated in the area. Traveling for necessities is likely to Tremonton and can be accommodated via SR 13, 14400 N, and 4400 W. These roads should include widened shoulders to accommodate walking and biking

   Swales could provide drainage for the road surfaces and adjacent properties.

3. **Housing**: large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered.



West Corinne

West Corrine is a sparsely populated area located to the north and south of SR 83 and wraps around the town of Corrine. It includes several dairy farms and is generally a large lot agricultural area. Irrigated agricultural land provides for cattle-related industries. A network of street connections is proposed in West Corine's plan, which was completed in 2004. Since that time two large manufacturing and warehouse facilities have been built in the area—Walmart and Proctor & Gamble.

Existing zoning is a combination of 20-acre rural residential, agricultural, and larger MU-40 zones. The MU-40 allows for additional business uses that the other zones do not accommodate.

The Box Elder County vision suggests continuing the agricultural heritage of the area, allowing for some flexible lot sizes through rural residential clustering, and expanding the industrial/warehousing uses in the area. To meet the basic State requirements for a general plan, the following recommendations are offered:

1. **Future Land Use**: as part of the agricultural heritage area, large lot zoning should remain, to encourage continued agricultural activity. Irrigation capabilities, culinary systems, and water rights should be studied to assure the current system can serve the area in the future.

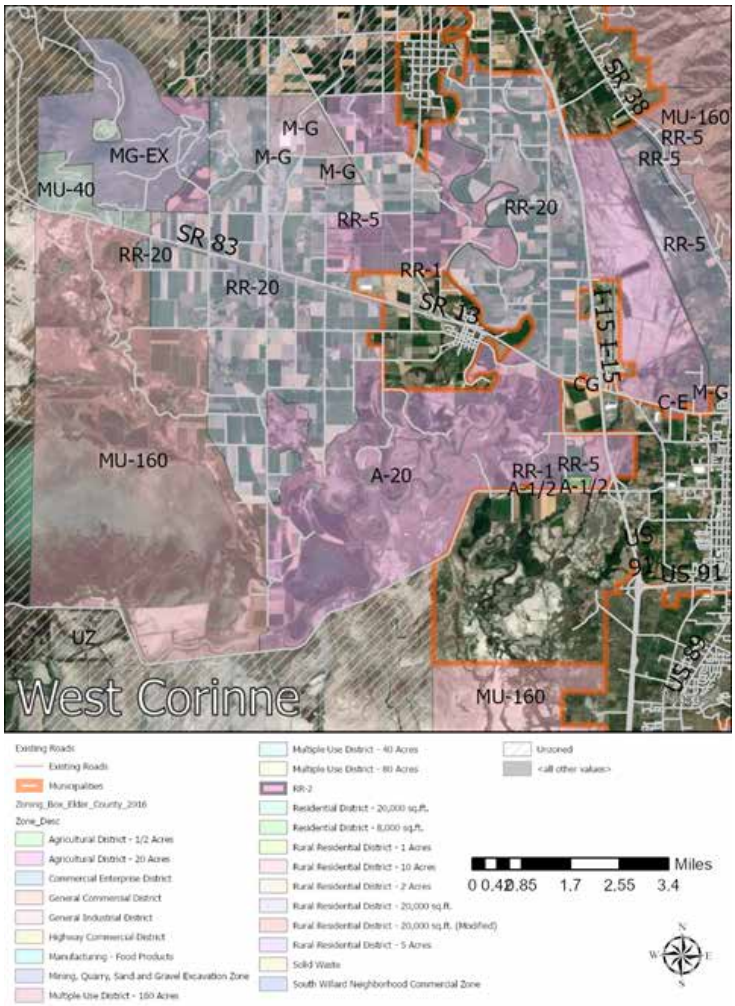
   The current large industrial and warehousing area should be promoted and expanded.

2. **Transportation**: traffic is light in the area. Traveling for necessities is likely to Brigham City and can be accommodated via SR 83. These roads should include widened shoulders to accommodate walking and biking

   Swales could provide drainage for the road surfaces and adjacent development.

   Road extensions north and south should help connect the area to several destinations that are nearby, including the Bear River Migratory Bird Refuge.

3. **Housing**: large lot single family homes should continue to dominate the area, but rural residential clustering to help preserve agricultural use should also be considered.



CHAPTER 3:

Regional Cooperation

Our County and its cities, towns, and communities proactively work in cooperation to take advantage of opportunities and address issues that affect all of us.

What We Heard:

Support regional trail systems (68%)

Promote farming and ranching (92%)

Promote family sustaining jobs (85% - 68% said "more" while 17% said "substantially more")

Regional Cooperation Discussion

One of the major issues for any county in Utah is what role they should play in helping their incorporated communities achieve their goals while achieving a county's goals at the same time. The phrase "let's work together" has never been more appropriate. Box Elder County cannot achieve its vision without the participation and support of its towns and cities and vice versa. The name of this planning process, Box Elder Together, highlights the reality that we are all in this effort together; no community is excluded. With a spirit of cooperation, the County and all of its cities and towns can achieve greatness together.

The vision calls for mutual understanding and collaboration between the County and its cities and towns has not always consistently happened in the past. However, many examples show that a county can take a lead role in helping its communities and moving forward on defined regional goals. Years ago, Davis County hired planners funded by its cities and towns. Those planners did part-time work with the cities because they needed planning expertise to help process applications but also to move in the direction that their general plans suggested. Eventually, as those cities grew, they hired their own planners, often the planners originally assigned to them by the County.

Another more recent trend is for towns and cities to work with a county in recognizing incorporated city/town annexation plans. This doesn't mean just showing them on a map. A county enters into an interlocal agreement to use the city or town's zoning ordinance standards, including public works standards, for development that occurs in the unincorporated area but within the city or town's annexation area. This helps reinforce the concept that most growth should occur in cities/towns and

shows a level of cooperation that is beyond the standard way of doing business.

While Salt Lake County previously avoided a regional role, it has recently provided education for its cities and unincorporated communities. The County has advocated for transportation, land use, and economic development. Further, the County has consistently contributed financially to planning studies along the Wasatch Front in conjunction with the Wasatch Front Regional Council to improve overall quality of life.

Taking a leadership role is a logical next step for Box Elder County, especially when so many of its communities lack financial resources to accomplish good planning. Small towns are not keeping up with planning needs; ordinances and plans are out of date and do not provide needed tools to manage current or future growth. There is real value in considering leading Box Elder County leading the way.

The Box Elder Together process has revealed many "big issues" which are addressed in this plan. Box Elder County can provide leadership to help discuss, debate, and address these issues. This plan suggests many possible strategies that would benefit from a County leadership role and a cooperative approach between the County and its cities and towns. It may be helpful to address together one big issue per year to gain consensus, determine a way forward, identify needed resources and partnerships, and implement strategies.

An issue that emerged recently, which was not brought up in our visioning process, but which has ramifications for the entire County, is the areas that currently have no zoning. There are pockets of unzoned land and large swaths of land with no zoning. Some pockets are adjacent to incorporated communities and have the potential to threaten the vision that a community has because anything goes where no zoning exists. Any positive use can be offset by a negative one. A new subdivision could be located next to a junkyard or an oil refinery.

The big issue within the prospect of establishing zoning is private property rights. Owners of unzoned land often believe that one day they will be able to sell their land or even build anything they want on their land. They may have little regard for the impacts their proposed use may have on adjacent owners. Uses can show up that location-wise make no sense. Multifamily units located far from any services and necessities is a good example. Many of the County zones are relatively flexible, and the plan suggests a large agricultural heritage area that encompasses much of the "fenced in" unincorporated area. That could be the basis for a zoning proposal, using the A-20, the MU-40, a new zone, or possibly an overlay. Education about zoning is important because there are myths that circulate about its "imposing" nature.

Goals and Strategies: Regional Cooperation

1. Increase coordination between towns/cities/unincorporated areas to address agricultural preservation incentives, trails, town centers, sensitive lands, water quality/availability issues, and irrigation systems.
2. Provide model ordinances, prioritizing those that reinforce the vision principles embodied in the general plan, to assure quality growth, State law compliance, and productive public processes. Work with Bear River Association of Governments and Wasatch Front Regional Council to establish this coordinated role.
    a. Emphasize clustering concepts through innovative planned unit development, rural residential clusters, and neighborhoods with open space to provide zoning options in a timely manner.
3. Coordinate with surrounding counties for land use, transportation, housing, agriculture, environmental, and recreational issues.
4. Take a lead role in developing a toolkit of best practices regarding growth, development, and conservation for better quality of life for all of our residents.

CHAPTER 4:

Agriculture/Rural Character

Agriculture is an important part of our history, heritage, and economy, as well as an important part of our future. We actively preserve orchards and the small fruit industry as well as our farms and ranches.

What We Heard:

Box Elder County is known for providing open space, convenient access to the natural environment, and a strong sense of community. These qualities capture the rural character that attract individuals to the area and provide a simpler and safer environment to raise families.

Agriculture/Rural Character Discussion

Box Elder County farmers and ranchers produce a variety of agricultural products, with most of the acreage in the County devoted to agriculture pursuits. This rural, agricultural heritage is an important part of the County's appeal and, for residents, one of the major reasons they live there. It is a trait and a value that nearly all want to continue into the distant future, but threats to that heritage/culture abound, such as:

Lost water rights: an unfortunate circumstance when properties change hands is that water rights do not always continue; they are sold off separately. Lack of irrigation water assures that the property will not continue to be farmed.

Development pressure: demand for low-cost residential land, especially in the south end of the County along the Wasatch Front, is very strong. Orchards are disappearing.

Lack of incentives: current government strategies to address the increasing demand to develop farm and orchard lands are not formalized yet. Without better incentives to continue as an agricultural use, many farms will convert to houses because of the huge financial benefit. More options for farmers are needed.

Lack of appropriate zoning and/or no zoning: zoning can provide a means of controlling the potential for negative uses to be scattered around the County. Areas with no zoning can convert agricultural land to other uses without significant restraint. Liability issues surrounding unzoned properties seem to go both ways—owners suing each other and the County for an unwanted use, and owners suing for a "loss of property rights" when they now have rights to any use.

Hesitancy to become involved: the age-old question about individual property rights versus community rights to determine the direction of development in an area. The lack of a plan to address future land use also increases hesitancy.

Less water availability: drought may impact the ability to expand farms. The rising use of culinary water for landscaping may decrease water available for irrigation. Existing irrigation practices that do not facilitate conservation should be re-examined.

Agriculture Protection Strategies

There are techniques used all over the country that can slow or stop the transition of farms to other uses. These techniques often provide incentives for farmers to continue farming and also often provide financial benefit. The vision places much of the farmland and orchards in an agricultural heritage area or orchard preservation area. In these areas the goal is significant permanent preservation of agricultural land and use. Across the country many options are being utilized. Several agricultural protection techniques that may be useful are as follows:

1. **Agricultural Protection Zones**: these State law (§17-27a-403(2)(c))-authorized zones allow an agricultural property owner to request that a zone be established for the property. This allows a property owner in a designated agricultural protection zone to veto any zone changes that might be applied to the property, veto at least for his/her particular property. It also requires the local jurisdiction to inform a landowner about adjacent potential development and suggests that the adjacent development may have a note on the plat about being located in an agricultural area.
2. **Purchase of Development Rights (PDR)** – when PDR is employed, development rights, usually based on the property's zoning designation, are purchased off of a property and retired. In most cases, a conservation easement is placed on the land from which the development rights were purchased, permanently precluding future development and ensuring long-term agricultural or other open space use. PDR is a voluntary option for landowners, and it usually requires a public funding mechanism, likely a tax or bond paired with other funding sources, to supply needed resources to purchase development rights. A nonprofit or government entity usually works with a landowner on the transaction to develop appropriate long-term use and maintenance agreements for the preserved land. Park City uses this technique extensively. Unfortunately, in Box Elder County, many farms are not zoned, so it may be difficult to determine what the development rights are. Development rights are usually based on the zoning for a property.
3. **Transfer of Development Rights (TDR)**: rather than selling and *retiring* development rights as with PDR, when TDR is employed, development rights are voluntarily sold and *transferred* to another property, where increased development is desired. Rather than employing a public funding source, a developer purchases development rights for use elsewhere. In most cases, a conservation easement is placed on the land from which the development rights were purchased, permanently precluding future development and ensuring long-term agricultural or other open space use. A nonprofit entity usually works with a landowner on an associated conservation easement to develop appropriate long-term use and maintenance agreements for the preserved land. A local jurisdiction creates an ordinance governing the new property right. The ordinance usually sending areas (lands from which development rights may be purchased) and receiving areas (lands to in which development rights may be received). It may

Box Elder County is expected to see strong demand for the conversion of agricultural land to residential uses in the coming years.

also include a guidance and/or a market-based analysis that governs the transfer process. This analysis asks such questions as: *What is a developer willing to pay to get more density on their project? What does a property owner need to voluntarily give up future development rights and continue to farm?* Government sets the program up and keeps track of transactions, but the transactions are private. In Box Elder County, sending areas are likely high-value orchards and farmland, and receiving areas are likely in cities that envision creating vibrant downtowns through major new development. Are cities and towns in Box Elder County willing to accept density from the unincorporated area in order to permanently protect nearby farmland?

4. **Adherence to large lot zoning**: many communities have 20 to 40-acre base agricultural zoning and have the political will to keep such areas zoned that way. This is another way to limit housing growth agricultural areas.
5. **Rural Residential Clustering**: This type of clustering provides an alternative to using zoning to build conventional subdivisions with uniform lot sizes and may be best near cities, that could annex the cluster developments. Rural residential clusters employ flexible lot sizes and sometimes a density bonus to build a subdivision on a small portion of a parcel, while permanently preserving remaining agricultural function or open space use. For example, rather than building 100 one-acre lots on a parcel, 100 quarter-acre lots could be clustered onto 25% of the parcel instead. The remaining 75 acres could be permanently preserved with a conservation easement, enabling existing agricultural uses to continue, or enabling agricultural land to be leased or sold to a new farmer. This option is best employed where larger acreages exist, so preserved open space is large enough to be viable for continued farming or ranching. Rural residential clustering plans should include clear policies for long-term open space management and maintenance. In the same way, several owners could cooperate and build on a portion of one of the properties by transferring the density from the other properties. Again, this option requires an ordinance to promote clustering and a cooperative TDR-like idea.
6. **Flexible Agricultural Zones** – enhance existing zoning to provide more opportunities for farmers and ranchers to accomplish on-site marketing of products and to allow a specified amount of additional housing.
7. **Food Hubs/Agri-tourism**: One market-based concept to preserve agriculture is to form cooperative councils and possibly create a food hub. A working group or council of orchard owners and a group for farmers and ranchers could work together to improve their collective marketing strategies, maybe build storage facilities they all could use, possibly share equipment, establish local farmer's markets, entice seasonal labor together, and work on the educational aspects of this evolving business. Councils or food hubs could more easily address issues of mutual importance and become engaged with the government to assist in the continuation of farming in Box Elder County.

Drought is also an emerging concern. *How will farming be affected by short and long-term drought conditions?* Although not a contracted part of the general plan, water scarcity is becoming a more commonplace issue across the State. Drip irrigation systems to conserve water should be promoted where they can be effective. The County could provide education about conservation options for farmers and homeowners. A separate study of projected water supply is recommended, which should involve the irrigation districts, culinary water suppliers, and the concept of water conservation.

Goals + Objectives: Agriculture and Rural Character

1. Create an agricultural heritage area that supports ongoing farming and ranching through large acreage zoning.
    a. Adopt 20 or 40-acre zoning that enables large landowners to continue to farm and develop a limited number of lots along major roadways.
    b. Encourage agricultural protection zones for individual properties.
    c. Coordinate with Bear River Association of Governments and the State of Utah Community Development Office on innovative programs for agricultural preservation and sensitive lands.
    d. Encourage programs through zoning reforms to allow for limited cooperative multi-parcel development with major agricultural preservation of such parcels.
    e. Create a variety of voluntary programs to help preserve agriculture such as: transfer of development rights, purchase of development rights, and rural residential clustering ordinances.
2. Promote incentivized market-based strategies such as clustering with density bonuses, agri-tourism, transfer of development rights, and cooperative programs such as food hubs, which are established for marketing, storage, education, and, possibly, equipment sharing.
3. In areas with high development pressure/risk of imminent development, especially the orchard areas along US 89, employ strategies that permanently preserve agricultural land.
    a. Develop and adopt a rural residential cluster ordinance option as a model for impacted communities. Coordinate with communities within the County to encourage implementation. This option enables a landowner to cluster by right development on a small percentage of a parcel while preserving remaining agricultural land with a conservation easement, held by a non-profit entity. The preserved lands are often leased or may remain in the control of the original property owner that wants to continue to farm.
    b. Develop a purchase of a development rights program where possible. This option, usually funded with a bond paired with other resources such as grants, enables development rights to be purchased off agricultural ground and a conservation easement to be placed, precluding future development, but enabling continued agriculture.
    c. Promote an incentive-based philosophy.
4. Convene a communication and coordination council to promote agricultural business in Box Elder County. Consider two councils – farmer/ranchers and fruit growers.
    a. Create an outreach program to all agricultural producers.
    b. Use the group to explore sales growth options.
    c. Consider a cooperative food hub that provides for shared machinery, food processing and storage, sales/marketing, and education.
    d. Promote coordination and educational programs, especially for water conservation, and include new specialty crops, to help assure long term profitability.
    e. Explore together water rights capacities, water quality, and expansion of non-irrigated lands to become irrigated farms.
    f. Consider agritourism programs (tours, hospitality, educational programs) tied in with tourism attractions.
    g. Promote agricultural education programs in the schools.

CHAPTER 5:

Quality Neighborhoods

We provide a variety of living options in our County and encourage the development of neighborhoods that will support residents through all their stages of life. We protect opportunities to live in a rural atmosphere but focus most growth in new neighborhoods in our cities and towns.

What We Heard:

Preferred approach to new subdivisions?
- *50%: Rural residential clusters*
- *39%: Neighborhoods with open space and housing variety*
- *11%: Conventional subdivisions*

Focus on local streets and shorter trips for walking, biking, and driving (69% - Scenario D feedback)

Quality Neighborhoods

Creating positive, enduring neighborhoods is not a simple task. Developers build subdivisions based on their market understanding and local zoning ordinances. Their goal is often capital driven, and they may not be concerned about building an enduring community. Builders need options that both benefit the community and are sufficiently profitable. While Box Elder County currently supports a range of conventional subdivision options, new options and choices could provide broad benefits.

A Wider Variety of Housing Options

Neighborhoods with Housing Variety and Open Space Amenities: Public feedback during Box Elder County's recent visioning process uncovered a strong desire for new neighborhood options that include both housing variety and amenities. This desire should be realized with new guidelines that enable flexibility in lot size, setbacks, and housing type. This option could provide housing for a wider range of household types—including young families, mature families, and empty nesters—to live in a more diverse neighborhood setting, with common open space areas for socializing and recreating.

When combined with incentives, such as density increases, varied lot sizes and housing types allow developers to cluster housing to reduce the development footprint in order to establish common open space areas, such as neighborhood parks, trails or community gardens. This encourages higher quality design and distributes shared maintenance costs among more homeowners, keeping costs sustainable over time for each household.

Rural Residential Cluster: Another broadly supported option, rural residential clusters, enable residents to live in a rural setting nearby working agricultural land. This option clusters housing on a small percentage of a development parcel, while permanently preserving most of the parcel for continued agricultural use. This option is best employed where larger acreages exist, so preserved open space is large enough to be viable for orchards or continued farming or ranching. Developments should include clear plans for long-term open space management and maintenance.

Both options above present benefits to developers, landowners, and communities:

- Developers can profit from decreased infrastructure costs, as they build fewer miles of roads, run fewer miles of water and sewer pipes, and have fewer storm drains to install.
- Because infrastructure is more efficient, communities can benefit from lower long-term infrastructure maintenance costs, whether for road repairs, sewer line replacement or snow plowing.
- In the case of rural residential clusters, farmers may see an incentive to continue farming while also realizing the economic benefits of some land development.
- Community members benefit from preserved open spaces, whether recreational amenities or working farms.
- Encouraging a wider variety of housing types and lot sizes helps communities provide more housing choices.

Rural residential clusters preserve agriculture and open space while providing a unique living option for those seeking a rural lifestyle. (image source: Heber City General Plan)

Efficient/Connected Neighborhood Infrastructure

New neighborhoods need established standards to ensure that their streets provide a safe and pleasant experience for all users. This includes cars, trucks, walkers, and bikers. Usually this translates to a streetscape profile that includes sidewalks in areas near town (especially when connections to important destinations are nearby), streetlights for safety purposes, street trees to reduce the heat gain from paved streets, park strips or swales to handle street runoff, and pavement of sufficient width to accommodate on-street parking and enable two cars to pass each other on the street. Curb and gutter may be necessary in some more urban areas, but for many streets, swales are a good option. Swales return stormwater runoff to the ground near where it falls rather than piping to retention facilities. Swales are representative of a larger trend called Low Impact Development (LID).

Residential Irrigation

In the face of on-going drought conditions, water conservation techniques need to become the norm for new neighborhoods, including using secondary water systems for landscape irrigation needs, water use standards, water-wise landscaping, and reductions in required yards/setbacks. Water companies should develop secondary water systems. As development occurs, it is also important to preserve existing tile and field drainage systems.

Affordable Housing

The current housing crisis in Utah makes finding affordable housing for service-oriented workers (restaurant servers, house cleaners, etc.) and seasonal/temporary workers (those needed to support the farms and orchards) difficult. Some communities are providing density incentives and ordinance flexibility to support needed workers that have lower paying jobs. Some are requiring 10% affordable units as part of residential developments. This includes ownership concepts with deed restricted requirements. For rental units this usually includes an assistance voucher as a coordinated program from a housing authority, negotiated with the developer/manager. When a quota of affordable units is required, it may be prudent to consider a density or a height flexibility offset. Density offsets make the prospect of providing affordable units much more palatable for developers. In 2021, a discussion at the State legislative level of that concept was initiated.

Housing costs are increasing in Box Elder County, making a single-family home on a large lot difficult to purchase for more and more interested buyers. Rental rates are also rising, and the supply is not meeting the demand. The State-required Moderate Income Housing Plan (MIHP) was adopted last year and is intended to address affordable housing needs by requiring the County and most cities and towns to adopt strategies/implement programs to combat the rising costs of housing. Box Elder County adopted their MIHP last year, with the following goals: looking at the land use ordinances to improve flexibility and include more housing options, keeping up a conversation with the cities and towns in Box Elder County about affordable housing, promote rehabilitation programs to keep marginal housing in the supply of housing, consider ways to provide for seasonal workers for farms and orchards, and consider strategies to build housing at more affordable prices.

Most research agrees that the best ways to address affordable housing, since the market has no incentive to build such housing (they can't make a profit), are:

- **Density increases**: offset a certain amount of a project with additional density if developers are willing to commit to long-term rent control or deed restricted housing. Often this is called inclusionary housing.
- **Height flexibility**: provide for an extra story or some additional regulation flexibility with a commitment to affordable housing.
- **Partnerships**: partner with housing authorities and nonprofits that build affordable housing to address more housing needs.
- **Programmatic incentives such as grants:** seek grants that can only be used for affordable housing and use those to buy land or assist a developer with costs, coupled with an assurance of long-term affordable housing.
- **Contributing vacant City and County-owned land**: free land can be provided to a developer in exchange for affordable housing assurances. This also implies making a conscious effort to purchase land that could be used in the future for an affordable housing project.

Some communities are simply requiring a percentage of affordable housing for larger development projects. Many also offer a fee-in-lieu, which results in a fund for affordable housing. This trend is occurring because such housing is not being built in sufficient quantities to meet the demand. The inability of the market to provide workforce housing can be addressed with this technique, but developers need to have density offsets to make affordable housing an equitable program requirement. Long-term restrictions to keep this housing at below market rates are also needed.

Goals + Objectives: Quality Neighborhoods

1. Enhance existing neighborhoods and increase walkability and convenient access to services and amenities.
    a. Create pedestrian-friendly streets and streetscapes. Where sidewalks make sense, increase the width to at least 5'.
    b. Create connections to town centers.
    c. Promote sidewalks in urban areas and parallel trails along high traffic volume highways:
        i. Utilize swales to retain runoff water from streets and adjacent development.
        ii. In urban areas, promote tree planting in yards and along streets.
        iii. Incrementally implement a dark skies philosophy for redeveloping areas.
2. Focus most new neighborhoods in areas with convenient access to amenities and services.
    a. Create common recreational spaces, including parks and trails that link to a planned regional system.
    b. Plan for street connectivity to reduce the reliance on cars for all trips.
3. Build new neighborhoods to achieve a variety of common purposes through the creation of new ordinances, utilized as models for communities:
    a. Provide a rural residential cluster ordinance to permanently preserve agricultural land and enable living in a rural atmosphere.
    b. Provide ordinance options to encourage neighborhoods with housing variety and recreational amenities. Options should allow a variety of housing types and lot sizes and shared recreational amenities in individual subdivisions to increase stability, sense of community, choices available, and range of affordability.
    c. Incorporate Low Impact Development (LID) techniques to control on-site runoff, return stormwater to the aquifer, and improve water quality.
4. To support large employers and the service industry:
    a. Consider promoting housing options in nearby communities, adjacent to town centers.
    b. Consider appropriate areas for workforce housing for major employers and service workers.
    c. Define design concepts to assure positive development.
    d. Promote Accessory Dwelling Unit construction with a model ordinance.
    e. Promote medium density, "missing middle" housing, such as townhomes, with a model ordinance.
    f. Work with the Housing Authority to construct more affordable housing units and to supplement rents to assure more workers can live locally.
5. Consider ordinances that promote 220 outlets in garages for new development and encourage solar cell roof installations.
6. Update the Moderate Income Housing Plan - Promote most new development in the cities and towns.
7. Review and modify land use and zoning regulations and associated maps.
    a. Coordinate with communities to provide zones for more concentrated development.

   b. Consider zoning techniques to provide for ADUs, mixed use, senior, and worker housing.

8. Support cooperation between the cities and towns of Box Elder County in advancing affordable housing.
   a. Create and promote a countywide housing rehabilitation program.
   b. Work with the Housing Authority to build more affordable housing near city/town centers and to rehabilitate deteriorating affordable units.
9. Continue to support farm labor housing.
   a. Create model ordinances to promote temporary and permanent housing for seasonal farm workers.
   b. Facilitate the development of housing for service and skilled labor workers.
10. Encourage lower cost, more affordable development.
   a. Reduce or simplify design standard requirements for housing as per State law.
   b. Realize that housing for a single-income household is scarce.
   c. Promote the Neighborhood Housing Solutions model for self-built homes.
   d. Create incentives for the development of lower-cost housing, such as: density increases, height flexibility, partnerships, programmatic incentives such as grants, and contributing vacant City- and County-owned land.

CHAPTER 6:

Downtowns/Mixed Use Areas

Supporting vibrant growth in downtowns and mixed-use areas enables outlying areas of Box Elder County to maintain a rural feel and our cities and towns to cultivate a lively small-town atmosphere. By focusing most of the County's jobs, shopping, dining, and significant residential growth in these areas rather than dispersing growth across our County, we enable the "hearts" of our various communities to thrive while preserving surrounding agricultural lands. Downtown areas in Brigham City and Tremonton remain the centers of business and commercial activity. Both areas become local and regional destinations for shopping, dining, and entertainment. Both support strong working and living environments.

Smaller, more rapidly growing communities, including Willard and Perry, foster small, walkable districts for gathering, shopping, and dining.

What We Heard:

Downtown mixed-use areas of cities are the major focus for new places to work, live, shop, and play (80% - Scenario D feedback)

Downtown and Mixed-Use Areas Discussion

A community's downtown area is obviously part of the local economy, but its unique mix of land uses and historic role in the community warrant a separate element in this general plan. Box Elder County communities have iconic main streets that play an important role in the overall character of the County. Developing a strong vision that protects the identity of downtown areas will lead to an increase in economic development and community pride.

Although the County has little influence on promoting growth in centers, they can help through zoning policies to assure that most growth is focused toward the cities and towns of the County. During the visioning process, residents identified the importance of employing strategies to focus most growth within and/or nearby existing cities and towns.

Downtowns are struggling with an exponential increase in online shopping. Centers and downtowns were nearly vacant for a year during the COVID-19 pandemic, which quickly moved a lot of people toward online retailers. Big box stores across the nation closed and have since reopened as warehouse transfer locations for businesses like Amazon and Walmart.

As opposed to simply purchasing goods via a computer, downtowns can offer an exciting shopping, dining, and interactive experience. People enjoy meeting and gathering with old friends and meeting new friends in downtowns that have things to do. Shopping alone is no longer enough for downtowns to thrive.

A current national trend is to change traditional static downtowns into fun, vibrant gathering places with ever changing attractions and many things do. Downtowns can offer varying events, new art, novel things to do, and distinct food options. When downtowns bring people back again and again because something has changed or a new event is planned, more people will spend more time downtown. The longer they are there, the greater the chance they will buy something, whether retail goods, or food, or a ticket to a show. Downtowns with enough variety to generate activity are successful downtowns.

Successful downtown areas are those that provide gathering opportunities that cannot be found in other places.

Coupled with promoting active downtown spaces, our main streets often need beautification and to function in a different way than simply catering to cars and trucks. In Box Elder County's situation, most of the Main Streets are also Utah Department of Transportation (UDOT) controlled, which creates hurdles for communities to overcome. State policies generally do not allow business to be conducted on UDOT roads, which means that a food truck event or a sidewalk dining opportunity (sidewalks are in the right-of-way), is not allowed. This suggests moving such activities off Main Street onto a perpendicular road or to an alley. UDOT does engage in beautification work, which should be promoted to improve the appearance of Main Street in communities, but the expectation that UDOT will help foster the active downtown philosophy is an uphill battle.

Downtowns are a logical place for an expansion of denser housing. Downtowns need service workers, have a multitude of jobs, and distances to everyday needs are short, usually walkable. Even with good reasons for locating in and around downtown, most approvals for denser housing are challenging.

Seniors and service workers need easily accessible places to live that cater to their circumstances. Reliance on an automobile may not be a financial or physical option, so a convenient walkable location in a downtown achieves a level of convenience that living in the country does not.

Goals + Objectives: Downtowns and Mixed Uses

1. Assure that the US 89/SR 38 does not become a long corridor of commercial strip type growth. Instead assure that growth is more focused in centers, fronting on the major corridors but with activity generally occurring just off the major UDOT-controlled street.
2. Recreational attractions add to the mix in the centers, where activities can be promoted.
    a. Create community gathering places that promote activity and an interest to return again and again, such as play structures, rock climbing boulders, and multi-purpose courts (pickleball, tennis, basketball). Create reasons for people to return to gathering places in the center of town.
    b. Community building becomes the goal as opposed to just new construction.
3. Enhance ordinances to provide incentives that support housing development in centers for seasonal workers on farms, ranches, and orchards; large employers.
4. Permit mixed uses through ordinance flexibility.
5. Housing options for those that work in a center should be encouraged.
6. Streetscape and storefront beautification/enhancement programs are explored, including Main Street America. Consider saleable art sculptures in downtowns. Explore funding options.
7. Incubator/start-up/co-workspaces are considered in mixed use development.
8. Walking and biking connections to the centers are improved.
9. New centers capitalize on potential Express Bus facilities and the long-term potential for Frontrunner stations.
10. Promote housing options for seniors in the centers.
11. Promote charging stations in downtowns and centers.
12. Consider Live/Work units for centers.

CHAPTER 7:

Outdoor Recreation, Parks, Trails

We value access to the great outdoors. We will develop a robust recreation network that improves access to recreational activities and lands.

What We Heard:

Bonneville Shoreline Trail (BST) built entire length of the County (68% - Scenario C feedback)

West Hills Trail built (volunteer-built/maintained path) (66%)

Little Mountain Trail built (volunteer-built/maintained path) (67%)

Bear River Refuge Bike Loop built (volunteer-built/maintained path) (70%)

Bear River Water Trail built (access point for kayak, canoe, etc.) (71%)

Outdoor Recreation Discussion

Whether walking, riding a bike or a horse, or cruising in an ATV, Box Elder County has an amazing array of informal trails. Options range from paths into the Wellsville and Wasatch Mountains, to the Bonneville Shoreline Trail, to canals and the smaller mountain ranges to the west. Trails leading to or along such destinations as the Bear River Migratory Bird Refuge, the Spiral Jetty, Crystal Hot Springs, the Bear River, and the Malad River bottoms are all possible with a consistent, focused effort.

Although not a comprehensive list, often-mentioned trails are described as portions of a potential regional trail network under the first strategy in this chapter. Trailheads, wayfinding signs, and support facilities will also be needed.

Main roads should include wider shoulders to assure bike safety. The current network of UDOT roads provides a connected system, connecting all the towns and cities and most of the major tourist destinations in the County.

The Southeast Box Elder County Active Transportation Plan has been developed for the

southeastern portion of Box Elder County. From that plan:

The Plan/Map

The proposed plan is a system of pathways and trails, primarily running north-south, with some east-west connectivity. The foothills include a proposed single track Bonneville Shoreline Trail. A good portion of the Foothills Trail is already built. The Historic Orchard Pathway, west of US 89 is a shared-use path near 1200 West, some of which is already built. The other two shared-use paths are the Frontrunner Trail and the Bay Trail. These pathways are west of 1200 West and run north-south. A few mountain single track trails are proposed. Each city has some smaller trails or pathways, both existing and proposed. The plan also includes trail cross sections by use type.

Logically, a similar plan is needed for the north and central parts of the County, but a plan without implementation is a futile effort. The strategies section of this chapter suggests hiring a trail coordinator. This individual could create, plan, fund raise, and manage the development of a regional network of trails and can jump start an amenity highly valued by citizens. Existing trail coordinators in Summit County, Wasatch County, and Cache County have been instrumental in creating and expanding existing trail systems. As the system is developed, funding sources for the maintenance of trails will also be needed.

Most parks are part of a city or town in Box Elder County. Cities can expand their park systems to maintain their service levels through impact fees and taxes. So far, the County has relied on the cities and towns to provide this function, except for the Box Elder County Fairgrounds in Tremonton, which is funded by general County taxes and user fees. Logical places for parks are in the local communities but some regional park locations, such as parks adjacent to trailheads, could be appropriate at a future time. Two major regional facilities are managed by other government entities:

Map illustrating existing and proposed active transportation corridors in Box Elder County.

the Bear River Migratory Bird Refuge is a U.S. Fish and Wildlife Service responsibility, and Willard Bay is a Utah State Parks facility.

Goals + Strategies: Outdoor Recreation, Parks, Trails

1. Create a robust regional trail network.
    a. The Bonneville Shoreline Trail (BST) becomes the main eastern recreational artery, providing access to the Wellsville Mountains and northern Wasatch Mountain trails.
        i. Develop trailheads at regular intervals based on canyon trails and east/west links to local trail systems.
        ii. Create incentives for property owners with private property encompassing the BST to provide easements or dedicated land.
        iii. Seek federal, state, and local grant opportunities.
        iv. Consider in the short run, the canals that are located east of US 89/SR 38 as a viable alternatives to the BST.
    b. Begin a conversation with UDOT to consider how a road functions recreationally in a particular area; structure future road improvements to reflect that function.
    c. To improve long term safety, prioritize a trail for the length of the US 89/SR 38 corridor.
    d. Add bike lanes to SR 83 to Corinne and further west.
    e. Utilize State Routes for trail corridors by adding trails parallel to the outside edge of the swales or through shoulder enhancements. Promote the potential for looped bike routes such as Ride Around the Wellsville, the SR 83/102/13 loop, and the SR 30/13/38/102 loop. Create loops for natural corridors utilizing river bottoms and canals.
    f. Create connections to regionally significant trails, especially east/west connections.
    g. Provide improvements at trailheads to include restrooms, parking, and water.
    h. Create the West Hills, Bonneville Shoreline, and Little Mountain trails through a voluntary effort and include ATV, equestrian, hiking, and mountain bike access.
    i. Enhance the Bear River/Great Salt Lake Bike Loop with wide shoulders and signage for biking.
    j. Establish the non-motorized Bear River Water Trail should with trailheads at bridge crossings that include parking and boast docks that are adjustable to water depth. Develop wayfinding and educational signage for flora and fauna. Parallel long-term walking/hiking/equestrian trail options should be considered. As a unique bird habitat, motorized trail access is not recommended.
    k. Promote the Malad River Bottoms trails and nature preserve area through the length of the County.
    l. Participate in the design and completion of the High Desert Trail from Box Elder County to St. George. Consider ways to accommodate a variety of users, including ATVs, mountain bikes/E-bikes, horses, and hikers, realizing that not all sections may accommodate all potential users.
    m. Promote an emphasis on local trails connecting to the regional trail system, including implementing the Southeastern Box Elder County Active Transportation plan, especially the Historic Orchard Pathway and the southern piece of the BST (see the Box Elder SEActive Transportation Plan).
    n. Create trail plans for the entire County.
    o. Consider recreation as a tourism opportunity and link the two together.

2. Expand local recreational systems.
    a. Encourage cities to provide parks and other facilities near where people live, linked by local trails for walking and biking.
    b. Link local systems to the regional network.
3. Develop long term maintenance funding sources, including volunteers.
4. Consider a community funded trails coordinator position based on the Cache County, Wasatch County, and Summit County models.
    a. Coordinator seeks grants, various funding sources, coordinates with landowners, and oversees trail construction.
    b. Coordinator is initially funded through city, town, and/or county contributions.

CHAPTER 8:

Natural Resources

We conserve our natural resources, which have inherent value and contribute to our quality of life in Box Elder County.

What We Heard:

Keep development off natural hazards (75%)

Preserve sensitive lands (89%)

Sensitive Lands Discussion

Box Elder County is blessed with abundant natural resources, including farmlands with good quality soils for agricultural production; views of wide-open spaces and the various mountain ranges; and rivers, wetlands, and springs (hot and cold.

Some resources support energy development such as abundant sunshine for solar farm installations, and the occasional oil well. In addition Box Elder County has vast deposits of gravel and sand that are important to the construction industry.

The County also has lands that are considered sensitive lands or natural hazards, meaning they pose risks to development or have inherent natural value. These lands contain characteristics that can influence, modify, or limit development patterns through physical and/or regulatory restrictions. Such lands include steep slopes, rock outcroppings, wetlands, avalanche zones, intermittent or constant flow stream corridors, ridgelines, springs, gullies, species or habitat protection areas, wildfire/urban interfaces, flood plains, and animal/bird migration routes. Soils and geotechnical considerations, such as fault lines, soil types, depth to bedrock, and shallow water table levels may also reveal factors to avoid when considering development.

A possible role for the County could be to develop a model sensitive lands ordinance that could be adapted to each community. Bear River Association of Government and the State of Utah Department of Community Development could partner with the County in this effort.

The consequences of long-term drought are also beginning to impact Utah communities. This is a difficult issue for cities and towns, and for the farmers throughout Box Elder County. *What if irrigation water sources are reduced by a significant amount? Do the existing culinary water sources suffer if a drought extends for some period?* Although not part of this general plan effort, ongoing drought issues need to be addressed with a more technical study. Drought conditions certainly warrant water conservation education and the implementation of water conservation measures.

The County completed a State-required resource management plan, which defines policies for public lands mostly owned by the US Forest Service or the US Bureau of Land Management. Resiliency and Sustainability Discussion

"Community Resiliency" is the term used to describe how well communities position themselves to reduce the risks they face, and what their capacity is to "bounce-back" from unexpected events.

In 2020, Box Elder County and most of the municipalities were significantly involved in the development of a pre-disaster mitigation plan (PDM). The Federal Emergency Management Agency (FEMA) requires these plans as a prerequisite for any future hazard-related financial assistance the County might need, and these plans are required to include a significant amount of analysis on the types, likelihood, and potential impacts of different disaster scenarios.

Risks and Disaster Potential

In Box Elder County generally, the hazard types with the greatest potential for "overall risk" include wildfire, severe weather, and earthquake / liquefaction. The secondary tier of high concern includes flooding, drought, and insect infestation/plant disease.

Mitigation Priorities

In the southeastern area of the County, demand for development is expected to continue to occur along eastern benches and open areas on the periphery of existing developments. Much of this growth could be located along the Brigham City segment of the Wasatch Fault, as well as wildland-urban interface areas near the base of the mountains. Likewise, canyon drainages exist in similar areas in higher elevations above the towns. If development is allowed in these drainages, or in alluvial fans downhill from these areas, there is also a potential risk for debris flows following a heavy rain event. Wildfires in the summer, followed by significant rain or snowmelt events in the fall or following spring could exacerbate these impacts. Low elevation properties west of Brigham City could also be impacted as development occurs, due to a high water table and potential liquefaction risk.

Responsible stewardship of Box Elder County's "green infrastructure" is a high priority for residents.

Some of the areas that are currently growing in Brigham City are in lower elevations where potential flood risk, a high water table, and potential liquefaction risk exists. Risks in Willard, South Willard, and Perry also exist on steep hillsides east of town, where wildfires could occur, or drainage areas could flood and cause severe damage if structures are in those areas.

The Tremonton area has experienced steady and significant growth in the past few years. Most of the new development has occurred on the fringes of town, near existing residential areas. Some homes have been constructed east of the Malad River drainage. The greatest risks to future development in Tremonton collectively are likely in flood and landslide hazard areas near the Malad and Bear River drainages, so those areas should be avoided to reduce potential losses.

Development for the remainder of Box Elder County communities will likely occur in safe, lower elevation areas first. However, as communities grow, that development will likely include areas with a high-water table that are prone to flooding, steeper benches and hillsides, canyon drainages, and along river corridors. Recent development has occurred along the Bear River, where (although the FEMA 100-year floodplain was legally modified), significant risk still exists for flooding and landslides along steep riverbanks. Development along these large river drainages and corridors will pose significant risks to residents and community assets.

Goals + Strategies: Natural Resources

1. Existing water providers should explore water capacities for future generations, and irrigation for agricultural business expansion.
2. Preserve sensitive lands and avoid developing on lands with natural hazards.
    a. Create a model sensitive lands ordinance for communities to consider in coordination with Bear River Association of Governments and the Utah Division of Community Development.
3. Include model ordinances for reclamation of disturbed land, like gravel pits.
4. Provide a model ordinance for wildfire interfaces.
5. Improve access to public lands that provide hiking, biking, camping, hunting, fishing, and other recreational opportunities.
6. Explore water conservation and enhanced water quality strategies.
7. Consider potential incentives to limit building above the Bonneville Shoreline.

CHAPTER 9:

Transportation + Infrastructure

We make sustainable, efficient, and convenient infrastructure choices that place Box Elder County and its communities in a strong position for the future. Infrastructure systems generally include transportation, water, sewer, waste disposal, WIFI, and energy.

What We Heard:

A focus on local streets and shorter trips for walking, biking, and driving (69% - Scenario C feedback)

Day-to-day goods and services closer to where people live (67%, Scenario D feedback)

New job centers in Brigham City and Tremonton downtowns/mixed use areas (80% - Scenario D feedback)

Downtown mixed-use areas of cities are the major focus for new places to work, live, shop, and play (80% - Scenario D feedback)

Transportation and Infrastructure Discussion

It is essential to analyze and recommend roadway improvements based on an understanding of the historical land use patterns within Box Elder County. Land use develops along transportation corridors and typically shapes and follows the future land use plans identified by the County.

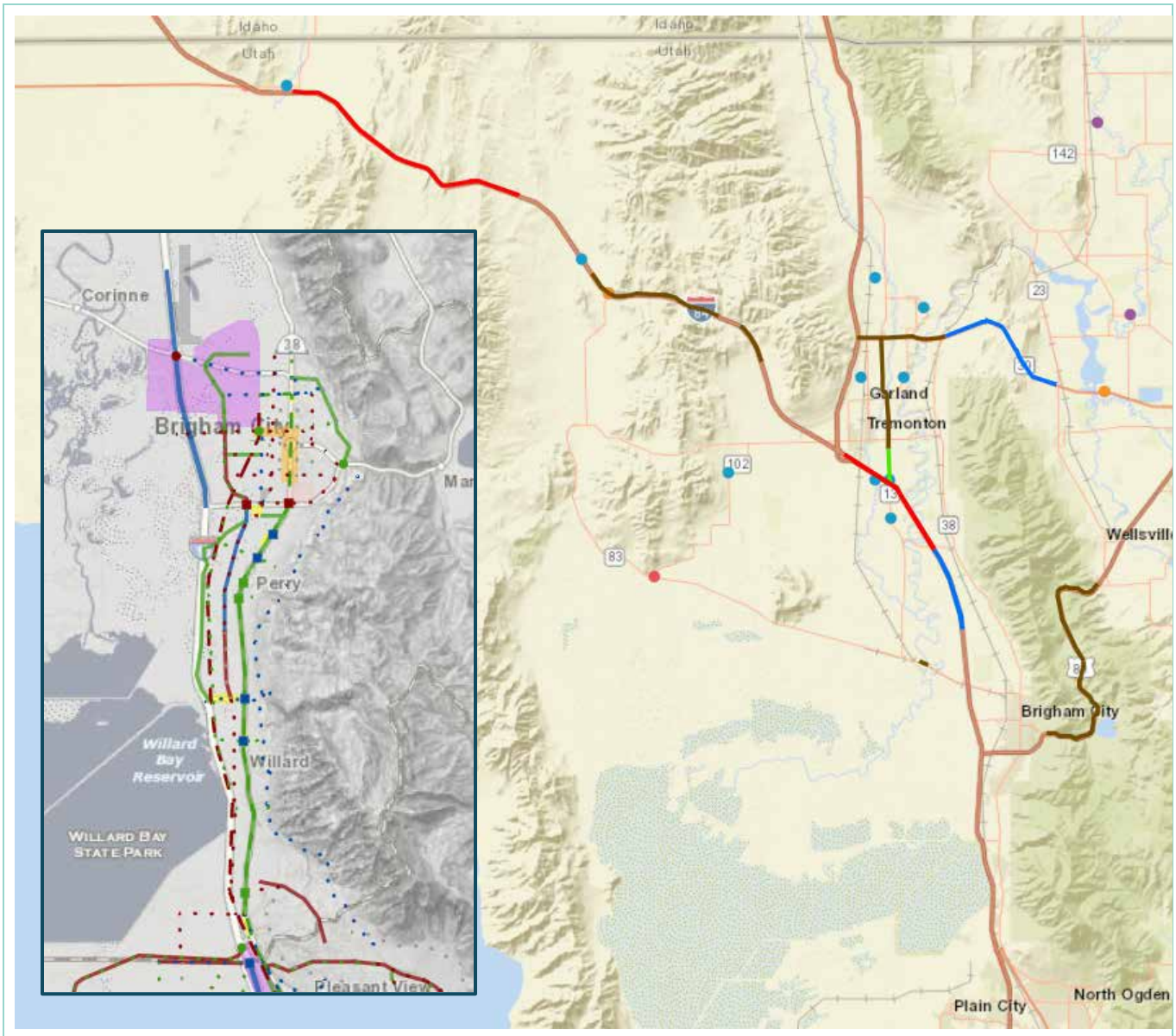
Existing Transportation System

The existing transportation network is characterized by community areas that are generally designed along a grid pattern. These community areas are connected with arterial roadways that parallel the hillsides on the southern end of the county and make direct connections between developed areas in the north.

Future Transportation Corridors

Transportation planning in the Box Elder County area is coordinated with the Wasatch Front Regional Council (WFRC) in the southern end of the county and is conducted by the UDOT in the northern and western areas.

County planners work with WFRC to outline future investments in road, transit, and bike/pedestrian projects. Their work with UDOT typically focuses on major corridor projects (i.e. highways, bridges, and major intersections).



Utah Statewide Rural Long-Range Transportation Plan 2019-2050 map. (Source: UDOT - click for original). The inset on the left is the Wasatch Choice Regional Transportation Plan 2019-2050 map. (Source: Wasatch Front Regional Council - click for original).

Impact Fees + Traffic Impact Studies

Box Elder County currently does not administer a street impact fee for transportation improvements. Impact fees are meant to assist in building the necessary roadway improvements to handle the increased growth and mitigate congestion that is currently being realized on the roadways in the County. Proposed roads on the future roadways map and maintenance of existing roads can be funded, at least partially funded, by these fees.

To achieve plan goals, Box Elder County may elect to create an impact fee after completing a study to establish a fee for any new development. For larger developments, a traffic impact study (TIS) should be a regular part of application requirements. A TIS is a specialized study of the impacts that a certain type and size of development will have on the surrounding transportation system. It is specifically concerned with the generation, distribution, and assignment of traffic to and from a new development. Since residential and private roads are not part of a future roadway map, TIS reports

allow the County flexibility when determining impacts to these smaller road locations.

Roadway Design

A safe transportation system is one of the top priorities of Box Elder County. New roads should be designed to give proper access to emergency vehicles and should be well maintained. Also, roadways and walkways should be designed in a way that all transportation modes can equally access and use the transportation system.

Overall, the roadway network should focus on connectivity. This means that block sizes should not be too large, and important collectors should not dead end or terminate in a cul-de-sac. This is best achieved by using a hierarchical grid system of roadways, which Box Elder County and most communities already have in many areas. The County supports further development of swales, widened shoulders, and street trees in roadway design.

Specific areas of concern are residential neighborhoods and school drop-off zones. The use of cul-de-sacs should be reduced to assure more connections. Traditional grids generally help achieve better street connectivity and traffic distribution. Streets that serve schools should encourage traffic calming devices and have well-designed pedestrian street crossings. Minor collectors should reinforce the current grid system, where established.

Access Management

A critical factor to the safety and function of the transportation system is access management. Access management is the practice of coordinating the location, number, spacing, and design of access points to minimize site access conflicts and maximize the traffic capacity of a roadway. Techniques include signal spacing, street spacing, access spacing, and interchange to crossroad access spacing.

Since the main roads through the County are State highways, the County cannot exclusively control access on them, but on local collectors the County can focus on more access to slow down traffic and minimize cut through traffic as State highways become more congested.

Future commercial and high-density residential development in centers should anticipate and coordinate access management requirements from UDOT.

Public Transportation

Public transportation is important for those who choose that option, and is critical for those considered seniors, low income, and those with a disability. While the County does not actively provide public transportation, some are providing services to meet transportation needs, such as:

- Privately-owned transit operations
- Local senior centers
- Nonprofit service providers.

The Utah Transit Authority recently conducted a study that found demand for express bus service as far north as Perry. It also suggested that the Frontrunner rail service could be extended into the County, but that demand wouldn't be sufficient for quite some time, likely beyond the 2050 timeframe for this plan. A recent plan for the Tri-County area can be found with this link: https://media.rainpos.com/65/transit_study_2020.pdf

Water

Box Elder County water resources are limited. The County will continue to support the development, adoption and implementation of water collection, storage, distribution, and conservation plans by local municipalities, the conservancy districts, and water districts and companies.

Due to the drought, recent State Legislative discussions are considering requiring that General Plans include the topic of water. Many water districts across the State are exploring a variety of techniques to encourage water users to conserve. These strategies are laid out in Master Plans and Drought Resiliency Plans and the Bear River Water Conservancy District (BRWCD) has recently adopted such a plan – see http://brwcd.com/wp-content/uploads/2019/06/BRWCD-Master-Plan-FINAL-REPORT.pdf.

The BRWCD studies project that the current resources will be insufficient in the future to handle the anticipated growth/demand. The BRWCD bases

their Master planning efforts on securing water supplies for the future, conserving water, the construction of water projects on the Bear River as well as enhancing groundwater supplies. Their Conservation Strategies and Groundwater Augmentation include the renovation of wells and springs, water treatment of poor quality groundwater, blending poor quality and high quality groundwater, moving to pressurized irrigation systems, increasing aquifer storage and recovery, and wastewater reuse.

Water districts across the State are beginning to provide incentives for water conservation such as grants for conversions of existing landscaping to xeriscape/water-wise landscapes, smart irrigation controllers that turn off the system when rainfall is abundant, only allowing a certain amount of water to be used, meters for secondary water use, rebates for removing grass/turf, and free water audits to assess if your system is working properly. Some irrigation companies are requiring water-wise techniques and plans before they will provide service.

Communities are engaged in creating water-wise landscapes as a requirement for getting a building permit. Such ordinances usually specify a maximum amount of turf, and that rock mulches need to have defined amounts of shade through the planting of trees, and even more common is a prevention of vegetation in park strip areas except for appropriately sized trees. Leading edge communities are tying this conservation movement to Low Impact Development (LID) techniques to retain stormwater on-site.

Box Elder County understands that future development is most likely to occur in areas where adequate services are available. The County does not support extending services through or into areas that have not been identified for future development. With respect to responsible land use planning and efficient resource use, it is the County's preference that growth and development take place within existing communities or in unincorporated areas within which adequate services are or may be made available.

In 2019, the Utah Division of Water Resources conducted a study on the potential for further development of the Bear River. The report concluded that the area demand for new water sources will increase with the expected population growth. Potential for new reservoirs exists for Whites Valley and from the Bear River near Fielding and South Willard with pipelines that would connect these resources.

(Note that watershed protection, water rights, ditches/canals, irrigation, and similar issues are discussed in the County's Resource Management Plan - available at this link).

Water System Threats

Groundwater contamination originates from pollutants from several sources by seeping into the groundwater. Examples of potential threats to Box Elder County's groundwater contamination include (this is not an exhaustive list):

- Mining operations, especially gravel pits
- Agricultural fertilization practices
- Junkyard and salvage operations
- Governmental facility and equipment storage of salts and mosquito abatement chemicals
- Fertilizers and pesticides originating from cemeteries, nurseries, and greenhouses
- Oil and fuel storage tanks
- Chemical spills
- Overuse of culinary water for irrigation purposes—consider requiring secondary water for residential landscaping
- Drought

Wastewater Management

Currently, several of the larger communities have wastewater systems designed to meet their specific needs and levels of anticipated growth. On the other hand, homes in the unincorporated areas of the County operate on individual septic tanks and drain fields. It is the County's position that individual wastewater disposal systems are appropriate to use in areas of low density/rural development, where common systems are not feasible, if site conditions are suitable, and the anticipated contaminant load is not a concern to the underlying aquifer.

To control the cumulative effects of septic systems on ground water resources, Bear River Health

Department, in cooperation with the Utah Association of Conservation Districts and the Utah Division of Water Quality, will utilize soil-type mapping and other information to identify areas suitable for septic system supported development and assess the numbers or densities of septic systems that may be accommodated within these areas.

Power System

As Box Elder County continues to grow, the County will need to address several challenges to ensure a sustainable, safe, reliable, and cost-effective electric distribution system. The total electric demand to the system will continue to increase as the population and economy grows. To serve this increasing demand, the County supports efforts by private utilities to plan for a long-range strategy and to advanced technology solutions to slowly move away from traditional power generation sources. In addition, solar power installations are appropriate, especially in areas that lack irrigation water.

If the County wishes to lead the way in transitioning to electric or less polluting systems, where reasonable the County fleet could become electric, County buildings could be retrofitted with solar roofs, more insulation, and charging stations.

(Note that energy-related issues (including solar and other alternative sources) are discussed in the County's Resource Management Plan - available at this link).

Broadband Access

Broadband has a constantly changing definition; however, it is the term typically used to describe high speed Internet service that is "always on" and available.

Wired internet (cable, DSL, fiber) is available in much of the populated areas on the east side of Box Elder County. Mobile wireless services are available in many of the more remote areas, but speeds vary. The County will continue to work with internet service providers to improve the quality and coverage available to residents and business owners in Box Elder County. The County should support seeking grants for system improvements as they become available.

Map showing broadband internet access in Box Elder County (click for original). The blue areas in the map indicate areas with basic cell reception. The red and green areas currently have a higher level of service.

Goals + Strategies: Transportation and Infrastructure

1. Encourage transit-ready development near the potential express bus site and where FrontRunner stations are likely. Help preserve rights-of-way for rail, but use such rights-of-way for a community benefit in the short term.
2. Coordinate with UDOT to improve State highways and routes with trails and swales. Consider perpendicular crossings with innovative safety measures to assure such roads do not become barriers in the future.
3. Prioritize and then implement resource management plan policies.
4. Railroad rights-of-way should be buffered to assure their long-term use, especially for transport of agricultural products.
5. Emphasize local roads that provide efficient and convenient options for cars, bikes, and pedestrians and reduce pressure on expensive regional road networks.
6. Support creating van pool options for major employers.
7. Test bus potential from Brigham City to Logan; explore pilot program.
8. Encourage expanding broadband networks that serve job centers and areas of concentrated residential growth, and provide options for outlying areas.
    a. Encourage expanding broadband service levels to rural areas, especially western Box Elder County, to improve work from home and communication opportunities.
    b. Seek grants to assist in the installation of broadband networks.
9. Introduce low impact development stormwater techniques.
10. Support alternative energy use and development, such as thermal heating systems, solar farms, and wind farms.
11. Support the airport for expanded use, and protect it with compatible uses.
12. Coordinate with UDOT and the cities to consider alternate truck routes that avoid the main streets in centers and downtowns (e.g. Commerce Way in Tremonton)

CHAPTER 10:

Jobs/Economic Development

We are a part of one of the most vibrant regions in the country and home to a high quality of life that can attract employers. We will create more family-sustaining jobs in Box Elder County. The County and its cities will attract and partner with employers in key industry sectors to locate in our downtowns and in industrial areas adjacent to Brigham City and Tremonton.

What We Heard:

New job centers in Brigham City and Tremonton downtowns/mixed use areas (83% - Scenario C feedback)

Jobs and Economic Development Discussion

Box Elder County has been very successful in recruiting and establishing large manufacturing businesses in Tremonton, Brigham City and in several outlying areas, like Corinne, Plymouth, and south of Howell. These businesses employ large numbers of people, and many of the jobs have higher than average pay rates.

Both Brigham City and Tremonton have a good mix of retail businesses and act as hub cities for the larger region. Dairy farms, cattle grazing/production, orchards, and a healthy array of tourist destinations are the foundation of Box Elder County's economic spectrum.

Box Elder County's Economic Development Department has developed a strategic plan that emphasizes many of the strategies that this general plan suggests. It also recognizes some challenges that exist in the County, like housing for average wage earners, training needs, the need for business supportive infrastructure improvements, and a desire to expand tourism. Attracting more technical jobs and companies is also recommended.

BOX ELDER COUNTY
ECONOMIC DEVELOPMENT
STRATEGIC PLANNING/VISIONING (VGO)

Vision

Box Elder County pioneers space-age rural life. We cultivate community assets, anticipate new business needs, and build local careers without compromising our rural core. It's time to take flight.

Goals & Strategy Summary

	Goal Categories	General Goals	General Strategies
1	**Cultivate Community Assets**	• Improve retail, restaurant mix, and other community assets • Increase community pride • Enhance the downtown areas of Brigham and Tremonton Cities • Increase public transportation/healthy lifestyle options	• Start by surveying the citizens and their desires • Coordinate the many organizations (public and private) to create the best plans and implement those plans • Help the Bird Refuge to attract tourism • Work on trails in the eastern part of the county
2	**Anticipate Business Needs**	• Improve transportation (roads) • Increase investor confidence • Improve the water supply • Increase housing mix • Develop a new industrial park • Simplify and create clear business regulation • Preserve the Agriculture Industry	• Invest in infrastructure where the infrastructure is needed or will be needed for future businesses • Help create housing stock for their future employees that will allow the businesses the needed workforce • Simplify regulations and eliminate those that don't make sense
3	**Build Local Careers**	• Increase the number of high-paying jobs to bring work closer to residents • Diversify business opportunities to bring former residents home • Enhance local workforce through business and technical training	• Leverage existing resources to improve the education levels of the workforce, especially in specific industries • Train new generations of manufacturing workforce • Diversify our industries in the county by attracting technical companies

As part of the tourism effort and simply to improve the attractive nature of the County for people to live, trails are also promoted. (The chart above is the current Economic Development Strategic Plan).

Goals + Strategies: Jobs and Economic Development

1. Identify and redevelop underused land and buildings in downtown Brigham City and Tremonton for office, commercial, and mixed use.
2. Encourage and help coordinate educational programs at Utah State University and Bridgerland Technical College to train future workers for tech jobs, and teach skills needed for manufacturing jobs.
3. Coordinate and enhance community cooperation to focus on economic growth, including cooperative agricultural strategies, through a coordinating council. Work together to harness our unique location along the Wasatch Front to attract quality jobs.
4. Activate the regional economic development strategy (see chart above)
5. Our cities should foster an environment that supports existing local businesses by easing processing hurdles and providing grants to help establish new businesses and enhance existing ones.
6. Invest in needed infrastructure to secure more family-sustaining jobs.
7. Encourage start-up companies and support retaining and expanding existing businesses with educational programs and grant assistance.
8. Develop “sure sites” ready for industrial growth on the edges of Brigham City, Tremonton/Garland, and, potentially, in Corinne. Promote industrial park expansion in these areas.
9. Expand tourism opportunities:
    a. Continue to expand events that attract people from all over Utah, such as Peach Days, Golden Spike celebrations; Willard Bay fishing tournaments; and Spiral Jetty, Sun Tunnels, and bear River Migratory Bird Refuge events.
    b. Enhance the recognition of the Fruitway.
    c. Promote biking events such as Ride Around the Wellsvilles, Ride Around the Promontory Point, the SR 83/102/13 loop, the SR 30/13/38/102 loop, etc.
    d. Consider enhancing Crystal Hot Springs with additional hospitality options.
    e. Promote tour opportunities to cultural sites.
    f. Consider the “Bird Refuge” theme as a possible countywide brand.

CHAPTER 11:

Role of the General Plan

Why is a General Plan Important?

It is our vision for the future! A desired future usually does not happen without a conscious effort. As such, a general plan:

- Helps align the values of residents with government policy and spending. General plans provide policy direction and can be used to establish annual budget priorities.
- Places short range decisions in a long-range context.
- Is the first step in implementation, before updating zoning ordinances and creating programs that residents desire and have prioritized.
- Becomes the guide for the governing bodies in decision-making. A County Planning Commission should reference a general plan when making decisions and recommendations, especially when a zone change is requested. A County Commission should consider it along with a Planning Commission's recommendation.
- For citizens, it is one of a few documents they can reference to understand where their jurisdiction is going and what the policies of the jurisdiction really are.
- For developers, it is a guide outlining what the expectations of development are. Afterall, it is developers that often help communities realize major pieces of their vision the ground—one development project at a time

Ordinances should reinforce the vision outlined in a general plan. If ordinances are left unchanged, then resulting growth patterns may be contrary to the plan. Ordinances help implement the plan!

State Law and the General Plan

Box Elder County recognizes the need to be proactive about community-level planning and land use management, ensuring that the County vision and goals for the near and distant future are met. This general plan will serve as a framework for Box Elder County decision makers as the County continues to experience change that affects future land use, development, and other decisions. The plan is designed to provide a formal policy foundation to achieve the vision and vision principles embodied in the general plan, to enhance community relations, to pursue economic development activities, to coordinate infrastructure planning, and to foster town, city, and county cooperation and collaboration.

This plan is supported by Utah State Law (Title 17 Chapter 27a) which requires local plans and development guidelines to address general health, safety, morals, and welfare issues. The law also requires public participation in the planning process through adequate public notice and open public meetings. The information outlined in this document represents the consensus and vision for the County; as well as the goals and strategies to achieve the County's vision for the near and distant future.

Amending the General Plan

The Box Elder Together General Plan is intended to be a steady, but not static, foundation for future planning. As such, great care should be taken when a decision is made to amend the plan to avoid drastic changes in direction that is contrary to the vision outlined in the plan. On the other hand, if unanticipated trends or serious acceleration in trends beyond what was foreseen in the plan occur, updating goals and strategies could be important to shift a focus toward changes that were not anticipated. To ensure this general plan remains relevant to ongoing annual budget setting and strategic planning processes, it is intended to be part of those processes. The plan should be reviewed annually and updated at least every five years, or more frequently as the need arises, to provide responsible and well-formulated public policy direction to guide County decisions.

Implementation of the General Plan

Implementation of the general plan by the County Commissioners, Planning Commission, cities, towns, and staff fulfills the plan's purpose and ensures that the community's voice and vision are heard. Each chapter of the general plan provides background and context materials, as well as goals, policies, and potential action steps or strategies to achieve the plan's vision. The following are the goals and strategies that should be undertaken over the next two years:

- Grow within our infrastructure capacities and capabilities.
- Increase coordination between towns, cities, and unincorporated areas to address agricultural preservation incentives, trails, town centers, sensitive lands, water quality and availability issues, and irrigation systems. Provide model ordinances to address this list.
- Create an agricultural heritage area that supports ongoing farming and ranching through large acreage zoning. Zone unzoned areas with a flexible agricultural zone to help reinforce the agricultural heritage area. Allow for smaller lots along established roadways. Promote a variety of incentivized market-based strategies to help retain agricultural businesses. Focus on programs to preserve orchards and assist the small fruit industry along the Fruitway as soon as possible.
- Enhance existing neighborhoods in unincorporated communities. New growth should occur near services and amenities. Consider clustering options in a model new ordinance.
- Discourage commercial strip development along US 89/SR 38. Add recreational attractions and community gathering places in downtowns and centers. Support housing for farmworkers, large employers, and service workers that are affordable, possibly in mixed use settings.
- Create a robust regional trail network that connects to local recreation systems. Include maintenance funding needs.
- Explore water capacities for future generations, and irrigation for agricultural business expansion.
- Encourage transit-ready development. Coordinate with UDOT to improve State highways and routes with trails and swales.
- Encourage and help coordinate educational programs at Utah State University and Bridgerland Technical College.

Next Steps for the General Plan

While the general plan outlines a clear community vision and set of goals for the coming years, it also provides strategies to achieve the vision and vision principles. Each of those strategies requires additional work for effective implementation. To ensure that the County's vision is realized, Box Elder County should use the plan in its annual budgeting process and focus on initiating the major strategies suggested above.

Appendix A:

Public Interaction Summary

The Box Elder Together planning initiative involved an extensive visioning process. For a summary report on what was learned from it, please visit:

https://tinyurl.com/BoxElderVision

APPENDIX B

BOX ELDER COUNTY

MODERATE INCOME HOUSING PLAN

2019 UPDATE

EXECUTIVE SUMMARY

The home is the foundation to which every person builds their lives. It is fundamental to one's sense of safety, security and stability. When people have their basic needs met they have the ability to improve not only their own wellbeing but that of their community's. Without affordable housing options the school teachers, police officers, sales clerks, young couples, and older adults, that are the underpinning of a healthy functioning community, suffer. Households are forced to spend more of their income on housing and less on other basic needs, such as food, clothing, health insurance, education, transportation and leisure. Below are some of the social, environmental and economic benefits that occur when people can live in housing that fits within their budget:

- Children are more likely to **thrive in school, attend college** and **earn more** as adults[1]
- Families and older adults are able to put **more resources towards healthcare** and **wholesome foods**, while ensuring children grow up in households free of environmental hazards[2, 3]
- Building 100 affordable rental homes generates **$11.7 million in local income**, **$2.2 million in** taxes and other **revenue** for local governments, and **161 local jobs** in the first year alone[4]

Investing in housing is an investment in the social, cultural and economic wellbeing of communities. Due to the importance of housing for the success of individuals and communities, this plan is intended to examine Box Elder County's role in supporting moderate income housing options for its current and future residents. This plan outlines the changing character of Box Elder County residents, the current gap and future needs of moderate income housing, barriers to moderate income housing, and strategies to increase moderate income housing options throughout the county.

Note: While this plan addresses moderate income housing needs for Box Elder County its focus is on the unincorporated areas which they govern. Because most moderate income housing in the county is concentrated within incorporated cities and towns, the county acts more as a coordinating body working to encourage affordable housing across cities and towns.

KEY FINDINGS

Box Elder County's population is on the rise. From 2000 to 2010, Box Elder County gained over 7,200 new residents. This 17 percent growth rate has been occurring since 1990. Estimates anticipate growth will continue at 17 percent into 2030 adding an additional 14,000 residents. As of 2017, Box Elder County's population was 54,079 people consisting of 17,444 households. The average household includes 3.1 people, with 80 percent of households being comprised of families.
Sources: Hansen, Allen & Luce, 2017; U.S. Census Bureau, 1990, 2000, 2010b, 2016b, 2017

Box Elder County is getting older and slightly more diverse. As the population in Box Elder County continues to grow, older adults (age 65 and older) are becoming a larger portion of the total population. In 2015, older adults made up 12 percent of the total population in Box Elder County. By 2025 they are expected to make up 16 percent of the total population. Additionally, Box Elder County is slowly become more diverse. Minority groups, which made up 6 percent of the population in 2000 now make up over 13 percent of the population. Latinos are leading all minority groups at 9 percent. Future housing will need to address the unique character of residents including the growing number of older adults and Latinos.
Sources: Kem C. Gardner Policy Institute, 2017; U.S. Census Bureau, 2000, 2016b, 2016f

[1] Newman & Holupka, 2014
[2]March, et al., 2011
[3]Ahrens, et al., 2016
[4]National Association of Home Builders, 2015

Box Elder County is a blue- and pink- collar community. With employers such as Autoliv, Nucor Corporation, Procter and Gamble, and Northrop Grumman Corp., Box Elder County has a strong manufacturing workforce. Approximately 40 percent of the county and 43 percent of the unincorporated area are employed in skilled and unskilled manual labor. Similarly, 40 percent of the county works in pink-collar jobs, such as education, healthcare, administration, retail and food services. A variety of housing options is needed in Box Elder County to support the moderate-income manufacturing worker to the low-income healthcare worker.
Source: U.S. Census Bureau, 2016g

A disparity is growing between wages and housing costs. Gains in employment and wages are not keeping up with increasing housing costs. From 2007 to 2016 the area median income (AMI) in Box Elder County increased 6.1 percent from $52,305 to $55,514. During that period median gross rent has increased by 41.5 percent and median home values by 21.0 percent. Despite the Great Recession occurring over a decade ago, wages in Box Elder County are not increasing at the same rate as housing costs (see Figure A).
Sources: U.S. Census Bureau, 2016e, 2016g

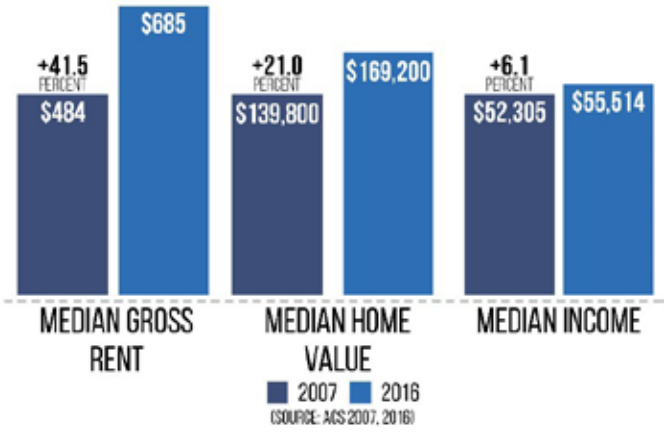


Figure A. *Changes in median gross rent, median home value and median income in Box Elder County from 2007 to 2016.*

More renters are becoming cost burdened. Household that spend 30 percent or more of their income on housing are considered cost burdened. In Box Elder County, 30 percent of renters and 20 percent of homeowners were cost burdened in 2015. Since 2010, an additional 380 or 51.7 percent more renters have become cost burdened. Renters are being hit the hardest from the growing gap between stagnating wages and rising housing costs in Box Elder County.
Source: CHAS, 2014

Box Elder County has a deficit of affordable and available rental and owner-occupied units for low and very low income earning households. AMI is used to establish three levels of moderate income housing needs based on household income. In Box Elder County, a moderate income household (80 to 50 percent of AMI) earns between $27,757 and $44,411 annually, a low income household (50 to 30 percent of AMI) earns between $16,654 and $27,757 annually, and a very low income household (30 percent or less of AMI) earns $16,654 or less annually. In the county and unincorporated area there is a surplus of rental housing for moderate-income earning households, but a deficit for low- and very low-income earning households. The same pattern occurs for owner-occupied households, a surplus of moderate-income housing but a deficit of low- and very low-income housing. See Figure B.
Sources: CHAS, 2014; U.S. Census Bureau, 2016g

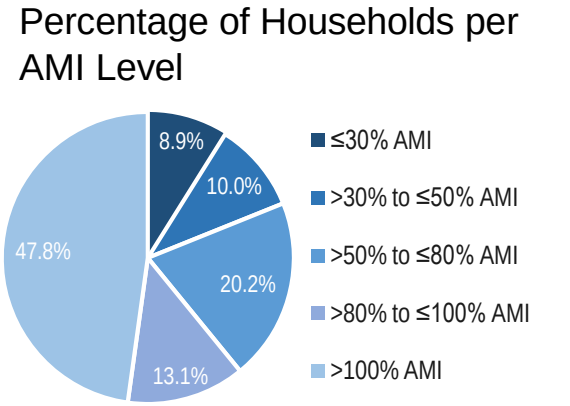


Figure B. *Percentage of households at the different area median income (AMI) levels.*

An additional 560 to 730 moderate income housing units will be needed by 2022. Accounting for population growth and vacancy rates, the county will need to add approximately 100 to 150 moderate income housing units per year to meet the needs of future residents. This figure does not include the current deficit of housing units. Over half of those housing units will need to be for moderate-income earning households.

Regulatory barriers are impeding moderate income housing growth. Allowed uses, minimum lot size and other development regulations are contributing in part to the deficit of moderate income housing. In addition, the cost to developers and community perceptions are also hindering the development of moderate income housing. To address the regulatory, resource and perception barriers Box Elder County has developed several strategies to increase moderate income housing opportunities in the county.

TABLE OF CONTENTS

1. DEMOGRAPHIC SUMMARY

The demographic characteristics of a community greatly influences housing demand. Population growth, income, economic conditions, and other characteristics are all factors that influence the types of housing and units desired by the community. This section summarizes these factors in Box Elder County in order to inform the demand for housing units and the type of housing units.

HIGHLIGHTS

- Between 1990 and 2017 Box Elder County has added 17,600 residents. This is roughly the size of Brigham City. As the population of the county continues to increase, a variety of new housing types will be needed along with the preservation and upkeep of the current housing stock.
  Sources: U.S. Census Bureau, 1990, 2017

- More housing for older adults is needed. As the population in Box Elder County continues to rise so will the portion of older adults. Because older adults are more likely to have a disability, such as mobility impairments, it is important to consider location of housing for older adults, such as centrally located or near transit.

- Other groups with housing needs include minorities (13 percent of the population and are more likely to live at or below the poverty level) and disabled populations (13 percent of the population and often face financial and social hardships).
  Sources: U.S. Census Bureau, 2016b, 2016f

- Since 2007 the median income in the county has not changed much (6.1 percent). This gradual increase was partly due to the Great Recession. Affordable housing is going to be in greater demand in the future because household incomes are rising slowly.
  Sources: U.S. Census Bureau, 2007, 2016g

- Even though most moderate income earning households (80 percent of AMI or $44,411) live in towns and cities, one in five live in the unincorporated area. Unincorporated Box Elder County still needs to support a portion of moderate income housing in the county.
  Sources: CHAS, 2014; U.S. Census Bureau, 2016g

- Box Elder County is a working-class county. The county touts a diversity of job types from manufacturing (typically middle earning) to service sector (typically lower earning) jobs.

HISTORIC AND CURRENT POPULATION LEVELS

Sources: U.S. Census Bureau, 1990, 2000, 2010b, 2017

Box Elder County is a largely rural county with most housing (greater than 80%) located within communities along the eastern border (see Figure 1.1 next page). Since the 1950s, population growth has remained steady at 17% per decade. Between 2000 and 2010, the county grew by 7,422 residents or 17.3% (See Table 1.1).

Table 1.1. Population of Box Elder County, all cities and unincorporated area from 2000 to 2017 (U.S. Census Bureau, 2000, 2010b, 2017).

	2000	2010	% Change	2017
Box Elder County	42,745	50,167	17.3%	54,079
All Cities	34,722	41,047	18.2%	44,171
Unincorporated Area	8,023	9,120	13.7%	9,908

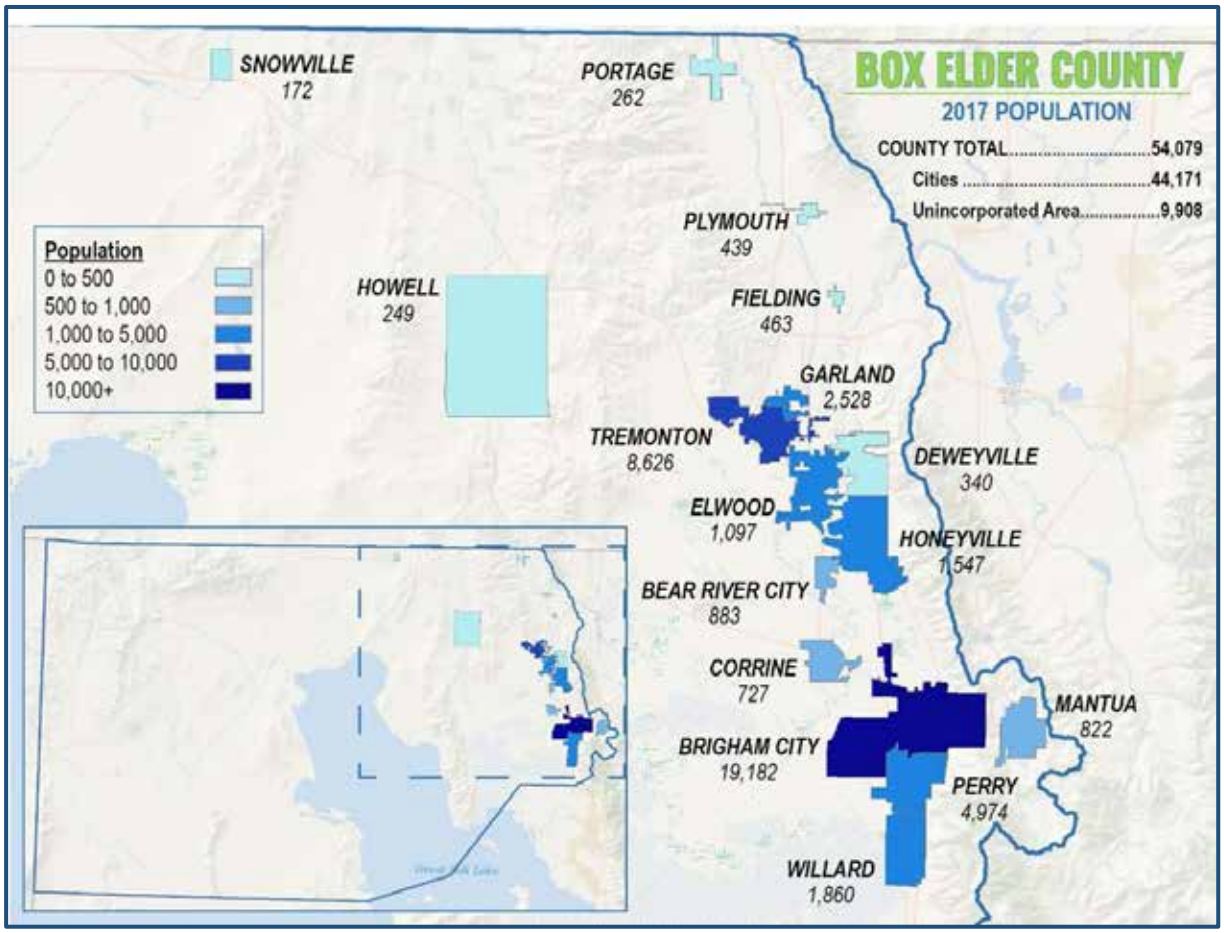


Figure 1.1. *2017 Population estimates for Box Elder County.*

AGE AND HOUSEHOLD SIZE

Source: U.S. Census Bureau, 2016a

Box Elder County has a median age of 32 years old. This was slightly older than other northern Utah counties and the state average of 30 years old (see Table 1.2). The higher median age can partially be attributed to a larger portion of older adults (ages 65 and older). The county also has a slightly higher than average population of children compared to other northern Utah counties at 35% of the population.

Table 1.2. Demographics of Box Elder County and surrounding counties (U.S. Census Bureau, 2016a).

	Box Elder Co.	Cache Co.	Weber Co.	Tooele Co.	Utah
Household (HH) Size	3.08	3.41	3.09	3.36	3.27
Median Age	32.1	25.0	32.1	30.9	30.3
% of HH with Children under 18	32.6%	30.9%	29.1%	34.2%	30.5%
% of Total Population 19 and Under	35.3%	35.5%	31.2%	36.5%	33.0%
% of Total Population 65 and Older	12.5%	8.6%	12.1%	9.1%	10.9%

Age Distribution

Source: Kem C. Gardner Policy Institute, 2017

According to the Kem C. Gardner Policy Institute, children (ages 0 to 17) made up 33 percent of the total population in the county in 2015 (see Figure 1.2). By 2025, the portion of children in the county is expected to decline by 3 percent to 30 percent of the county's total population. This decline is projected to continue into 2050. As the percentage of children decline in the county, the percentage of older adults (ages 65 and older) is projected to increase. In 2015, older adults made up 12 percent of the total population. By 2025, older adults will increase by 4 percent to 16 percent of the population. This upward trend of older adults is projected to continue into 2050.

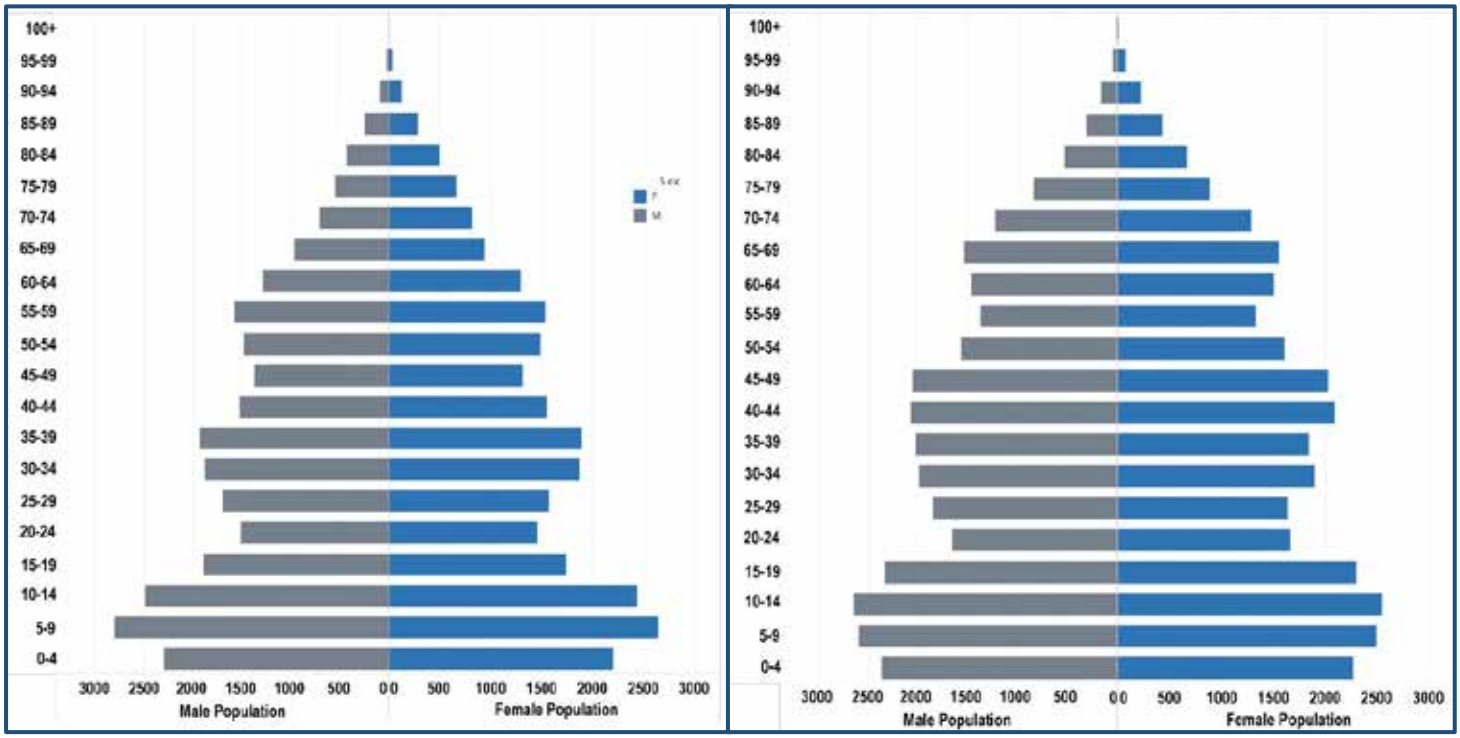


Figure 1.2. 2015 (left) and 2025 (right) age distribution of Box Elder County (Kem C. Gardner Institute, 2017).

INCOME

Sources: CHAS, 2014; U.S. Census Bureau, 2007; 2016b, 2016g

The county median income or area median income (AMI) was $55,514 in 2016 (see Table 1.3). Since 2007, Box Elder County's AMI has increased 6.1 percent. Compared to other northern Utah counties, Box Elder County has a lower AMI (see Figure 1.3 on next page).

Table 1.3. Median household income in Box Elder County from 2007 to 2016 (U.S. Census Bureau, 2007, 2010a, 2013, 2016g).

Year	Median Income
2007	$52,305
2010	$55,135
2013	$57,292
2016	$55,514

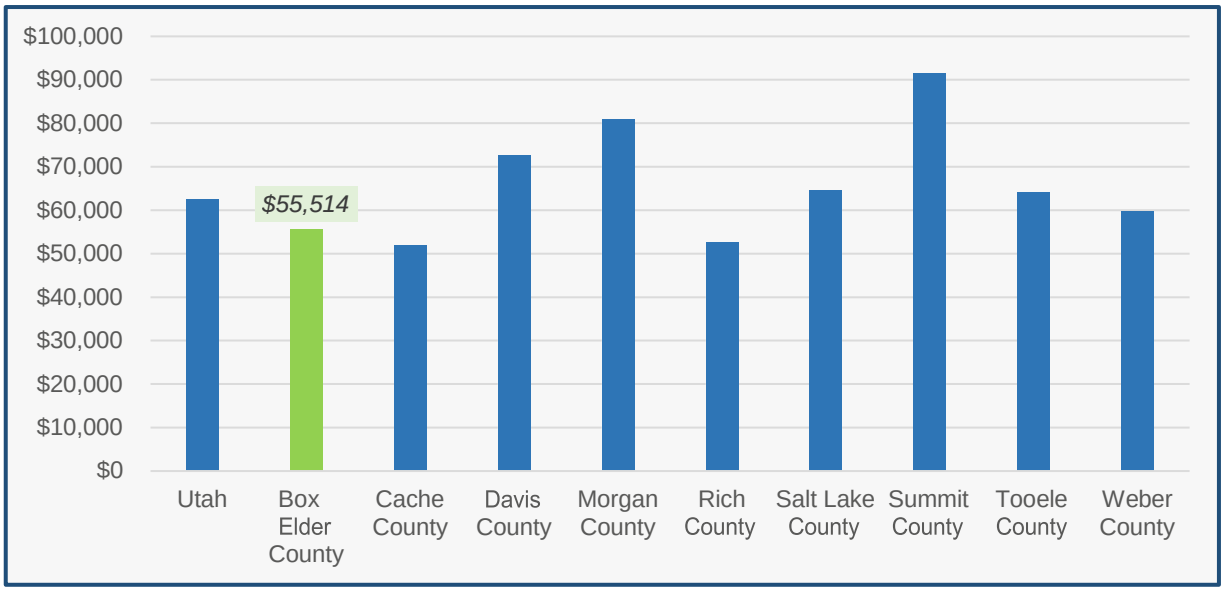


Figure 1.3. Median household income for Box Elder and other northern Utah counties (U.S. Census Bureau, 2016g).

Despite having less residents, a significant portion of households in the unincorporated area make $200,000 or more per year (see Figure 1.4). Approximately one third of households earning $200,000 or more in Box Elder County live in the unincorporated area. More than 65 percent of households earn greater than $50,000 a year in the unincorporated area meaning most moderate income earning households (80 percent of AMI or $44,411) live in cities. Approximately 36 percent of households in the county earned under $35,000 a year and 21.5 percent or 1 in 5 households in the unincorporated area.

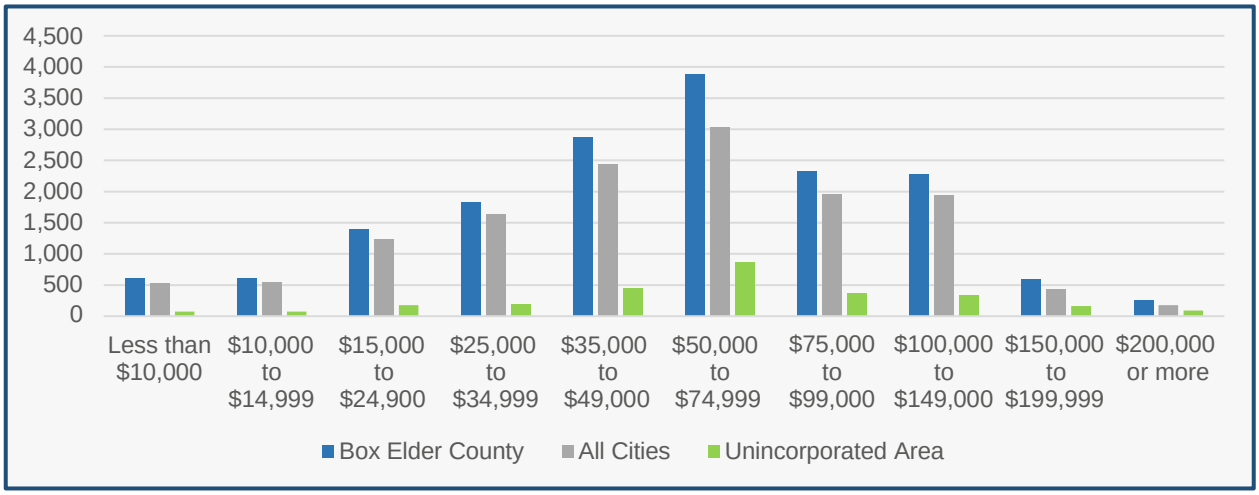


Figure 1.4. Household incomes in Box Elder County, all cities, and unincorporated area (U.S. Census Bureau, 2016g).

EMPLOYMENT

Sources: U.S. Census Bureau, 2016g; Utah Dept. of Workforce Services, 2016.

Box Elder County has stable employment at 1.29 jobs per household (see Table 1.4 on next page). This was slightly lower than the countywide ratio for other northern Utah counties. This in part could be due to those counties attracting more employment from outside their own.

Table 1.4. Jobs per household in Box Elder and other northern Utah counties (U.S. Census Bureau, 2016f).

	Box Elder Co.	Cache Co.	Tooele Co.	Weber Co.	Utah
Jobs per HH	1.29	1.42	1.33	1.27	1.34

Nearly 1 out of 4 residents were employed in manufacturing making it the largest employment sector in the county (see Table 1.5). In the unincorporated area manufacturing was also the largest employment sector followed by retail trade at 10.1 percent, health care/social assistance at 9.7 percent, educational services at 8.9 percent, and agriculture/forestry/fishing/hunting at 8.4 percent.

Table 1.5. Percentage of total employment by sector in Box Elder County, all cities and unincorporated area (U.S. Census Bureau, 2016g).

	Box Elder Co.	All Cities	Unincorporated Area
Agriculture/Forestry/Fishing/Hunting	3.5%	2.3%	8.4%
Mining/Quarrying/Oil and Gas Extraction	0.5%	0.6%	0.4%
Construction	6.0%	6.0%	6.0%
Manufacturing	25.5%	26.5%	21.6%
Wholesale Trade	2.3%	2.1%	3.1%
Retail Trade	12.8%	13.5%	10.1%
Transportation/Warehouse	4.1%	3.4%	6.8%
Utilities	0.4%	0.3%	0.5%
Information	1.3%	1.6%	0.3%
Finance/Insurance	2.5%	2.3%	3.2%
Real Estate/Rental/Leasing	0.8%	0.7%	1.1%
Professional/Scientific/Technical Services	2.9%	2.7%	3.9%
Management of Companies/Enterprises	0.1%	0.1%	0.0%
Admin. & Support/Waste Mgt./Remediation	3.5%	3.9%	2.1%
Educational Services	8.3%	8.2%	8.9%
Health Care/Social Assistance	9.0%	8.8%	9.7%
Arts/Entertainment/Recreation	1.3%	1.4%	0.8%
Accommodation/Food Services	5.3%	5.9%	2.8%
Other Services	3.6%	3.5%	3.6%
Public Administration	6.4%	6.3%	6.8%

Box Elder County's employment is driven largely by manufacturing, including the companies Autolive, Northrop Grumman Corp., West Liberty Foods, Nucor Steel and Vulcraft.

Table 1.6. Largest employers in Box Elder County (Utah Dept. of Workforce Services, 2016).

Company	Sector	Employee Range	Location
Autoliv Asp, INC	Manufacturing	1,000 to 1,999	Multiple locations
Box Elder School District	Education	1,000 to 1,999	Box Elder Co.
Wal-Mart	Retail Trade	1,000 to 1,999	Corrine, Perry
Kirkco, Inc.	Help Services	500 to 999	Brigham City
Northrop Grumman Corp.	Manufacturing	500 to 999	Box Elder Co.
West Liberty Foods	Manufacturing	500 to 999	Tremonton
Associated Brigham Contractors	Construction	250 to 499	Brigham City
Nucor Steel	Manufacturing	250 to 499	Box Elder Co.
Vulcraft	Manufacturing	250 to 499	Brigham City

EDUCATION

Source: U.S. Census Bureau, 2016d

Box Elder County was above average for percentage of residents with at least a high school degree or higher (see Table 1.7). For residents with a bachelor's degree or higher, the county was lower than most other northern Utah Counties at 21.4 percent of the population.

Table 1.7. Education level in Box Elder and other northern Utah counties (U.S. Census Bureau, 2016d).

	Box Elder Co.	Cache Co.	Rich Co.	Tooele Co.	Weber Co.	Utah
% High School Degree or Higher	93.0%	93.0%	96.1%	91.6%	90.1%	91.5%
% Bachelor's Degree or Higher	21.4%	36.3%	20.4%	20.8%	23.3%	31.7%

RACE AND ETHNICITY

Source: U.S. Census Bureau, 2016a, 2016b

Nearly 90 percent of the county and unincorporated area was made up of the race "white" (see Table 1.8). The largest minority race was "Hispanic or Latino" followed by "American Indian" and "Asian." Fifteen percent of minority races live in the unincorporated portions of the county.

Table 1.8. Racial makeup of Box Elder County and the unincorporated area (U.S. Census Bureau, 2016b).

	Box Elder County		Unincorporated Area	
	Value	*Percentage*	*Value*	*Percentage*
Total Population	51,528	-	9,618	-
White	45,066	87.5%	8,637	89.9%
Hispanic or Latino	4,622	9.0%	737	7.7%
Black or African American	167	0.3%	22	0.2%
American Indian or Native Alaska	473	0.9%	59	0.6%
Asian	429	0.8%	44	0.5%
Native Hawaiian & other Pacific Islander	41	0.1%	0	0.0%
Some other race	2	0.0%	0	0.0%
Two or more races	728	1.4%	119	1.2%

Nearly 20 percent or one in five people of a minority race were considered below the poverty line in Box Elder County. Of the minority races, 40 percent of "Hispanic or Latino" live at less than 125 percent of the poverty level and 25 percent of "American Indian and Alaska Native" live at less than 125 percent of the poverty level. This is

compared to the race "white," where 15 percent of the population lives at or below 125 percent of the poverty level. Minority populations were disproportionately more likely to live at or below 125 percent of the poverty level.

SENSITIVE POPULATIONS

Older Adults

Source: Kem C. Gardner Policy Institute, 2017; U.S. Census Bureau, 2016c

The portion of the population made up of older adults will continue to increase over the next 32 years (to 2050) and beyond. In addition, older adult were more likely to have a disability. In Box Elder County, approximately 40 percent or 2,584 older adults live with a disability. Some older adults may decide to stay in their homes but other may not be able to remain in their homes or may choose to relocate to a unit that better suits their preference and needs. A diversity of housing types is needed, including rental housing for older adults. Additional units closer to commercial centers and everyday services (e.g., grocery, doctor, senior centers, etc.) will also be needed. This is because mobility, the ability of a person to move oneself within community environments, is the most common disability in older adults.

Persons with Disabilities

Source: Kem C. Gardner Policy Institute, 2017; U.S. Census Bureau, 2016c

Approximately 13 percent of residents in the county have a disability or 6,643 residents as of 2016 (see Table 1.9). This was an increase of about 600 residents since 2014. If this trend continues, approximately 14 percent of residents will have a disability by 2020. About 1.4 percent of people under 18 live with a disability, 6.6 percent for ages 18 to 65, and 5.0 percent for those 65 and over.

Table 1.9. Population with a disability in Box Elder County (U.S. Census Bureau, 2016c).

	Under 18	18 to 64	65+	Total
Population with a Disability	10.7%	50.4%	38.9%	6,643
With a Hearing Difficulty	5.7%	33.4%	60.9%	2,304
With a Vision Difficulty	9.2%	50.0%	40.7%	1,205
With a Cognitive Difficulty	17.6%	56.8%	25.6%	2,535
With an Ambulatory Difficulty	1.5%	45.5%	53.0%	2,930
With a Self-Care Difficulty	14.2%	39.1%	46.7%	916
With an Independent Living Difficulty	N/A	53.2%	46.8%	1,488

Twenty three percent of residents with a disability live at less than 125 percent of the poverty level. People with disabilities often face financial and social difficulties that make it difficult to obtain housing.

Veterans

Source: U.S. Census Bureau, 2016h

Over 2,300 veterans lived in Box Elder County in 2016, including 2,000 in the cities and over 300 in the unincorporated area. Of those veterans, 528 or one in four had a service-connected disability rating, with 470 in cities and 58 in the unincorporated area.

Homeless

Source: Personal interview with Stephanie Jones, Bear River Association of Governments on June, 5th 2018.

Between January 2018 and April 2018 a total of 11 people were considered homeless in Box Elder County. Using that as a four month average, about 33 people could be considered homeless in Box Elder County per year. However, homeless counts often underestimate the true number of homeless due to many errors in the estimating process. Therefore, it should be assumed that the 11 people counted in the first four months of 2018 as an under

representation of the true number of homeless people in Box Elder County. Despite inaccuracies in estimating the true number of homeless people in the county, there was a need to develop and/or promote programs designed to help homeless individuals become stably housed. Current homeless populations are sent to Ogden or Salt Lake City for temporary housing.

2. EXISTING HOUSING STOCK

The housing stock of a community helps determine the condition and need of current and future housing. This section summarizes the different categories of housing and the role they play in determining the quality of housing units in Box Elder County.

HIGHLIGHTS

- Box Elder County residents prefer to own their home. Seventy six percent of housing units in the county and 80 percent in the unincorporated area were owner-occupied. Although homeownership is widespread in Box Elder County, rental housing units are important for providing a balanced housing stock.
  Source: U.S. Census Bureau, 2016f

- Over 88 percent of housing in the unincorporated area were single family housing units and almost 6 percent were multifamily housing units.
  Source: U.S. Census Bureau, 2016f

- The value of homes is continuing to rise. From 2007 to 2016, home values grew by 21 percent. During this period gross rent has also increased by 41.5 percent.
  Source: U.S. Census Bureau, 2016f

- About 63 percent of homes in the county were more than 30 years old. Homes older than 30 years generally require more rehabilitation than newer homes. In the unincorporated area 57 percent of the housing stock was older than 30 years. Moderate to very low income earning households will need assistance to provide ongoing maintenance to the aging housing stock.
  Source: U.S. Census Bureau, 2016f

HOUSING OCCUPANCY

Source: U.S. Census Bureau, 2016f

Housing in Box Elder County was primarily made up of owner-occupied housing with a limited supply of renter-occupied housing (see Table 2.1). As of 2016, the county had 16,555 occupied housing units, 12,698 owner-occupied units (or 76.7 percent of all housing units), and 3,957 renter-occupied units. In the unincorporated area, there were 2,896 occupied units, 19.7 percent were renter-occupied and 80.3 percent owner-occupied housing units.

Table 2.1. Housing unit occupancy in Box Elder County, cities and unincorporated area (U.S. Census Bureau, 2016f).

	Occupied Housing Units	Owner-Occupied Housing	Renter-Occupied Housing
Box Elder County	16,555	76.7%	23.3%
Cities	13,659	75.2%	24.8%
Unincorporated Area	2,896	83.7%	16.3%

HOUSING UNITS

Source: U.S. Census Bureau, 2016f

Nearly 83 percent of the current housing stock in Box Elder County was single family homes. The county also included a limited supply of multi-family housing units (2 or more housing units) and mobile homes (see Table 2.2 on the next page). Of the 18,086 housing units in the county, 2,439 were multifamily homes and 719 were mobile homes. In the unincorporated area, of the 3,430 housing units, only 4.1 percent of housing was multifamily or 142

units. Of those multifamily units, 41 were 2-units, 101 were 3 to 4 units, and none were greater than 5 units. All large multifamily housing (5 or more units) occurred largely in cities, including Brigham City, Tremonton and Garland.

Table 2.2. Housing units by type in Box Elder County, cities and unincorporated area (U.S. Census Bureau, 2016f).

	Total Housing Units	Single Family	Multi-Family	Mobile Home
Box Elder County	18,086	14,928	2,439	719
Cities	14,656	11,880	2,297	479
Unincorporated Area	3,430	3,048	142	240

NUMBER OF BEDROOMS

Source: U.S. Census Bureau, 2016f

A range of bedrooms per housing unit (studio, one-bedroom+) is needed to support individuals, couples, and large families. In Box Elder County the majority of the housing stock consists of 4 or more bedrooms (see Table 2.3). Studio or no-bedroom units and one-bedroom units totaled 4.7 percent of all housing units. The unincorporated area followed the same pattern. Just under 4 percent of all housing units were studio and one bedroom units and the majority of housing units consisted of 4 or more bedrooms.

Table 2.3. Number of bedrooms per housing unit in Box Elder County, cities and unincorporated area U.S. Census Bureau, 2016f).

	Total	Studio, No Bedroom	1 Bedroom	2 Bedrooms	3 Bedrooms	4 or More Bedrooms
Box Elder County	18,097	117	736	3,251	6,019	7,974
Cities	14,656	96	646	2,545	4,896	6,473
Unincorporated Area	3,441	21	90	706	1,123	1,501

VALUE OF HOMES

Source: U.S. Census Bureau, 2016f

The median value of homes in Box Elder County in 2016 was $169,200 (see Figure 2.1). Since 2007 the median value of a home has risen 21 percent or by $30,000. Eighty percent of homes in the county and 87 percent of homes in the unincorporated area were valued between $100,000 and $300,000.

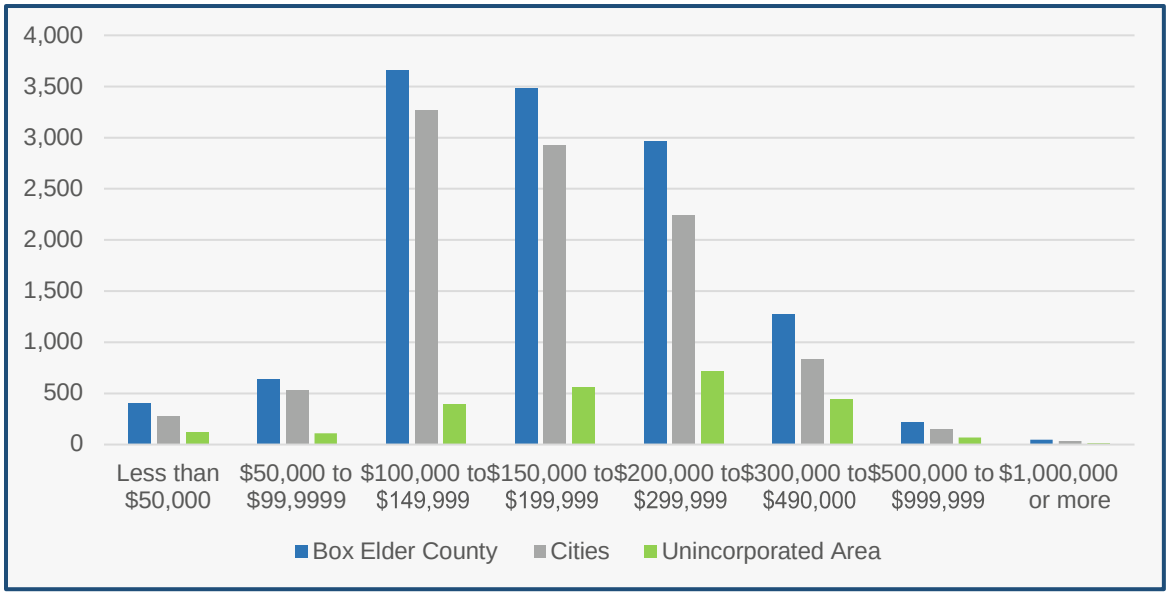


Figure 2.1. Home values in Box Elder County, cities and unincorporated area (U.S. Census Bureau, 2016f).

GROSS RENT

Source: U.S. Census Bureau, 2016f

The median gross rent in Box Elder County was $685 in 2016. This was a 41.5 percent increase from 2007 when the median gross rent was $484. Over 65 percent of gross rents in the county and 81 percent in the unincorporated area was between $500 and $999 per month (see Figure 2.2).

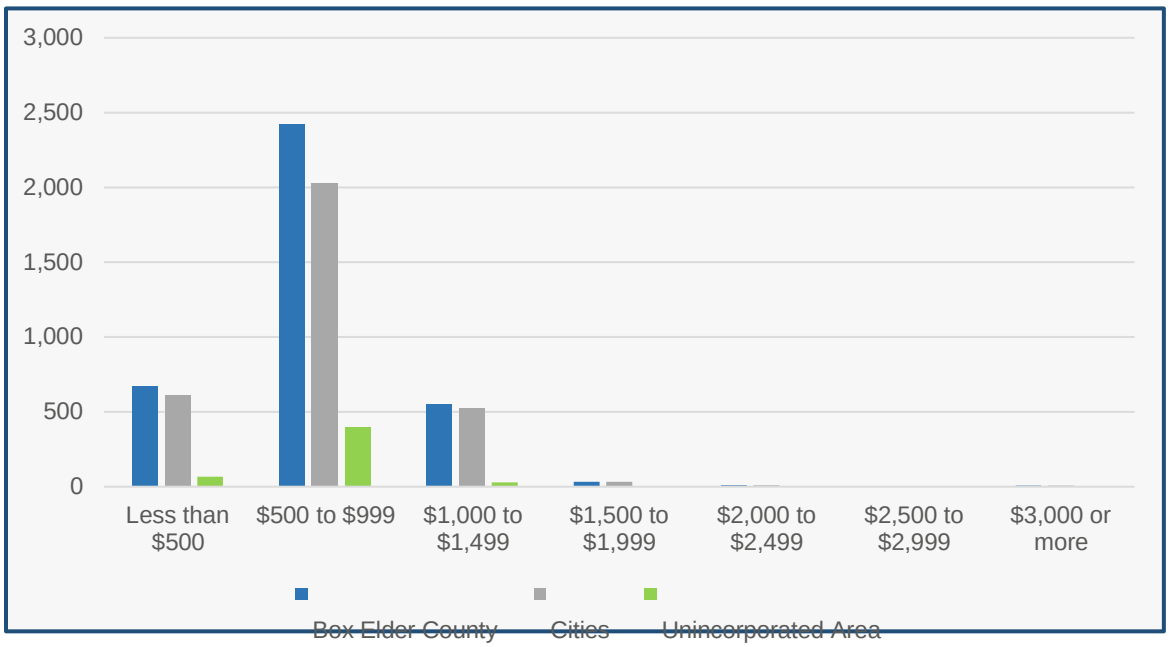


Figure 2.2. Home values in Box Elder County, cities and unincorporated area (U.S. Census Bureau, 2016f).

AGE OF HOUSING STOCK

Source: U.S. Census Bureau, 2016f

Approximately 54 percent of the housing stock in Box Elder County was built prior to 1980, and 18 percent built prior to 1950 (see Figure 2.3 on the next page). Less than 4.4 percent of the county were new homes (2010 or later). In the unincorporated area 47 percent of the housing stock was built prior to 1980, and 22.1 percent built prior to 1950. Only 2.3 percent of the unincorporated area were newer homes (2010 or later). Housing older than 30 years typically requires more rehabilitation than newer homes. Homes older than 30 years in the county and unincorporated area total 63 percent and 57 percent respectively.

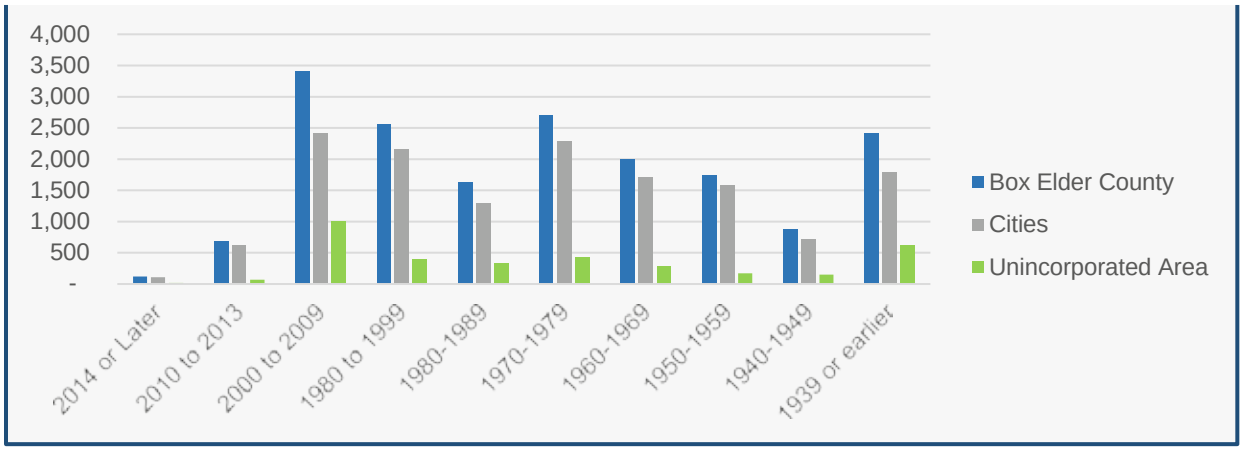


Figure 2.3. Age of housing stock in Box Elder County, cities and unincorporated area (U.S. Census Bureau, 2016f).

3. EXISTING MODERATE INCOME HOUSING

HIGHLIGHTS

- Almost 40 percent of households in Box Elder County earned a moderate income (80 percent AMI or $44,411) or lower.
  Source: CHAS, 2014, U.S. Census Bureau, 2016g

- Households that earn 30 percent of the AMI level cannot afford the median rent ($484) or a mortgage for a median valued home ($169,200) in the county.
  Source: CHAS, 2014; U.S. Census Bureau, 2016g

- In the unincorporated area, there was a deficit of affordable and available rental housing for households at the 30 and 50 percent AMI levels. At the 80 percent AMI levels there is a surplus of 11 rental housing units.
  Source: CHAS, 2014; U.S. Census Bureau, 2016g

- In the county, there was a surplus of affordable housing units for owners at the 80 percent AMI level. Almost 37 percent of houses in the county were affordable to homeowners at the 80 percent AMI level. However, there currently is a low supply of housing units that are affordable and available in the county.
  Source: CHAS, 2014; U.S. Census Bureau, 2016g

TARGETED INCOME LEVELS

Sources: CHAS, 2014; U.S. Census Bureau, 2016g

Moderate income housing is housing occupied or reserved for occupancy by households with a gross income equal to or less than 80 percent of the area median income for households of the same size in Box Elder County. The AMI for Box Elder County was $55,514. Eighty percent of that amount is $44,411. Therefore, for the purpose of this plan, moderate income housing in Box Elder County during the year 2016 is defined as those housing units that were affordable to households that earn $44,411 or less annually. Approximately 42.7 percent of all households in the county earn $44,411 or less annually.

Families that pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities, such as food, clothing transportation, and insurance. Therefore, affordability or affordable housing is when a household pays no more than 30 percent of its annual income on housing.

To estimate the supply of moderate income housing, the following targeted income levels were evaluated: 30 percent (very low income), 50 percent (low income), and 80 percent (moderate income) of the AMI. Table 3.1 lists the annual household income, the maximum affordable monthly rent, and the maximum affordable mortgage loan amount for each targeted AMI level. For example, a household earning 50 percent of the AMI makes $27,757 annually, can afford to spend $693 monthly on rent, and can afford a home priced up to $82,270.

Table 3.1. Household income and maximum affordable rent and mortgage loan by AMI level (CHAS, 2014; U.S. Census Bureau, 2016g).

Targeted AMI Level	Annual Household Income	Maximum Affordable Rent[1]	Maximum Affordable Mortgage Loan[2]
≤30% AMI	$16,654	$416	$34,086
>30% to ≤50% AMI	$27,757	$693	$82,270
>50% to ≤80% AMI	$44,411	$1,110	$154,546

[1]Maximum affordable gross rent included utilities.
[2]Maximum affordable mortgage loan assumed a monthly utility expense of $220. This was based on local estimates. For the purpose of calculating mortgage payments, a 3.71% interest rate on a 30-year fixed rate mortgage was assumed.

HOUSEHOLDS AND AMI LEVELS

Sources: CHAS, 2014; U.S. Census Bureau, 2016g

In Box Elder County 39.1 percent of households were moderate income earning or lower (see Table 3.2). Households that earn 50 to 80 percent of the AMI were the largest group of moderate income households.

Table 3.2. Number of households by AMI level (CHAS, 2014; U.S. Census Bureau, 2016g).

AMI Level	Number of Households	Percentage of Total Households
≤30% AMI	1,445	8.9%
>30% to ≤50% AMI	1,625	10.0%
>50% to ≤80% AMI	3,275	20.2%
>80% to ≤100% AMI	2,125	13.1%
>100% AMI	7,755	47.8%
TOTAL	16,405	100%

AFFORDABLE AND AVAILABLE RENTAL HOUSING UNITS

Sources: CHAS, 2014; U.S. Census Bureau, 2016g

Of the 16,655 occupied housing units in Box Elder County, approximately 23.8 percent or 3,957 housing units were renter-occupied in 2016. In the unincorporated area, 571 units or 19 percent of housing units were renter-occupied. A unit is affordable when a household (3.1 persons) at a defined AMI level can rent the unit without paying more than 30 percent of its gross income on housing and utility costs. Most affordable and available units in Box Elder County were located in cities (see Table 2.3, 2.4 and 2.5).

Table 3.3. Affordable and available rental housing units at the 30 percent AMI level (CHAS, 2014; U.S. Census Bureau, 2016g).

≤30%AMI Level (Maximum Affordable Monthly Rent)	Box Elder County	Cities	Unincorporated Area
Affordable Units	920	759	164
Renter Households	880	786	94
Affordable & Available Units	565	531	34
Surplus/Deficit of Affordable Units	40	-30	70
Surplus/Deficit Affordable & Available Units	-315	-255	-60

Table 3.4. Affordable and available rental housing units at the 50 percent AMI level (CHAS, 2014; U.S. Census Bureau, 2016g).

≤50% AMI Level (Maximum Affordable Monthly Rent)	Box Elder County	Cities	Unincorporated Area
Affordable Units	2,930	2,405	525
Renter Households	1,470	1,324	146
Affordable & Available Units	1,525	1,392	133
Surplus/Deficit of Affordable Units	1,460	1,081	379
Surplus/Deficit Affordable & Available Units	55	68	-13

[Table 3.5 on next page]

Table 3.5. Affordable and available rental housing units at the 80 percent AMI level (CHAS, 2014; U.S. Census Bureau, 2016g).

≤80% AMI Level (Maximum Affordable Monthly Rent)	Box Elder County	Cities	Unincorporated Area
Affordable Units	3,875	3,278	597
Renter Households	2,435	2,125	310
Affordable & Available Units	2,725	2,404	321
Surplus/Deficit of Affordable Units	1,440	1,153	287
Surplus/Deficit Affordable & Available Units	290	279	11

A unit is affordable and available only if that unit is both affordable and vacant, or is currently occupied by a household at or below the defined AMI level. In Box Elder County, there were 290 affordable and available rental units for households at the 80 percent AMI level (see Figure 3.5). In the unincorporated area, only 11 units were affordable and available to households at the 80 percent AMI level. In general, there was enough affordable and available units in cities and the county at the 50% AMI level. However, there was a deficit of 13 affordable and available housing units for renting households in the unincorporated area. At the 30 percent AMI level there was a deficit of 315 affordable and available units for the county, 60 in the unincorporated area and 255 in the cities. Therefore, there was not enough affordable and available housing for households earning 30 percent of the AMI in the county. There is a need for additional rental housing units for low-income earning households.

COST BURDENED RENTER HOUSEHOLDS

Sources: CHAS, 2014; U.S. Census Bureau, 2016g

In addition to the lack of affordable and available housing for households at the 30 percent AMI level, over 70 percent of renting households were cost burdened (spending 30 percent or more on housing) in the county, cities and unincorporated area (see Table 3.6). Nearly 45 percent off all renting households in Box Elder County were severely cost burdened (spending 50 percent or more on housing) (see Table 3.7). Severely cost burdened households were found more in the cities and towns than in the unincorporated area where 34 percent were severely cost burdened.

Table 3.6. Percentage of cost burdened renters (household spends 30% or more on housing).

Cost Burdened	Box Elder County	Cities	Unincorporated Area
>50% to ≤80% AMI	11%	13%	0%
>30% to ≤50% AMI	57%	62%	2%
>30% AMI	73%	73%	69%

Table 3.7. Percentage of severely cost burdened renters (household spends 50% or more on housing).

Severely Cost Burdened	Box Elder County	Cities	Unincorporated Area
>50% to ≤80% AMI	0%	0%	0%
>30% to ≤50% AMI	23%	25%	0%
>30% AMI	44%	45%	34%

AFFORDABLE OWNER HOUSING UNITS

Sources: CHAS, 2014; U.S. Census Bureau, 2016g

Of the 16,655 occupied housing units in Box Elder County, approximately 76.2 percent or 12,698 housing units were owner-occupied in 2016. In the unincorporated county, 81 percent or 2,423 housing units were owner-occupied. About 37 percent of owner-occupied households were moderate income (80 percent of AMI) or below (see Table 3.8). According to Realeaste.com and Zillow.com there were no units for sale at the 30 percent AMI level and 1 unit at the 50 percent AMI level (data collected June of 2018) in the county. At the 80 percent AMI level there were 11 units listed for county.

Table 3.8. Number of owner-occupied households by targeted AMI level, and available and affordable housing units (CHAS, 2014; U.S. Census Bureau, 2016g).

Targeted AMI Level (Maximum Affordable Mortgage)	Value of Owner-Occupied Housing	Number of Affordable House Units (% of total housing)	Available and Affordable Housing Units (from Zillow.com and Realator.com)
≤30% ($34,086)	$0 to $34,999	387 (3%)	0
>30% to ≤50% ($82,270)	$35,000 to $79,999	230 (2%)	1
>50% to ≤80% ($154,546)	$80,000 to $149,999	4,089 (32%)	11

Not only was there a shortfall of affordable housing at the different AMI levels, but nearly 40 percent of moderate income (80 percent of AMI) owner-occupied households are cost burdened (see Figure 3.1). At the 30 percent AMI level almost 85 percent of households were cost burdened and 62 percent were severely cost burdened.

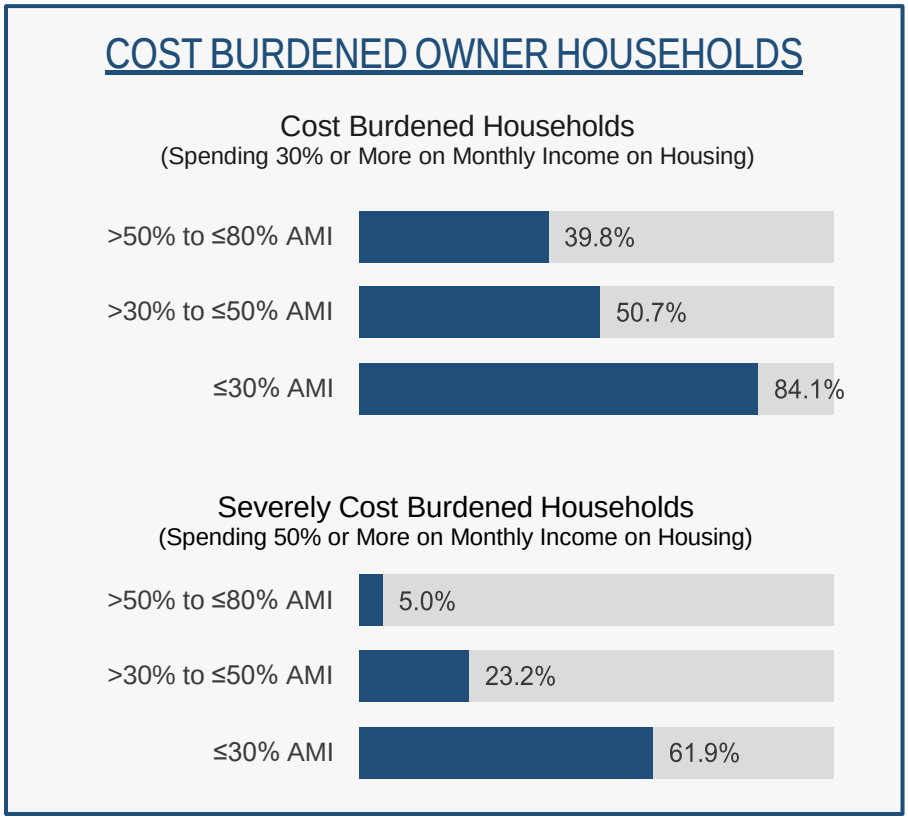


Figure 3.1. Percentage of cost burdened and severely cost owner households (CHAS, 2014; U.S. Census Bureau, 2016g).

5. FUTURE MODERATE INCOME HOUSING NEED

HIGHLIGHTS

- The population of Box Elder County is expected to grow between 9 and 17 percent over the next decade. In the unincorporated area, the population is expected to slow from 17 percent per decade to 16 percent.
  Sources: Kem C. Gardner Policy Institute, 2017

- Between 2017 and 2022 the unincorporated area will need an additional 100 to 125 moderate income housing units. Between 2022 and 2027 the unincorporated area will need an additional 60 to 90 housing units.

COUNTYWIDE PROJECTED GROWTH

Sources: Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017

Social, economic, political, and infrastructure can influence population growth. As such, there is a great deal of uncertainty with projecting population growth. For this plan, a high and low growth rate was used to provide a plausible range of future population levels the county may experience in the next four decades. Those estimates were then used to inform moderate income housing needs for the next five to ten years in the county.

Population projects by the Kem C. Gardner Policy Institute were used for the low growth rate. The Kem C. Gardner Policy Institute projected the population of Box Elder County to slow over the next four decades from 15 percent growth per decade between 2020 and 2030 to 9 percent from 2040 to 2050 (see Figure 5.1 and Table 5.1) (Kem C. Gardner Institute, 2017). Population projections prepared by Hanson, Allen & Luce, Inc. for the Bear River Water Conservancy "District Drinking Water System Master Plan" were used for the high growth rate. In the plan, the engineering firm identified a rapid growth scenario where population growth would remain at 17 percent per decade until 2030 and then increase to 25 percent for the following two decades.

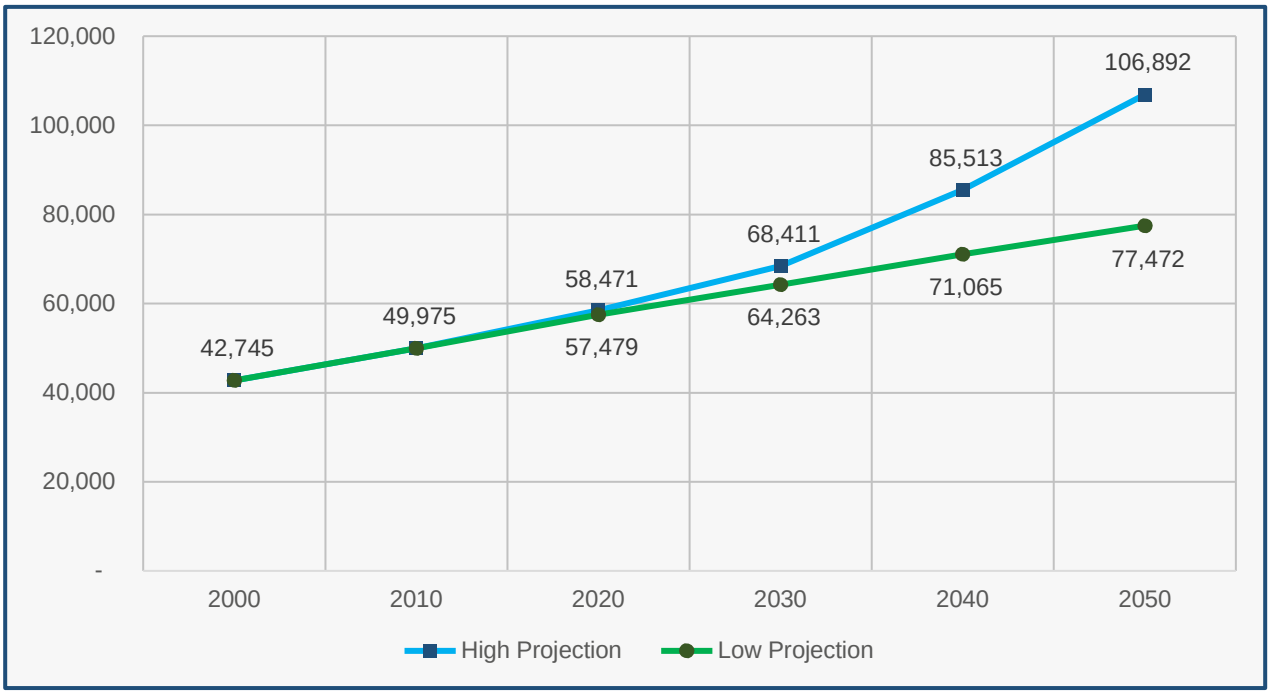


Figure 5.1. Historic and projected population levels for Box Elder County 2000 to 2050 (Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017).

Table 5.1. Historic, current and future population levels in Box Elder County (Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017).

	2000	2010	2020	2022	2027	2030	2040	2050
High Projection Low Projection	42.745	49.975	58,471 57,479	60,459 59,042	65,429 62,258	68,411 64,263	85,513 71,065	106,892 77,472

UNINCORPORATED AREA PROJECTED GROWTH

Sources: Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017

Population levels were also projected for the unincorporated area of the Box Elder County. Again, a high and a low estimate were calculated to create a plausible range of future population levels in the unincorporated area. To estimate the population of the unincorporated area, the high and low population estimates for the entire county were multiplied by the projected percentage of the population in the unincorporated area. The percentage of the population in the unincorporated area were based on historical trends and estimates developed by the Kem C. Gardner Policy Institute. Their estimates assumed the portion of the population in the unincorporated area will decline over the next thirty years due to annexation by nearby cities and towns. The portion of Box Elder County that was unincorporated in 2000 was 18.7 percent of the total population of the county (see Table 5.2). In 2010, that percentage fell to 18.3 percent. The Kem C. Gardner Policy Institute projected the percentage of population living in the unincorporated area to slowly decline from 17 percent in 2020 to 13 percent by 2050. This would result in the unincorporated area remaining near 10,000 people over the next 3 decades (see Figure 5.2).

Table 5.2. Historic, current and future population levels in Box Elder County (Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017).

	2000	2010	2020	2022	2027	2030	2040	2050
High Projection Low Projection	8.023	9.178	9,940 9,771	10,278 10,037	10,468 9,961	10,262 9,639	11,972 9,949	13,896 10,071
Percentage of Entire County	18.7%	18.3%	17%	17%	16%	15%	14%	13%

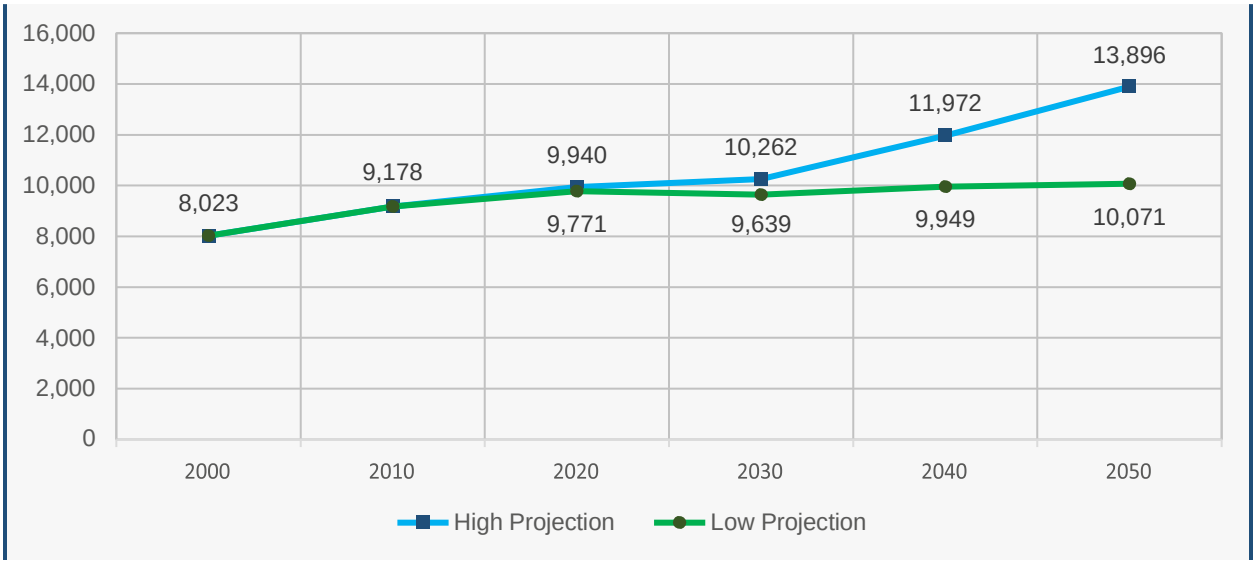


Figure 5.2. Historic and projected population levels for Unincorporated Area of Box Elder County from 2000 to 2050 Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2017.

FUTURE MODERATE INCOME HOUSING NEED FOR THE NEXT 5 AND 10 YEARS

Sources: Kem C. Gardner Institute, 2017; Hansen, Allen & Luce, Inc, 2017; U.S. Census Bureau, 2000, 2010b, 2016g, 2017

Box Elder County will likely grow by approximately 5,000 to 6,400 residents over the next five years (2017-2022). This will require an additional 1,600 to 2,060 housing units. These figures were based on the low and high population projections for Box Elder County, and the county's current average household size of 3.1 people. Between 2022 and 2027 Box Elder County will need an additional 1,000 to 1,600 housing units.

Based on the projected high and low population increases, the existing vacancy rate (1.8 percent), and the current percentage of moderate income households (see Table 4.1), it is projected that Box Elder County will need an additional 566 to 728 moderate income housing units by 2022, and 367 to 567 between 2022 and 2027 (see Table 5.3). The majority of moderate income housing units will be needed at the 50 percent to 80 percent AMI level. An estimated 20 percent of all new housing developments will need to be moderate income. In the unincorporated area this translates to about 19 to 24 per year from now until 2022 and an additional 12 to 18 per year between 2022 and 2027.

Table 5.3. The range of moderate to very low income housing needed in Box Elder County in the next 5 and 10 years.

Targeted AMI Level	By 2022	By 2027
Box Elder County		
≤30%	126 to 162	81-126
<30% to ≤50%	141 to 182	92-142
<50% to ≤80%	299 to 384	194-299
TOTAL	**566 to 728**	**367 to 567**
Cities		
≤30%	105 to 134	68 to 106
<30% to ≤50%	117 to 151	77 to 119
<50% to ≤80%	248 to 319	163 to 251
TOTAL	**470 to 604**	**308 to 476**
Unincorporated Area		
≤30%	21 to 27	13 to 20
<30% to ≤50%	24 to 31	15 to 23
<50% to ≤80%	51 to 65	31 to 48
TOTAL	**96 to 124**	**59 to 91**

6. BARRIERS TO MODERATE INCOME HOUSING

The success of moderate income housing can be stymied due to several reason, including regulatory, economic and social barriers. This chapter provides an overview of those barriers.

HIGHLIGHTS

- The three main types of barriers to moderate income housing in Box Elder County are regulatory, economic and social.
- Most moderate income housing occurred in the unzoned portion of the county and mostly included single family housing units.

REGULATORY BARRIERS

Regulatory barriers are policies, rules, processes or procedures that prohibit, discourage or excessively increase the cost of moderate income housing. Regulatory barriers can include zoning regulations, environmental regulations development permits and processing procedures, and ordinances. The following section describes the current state of zoning and land use codes in Box Elder County because they are considered the most common barrier to affordable and moderate income housing.

Type of Housing Units by Zone

Sources: Box Elder County, 2017a, 2017b

Box Elder County contains approximately 4.2 million acres of land with just under 50 percent zoned (see Table 6.1 on the next page). Thirteen zones, including unzoned areas, contain 2,830 housing units of either single family, secondary single family, and/or multi-family. According to 2017 land use data only one zone, “Agriculture District 20 Acres,” contains a multi-family housing unit, although multi-family, three-family and two-family units are permitted and/or conditionally allowed in other zones.

As of 2018, Box Elder County contains 6 multifamily parcels, including apartments and 4-plexes. These parcels occurred in the Rural Residential 1 zone in South Willard and unzone portion of Riverside. In addition, the county contained 3 accessory dwelling units, one in Collinston, Harper Ward and between Bear River City and Honeyville.

[Table 6.1 on next page]

Table 6.1. Residential housing type by zone in Box Elder County (Box Elder County, 2017a).

CURRENT RESIDENTIAL UNITS BY ZONE BY TYPE							
Zone	**PSF***	**% PSF**	**SSF***	**% SSF**	**MF***	**% MF**	**Acres**
Ag District 1-2 Acre	0	0.0%	0	0.0%	0	0.0%	16,932.0
Ag District 20 Acre	67	2.5%	0	0.0%	1	100.0%	24,890.1
Commercial Enterprise	1	0.0%	0	0.0%	0	0.0%	15.9
General Commercial District	8	0.3%	0	0.0%	0	0.0%	234.0
General Industrial District	0	0.0%	0	0.0%	0	0.0%	973.3
Highway Commercial District	2	0.1%	0	0.0%	0	0.0%	39.7
Manufacturing Food Products	0	0.0%	0	0.0%	0	0.0%	44.4
Mining Quarry Sand Gravel Excavation	0	0.0%	0	0.0%	0	0.0%	981.3
Multi-Use District 160 Acres	32	1.2%	10	8.8%	0	0.0%	1,821,038.6
Multi-Use District 40 Acres	48	1.8%	23	20.4%	0	0.0%	135,271.3
Multi-Use District 80 Acres	1	0.0%	0	0.0%	0	0.0%	240.0
Residential District 20,000 Sq. Ft.	491	18.1%	1	0.9%	0	0.0%	2,646.9
Residential District 8,000 Sq. Ft.	27	1.0%	0	0.0%	0	0.0%	24.9
Rural Residential District 1 Acre	57	2.1%	3	2.7%	0	0.0%	5,009.0
Rural Residential District 10 Acres	0	0.0%	0	0.0%	0	0.0%	13.6
Rural Residential District 2 Acres	129	4.7%	1	0.9%	0	0.0%	2,945.1
Rural Residential District 20,000 Sq. Ft.	285	10.5%	2	1.8%	0	0.0%	17,121.7
Rural Residential District 5 Acres	257	9.5%	2	1.8%	0	0.0%	17,162.6
Solid Waste	0	0.0%	0	0.0%	0	0.0%	2,028.7
South Willard Neighborhood Commercial	0	0.0%	0	0.0%	0	0.0%	2.0
Unzoned	1,311	48.3%	71	62.8%	0	0.0%	2,195,980.4
ZONE UNIT TOTALS	**2,716**	**100.0%**	**113**	**100.0%**	**1**	**100.0%**	**4,243,595.5**
TOTAL UNINCORPORATED UNITS	**2,830.00**						

**PSF - Primary Single Family, SSF - Secondary Single Family, MF - Multi-Family. Sources: Box Elder County, BRAG 2017 GIS*

Moderate Income Housing per Residential Zone

Sources: Box Elder County, 2017a, 2017b

The majority of moderate to very-low income housing is in the unzoned portions of the county (see Table 6.2 on the next page). Sixty three percent of housing units at the 30 percent AMI level, 71 percent at the 30-50 percent AMI level, and 55 percent at the 50-80 percent AMI level were found in the unzoned portions of the county. The most and lowest income housing (0-50 percent AMI) were largely located in the zone "Multi-Use District 40 Acres". Most moderate to high income housing (50 to 100 percent AMI) occurred in the zones "Residential District 20,000 Sq. Ft.", "Rural Residential District 20,000 Sq. Ft.", and "Rural Residential District 5 Acres." Most moderate income housing in the unincorporated area consisted of single family housing. Please note this analysis is based on 2017 land use data and excludes any properties built since 2017.

[Table 6.2 on next page]

Table 6.2. Moderate income housing by zone (Box Elder County, 2017a).

NUMBER OF EXISTING RESIDENTIAL UNITS PER ZONE - UNINCORPORATED BOX ELDER COUNTY

(GIS Data Only)

	Targeted AMI Level									
Zone	**≤30% AMI**	**%**	**>30% to ≤50% AMI**	**%**	**>50% to ≤80% AMI**	**%**	**>80% to ≤100% AMI**	**%**	**100%+ AMI**	**%**
Ag District 1-2 Acre	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Ag District 20 Acre	0	*0%*	4	*2%*	14	*2%*	19	*3%*	31	*3%*
Commercial Enterprise	0	*0%*	0	*0%*	1	*<1%*	0	*0%*	0	*0%*
General Commercial District	0	*0%*	0	*0%*	3	*<1%*	3	*1%*	2	*<1%*
Highway Commercial District	1	*1%*	0	*0%*	0	*0%*	1	*1%*	0	*0%*
Manufacturing Food Products	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
General Industrial District	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Mining Quarry Sand Gravel Excavation	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Municipal Solid Waste	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Multi-Use District 160 Acres	8	*9%*	4	*2%*	6	*1%*	6	*1%*	18	*1%*
Multi-Use District 40 Acres	22	*24%*	12	*7%*	14	*2%*	6	*1%*	17	*1%*
Multi-Use District 80 Acres	0	*0%*	0	*0%*	0	*0%*	0	*0%*	1	*<1%*
Residential District 20,000 Sq. Ft.	0	*0%*	0	*0%*	59	*8%*	57	*10%*	376	*30%*
Residential District 8,000 Sq. Ft.	0	*0%*	0	*0%*	18	*2%*	7	*1%*	2	*<1%*
Rural Residential District 1 Acre	3	*3%*	9	*6%*	17	*2%*	13	*2%*	18	*1%*
Rural Residential District 10 Acres	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Rural Residential District 2 Acres	0	*0%*	6	*4%*	37	*5%*	33	*6%*	54	*4%*
Rural Residential District 20,000 Sq. Ft.	0	*0%*	4	*2%*	78	*11%*	72	*12%*	133	*11%*
Rural Residential District 5 Acres	0	*0%*	9	*6%*	43	*6%*	47	*8%*	160	*13%*
South Willard Neighborhood Commercial	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Unzoned	58	*63%*	117	*71%*	449	*61%*	315	*54%*	443	*35%*
TOTALS	**92**	***100%***	**165**	***100%***	**739**	***100%***	**579**	***100%***	**1,255**	***100%***

****The following zoning districts contained no data: Ag District 1 Acre, Commerical Neighborhood, Shopping Commercial, Mobile Home Parks, Master Planned Community, Residential Distict 6,000 Sq. Ft., Residential District 12,000 Sq. Ft., Multiple Residential 7 units/Acre, Multiple Residential 15 Units/Acre, and Rural Residential District 5 Acres – Modified.*

ECONOMIC BARRIERS

Developers incur a variety of costs when building new housing in rural areas, including building cost, transportation of materials, and proximity to community resources. The additional costs of building moderate income housing in rural areas discourages developers from constructing such housing.

SOCIAL BARRIERS

Stigmas, whether accurate or not, surrounding moderate income or affordable housing can often lead to neighborhood resistance. Community perceptions can directly and significantly impact the success or failure of new development. Community assumptions surround concerns of high traffic, less parking, more crime, and additional costs to schools and other government services. Education, well designed housing and good management can reduce, if any, the negative impacts of moderate income housing on property values.

7. PLANS TO MEET MODERATE HOUSING NEED

FAIR HOUSING

By consent of the people of Utah, Box Elder County lawfully exercises planning, zoning, and land use regulation authority to promote the health, safety, and welfare of its residents. Box Elder County is committed to the equal protection and equitable treatment of all members of its community and anyone seeking to rent, lease, or purchase real property within its boundaries. Box Elder County does not condone housing related practices that intentionally or indirectly discriminate on the basis of color, disability, ethnicity, familial status, gender identity, national origin, race, religion, sex, sexual orientation, source of income, or other suspect classifications. Box Elder County upholds the Utah Fair Housing Act and complies with federal requirements that affirmatively further fair housing. Box Elder County promptly reports housing discrimination to the Utah Antidiscrimination and Labor Division (UALD) and assists in its investigations of claims in a timely manner. Box Elder County also systematically identifies and eliminates unfair encumbrances that impede its ability to promote and maintain an adequate supply of moderate-income targeted housing within its boundaries.

Addressing issues associated with fair and affordable housing requires regular reviews of plans, policies, and ordinances as well as ongoing monitoring and assessment of potential disparate impacts and adverse effects within the community. Regular performance reviews of implemented housing plans, policies, and ordinances provide Box Elder County with continuing feedback for making improvements. Box Elder County has set forth the following goals in accordance with its commitment to eliminate barriers to fair and affordable housing:

Goal 1: Continue to conduct biannual reviews of Box Elder County's Moderate-Income Housing Plan and its implementation; and update its five-year moderate income housing needs estimates.

- Work with Bear River Association of Governments and the Housing and Community Development Division of the Utah Department of Workforce Service to provide the most up-to-date data and strategies for updating housing needs.
- Review and evaluate land use codes and regulations to ensure they are not imposing barriers to developing low- to moderate-income housing units.

Goal 2: Review and modify land use and zoning regulations and associated maps.

- Routinely update zoning, land use ordinances and assessor data to ensure consistency between records.
- Continue to provide a diverse range of residential zones to encourage a range of housing options.

Goal 3: Support cooperation between the cities and towns of Box Elder County in advancing affordable housing.

- Guide and advocate for developing affordable housing in existing incorporated areas near existing infrastructure.
- Provide education to cities and towns on the benefits of affordable housing.
- Encourage development of affordable housing near transit sites, along significant transportation corridors, and commercial centers (*Strategy G, SB 34).

Goal 4: Create and promote a countywide housing rehabilitation program.

- Due to the amount of older homes on the market, assist low- to moderate-income households rehabilitate and maintain moderate-income housing through Bear River Association of Governments (*Strategy L, SB 34).
- Encourage energy efficient housing that reduces resident's costs.
    - Continue to support and advertise low income homeowners to participate in Bear River Region Weatherization Program and BRAG's HEAT utility assistance program.

- Encourage low income residents to participate in Single Family Rehabilitation and Reconstruction Program and Emergency Home Repair Programs through Bear River Association of Governments.
- Promote residential educational workshops regarding restoring, rehabilitation, and maintenance of housing units.
- Support and provide information and referrals to local affordable housing resources, including (*Strategies S,T & V, SB 34):
    - Bear River Housing Authority
    - Home Buyer Programs
        - BRAG's First Time Home Buyer Program
        - Neighborhood Housing Solutions Programs
        - Habitat for Humanity
    - Rehabilitation Programs
        - Single Family Rehabilitation and Reconstruction Program
        - Emergency Home Repair Program
        - Weatherization Program
        - Neighborhood Housing Solutions Home Rehab and Repair Program
    - Other Programs
        - Bear River Association of Governments Crown Homes and Crown Village Apartments

Goal 5: Continue to support farm labor housing

- Provide assistance to farms in applying to Farm Labor Housing Direct Loans & Grants through the U.S. Department of Agriculture, Rural Development (*Strategy E, SB 34).

Goal 6: Encourage lower cost development

- Continue to sponsor the Bear River Regional Housing Authority (*Strategy T, SB 34).
- Continue to work towards keeping property taxes lower for residents.
- Prohibit by accounting procedures the placement of any portion of the building permit fees into the general funds, cutting the permit fees to a level that meets just the costs of providing the permit and building inspections.
- Provision to not require curb, gutter and sidewalks, and use drainage swales in many situations.
- Maintain the county's participation in the national flood insurance program to reduce flood insurance costs to the homeowner.
- Continue to allow manufactured homes, accessory dwelling units (ADUs), and mobile homes as an alternative to site-built homes (*Strategy E, SB 34).

*Complies with SB 34

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APPENDIX C

BOX ELDER COUNTY

Resource Management Plan

July 2017

TERMS AND ABBREVIATIONS

Areas of Critical Environmental Concern (ACECs)
Animal and Plant Health Inspection Service (APHIS)
animal unit months (AUMs)
Aquatic Invasive Species (AIS)
best management practices (BMPs)
Cooperative Weed Management Area (CWMA)
County Resource Management Plan (CRMP)
Endangered Species Act (ESA)
Federal Emergency Management Agency (FEMA)
Federal Land Policy and Management Act (FLPMA)
National Ambient Air Quality Standards (NAAQS)
National Environmental Policy Act (NEPA)
National Flood Hazard Layer (NFHL)
National Flood Insurance Program (NFIP)
National Forest Management Act (NFMA)
National Pollutant Discharge Elimination System (NPDES)
Natural Resources Conservation Service (NRCS)
resource management plan (RMP)
right-of-way (ROW)
State Wildlife Grants program (SWG)
US Army Corps of Engineers (USACE)
US Bureau of Land Management (BLM)
US Department of Defense (DOD)
US Department of Agriculture (USDA)
US Environmental Protection Agency (EPA)
US Forest Service (Forest Service)
US Geological Survey (USGS)
Utah Automated Geographic Reference Center (AGRC)
Utah Department of Environmental Quality (DEQ)
Utah Department of Natural Resources (DNR)
Utah Division of Air Quality (DAQ)
Utah Division of Oil, Gas, and Mining (DOGM)
Utah Division of Water Quality (DWQ)
Utah Division of Water Rights (DWRi)
Utah Division of Wildlife Resources (DWR)
Utah Geological Survey (UGS)
Utah Forestry, Fire, and State Lands (FFSL)
Utah Pollution Discharge and Elimination System (UPDES)
Utah Renewable Energy Zone (UREZ)
Utah School and Institutional Trust Lands (SITLA)
Visual Resource Management (VRM)

TABLE OF CONTENTS

INTRODUCTION

This County Resource Management Plan (CRMP) is a planning document used to define policy, goals, and objectives for managing natural resources on public lands (Utah Code §63L-6-102) within Box Elder County. Traditionally, federal agencies (US Bureau of Land Management and US Forest Service) are responsible for completing resource management plans for much of the public land within Utah. But Utah State Code was amended in 2015 (and again in 2016) to require every county in Utah to complete a CRMP addressing all public lands within its jurisdiction. The code further defines 28 core resources that must be considered in the CRMP "to provide for the protection, conservation, development, and managed use of resources that are critical to the health, safety, and welfare of the citizens of the county and of the state."

This CRMP serves two important purposes. First, the planning process allows Box Elder County to assess natural resources that play important roles in the local economy and set goals and objectives for the protection and utilization of those resources. Second, the CRMP provides federal land managers local land use plans that they can consider in their planning processes of public lands.

Elements of the Countywide Resource Management Plan

The resources included in this CRMP are examined and discussed from the same perspectives throughout the document. Each **Section** begins with a definition of the resource, which is followed by an examination of its present condition or status. Legal and administrative background and history are discussed. The section then presents goals and objectives associated with each resource, and the section then concludes with strategies and procedures to reach the desired future conditions.

Subsections included in each section of this document are Context, Findings, Legal Context, Desired Future State, Management Objectives, and Policies and Guidelines. Each of these is explained below.

The **Context** subsection provides an overview of the resource as it pertains to public lands in Box Elder County. Many resources occur on public lands and are managed directly by federal land managers, but not in all cases. If a resource does not occur on public lands (such as in the Agriculture Section), this paragraph will explain how policy goals and objectives for the resource applies to public lands.

The **Findings** subsection provides specific information about the resources in terms of types, acreage, and locations, as well as a map of the resource, if it is appropriate. The information provided in this subsection is the most current information available at the time of publication.

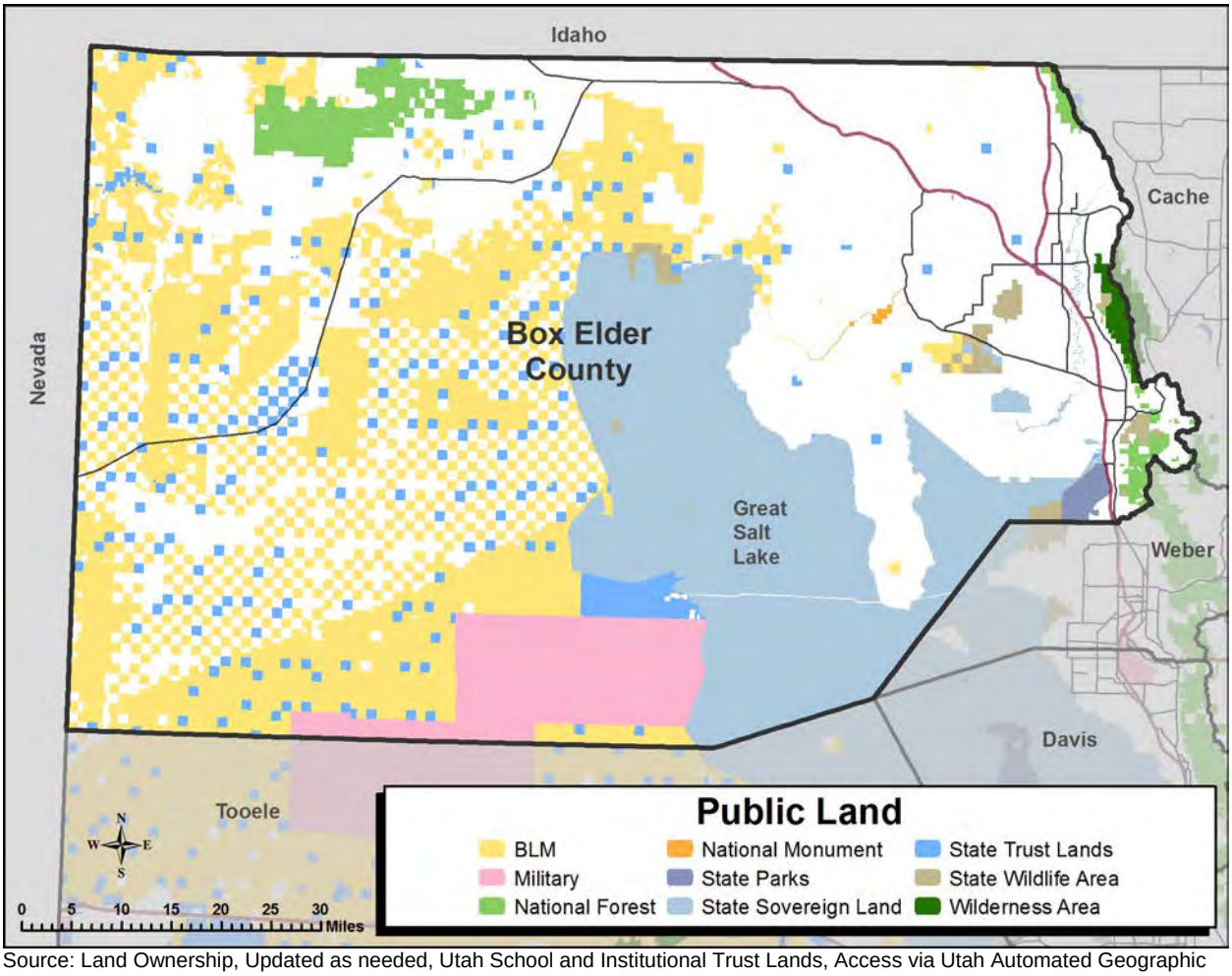
The **Legal Context** subsection provides specific federal and state laws that specifically apply to the resource, along with an overview of their implications for management. Most important here are the major legislation establishing procedures, determining authority, and specific regulations managers should consider for each resource. Federal laws are presented first, followed by state laws.

The **Desired Future State** subsection functions as an explanation of overall goals for each resource. The statement was first developed by summarizing existing objectives from federal, state, and local plans relevant to the Box Elder County. Statements were refined after receiving public comment through a series of public meetings, a public online survey, and other stakeholder meetings.

Management Objectives are high-level management goals that will move Box Elder County toward the Desired Future State. These objectives are broad policy statements used to organize specific policies and

guidelines. Objectives were selected based on public and internal comments as well as survey responses.

Policies and Guidelines are specific actions and best management practices that can be used to achieve Management Objectives and Desired Future State. The policies and guidelines are derived from relevant scientific documents and existing plans.



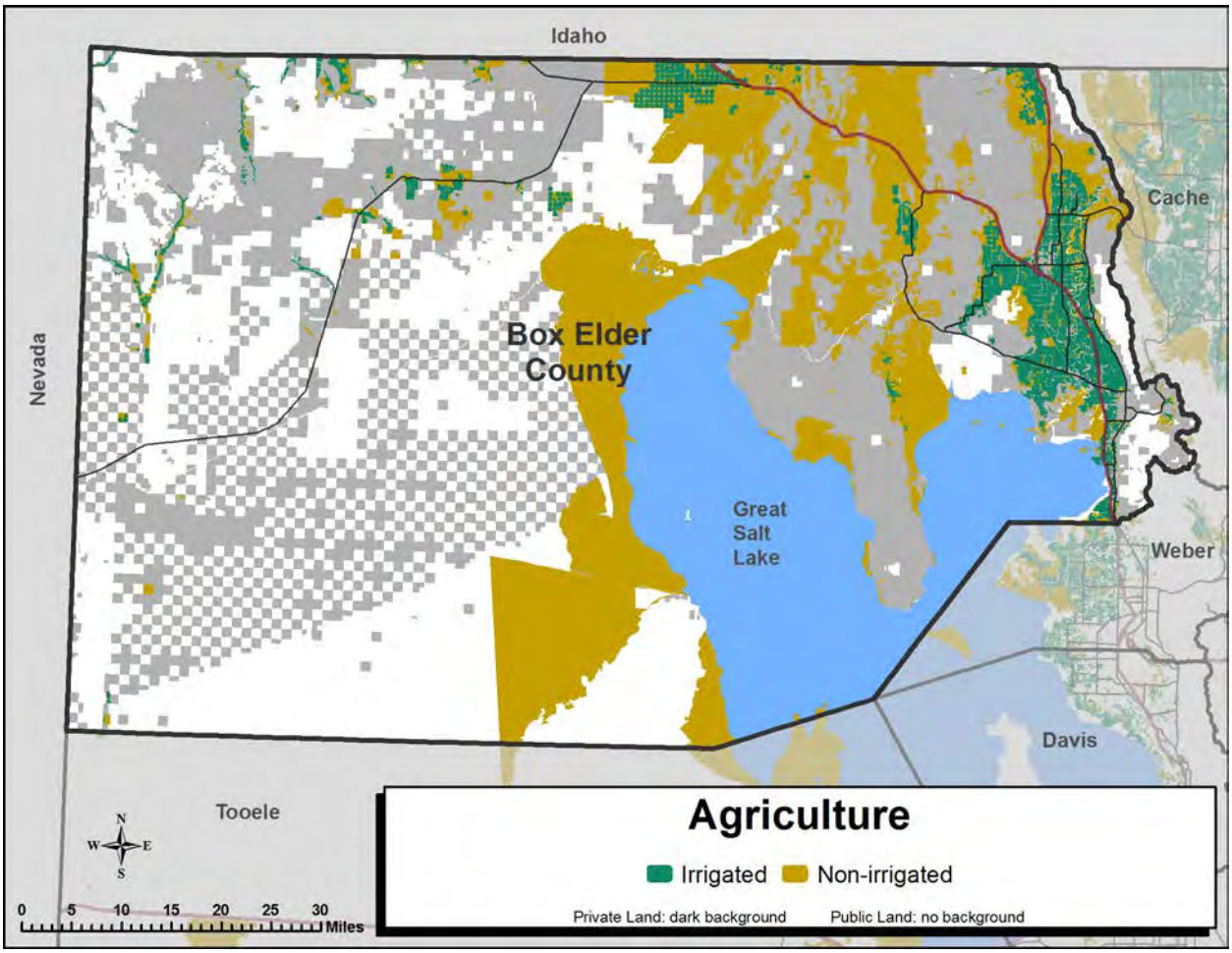
Source: Land Ownership, Updated as needed, Utah School and Institutional Trust Lands, Access via Utah Automated Geographic Reference Center.

1. AGRICULTURE

Agriculture is the activity of converting natural resources into food and material goods in support of both regional and national economic production, and it is an activity fundamental to establishing food security. With the advent of the railroads and pioneer settlement in Box Elder County, agriculture became an integral endeavor in the region. Agriculture was not new to the western United States, but the intensity and scale of crop production significantly increased due to the demand created by railroad workers and pioneer settlers. Crops including fruits, vegetables, and grains are all grown in Utah's soils, though livestock feed crops make up much of the state's production. Additionally, many materials used for technological purposes are derived from crops, such as building materials and medical supplies. Although Utah does not have as much agricultural production as other states, Utah's agriculture contributes to the local, regional and national food security, as well as the economy.

Related resources:

- Livestock and Grazing
- Irrigation
- Ditches and Canals



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources, Access via Utah Automated Geographic Reference Center.

1.1 Management Setting

Context

Agriculture is primarily concerned with the cultivation of crops, including fruits, vegetables, grains, and feed crops. Agriculture is a significant component of the economy of Box Elder County and is an important part of the lifestyle of its residents. In Box Elder County, agricultural activities occur primarily on private lands, though some agricultural leases exist on lands owned by Utah School and Institutional Trust Lands Administration. Agriculture is closely associated with livestock production, which relies heavily on access to public lands for grazing. Agriculture also relies heavily on water produced by watersheds on public lands.

Findings

Table 1.1 shows how the number and size of farms in Box Elder County has changed since 2002, based on statistics from the US Department of Agriculture.

Table 1.1. Number and size of farms in Box Elder County from 2002, 2007, and 2012.

FARM DATA	2002	2007	2012
Number of farms	1,113	1,113	1,235
Land in farms (acres)	1,400,759	1,320,177	1,170,736

Source: US Department of Agriculture National Agricultural Statistics Service.[1,2,3]

Legal Context

Applicable laws include the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) and the Utah Water Quality Act (Utah Code §19-5), which aim to prevent water pollution, including from agricultural sources. The Clean Water Act specifically excludes agricultural runoff and irrigation return flow from some regulations that apply to other industries. See Section 25, Water Quality and Hydrology for more information.

Other laws applicable to agriculture include the Clean Air Act (42 USC §7401 et seq. [1970 amended 1990]) and the Utah Air Conservation Act (Utah Code §19-2).

1.2 Desired Future State

Box Elder County wishes to protect the economic viability of agricultural and closely associated livestock industries within the county through continued access to public lands for grazing. To support viability of these industries, vegetation on public lands should be managed to provide maximum sustainable production of forage for livestock, which is an important component of agriculture in the county. The county also desires that watersheds on public lands are managed to maximize water yields and water quality to meet present and future needs, including water for agriculture and livestock.

1.3 Management Objectives and Associated Policies and Guidelines

1.3.1 Management Objective

Agriculture, though recognized as an important component of Box Elder County, is not currently a resource consideration of public land planning. The primary objective of this section is to encourage activities on public lands that have positive effects on agriculture and other closely associated private industries.

Policies and Guidelines

- Maintain active county and citizen participation in federal and state public land and resource planning processes.[4]

- Maintain working partnerships with public land and resource management agencies.[4]

- Support responsible use and development of public land resources.[4]

1.3.2 Management Objective

Encourage continued access to grazing lands, grazing permits, and support maximum sustainable animal unit months (AUMs).

Policies and Guidelines

The county will actively participate in rangeland management activities.[4]

1.3.3 Management Objective

Encourage vegetation management to support maximum sustainable forage growth.

Policies and Guidelines

- Establish a winter forage assessment by utilizing the Box Elder County Resource Management Committee to investigate cost-effective methods to assess forage conditions and impediments to improving forage production (e.g., water availability, noxious weed infestations, sub-optimal vegetation, past grazing practices). This should be an area-wide investigation of both private and public winter grazing lands. Contractor support, using the funding sources noted above, may be the most effective way to produce this assessment.[5]

- Implement forage improvements. Based on the results of the winter forage assessment, seek funding for recommended improvements. Start with projects on private land to avoid extended timeframes associated with National Environmental Policy Act review and other agency procedures.[5]

- Encourage grazing of invasive plants, such as early season grazing of cheatgrass or other annual non-native invasive plants.[5]

- Increase management flexibility in regard to grazing on public lands. Work with the US Bureau of Land Management, the US Forest Service, and individual grazing permittees to implement changes in permit terms and conditions necessary to allow efficient use and maintenance of new winter forage resources.[5]

- To provide data required for more flexible management, solicit agency assistance to train willing and committed livestock producers in monitoring range conditions on private and public lands to develop experience with permittee-assisted monitoring.[5]

1.3.4 Management Objective

Take all reasonable steps to preserve, maintain and where reasonable and as determined by Box Elder County, develop water resources.[4]

Policies and Guidelines

- Provide for the protection of water rights and reasonable development of additional water rights in cooperation with the Utah State Water Engineer.

- Coordinate with water resource management entities, especially water districts and canal companies, to ensure water supplies and water delivery infrastructure will meet growth needs.

- Implement watershed protections and vegetation management to maintain availability of water for beneficial uses and to protect water quality.

- Implement watershed protections and vegetation management to maintain availability of water for beneficial uses and to protect water quality.

- Consider and help implement in-stream water flows for the benefit of aquatic habitats and sensitive species while recognizing existing water rights.

1.4 References

[1] USDA: National Agricultural Statistics Services. 2002. County Summary Highlights. https://www.agcensus.usda.gov/Publications/2002/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017)

[2] USDA: National Agricultural Statistics Services. 2007. County Summary Highlights. https://agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017).

[3] USDA: National Agricultural Statistics Services. 2012. County Summary Highlights. https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017).

[4] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

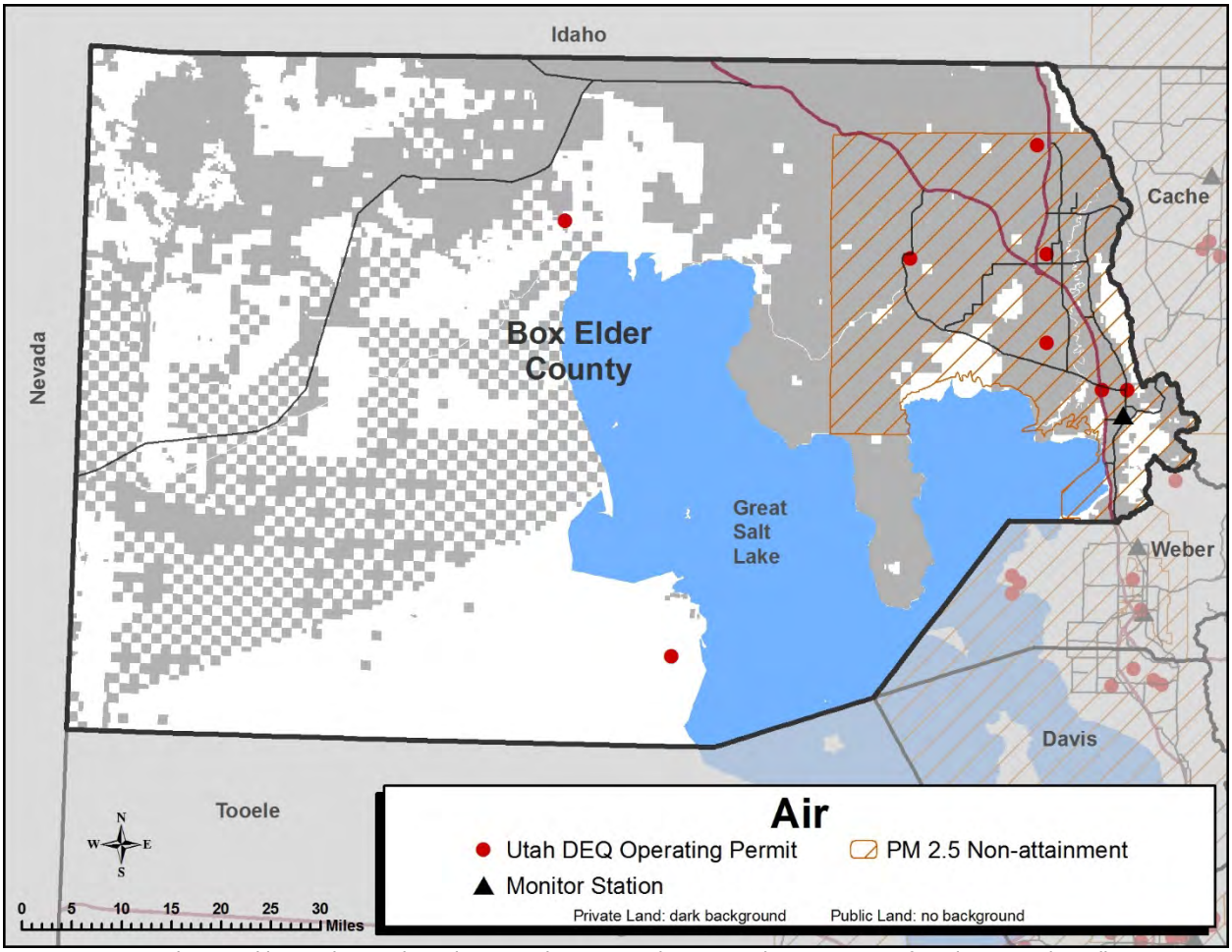
[5] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

2. AIR

The term “air quality” refers to the degree to which ambient (outdoor) air is free of pollution. Air pollutants are those substances present in ambient air that negatively affect human health and welfare, animal and plant life, property, and the enjoyment of life or use of property. Ambient pollutant concentrations result from interaction between meteorology and pollutant emissions. Because meteorology can’t be controlled, emissions must be managed to control pollutant concentrations.

Related resources:

- Fire Management
- Forest Resources



Source: DAQPermitCompTitleV and DAQAirMonitorByStation, Date unknown, Utah Department of Environmental Quality, Access interactive map https://enviro.deq.utah.gov.

2.1 Management Setting

Context

The Clean Air Act of 1970 and its amendments set the laws and regulations regarding air quality, give authority to the US Environmental Protection Agency (EPA) to set standards and rules, and delegate regulatory authority to individual states with EPA oversight, provided certain criteria are met. The

purpose of air quality conformity regulations, enforced by the EPA and the Utah Division of Air Quality (DAQ) in Utah, is to protect public health and welfare by lowering pollutant concentrations through a reduction in emissions.

The Clean Air Act Amendment of 1990 established three designations for areas based on how ambient air quality conditions compare to the National Ambient Air Quality Standards (NAAQS): nonattainment areas, maintenance areas, and attainment areas. Attainment and nonattainment areas are those with air quality better or worse than the NAAQS (respectively). If an area is designated nonattainment, the relevant air quality management agency must create and implement a plan for emissions and reduce concentrations below the NAAQS. The air quality management agency must maintain the plan used to meet the NAAQS and prepare a maintenance plan to keep the air clean for the next 20 (or more) years. A maintenance area is one that was in nonattainment but reduced emissions sufficiently to meet the NAAQS. It must maintain those rules and actions that reduced emissions for a period of 10 years.

Air quality is influenced by activities on private and public lands. Activities on public lands that impact air quality include:

- Recreation users driving to public lands to visit.
- Recreation users driving on dirt roads within public land boundaries.
- Controlled-burn activities to manage vegetation and wildfires within public land boundaries.
- Permitted extractive activities, such as mining, on public lands.

The use of Unmanned Aerial Vehicles (UAVs) and Unmanned Aerial Systems (UASs), often called drones, is an emerging issue in Box Elder County. The Federal Aviation Administration (FAA) provides regulatory oversight for UAV and UAS operation. Box Elder County has a current airspace definition for UAV and UAS with a FAA certificate, but the county would like to expand airspace for UAV and UAS operation. Because the use UAVs and UASs is relatively new, FAA rules and regulations are in flux and subject to change.

Findings

Parts of eastern Box Elder County are designated nonattainment for small particulate matter pollution (PM 2.5).[1]

Legal Context

Applicable Laws

The Clean Air Act of 1970 (42 USC §7401 et seq. amended 1990) places control of local air quality at the state level with federal oversight provided certain criteria are met. The act also requires state and local ambient air quality standards be equal to or lower in concentration than the NAAQS. Utah laws (Utah Air Conservation Act [Utah Code §19-2]) and rules regarding air quality set the state standards equal to the NAAQS. The local air quality management agency for Box Elder County is the DAQ. Rules and policies pertaining to air quality activities and plans to achieve NAAQS attainment are set by the Utah Air Quality Board. The DAQ conducts statewide air quality monitoring, air quality research, air emissions permitting, air quality compliance monitoring, air quality compliance planning activities, public education, public outreach, and other support programs. The DAQ also supports the Air Quality Board in fulfilling its purposes.

Federal law governing the operation of UAVs and UASs is found in 14 USC §107-2 et seq. (Small Unmanned Aircraft Systems). This law governs airspace, operator requirements, and other issues related to UAVs and UASs.

2.2 Desired Future State

Box Elder County desires to improve or maintain air quality to protect and improve public health, environmental health, and scenic visibility.

Box Elder County desires to identify additional airspace available for UAV and UAS flights.

2.3 Management Objectives and Associated Policies and Guidelines

2.3.1 Management Objective

Support efforts on public lands that improve air quality from nonattainment to maintenance for all NAAQS monitored pollutants.

Policies and Guidelines

- Support or conduct public awareness campaigns about current air quality conditions, forecasts, and activities/practices individuals can do to reduce air pollutant emissions.

- Coordinate with Box Elder County Sherriff and Utah Division Wildlife Resources to manage illegal motor vehicle traffic on dirt roads around the Great Salt Lake and on exposed lake beds.

- Ensure that management activities and proposed projects meet state and federal air quality standards.

2.3.2 Management Objective

Promote compliance with emission standards for industries that use Great Salt Lake resources.

Policies and Guidelines

- Coordinate with the DAQ to evaluate emissions of all criteria pollutants associated with proposed projects and work with DAQ to identify appropriate mitigation strategies to offset major pollutant sources.[2]

- Limit airborne particulates by mitigating human-made disturbances. This may include requiring dust-control measures and revegetation for all ground-disturbing projects.

2.3.3 Management Objective

Reduce smoke from wildland fire and prescribed fire during times of impaired air quality.

Policies and Guidelines

- Control wildfire to the extent practical through forest management activities, prescribed burning, and other management actions.

- Use local air quality measures to determine when conditions are appropriate for prescribed fire.

2.3.4 Management Objective

Consider designating conditions or areas that specifically allow UAV and UAS flights, considering safety, disturbance to humans or wildlife, privacy concerns, potential benefits, and federal law.

Policies and Guidelines

Federal and State laws and rules regarding this issue are quickly changing. The county must stay current on regulations governing the use of UAVs and UASs.

2.4 References

[1] Utah DEQ, 2013. Utah Nonattainment Areas (map). Division of Air Quality. https://deq.utah.gov/ProgramsServices/programs/air/aqmodeling/docs/2013/03Mar/NONATTAINMENT_MAP.pdf (accessed April 10, 2017).

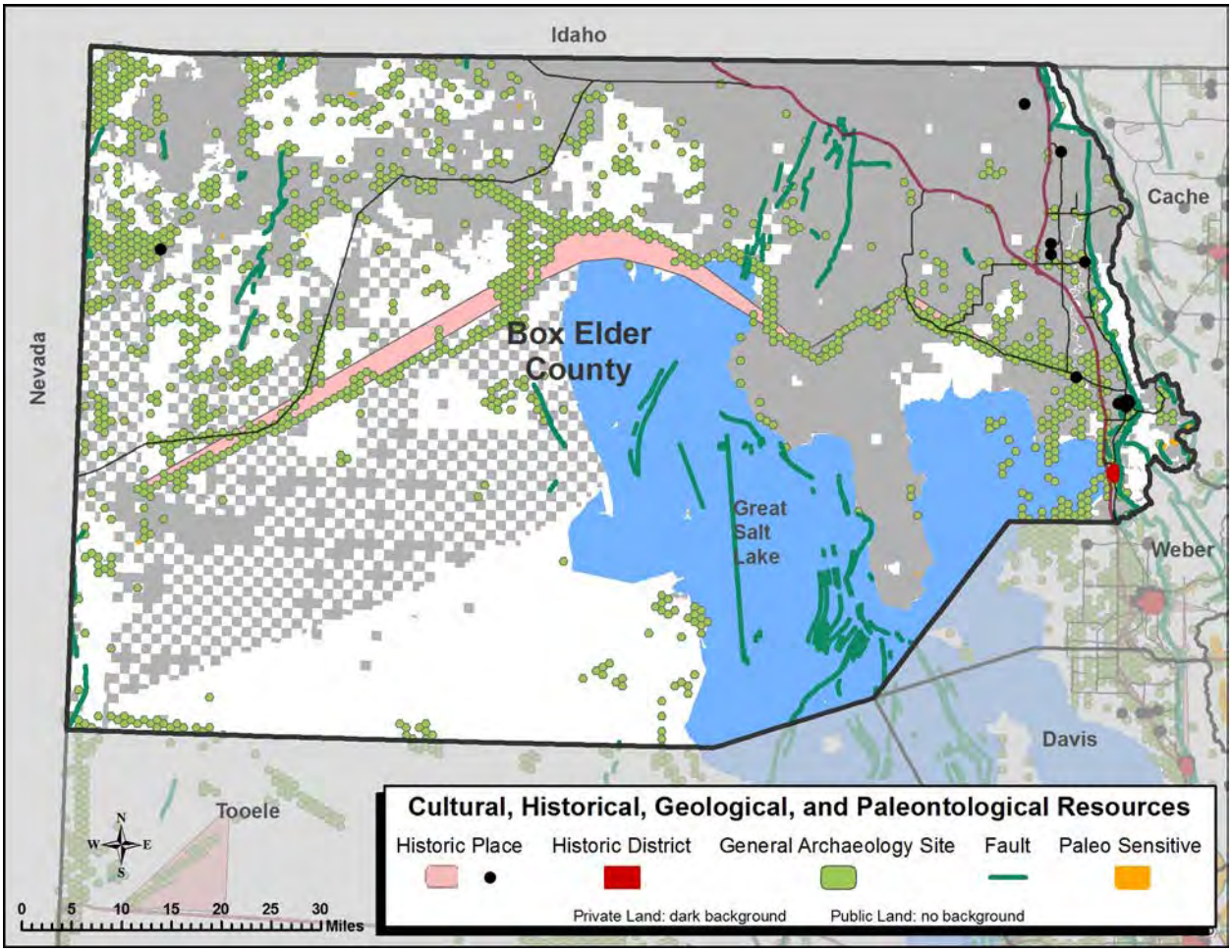
[2] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

3. CULTURAL, HISTORICAL, GEOLOGICAL, AND PALEONTOLOGICAL RESOURCES

These resources have intrinsic value based on their age, heritage, scientific importance, or other intangible significance. However, these resources also highlight the unique character of the local setting and may contribute to attracting business and tourism. Geology is an important planning component within the region because of its unique geologic features and sites, as well as potential hazards to development such as faults, landslides, rockfalls, and soil liquefaction.

Related resources:

- Recreation and Tourism
- Land Use



Source: Quaternary Faults, 26 January 2017, Utah Geological Survey. Historic Districts, March 2014, Compiled by Utah Automated Geographic Reference Center. Archaeology Sites, Updated as needed, Utah State Historic Preservation Office. UT_SITLA_Mineral_PaleoSensitivityArea, Date unknown, Utah Geological Survey. Access via Utah Automated Geographic Reference Center. Also, nris_public, Current properties listed on National Register of Historic Places, National Park Service.

3.1 Management Setting

Context

Box Elder County has a rich and diverse history. Several sites within the county played important roles in the early development of the area, the state, and even the nation. For instance, the transcontinental railroad was finalized at Promontory Summit in 1869, which connected the eastern and western United States for the first time. This greatly decreased cross-county travel times and facilitated freight movement throughout the county.

As settlers moved into the area and diverted water for human uses, the vast natural marshes along Bear River and its entrance into the Great Salt Lake began to dry. In 1928 the Bear River Migratory Bird Refuge was created by presidential proclamation. Since that time the "Bird Refuge," as it is called by locals, has been an attraction and asset to the community.

Cultural and Historical Resources

Cultural resources include archaeological sites, standing structures (e.g., buildings and bridges), and places of importance that are more than 50 years old. Many historical and cultural resources are very sensitive and protected by law; however, it is important to remember that not all cultural sites are important or significant, and that those not considered as such would not be adversely affected by any planned projects.

Box Elder County's famous "Fruit Way" along Highway 89 has long been an important cultural part of the county. People from within and outside the county come to the Fruit Way each year to buy fresh produce.

Paleontological Resources

These resources are defined as the remains, traces, or imprints of ancient organisms preserved in or on the earth's crust, providing information about the history of life on earth. There are some geologic units in Box Elder County that are likely to contain fossils, though these resources are much more abundant in other parts of the state.[1]

Geological Resources

The Great Salt Lake is a remnant of ancient Lake Bonneville, which was at its highest point during the last ice age 14,000–32,000 years ago.[2] Over time, as Lake Bonneville receded, minerals in the water were concentrated in the remaining water. This resulted in the Great Salt Lake, which is several times saltier than the ocean. These minerals are now harvested for commercial purposes.

Findings

Cultural Resources

When considering plans for alterations to the landscape, it is important to remember that there can be archaeological sites, historic sites, and standing structures in those locations that may be of importance to many people. This is true despite the fact that the resource may not look interesting, may be in disrepair, or may even be in ruins. The history and importance of a location cannot always be easily interpreted.

Undeveloped Rural (including Desert and Mountain) Settings

Prehistoric sites in undeveloped rural/desert/mountain settings may include:

- Lithic scatters or chipping stations

- Campsites
- Villages
- Rock art
- Processing sites
- Quarry sites (where rock materials were acquired for making tools)

Historic sites in undeveloped rural/desert/mountain settings may include:

- Cabins
- Mines
- Railroads
- Industrial sites
- Roads/trails
- Bridges
- Irrigation infrastructure
- Small, isolated town sites
- Transmission, telephone, and telegraph lines
- Pipelines for water, gas, or petroleum products

Developed Rural Settings

This type of setting includes rural areas where existing and former small towns exist, where subdivisions may be planned, where developed recreation sites may exist, and where orchards or other agricultural activities take place.

Prehistoric sites in rural settings may include:

- Sites similar to those listed above
- Even larger village sites if permanent water sources are present and elevation is not high

Historic sites in rural settings may include:

- Sites similar to those listed above
- Town sites
- Agricultural activity sites
- Canals and ditches
- Farmsteads
- Fences
- Orchards and associated buildings and other features

Urban Settings

In these locations a wide variety of sites can be found and, depending upon their age, history and integrity, they may be quite important. In urban settings, buildings, structures, historic landscapes, and urban detail might be expected. Although remnants of agricultural elements from earlier time periods might also be present. Linear sites, such as old transmission lines and pipelines, would be reduced in number or not visible.

Prehistoric sites in urban settings may include sites similar to those listed above, though usually highly disturbed, destroyed, or obscured.

Historic sites in urban settings may include:

- Dense occupation with both commercial and multifamily residential structures in downtowns and single-family residential structures in suburban areas
- Industrial sites, sometimes densely spaced
- Remnant farmsteads, fences, orchards, other agricultural features
- Railroads
- Considerable infrastructure features including sidewalks, traffic signals, street lights, power lines, fire hydrants, and many other visible features

Cultural resource locations are generally sensitive and are therefore not released publicly.

Paleontological Resources

After becoming acquainted with how fossil resources are regulated within the state, it is important to consult with paleontologists at the Utah Geological Survey. This will help determine whether there is potential for paleontological resources within a proposed project or planning area and to provide information about state laws and regulations regarding paleontological resources and how to proceed. In some cases, it may not be necessary to do further work. However, depending upon the situation and location of a particular project, hiring a professional paleontologist may be required to negotiate the process.

Types of paleontological localities include:

- Invertebrate localities, which are fossil remnants of multi-celled lifeforms without vertebral columns, backbones, vertebrae, or full-length notochord.
- Vertebrate localities, which include fossil remnants of lifeforms with some form of vertebrae. This may include mammals, dinosaurs, fish, birds, and reptiles.
- Floral localities, which are remnants of plants.
- Trace fossils, which may include skin impressions, track sites, and remnants of burrows or borings.

Potential Fossil Yield Classification System [7]

Occurrences of paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Therefore, geologic mapping can be used for assessing the potential for the occurrence of paleontological resources.

Using the Potential Fossil Yield Classification System, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. This classification is applied to the geologic formation, member, or other distinguishable unit, preferably at the most detailed mappable level. It is not intended to be applied to specific paleontological localities or small areas within units. Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher class; instead, the

relative abundance of significant localities is intended to be the major determinant for the class assignment.

The Potential Fossil Yield Classification system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. The classification should be considered at an intermediate point in the analysis, and should be used to assist in determining the need for further mitigation assessment or actions.

The descriptions for the classes below are written to serve as guidelines rather than as strict definitions. Knowledge of the geology and the paleontological potential for individual units or preservational conditions should be considered when determining the appropriate class assignment. Assignments are best made by collaboration between land managers and knowledgeable researchers.

Class 1 – Very Low. Geologic units that are not likely to contain recognizable fossil remains.

- Units that are igneous or metamorphic, excluding reworked volcanic ash units.
- Units that are Precambrian in age or older.

1. Management concern for paleontological resources in Class 1 units is usually negligible or not applicable.

2. Assessment or mitigation is usually unnecessary except in very rare or isolated circumstances.

The probability for impacting any fossils is negligible. Assessment or mitigation of paleontological resources is usually unnecessary. The occurrence of significant fossils is non-existent or extremely rare.

Class 2 – Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.

- Vertebrate or significant invertebrate or plant fossils not present or very rare.
- Units that are generally younger than 10,000 years before present.
- Recent aeolian deposits.
- Sediments that exhibit significant physical and chemical changes (i.e., diagenetic alteration).

1. Management concern for paleontological resources is generally low.

2. Assessment or mitigation is usually unnecessary except in rare or isolated circumstances.

The probability for impacting vertebrate fossils or scientifically significant invertebrate or plant fossils is low. Assessment or mitigation of paleontological resources is not likely to be necessary. Localities containing important resources may exist, but would be rare and would not influence the classification. These important localities would be managed on a case-by-case basis.

Class 3 – Moderate or Unknown. Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

- Often marine in origin with sporadic known occurrences of vertebrate fossils.

- Vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low.

  (or)

- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Class 3a – Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant non-vertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

Class 3b – Unknown Potential. Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

1. Management concern for paleontological resources is moderate; or cannot be determined from existing data.

2. Surface-disturbing activities may require field assessment to determine appropriate course of action.

This classification includes a broad range of paleontological potential. It includes geologic units of unknown potential, as well as units of moderate or infrequent occurrence of significant fossils. Management considerations cover a broad range of options as well, and could include pre-disturbance surveys, monitoring, or avoidance. Surface-disturbing activities will require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action, and whether the action could affect the paleontological resources. These units may contain areas that would be appropriate to designate as hobby collection areas due to the higher occurrence of common fossils and a lower concern about affecting significant paleontological resources.

Class 4 – High. Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface disturbing actions. Illegal collecting activities may impact some areas.

Class 4b – These are areas underlain by geologic units with high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.

- Areas of exposed outcrop are smaller than two contiguous acres.

- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.

- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

    1. Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action.

    2. A field survey by a qualified paleontologist is often needed to assess local conditions.

    3. Management prescriptions for resource preservation and conservation through controlled access or special management designation should be considered.

    4. Class 4 and Class 5 units may be combined as Class 5 for broad applications, such as planning efforts or preliminary assessments, when geologic mapping at an appropriate scale is not available. Resource assessment, mitigation, and other management considerations are similar at this level of analysis, and impacts and alternatives can be addressed at a level appropriate to the application.

The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. Mitigation considerations must include assessment of the disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access resulting in greater looting potential. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.

Class 5 – Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions. Unit is frequently the focus of illegal collecting activities.

Class 5b – These are areas underlain by geologic units with very high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has very high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.

- Areas of exposed outcrop are smaller than two contiguous acres.

- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.

- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

    1. Management concern for paleontological resources in Class 5 areas is high to very high.

    2. A field survey by a qualified paleontologist is usually necessary prior to surface disturbing activities or land tenure adjustments. Mitigation will often be necessary before and/or during these actions.

    3. Official designation of areas of avoidance, special interest, and concern may be appropriate.

The probability for impacting significant fossils is high. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.

Geologic Hazards

The Utah Geologic Survey provides technical information and assistance regarding earthquakes and geologic hazards. The Utah Geologic Survey preliminary Landslide History Database outlines 16 historic landslides in Box Elder County.

Legal Context

Applicable Laws

Cultural Resources

Because the application of the laws and regulations for cultural resources are complex and can be difficult to understand, it is usually a good idea to consult with a professional archaeologist or architectural historian concerning how to proceed with a particular project.

Federal laws must be considered if project plans include federal land. The same is true if federal licensing or federal funds are involved. In accordance with federal laws and regulations, project undertakings must take into account their effects upon potential historic properties. The following federal legislation and direction are the most pertinent:

- Antiquities Act: 16 USC §431 et seq. (1906)
- Historic Sites Act: 16 USC §461 et seq. (1935)
- National Historic Preservation Act: §16 USC 47 et seq. (1966)
- National Environmental Policy Act: 42 USC §4321 et seq. (1969)
- Executive Order 11593: Protection and Enhancement of the Cultural Environment (1971)
- Executive Order 13007: Indian Sacred Sites (1997)
- Archaeological and Historical Conservation Act: §16 USC 469 et seq. (1974)
- Archaeological Resources Protection Act: 16 USC §470 et seq. (1979)
- American Indian Religious Freedom Act: 42 USC §1996 et seq. (1978)
- Native American Graves and Repatriation Act: 25 USC §3001 et seq. (1990)
- Omnibus Public Land Management Act, Subtitle D – Paleontological Resources Preservation: 16 USC 470aaa (2009)

The State of Utah also has several laws with implementing regulations, which may be applicable to project planning and undertakings including:

- Utah Antiquities Protection Act: Utah Code §9-8-101-806
- Abuse or Desecration of a Dead Human Body: Utah Code §76-9-704

Paleontological Resources

There are no state requirements for paleontological resources on private lands. Should the State Paleontologist identify a particular area as sensitive for such resources that lie on state lands or federal lands, it will likely be necessary to hire a professional paleontologist to assist in the project. The State of Utah does not maintains a list of qualified paleontologists with permits for state lands in Utah, but the BLM does maintains a list of permitted paleontologists with permits for BLM lands. These professionals are not only qualified to work on federal lands, but on most any project undertaken in Box Elder County.

There are federal and state laws and regulations protecting significant paleontological resources as follows: Antiquities Act (16 USC §432, 433 et seq. [1906]) and National Environmental Policy Act (42 USC §4321-4327 [1969]). However, the most recent and most important law protecting paleontological resources on federal lands (except Indian Reservations) is the Omnibus Public Land Management Act, Subtitle D – Paleontological Resources Preservation (P.L. 111-011; 123 Stat. 1172; 16 USC 470aaa). In addition, the US Bureau of Land Management has developed regulations for the protection of paleontological resources on lands administered by their field offices. Applicable Utah State legislation consists of the Antiquities Protection Act (Utah Code §9-8-101-806).

Geologic Resources

Utah Code §17-27a-401-2-e (County) and 10-9a-401-2-e (Municipal) require general plans to "promote health, safety, and welfare" through the protection of urban development. State statutes allow local jurisdictions to address geologic hazards through zoning districts and ordinance to regulate land used in floodplains and potential geologic hazard areas (Utah Code §17-27a-505-1-c (County) and 10-9a-505-1-c (Municipal). Utah Code §17-27a-703 (County) and 10-9a-703 (Municipal) defines a process for private property owners within counties and municipalities to appeal land use decisions restricting development in areas defined as geologic hazards.

3.2 Desired Future State

Box Elder County desires to support land use and development practices that preserve historical and cultural sites and structures, cultural events and activities, and scientifically important paleontological resources.

Box Elder County desires to manage geological and paleontological resources to safeguard their scientific and educational values as well as to promote public benefit and enjoyment. Box Elder County desires to ensure that land use activities on public lands do not increase the risk from geologic hazards.

3.3 Management Objectives and Associated Policies and Guidelines

3.3.1 Management Objective

Implement land use and development strategies that protect against direct and substantial impacts to nationally recognized cultural resources, both historical and archaeological, including prehistoric rock art, three-dimensional structures and other cultural resources artifacts and sites recognized as culturally important and significant by the State Historic Preservation Office. Coordinate early with appropriate agencies on proposed actions to identify potential cultural and historical resource issues.

Policies and Guidelines

- Work with federal and state agencies to: identify and survey historical and cultural resources; explore alternative historical/cultural site and easement acquisition strategies; develop and coordinate a collaborative process of regular consultation with the State Historic Preservation Office; and, support and coordinate with the preservation planning efforts of other entities.

- The preservation of cultural resources can be supported by inventory, education and protection programs.[3]

- Encourage the conservation, restoration, and preservation of those properties already listed on the National Register of Historic Places. Encourage property owners to conduct cultural resource surveys on significantly sized projects, or projects which are located in proximity to areas identified as having cultural resources. Work with owners of properties with significant cultural resources to identify alternative funding sources to avoid, reduce, or mitigate impacts on the resources. Seek adaptive uses as an alternative to demolishing or significantly altering historic structures.

- Reasonable mineral development can occur while at the same time protecting these sites. Reasonable and effective stipulations and conditions to protect the cultural resources should accompany decisions to issues mineral leases, permit drilling, or permit seismic activities. Such activities should not be disallowed merely because they are in the immediate vicinity to cultural resources if it is shown that such activities will not irreparably damage those resources.[4]

3.3.2 Management Objective

Implement land use and development strategies that preserve locations of scientifically important paleontological resources on public lands.

Policies and Guidelines

- Consult the Utah State Paleontologist to assess potential for paleontological resources with a project or planning area.

- Discourage illegal collection activities through educational efforts and law enforcement.

- Support and coordinate with the paleontological protection and education of other entities.

3.3.3 Management Objective

Implement land use and development strategies that protect life and property from geologic hazards.

Policies and Guidelines

- Areas of erosion on public land will be identified and evaluated to identify sources and determine improvements.[5]

- Fit development to the existing terrain, to prevent or reduce all adverse impacts in hazardous areas.[6]

- Require the avoidance or mitigation of environmental hazards such as flooding, landslides, and subsidence or fissure zones as part of the development review process.[4]

3.4 References

[1] Utah Geological Survey, 2014. Unofficial Utah Geological Survey Paleontological Sensitivity Area. Web map. https://www.arcgis.com/home/item.html?id=6e64b20d1efb460e9c302e9b3317af34 (accessed April, 2017).

[2] Utah Geological Survey. nd. Commonly Asked Questions about Utah's Great Salt Lake and Lake Bonneville. Webpage. http://geology.utah.gov/popular/general-geology/great-salt-lake/commonly-asked-questions-about-utahs-great-salt-lake-lake-bonneville/#toggle-id-1. (accessed April 14, 2017).

[3] Salt Lake County. 2004. Copperton Township General Plan. Salt Lake County Public Works Department.

[4] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

[5] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed April 2017).

[6] Box Elder County. 1998. Box Elder County General Plan, Cultural/Historic Areas, Community Dev & Land Use (Updated 2011).

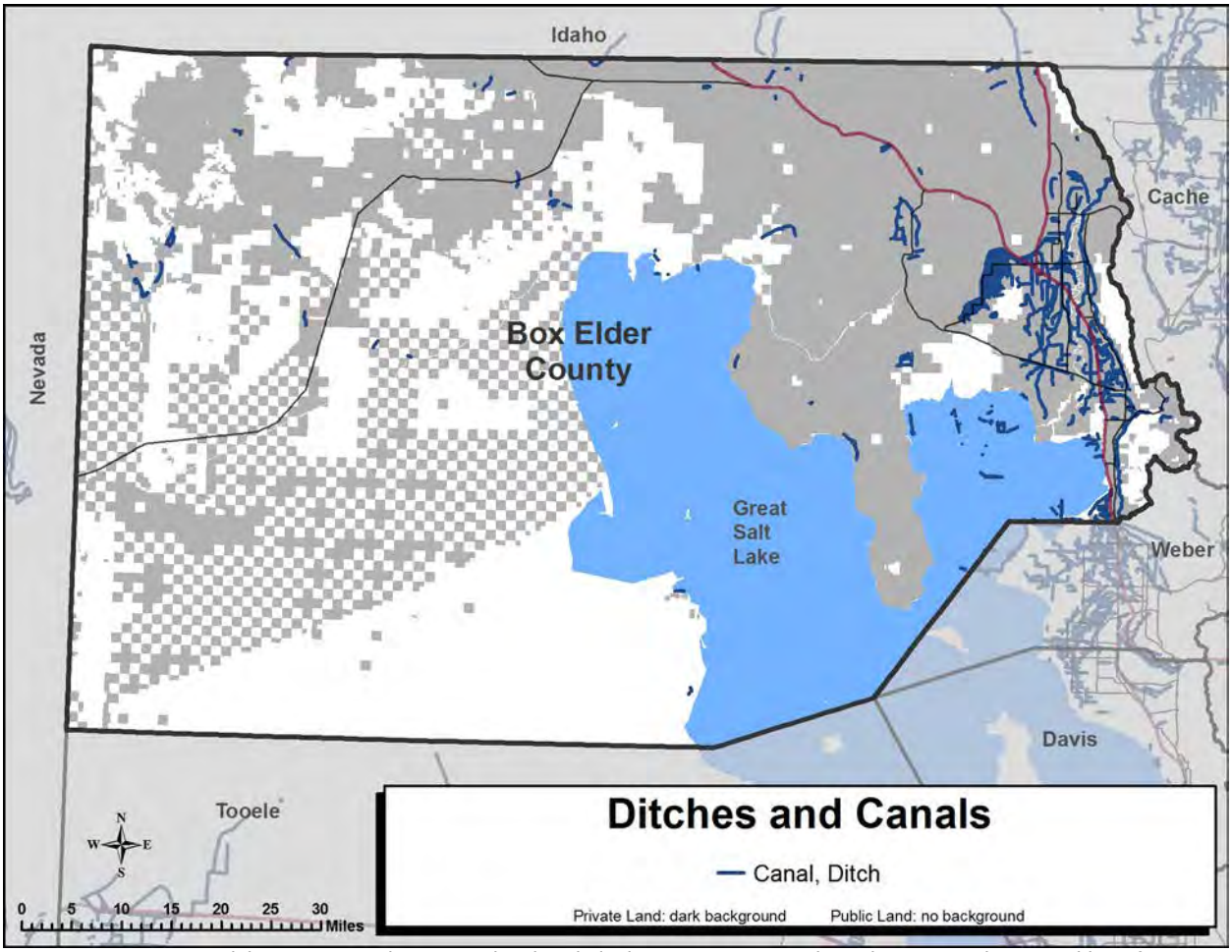
[7] US Department of Interior, Bureau of Land Management. 2016. Potential Fossil Yield Classification System. https://www.blm.gov/sites/blm.gov/files/uploads/IM2016-124_att1.pdf (Accessed May 19, 2017).

4. DITCHES AND CANALS

Ditches, canals, and pipelines are used to convey diverted water from the source to the location where its beneficial use is taken. The term “conveyance” is used to describe the movement of water from source to application. Water pipelines are used to convey water when open channels are not suitable, such as for drinking water.

Related resources:

- Irrigation
- Water Rights
- Agriculture



Source: Streams NHD High-Res, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

4.1 Management Setting

Context

Dams, diversions, canals, and pipelines are constructed to take advantage of the topography of each watershed and redistribute water from rivers and streams outward to lower elevation lands, which are more suitable for crop production. Ditch and canal systems are an integral element for agricultural

viability in Box Elder County, are relied upon for urban landscape watering and gardens, and distributing water throughout the Bear River Migratory Bird Refuge. The use, upgrade, and maintenance of the Utah's network of canals, ditches, and dams continues today. Many of the canals and ditches remain open, but over time many have been lined or piped to improve operational efficiency and for safety reasons.

Findings

According to the National Hydrographic Dataset Box Elder County has 492.8 miles of ditches, 43.9 miles or 9 percent are on public lands (Table 4.1).

Table 4.1. Miles and Percentages of Ditches/Canals in Box Elder County.

LANDOWNER	MILES OF DITCHES/CANALS	PERCENTAGE
Federal	20.1	4
State	23.8	5
Private	448.9	91
Total	492.8	100

Source: National Hydrographic Dataset.

Legal Context

Water is appropriated to water users downstream based on state regulations spelled out in Utah Code Title 73, Water and Irrigation. Point of Diversion data, stream alteration data, place of use data, and adjudication areas data can be used by Box Elder County to help determine areas of the county that may have complex water rights issues. See Section 26, Water Rights, for more information regarding water rights in Box Elder County.

Other applicable laws include the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) and the Utah Water Quality Act (Utah Code §19-5).

4.2 Desired Future State

Box Elder County desires to protect and improve existing and future water conveyance systems.

4.3 Management Objectives and Associated Policies and Guidelines

4.3.1 Management Objective

Establish new water storage sites in West Box Elder.[1]

Policies and Guidelines

Seek funding for canal leakage study once planning for new storage sites for saved water is underway.[1]

4.3.1 Management Objective

Encourage maintenance of and support improvements of existing infrastructure.

Policies and Guidelines

- Seek funding for canal leakage study.[1]
- Coordinate with agencies and water companies to protect existing water conveyance systems.

4.4 References

[1] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

5. ECONOMIC CONSIDERATIONS

Box Elder County is primarily a rural county with population of just over 50,000. At 5,594 square miles, the county is the fourth largest county in Utah. Brigham City is the county seat and has the highest population of the 16 incorporated cities and towns.

Related resources:

- Recreation and Tourism
- Land Use

5.1 Management Setting

Context

The nonfarm economy of Box Elder County is led by manufacturing jobs. Farming and ranching make up a portion of the county's economy and provides an important part of the lifestyle of its residents.

Findings

Local socioeconomic impact of agency decisions. Federal planning processes require an assessment of potential impacts to local economies and social environments including historical and cultural elements. It is critical that agency analyses adequately convey the relevance or "linkages" between this information and county public land and resource interests.

Relative impact of agency decisions (local vs. national impact). Box Elder County recognizes the obligation of federal land managers to manage public lands in the public's interest according to nationwide perspectives. However, due to the high percentage of public land within Box Elder County, the county is more directly affected by agency management decisions.

Box Elder County receives an annual Payment in Lieu of Taxes (PILT) from Federal government based on the amount of Federal lands in the county that do not earn property taxes. In 2015 Box Elder County received $3,060,328 based on 1,201,160 acres of federal lands.[1]

The largest employers in Box Elder County are Autoliv, Orbital ATK, Nucor Corporation, and Walmart. The top three non-agricultural employers are related to Manufacturing and Trade, Utilities, and Government.[2] Farms cover more than 1 million acres of private land in the county and include more than 100,000 acres of irrigated cropland. The market value of agricultural crops sold in 2012 was approximately $170 million.[3]

Legal Context

Applicable Laws

The US Forest Service (Forest Service) manages land use decisions, including recreation by developing land and resource management plans, also known as Forest Plans, under the National Forest Management Act (16 USC §1600 et seq. [1976]). The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) mandates the US Bureau of Land Management to manage lands, including recreational uses, under multiple-use philosophy. Both federal land managers set recreation policy following planning procedures specified by the National Environmental Policy Act (42 USC §4321 et seq. [1969]).

State laws applicable to recreation and tourism include the Transient Room Tax enabled by Utah Code §59-12-3 et seq., which allows counties to levy a tax up to 4.25 percent on hotel accommodations. The

Tourism, Recreation, Cultural, Convention, and Airport Facilities Tax Act, Utah Code: §59-12-6 et seq. (2008) allows counties to levy a tax up to 4 percent on short-term motor vehicle rentals. Funds collected under this law may be used for the development, operation, and maintenance of cultural, recreational, or tourist facilities. Utah Code §17-31-8 requires all counties which levy either taxes to form an advisory board to represent industries being taxed. Utah Code §63N-7-1 created the Board of Tourism, which advises the Governor's Office of Economic Development on "planning, policies, and strategies and on trends and opportunities for tourism development."

5.2 Desired Future State

Box Elder County desires to continue to support the rural character of the area, including agriculture, ranching, industries, and resources that sustain the county's economy while maintaining water quality, air quality, wildlife, and habitat on public lands.

Economic development in Box Elder County should be supportive and consistent with family values.[3]

The county is committed to:

- Diversifying the nature and number of contributors to the economic base.
- Encouraging growth that is consistent with and embraces the security of the county's quality of life.
- Preserving and strengthening the viability of the agriculture sector of the county economy.

5.3 Management Objectives and Associated Policies and Guidelines

5.3.1 Management Objective

Identify and pursue a target growth rate that encourages a diversified economic base.[4]

Policies and Guidelines

- Maintain (and update as new information is available) Box Elder County's economic and demographic profile.

- Verify and establish a target growth rate for the County.[4]

5.3.2 Management Objective

Coordinate and integrate economic development planning with the county General Plan.[4]

Policies and Guidelines

- Participate in the implementation of the county's General Plan. Encourage revisions to the plan as necessary.[3]

- Ensure agency officials are aware of and familiar with Box Elder County's General Plan, the county's economic and demographic profile, and other relevant studies. Clarify with agency personnel that these adopted county documents are to be considered initial county input and positions in all agency planning and decision-making processes.

5.3.3 Management Objective

Enhance retention, expansion, and recruitment of businesses and create an attractive environment for retail, manufacturing, and large employers.[4]

Policies and Guidelines

Provide assistance to local communities as they identify, attract, and recruit missing potential components. Increase recognition and visibility of the value and benefits to local businesses and services available from the Economic Development Board and Staff. Retain and continue to support current employers. Take a leadership role in supporting small businesses. Train recruiting efforts among those businesses that assist in achieving the target growth rate, diversify the economy, and further the Mission and Vision for economic development.[3]

5.3.4 Management Objective

Preserve and strengthen the viability of the agricultural sector on the economy.[4]

Policies and Guidelines

- Increase awareness of the role that agriculture plays in the county's economy.[4]

- Ensure agency officials are aware of and familiar with Box Elder County's General Plan, the county's economic and demographic profile, including the relative importance that livestock grazing on public lands plays in the local agricultural economy.

5.4 References

[1] US Department of Interior, 2017. Payment in Lieu of Taxes, County Payments. https://www.nbc.gov/pilt/counties.cfm (accessed April 10, 2017).

[2] Utah Department of Workforce Services. 2017. Economic Snapshot, Box Elder County, Nonfarm Jobs by Month. Website. https://jobs.utah.gov/wi/regions/county/boxelder.html (accessed April 17, 20178)

[3] USDA: National Agricultural Statistics Services. 2012. County Summary Highlights. https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017).

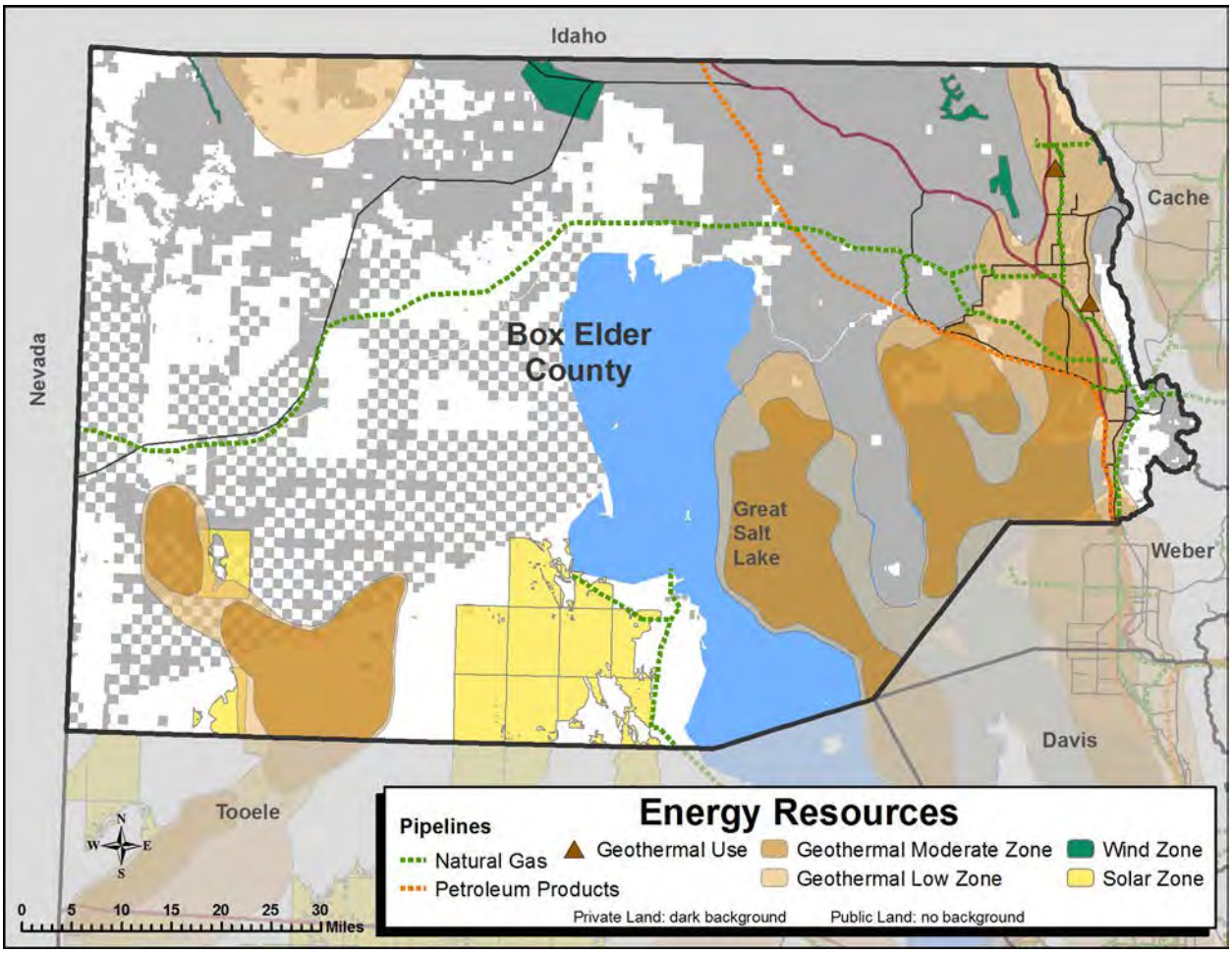
[4] Box Elder County. 1998. Box Elder County General Plan, Agriculture.

6. ENERGY RESOURCES

Public and private utilities draw upon Utah's renewable and nonrenewable resources to provide electricity and fuel (natural gas, propane, oil, gasoline, coal) energy supplies.

Related resources:

- Utilities
- Air Quality
- Mining
- Mineral Resources



Source: Power Plants CO2, July 2008, Compiled by Utah Automated Geographic Reference Center. Geothermal Power Production Potential and Pipelines, Date unknown, Utah Geological Survey. Utah Renewable Energy Zone. UREZ Phase 1 Wind Zones, Date unknown, Utah Renewable Energy Zone. Access via Utah Automated Geographic Reference Center.

6.1 Management Setting

Context

Energy resources includes the development and production of energy (fossil fuel and renewable) as well as the transmission of energy across public lands (powerlines, pipelines, etc.). Energy transmission projects on public lands may affect sensitive wildlife and other resources.

Planning for energy development on federal lands is managed by the US Forest Service (Forest Service) and the Bureau of Land Management (BLM). Energy development on State Sovereign Lands is managed by Forestry, Fire, and State Lands (FFSL) and State Institutional Trust Lands (SITLA). Regulatory oversight of oil and gas wells is provided by the Utah Division of Oil, Gas, and Mining (DOGM) within the Utah Department of Natural Resources (DNR).

Findings

Box Elder County has a modest history of oil and gas development on Sovereign State Lands around Rozel Point. Box Elder has no current energy extraction (Table 6.1).[1]

Table 6.1. Number, type, and status of energy wells in Box Elder County.

WELL TYPE	NUMBER	STATUS	CUMULATIVE PRODUCTION
Oil well	47	Abandoned or Plugged	2,665 Barrels
Gas well	6	Abandoned or Plugged	0 Thousand Cubic Feet

Source: Utah Division of Oil, Oil, and Gas, Oil and Gas Well spatial data for Box Elder County.

Several large energy pipelines cross Box Elder County, including the 42-inch Natural Gas Ruby Pipeline operated by Kinder Morgan, several natural gas lines in the 8–12-inch range operated by Questar Gas, an 8-inch petroleum pipeline operated by Chevron, and several others. These pipelines cross private, state, and federal lands.

Box County has moderate potential for the production of solar energy based on a 2009 study by the Utah Renewable Energy Zones Taskforce.[2] This same study identified five locations in Box Elder County with potential to generate more than 500 megawatts of wind energy.[2] Geothermal energy potential also exists in Box Elder County with two geothermal sites (Crystal-Madsen and Utah Hot Springs) capable of generating 10 megawatts each.[2]

Legal Context

Applicable Laws

The Mineral Leasing Act of 1920, as amended (30 USC §§181 et seq.) is the major federal law governing development of oil, gas, coal, and other hydrocarbons on public lands. This act instructs the US Department of Interior (DOI) via the BLM to lease extraction rights for energy production on lands managed by the BLM and Forest Service. The Geothermal Steam Act of 1970 (30 USC §§1001 et seq.) authorizes the US Department of Interior via the BLM to lease extraction rights for geothermal resource production on lands managed by the BLM and Forest Service.

Applicable state laws include Utah Code §40-6-1 et seq. which established the DOGM within the DNR with authority to regulate oil and gas mining as well as promote the development and production of oil and gas. In 1982 DOGM obtained primacy from the Environmental Protection Agency for regulation of Class II Water Injection Wells; this program regulates disposal of produced water from oil and gas wells, and reinjection of fluids for pressure maintenance and secondary recovery operations in oil and gas fields.

6.2 Desired Future State

Development of the county's resources is important to present and future residents. It is the county's position that these resources can be developed in responsible manner. Operation conditions should

address potential conflicts with adjacent land uses and community values. Sites should be engineered and managed for environmental compatibility, aesthetics and reclamation.

Renewable energy resources in Box Elder County should be explored and developed to provide alternative energy supplies.

6.3 Management Objectives and Associated Policies and Guidelines

6.3.1 Management Objective

Achieve and maintain a continuing yield of traditional energy resources on public lands at the highest levels.[3]

Policies and Guidelines

- Support Utah Forestry Fire and State Lands policies to allow for new oil, gas, and hydrocarbon-leasing activities that are consistent with the long-term sustainability of Great Salt Lake, according to Utah Code §65A-10-8.[4]

- Box Elder County recognizes that it is technically feasible to access mineral and energy resources while preserving or, as necessary, restoring non-mineral and non-energy resources.[5]

- All available solid, fluid, and gaseous mineral resources on public lands should be seriously considered for their contribution or potential contribution to the Box Elder County economy.[5]

- Public lands shown to have reasonable mineral potential should be open to oil and gas leasing with reasonable stipulations and conditions that will protect the lands against unreasonable and irreparable damage to other significant resource values. This should include reasonable and effective mitigation and reclamation measures, and bonding for such, where necessary.[5]

- The waste of fluid and gaseous minerals within developed areas, except for those necessary for production, such as flaring, should be prohibited.[5]

- Any prior existing lease restrictions on public lands that are no longer necessary or effective should be modified, waived or removed.[5]

- Restrictions against surface occupancy should be modified, waived, or (if necessary) removed where it is shown that directional drilling is not ecologically necessary, not feasible from an economic or engineering standpoint, or where it is shown that directional drilling will, in effect, sterilize the mineral and energy resources beneath the area.[5]

- Applications for permission to drill that meet standard qualifications, including reasonable and effective mitigation and reclamation requirements, should be expeditiously processed and granted. Any moratorium that may exist against the issuance of additional mining patents and oil and gas leases on public lands should be carefully evaluated for removal.[5]

6.3.2 Management Objective

Encourage renewable energy resources on public lands including wind, solar, and geothermal.

Policies and Guidelines

Investigate opportunities for renewable energy resources such as wind, solar, geothermal, and ground source heat pumps, etc.[1]

6.4 References

[1] Utah Department of Natural Resources, Oil, Gas, and Mining Division. 2013. Oil and Gas Wells, spatial data. https://gis.utah.gov/data/energy/oil-gas/

[2] Utah Department of Natural Resources, Utah Geological Survey. 2009. Utah Renewable Energy Zones Task Force Phase I Report, Renewable Energy Zone Resource Zone Identification.

[3] Box Elder County. 1998. Box Elder County General Plan, Land Use Element, Mineral Extraction and Gravel Pits, Community Dev & Land Use p.4.

[4] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

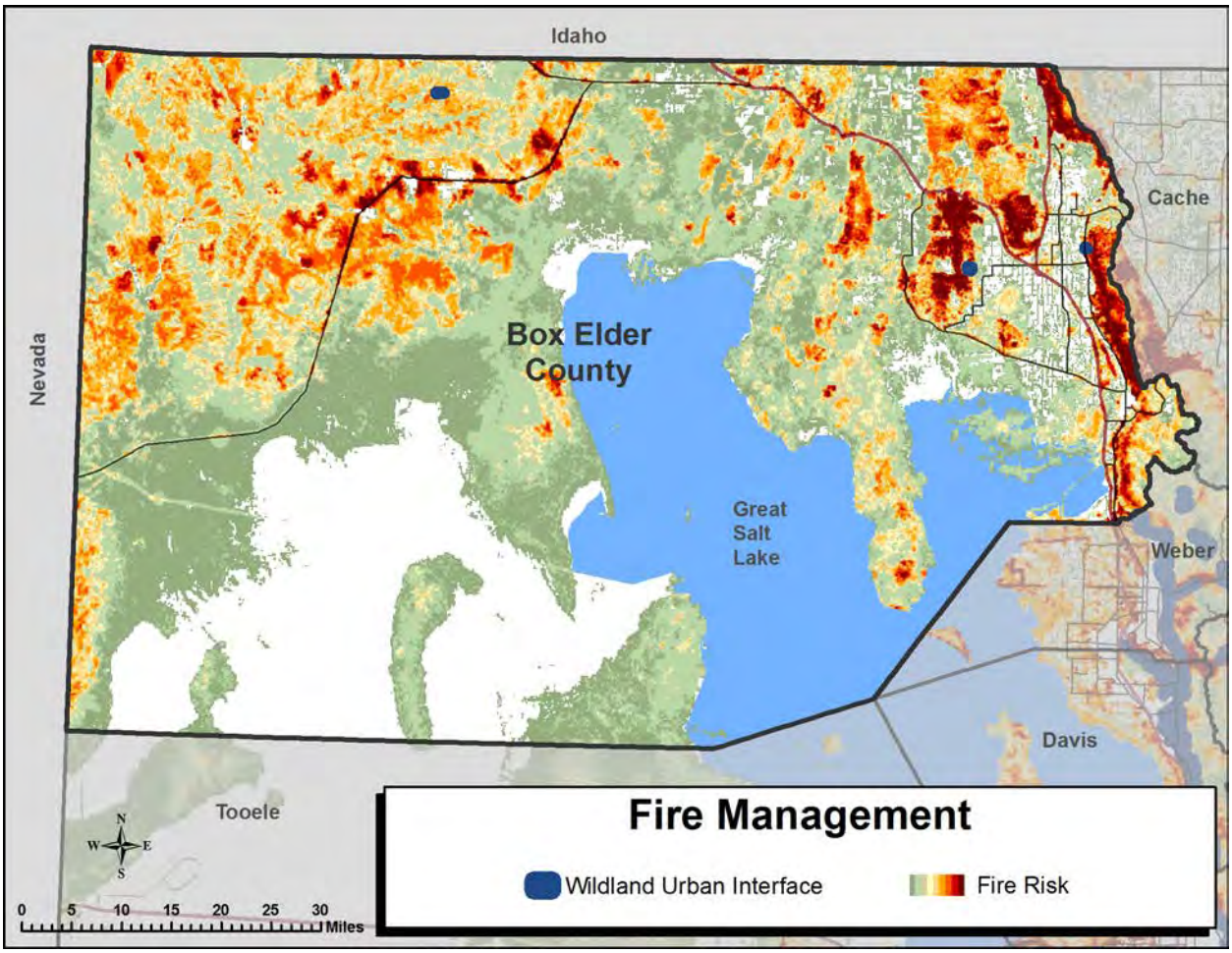
[5] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

7. FIRE MANAGEMENT

Fire management refers to the principles and actions to control, extinguish, use, or influence fire for the protection or enhancement of resources as it pertains to wildlands. It involves a multiple-objective approach strategy including ecosystem restoration, community preparedness, and wildfire response.

Related resources:

- Forest Management
- Noxious Weeds
- Air Quality



Source: Urban Interface Areas, 1999, Compiler unknown, Access via Utah Automated Geographic Reference Center. Utah Fire Risk Index, 2013, West Wide Risk Assessment, Utah Division of Forestry, Fire, and State Lands.

7.1 Management Setting

Context

Wildfire is the most prevalent disturbance to natural resources in Box Elder County with the threat of wildfire greatest on its public lands. Fire suppression is expensive to taxpayers. With expected increase in temperatures, variation in precipitation pattern, and longer drought periods, fires suppression costs are

also projected to rise. Effective fire management includes elements of wildfire prevention, mitigation, and preparedness.

Findings

Wildland fire is an integral component of the county's forest, range, and desert lands and affects thousands of acres on an annual basis. Below is a compilation of Box Elder County wildland fire statistics since 2010 (Table 7.1).[1]

Table 7.1. Nationally reported wildland fires and acreage burned in Box Elder County since 2010.

YEAR	NUMBER OF FIRES	ACREAGE BURNED
2010	1	178
2011	3	6,023
2012	6	7,799
2013	7	13,047
2014	0	-
2015	0	-
2016	4	27,142

Source: Geospatial Multi-Agency Coordination Group (GeoMAC) fire perimeter data.

Legal Context

Response to fire incidents relies on proper oversight, guidance, and partnership among a variety of trained professional organizations. Establishing a fire management system is a critical step in protecting communities both urban and rural. Fire management refers to the principles and actions to control, extinguish, use, or influence fire for the protection or enhancement of resources as it pertains to wildlands. It involves a multiple-objective approach strategy including ecosystem restoration, community preparedness, and wildfire response.[2] Wildfires do not respect political boundaries, and cooperation among different agencies and jurisdictions covering federal, state, county, municipal, and rural/volunteer fire departments is essential for successful fire management response. In Utah the state legislature tasked the Forestry, Fire, and State Lands to devise a Comprehensive Statewide Wildland Fire Prevention, Preparedness, and Suppression policy known as SB-56.[3] Under this plan a master cooperative wildland fire management and Stafford Disaster Relief and Emergency Assistance Act (42 USC §5187 et seq. [1988]) response agreement is signed each year between numerous federal land management agencies and the State of Utah for cooperation during wildland fire incidents that occur throughout the state.[4]

Utah Code §11-7-1(1) requires counties and municipalities to provide fire protection within their boundaries and coordinate with adjacent counties and public land management agencies to conduct fire suppression. Utah Code §65a-8-202(4) requires counties (not municipalities) to be responsible for cost of fire suppression.

Applicable state planning documents include the Utah Forest Action Plan by the Utah Division of Forestry, Fire, and State Lands.[5]

7.2 Desired Future State

Box Elder County supports controlled wildland fire use and prescribed fire on public lands, coordinated

with Box Elder County, as part of a strategy to reduce potential for uncharacteristic high-intensity wildfires and insect epidemics, and to provide for ecosystem maintenance and restoration consistent with land uses and historic fire regimes where it does not threaten adjacent development.

Box Elder County supports vegetation management strategies to reduce risk of property damage and uncharacteristic fires and to maintain vegetation habitats within historic range of variation. Additionally, Box Elder County supports fire suppression activities for public and firefighter safety and protection of other federal, state, and private property and natural resources.

7.3 Management Objectives and Associated Policies and Guidelines

7.3.1 Management Objective

Where and when appropriate, allow wildland fires to burn as a management tool to reduce fuel loads, maintain and restore ecosystem processes, and for other land use goals.

Policies and Guidelines

- When life and property are not at risk support wildland fire use, the allowing of a wildfire to burn as a natural component of the ecosystem.

- Coordinate wildland fire efforts with county, state, and federal agencies.

7.3.2 Management Objective

Where and when appropriate, use prescribed fire as a management tool to reduce fuel loads, maintain and restore ecosystem processes, and for other land use goals.

Policies and Guidelines

- Prescribed fire will be used as a resource management tool.[7]

- Increase the active use of fire to return fire dependent ecosystems to proper functioning and to reduce hazardous fuels.[8]

- Coordinate prescribed fire and controlled wildlands fire efforts with county, state and federal agencies.

- Use local air-quality measures, not Salt Lake County or other regions, to determine when conditions are appropriate for prescribed fire and controlled wildland fire.

7.3.3 Management Objective

Support vegetation management activities to reduce risk of property damage and uncharacteristic fires and to maintain vegetation habitats within historic range of variation.

Policies and Guidelines

- Conduct vegetation management to maintain or return vegetation communities within their historic range of variation that sustains habitats for viable populations of species.

- Focus on approximating natural disturbances and processes by restoring composition, age class diversity, patch sizes, and patterns for all vegetation types.[8]

- Fuel load reduction projects through thinning, harvesting, and other mechanical means.

7.3.4 Management Objective
Support wildland fire suppression when structures and lives are threatened.

Policies and Guidelines
- Have comprehensive wildland fire emergency response plans and share them with the community.
- Identify high wildland fire hazard zones.
- Adopt wildland-urban interface building ordinances to reduce fire risk.
- Reach out to citizens occupying the wildland-urban interface on preparing for wildfire event.
- Include municipal and volunteer fire departments in wildland fire training for effective fire response.
- Utilize smoking and fire bans when fire danger conditions become hazardous.
- Educate and inform public when fire danger rises throughout a fire season.

7.3.5 Management Objective
Support the State Wildland Fire Suppression Fund.

Policies and Guidelines
Participate in the State Wildland Fire Suppression Fund.[9]

7.3.6 Management Objective
Support management actions that reduce hazardous fuel loads in a manner that does not damage survey monuments or if damaged results in reestablishment of monuments.

Policies and Guidelines
When management actions result in damaged or destroyed survey monuments require responsible party or agency to see that the survey monuments be appropriately reestablished. The US Bureau of Land Management created a document to guide surveyors in reestablishing lost or obliterated monuments[10].

7.4 References
[1] National Interagency Fire Center. 2017. Historic Fire Perimeters, spatial data. https://rmgsc.cr.usgs.gov/outgoing/GeoMAC/ (accessed January 8, 2016).

[2] US Forest Service. 2016. Wildland Fire Touches Every Part of the Nation. Managing Wildland Fires. https://www.fs.fed.us/fire/management/index.html (accessed February 6, 2016).

[3] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2015. Utah Wildland Fire Policy. http://le.utah.gov/interim/2015/pdf/00005301.pdf (accessed February 2, 2016).

[4] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2013. Master Cooperative Wildland Fire Management and Stafford Act Response Agreement. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5409791.pdf (accessed February 2, 2016).

[5] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2016. Utah Forest Action Plan 2016. http://www.ffsl.utah.gov/images/forestry/stateassessment/UtahFAP-2016-HighRes-dnd.pdf (accessed March 24, 2017).

[6] Wildland Urban Interface Wildfire Mitigation Desk Reference Guide, PMS 051, National Wildfire Coordinating Group. August 2014. https://www.nwcg.gov/sites/default/files/products/pms051.pdf Accessed 23 March 2017.

[7] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed April 2017).

[8] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

[9] Rule R652-121. Wildland Fire Suppression Fund, Utah Administrative Code.

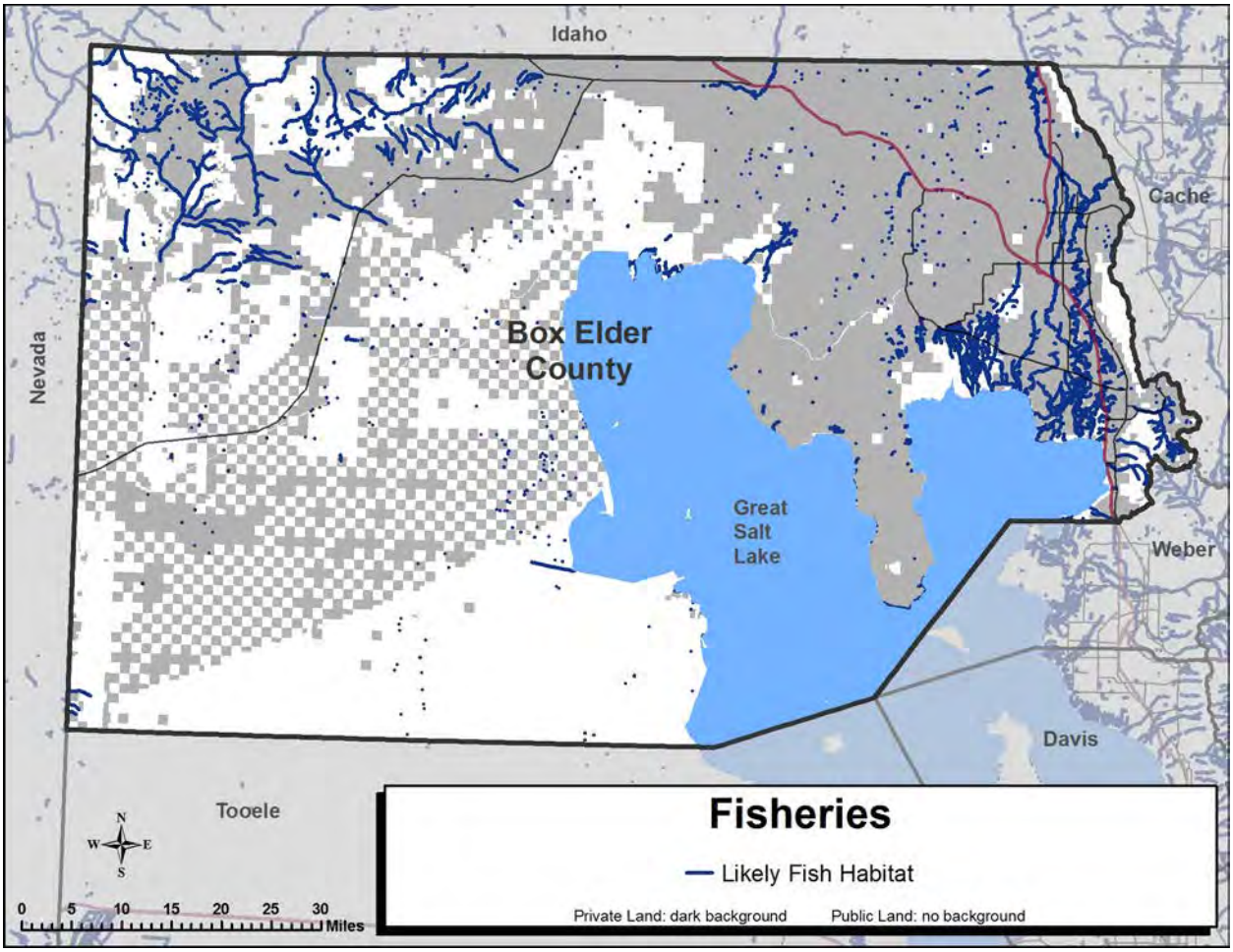
[10] Restoration of Lost or Obliterated Corners & Subdivision of Sections, a guide for surveyors. 1974, BLM. https://www.blm.gov/or/gis/geoscience/files/lost_oblit.pdf.

8. FISHERIES

A fishery is an aquatic system that includes a target organism, a community of species on which that organism depends, the habitat in which they reside, and the humans that affect or utilize the resource within the ecosystem.

Related resources:

- Water Quality and Hydrology
- Threatened, Endangered, and Sensitive Species



Source: StreamsNHDHighRes, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

8.1 Management Setting

Context

Fishing and fisheries provide education and introduction to natural resources and their management. Sport fishing has significant, positive economic impact in Utah through retail and tourism. Brine fishing in the Great Salt Lake is a multimillion dollar industry in Utah. Aquatic invasive species (AIS) negatively impact fisheries and aquatic environments and are expensive to control.

Findings

The Utah Division of Wildlife Resources (DWR) is responsible for managing fisheries in Utah with a primary resource goal of providing quality recreational fishing opportunities.[1] Assisting the DWR in decision making and establishing management priorities are the state Wildlife Board and five Regional Advisory Councils (RACs) who provide local input on fishing related issues. Each RAC consists of a diverse group of interest group representatives, including agriculture, sportsmen, federal land agencies, general public, and elected officials. Meeting schedules and agendas can be found on the RAC website.

Aquatic invasive species (AIS) or aquatic nuisance species are defined by the DWR as nonnative species of aquatic plants and animals that cause harm to natural systems or human infrastructure. Not all nonnative species are considered AIS, as many nonnative fish species are desirable for sport fishing. These may include nonnative rainbow trout, brown trout, bass, and catfish.

The primary AIS threats in Utah are related to *Dreissenid* spp. mussels, such as quagga mussel, zebra mussel, and dark falsemussel. Invasive mussels in Utah waters have no natural competitors, and once they are established, they spread quickly, growing on nearly all underwater surfaces. The prolific mussels often clog water and power infrastructure, harm aquatic recreational equipment, and outcompete native species for nutrients, which can have profound effects on sportfish populations higher in the food chain.

Dreissenid spp. have infested several waterbodies of southern Utah and possibly Deer Creek Reservoir in Wasatch County. On January 15, 2016, the DWR posted notice of the detection of quagga mussel veligers (juvenile mussels) in the reservoir. While not in Box Elder County, Deer Creek Reservoir is close enough to Box Elder County to warrant concern about the spread of *Dreissenid* into local waters.

Legal Context

All wildlife, including fish, are the property of the State of Utah and managed by the DWR.

Applicable Laws

Utah Code §23-13-3 provides that wildlife not held by private ownership is considered property of the state. Utah Code §23-15-2 establishes that the state has jurisdiction of all wildlife in the state, including aquatic wildlife, whether on public or private land. Utah Code §4-23-2 declares that preserving the wildlife resources of Utah is important to the economy of the state. Utah Code §23-14-2.6 establishes the organization and function of RACs, which advise the state Wildlife Board regarding wildlife management issues.

8.2 Desired Future State

Box Elder County desires to support native fish populations, sport fishing, recreation and tourism through the protection of aquatic habitat and water quality, including efforts to restore and improve water quality and riparian and in-stream habitats where degraded. Box Elder County desires to prevent new AIS from entering waterways in the county and supports the brine shrimp harvesting industry in the Great Salt Lake.

8.3 Management Objectives and Associated Policies and Guidelines

8.3.1 Management Objective

Maintain, improve, and restore riparian and in-stream habitats where degraded.

Policies and Guidelines

- Support efforts to restore riparian and in-stream habitats where degraded, recognizing the need to mimic natural processes when they can't be restored such as fish ladders [1] and natural hydrograph characteristics (timing, duration, temperature, etc) below dams and reservoirs.

- Support water quality best management practices on public lands to improve water quality and aquatic habitat, recognizing the need for sufficient water to maintain functioning aquatic ecosystems.[1]

- Support efforts by DWR and other organizations (such as Trout Unlimited) to provide native fishes a way to move past water diversion barriers, such as fish ladders, and installation of fish screens on irrigation infrastructure to reduce fish mortality in canals.

8.3.2 Management Objective

Support public education efforts which explain the transmission of AIS, proper cleaning protocols, and the impacts of AIS on local waterways and infrastructure.

Policies and Guidelines

Assist state efforts to facilitate boat cleaning/decontamination stations, inspection check-points, and angler/boater education efforts.[3]

8.3.3 Management Objective

Support water quality best management practices on public lands to improve water quality downstream in the Great Salt Lake.

Policies and Guidelines

Support efforts to maintain or improve water quality on public lands, recognizing the importance of water quality and salinity levels to the brine shrimp industry.[1]

8.4 References

[1] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[2] Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Aquatic Invasive Species Task Force. 2009. Utah Aquatic Invasive Species Management Plan, Publication No. 08-34.

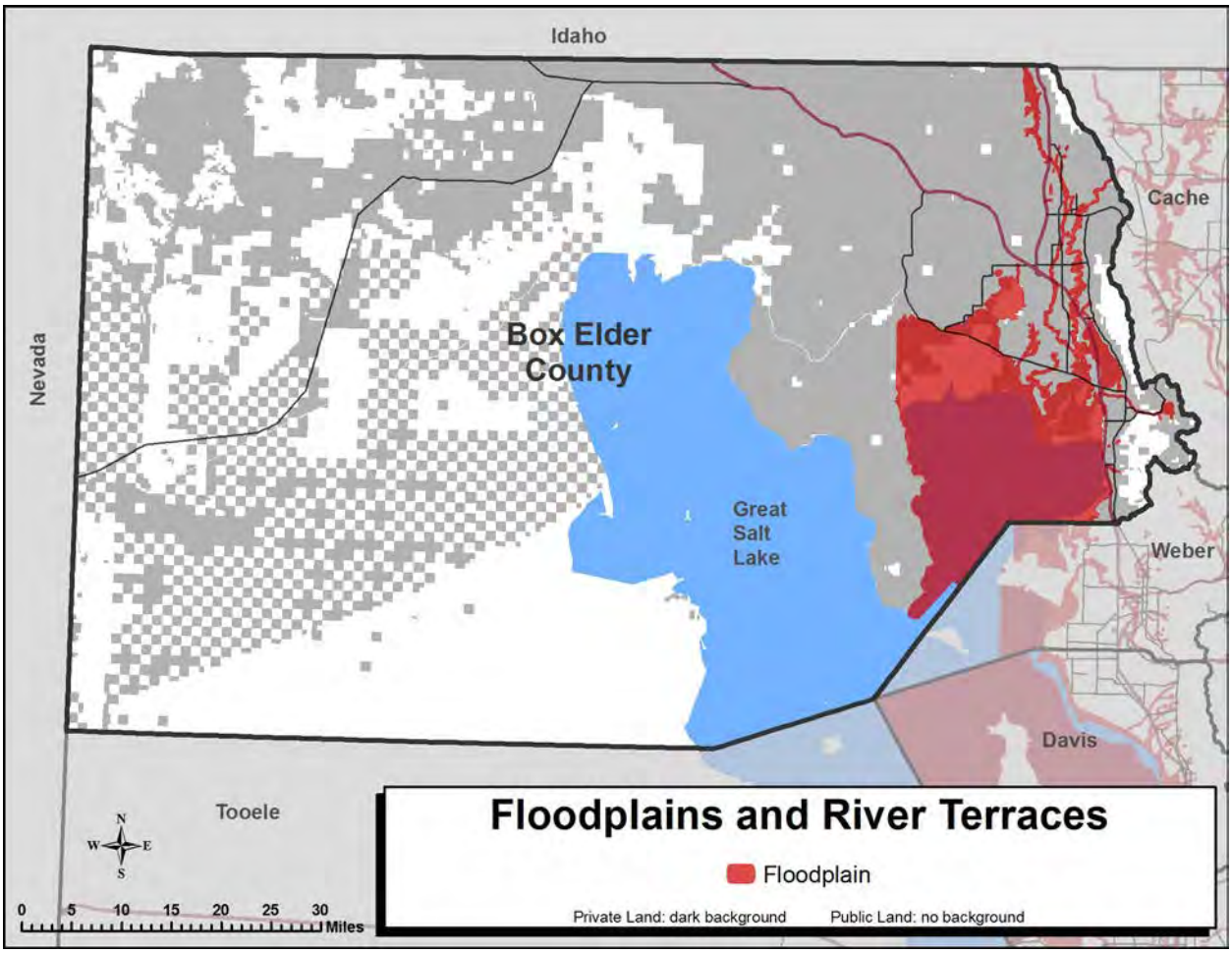
[3] US Department of the Interior, Bureau of Reclamation. 2012. Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species. Technical Memorandum No. 86-68220-07-05.

9. FLOODPLAINS AND RIVER TERRACES

Floodplains are the low-lying, flood-prone areas adjacent to a river. River terraces are the bench or stepped areas that extend along river valleys. River terraces usually represent former levels and paths of floodplains of a stream or river. Rivers are dynamic systems. They can migrate laterally as a result of bank erosion and deposition, and move vertically as a result of bed aggradation or degradation. Floodplains and terraces are formed during these channel migration processes. Therefore, floodplains and terraces are essentials parts of the river system.

Related resources:

- Riparian Areas
- Wetlands
- Water Quality and Hydrology
- Irrigation



Source: Floodplains, 2 August 2012, Digital Flood Insurance Rate Map Database Box Elder County, Access via Utah Automated Geographic Reference Center.

9.1 Management Setting

Context

Floodplains and terraces are an integral part of the hydrologic and ecological system supporting water quality and habitat.

Findings

Floods occur when the river channel reaches its maximum capacity and water overflows streambanks into nearby areas that would otherwise be dry. Floods are caused by heavy rains or snowmelt delivering water at a rate faster than the soils can absorb it, or when a dam, landslide, or other impoundment gives way and rapidly releases large amounts of water. For the most part, flooding is a natural process that contributes to channel maintenance, ecological processes, and riparian vegetation. Natural flooding usually occurs during peak flows or periods of high-water discharge.[1] Nevertheless, floods can cause severe impacts and therefore must be mitigated.

The Federal Emergency Management Agency (FEMA) provides flood data that classifies areas based on flood hazards mapped through the National Flood Hazard Layer (NFHL). This enables community officials, emergency responders, and the public to be informed and plan accordingly to avoid or reduce impacts from floods. The FEMA and NFHL also guide development and reduce risk by excluding flood hazard areas. The NFHL maps the probability of flooding at specific areas using historical data and prediction models. Floodplains are classified based on the probability of a specific flood event happening in that area. For example, a 100-year floodplain means that a flood event that can inundate the specific area has a probability of happening once in 100 years. This does not mean that the area would be inundated once every 100 years; a 100-year floodplain can be inundated 2 years in a row. Rather, this means that every year there would be a 1 percent probability of a 100-year flood happening in that area (Table 9.1). Box Elder County has been digitally mapped by NFHL, most recently in April 2014.

Table 9.1. Acreage of Box Elder County in 100-year floodplain.

FLOOD ZONE	ACRES
100-year flood zone	262,567

Source: Federal Emergency Management Agency National Flood Hazard Layer.

Legal Context

Applicable Laws

Executive Order 11988 Floodplain Management (1977) as summarized on the FEMA website instructs Federal Agencies to do the following:[2]

- Assert leadership in reducing flood losses and losses to environmental values served by floodplains.
- Avoid actions located in or adversely affecting floodplains unless there is no practicable alternative.
- Take action to mitigate losses if avoidance is not practicable.
- Establish a process for flood hazard evaluation based upon the 100-year base flood standard of the National Flood Insurance Program.

The Executive Order also directs federal agencies to issue implementing procedures, provides a consultation mechanism for developing the implementing procedures, and provides oversight mechanisms.

Utah Code §17-27a-401-2-e (County) and 10-9a-401-2-e (Municipal) require general plans to "promote health, safety, and welfare" through the protection of urban development. State statutes allow local jurisdictions to address geologic hazards through zoning districts and ordinance to regulate land used in floodplains and potential geologic hazard areas (Utah Code §17-27a-505-1-c (County) and 10-9a-505-1-c (Municipal).

Utah Code §73-3-29-1 requires all state, county, municipal or private landowner to acquire a permit from the state engineer to "relocate any natural stream channel or alter the beds and banks of any natural stream without first obtaining the written approval of the state engineer." Among other purposes, this law is designed to prevent stream alteration which might "unreasonably or unnecessarily diminish the natural channel's ability to conduct high flows."

9.2 Desired Future State

Box Elder County desires to promote a healthy hydrological system that encourages efficient flood control and water conveyance, while providing clean water, wildlife habitat, and recreational uses.

9.3 Management Objectives and Associated Policies and Guidelines

9.3.1 Management Objective

Protect life and property from the increased risk of flooding through application of stream setbacks, FEMA flood zone requirements and careful review of development along streams and at the mouths of drainages on public lands.

Policies and Guidelines

The county's objective includes developing a localized floodplain standard, determining appropriate levels of development, and establishing appropriate setbacks from streams.[3,4]

9.3.2 Management Objective

Promote healthy hydrological system including aquatic habitat and riparian vegetation.

Policies and Guidelines

Management actions within floodplains and wetlands should include measures to preserve, protect, and (if necessary) restore their natural functions.[5]

9.4 References

[1] Jordan River Commission. 2013. Best Practices for Riverfront Communities. http://jordanrivercommission.com/wp-content/uploads/BP-high-res-for-web.pdf (accessed March 23, 2017).

[2] Federal Emergency Management Agency. ND. Executive Order 11988. https://www.fema.gov/executive-order-11988 (accessed March 23, 2017).

[3] Riparian Buffer Design Guidelines, USDA, General Technical Report RMRS-GTR-203, January 2008. https://www.fs.fed.us/rm/pubs/rmrs_gtr203.pdf (accessed March 16, 2017).

[4] Box Elder County. 1998. Box Elder County General Plan, Land Use Element, Flood Plains, p.7.

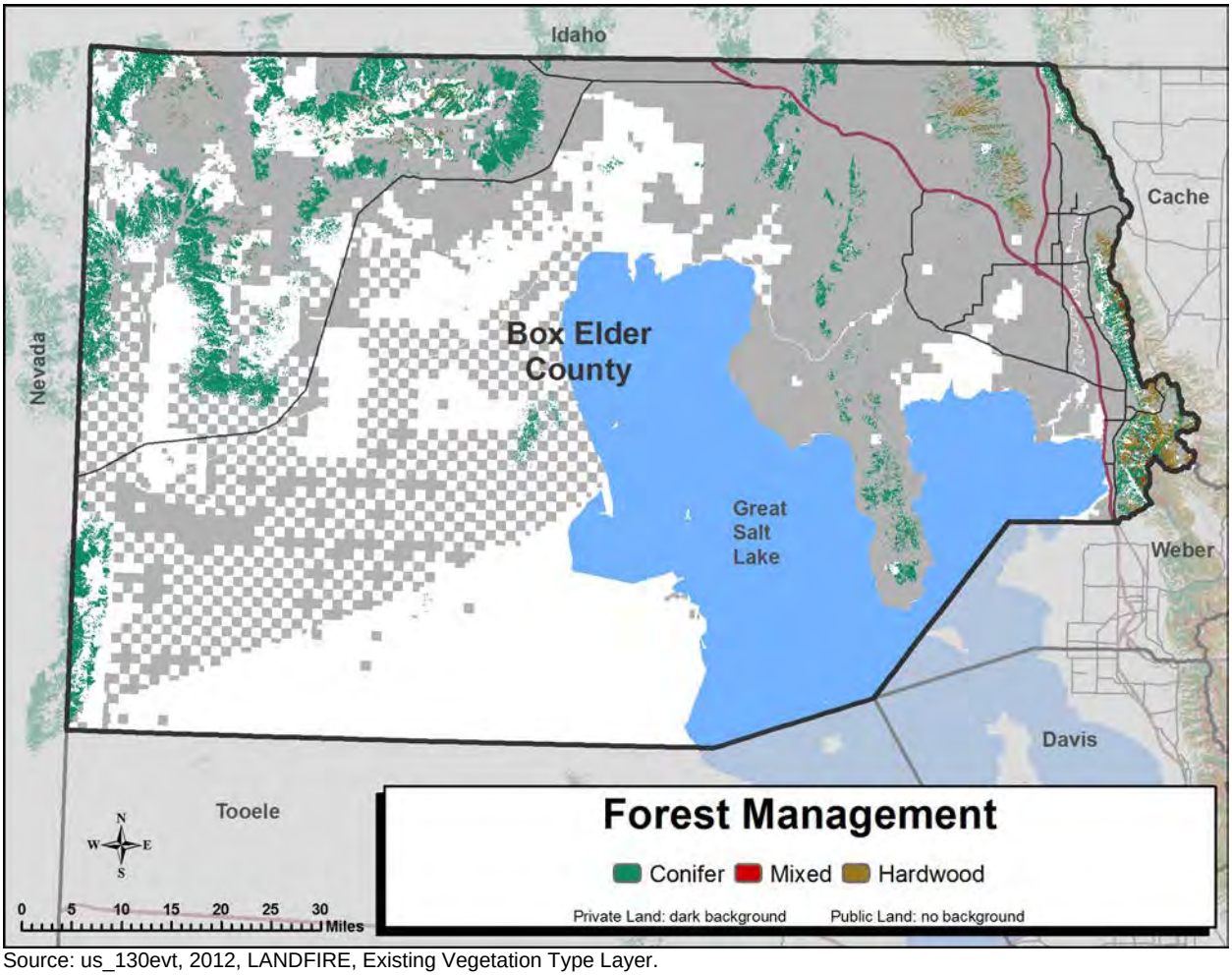
[5] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed April 2017).

10. FOREST MANAGEMENT

Forest management consists of the principles and actions for the regeneration, use, and conservation of forests. Forests, woodlands, and urban forests add to the quality of life.

Related resources:

- Fire Management
- Noxious Weeds



Source: us_130evt, 2012, LANDFIRE, Existing Vegetation Type Layer.

10.1 Management Setting

Context

The Forest Service manages two large areas in Box Elder County, the Wellsville Mountains east of Brigham City, which are part of the Uinta-Wasatch-Cache National Forest, and the River Raft Mountains in western Box Elder County which area a part of the Sawtooth National Forest.

Good forest management benefits recreation, aesthetics, water quality, forest products, and wildlife habitat. Changing temperature and precipitation levels in the West will alter the forest and its vegetative composition.

Findings

Box Elder County is home to more than 916,000 acres of forests and shrublands, not including those found on private lands. Table 10.1 shows forested types by landowner.

Table 10.1. Acres of vegetation types in Box Elder County by landowner.

FORESTED VEGETATION TYPE	US FOREST SERVICE (ACRES)	US BUREAU OF LAND MGMT (ACRES)	US DEPT OF DEFENSE (ACRES)	STATE OF UTAH (ACRES)
Conifer	36,599	75,597	4	15,486
Conifer-Hardwood	1,566	6	-	169
Hardwood	8,129	723	-	1,496
Shrubland	48,068	573,242	48,160	107,236
Totals	94,362	649,568	48,164	124,387

Source: US Geological Survey, Landfire Existing Vegetation Type, 2012.

Legal Context

Management of forest vegetation on US Forest Service and US Bureau of Land Management lands follows standard land use planning procedures defined in National Forest Management Act (16 USC §1600 et seq. [1976]), National Environmental Policy Act (42 USC §4321 et seq. [1969]), and Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]). Refer to Section 12, Land Use, for more information regarding land use decision-making procedures.

10.2 Desired Future State

Box Elder County desires to continue to maintain and improve forest health for the benefit of water quality, livestock grazing, wildlife habitat, recreation, and the forest's resilience to change while providing for multiple uses.

10.3 Management Objectives and Associated Policies and Guidelines

10.3.1 Management Objective

Promote forest health.

Policies and Guidelines

Coordinate with land managing agencies to maintain and promote forest health and the associated impacts on watershed health.

10.3.2 Management Objective

Manage pinyon-juniper encroachment of grasslands in western Box Elder County.

Policies and Guidelines

- Continue ongoing public and private pinyon-juniper treatments.[1]

- As part of pinyon-juniper management, allow public cutting of cordwood and Christmas trees.

10.4 References

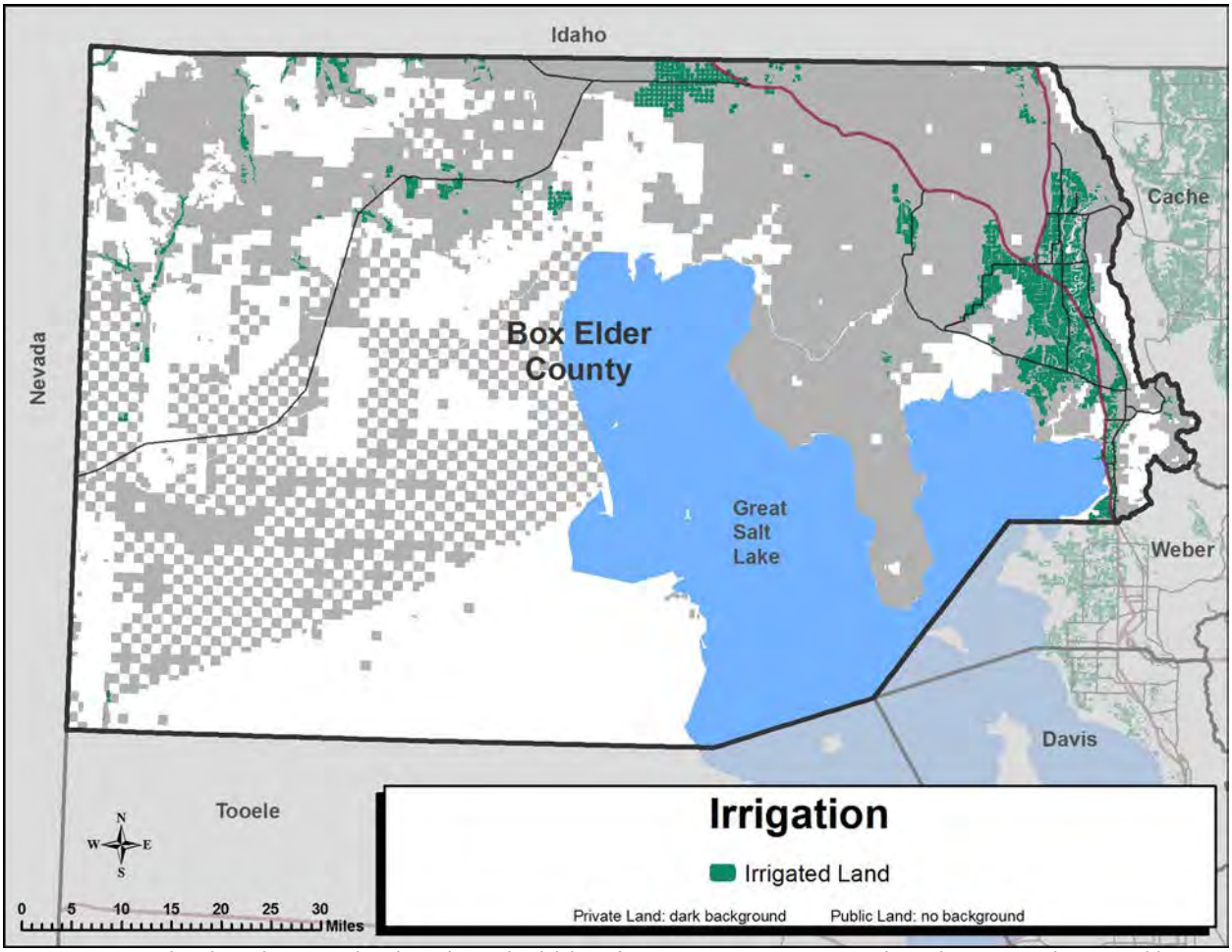
[1] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

11. IRRIGATION

Irrigation is the practice of supplemental application of water to land beyond that directly received from precipitation. Irrigation expands agricultural output of cropland and sustains additional vegetation growth throughout the landscape. Irrigation, as a resource, is not mentioned in public land plans for Box Elder County.

Related resources:

- Agriculture
- Ditches and Canals
- Water Rights



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources, Access via Utah Automated Geographic Reference Center.

11.1 Management Setting

Context

Box Elder County's public lands serve as the watershed supplying irrigation systems in the county. Irrigation water is delivered to irrigation users through a system of dams, diversions, canals, and pipelines. Irrigation provides benefit to wildlife, groundwater recharge, and wetland and riparian areas.

Findings
Based on analysis of the Water Related Land Use spatial data published by the Division of Water Resources, Box Elder County has 126,394 acres of irrigated lands.[1] The vast majority is located on private lands.

Legal Context
Within each watershed, various entities or individuals have legal claims (i.e., water rights) to use the water for "beneficial use" and are permitted to divert waters from streams into reservoirs, canals, and pipelines. The distribution of water is governed by state law and is based largely on geographic proximity, available supply, and ownership of the water rights.

Applicable laws include those found in Utah Code §73 (Water and Irrigation).

11.2 Desired Future State
Box Elder County desires to protect its watersheds and water quality for the benefit of irrigation and other users downstream from public lands.

11.3 Management Objectives and Associated Policies and Guidelines

11.3.1 Management Objective
Support water quality and land management best practices for the benefit of water quality and water supply.

Policies and Guidelines
Coordinate with land managing agencies to promote best practices for water quality and water supply.

11.3.2 Management Objective
Protect natural areas while also utilizing water for agriculture.

Policies and Guidelines
Seek policies and coordination that strike a balance between protecting natural areas while also utilizing water for agriculture.

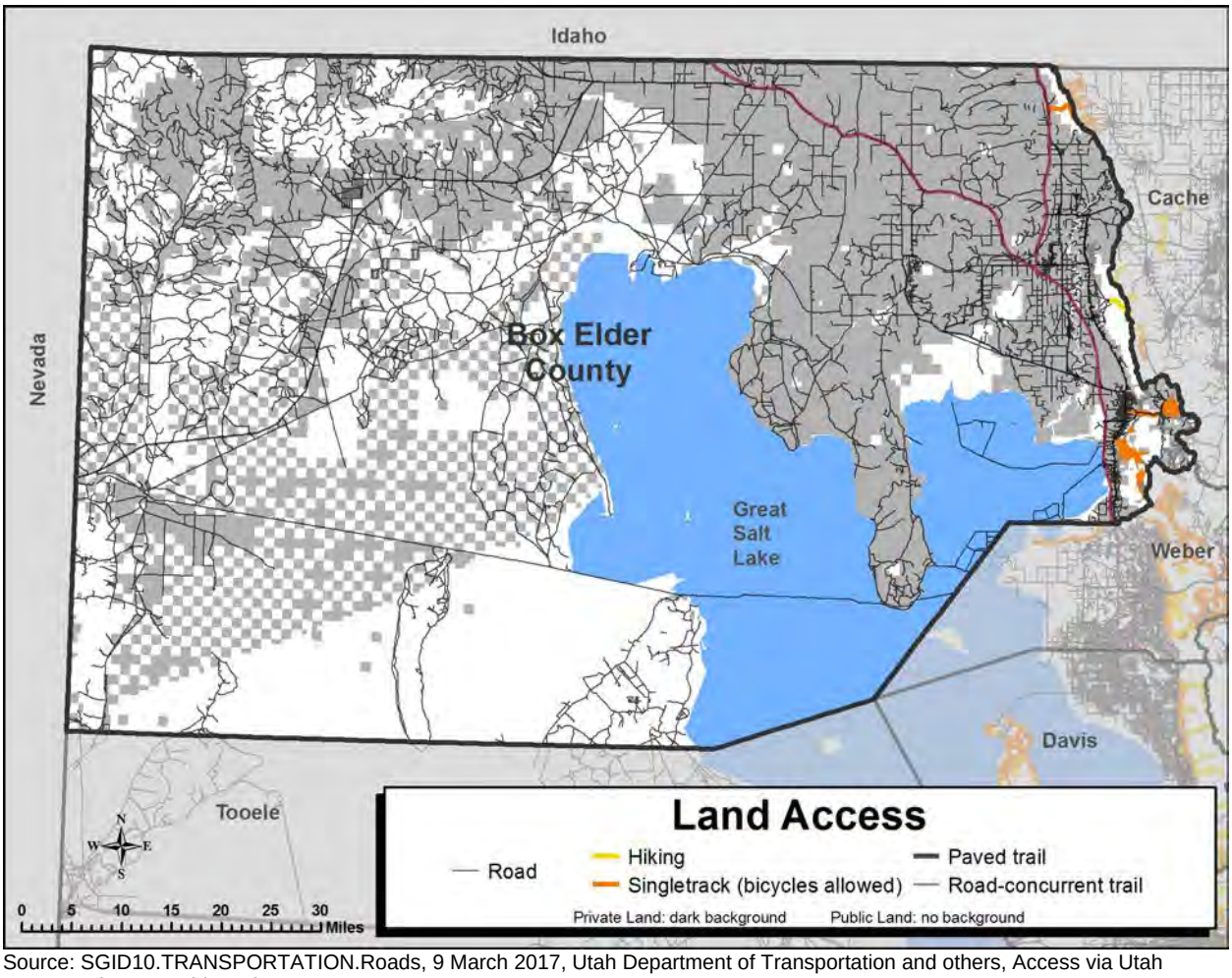
11.4 References
[1] Utah Division of Water Resources. 2016. Water Related Land Use, spatial data. Downloaded April 2017.

12. LAND ACCESS

Land access refers to the ability to physically and legally access a given parcel of land. This typically has to do with roads, rights-of-way (ROWs) and property inholdings. Land access also concerns administrative restrictions on the methods or timing of land access, such as motorized vs. non-motorized access, and access that may be restricted at certain times. Finally, access can also refer to crossing or visiting lands via trails or other non-motorized methods. Common land access issues include private land surrounded by federal lands, private lands within designated wilderness areas, Utah State and Institutional Trust Lands (SITLA) lands within federal lands, and public lands accessed by crossing private property.

Related resources:

- Land Use
- Wilderness



Source: SGID10.TRANSPORTATION.Roads, 9 March 2017, Utah Department of Transportation and others, Access via Utah Automated Geographic Reference Center.

12.1 Management Setting

Context

Land ownership in Box Elder County is complex and varied, and at times it is hard to distinguish public and private property lines. Trespassing, whether deliberate or accidental, causes conflict between the public and private property owners. Box Elder County residents and visitors benefit from clear and consistent public land access policies. The county has historically had access to many public lands using roads and trails. The county has an interest in protecting public access to public lands through private property. The county has pending litigation with the federal government related to land access Revised Statute 2477 (RS2477) on federal lands.

Findings

Box Elder County has a responsibility to facilitate land access regardless of land ownership. This is accomplished by acquiring and maintaining ROWs or easements across properties that are not public. The county can acquire and enforce access to its public lands by properly participating in planning processes that involve federal agencies, state agencies, and other stakeholders. Litigation is sometimes a part of land-access issues.

Legal Context

Gaining or maintaining access to lands is typically accomplished through ROWs or easements across another landowner's property. The process is different for each type of landowner, and each may have specific administrative procedures, management objectives, and historical context.

Applicable Laws

US Forest Service (Forest Service). Rights-of-way on Forest Service lands are managed through planning documents and procedures established by the National Forest Management Act (16 USC §1600 et seq. [1976]) and the National Environmental Policy Act (42 USC §4321 et seq. [1969]) processes.

US Bureau of Land Management (BLM). The BLM manages ROWs through Resource Management Plans developed through procedures established by the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) and the National Environmental Policy Act (42 USC §4321 et seq. [1969]) processes.

R.S. 2477. Prior to the Federal Land Policy and Management Act, ROWs on BLM and Forest Service lands were enabled by Revised Statute 2477 (Section 8 of the Mining Act of 1866) and are generally considered to be available for accessing property within and across public lands.[1]

Private Property. Just as access to private inholdings among federal lands is important, so too is providing access to public lands through private property. Box Elder County has an obligation to ensure the ROWs with historic access across private lands remain open. Additionally, as urban development continues, Box Elder County should facilitate new public access to public lands by purchasing easements across private property.

Box Elder County can establish new ROWs through private lands in three ways. First, for developing lands, the county can identify ROWs in the transportation component of the General Plan. With ROWs identified, the county can work with developers to construct and maintain ROWs as the land develops over time. Second, the county can guide willing landowners to negotiate mutually beneficial solutions to purchase public ROWs or easements across private property. Finally, in cases where landowners do not want a public ROW or easement across their property, counties can use the doctrine of eminent domain.

State law enables the right of eminent domain to condemn private property for roadways for public vehicles but not for recreational uses (Utah Code §78B-6-501-3e).

12.2 Desired Future State

Box Elder County desires to maintain and improve access to public lands, SITLA, and State Sovereign land across public lands where appropriate and provide for a variety of transportation and recreation modes, including motorized, mechanical, and non-motorized to support multiple uses.

12.3 Management Objectives and Associated Policies and Guidelines

12.3.1 Management Objective

Maintain and improve access to public lands and where appropriate provide for a variety of transportation and recreation modes.

Policies and Guidelines

- All roads and trails in the county that historically have been open to motorized use should remain open.[2]

- To minimize resource damage, land access should be restricted to existing and designated routes only.[2]

- Keep roads open, reasonably maintained, and in good repair. New roads may need to facilitate reasonable access to resource opportunities, including livestock operations, energy resources, minerals, recreational opportunities, search and rescue, access for people with disabilities, and to access SITLA properties.[3]

- Promote management of access to Utah's public, trust, and sovereign lands to protect and enhance Utah's wildlife and other natural resources, consistent with prudent use of those resources. Coordinate the public, trust, and sovereign land access management plans with private owners plans, and promote the effective use and access to and through public, trust, and sovereign lands.[3]

- Use PILT funds for county sheriff enforcement of travel restrictions on public lands to prevent travel off designated routes. Funding should also be used to replace and maintain route signage.

12.4 References

[1] Utah's Public Lands Policy Coordinating Office. ND. R.S. 2477 Roads. Website http://publiclands.utah.gov/rs-2477-roads/ (accessed March 29, 2017).

[2] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

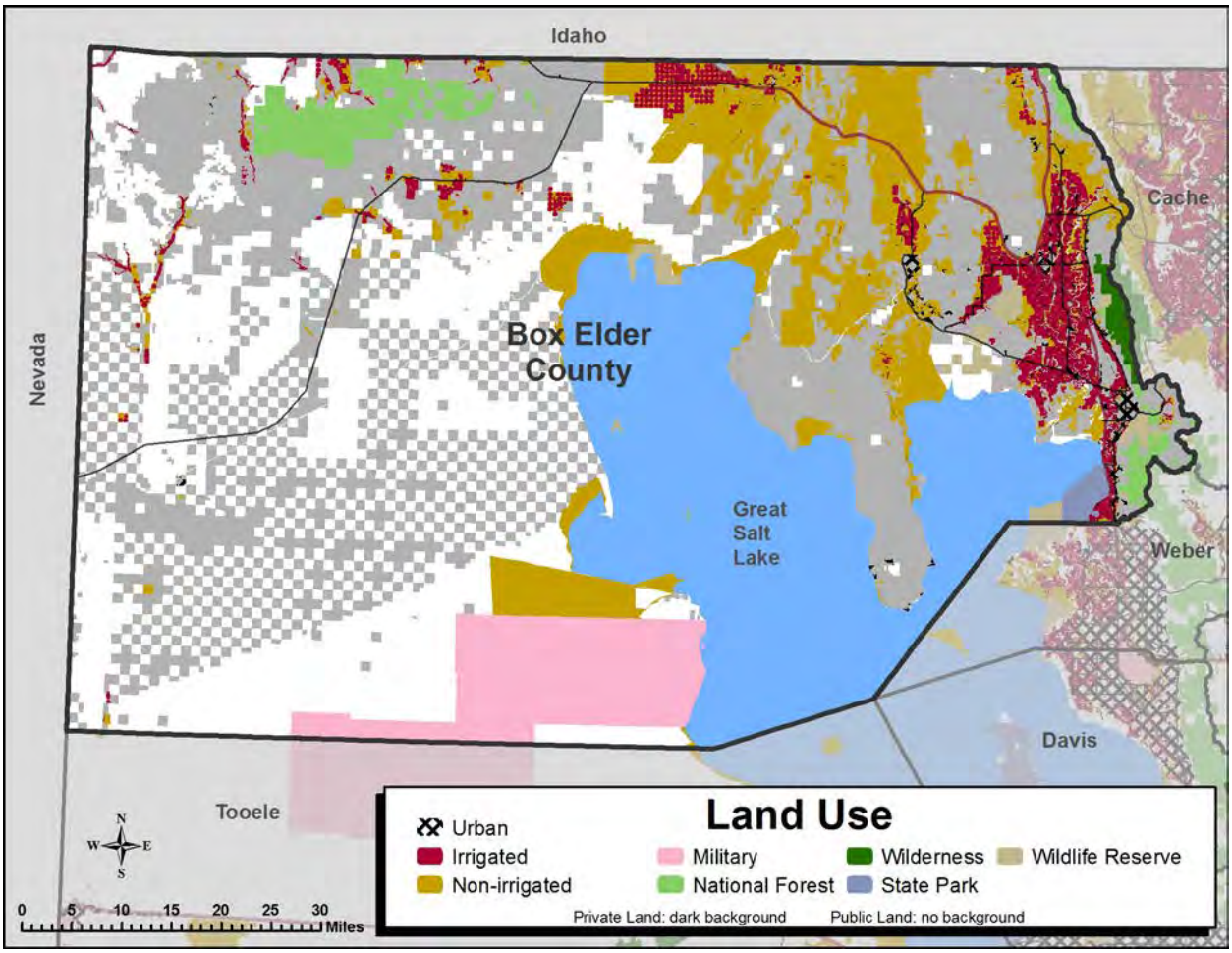
[3] Box Elder County. 1998. Box Elder County General Plan, Public Land Access, pp. 154

13. LAND USE

Land use refers to allowable uses for land and resources given many competing demands. Land use decisions are made by public land managers to establish priorities for various resources among the many competing desires and potential uses for those resources. The best land use decisions are made through planning procedures that consider a range of options and provide opportunities for input from a diverse range of affected stakeholders. Land use decisions are made by federal, state, tribal, and local governments, which have jurisdiction over the lands following planning procedures outlined in federal and state statutes, though this is not the case for some federal and state properties, which are managed for specific purposes, such as for lands owned by the US Department of Defense (DOD), US Fish and Wildlife Service (USFWS), or managed by the Utah School and Institutional Trust Lands (SITLA).

Related resources:

- Mining
- Land Access
- Livestock and Grazing
- Wetlands
- Wilderness



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources. Land Ownership, Updated as needed, Utah School and Institutional Trust Lands. Access via Utah Automated Geographic Reference Center.

13.1 Management Setting

Context

Public lands in Box Elder County serve as critical drinking water sources, important wildlife habitat, pasture for livestock, and highly utilized recreational areas to name a few. Several County-based industries including agriculture, grazing, mining, tourism and recreation depend on public lands and the accompanying resources for continued economic growth and stability. Decisions made regarding the prioritization of land uses are made by those with administrative responsibility to manage the lands. Land use designations on public lands range from low-impact (such as hiking) to high-impact (such as mineral extraction and other industrial uses). In west Box Elder County, the predominant human land use is livestock grazing.

Box Elder County asserts planning authority over all lands and natural resources within its geographical boundaries even though the federal government and the State of Utah own a substantial portion of those lands and resources.

Findings

In terms of area, Box Elder County is the fourth largest county in Utah at 4,306,694 acres. Ownership of these lands is a complex pattern comprised of Federal, State, and private lands. A complete breakdown of land ownership is provided in Table 13.1.

Table 13.1. Land ownership and acreage within Box Elder County.

OWNERSHIP CATEGORY	LAND OWNERSHIP TYPE OR ENTITY	ACRES	PERCENTAGE	
Federal	US Bureau of Land Management	1,078,177	25.0	34
Federal	US Department of Defense	203,799	4.7	
Federal	US Forest Service	103,850	2.4	
Federal	US Fish and Wildlife Service	74,092	1.7	
Federal	US National Parks Service	2,215	0.1	
State	Utah Forestry, Fire, and State Lands	727,821	16.9	22
State	Utah State and Institutional Trust Lands	177,312	4.1	
State	Utah Division of Wildlife Resources	31,035	0.7	
State	Utah State Parks	12,147	0.3	
Private	Private	1,896,059	44.0	44
Private	Native American Tribal	187	> 0.1	
Totals		4,306,694	100.0	100

Source: Spatial analysis of the SITLA Land Ownership GIS Layer

Legal Context

Private Property

Private lands are regulated by land use ordinances and zoning districts approved by local and county governments. Zoning districts, and the regulations established within the zoning districts, are authorized by Utah Code §17-27a-505 and municipalities §10-9a-505. Land use ordinance and zoning maps are legislative decisions and established through planning processes open to public discussion and voted on by county and city councils.

In 2015 and 2016 the Utah State Legislature amended county general plan requirements to include a RMP component, for which this document was written. Utah Code §17-27a-401 compels counties to assess 28 natural resource categories occurring on public lands within their boundaries and set goals and objectives for each resource. Resource management plans provide federal land managers with local land use plans which they may consider in the planning processes of public lands.

US Forest Service (Forest Service)

The Forest Service manages land use decisions by developing land and RMPs, also known as Forest Plans, under the National Forest Management Act (16 USC §1600 et seq. [1976]), also known as NFMA. Subsection 1604(a) requires the Forest Service to "coordinate with the land and resource management planning processes of State and local governments and other Federal agencies" during development and revision of Forest Plans. Forest Plans also require consideration of alternatives and public input under National Environmental Policy Act (42 USC §4321 et seq. [1969]), also known as NEPA. This provides an open planning process to assist land managers in understanding stakeholders' desires for various land uses and identify potential impacts of those uses.

Current applicable Forest Service planning documents include the 2003 Revised Forest Plan and Final Environmental Impact Statement for the Wasatch-Cache National Forest and the 2003 Revised Sawtooth National Forest Land and Resource Management Plan.[1,2]

US Bureau of Land Management (BLM)

The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]), also known as FLPMA, mandates the US Bureau of Land Management (BLM) to manage lands under multiple-use philosophy. A component of FLPMA is the requirement for an open and public land use planning process, also known as resource management planning, to determine the optimal use of public lands for recreation, conservation, and commercial activities. The BLM is also subject to planning procedures specified in NEPA (42 USC §4321 et seq. [1969]).

Current applicable BLM planning documents include the Pony Express Resource Management Plan (1990) and the Box Elder Resource Management Plan (1986). [3,4]

State Sovereign Lands

The Utah Department of Natural Resources manages state sovereign lands of the Great Salt Lake through the Utah Division of Forestry, Fire, and State Lands (FFSL). Under the Public Trust Doctrine, the State of Utah has fee title ownership of the bed of the Great Salt Lake (lands below the meander line) as sovereign land.[5] The state's management jurisdiction is assigned to the Department of Natural Resources FFSL (Utah Administrative Code R652-70-100). The previously cited comprehensive management plan for the Great Salt Lake provides management direction to achieve reasonable and beneficial uses of the lake's resources under multiple-use, sustained-yield principles (Utah Code §65A-2-1). The supplemental Mineral Leasing Plan provides specific guidance related to existing and potential future mineral leasing activities on the lake. The waters and wetlands of the Great Salt Lake are jurisdictional under the federal

Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) (also see Section 27, Wetlands).

Current applicable FFSL planning documents include the 2013 Final Great Salt Lake Comprehensive Management Plan and Record of Decision [6] and the 2013 Final Great Salt Lake Mineral Leasing Plan and Record of Decision.[7]

Other Applicable Land Use Laws

- Wilderness Act: 16 USC §1131 (1964)
- Wild and Scenic Rivers Act: 16 USC §1271 et seq. (1968)
- Utah Wilderness Act: Public Law 98-428 (1984)
- Utah Code: §63J-8-103 (State participation in managing public lands)
- Utah Code: §63J-8-104 (State land use planning and management program)

13.2 Desired Future State

Box Elder County desires to protect rural, agricultural, grazing, mineral, wildlife, and industrial land uses on both private and public lands. The county desires to take an active role in public land management, planning and decision-making processes of public lands in the county. The county supports multiple-use and sustained yield management of public lands and encourages a responsible balance between consumptive and nonconsumptive use.

Box Elder County desires that federal land management agencies (specifically, the Forest Service and BLM), cooperate, to the fullest extent, possible with county goals and objectives for resource management as spelled out in the NEPA, FLPMA, and NFMA. It is the county's position that local concerns and interests should be acknowledged and addressed by public land management agencies prior to decisions being made and implemented. Land use designations and land management must also be sensitive to the site-specific natural resource and landscape context to minimize impacts.

13.3 Management Objectives and Associated Policies and Guidelines

13.3.1 Management Objective

Maintain active and open communication among various federal, state, tribal, and local land use authorities to improve coordination of land use decision and activities.[8]

Policies and Guidelines

- Participate in federal and state resource planning activities during the scoping/issue identification and draft plan review/comment period.

- Notify interested county residents of current or proposed activities and solicit their input when formulating county comments/responses.

- Prevent additional restrictive land use designations such as Wilderness or Wild and Scenic Rivers.

- County will actively participate in wildlife management decisions and issues.

- County will actively participate in rangeland management activities.

13.3.2 Management Objective
Support the policy of multiple-use and sustained yield land management practices. Strike a responsible balance between resource development with resource protection and environmental stewardship.[8]

Policies and Guidelines
- When resource conflicts arise under multiple use land management, managers should prioritize traditional and historic land uses.

- Encourage resource development on public lands and encourages a responsible balance between consumptive and nonconsumptive use.

13.3.3 Management Objective
Consolidate public lands within the county; federal acquisition of private lands is contrary to policies and plans of the county.

Policies and Guidelines
- Proactively participate in federal and state resource planning activities during the scoping/issue identification and draft plan review/comment period.

- Valuation of land trades should include both value and acreage to avoid large amounts of low-value lands being traded for a small amount of high-value lands.

- Gather and prepare valid data identifying impacts to the county if transfers are made (e.g., loss of tax base).

- Review federal and state private land acquisition and/or public lands disposal proposals in respect to county interests. This includes considering affected grazing permittees and related interests.

- Identify and prioritize public lands or resources for future exchange or disposal.

13.3.4 Management Objective
Support open space preservation to maintain the rural atmosphere on the county.

Policies and Guidelines
The county identifies these areas as open space priorities: river and stream corridors, critical wildlife habitat corridors, historic and cultural areas, prime agricultural areas, prominent hillsides and ridgelines, wetlands, and watershed areas.[8]

13.3.5 Management Objective
A portion of the royalty collected by the state should be returned to the county to cover industry-related impacts.[8]

Policies and Guidelines
Increase the percentage of brine shrimp royalty collected by the state and returned to Box Elder County.

13.3.6 Management Objective
Many tourist destinations, recreational facilities, and resources are found on public lands, and visitors to these areas directly impact the county by utilizing county-provided infrastructure, law enforcement, emergency-medical, and waste-disposal services.

Policies and Guidelines

When evaluating potential recreational objectives and alternatives, the county will consider the following issues: the county's ability to provide essential services (law enforcement, emergency services, water and waste management, search and rescue); impacts on traditional resource uses; facility development and maintenance partnerships with agencies, concessionaires, and special interest groups; and anticipated economic returns and allocation of revenues received.[8]

13.4 References

[1] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

[2] US Forest Service. 2003. Sawtooth National Forest Land and Resource Management Plan, Amended 2012. https://www.fs.usda.gov/detail/sawtooth/landmanagement/planning/?cid=stelprdb5391896 (accessed April 14, 2017).

[3] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

[4] US Bureau of Land Management, Salt Lake District. 1986. Box Elder Resource Management Plan.

[5] Slade, D. C. 1990. Putting the Public Trust Doctrine to Work: The Application of the Public Trust Doctrine to the Management of Lands, Waters, and Living Resources of the Coastal States. Hartford, CT: Connecticut Dept. of Environmental Protection, Coastal Resources Management Division.

[6] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Comprehensive Management Plan and Record of Decision.

[7] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Great Salt Lake Mineral Leasing Plan and Record of Decision.

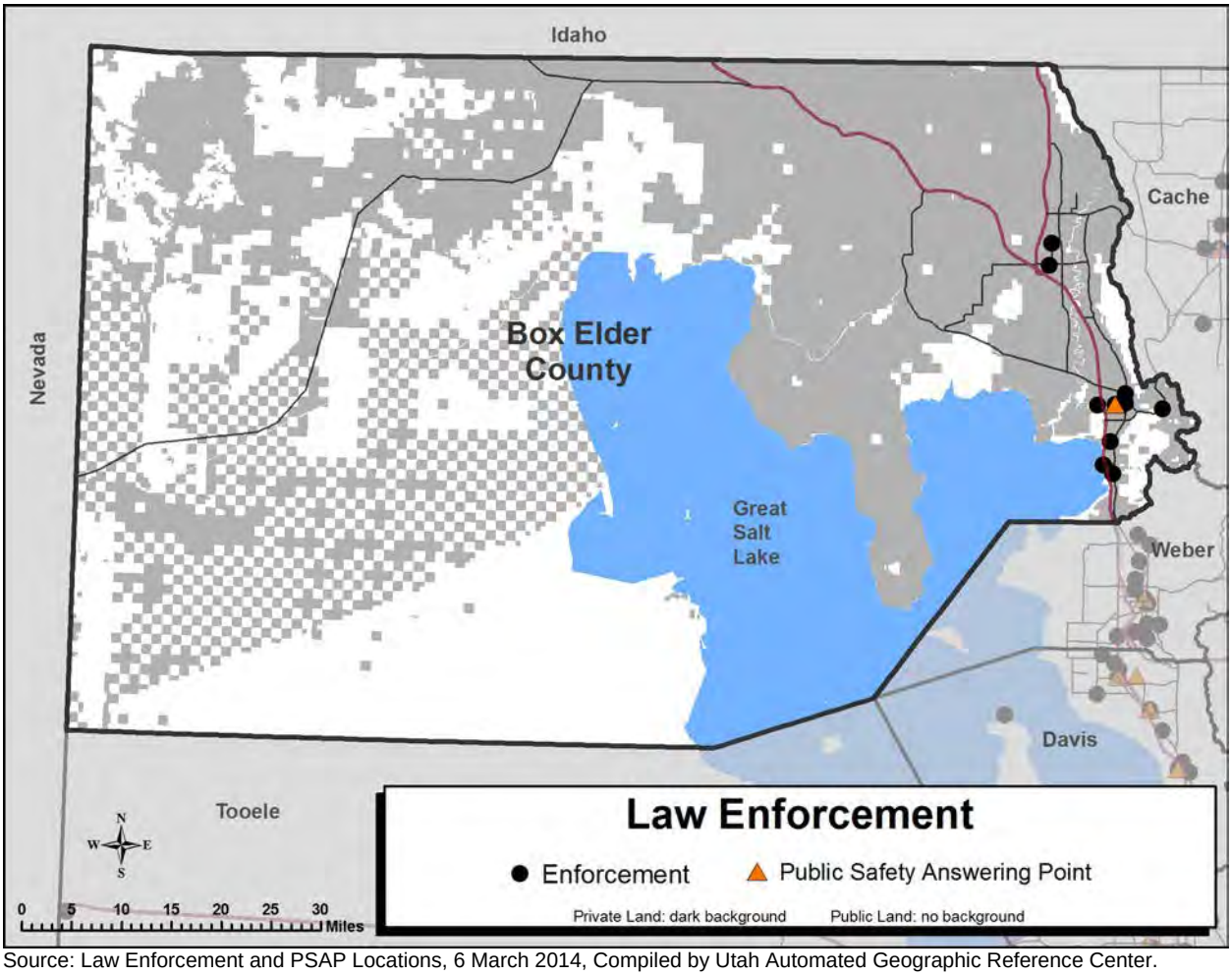
[8] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

14. LAW ENFORCEMENT

Law enforcement is concerned with the specific, and sometimes overlapping, jurisdictions of law enforcement, response personnel, and emergency management across a county. County planning has generally not addressed law enforcement goals or policies. In the context of resource management planning, appropriate goals might address public safety, property protection, and interagency coordination.

Related resources:

- Economic Considerations
- Fire Management



Source: Law Enforcement and PSAP Locations, 6 March 2014, Compiled by Utah Automated Geographic Reference Center.

14.1 Management Setting

Context

Key law enforcement issues related to natural resources management and public lands are coordination among jurisdictions of various law enforcement personnel and funding issues such as funding for search-and-rescue operations. Law enforcement plays a critical role in protecting natural resources from misuse and theft, managing Off Highway Vehicles (OHVs), and in search-and-rescue operations.

Findings
Coordination occurs among several jurisdictions with some form of law enforcement on public lands in Box Elder County. This includes the US Bureau of Land Management (BLM), US Forest Service (USFS), Utah Department of Wildlife Resources (DWR) Resource Conservation Officers, Utah Forestry Fire and State Lands (FFSL), Utah State Park Rangers, Utah Highway Patrol, County Sheriff, and local law enforcement.

Legal Context
Federal and state law enables shared law enforcement duties on public lands.

Applicable Laws
The Federal Land Policy Management Act (43 USC §1701 et seq. [1976]) and Utah Public Safety Code (Utah Code: §53-13-106 et seq.) allows county sheriffs to enter into agreements with federal agencies to share law enforcement duties such that all parties can enforce federal, state, and local laws.

14.2 Desired Future State
Box Elder County desires for law enforcement to continue to play a critical role in the rules and regulation enforcement and search and rescue operations on public lands. Box Elder County desires to continue and increase law enforcement partnerships across agencies.

14.3 Management Objectives and Associated Policies and Guidelines

14.3.1 Management Objective
Local law enforcement continues to play a critical role in enforcement of rules and regulations and search and rescue operations on public lands.

Policies and Guidelines
- Notify the county sheriff's office immediately when there is a life-threatening situation, criminal act, project structure failure, resource contamination, natural phenomenon (landslides and fire), cultural resource site(s) disturbance, and/or discovery of human remains.

- Designate areas where discharge of firearms, bow and arrow, or air and gas weapons is not appropriate.

- Increase law enforcement presence in key areas, improve effectiveness of public information on restrictions, and increase participation of individuals and organized groups in monitoring uses.[1]

- Ensure that appropriate fire management regulations and procedures are in place and enforced [in appropriate areas].

- Recognize the importance of search-and-rescue access.[2]

- Provide emergency communication and coordinate with local law enforcement.

14.3.2 Management Objective
Law enforcement plays a critical role in enforcement of travel management for (OHVs).

Policies and Guidelines

- Support coordination among the BLM, Forest Service, State Parks, FFSL to identify areas where OHV trespassing is a problem and develop methods to prohibit illegal access.

- Coordinate with industry groups and landowners on the authorized locations of OHV use on private land around the Great Salt Lake and western Box Elder County.

- Coordinate with intersecting agencies to develop educational material and enforcement strategies that would discourage OHV users from trespassing.

14.3.3 Management Objective

Encourage and support law enforcement partnerships across agencies and jurisdictions.

Policies and Guidelines

- Share/coordinate interagency law enforcement (civil, wildlife resources, and recreation public use regulations) between the county, DWR, State Parks, FFSL, BLM and Forest Service.

- Provide emergency communication and coordinate with local law enforcement.

- Assess ways to financially support search-and-rescue operations in the county.

- Support search-and-rescue coordination between the sheriff's department and other law enforcement agencies in facilitating rescues.

14.4 References

[1] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

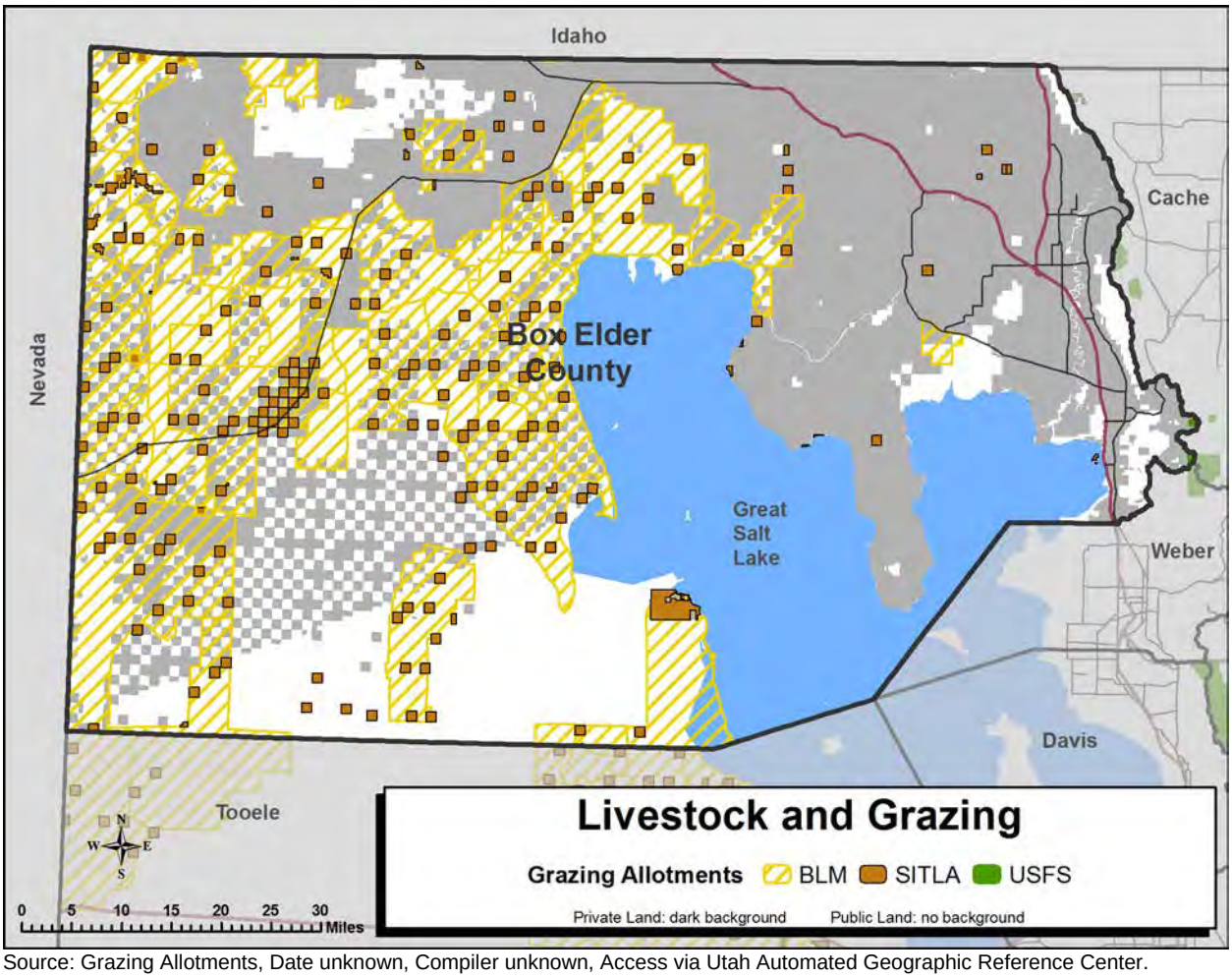
[2] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Comprehensive Management Plan and Record of Decision.

15. LIVESTOCK AND GRAZING

Livestock includes domestic animals, such as sheep, cattle, and horses that are raised for commercial and private use. Grazing refers to feeding livestock on growing grass, pasturage, or rangeland. Public and private lands in Utah are used for livestock grazing.

Related resources:

- Agriculture
- Irrigation
- Predator Control



Source: Grazing Allotments, Date unknown, Compiler unknown, Access via Utah Automated Geographic Reference Center.

15.1 Management Setting

Context

Livestock production is a significant component of the economy of Box Elder County and is an important component of the culture and lifestyle of its residents. Livestock grazing occurs on both public and private lands across the county, with public lands providing a critical portion of grazing lands.

Findings

Grazing allotments cover a large portion of US Bureau of Land Management (BLM), US Forest Service (USFS), and Utah School and Institutional Trust Lands (SITLA) lands in Box Elder County. Table 15.1 provides an overview of acreage by land manager.

Table 15.1. Grazing allotments and acreage by land manager.

MANAGING AGENCY	NUMBER OF ALLOTMENTS	ACRES
US Bureau of Land Management	72	1,322,478
US Forest Service	3	529
Utah School and Institutional Trust Lands Administration	227	134,299

Legal Context

The BLM manages grazing in Box Elder County based on guidance specified in the Resource Management Plans which are developed under the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) and National Environmental Policy Act (42 USC §4321 et seq. [1969]), also known as NEPA.

The Forest Service manages grazing in Box Elder County based on guidance specified in the Forest Plans following procedures established under the National Forest Management Act (16 USC §1600 et seq. [1976]) and NEPA (42 USC §4321 et seq. [1969]).

15.2 Desired Future State

Box Elder County desires that public lands continue to provide livestock grazing. The county desires grazing to be used as a tool to improve resource and watershed health, forage productivity, wildlife habitat, and recreational opportunities while reducing invasive weed species and the risk of wildfire.

15.3 Management Objectives and Associated Policies and Guidelines

15.3.1 Management Objective

Continue access to grazing lands, grazing permits, and support maximum sustainable animal unit months.

Policies and Guidelines

- Support the policy of multiple-use and sustained yield land management practices. Responsible grazing is compatible with other land uses on public lands.

- Maintain active county and citizen participation in federal and state public land and resource planning processes.[1] The county will actively participate in rangeland management activities.

- Maintain working partnerships with public land/resource management agencies, including BLM, Forest Service, and SITLA.

15.3.2 Management Objective

Encourage range vegetation management to support maximum sustainable forage growth.[2]

Policies and Guidelines

- Establish a winter forage assessment by utilizing the county Resource Management Committee to investigate cost-effective methods to assess forage conditions and impediments to improving forage production (e.g., water availability, noxious weed infestations, sub-optimal vegetation, past grazing practices) on an area-wide basis on both private and public winter grazing lands. Contractor support, using the funding sources noted above, may be the most effective way to produce this assessment.

- Implement forage improvements. Based on the results of the forage assessment, seek funding for recommended improvements. Start with projects on private land to avoid extended timeframes associated with NEPA review and other agency procedures.[2]

- Encourage grazing of invasive plants, such as early season grazing of cheatgrass or other annual non-native invasive plants.[2]

- Increase management flexibility on public lands with regards to grazing. Work with the BLM, USFS, and individual grazing permittees to implement changes in permit terms and conditions necessary to allow efficient use and maintenance of new winter forage resources.[2]

- To provide data required for more flexible management, solicit agencies' help to train willing and committed livestock producers in monitoring range conditions on private and public lands to develop experience with permittee-assisted monitoring.[2]

15.4 References

[1] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

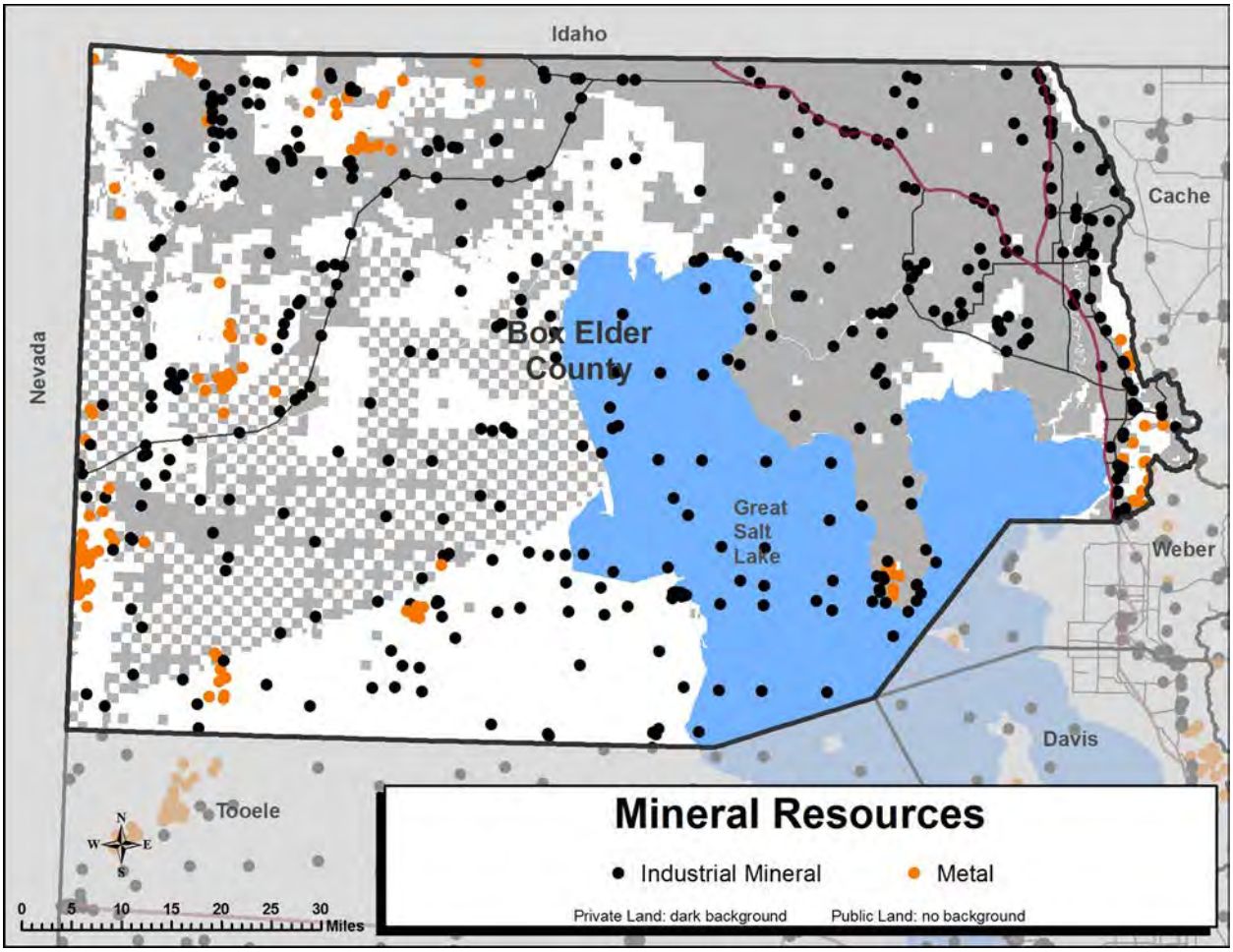
[2] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

16. MINERAL RESOURCES

Mineral resources are known for potential geologic deposits of materials that are useful in industrial processes. Mineral development (mining) is regulated and managed depending on the extracted resource, and are grouped into three categories: locatable, leasable, and salable.

Related resources:

- Mining
- Energy Resources



Source: XYUMOS_2016_Apr, 2016 Utah Mineral Occurrence System, Utah Geological Survey.

16.1 Management Setting

Context

Locatable minerals are high-value ores and elements such as gold, silver and copper. The extraction of locatable surface and subsurface mineral deposits on public lands is regulated by both the federal and state governments. Salable minerals include sand, gravel, and other aggregate, the extraction of which is regulated by Box Elder County. Information regarding the regulation and management of mineral development is available in this document under Section 17, Mining. Leasable minerals include oil, gas,

coal, and other extracted energy sources, description and discussion of which are found in this document in Section 6, Energy Resources.

Findings

Box Elder County has moderate mineral resources, most notable in the western part of the county, including unique building stone quarries and a variety of minerals that are extracted from Great Salt Lake brines.

Brine shrimp are found in the Great Salt Lake and the harvest of which is a multi-million dollar industry. A large portion of the fishing fleet used to harvest shrimp is based out of Promontory Point. Brine shrimp harvests are managed by the Utah Department of Wildlife Resources.

Legal Context

Applicable Laws

Federal and state laws regulating the development, extraction, and reclamation are presented in Section 17, Mining, and Section 6, Energy Resources. Land Use, Section 12, provides procedural information for land use planning and methods to establish goals and objectives for mineral resources on public lands.

16.2 Desired Future State

Box Elder County desires to achieve and maintain a continuing yield of valuable mineral resources from public lands at the highest level.

16.3 Management Objectives and Associated Policies and Guidelines

16.3.1 Management Objective

Support mineral exploration and permitting on public lands.

Policies and Guidelines

- Development of the county's resources is important to present and future residents. It is the county's position that these resources can be developed in responsible manner. Operation conditions should address potential conflicts with adjacent land uses and community values. Sites should be engineered and managed for environmental compatibility, aesthetics and reclamation.[1]

- Box Elder County recognizes that it is technically feasible to access mineral and energy resources while preserving or, as necessary, restoring non-mineral and non-energy resources.[2]

- Lands shown to have reasonable mineral potential should be open to oil and gas leasing with reasonable stipulations and conditions that will protect the lands against unreasonable and irreparable damage to other significant resource values. This should include reasonable and effective mitigation and reclamation measures, and bonding for such, where necessary.[2]

16.3.2 Management Objective

Achieve and maintain a continuing yield of mineral resources from public lands.

Policies and Guidelines

Coordinate with land management agencies to achieve and maintain a continuing yield of mineral

resources on public lands.

16.4 References

[1] Box Elder County. 1998. Box Elder County General Plan, Land Use Element, Mineral Extraction and Gravel Pits, Community Dev & Land Use p.4.

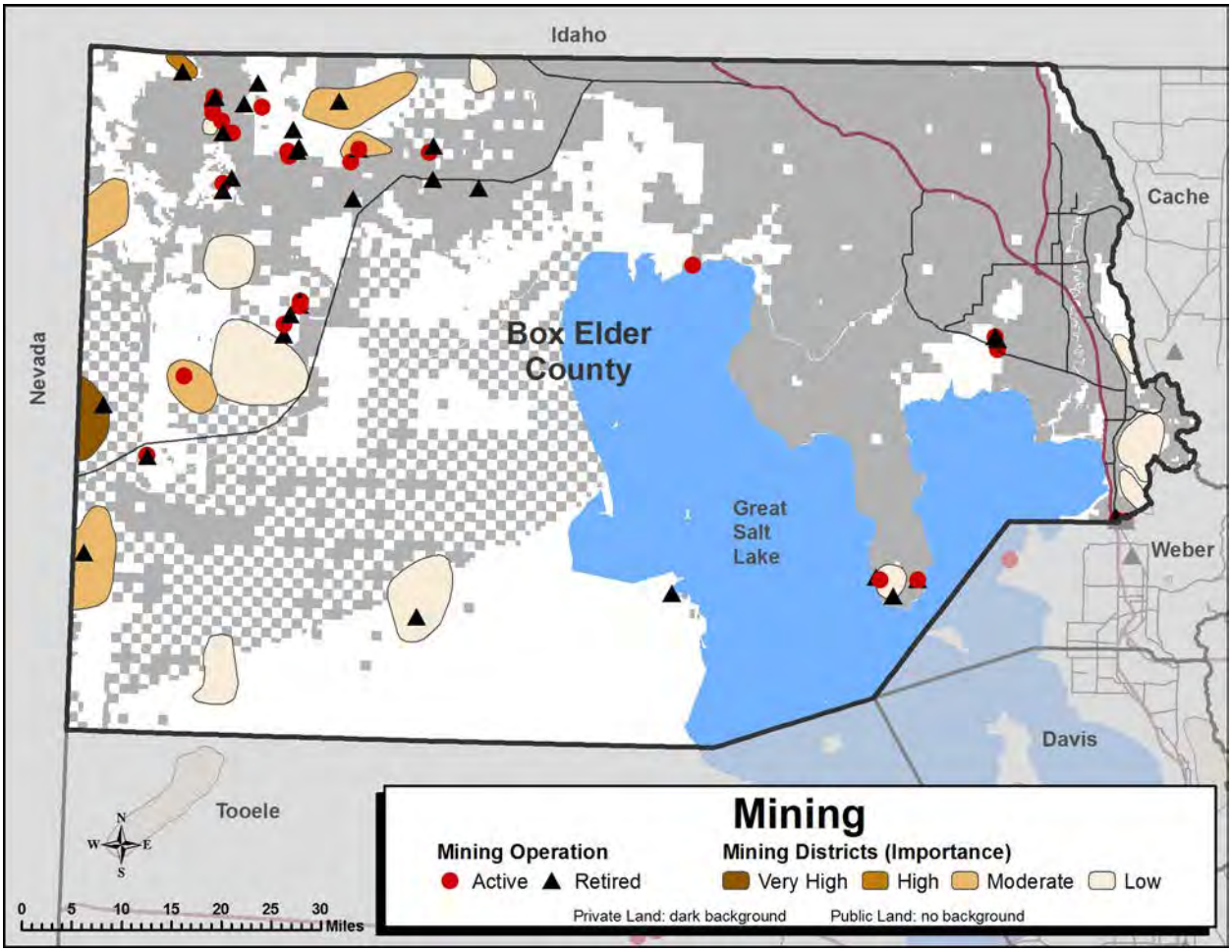
[2] Box Elder County. 1998. Box Elder County General Plan, Exhibit A, p. 6.

17. MINING

Mining refers to the process and industry of obtaining mineral and geothermal resources from a mine, well, or other extractive activity or operation, including brine shrimp. Mining operations are regulated and managed depending on the extracted resource, and are grouped into three categories: locatable, leasable, and saleable.

Related resources:

- Energy Resources
- Mineral Resources



Source: MineralsDBMarch2015_SMOnly, 2015, Utah Division of Oil, Gas, and Mining. Utah_Mining_Districts, Date unknown, Utah Geological Survey.

17.1 Management Setting

Context

Locatable minerals are high-value ores and elements such as gold, silver and copper. The extraction of locatable surface and subsurface mineral deposits on public lands is regulated by both the federal and state governments. The extraction of salable minerals, including sand, gravel, and other stone, are regulated under public land use planning procedures. Development of salable minerals of private lands are regulated by the county under zoning ordinance. Leasable minerals include oil, gas, coal, and other extracted energy sources, description and discussion of which are found in this document in Section 6, Energy Resources.

The State of Utah categorizes brine shrimp harvest as an extractive industry similar to mining. Utah collects royalties from harvesters based on the quantity of shrimp cysts collected. Revenues generated are used to fund the Species Protection Account which is used by the Utah Department of Wildlife Resources (DWR) on wildlife projects throughout the state.

Box Elder County is supportive of existing mining, which provides economic benefits to the county.

Findings

Table 17.1 shows active and retired mines within Box Elder County, and their land ownership situation.

Table 17.1. Active and retired mines in Box Elder County by land ownership type.

MINE TYPE	BOX ELDER COUNTY	FEDERAL	US FOREST SERVICE	US BUREAU OF LAND MANAGEMENT	STATE OF UTAH	PRIVATE
Active mineral	23	8	3	5	1	14
Retired mineral	35	14	3	11	2	19

Source: Utah Division of Oil, Gas, and Minerals; MineralsDBMarch2015_SMOnly

Legal Context

The General Mining Law of May 10, 1872, as amended (30 USC §§22-54 and §§611-615) is the major federal law governing locatable minerals on public lands. In addition to defining procedures for discovery and patenting of certain minerals on federal lands, the law allows states to enact legislation regulating mining and reclamation activities. Federal regulations implementing the General Mining Law are found at 43 USC in Groups 3700 and 3800. [1]

In Box Elder County, the Forest Service manages surface mining with guidance from its Forest Plan written under the National Forest Management Act (16 USC §1600 et seq. [1976]) and the National Environmental Policy Act (42 USC §4321 et seq. [1969]), also referred to as NEPA. The US Bureau of Land Management (BLM) manages surface minerals within its authority based on guidance from the Resource Management Plan written under the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]), also referred to as FLPMA. The BLM also manages subsurface mining on Forest Service lands that are open to new mining claims. Some Forest Service lands are closed to new subsurface mines, including wilderness areas or lands within a Wild and Scenic River designation or study area.

The State of Utah has primacy on regulation and reclamation of mining activities on all lands within the state, and the Utah Legislature is assigned responsibility for administration of mining to the Utah Department of Oil, Gas and Mining (DOGM) (Utah Code §40-6-4).

For regulation of mineral ore mining, the DOGM administers permitting, inspection, and enforcement procedures under the Utah Mined Land Reclamation Act (Utah Code §40-7-8). All large mining operations within the state are required to have an approved notice of intention with the Minerals Program prior to beginning operations. Mining operations are broken up into the three categories: (1) large mine, (2) small mine, and (3) exploration under the Minerals Rules. The DOGM maintains a permit database of active and reclaimed mine sites.

Brine shrimp, like all wildlife, are regulated by the state DWR (Utah Code §23-14 et seq.). Royalty collections are enabled by the Utah Code §59-23 (Brine Shrimp Royalty Act) and designated for the Species Protection Account (Utah Code §73-3-303).

17.2 Desired Future State

Box Elder County supports existing and future mining operations and desires to be consulted in approval of new operations. The county desires to maintain a cooperative relationship with existing mining operations while encouraging environmental stewardship during active mining and reclamation at the close of each operation. The county desires mining entities to have strong reclamation plans and oversight for mining activities, including road maintenance plans.

Box Elder County desires some portion of the royalties from brine shrimp harvest collected by the State be distributed to the county to cover industry-associated impacts.

17.3 Management Objectives and Associated Policies and Guidelines

17.3.1 Management Objective

Coordinate with land management agencies on proposed mining activities.

Policies and Guidelines

Local concerns and interests should be acknowledged and addressed by public land management agencies prior to decisions being made and plans implemented.[2]

17.3.2 Management Objective

Achieve and maintain a continuing yield of mineral resources on public lands at the highest levels.[3]

Policies and Guidelines

Coordinate with land management agencies to achieve and maintain a continuing yield of mineral resources on public lands at the highest levels.

17.3.3 Management Objective

Adjust state royalty payments from brine shrimp harvest to return a portion to Box Elder County to cover industry related impacts.

Policies and Guidelines

Work with county representatives to the state legislature to amend the Species Protection Account (Utah Code §73-3-303) to enable some portion of royalties be returned to Box Elder County to cover industry-related impacts.

17.4 References

[1] US Department of Interior, Bureau of Land Management. 2011. Mining Claims and Sites on Federal Lands. BLM National Science and Technology Center. P-048.

[2] Box Elder County. 1998. Box Elder County General Plan, Public Lands/Federal and State Agencies, Public Lands, Fed & State p.1.

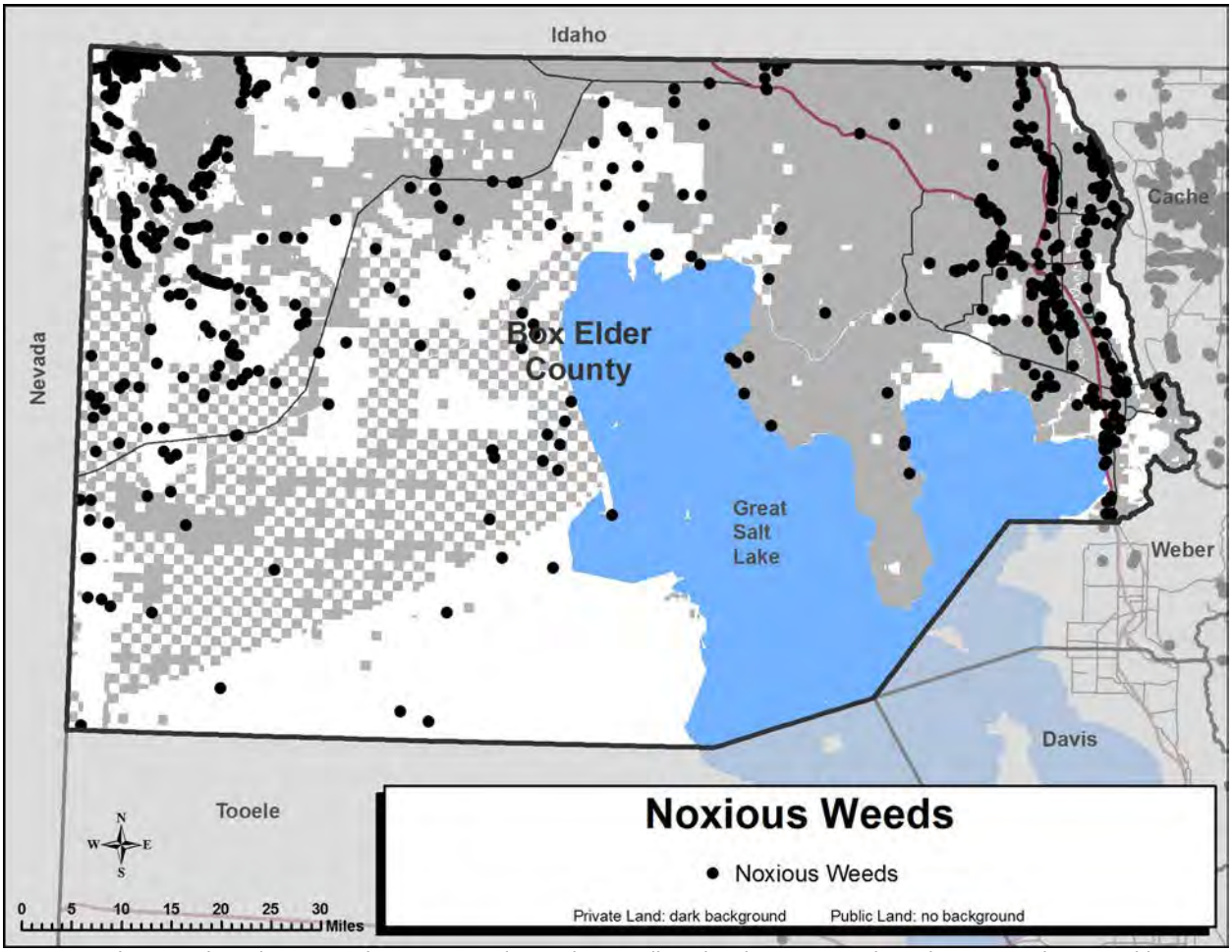
[3] Box Elder County. 1998. Box Elder County General Plan, County Goals, Objectives, and Action Steps, (Updated 2011). Resolution No. 11-03.

18. NOXIOUS WEEDS

Noxious and invasive weeds are plants considered harmful to livestock, agriculture, and wildlife, or that otherwise negatively impact the landscape by (e.g., increased wildfire threat, reduced biodiversity). They are typically (but not always) nonnative species that spread rapidly at the expense of native vegetation. Weeds have significant economic considerations through their impacts on rangeland health, increased wildfire, and direct control costs that include weed removal, crop and seed contamination, and equipment cleaning costs.

Related resources:

- Fire Management
- Air Quality



Source: NoxiousWeeds_Point, Date unknown, Several agencies contributed to data, Access via Utah Automated Geographic Reference Center.

18.1 Management Setting

Context

Noxious weeds have significant economic impacts on agriculture industries, reduce the diversity of the landscape, negatively impact forage for livestock and wildlife, increase wildfire susceptibility, and can diminish the visual quality of the landscape. County residents and visitors enjoy the natural vegetation found on the surrounding hillsides and mountains. This vegetation contributes to the area's aesthetics and offers excellent wildlife habitat. Natural vegetation also aids with stormwater control and helps to prevent erosion.

Control of noxious weeds is most successful when it is a collaborative effort of both public and private land owners and managers. Box Elder County has an existing weed control program which works to control weeds throughout the county. The county is also part of two Cooperative Weed Control Areas (CWMA), Weber River and Goose Creek, which are cooperatives of local, state, and federal agencies that pool resources in efforts to treat weeds across the county.

Findings

Weed infestations are common across Box Elder County, which is accompanied by serious implications for natural resource managers.

> Outside of their native origins, noxious weeds become oppressors with no known natural competitors to keep their populations in check. These silent invaders quickly begin to out-compete native plants, … forever changing our landscapes. Unlike other ornamental(s), … noxious weeds are nothing short of ecological time bombs.[1]

Local governments, public land managers, and private property owners are responsible for controlling weed species included the Utah's noxious weeds list and other local weed species of concern, when necessary. County weed control includes both lands under local management (roads, parks, etc.) as well as enforcing weed laws on private lands. State law provides county weed managers the right to treat weeds on private lands (assuming proper notice is provided) if the landowner is unwilling or unable to treat the problem themselves, and seek reimbursement or apply liens for the work.

Many species of exotic and invasive weeds exist in Utah. Some species, however, have more potential to be "injurious to public health, crops, livestock, land, or other property".[2] The Utah Noxious Weed Act of 2008 defined 28 noxious weed species including three prioritization categories. In December 2015 the official State Noxious Weed list was updated to include 54 species, and also modified prioritization categories.

Class 1A: Early Detection Rapid Response (EDRR) Watch List

This class includes declared noxious weeds and invasive weeds that are not native to the State of Utah and are not known to exist in the state but that pose a serious threat and should be considered a very high priority. The following species are on this list:

- Common crupina (*Crupina vulgaris*)
- Syrian bean caper (*Zygophyllum fabago*)
- African rue (*Peganum harmala*)
- Ventenata (North Africa grass) (*Ventenata dubia*)
- Small bugloss (*Anchusa arvensis*)
- Plumeless thistle (*Carduus acanthoides*)

- Mediterranean sage (*Salvia aethiopis*)
- Malta starthistle (*Centaurea melitensis*)
- Spring millet (*Milium vernale*)

Class 1B: Early Detection Rapid Response (EDRR) Watch List

This class includes declared noxious and invasive weeds that are not native to the State of Utah but are known to exist in the state in very limited population, and that pose a serious threat to the state and should be considered as a very high priority. The following species are on this list:

- Camelthorn (*Alhagi maurorum*)
- Japanese knotweed (*Polygonum cuspidatum*)
- Garlic mustard (*Alliaria petiolate*)
- Blueweed (Viper's bugloss) (*Echium vulgare*)
- Purple starthistle (*Centaurea calcitrapa*)
- Elongated mustard (*Brassica elongate*)
- Goatsrue (*Galega officinalis*)
- Common St. Johnswort (*Hypericum perforatum*)
- African mustard (*Brassica tournefortii*)
- Oxeye daisy (*Leucanthemum vulgare*)
- Giant reed (*Arundo donax*)
- Cutleaf viper grass (*Scorzonera laciniata*)

Class 2: Control

This class includes declared noxious and invasive weeds that are not native to the State of Utah and that pose a threat to the state, which should be considered a high priority for control. Weeds listed in the control list are known to exist in populations of varying size throughout the state. The concentration of these weeds is at a level where control or eradication may be possible. The following species are on this list:

- Leafy spurge (*Euphorbia esula*)
- Dyers woad (*Isatis tinctoria*)
- Medusahead (*Taeniatherum caput-medusae*)
- Yellow starthistle (*Centaurea solstitialis*)
- Rush skeletonweed (*Chondrilla juncea*)
- Yellow toadflax (*Linaria vulgaris*)
- Spotted knapweed (*Centaurea stoebe*)
- Diffuse knapweed (*Centaurea diffusa*)
- Purple loosestrife (*Lythrum salicaria*)
- Black henbane (*Hyoscyamus niger*)
- Squarrose knapweed (*Centaurea virgata*)
- Dalmatian toadflax (*Linaria dalmatica*)

Class 3: Containment

This class includes declared noxious and invasive weeds that are not native to the State of Utah but are widely spread. Weeds listed in the containment class are noxious weeds list that are known to exist in populations of varying size throughout the state. Weed control efforts may be directed at reducing or eliminating new or expanding weed populations. Known and established weed populations, as determined by the weed control authority, may be managed by any approved weed control methodology, as determined by the weed control authority. These weeds pose a threat to the agricultural industry and agricultural products. The following species are on this list:

- Russian knapweed (*Acroptilon repens*)
- Musk thistle (*Carduus nutans*)
- Houndstounge (*Cynoglossum officinal*)
- Quackgrass (*Elymus repens*)
- Perennial pepperweed (Tall whitetop) (*Lepidium latifolium*)
- Jointed goatgrass (*Aegilops cylindrical*)
- Phragmites (Common reed) (*Phragmites australis* ssp.)
- Bermudagrass* (*Cynodon dactylon*)
- Tamarisk(Saltcedar) (*Tamarix ramosissima*)
- Perennial Sorghum spp. (*Sorghum halepense* and *Sorghum almum*)
- Hoary cress (*Cardaria* spp.)
- Scotch thistle (Cotton thistle) (*Onopordum acanthium*)
- Canada thistle (*Cirsium arvense*)
- Field bindweed (Wild Morning-glory) (*Convolvulus* spp.)
- Poison hemlock (*Conium maculatum*)
- Puncturevine (Goathead) (*Tribulus terrestris*)

Class 4: Prohibited

This class includes declared noxious and invasive weeds that are not native to the State of Utah and that pose a threat to the state through the retail sale or propagation in the nursery and greenhouse industry. Prohibited noxious weeds are annual, biennial, or perennial plants that the commissioner designates as having the potential to be or are known to be detrimental to human or animal health, the environment, public roads, crops, or other property. The following species are on this list:

- Cogongrass (Japanese blood grass) (*Imperata cylindrical*)
- Scotch broom (*Cytisus scoparius*)
- Myrtle spurge (*Euphorbia myrsinites*)
- Russian olive (*Elaeagnus angustifolia*)
- Dames rocket (*Hesperis matronalis*)

Box Elder County Noxious Weeds

State law allows additional weed species to be added to county noxious weed list if locally problematic. Prior to the States 2015 update, Box Elder County declared the following weed to be noxious in the county and has since been added to the official Utah list of noxious weeds.

- Rush skeletonweed (*Chondrilla juncea*)

Legal Context

The Utah Noxious Weed Act (Utah Code §4-17 [2008, amended 2015]) requires counties to maintain a county Weed Control Board, which is responsible to prevent and control noxious weeds on lands under their control of jurisdiction. The State Weed Committee and the Utah Commissioner of Agriculture and Food together determine the specific weed species that are declared as noxious across Utah (R68-9). Counties may add weeds to this list if other species become locally problematic. Section 7 of the Utah Noxious Weed Act allows counties to compel private landowners to treat weeds on their property. This act does not address weeds on federal lands that are managed by federal land management agencies.

The Plant Protection Act (7 USC§2814 et seq. [2000]) requires federal land managers to control undesirable plants on lands they manage through appropriate funding, staffing, and cooperative agreements and coordination with state and local weed-control efforts. The Forest Service addressed weed management in its Forest Plan. They further clarified weed management in the 2006 Noxious Weed Treatment Program Environmental Impact Statement[3], in which the US Forest Service targets species from state and local noxious weed lists. Information on US Bureau of Land Management ’s nationwide strategy for weed management is available on their Invasive and Noxious Weeds website.[4]

18.2 Desired Future State

Box Elder County desires aggressive efforts to control, prevent, and reduce noxious weed infestations (both county and state listed) on public lands. Control of noxious weeds is most successful when it is a collaborative effort of both public and private landowners and managers. Preventing small outbreaks of new weeds will continue to be the county’s highest priority. Addressing problems before a larger outbreaks occur will save the county significant time and financial resources.

18.3 Management Objectives and Associated Policies and Guidelines

18.3.1 Management Objective

Control, prevent, and reduce noxious weed infestations throughout the County.

Policies and Guidelines

- The county will continue to support efforts of the Box Elder County Weed Department to control noxious weeds throughout the county.[5]

- Encourage the use of grazing as a weed management tool through proper timing, intensity and duration to control weed infeatations.[6]

- Support Weber River and Goose Creek CWMA, as practical, through coordination, funding, and sharing staff and equipment.

- Establish new CWMA programs and new Weed Prevention Areas in Western Box Elder County to focus control efforts and attract funding.[7]

- Support efforts to apply for grants from state and federal sources to support weed control efforts in the county.

8.4 References

[1] Salt Lake County. 2017. Weed Control Website. http://slco.org/weeds/ (accessed March 23, 2017).

[2] Utah State Legislature. 2015. Utah Noxious Weed Act – Administrative Rules. Enacted July 2, 2008, Modified December 15, 2015. http://le.utah.gov/xcode/Title4/Chapter17/4-17.html (accessed January 25, 2016.)

[3] Forest Noxious Weed Treatment Program. Final Environmental Impact Statement. Wasatch Cache National Forest.

[4] US Department of the Interior, US Bureau of Land Management. 2017. Invasive & Noxious Weeds Website. https://www.blm.gov/wo/st/en/prog/more/weeds.html (accessed March 23, 2017)

[5] Box Elder County. 1998. Box Elder County General Plan, Vegetation, Community Dev & Land Use p. 9.

[6] Whiteside, R.E. 2004. The Utah Strategic Plan for Managing Noxious and Invasive Weeds, Utah Weed Advisory Council and the Utah Weed Control Association.

[7] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

19. PREDATOR CONTROL

Predator control includes strategies and practices to control the actions of or reduce the number of predator animals, nuisance animals, and insects.

Related resources:

- Livestock and Grazing
- Wildlife

19.1 Management Setting

Context

Predator and prey populations require balance to avoid adverse impacts from either population. Predator control is primarily a function of the Utah Department of Wildlife Resources (DWR) and the US Department of Agriculture Animal and Plant Health Inspection Service (APHIS) Wildlife Services. Coyote removal is recommended by the DWR for all mountainous areas in Box Elder County that are inhabited by mule deer. Other targeted predator control is conducted by DWR and APHIS when problematic animals take livestock.

Some native and introduced species of wildlife thrive in urban environments and have become nuisance animals. Control efforts can be undertaken by APHIS and through local ordinance to reduce nuisance wildlife. Insects can also be problematic in some portions of Box Elder County.

Findings

The APHIS Wildlife Services program and DWR coordinate efforts to resolve wildlife conflicts on public and private lands. Conflicts can occur for many reasons, including the following: (1) predators injuring or killing livestock, (2) wildlife damaging farm crops or raiding livestock feed stocks, and (3) wildlife populations becoming problematic in residential areas.

Legal Context

Applicable Laws

The Animal Damage Control Act (7 USC §426-426c [1931]), as amended, gives the Secretary of Agriculture authority to control a range of predatory animals to protect livestock, game animals, and wildlife. The Secretary of Agriculture delegated this authority to the APHIS and the Animal Damage Control Program. A 1993 Memorandum of Understanding between the Forest Service and APHIS provides that "APHIS and state agencies are recognized as having the authority and expertise to conduct predator control on National Forest System lands, to determine livestock losses, and to determine methodology for animal damage management. Under the Memorandum of Understanding, APHIS is named the lead agency in preparing environmental documentation for predator control and other animal damage and insect management activities initiated by APHIS on National Forest System lands."[1] A similar Memorandum of Understanding was signed in 2009 between the US Burau of Land Management (BLM) and APHIS to conduct NEPA analysis and provide guidelines regarding the management and treatment of grasshoppers and Mormon crickets on lands under BLM stewardship.[2]

At the state level, predator populations are primarily controlled through manipulation of hunting licenses, though individual animals can be removed if they become problematic. When livestock are injured or killed, the Wildlife Damage Compensation Act of 2011 (Utah Code §23-21-1) provides a mechanism for

the DWR to reimbursement to livestock owners for damage caused by bear, mountain lion, wolf, and eagle. The Utah Mule Deer Protection Act of 2012 (Utah Code §23-30-101) added a $5 fee to big game hunting permits, which fund the predator control programs. Money from this fund is used by the DWR to reimburse coyote hunters and trappers $50 for each coyote lawfully removed. The Wolf Management Act of 2010 (Utah Code §23-29) acknowledges that wolves are currently covered by the ESA but it is the policy of Utah that wolves should actively managed (controlled) and not be allowed to establish anywhere in the state.

19.2 Desired Future State

Box Elder County desires to maintain sustainable and mutually beneficial predator and prey populations. The county does not desire the introduction of predators not currently in the county.

19.3 Management Objectives and Associated Policies and Guidelines

19.3.1 Management Objective

Establish and maintain sustainable and mutually beneficial predator and prey populations.

Policies and Guidelines

- Cooperate with DWR and APHIS to determine management priorities for predators and nuisance species.

- Support predator control programs when native species require relief from predators. Depleted native species whose populations require relief from native predators, receive assistance for as long as they need it, and no longer.[3]

- Problematic bird and mammal species are kept in check where their success has the potential to become problematic to humans as well as sensitive wildlife.[4]

- Coordinate with APHIS WS program to conduct wildlife damage management to protect agricultural, industrial and natural resources, property and human health and safety from damage associated with wildlife.

- Maintain a healthy cougar population within their current distribution while considering human safety, economic concerns, other wildlife species, and maintaining hunting traditions through 2025.[5]

- Discourage the use of lead in control efforts because of its toxicity to humans and wildlife.

- Support public education programs that increase awareness for predator-prey relationships and management practices.

19.4 References

[1] US Forest Service. 1995. TITLE 2600 - Wildlife, Fish, and Sensitive Plant Habitat Management, Amendment No. 2600-95-5. https://www.fs.fed.us/dirindexhome/fsm/2600/2650.txt (accessed March 25, 2017).

[2] United States Department of Interior, Bureau of Land Management. 2009. Memorandum of

Understanding (MOU) Between Bureau of Land Management and the Animal and Plant Health Inspection Service Addressing the Management of Grasshoppers and Mormon Crickets BLM (#WO-220-2009-06). https://www.blm.gov/policy/im-2009-116 (accessed April 12, 2017).

[3] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[4]. Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2017. Utah's Predator Control Program Summary
Program activities and data from July 1, 2014 through June 30, 2015.
https://wildlife.utah.gov/pdf/predator_program_summary_2015.pdf (accessed April 2017).

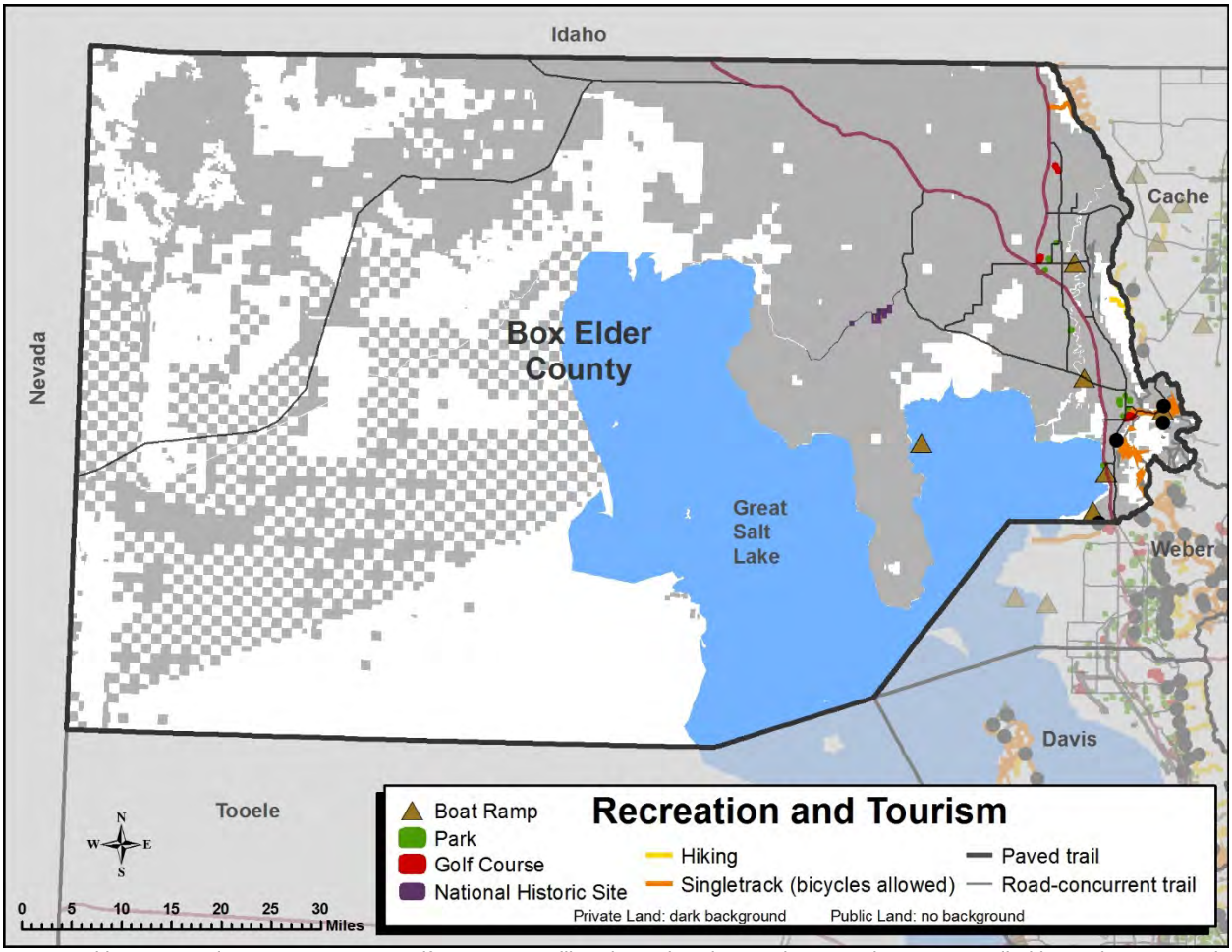
[5] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Cougar Management Plan V.3. https://wildlife.utah.gov/pdf/cmgtplan.pdf (accessed April 2017).

20. RECREATION AND TOURISM

Recreation consists of activities that are pursued for enjoyment. Tourism is the social, cultural, and economic phenomenon of visiting places for pleasure. Outdoor recreation is a significant and growing part of Utah's economy. Tourists and travelers spent a record $8.2 billion in the Utah economy during 2015, and the tourism industry supported an estimated 137,192 jobs.

Related resources:

- Land Access
- Land Use
- Wilderness



Source: Ski Area Locations, Boat Ramps, Golf Courses, Trailheads, and Parks Local, Date unknown, Compiled by Utah Automated Geographic Reference Center. Trails, Date unknown, Utah Office of Tourism and GOED. Access via Utah Automated Geographic Reference Center.

20.1 Management Setting

Context

Box Elder County possesses a variety of unique natural, cultural, and historical resources. These resources provide residents and visitors with a number of diverse recreational opportunities. The county recognizes the economic benefits that tourism brings to the area and will continue to promote tourism as a

viable economic industry. Box Elder County public lands are home to a variety of recreation uses. State law allows counties to levy taxes on activities related to leisure and hospitality including hotel stays (transient room tax) and dining (restaurant tax). These taxes allow Box Elder County to raise funds for local uses. Box Elder County's highway corridors provide connectivity between communities as well as access to public land for recreation and tourism.

Findings

Tourism and the related leisure and hospitality industry is beneficial to Box Elder County's economy by generating in nearly $900,000 in tax revenue in 2015 from the Transient Room Tax and Restaurant Tax. Leisure and hospitality jobs made up about 9.6 percent of all jobs in Box Elder County. [1] County attractions include Golden Spike National Historic Site, Bear River Migratory Bird Refuge, and Willard Bay.

Legal Context

Applicable Laws

The US Forest Service (Forest Service) makes land use decisions, including for recreation by developing Forest Plans, under the National Forest Management Act (16 USC §1600 et seq. [1976]). The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) mandates the US Bureau of Land Management to manage lands, including recreational uses, under multiple-use philosophy. Both federal land managers set recreation policy following planning procedures specified by the National Environmental Policy Act (42 USC §4321 et seq. [1969]).

State laws applicable to recreation and tourism include the Transient Room Tax enabled by Utah Code: §59-12-3 et seq., which allows counties to levy a tax up to 4.25 percent on hotel accommodations. The Tourism, Recreation, Cultural, Convention, and Airport Facilities Tax Act, (Utah Code §59-12-6 et seq.) allows counties to levy a tax up to 4 percent on short-term motor vehicle rentals. Funds collected under this law may be used for the development, operation, and maintenance of cultural, recreational, or tourist facilities. Utah Code §17-31-8 requires all counties which levy either taxes to form an advisory board to represent industries being taxed. Utah Code §63N-7-1 created the Board of Tourism that advises the Utah Governor's Office of Economic Development on "planning, policies, and strategies and on trends and opportunities for tourism development."

20.2 Desired Future State

Box Elder County desires to expand and support public land-based recreational opportunities to all individuals regardless of age and/or physical ability. The county desires to further promote tourism activities that highlight the history, landscape and culture of the region. Box Elder County also desires to maintain its highway corridors to provide connectivity between communities and to support public land access for recreation and tourism.

20.3 Management Objectives and Associated Policies and Guidelines

20.3.1 Management Objective

Expand and support public land-based recreational opportunities to all individuals regardless of age and/or physical ability.

Policies and Guidelines

When exploring future tourism development proposals, the county will consider the following [1]:

- Impacts to county natural, cultural and historical resources
- Demands on existing services and facilities (law enforcement, emergency services, water and waste management, search and rescue)
- Tourism and recreation cost recovery strategies
- Impacts on the county's rural lifestyle
- Impacts on traditional recreational uses

20.3.2 Management Objective

Improve economic returns to the local tourism industry.[1]

Policies and Guidelines

In partnership with Box Elder County Economic Development Office, take the following measures:[1]

- Increase the number of private tourism-related industries within the county
- Hold entrepreneur training sessions for private tourism interests
- Contact bus tour and travel agents to explain and demonstrate 4-day itinerary options (lodging, food, sites, entertainment)
- Promote and develop local products for sale at local sites (partnership with the Box Elder Economic Development Council)

20.3.3 Management Objective

Expand/promote the existing public-private enterprise; promote community events and sites.[2]

Policies and Guidelines

Support the following events and attractions:[2]

- Privatize operation of the Centennial Tour Train
- Expand operation of Centennial Tour Train to include local events
- Design community-based guided tours
- Fund weekend re-enactment at Golden Spike National Historic Site
- Publicize community-level festivals and activities
- Continue distribution of marketing materials (table-top calendar and "Trails, Rails and Rockets" brochure) through print and online

- Expand advertising on Brigham City and Corinne Depots
- Encourage and support community efforts to preserve historical sites and structures
- Support the development of community and regional recreational trail systems
- Continue County support of the Golden Spike National Historic Site planning activities.[2]

20.3.4 Management Objective

Better inform County residents concerning local attractions; encourage local-to-visitor tourism promotion.[2]

Policies and Guidelines

- Continue visitor-targeted promotions and selective activities (placemats for restaurants, brochures in motel/hotels, etc.)
- Create special interest articles aimed to inform residents about local attractions and services.
- Formalize Pioneer Communities through workshops.
- Implement super-host training for local services industries.

20.3.5 Management Objective

Maintain highway corridors to provide connectivity between communities and to support public land access for recreation and tourism.

Policies and Guidelines

Maintain highway corridors to provide connectivity between communities and to support public land access for recreation and tourism.

20.3.6 Management Objective

Improve Bear River Migratory Bird Refuge facilities and roads.[2]

Policies and Guidelines

Mobilize “Friends of the Refuge” committee in fund raising efforts.[2]

20.4 References

[1] Kem C. Gardner Policy Institute, University of Utah. 2017. The State of Utah Travel and Tourism Industry. https://travel.utah.gov/wp-content/uploads/2017-Travel-Tourism-Brochure-FINAL-2.13.17.pdf (accessed March 26, 2017).

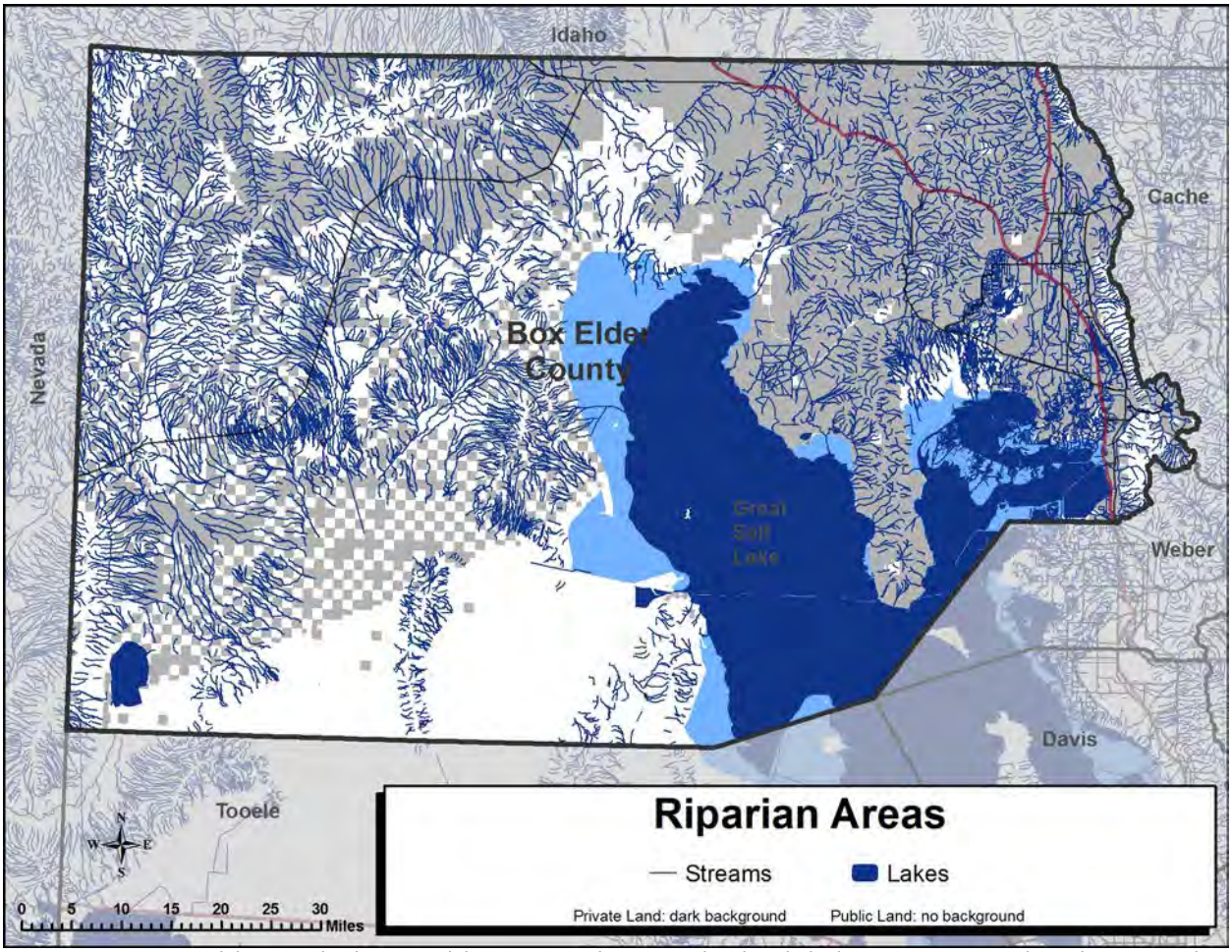
[2] Box Elder County. 1998. Box Elder County General Plan, Tourism p. 1-3.

21. RIPARIAN AREAS

Riparian areas are zones where terrestrial and aquatic ecosystems directly interact with each other. They occur around numerous types of waterbodies including rivers, lakes, and springs. Similar to wetlands, riparian areas provide numerous benefits to society but a few of the most important of these include wildlife habitat area, hydrologic recharge areas, and water quality improvements.

Related resources:

- Flood Plains and River Terraces
- Wetlands
- Water Quality and Hydrology



Source: StreamsNHDHighRes and LakesNHDHighRes, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

21.1 Management Setting

Context

Riparian areas are important for many reasons. They are a key component of the hydrological system and act as buffers by intercepting or diluting pollutants and sediment before they reach the water. Riparian areas play an important role in erosion processes by slowing water and stabilizing banks. They provide

critical wildlife habitat and are an important component of both terrestrial and aquatic ecosystems. The width of riparian areas is influenced by many factors including human disturbance, hydrology, and climate.

Because riparian areas are highly sensitive to disturbances, it is important to manage them with respect to surrounding areas and their land use.[1] Riparian areas are disturbed by human activities such as livestock grazing, road building, housing and other development as well as recreation activities. Riparian areas are also disturbed by natural forces, including fire and flooding. After disturbances, riparian areas become prime locations for the establishment of invasive and noxious weeds. Climate change also affects riparian areas by altering flow regimes and increasing water temperature thereby threatening cold water fisheries.

Riparian area health on public lands can impact water quality on private lands in Box Elder County.

Findings

Riparian vegetation is mapped by the US Geological Service using remote sensing. Table 21.1 shows riparian acreage in Box Elder County by land ownership.

Table 21.1. Total acreage of riparian vegetation in Box Elder County and on public lands.

RIPARIAN TYPE	BOX ELDER COUNTY (ACRES)	US BUREAU OF LAND MGMT (ACRES)	US FOREST SERVICE (ACRES)	STATE OF UTAH (ACRES)
Western Riparian Woodland and Shrubland	6,136	956	1,076	324

Source: US Geological Survey, Landfire Existing Vegetation Type, 2012.

Legal Context

Applicable Laws

Riparian vegetation is not regulated directly by federal or state legislation. There are, however, statutes that cover associated resources and do have implications for riparian areas. Section 404 of the Clean Water Act (33 USC §1344 et seq.) regulates permits for dredged or fill material in Waters of the United States. The Endangered Species Act (16 USC §1531 et seq. [1973]), also referred to as the ESA, may sometimes cover riparian areas when projects impact habitat of a listed species.

21.2 Desired Future State

Box Elder County desires to protect and restore functioning and connected riparian areas while increasing resiliency and adaptation to change.

21.3 Management Objectives and Associated Policies and Guidelines

21.3.1 Management Objective

Maintain and restore riparian areas.

Policies and Guidelines

- Support projects and management efforts that protect or restore riparian ecosystems, increasing the riparian area's resiliency and ability to be used for multiple purposes. The US Forest Service [2] and US Bureau of Land Management [3] have similar policies.

- Support education efforts about best management practices in riparian areas including managed grazing [4] and weed control [5] in riparian areas.

21.3.2 Management Objective

Increase riparian resilience by managing riparian areas for multiple uses that don't degrade the resource.

Policies and Guidelines

Manage riparian areas for multiple uses that don't degrade the resource.[3]

21.4 References

[1] Jordan River Commission. 2013. Best Practices for Riverfront Communities. http://jordanrivercommission.com/wp-content/uploads/BP-high-res-for-web.pdf (accessed March 23, 2017).

[2] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed April 2017).

[3] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

[4] Bellows, Barbara. 2003. Managed Grazing in Riparian Areas. Appropriate Technology Transfer for Rural Areas. https://extension.usu.edu/rangelands/files/uploads/General%20Grazing%20Management/Riparian%20grazing.pdf. Accessed 14 March 2017.

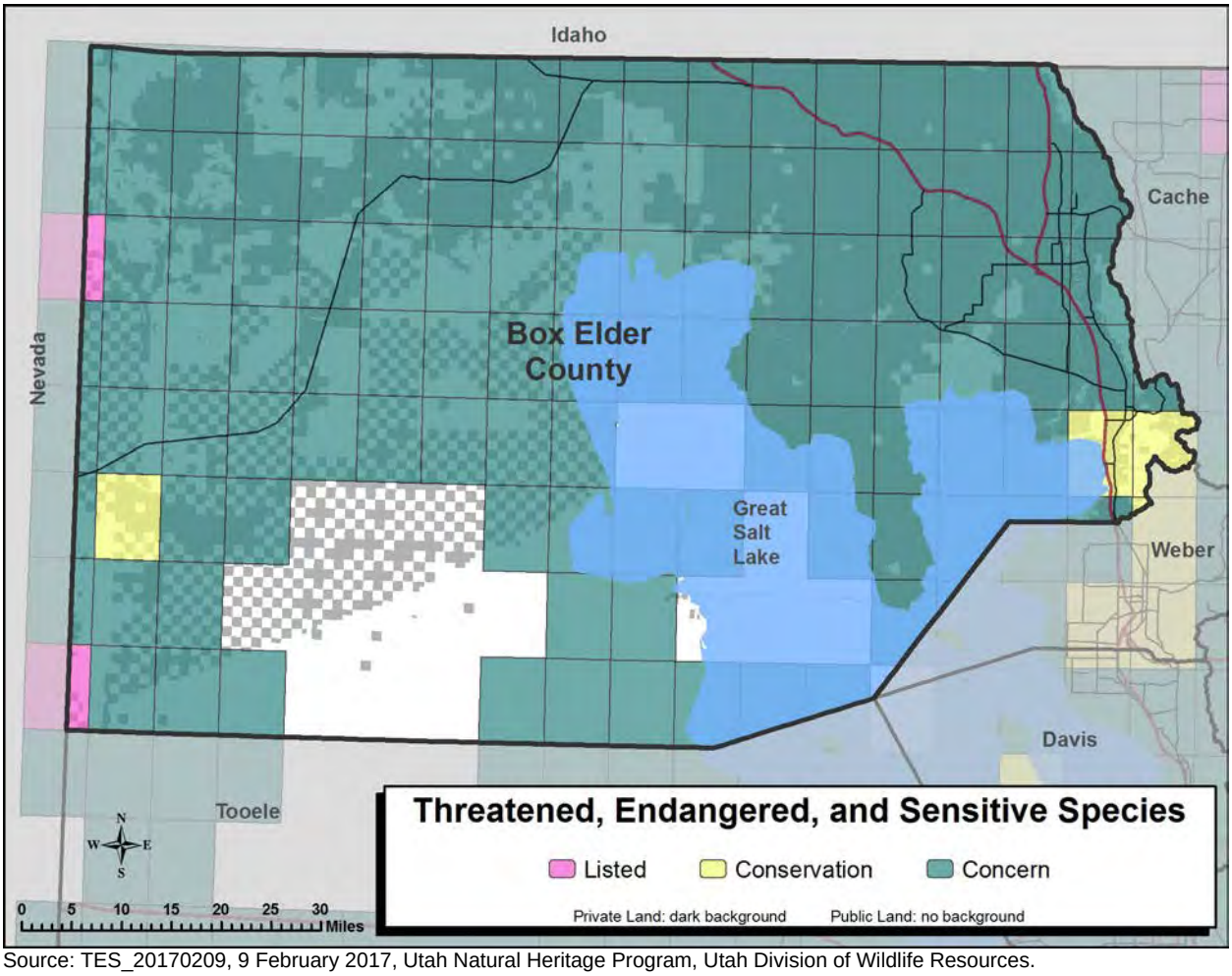
[5] Sheley et.al. 1995. Managing Riparian Weeds. Rangelands 17(2). https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/11260/10533.

22. THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Threatened, endangered, and sensitive species refers to plant, animal, and other living organisms that are, to some level, threatened by extinction. Federal and state governments have management responsibility to protect and restore imperiled species and the critical habitat that supports them.

Related resources:

- Wildlife
- Fisheries



Source: TES_20170209, 9 February 2017, Utah Natural Heritage Program, Utah Division of Wildlife Resources.

22.1 Management Setting

Context

Critically imperiled plant and animal species are federally listed according to the Endangered Species Act (ESA). Under the ESA the US Fish & Wildlife Service (USFWS) is responsible for conservation of terrestrial and freshwater aquatic species that are endangered or threatened with extinction due to loss of habitat, overutilization, disease, predation, inadequate protection, and other factors both human-made and

natural. For sensitive species in Utah that are not protected by the ESA, the Utah Department of Wildlife Resource (DWR) is tasked with conservation. Utah's primary objective for managing sensitive species is to maintain wildlife and wildlife habitat well enough to prevent federal designation.[1] Once a species is federally listed, the state loses primacy for the management of that species. This implies federal regulation of activities on state and private lands that may directly threaten listed species or that species' habitat. From state and local perspectives, federal designation of endangered species means less local control of land use issues, which might cause harm to the designated species.

Utah's 2015 Wildlife Action Plan stated goal is "to manage native wildlife species and their habitats, sufficient to prevent the need for additional listings under the Endangered Species Act".[1] This goal precludes plants.

The DWR Habitat Designation Advisory Committee divides species into three categories following an official Designation Process (DWR Administrative Rule R657-48).[2] This ranking includes plants. The ranking system is summarized in the following list:

- ***S-ESA.*** Federally listed or candidate species under the ESA.

- ***CS.*** Species receiving special management under a Conservation Agreement in order to preclude the need for federal listing.

- ***SPC.*** Species of concern.

Findings

Box Elder County has two federally listed species under the ESA[3]:

- Gray wolf (*Canis lupis*).
- Lahontan Cutthroat Trout (*Oncorhynchus clarkii henshawi*)

Box Elder County has five wildlife species federally listed as candidates for ESA that also have conservation agreements with the DWR[2]:

- Bluehead Sucker (*Catostomus discobolus*)
- Bonneville Cutthroat Trout (*Oncorhynchus clarkii utah*)
- Least Chub (*Iotichthys phlegethontis*)
- Northern Goshawk (*Accipiter gentilis*)

Box Elder County has 25 wildlife species, including the four listed above, for which the DWR has identified as wildlife species of concern. The species are [2,4]:

- American white pelican (*Pelecanus erythrorhynchos)*
- Bald eagle (*Haliaeetus leucocephalus*)
- Bobolink (*Dolichonyx oryzivorus*)
- Burrowing owl (*Athene cunicularia*)
- California floater (*Anodonta californiensis*)
- Deseret mountain snail (*Oreohelix peripherica*)
- Ferruginous hawk (*Buteo regalis*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- Great Plains toad (*Bufo cognatus*)

- Greater sage-grouse (*Centrocercus urophasianus*)
- Kit fox (*Vulpes macrotis*)
- Lewis's woodpecker (*Melanerpes lewis*)
- Long-billed curlew (*Numenius americanus*)
- Lyrate mountain snail (*Oreohelix haydeni*)
- Mountain plover (*Charadrius montanus*)
- Northern leatherside chub (*Lepidomeda copei*)
- Northwest Bonneville pyrg (*Pyrgulopsis variegata*)
- Preble's shrew (*Sorex preblei*)
- pygmy rabbit (*Brachylagus idahoensis*)
- sharp-tailed grouse (*Tympanuchus phasianellus*)
- short-eared owl (*Asio flammeus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Utah physa (*Physella utahensis*)
- Western pearlshell (*Margaritifera falcata*)
- Western toad (*Bufo boreas*)
- Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*)

Box Elder County has one candidate plant species:[3]

- Goose Creek milkvetch (*Astragalus anserinus*).

Legal Context

Applicable Laws

The ESA (16 USC §1531 et seq. [1973]) was established to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species."

Utah code related to threatened and endangered species begins with Utah Code §23-14-1, which created the DWR with authority over wildlife in the state. Under this authority, the DWR works to protect and manage sensitive wildlife species.

The US Department of Interior and Related Agencies Appropriations Act of 2002 created the federal State Wildlife Grants (SWG) program, which enables Congressional appropriators to consider funding wildlife and habitat conservation on a year-to-year basis. This law requires that each state have a current, approved Wildlife Action Plan to remain eligible for any SWG funding that Congress appropriates to the federal program. States that choose to participate in the SWG program must review and revise their Wildlife Action Plans at least once every 10 years, if they want to maintain their eligibility." Utah's initial Wildlife Action Plan was completed and approved in 2005, and there is currently a 2015 draft available.[1]

In 2009 the state passed the Brine Shrimp Royalty Act (Utah Code §59-23 et seq.), which initiated a royalty on brine shrimp harvest to fund the Endangered Species Mitigation Fund. The Endangered Species Mitigation Fund significantly expanded the funding base for conservation of wildlife species which are designated as Utah Sensitive Species or are ESA listed. The purpose of this fund is to avoid, reduce, and/or mitigate impacts of ESA listings on the people of Utah.[5] Funds are used by the DWR to study and protect state listed special status species.

22.2 Desired Future State

Box Elder County desires to maintain viability of wildlife and plant species-at-risk (including endangered, threatened and sensitive species and unique communities) and their habitats by actions that directly help to maintain viability through coordination with the county.

22.3 Management Objectives and Associated Policies and Guidelines

22.3.1 Management Objective

Encourage responsible recreation and effective education and enforcement.

Policies and Guidelines

Responsible recreation is promoted and encouraged via effective education and enforcement.[1]

22.3.2 Management Objective

Provide connectivity between fragmented habitats that support at-risk wildlife and plant species.

Policies and Guidelines

Support connectivity between fragmented habitats that support at-risk wildlife and plant species.

22.3.3 Management Objective

Encourage the protection of open lands that support at-risk wildlife and plant species.

Policies and Guidelines

Open lands that are crucial to wildlife do not have the potential to be developed for housing and urban growth.

22.3.4 Management Objective

Restore degraded habitats where at-risk wildlife and plant species are found.

Policies and Guidelines

- Limit grazing in sensitive areas, including riparian areas and aquatic habitats.
- Restore or maintain hydrologic functions of water bodies and waterways.[1]
- Promote aquatic habitat protection. Preserve aquatic habitats identified by agencies as used or occupied by special status species in their current state by avoiding any action that would remove water from these areas.[1]

22.4 References

[1] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[2] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah State Listed Species by County. http://dwrcdc.nr.utah.gov/ucdc/viewreports/sscounty.pdf (accessed April 12, 2017).

[3] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2016. County-by-County list of Sensitive Species. Tabular Data. https://wildlife.utah.gov/wap/species_by_county.zip (accessed March 27, 2017).

[4] Utah Department of Natural Resources, Division of Wildlife Resources. 2015. Utah Sensitive Species List. http://dwrcdc.nr.utah.gov/ucdc/viewreports/SSL_Appendices.pdf (accessed March 27, 2017).

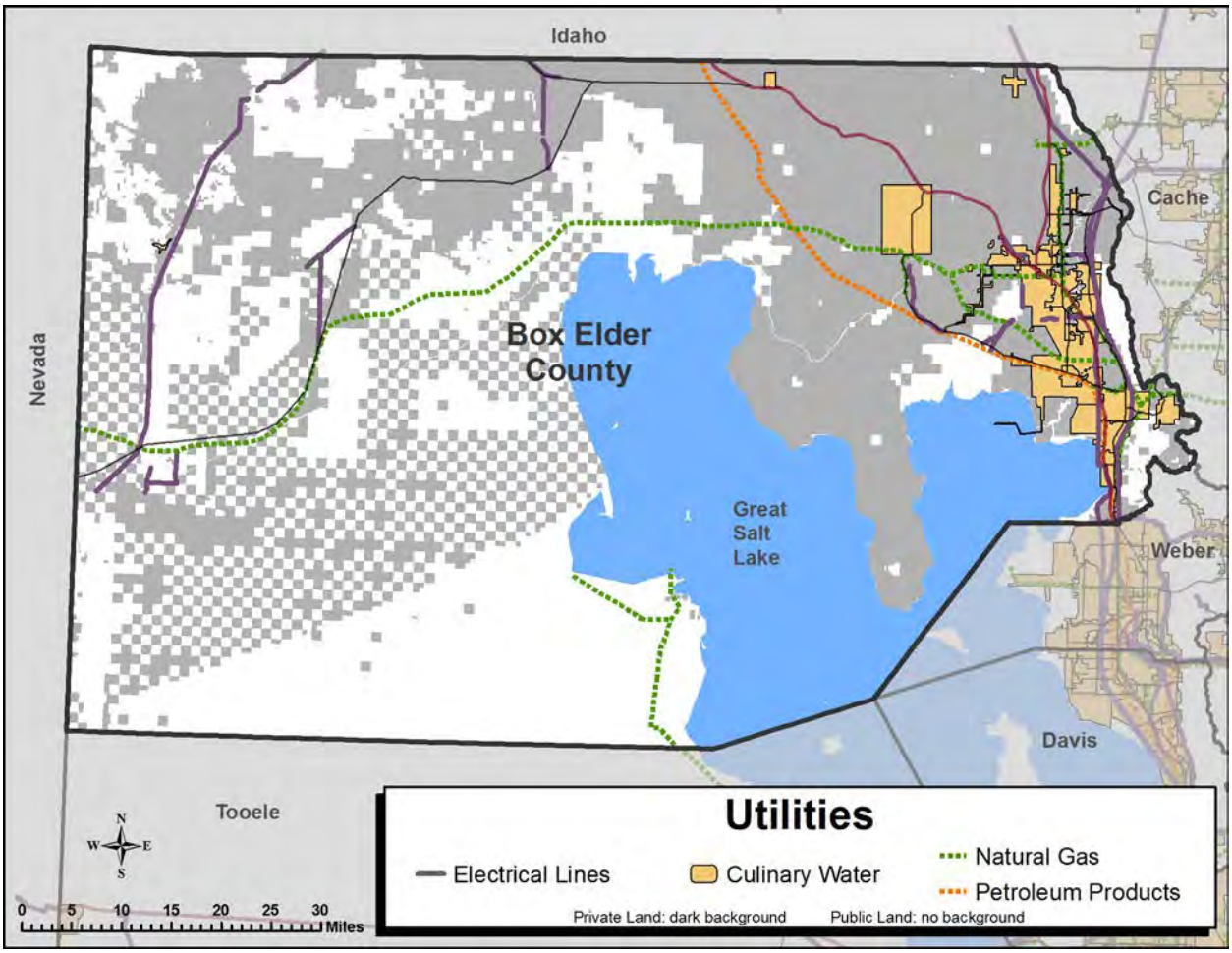
[5] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2014. Endangered Species Mitigation Fund. https://naturalresources.utah.gov/wp-content/uploads/ESMFguidelines2014forwebsite.pdf (accessed March 27, 2017).

23. UTILITIES

Utilities are useful services of commodities provided to the community at a cost. Examples of utilities include electricity, water, and communication services. Utility corridors often cross public lands impacting the land and its ecosystems.

Related resources:

- Energy Resources
- Cultural, Historical, Geological, and Paleontological Resources
- Land Use



Source: Electrical Lines, 1989, State of Utah Comprehensive Emergency Earthquake Preparedness Program. Pipelines, Date unknown, Utah Geological Survey. Retail Culinary Water Suppliers, December 2015, Several agencies. Access via Utah Automated Geographic Reference Center.

23.1 Management Setting

Context

Utilities, including reliable transportation of energy and communication services, are important to the people and businesses of Box Elder County. Utility corridors crossing public lands have the potential to adversely impact the natural resources, land uses, and visual quality.

Among the federal land management agencies and utility industry, the definition of a corridor varies. The Western Utility Group defines a corridor as: "A linear strip of land without definite width, but limited by technological, environmental and topographical factors, and containing one or more utility, communication or transportation facilities. A corridor is a land use designation, identified for the purpose of establishing policy direction as to the preferred location of compatible linear facilities and compatible and conflicting land uses. It does not imply entitlement of use. Appropriate environment review and regulatory permitting must precede occupancy on a project-specific basis."

Findings

Energy transmission via pipelines and powerlines occurs throughout Box Elder County, though precise counts, quantities, and locations are not available.

Legal Context

Utility corridors on public lands are generally managed during the land and resource planning stages. Forest Plans specifically address transportation and utility corridors.

Applicable Laws

Utility corridors are managed under land use planning procedures specified for the US Forest Service by the National Forest Management Act (16 USC §1600 et seq. [1976]) and for the US Bureau of Land Management by Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]). Both federal land management agencies are subject to the National Environmental Policy Act (42 USC §4321 et seq. [1969]) planning process.

23.2 Desired Future State

Box Elder County supports utility development on public lands while properly mitigating impacts to other resources through coordination with and approval by the county.

Box Elder County desires active and effective participation in the federal land planning process designating corridors that may pass through the county. Box Elder County desires to become involved in the process early and to maintain active participation, and supports cooperative partnership with federal agencies and the utility industry wherever possible.

23.3 Management Objectives and Associated Policies and Guidelines

23.3.1 Management Objective

Lessen resource impacts from utility to corridor development and place new facilities adjacent to existing facilities whenever possible.

Policies and Guidelines

- When possible, manufacturing uses will be located adjacent to population centers in order to discourage urban sprawl and reduce the costs of providing utilities and services.[1]

- Encourage regionalization of utilities.

- Coordinate regionally with agencies, private entities, and providers in planning and designing utility corridors.

23.4 References

[1] Box Elder County. 1998. Box Elder County General Plan, Manufacturing, Community Dev & Land Use p. 4.

24. VISUAL RESOURCES

Visual resources are the objects, scenes, vistas, etc., that humans experience, whether natural or human-made. They are often considered on the landscape scale but small features can also be a visual resource.

Related resources:

- Cultural, Historical, Geological, and Paleontological Resources
- Land Use

24.1 Management Setting

Context

Box Elder County has scenic resources to protect. The BLM uses a system called Visual Resource Management (VRM) as a method to evaluate and analyze visual resources. Box Elder County disagrees with management objectives for several VRM zones.

Rural areas of Box Elder County have little to no light pollution.

Findings

Public lands provide the stunning mountainous scenery on the eastern portion of the county as well as wide open vistas in the west. The skyline of snowy peaks, tree-covered hillsides, and canyons are primarily managed by the US Forest Service (Forest Service). The expansive landscape in the western portion of the county are managed by the US Bureau of Land Management (BLM). The Great Salt Lake is managed by Utah Forestry, Fire, and Sate Lands (FFSL).

Legal Context

Visual resources on public lands are generally managed during land and resource planning processes. For their most recent plans, the Forest Service used the Scenery Management System to evaluate and manage scenery resources while the BLM used VRM.[1, 2]

Applicable Laws

Visual resources on federal lands are managed under land use planning procedures specified for the Forest Service by the National Forest Management Act (16 USC §1600 et seq. [1976]) and for the BLM by Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]). Both federal land management agencies are subject to the National Environmental Policy Act (42 USC §4321 et seq. [1969]) planning process.

Visual resources on the sovereign lands of Great Salt Lake and its shoreline as managed by FFSL under policies and objectives spelled out in the 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision.[3]

24.2 Desired Future State

Box Elder County desires to manage light pollution in the rural portions of the county and desires to remove public lands from restrictive VRM zones (Class I and Class II) to facilitate multiple use management of public lands.

24.3 Management Objectives and Associated Policies and Guidelines

24.3.1 Management Objective

Reduce or mitigate light pollution in rural portions of Box Elder County.

Policies and Guidelines

Support efforts to reduce or mitigate limited light pollution in rural and undeveloped portions of Box Elder County through coordination with and approval of the county. This would include considering how additional lighting from a proposed project would impact Great Salt Lake resources and visitor experience.[1]

24.3.2 Management Objective

Remove public lands from restrictive VRM zones (Class I and Class II) to facilitate multiple use management of public lands.

Policies and Guidelines

- The objectives of BLM Class I and Class II VRM are not compatible with, and would therefore frustrate and interfere with, Box Elder County's plan for public lands.[2]

- There are certain limited exceptions where a Class II objective would be compatible with Box Elder County's plan for public lands. Such exceptions will be considered by Box Elder County on a case-by-case basis.[2]

- Box Elder County's plan for public lands is generally consistent with either Class III or Class IV, depending on the precise area.[2]

24.4 References

[1] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Comprehensive Management Plan and Record of Decision.

[2] Box Elder County. 1998. Box Elder County General Plan, Manufacturing, Community Dev & Land Use p. 4.

[3] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

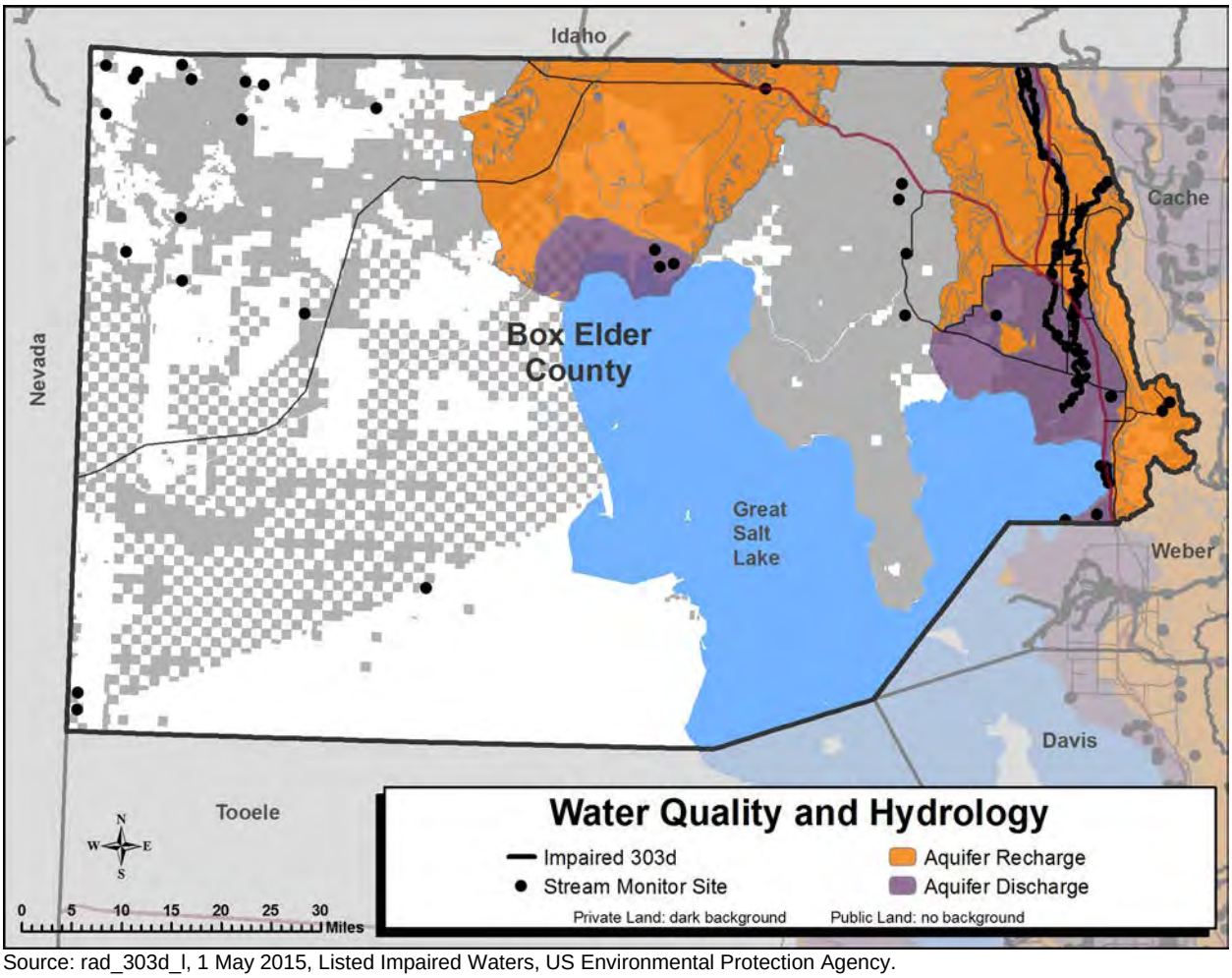
25. WATER QUALITY AND HYDROLOGY

Water quality and hydrology are two distinct but inherently related components of water. Water quality describes the condition (physical, chemical, and biological) of water with respect to specific use, such as culinary water supply, aquatic wildlife, or agriculture. Water quality is highly affected by flow and timing (the poorest water quality usually occurs during periods of low flow).

Hydrology characterizes the timing (when water is available), distribution, and flow of water across the human and natural landscape.

Related resources:

- Irrigation
- Water Rights
- Floodplains and River Terraces
- Wetlands



Source: rad_303d_l, 1 May 2015, Listed Impaired Waters, US Environmental Protection Agency.

25.1 Management Setting

Context

Box Elder County considers water to be one of its most important resources. Water is a renewable natural resource that is available in finite supply, with demand far exceeding supply. Managing water quality and hydrology across multiple jurisdictions and water right owners is complex and requires stakeholder coordination.

Water quality and hydrology on public lands impact private lands and the health of the various water resources downstream.

Part of the Great Salt Lake, with its unique saline water, is within the county.

Findings

Water Quality: In Utah, water quality is regulated by the state based on the source of pollutants entering waterways, defined either as "point source" or "nonpoint source" pollution. Point sources (PS) discharge pollutants directly into a waterbody, usually through pipes or ditches originating from industries or waste treatment plants. Nonpoint sources of pollution are those that do not originate from distinct locations and tend to vary in time and space. Nonpoint source pollution occurs when runoff from rainfall or snowmelt picks up pollutants from the human and natural landscape and transports them indirectly to a waterbody.

Common water quality characteristics include the following:

- ***Conductivity.*** A measure of the ability of water to conduct an electrical current. It is dependent on the amount of dissolved solids in the water.

- ***Dissolved oxygen.*** A measure of the amount of oxygen dissolved in water. Water's capacity to carry dissolved oxygen is inversely related to temperature; as temperature increases, dissolved oxygen decreases. Fish and other aquatic organisms require dissolved oxygen for respiration. If dissolved oxygen levels are too low, aquatic organisms can be severely impacted.

- ***Nutrients.*** Nutrients such as nitrogen and phosphorus are essential for plant and animal growth and nourishment. However, excessive nutrients from human sources become problematic when they over accumulate and can cause adverse effects within waterbodies. For example, nutrient-fed algal blooms can consume oxygen needed by other aquatic organisms, produce toxins that can harm livestock and humans, and contaminate recreational waters.

- ***pH.*** A measure of acidity, pH is used as an indicator of chemical changes in the water. Some streams in Utah tend to have slightly higher pH because of their limestone substrates.

- ***Suspended sediment.*** The amount of sediment moving along a stream suspended in the water column. This depends partly on water flow; fast-flowing water can move more sediment than slow-flowing water. This measurement also depends on the amount of fine sediments available to transport.

- ***Water temperature.*** Changes in water temperature can impact aquatic organisms, as well as humans (e.g., recreational and industrial uses). Water temperature also affects dissolved oxygen—as temperature increases, water's capacity to dissolve oxygen decreases.

- ***Turbidity.*** A measure of the amount of particulate matter that is suspended in water. Turbidity measures the scattering effect that suspended solids have on light entering the water.

Common point sources of water pollution include the following:

- Livestock feeding operations
- Industrial wastewater
- Municipal wastewater
- Pesticide applications
- Stormwater inputs
- Construction activities
- Industrial activities
- Municipal and transportation sources

Common nonpoint sources and pollutants include:[1]

- Fertilizers, herbicides, and insecticides from residential and agricultural areas
- Roads
- Oil, grease, and other chemicals on impervious surfaces such as roads and parking lots
- Sediment from construction areas and roadways
- Salts from roadways and agricultural areas
- Acid drainage from abandoned mines
- Bacteria and nutrients from septic systems, pet waste, and livestock

Hydrology

In terms of defining local hydrologic systems, spatial datasets from the US Geological Survey like the National Hydrography Dataset and the Watershed Boundary Dataset are used to determine the location of surface water (rivers, lakes, and springs) in Box Elder County. Tables 24.1 and 24.2 provides information about the type and extent of streams and water bodies in Box Elder County.

Table 24.1. Total miles of linear water features in Box Elder County.

STREAM TYPE	MILES STREAM BY LOCATION							
	Box Elder County	State of Utah	Federal	US Forest Service	US Bureau of Land Mgmt	Dept of Defense	US Fish and Wildlife Service	National Park Service
Artificial Path	667	301	176	1	14	-	161	-
Canal/Ditch	493	24	20	-	4	1	15	-
Connector	136	9	36	-	34	1	0.5	0.5
Intermittent Stream/ River	981	36	379	115	264	-	-	-
Perennial Stream/River	807	100	210	79	73	-	58	-
Ephemeral Stream/River	7,207	448	2,807	104	2,499	127	72	5
Pipeline	154	2	26	1	23	1	-	-
Totals	10,445	920	3,654	300	2,911	130	306.5	5.5

Source: US Geological Survey, National Hydrological Dataset, Streams.

Table 24.2. Total acres of water bodies in Box Elder County.

WATERBODY	ACREAGE WATER BODIES BY TYPE							
	Box Elder County	State of Utah	Federal	US Forest Service	US Bureau of Land Mgmt	Dept of Defense	US Fish and Wildlife Service	National Park Service
Lake/Pond	577,422	529,291	30,401	10	6,493	15	23,881	2
Reservoir	9,512	9,383	-	-	-	-	-	-
Swamp/Marsh	35,450	7,782	14,164	-	1,123	-	13,041	-
Playa	668	1	420	-	417	3	-	-
Totals	623,052	546,457	44,985	10	8,033	18	36,922	2

Source: US Geological Survey, National Hydrological Dataset, Lakes.

Legal Context

Water quality and hydrology each have specific laws and regulations related to the resources.

Applicable Laws

Water quality. With respect to water quality, the Utah Department of Environmental Quality (DEQ), Division of Water Quality (DWQ) is responsible for maintaining water quality in Utah. Water quality is regulated by the DWQ based on the source of pollutants entering waterways, defined as either point source or nonpoint source pollution.

Point source pollution. Point source pollution originates from a distinct business, operation, or other specific location. Point source pollutants are highly regulated under the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) and Utah Water Quality Act (Utah Code §19-5) through the issuance of permits and possible fines if permit requirements are not met. The EPA issues discharge permits within the National Pollutant Discharge Elimination System (NPDES). In Utah, the State was granted primacy by EPA to manage the NPDES permitting program as the Utah Pollution Discharge and Elimination System (UPDES) and is operated by the DWQ.

The NPDES permits are required for all point sources listed above. The Clean Water Act explicitly excludes agricultural runoff and irrigation return flow as point source pollution and, therefore, do not require NPDES permits.

Nonpoint source pollution. Nonpoint source pollution originates from a variety of dispersed sources, such as parking lots, roads, residential landscaping, agricultural operations, stream bank erosion, and fire scars. Once mobilized, these pollutants enter streams, waterbodies, wetlands, and groundwater. Because of its complex nature, nonpoint source pollution is not regulated through permitting under the Clean Water Act. Instead, nonpoint source pollution is managed in Utah by the DWQ through voluntary and incentivized actions of individual landowners. The Utah Water Quality Act (Utah Code §19-5) requires states to prepare nonpoint source pollution assessment reports and include provisions for federal funding for implementing nonpoint source management.[2] In some cases local governments have established development codes to compel actions to reduce nonpoint source pollution.

Due to the diffuse nature of nonpoint source pollution, the DWQ uses water-quality data in streams and lakes to determine levels of pollution within a watershed. The DEQ collects water quality monitoring data to determine if a waterbody supports its designated beneficial uses and meets water quality standards.

A statewide assessment report, called the Integrated Report, is produced by the DWQ every other year. This report summarizes overall surface water conditions, estimates the importance of key water quality concerns, identifies impaired waterbodies, and helps agencies prioritize resource needs.[3] This report also helps in the development of Total Maximum Daily Loads, which is a calculation of the maximum amount of a pollutant that a waterbody can have while still meeting water quality standards and required for impaired waterbodies. Data for assessed waters in Utah is public and can be found in the Utah Environmental Interactive Map application. Water quality data is divided by waters with no impairments, waters with no evidence of impairment, waters with insufficient data, impaired waters with a Total Maximum Daily Loads, and impaired waters that need a Total Maximum Daily Loads.

Hydrology. Title 73 (Water and Irrigation) of Utah Code provides the majority of legal framework for water use and management in Salt Lake County. The appropriation of water from the rivers, lakes, and wells is regulated by the Utah Division of Water Rights and Utah Code §73-2-1.1. More information on water rights can be found in this document under CRMP Section 26, Water Rights.

25.2 Desired Future State

Box Elder County desires to protect, maintain, and/or improve water quality and watersheds to provide stable and productive riparian and aquatic ecosystems on public lands and to protect the present and future water supply. The desires to review, study, and develop a water storage project in the western portion of the county.

25.3 Management Objectives and Associated Policies and Guidelines

25.3.1 Management Objective

Protect, maintain, and/or improve water quality and watersheds.

Policies and Guidelines

- Identify watershed areas not in properly functioning condition. Improve plant species composition, ground cover and age class diversity in these areas.

- Maintain and/or restore stream channel integrity, channel processes, and sediment regimes (timing, volume, character of sediment input/transport) under which riparian & aquatic ecosystems developed.

- Discourage unauthorized cross-country Off Highway Vehicle use in the county to reduce impacts to streams and riparian areas.

- Designated watershed protection areas should not be developed in order to preserve the hydrologic activity important for conserving the county's valuable water resources.

25.3.2 Management Objective

Review, study, and develop a water storage project in the western portion of the county.[4]

Policies and Guidelines

- Review report from the Utah Department Water Rights on potential reservoir sites in Western Box Elder County as soon as available.
- Complete reservoir feasibility study and submit to Board of Water Resources for approval.
- Complete reservoir design based on results of approved reservoir feasibility study.

25.4 References

[1] Utah Department of Environmental Quality, Utah Division of Water Quality. 2014. Nonpoint Source Management Plan for Abandoned Mines in Utah. https://deq.utah.gov/ProgramsServices/programs/water/nps/docs/2012/02Feb/Abandoned_Mine_NPS_Feb272012.pdf (accessed March 23, 2017).

[2] Utah Department of Environmental Quality, Utah Division of Water Quality. 2014. Integrated Report: Assessment Methods. https://deq.utah.gov/ProgramsServices/programs/water/wqmanagement/assessment/docs/2014/10Oct/Chapter2AssessmentMethodsv2.pdf (accessed March 23, 2017).

[3] Utah Department of Environmental Quality, Utah Division of Water Quality. 2013. Utah Statewide Nonpoint Source Pollution Management Plan. http://www.deq.utah.gov/ProgramsServices/programs/water/nps/mgmtplan2013/docs/2014/06Jun/2013_Utah_Statewide_NPS_Management_Plan.pdf (accessed March 23, 2017).

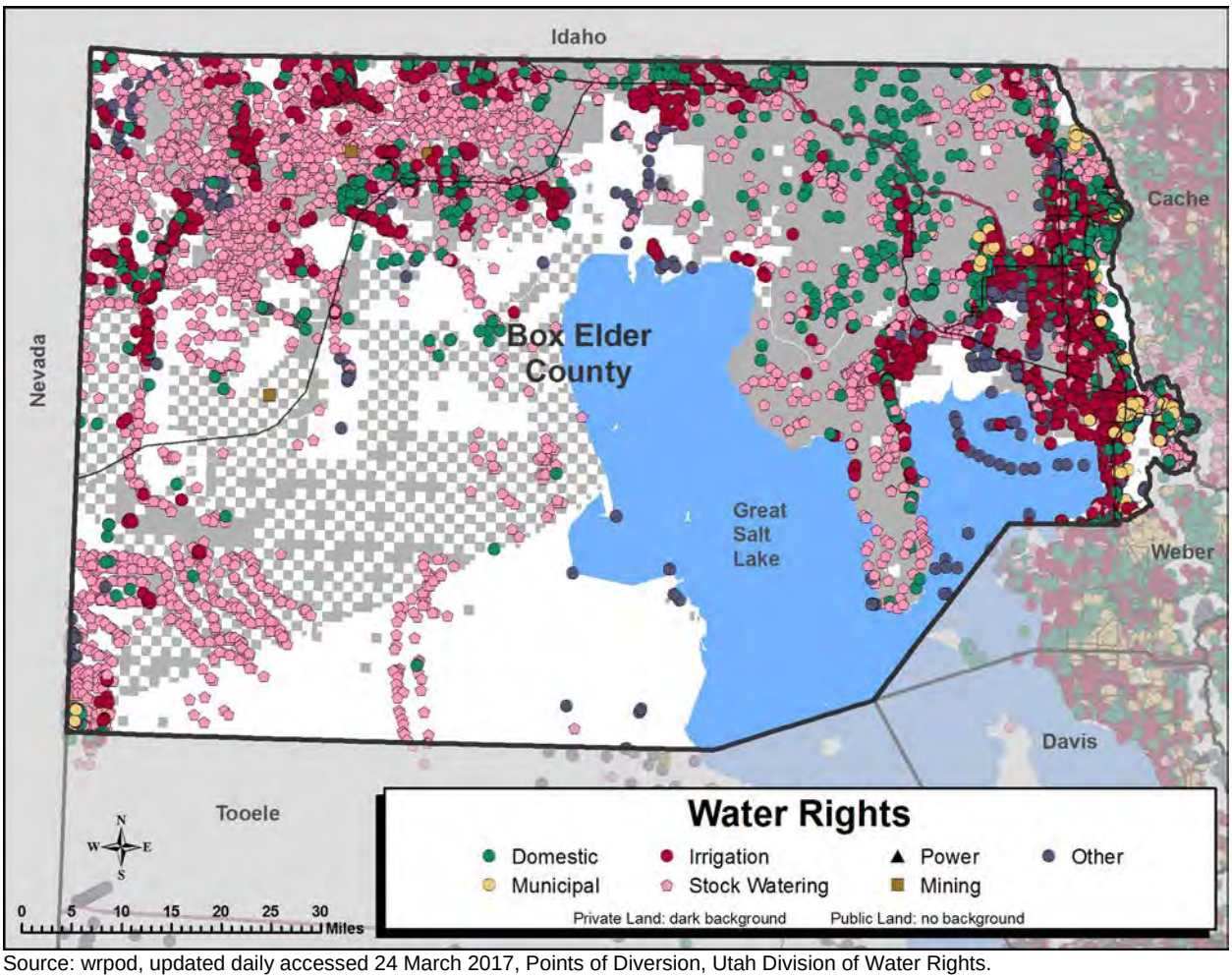
[4] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).

26. WATER RIGHTS

Water is a renewable natural resource, available in finite supply, and subject to competition between stakeholders as annual supplies vary. The demand to supply water to Utah's various interests is expected to be a continually complex issue for stakeholders to coordinate. Water resources are a natural system resulting from a fluctuating cycle of precipitation and subsequent absorption into the earth and/or the drainage of water from high elevations to lower elevations. The network of flowing water, both above and below the earth's surface, extends beyond obvious topographic or political boundaries. As a result, management and use of water supplies requires coordination between the various jurisdictions of local, state, and federal entities.

Related resources:

- Ditches and Canals
- Irrigation
- Water Quality and Hydrology



Source: wrpod, updated daily accessed 24 March 2017, Points of Diversion, Utah Division of Water Rights.

26.1 Management Setting

Context

All waters in Utah, excluding rainwater [1], are owned by the State of Utah in trust for its citizens. The right to use water is controlled by the Utah Division of Water Rights (DWRi) through the legal allocation of water rights. Box Elder County supports protection of existing water rights and reasonable development of additional water rights.

Findings

Appropriation, Beneficial Use, and Transfers

Utah's extensive arable lands significantly exceed the water supply provided by Utah's arid climate. The disparity in the ratio between available land and available water necessitated the establishment of legal framework through which available water is allocated. The legal identification of who possesses the right to use available water, where it's taken from, where it's used, how much, in what priority, and for which specific purpose(s) is called an "appropriation." Point of Diversion data, Stream Alteration data, Place of Use data, and Adjudication Areas data can be used by the county to help determine areas of the county that may have complex water rights issues. Table 26.1 and 26.2 provide a summary of water right appropriations for public lands in Box Elder County. The purpose for which the allotted water is legally intended is called the Beneficial Use. Common beneficial uses include irrigation, stock watering, municipal, industrial, electric power generation, and mining.

Table 26.1. All water points of diversion throughout Box Elder County, approved, perfected, terminated, and unapproved.

WATER POINT DIVERSION	BOX ELDER COUNTY (TOTAL)	STATE	FEDERAL	US FOREST SERVICE	US BUREAU OF LAND MGMT	US DEPT OF DEFENSE	US FISH AND WILDLIFE SERVICE	NATIONAL PARK SERVICE
Abandoned well	82	1	10	-	-	9	-	1
Drain	153	9	-	-	-	-	-	-
Point to point	3,931	169	1,124	293	812	-	19	-
Re-diversion	331	40	29	2	6	-	21	-
Return	27	5	-	-	-	-	-	-
Spring	155	18	24	20	4	-	-	-
Surface	2,290	139	180	56	98	6	20	-
Underground	3395	43	56	6	26	16	5	3
Totals	10,364	424	1,423	377	946	31	65	4

Source: Utah Division of Water Rights, wrpod.shp

Table 26.2. Municipal water suppliers in Box Elder County and their appropriation totals by land ownership type.

MUNICIPAL WATER SUPPLIERS	BOX ELDER COUNTY (ACRE-FEET)	FEDERAL (ACRE-FEET)	STATE (ACRE-FEET)	US FOREST SERVICE (ACRE-FEET)	US BUREAU OF LAND MGMT (ACRE-FEET)
ACME Water Company	1,246.5	-	66.3		
Bear River Water/Harper Ward	953.3	15.3	-	15.3	-
Beaver Dam Water Company	217.7	-	-	-	-
Bothwell Cemetery and Water Co.	2,927.1	-	-	-	-
Brigham City Municipal Water	8,901.5	644.5	442.4	520.2	-
Cedar Ridge Subdivision	75.3	-	-	-	-
Coleman Mobile Trailer Court	8.7	-	-	-	-
Corinne City Water System	2314	-	46.3	-	-
Deweyville Municipal Water System	2,472.4	-	39.6	-	-
Elwood Town	5,318.8	-	312.3	-	-
Five Cs Trailer Court	14.1	-	-	-	-
Garland City Corporation	1,505.9	-	-	-	-
Grouse Creek	388.8	3	-	-	3
Honeyville Municipal Water System	7,334.3	50.9	292.9	50.9	-
Hot Springs Trailer Court	7.3	-	-	-	-
Howell Culinary Water System	6,780.6	-	-	-	-
Mantua Culinary Water Systems	2,089.8	76.3	45.7	76.3	-
Marble Hills Subdivision	166.8	-	-	-	-
Perry City Water System	4,765.3	489.7	576.9	0.2	-
Pleasant View	9.3	-	-	-	-
Plymouth Town	339.6	-	-	-	-
Portage Municipal Water System	1,411.7	-	-	-	-
Riverside - North Garland Water	4,952.6	-	-	-	-
Snowville Waterworks	461.3	-	-	-	-
South Willard Culinary Water	1,010.9	0.4	2.2	0.4	-
Sunset Park Water Company	82.4	-	-	-	-
Thatcher-Penrose Service District	1,932.7	-	9.3	-	-
Tremonton Culinary Water	2,066.3	-	-	-	-
Ukon Water Company	1,635.6	-	13.1	-	-
West Corinne Water Company	37,008.1	1,144.6	604.2	-	29.4
Willard Municipal Water System	4,484.1	2.4	1,478.7	-	1.9
Willow Creek	58.1	-	-	-	-
Totals	102,940.9	2,427.1	3,929.9	663.3	34.3

Source: Utah Division of Water Rights, muni.shp

The ownership of a right to use water identified by appropriation is called a “water right.” State law classifies water rights as “real property,” which can be held by an entity or individual and may be bought and sold. A water right is tied to a specific source (defined as a “diversion”). Irrigation water rights are tied to a quantified acreage of land and must be continually used for the purpose for which it was appropriated, which is defined as beneficial use. With some limitations, water rights may be rented or sold to other users, subsequent to DWRi approval, and provided that the transfer of water rights does not affect other relevant water users. With some limitations, water rights for a certain beneficial use may be held in lieu of a different beneficial use subsequent to the DWRi approval and an appropriate exchange can be accounted for by DWRi. With some limitations, the use of water rights from a specific diversion may be transferred to the use of water from another diversion, subsequent to the DWRi approval and an appropriate exchange rate can be accounted for by DWRi.[2] Water rights are subject to available supply, so ownership of a water right may not necessarily guarantee that the user receives a specific predefined volume of water. Additionally, not all water rights possess an equal standing when annual water allocations are reduced due to availability.

The laws in the State of Utah governing the statewide administration of water rights are based on the principles of a legal doctrine known as “Prior Appropriations.” The Prior Appropriations Doctrine establishes the ranking of a water rights priority based on the chronologic establishment of the original beneficial use, making older water rights senior to newer water rights. In other words, all water rights are not created equal. As available water supply diminishes at any given diversion, a junior water right holder may have to yield remaining water supply to the holder of a more senior water right.

The source of the water may be a determining factor identifying which beneficial use may be applied. Drinking water often comes from wells where little or no treatment is required, while irrigation water often comes from rivers because irrigation water does not typically need to be treated. Water appropriated for irrigating farmland must be used only for irrigation until (and if) approval to change the use can be obtained from the DWRi. Similarly, irrigating farmland from a culinary well is not legal unless approval has been obtained from DWRi. Additionally, failure to actively maintain beneficial use may result in the forfeiture of the water right.

Depletion

Whether it is used for drinking or irrigating corn, water rights are typically quantified as a gross volume of flow and represent the maximum amount of water a water rights holder is entitled to divert from a common supply. However, it is a common misconception that the water rights holder owns that water, or that all the water diverted is taken out of circulation. Because of the cyclical nature of how finite water supplies become available to users, ownership of a water right entitles the owner to only the single annual beneficial use for which the right was appropriated. Water right ownership entitles the holder to divert a given volume of flow (if both available supply and water right seniority allow) and apply that diverted water to the beneficial use. However, after the use of the water has been applied, the water must then be released downstream to the next user. Water rights are quantified at the diversion point because there is no reliable way to accurately measure water returned to the system after all the various beneficial uses.

“Depletion” is the term defining the actual net water volume a user takes from a given diversion point, removing it from the system and rendering it unavailable for reuse by downstream users. A water right is more accurately described as the right to an estimated amount of depletion. The estimated amount of depletion is approximated based on known rates of water that are lost to the system for a particular use, which is why water rights are tied to a specific beneficial use.

As water supplies fluctuate from year to year, any water right is subject to available supply. The State of Utah follows the prior appropriation system, which grants priority water rights to whoever has documented the earliest beneficial use of water.

Diversions can be any drilled or dug well, gate, valve, dam, or pump that takes water from a natural stream channel or groundwater. The DWRi maintains records of all water wells, storage dams, and diversions, as well as places of use, and municipal water suppliers. However, many water rights holders in Utah are entities that function for a collective set of water shareholders. Shareholders own a portion of water right(s) which is administered by the water right holder. This is usually the case within irrigation districts or ditch companies. The DWRi does not necessarily possess records of individual shareholders because those records are held by the entity owning the water right on behalf of the shareholders. Changes to any water rights may be applied for by filing an application to the DWRi. The DWRi and the Utah Division of Natural Resources are both held by appointees of the governor, accountable to the governor, subject to state legislative action, and tasked with administering all state and federal water rights within Utah.

Legal Context

Utah's water, including rivers, lakes, and groundwater is regulated under Utah Code Title 73-1et seq., Water and Irrigation, and is subject to additional legal settlements, rulings, and treaties, which also play significant roles in determining how water is allocated to users in the western United States.[1] Utah Code Utah Code §73-1-1 declares all water, above and below ground, is property the public and shall be governed by the Legislature for "beneficial purposes". Utah Code §73-2-1 creates a state engineer with responsibility "for the general administrative supervision of the waters of the state and the measurement, appropriation, apportionment, and distribution of those waters." Subsection 1.1 created the DWRi within the DNR with authority over water rights in Utah. Utah Code 73-3-1 et seq. addresses the appropriation of water rights, methods for obtaining and defending rights, etc.

Another section of state code applicable water, and especially to municipalities, includes Utah Code §10-8-15 which provides extraterritorial jurisdictional authority for municipalities to enact ordinances with effects outside of official city boundaries for purposes of "preventing pollution or contamination of the streams or watercourses." Under this law, cities of the first class may enact ordinances covering all lands within watersheds that provide domestic or culinary water. Cities of other classes may enact ordinances effective "15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream." Utah Code §10-8-18 give municipalities the authority to acquire water sources to provide water for the city and its' inhabitants, including the right to purchase land, purchase and lease water sources, and purchase, lease or form water companies.

26.2 Desired Future State

As a political subdivision of the State, Box Elder County has a legitimate interest in seeing that all reasonable steps are taken to preserve, maintain and, where reasonable, as determined by Box Elder County, develop those water resources. The county desires to support a watershed that maximizes water yield and water quality to meet present and future needs including water for livestock, wildlife, and human uses. The county also desires to protect private water rights.

26.3 Management Objectives and Associated Policies and Guidelines

26.3.1 Management Objective

Maintain existing water rights and support reasonable development of additional water rights.

Policies and Guidelines

- Provide for the protection of water rights and reasonable development of additional water rights.

- Coordinate with water resource management entities, especially water districts and canal companies, to ensure water supplies and water delivery infrastructure will meet growth needs.

- Encourage regionalization and cooperation between public and private entities.

26.3.2 Management Objective

Support a watershed that maximizes water yield and water quality to meet present and future needs including water for livestock, wildlife, and human uses.

Policies and Guidelines

- Take all reasonable steps to preserve, maintain and, where reasonable, as determined by Box Elder County, develop water resources.

- Implement watershed protections and vegetation management to maintain availability of water for beneficial uses and to protect water quality.

26.4 References

[1] Utah Division of Water Rights. n.d. Frequently Asked Questions Website. http://www.waterrights.utah.gov/wrinfo/faq.asp (accessed February 2, 2016).

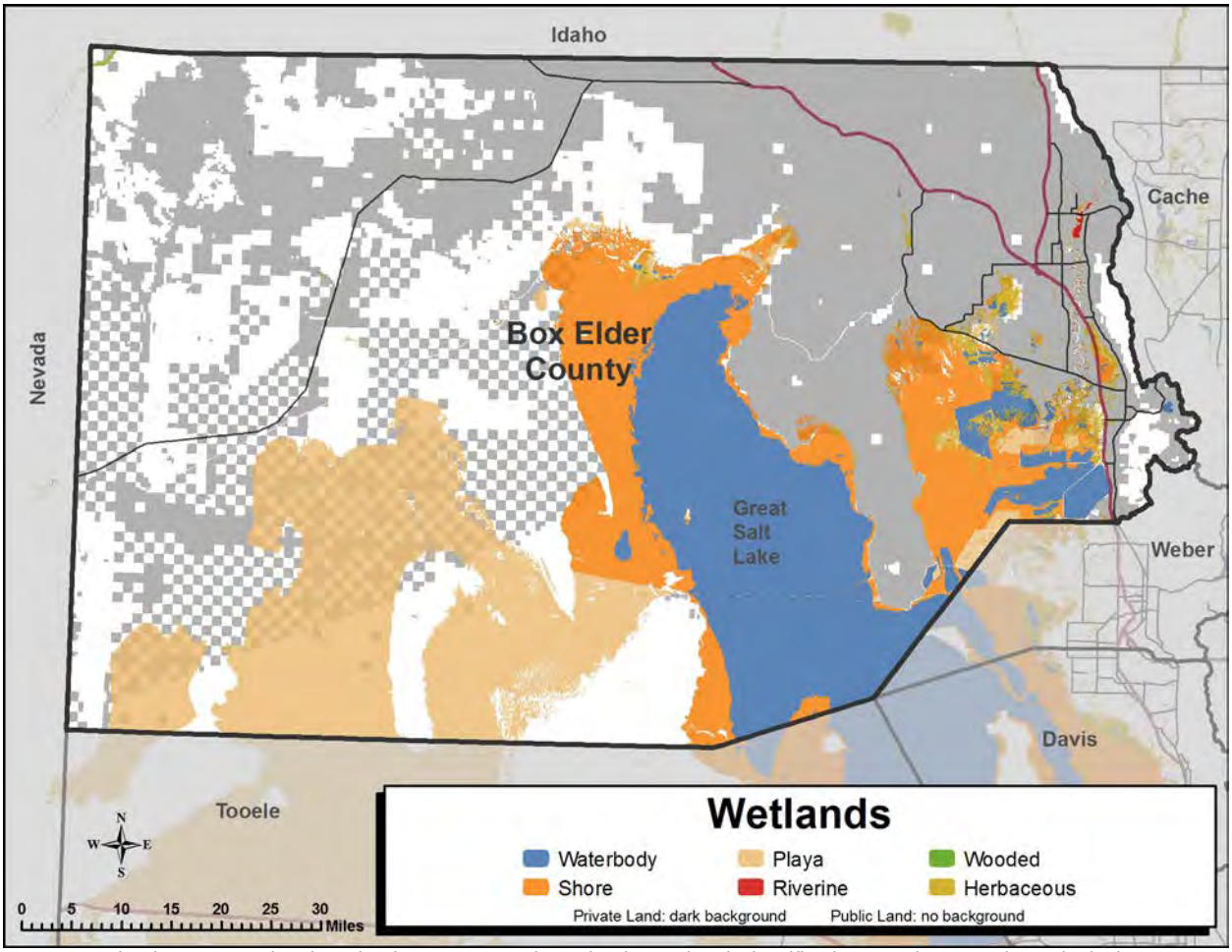
[2] Utah Department of Natural Resources. 2013. Study of Issues Related to State Jurisdiction Over Water Rights. http://www.waterrights.utah.gov/wrinfo/Brochures/state_jurisdiction_over_water_rights.pdf (accessed March 23, 2017).

27. WETLANDS

Wetlands have been defined in different ways by numerous entities and agencies. However, the US Army Corps Engineers (USACE) and the Environmental Protection Agency (EPA) jointly define wetlands as: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that do under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."[1] This definition of wetlands is perhaps the most relevant to local land planners because the USACE and the EPA are the agencies that have legal jurisdiction over wetlands, including wetlands on private property. Wetlands provide numerous benefits to society but a few of the most important of these include wildlife habitat area, hydrologic recharge areas, and water quality improvements.

Related resources:

- Floodplains and River Terraces
- Riparian Areas
- Water Quality and Hydrology



Source: Wetlands, 2017, National Wetland Inventory, Utah Wetland Functional Classification: Version 1, Utah Geological Survey.

27.1 Management Setting

Context

Wetlands are highly productive ecosystems providing habitat for a wide assortment of wildlife, including sensitive species. Wetlands are also a critical component to a functioning hydrological system having the ability to improve water quality by filtering out pollutants. In addition, wetlands can lessen the effects of flooding by storing water and releasing it slowly with the potential to help replenish aquifers.

Wetlands are a critical component to Box Elder County's functioning hydrological system. The wetlands surrounding the Great Salt Lake support bird habitat of international importance. Responsible stewardship of these resources while supporting current industries will provide lasting benefit to Box Elder County's people and wildlife.

Findings

Wetlands are distributed across the entire County but are most prevalent at the Bear River Migratory Bird Refuge, salt flats in western Box Elder County as well as around the Great Salt Lake. Based on ACOE wetland delineations, a large quantity of playa, shoreline, and open water wetlands types occur in the county. Table 27.1 shows wetland acreage in Box Elder County by type and ownership status.

Table 27.1. Wetland acreage by type and ownership status within Box Elder County.

WETLAND TYPE	ACRES							
	Box Elder County	State of Utah	Federal	US Forest Service	US Bureau of Land Mgmt	US Dept of Defense	US Fish and Wildlife Service	National Park Service
Herbaceous	45,513	10,786	11,928	39	1,502	6	10,381	-
Playa	596,362	51,503	389,052	-	266,524	115,372	7,156	-
Riverine	3,106	808	683	2	-	-	676	5
Shore	373,283	275,968	62,842	-	21,294	1,277	40,271	-
Waterbody	480,701	454,202	18,281	10	417	9	17,844	1
Wooded	405	91	19	9	7	-	3	-
Totals	1,499,370	793,358	482,805	60	289,744	116,664	76,331	6

Source: US Fish and Wildlife Service's National Wetland Inventory with additional data from US Forest Service, Utah Geological Survey, and Utah Automated Geographic Reference Center.

Legal Context

Applicable Laws

All jurisdictional waters and wetlands, regardless of ownership, are regulated by the EPA and USACE under Section 404 (Permits for Dredged or Fill Material) of the Clean Water Act (33 USC §1344 et seq.). Activities that involve excavation or placement of fill in jurisdictional waters or wetlands require a permit issued by the USACE and may be reviewed by EPA. The extent of jurisdiction is determined on a project-by-project basis, in consultation with the USACE.

27.2 Desired Future State

Box Elder County desires to maintain and improve wetlands found on public lands for the benefit of its watershed, water quality, wildlife habitat, and other users.

Box Elder County disagrees with current guidelines for identifying wetlands and desires consultation in wetland identification.

27.3 Management Objectives and Associated Policies and Guidelines

27.3.1 Management Objective

Conserve and enhance wetland and riparian area functions and values.[2]

Policies and Guidelines

- Support develop a wetland mitigation program that identifies priority wetlands and establishing a General Permit as described in Section 404 of the Clean Water Act for development within wetland areas; requiring a Special Area Management Plan as a condition of development; and soliciting Utah Department of Wildlife Resources assistance in wetland/riparian habitat enhancement efforts.[3]

- Impact studies should be required in cases where development impacts wetlands, including road construction. Mitigation of any damage should be required.

27.3.2 Management Objective

Increase public understanding of, and involvement in, wetlands conservation.[2]

Policies and Guidelines

Support public education efforts about wetland conservation.

27.3.3 Management Objective

Inventory existing natural resources including prioritizing wetland ecosystem needs.[3]

Policies and Guidelines

Inventory natural resources and including prioritizing wetland ecosystem needs.

27.3.4 Management Objective

Consult about wetland identification.

Policies and Guidelines

Coordinate with land management agencies in wetland identification protocols and projects.

27.4 References

[1] Novitzki, R., D. Smith, and J. Fretwell. 1996. Wetland Functions, Values, And Assessment. National Water Summary On Wetland Resources. Washington, D.C.: US Government Printing Office.

[2] Box Elder County. 1998. Box Elder County General Plan,Wetlands, p. 4.

[3] Box Elder County. 1998. Box Elder County General Plan,Community Dev & Land Use, p.7-8.

28. WILD AND SCENIC RIVERS

The Wild and Scenic Rivers (WSR) designation is reserved for free-flowing waterways that exhibit "outstandingly remarkable" value (scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value). For this purpose, "free-flowing" is defined as a river section that is flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. Rivers with this designation are protected within the WSR system for the enjoyment of present and future generations.[1]

Related resources:

- Wilderness
- Recreation and Tourism
- Land Use

28.1 Management Setting

Context

Box Elder County currently does not have any rivers officially designated as wild and scenic but the US Forest Service (Forest Service) has decided that Willard Creek, from the source to the Forest boundary, has "scenic" qualities. The Forest Service is currently managing Willard Creek under the scenic classification.[2]

Findings

Wild and Scenic Rivers are designated by acts of Congress after federal land managers recommend specific river or stream segments for designation. Water courses that are determined to have WSR characteristics are designated as eligible during land use planning procedures. The National Environmental Policy Act (NEPA) process is followed to assess potential impacts of land use decisions, including WSR designation. Plans are adopted after consultation with local governments, residents, Native American Tribes and other interested parties. Proposed WSR are then managed as default WSR until Congress either designates the water course as WSR or returns them to the agency for other management purposes.

Legal Context

Applicable Laws

The Wild and Scenic Rivers Act of 1968 (16 USC §1271 et seq.) provides the legal framework and criteria for designation of streams and rivers segments as WSR. Eligible water courses are recommended for designation by federal land managers after a determination is made through planning procedures included in the NEPA (42 USC §4321 et seq. [1969]) and well as land and resource planning documents. The Forest Service planning procedures are detailed in the National Forest Management Act (16 USC §1600 et seq. [1976]), while the BLM follows the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]).

28.2 Desired Future State

Box Elder County does not desire to have any river segment designated as Wild and Scenic.

28.3 Management Objectives and Associated Policies and Guidelines

28.3.1 Management Objective

Oppose the designation of any river segment in Box Elder County as Wild and Scenic.

Policies and Guidelines

- Maintain active county participation in federal and state public land/resource planning processes.
- Support the policy of multiple-use and sustained yield land management practices.

28.4 References

[1] National Wild and Scenic Rivers System. n.d. About the WSR Act. Accessed: 1/21/16.

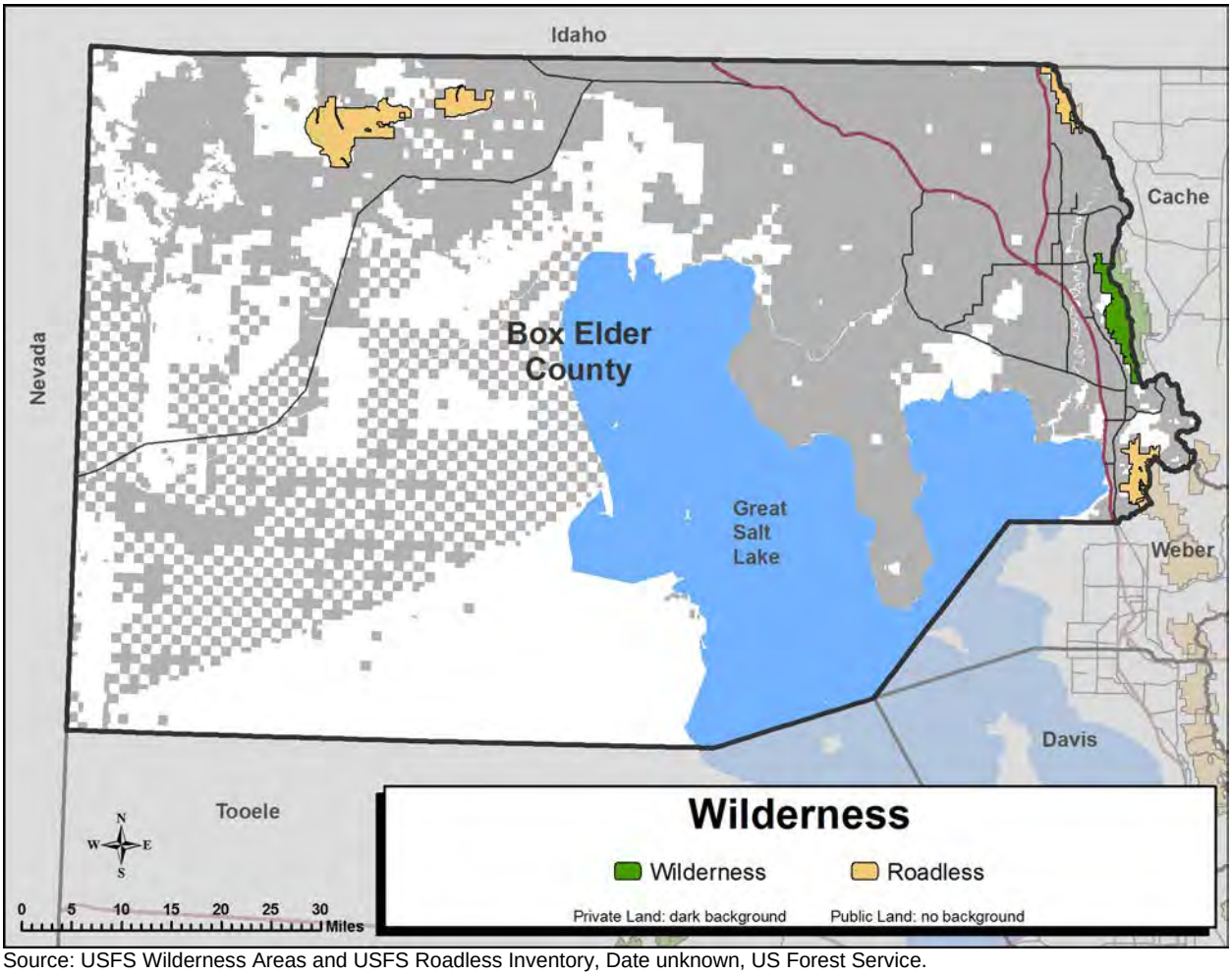
[2] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

29. WILDERNESS

The term “wilderness” is an administrative designation created under the Wilderness Act of 1964 and is applied to specific parcels of public lands. The wilderness designation enables preservation and protection of “Federal lands retaining primeval character and influence” and as such severely limits consumptive and motorized uses. A second component of this discussion has to do with lands under other special designations besides official wilderness areas, which also significantly restrict the types of allowable uses. The US Forest Service (Forest Service) special management classes include Research Natural Areas, Wild and Scenic Rivers, Roadless Areas, and Recommendation Wilderness Areas. The US Bureau of Land Management (BLM) special designations include Areas of Critical Environmental Concern (ACEC), Wilderness Study Areas, and Resource Conservation Areas.

Related resources:

- Wild and Scenic Rivers
- Land Use



Source: USFS Wilderness Areas and USFS Roadless Inventory, Date unknown, US Forest Service.
Wilderness_BLM98Reinventory, 1998, Bureau of Land Management. Access via Utah Automated Geographic Reference Center.

29.1 Management Setting

Context

Wilderness areas are designated by the US Congress after land managers recommend specific areas for designation. Lands which appear to qualify as wilderness are designated as Recommended Wilderness areas (Forest Service) through Forest Plan procedures or Wilderness Study Areas (BLM) in Resource Management Plans. In both cases, the National Environmental Policy Act (NEPA) process is followed to assess potential impacts of land use decisions, including wilderness designation. Plans are adopted after consultation with local governments, residents, Native American tribes and other interested parties. Proposed Wilderness and Wilderness Study Areas are then managed as default wilderness until Congress either designates the Wilderness Study Areas as wilderness or returns the land to the agency for other management purposes. Other protective land use designations, such as Roadless Areas (for Forest Service) or Areas of Critical Environmental Concern (for BLM) are management designations implemented through land management plans and Resource Management Plans.

Box Elder County has designated wilderness in the Wellsville Mountains on the eastern side of the county. Other lands in the western portion of the county have been proposed for wilderness designation under various wilderness proposals by the BLM and other private groups.[1]

Findings

Box Elder County has 11,876 acres of designated Wilderness under Forest Service management (Table 29.1). The county has no designated Wilderness under BLM management. There are no Forest Service Recommended Wilderness Areas or BLM Wilderness Study Areas in the county. Box Elder County has 45,275 acres of lands covered under the 2001 Roadless Area Rule (Table 29.2). There are no ACECs on BLM lands in the county.

Table 29.1. Designated Forest Service Wilderness in Box Elder County.

WILDERNESS AREA	ACRES
Wellsville Mountain Wilderness	11,876

Source: SITLA land ownership spatial database.

Table 29.2. Areas covered under the 2001 Roadless Area Rule within Box Elder. County. There are no ACECs in Box Elder County.

FOREST SERVICE ROADLESS AREAS	ACRES
Clarkston Mountain	5,206
Clear Creek	7,189
Public Grove	222
Raft River	23,976
Willard	8,682
Total	45,275

Source: Forest Service GIS data.

Box Elder County Legal Context

Applicable Laws

The Wilderness Act of 1964 (16 USC §1131 et seq.) provides the legal framework and criteria for Wilderness designation. Wilderness areas are recommended for designation by federal lands managers after a determination is made through planning procedures spelled out in the NEPA (42 USC §4321 et seq. [1969]) and well as land and resource planning documents. The Forest Service planning procedures are spelled out in the National Forest Management Act (16 USC §1600 et seq. [1976]), while the BLM follows the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]).

The Wellsville Mountain Wilderness area was officially designated as Wilderness by the Utah Wilderness Act of 1984 (Public Law 98-428 [1984]). Since that time no additional land in the county have been designated as Wilderness by Congress.

The state enacted the Utah Wilderness Act of 2014 (Utah Code §63L-7-101 et seq.) to provide a wilderness designation option for state-owned lands.

29.2 Desired Future State

Box Elder County desires officially designated wilderness to be managed to support recreation. The county does not desire new wilderness area designations or an expansion of the existing Wilderness Area.

Any public lands outside of the existing of the Wellsville Mountain Wilderness should not be managed as if they are or may become wilderness, including lands categorized as roadless, Wild and Scenic River, or other unofficial proposed or recommended wilderness areas.

29.3 Management Objectives and Associated Policies and Guidelines

29.3.1 Management Objective

Support recreation in officially designated wilderness areas.

Policies and Guidelines

Support recreation in officially designated wilderness.

29.3.2 Management Objective

Oppose the designation of any new wilderness areas in Box Elder County.

Policies and Guidelines

- Maintain active County participation in federal and state public land/resource planning processes.[3]
- Maintain working partnerships with public land/resource management agencies.[3]
- Support the policy of multiple-use and sustained yield land management practices.[3]
- Litigate if necessary.

29.4 References

[1] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

[2] US Forest Service. 2003. Sawtooth National Forest Land and Resource Management Plan, Amended 2012. https://www.fs.usda.gov/detail/sawtooth/landmanagement/planning/?cid=stelprdb5391896 (accessed April 14, 2017).

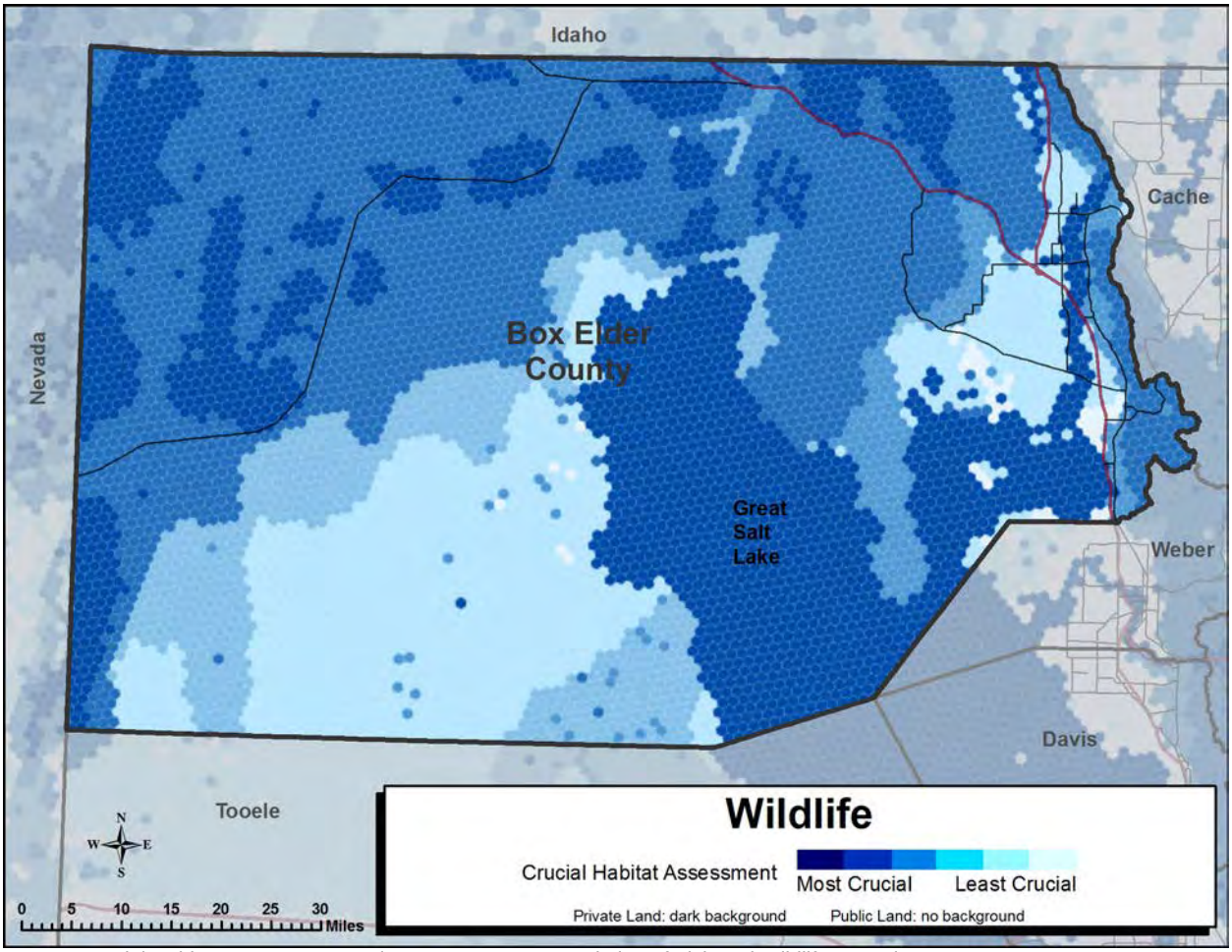
[3] Box Elder County. 1998. Box Elder County General Plan, County Goals, Public Lands, Fed & State, p. 2.

30. WILDLIFE

Wildlife is the population of undomesticated animals living in a natural environment, including both game and nongame species. In Utah "wildlife" includes vertebrate animals (fish, amphibians, reptiles, birds, mammals) as well as brine shrimp, crayfish, and mollusks. This section does not specifically address sensitive species (see Section 22, Threatened and Endangered Species) or aquatic wildlife (see Section 8, Fisheries).

Related resources:

- Threatened and Endangered Species
- Fisheries
- Predator Control



Source: Crucial Habitat Assessment Tool, 2013, Western Association of Fish and Wildlife Agencies.

30.1 Management Setting

Context

Box Elder County enjoys a diverse and abundant wildlife population, which contributes to a productive natural environment. Wildlife also yield important social and economic resources including recreation opportunities such as photography, wildlife observation, and hunting.

The Bear River Migratory Bird Refuge is a hemispherically important component of the migratory bird flyway. Hunting and wildlife viewing are increasing in economic impact in Box Elder County. The harvest of brine shrimp and cysts from the Great Salt Lake are also an important component of the local economy.

Findings

The Utah Department of Wildlife Resources (DWR) is the wildlife authority for the state and all wildlife found in Utah are considered property of the State (Utah Code 17-13-3). It is the DWR's responsibility to protect, propagate, manage, conserve, and distribute protected wildlife throughout the state regardless of land ownership and jurisdiction. Assisting the DWR in decision making and establishing management priorities is the state Wildlife Board and five Regional Advisory Committees (RACs) that provide local input on wildlife related issues. Each RAC consists of a diverse group of interest group representatives, including agriculture, sportsmen, federal land agencies, general public, and elected officials.

The DWR has published management plans for mule deer, elk, moose, bighorn sheep, black bear, beaver, northern river otter, bobcat, wild turkey, and greater sage grouse. Utah's Wildlife Action Plan considers key habitats and provides management strategies to improve the habitat's condition (see pages 73–123). Also, the plan considers threats and provides actions to reduce the threats (see pages 124–216).[1] Habitat for wildlife crosses jurisdictional boundaries and is best managed by cooperative means. Table 30.1 shows the generalized ranking of habitat in the county and its distribution between public (several agencies) and private lands.

Federal land managers must consider wildlife and their habitats in Forest Plans (for the US Forest Service) and Resource Management Plans (for the Bureau of Land Management) as well as during National Environmental Policy Act (NEPA) analysis.

Table 30.1. Acres and Percentages of Generalized and Ranked Crucial Wildlife Habitat.

GENERALIZED HABITAT		BOX ELDER COUNTY		PUBLIC LAND		PRIVATE LAND	
Rank		Acres	Percentage	Acres	Percentage	Acres	Percentage
Most Crucial Habitat	1	1,313,135	30	947,498	22	365,634	8
	2	1,512,301	35	551834	13	960,464	22
	3	168,899	4	26,982	1	141,917	3
	4	433,918	10	287,610	7	146,307	3
	5	848,896	20	577,772	13.5	271,122	6.5
Least Crucial Habitat	6	29,563	1	18,464	0.5	11,099	0.5

Source: Crucial Habitat Assessment Tool, 2013, Western Association of Fish and Wildlife Agencies.

Legal Context

Box Elder County recognizes the authority of the DWR and the Wildlife Board and RACs in managing the wildlife in the county.

Applicable Laws

All naturally occurring wildlife in Utah are considered property of the state (Utah Code §23-13-3). Utah Code §23-14-1 gives the power to manage wildlife to the DWR. Utah Code §23-15-2 establishes that the

state has jurisdiction of all wildlife in the state, including aquatic wildlife, whether on public or private land. Utah Code §4-23-2 declares that preserving the wildlife resources of the state is important to the economy of the state. Utah Code §23-14-2.6 establishes RACs who advise the state Wildlife Board regarding wildlife management issues.

30.2 Desired Future State

Box Elder County desires to maintain healthy native wildlife populations. Residents enjoy participating in wildlife-related activities and feel that wildlife and wildlife habitat should be considered in future development decisions. The county desires to protect and enhance natural landscapes, ecosystems, and the biodiversity of the county to support healthy wildlife populations. The county desires to maintain and increase economic benefits derived from hunting and wildlife viewing. Conflicts between wildlife and other land use objectives may require mitigation.

30.3 Management Objectives and Associated Policies and Guidelines

30.3.1 Management Objective

Wildlife is an important component of public land management and but should not take a priority over livestock production. Address agricultural impacts caused by big game animals and predators.

Policies and Guidelines

- Meet the needs of wildlife, provided wildlife populations are kept at a reasonable minimum so as to not interfere with originally permitted Animal Unit Month (AUM) levels under the Taylor Grazing Act.[2]

- Box Elder County regards the land which comprises the grazing districts and allotments on public lands as still more valuable for grazing than for any other use which might exclude livestock grazing. Such other uses include but are not limited to conversion of AUM's to wildlife or wilderness uses.[2]

- Any grazing animal unit months that may have been reduced due to rangeland health concerns should be restored to livestock when rangeland conditions improve. They should not be converted to wildlife use.[2]

30.3.2 Management Objective

Support the general objective of Utah's Wildlife Action Plan, which is to plan for managing native wildlife species and their habitats to help prevent listings under the Endangered Species Act.

Policies and Guidelines

- Support the general objective of Utah's Wildlife Action Plan, which is to plan for managing native wildlife species and their habitats to help prevent listings under the Endangered Species Act.[1]

- Provide adequate habitat components for sustainable big game populations coordinated with State wildlife management agencies, private lands and other resource needs and priorities.[3]

- Provide for connectivity of continuous large patches of forested habitat for interior forest-dependent and wide-ranging species (such as lynx, wolverine and migratory birds). Provide suitable habitat for prey species such as hares, squirrels, and small mammals.[2]

- Provide for sustained diversity of species at the genetic, populations, community and ecosystem levels.[4]

- Maintain communities within their historic range of variation that sustains habitats for viable populations of species.[4]

- Reduce potential for uncharacteristic high-intensity wildfires, and insect epidemics.[4]

- Continuing the use of appropriate methods for reducing the spread and dominance of invasive species.[5]

- Focus on approximating natural disturbances and processes by restoring composition, age class diversity, patch sizes, and patterns for all vegetation types."[4]

- New roads are planned and sited in areas where there are limited impacts to wildlife, especially aquatic systems such as riparian areas and wetlands. When existing roads are maintained, barriers to wildlife movement are altered to allow for movement.[1]

- Fire is excluded from habitats in which potential burns now would be frequent, large, and destructive to soils and native vegetation to the habitats are being actively managed (treated) to reduce components or factors that promote risk of catastrophic fire, such as cheatgrass, and excessive conifer encroachment.[1]

- Restore or maintain hydrologic functions.[3]

- Promote aquatic habitat protection. Preserve aquatic habitats identified by agencies as used or occupied by special status species in their current state by avoiding any action that would remove water from these areas.[6]

30.3.3 Management Objective
Include wildlife and wildlife habitat when planning or making decisions about future development.

Policies and Guidelines
Include wildlife and wildlife habitat when planning or making decisions about future development, and use local communication tools (meetings, website, newsletter, etc.) to dispel myths about ramifications of allowing agency monitoring of wildlife on private property, especially sensitive species.[7]

30.3.4 Management Objective
Support efforts to maintain or increase the economic benefits derived from hunting and wildlife viewing.

Policies and Guidelines
Support efforts to maintain or increase the economic benefits derived from hunting and wildlife viewing.

30.4 References

[1] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[2] Box Elder County. 1998. Box Elder County General Plan, Exhibit A.

[3] Sheley et.al. 1995. Managing Riparian Weeds. Rangelands 17(2). https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/11260/10533. (Accessed March 14, 2017).

[4] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (Accessed March 23, 2017).

[5] Sheley et.al. 1995. Managing Riparian Weeds. Rangelands 17(2). https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/11260/10533. (Accessed March 14, 2017).

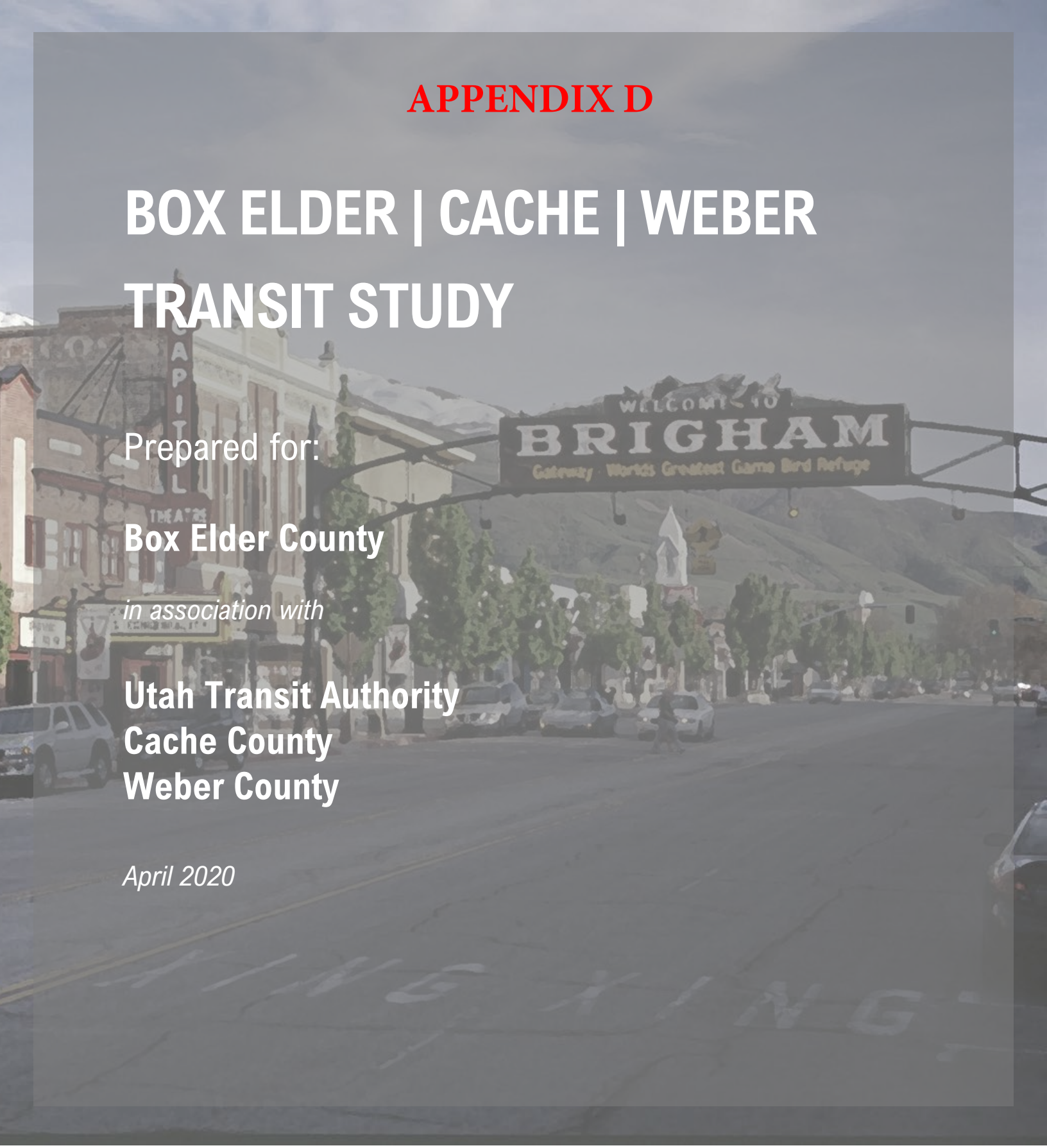
[6] Bellows, Barbara. 2003. Managed Grazing in Riparian Areas. Appropriate Technology Transfer for Rural Areas. https://extension.usu.edu/rangelands/files/uploads/General%20Grazing%20Management/Riparian%20grazing.pdf (accessed March 14, 2017).

[7] Cirrus Ecological Solutions, LC. & Logan Simpson Design, Inc. 2013. West Box Elder Coordinated Resource Management Plan. http://utahcbcp.org/files/uploads/boxelder/WBECRMPlanJan2013.pdf, (accessed April, 14, 2017).


BIO-WEST

APPENDIX D

BOX ELDER | CACHE | WEBER TRANSIT STUDY



Prepared for:

Box Elder County

in association with

Utah Transit Authority
Cache County
Weber County

April 2020

FEHR & PEERS

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Executive Summary

The objective of the Box Elder | Cache | Weber Mobility Study is to find, evaluate, and recommend transit options to meet demands of the growing population of Box Elder while continuing to support community and economic development opportunities, and maintain regional mobility to Wasatch Front and Cache Valley.

STUDY GOALS

EXAMINE *feasibility of transit options between Box Elder, Cache Valley, & the Wasatch Front*

EVALUATE *service types & coverages based on geography & markets. Determine which service type would be appropriate for various needs.*

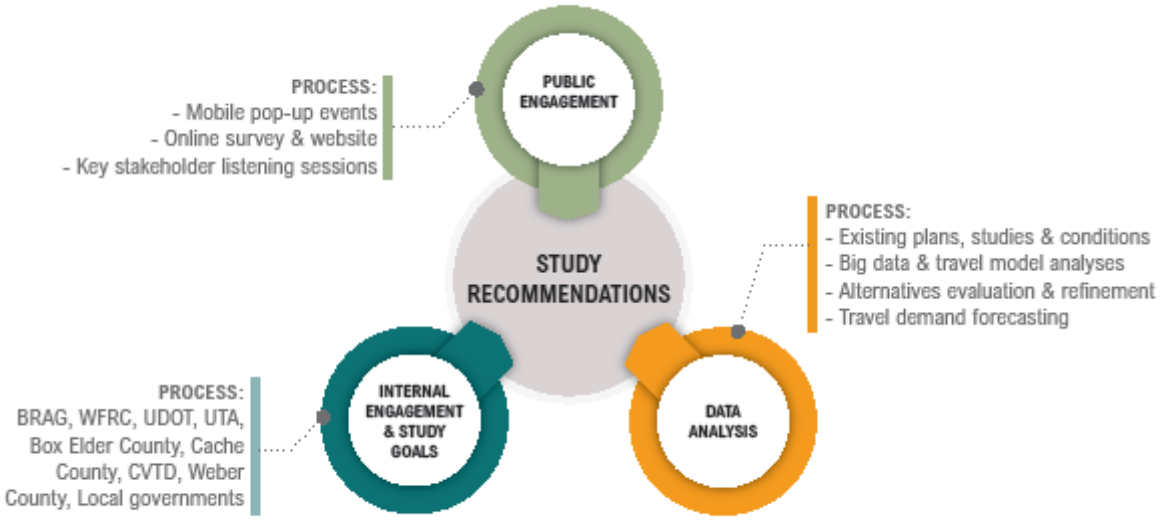
ASSESS *physical, political, economic constraints, & implications of potential land use changes, based on population projections, growth trends, & local plans.*

RECOMMEND *viable transit opportunities scaled to short-, medium-, & long-term needs.*

DETERMINE *if proposed high capacity transit is still valid for current & future demand.*

APPROACH

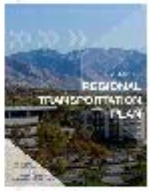
The recommendations outlined in this study were developed using a three-pronged approach:



RESULTS

Major transit investments connecting Box Elder to Cache Valley and the Wasatch Front were analyzed. Through our three-pronged approach, a series of transit alternatives were developed and refined to uncover the best transit opportunities. Of the identified alternatives, including rail, BRT, etc., none were found to perform substantially better than those in the 2050 Regional Transportation Plan. Under both today's conditions and likely future levels of development, major transit investments are not likely to be appropriate, cost-effective solutions for the study area. The recommendations are right-sized, and provide realistic transit choices that can be implemented cost-efficiently and in a reasonable timeframe.

◀ *The 2050 RTP model output, with enhancements to FrontRunner service to Pleasant View Station, route 630, Flex 638 route, & Brigham Express.*



▲ *The WFRC 2019-2050 Regional Transportation Plan. Source: WFRC*

RECOMMENDATIONS

SHORT TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Community enhancements along corridor**
- **Cache Valley Pilot Project**
- **Increase service on Route 630**
- **Enhance bus stops along Route 630**
- **Increase marketing of Vanpool program**

MEDIUM TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Community enhancements along corridor**
- **Increase marketing of Vanpool program**

LONG TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Transitway, Technology TBD.**
- **Implement Express Service between Brigham City and Ogden**

▲ *UTA Vanpool. Source: UTA*

▲ *Community gardens near multi-use trails in Madison, WI*

▲ *Aerial rendering of multiuse trail with adjacent community enhancements (gardens, playgrounds, etc.), in corridor ROW.*

1

INTRODUCTION

Box Elder County, Utah, is situated between Ogden, the northernmost major city of the Wasatch Front Region, the Cache Valley Region to the east, and Idaho to the north. While the County may not be growing as rapidly as the counties along the Wasatch Front, it is still experiencing significant growth and is looking to manage the transportation impacts of that growth, which include increased use of the existing roadway network, more regional trips to and from the County, and an influx of online retail and the subsequent increase in delivery services traveling throughout the Region. In coordination with Box Elder County, the Utah Transit Authority (UTA), has had plans to extend commuter rail service, FrontRunner, north from Ogden and connect to Brigham City, the county seat of Box Elder County. Box Elder County residents supported that proposal in a 2007 tax referendum that dedicated a quarter-cent sales tax increment to implementing a commuter rail service.

Since the 2007 ballot initiative, corridor preservation has continued using the proceeds of the sales tax increment. However, considerable uncertainty exists as to when the extension of commuter rail to Brigham City would become financially viable given technical constraints and existing and future transit ridership in the Region. Therefore, the purpose of this study is to explore and evaluate potential transit solutions, including the proposed FrontRunner, to improve mobility between Box Elder County, Cache County, Weber County, and the Wasatch Front as a whole, incorporating the cities of Logan, Tremonton, Brigham City, Perry, Willard, North Ogden, Farr West, Pleasant View, and Ogden (Figure 1). It aims to understand the potential value of both locally- and regionally-oriented transit and multi-modal services and evaluate specific alternatives with respect to cost-effectiveness, feasibility, and responsiveness to local needs.

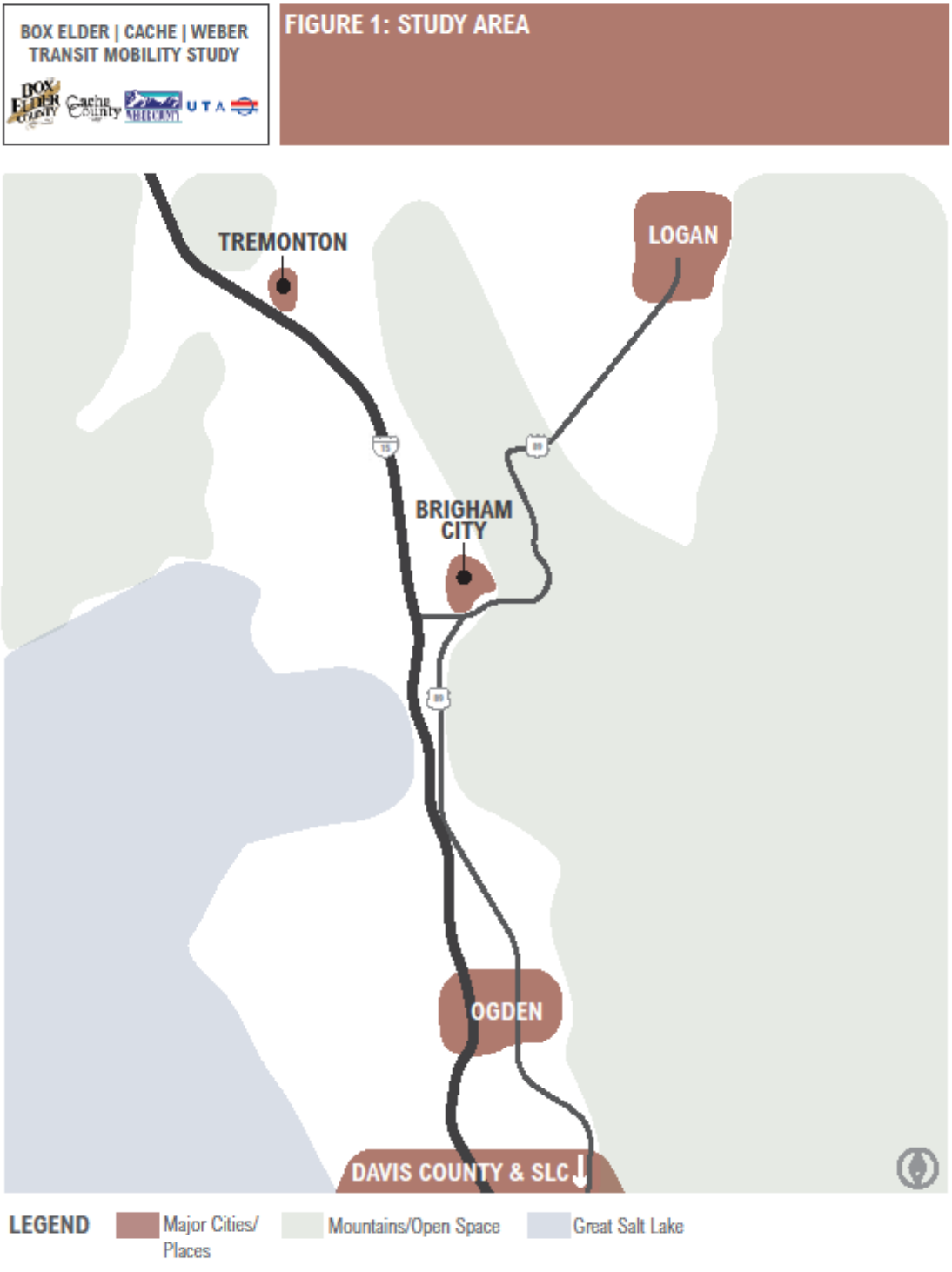


Figure 1: Project Study Area

PROJECT GOALS AND OBJECTIVES

The goal of the study is to evaluate and recommend transit services to meet demands of population growth, continue supporting community and economic development opportunities, and maintain regional mobility throughout the study area. Specific objectives of the study include:

- Examine the feasibility of transit options to and from Cache Valley and Brigham City to the Wasatch Front as well as possible connections from the Tremonton area to and from Cache Valley, eventually connecting to the Wasatch Front.
- Evaluate service types and coverages based on geography and disparate markets and determine which service type would be appropriate for the various needs.
- Assess the physical, economic, and political constraints, pedestrian accessibility, and include implications of potential land use changes, based upon population projections, growth trends, and local plans.
- Recommend viable transit opportunities in the study area that support short- medium- and long-term needs.

STUDY APPROACH

The approach to this study, as outlined in Figure 2, involved creating a purpose and need statement based on stakeholder input, examining relevant studies and existing data collection, a robust public engagement effort, development of transit and mobility alternatives to serve the identified needs, screening of those alternatives and consideration of next steps to move forward.

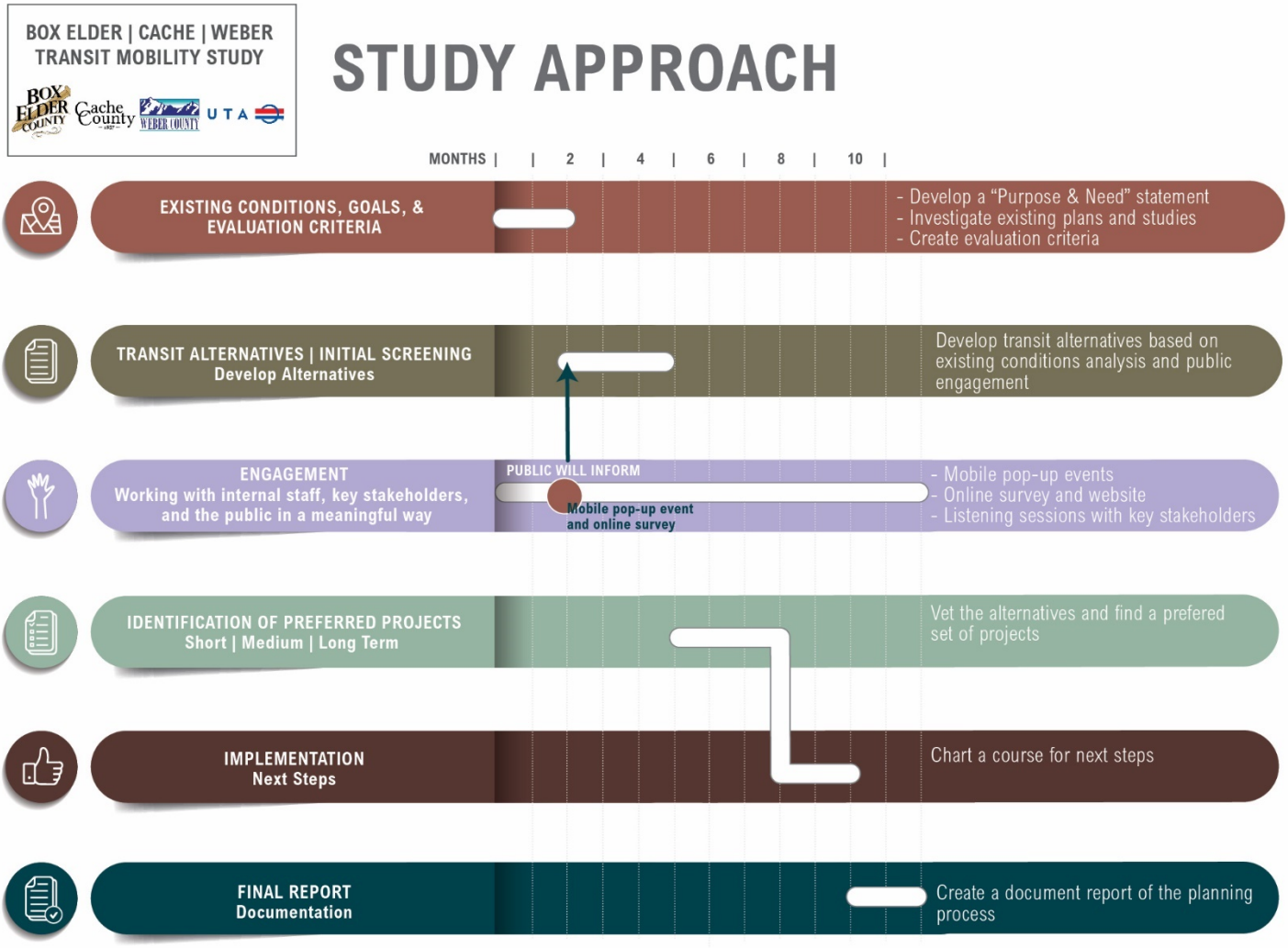


Figure 2: Study Approach and Schedule

2

EXISTING CONDITIONS

HISTORICAL CONTEXT, PRIOR PLANS AND STUDIES

Over the past two decades, there have been a number of studies and transit-related improvements made within the study area. The key take-aways and significant decisions from those studies are outlined here, in order to provide context by which to understand the alternatives and recommendations of this study. A timeline of major studies and actions is shown in Figure 3 below.

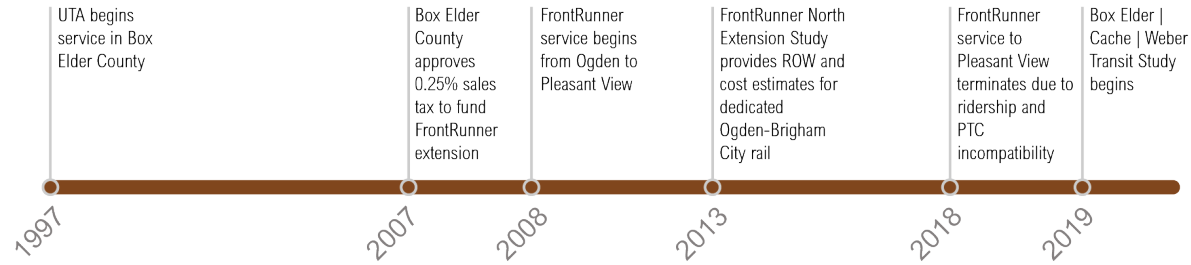


Figure 3: Timeline of Relevant Studies and Actions

2007 - Brigham City Transit Corridor Study

The *Brigham City Transit Corridor Study* was completed in 2007. This study examined transit mode and corridor alternatives between Pleasant View and Brigham City with the goals of:

- Reducing auto dependence and Vehicle Miles Traveled (VMT)
- Encouraging commuters to use transit

- Fostering economic development in Box Elder by creating connections with greater Wasatch Front and Salt Lake City International Airport (SLCIA)

The study did a modal analysis to determine which type of transit would best meet the stated goals. Four types of transit were evaluated within the corridor from Brigham City to Pleasant View, including a "Best Bus" service, Bus Rapid Transit (BRT) on US-89 and I-15, BRT on a separate guideway, and an extension of the FrontRunner commuter rail line. In conclusion, this study made the recommendation to extend the FrontRunner commuter rail to Brigham City with the following phasing recommendations:

- Near term: Implement peak-period commuter rail on shared Union Pacific Railroad (UPRR) track in ten years, during which bus service continues in off-peak period (if funding is available).
- Long term: Build dedicated commuter rail track and build Willard/Perry station at the 750 North interchange.

Next steps in that study included:

- Conduct capacity analysis with UPRR, in order to identify any cost saving potentials
- Seek voter approval for second quarter sales tax to fund the right-of-way acquisition needed to construct the dedicated rail line.
- Develop a financial plan for service.
- Create station area plans and coordinate right-of-way needs with private developments.

2007 - Commuter Rail Ballot Initiative

Subsequent to the completion of the Brigham City Transit Corridor Study, in 2007 Brigham City voters passed a ballot initiative to earmark the second quarter sales tax revenue for actions to build rail, including corridor preservation of transit right-of-way from Pleasant View to Brigham City. Figure 4 shows the ballot question that was used.

UTA was designated as the custodian for the fund, and since the ballot initiative was passed in 2007 UTA has deposited the revenue in a dedicated account and is currently using the funds to acquire right-of-way. As the wording of the ballot initiative indicates, the sales tax funds are earmarked solely for commuter rail-related expenses. Any deviation from that explicit use would require voter approval or legislative override.

OPINION QUESTION NUMBER 1 - TRANSPORTATION IMPROVEMENTS

Shall Brigham City, Perry City, and Willard City, Utah be authorized to impose a sales and use tax of 0.25% (.0025) beginning on or after January 1, 2008 with the revenues received from the imposition of said tax to be expended for the expansion, construction, improvement, maintenance, and operation by the Utah Transit Authority of a public **commuter rail** transit facility(ies) and related services, infrastructure, operations and transportation system expenses?

◯ **FOR** THE IMPOSITION OF A SALES AND USE TAX OF 0.0025

◯ **AGAINST** THE IMPOSITION OF A SALES AND USE TAX OF 0.0025

Figure 4: Brigham City transit ballot question

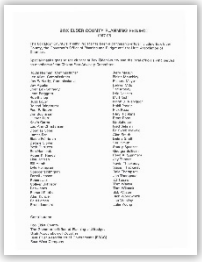
2013 - UTA FrontRunner North Extension Preliminary Engineering & ROW Assessment

Following the passing of the 2007 ballot initiative, a study was done in July 2013 that evaluated the preliminary engineering and right-of-way requirements of continuing the FrontRunner commuter rail line from its terminus in Pleasant View to Brigham City. The overarching goal of the study was to evaluate the following factors:

- An assessment of a potential alignment
- Right-of-way and adjacent property needs
- Utility and drainage constraints
- A track alignment layout/grading
- Rough property acquisition costs

The outcomes of this study included plan sheets of rough alignment potentials and underscored the need for future study within all the aforementioned factors in order to move forward in earnest. Recommendations included future coordination with UPRR, additional utility research, a study on the justification of the line, and potentially an Environmental Impact Study (EIS).

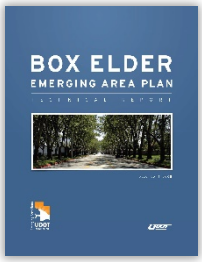
Since this study was completed, UTA has hired a surveyor to prepare for land acquisition and has started negotiations with landowners in the corridor as well as limited acquisitions.



1998 - Box Elder County General Plan

In 1998, Box Elder County adopted the Box Elder County General Plan. The Plan stated that future growth in the County would make traveling by private automobile inefficient and inconvenient for residents. Box Elder County supported, and encouraged, improving bus service throughout the area, as well as developing a commuter rail link to the Wasatch Front to provide better access for the County.

2008 - Box Elder Emerging Area Plan

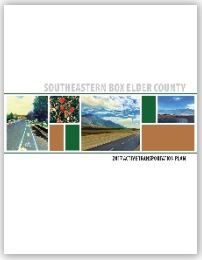


In 2008, the Box Elder Emerging Area Plan was completed, outlining three scenarios to help accommodate growth while maintaining the rural community feel and current quality of life. Scenario 1 involves concurrently improving roads and transit facilities for long-range travel, including FrontRunner extending to Brigham City, with BRT, commuter busses, and fixed guideway systems to Tremonton. Scenario 2 entails connecting local activity centers for efficient travel, incorporating additional bus services to connect Brigham City and Tremonton. Scenario 3 focuses on smaller roads and surface streets, including extending FrontRunner to Brigham City, with transit connecting to Tremonton.

This plan outlined the following transit recommendations:

- Work with UTA to extend FrontRunner to Brigham City
- Coordinate with Cache Valley Transit District (CVTD) to improve bus service between Box Elder and Cache Valley
- Integrate transit service throughout Box Elder County to connect residents to destinations and workers to employment centers
- Revisit recommendations made in the 2007 Box Elder Transit Study

2017 - Southeastern Box Elder County Active Transportation Plan



The 2017 Southeastern Box Elder County Active Transportation Plan encompasses Brigham City, Perry, Willard, and unincorporated South Willard. This plan assumes UTA FrontRunner commuter rail service planned along the Union Pacific rail corridor and proposes an adjacent rail trail within the preserved corridor for active transportation uses.

2017 - Brigham City General Plan

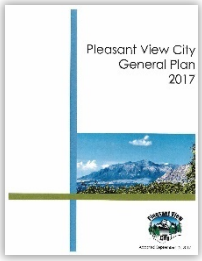
The 2017 Brigham City General Plan affirms resident's desire for improved regional connectivity and effective local transit options, including connections to the Wasatch Front and Utah State University's regional campus in the City. The plan's next steps list working with UTA to redesign and replace the current bus circulator with a local route that better serves residents. In addition, the plan recommends working with UTA, CVTD, Utah State University, and major employers to create an express bus to and from Ogden, and to and from Logan.

The plan also discusses the practicality of a FrontRunner station in the city at 200 South or 1100 South, and the positive impacts the station — and adjacent transit-

oriented developments — will have on the population, economic growth, and overall air quality. The strategies outlined in the plan to achieve this goal are to:

- Include the proposed station on future land use maps
- Designate 100+ acres for transit-oriented development and change existing zoning in those areas to better accommodate transit-oriented development
- Evaluate and implement pedestrian safety measures around Box Elder High School to decrease the risk of future auto-pedestrian crashes resulting from increased vehicular traffic caused by the FrontRunner station near the school
- Develop a train station area plan five to ten years prior to the actual construction of said station

During the public outreach phase of this General Plan, input was collected regarding transit options and the FrontRunner station. Residents listed a mixed-use FrontRunner station and improved public transportation as two of their top ten things they wanted to see in the city. Residents felt that the Utah State University campus needed to connect downtown Brigham City and the Logan Utah State University campus via transit. Furthermore, the steering committee for this plan stated that the potential for a FrontRunner station was one of the reasons that kept them in the city, and they hoped to see a FrontRunner extension within the next 20 years.

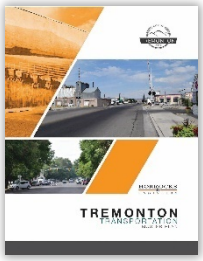


2017 - Pleasant View General Plan

The Pleasant View City General Plan emphasizes community connectivity and multimodal options for the city. There are two routes that currently serve residents, the Brigham City/Ogden bus (route 630) and the North Weber FrontRunner Shuttle (route 616). The plan emphasizes the current need for improved transit options, pointing out that FrontRunner operates on a limited schedule due to the lack of UTA-owned right-of-way. The plan acknowledged the importance of obtaining right-of-way for the expansion of UTA's FrontRunner rail system.

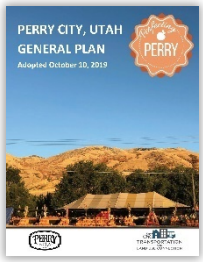
Contained in the Pleasant View City General Plan is the 2700 North Corridor Vision Specific Area Plan, adopted by the cities of Pleasant View and Farr West in 2015. The plan included a few transit recommendations including exploring opportunities for transit-oriented development in Pleasant View, and creating a transit-oriented, mixed-use district adjacent to the FrontRunner station and US-89.

2018 - Tremonton Transportation Master Plan



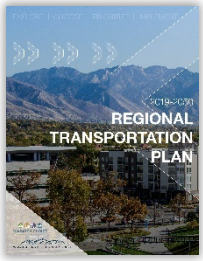
Tremonton's 2018 Transportation Master Plan outlines recommendations to the roadway network to accommodate growth over the next 50 years, connect the city to the Wasatch Front while prepreserving the city's rural character, and integrate transit service throughout the County. As part of this plan, Tremonton is planning for a FrontRunner station at 6400 West and 1600 South.

2019 - Perry City General Plan



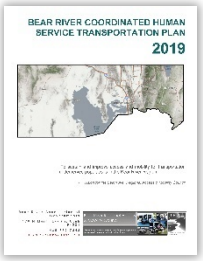
The transportation chapter in Perry City's 2019 General Plan is focused on roadway improvements, active transportation infrastructure, and transit. While private automobiles are the dominant mode of transportation for the city, residents made it clear that they wanted to see safe, multi-modal connections, and an improved transportation network in the future. There are currently two bus routes that service the city (UTA routes 630 and F638). As Perry's population increases, so does the need for high quality public transit. The plan outlined two strategies: (1) preserve FrontRunner corridor right-of-way and adjacent undeveloped lands, and (2) coordinate with UTA and regional partners to invest in innovative mobility solutions (rideshare, micro-transit, paratransit, etc.) to better connect residents to destinations and employments centers.

2019-2050 WFRC Regional Transportation Plan



The Wasatch Front Regional Council's Regional Transportation Plan sets forth a three-decade-long strategy for regional-scale investments for all modes of transportation. The plan lists three scenarios that all include connecting Box Elder via transit: Scenario 1, which is based on all currently adopted city/county general plans, outlines a FrontRunner extension into Box Elder County. Scenario 2 focuses on growth in large regional centers with expanded local street and regional rail networks. FrontRunner extended to Box Elder County and double-tracking and electrification of the rail line supported 15-minute commuter rail service. Scenario 3 involves small town centers with expanded local transit and regional road networks with a separated trail connecting Weber and Box Elder Counties. In terms of transit improvements, the plan outlines an express bus service from Box Elder County to the commuter rail and employment opportunities in Ogden.

2015 - Bear River Association of Governments (BRAG) Coordinated Human Service Transportation Plan



The Bear River Association of Governments conducted a Coordinate Human Service Transportation Plan to address growing needs for transportation services for disadvantaged populations by maintaining and filling gaps in existing voucher-based

programs to provide mobility to people in rural areas with no or limited existing public transit services. The Medical Voucher Program (MVP) has been highly successful in providing access to non-emergency medical services for populations with mobility challenges and remains a high priority for BRAG and its member communities.

2017 - Cache Valley Short-Range Transit Plan

The 2017 Cache Valley Short-Range Transit Plan is used to guide Cache Valley Transit District decisions over the next five to ten years. The study determined there may be sufficient demand for commuter service between Cache County and Box Elder County. Based on the analysis, an expansion of express service to Box Elder County with stops in Brigham City and Tremonton was recommended.

Changes Since Past Studies

The previous planning efforts that were reviewed as a part of this study demonstrate that a commuter rail extension from Pleasant View to Brigham City was favored by residents and stakeholders. However, in the ten plus years since the initial studies were done, some of the analytical justifications for commuter rail have not been realized in practice, and some of the assumptions made are either outdated or have not been actualized. For example, the 2007 Brigham City Transit Corridor Study anticipated the doubling of PM peak hour travel times by 2030 on I-15 from Brigham City to the Salt Lake City International Airport. This assumption has not been realized—current PM peak travel times remain at roughly 45 minutes, which is not trending upwards as the study would suggest it would. Additionally, the study assumed that I-15 would not be widened from Brigham City to Ogden. Widening of I-15 has since been completed.

UTA no longer provides FrontRunner service to the Pleasant View Station. This service was terminated in 2018; reasons for the discontinuation of service north of Ogden include technical and cost barriers to running FrontRunner service on Union Pacific shared track as well as low ridership and are discussed in greater detail in the following section. In addition, the operating and capital costs for FrontRunner service have been noted to be substantially higher than those developed in the 2007 Study. The limitations for running FrontRunner service on the existing Union Pacific rail are more stringent than previously estimated with significant costs related to upgrading the system (namely Positive Train Control (PTC)).

For the purposes of this study, the project team acknowledges that there have been enough changes to the transportation network and previous assumptions in the study area to warrant a critical evaluation of whether a commuter rail extension to Brigham City is justified, while meeting the needs of residents.

CURRENT AND PAST TRANSIT SERVICE

Existing Service

Currently, bus service is available along the US-89 corridor with the study area, connecting southern Box Elder County to Ogden (Routes 630, and F638 (flex route)). Cache Valley Transit District (CVTD) provides free-fare bus service within Cache Valley. Regional service spans from Preston, Idaho to Hyrum, Utah, and is accompanied with local community routes. Paratransit service is also available in both UTA's and CVTD's service areas. Vanpool services are available in the corridor, primarily servicing large employers, such as Hill Air Force Base and ATK.

Figure 5 and Figure 6 display the UTA F638 and 630 routes, and the UTA and CVTD routes, respectively.

Boarding and alighting data was available for UTA's F638 and 630 routes for the month of August 2018. Figure 7 displays the stops by bi-directional weekday boardings. The stops with the highest boardings were the Ogden Union Station stop (with 116 boardings) and the Brigham City 700 North and 75 East stop (with 37 boardings). Most stops are in the 1 – 5 boardings per day range. Both routes have acceptable productivity for the level of service that is provided (hourly service) and context in which they operate (relatively lower density). They are within UTA's standards to continue operating with this level of service but would not be candidates for service increases unless additional funding was dedicated to bus service in Box Elder County.

CVTD ridership data was not analyzed since there are currently no CVTD routes that travel outside of Cache County.

Specialized transportation services for seniors, persons with disabilities, and financially challenged individuals are provided by local senior centers, government organizations, and non-profit organizations within the study area, such as Cache Employment and Training Center (CETC), the Bear River Association of Governments (BRAG) and Options for Independence. BRAG provided the study team data associated with their Medical Voucher Program (MVP), which is a program that provides transportation reimbursement for disadvantaged populations in rural areas of the region. Table 1 demonstrates the breakdown of the MVP program's highest origin and destination pairs as a percentage of total trips from 2014 to present day.

Origins	Destinations	# Trips	% Trips
Lewiston	Logan	179	15.0%
Brigham City	Ogden	145	12.1%
Logan	Logan	121	10.1%
Logan	Salt Lake City	87	7.3%
Brigham City	Pleasant View	55	4.6%
Newton	Logan	54	4.5%
Fielding	Logan	53	4.4%
Clarkston	Logan	44	3.7%
Mendon	Logan	37	3.1%
Tremonton	Tremonton	37	3.1%
Fielding	Tremonton	34	2.8%
Brigham City	Garland	23	1.9%
Brigham City	Brigham City	20	1.7%
Trenton	Logan	20	1.7%
Deweyville	Ogden	19	1.6%
Mendon	Salt Lake City	19	1.6%
Tremonton	Logan	17	1.4%
Lewiston	Hyde Park	16	1.3%
Tremonton	Ogden	16	1.3%
Tremonton	Salt Lake City	14	1.2%
Logan	Ogden	12	1.0%

Table 1: Origin & Destination Pairs of BRAGs MVP program

As shown in the data, Brigham City to Ogden, Logan to Logan, Logan to Salt Lake City, and Brigham City to Pleasant View, are the second, third, fourth, and fifth most significant origin and destination pair, respectively.

There is also privately-operated service within the study area provided by *Salt Lake Express*, which runs from Logan, to Brigham City, Ogden and the SLC Airport, among other places. Ridership data on this service was not available. Prices fluctuate depending on day of the week, time of day, holiday service and origin and destination pairs, but are higher than typical public transportation service.

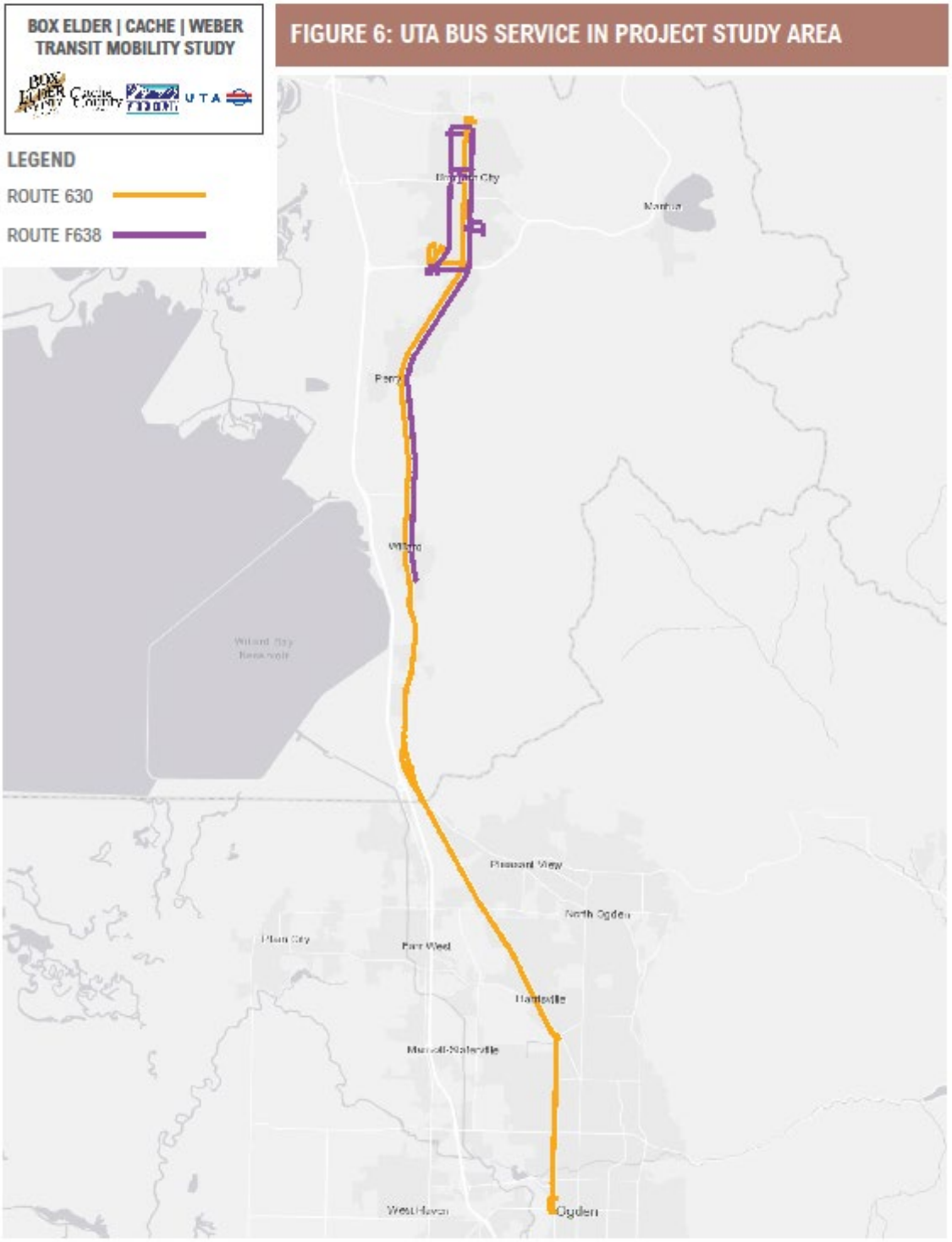


Figure 5: UTA Routes

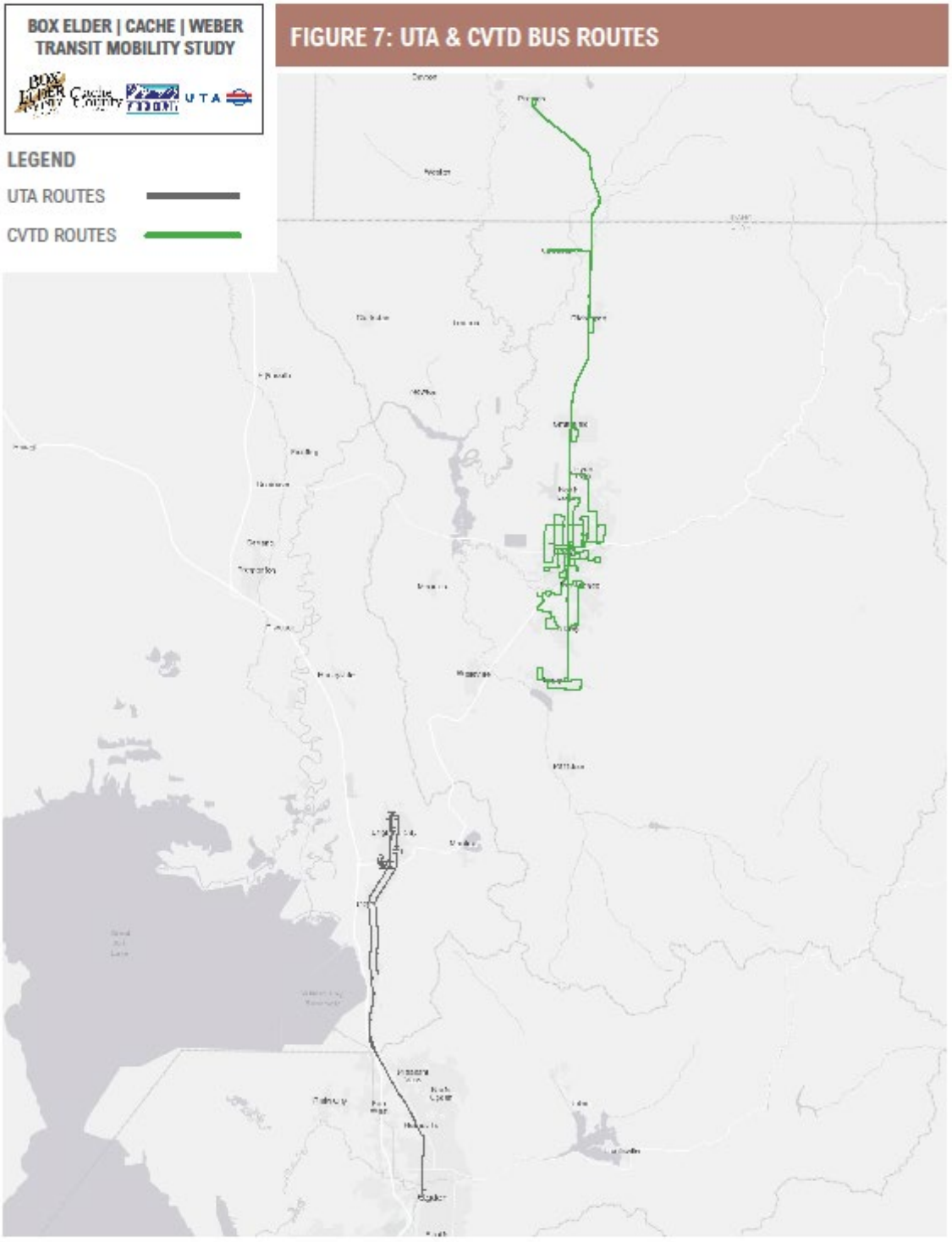


Figure 6: UTA and CVTD Routes

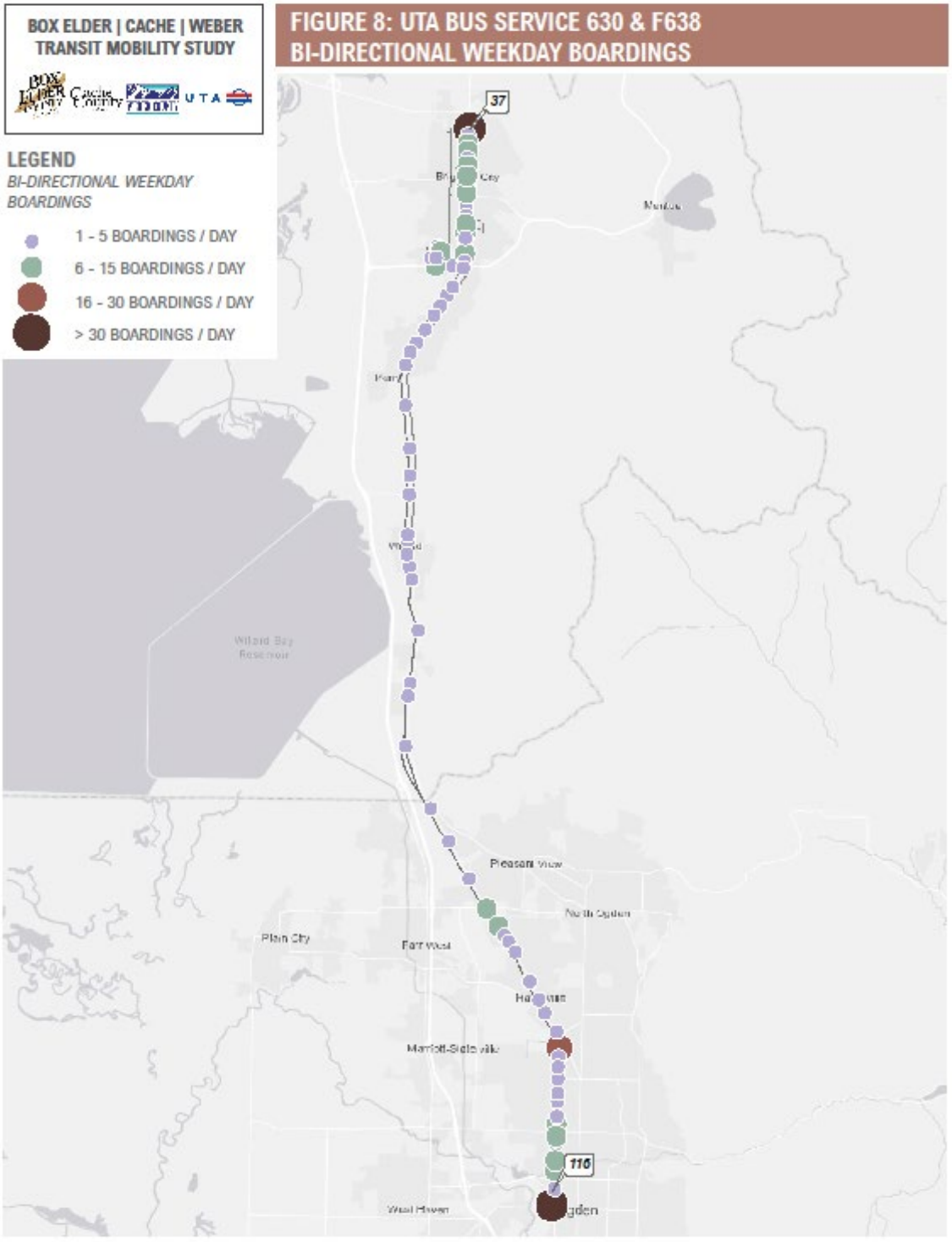


Figure 7: UTA Bi-Directional Weekday Boardings per Day by Stop

Past Service

Perhaps the most significant past service that once operated in the study area is the FrontRunner commuter rail service from Ogden to Pleasant View on UPRR track. This service began in December of 2008 and was terminated in August 2018. UTA cites low ridership (roughly 34 total boardings per day), operating limitations on the shared UPRR track, and implications of the federally required Positive Train Control (PTC), as the overarching reasons for discontinuing the service. Table 2 demonstrates that according to UTA data, the Pleasant View station had vastly lower boardings than any other station in the FrontRunner system (however, it should be noted that off-peak service was not provided to the Pleasant View Station).

According to UTA, the PTC systems used by UTA and UPRR are not compatible with each other and the cost of upgrading systems was estimated to be too high to justify the service.

FrontRunner Stations North to South	Average Boardings per Day (February 5-9, 2018)
Pleasant View	34
Ogden	1,244
Roy	481
Clearfield	877
Layton	760
Farmington	529
Woods Cross	621
North Temple	2,646
Salt Lake Central	1,880
Murray Central	1,842
South Jordan	861
Draper	836
Lehi	1,281
American Fork	894
Orem Central	1,535
Provo Central	1,818

Table 2: Average Boardings by Station (source: UTA)

Because of these factors, UTA discontinued the Ogden to Pleasant View service. In addition, within the study area, UTA formerly operated limited express bus service between Brigham City and Ogden. However, this service was discontinued due to low ridership.

TRAVEL MARKETS ANALYSIS

Origin-Destination Data

In order to understand potential demand for additional or different transit service to, from, and through Box Elder, Cache, and Weber Counties, the study process began with an examination of existing travel patterns in the area between regional destinations that could feasibly be served by fixed-route transit.

StreetLight Data is a data provider that collects samples of trips using mobile phone data (location-based services, or LBS) and aggregates it to provide estimates of travel between origin-destination pairs. In this study, relevant origins and destinations within the study area included Brigham City, Tremonton, Logan, and Ogden, as well as urbanized areas of Box Elder, Cache, and Weber Counties outside of those city boundaries. In addition, urbanized portions of Davis County and Salt

Lake County were included to understand commuting patterns to and from job centers in those areas of the Wasatch Front. Origin/destination geographies in these county areas were restricted to locations with existing transit service, as these areas reflect the potential market that users of new or enhanced transit service. Mapping of origin and destination geographies are shown in Figure 8 below. The origin-destination analysis was based on data collected for the full year of 2018.

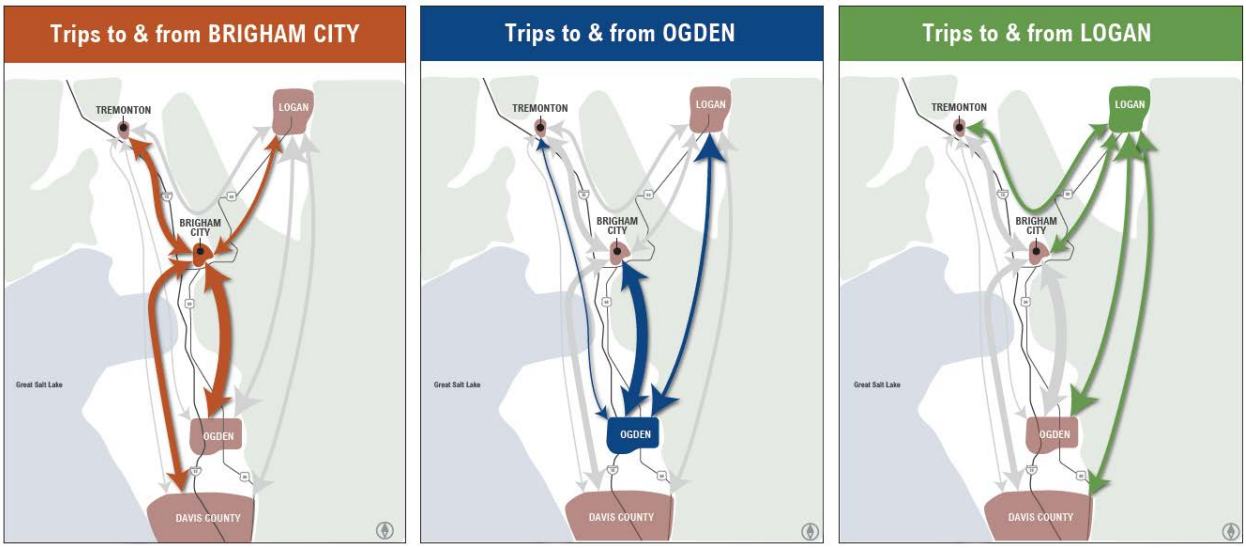


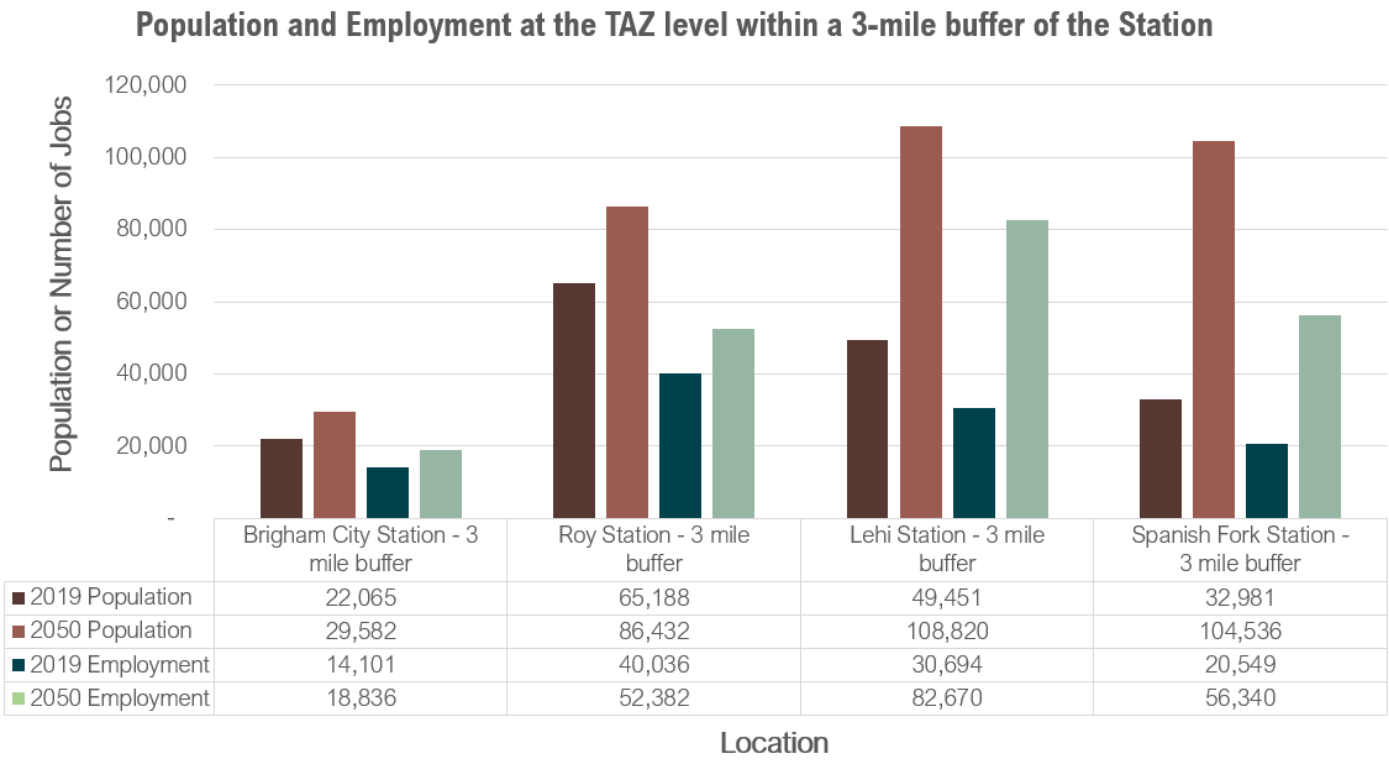
Figure 8: StreetLight Origins and Destinations Map

Analysis of the origin-destination data showed that the greatest share of relevant trips within the study area are from Brigham City to Ogden and vice versa, with smaller shares traveling between Brigham City and Tremonton, and Brigham City and Davis County. Significantly smaller numbers of trips occur between Tremonton and Ogden, and between Logan and all other destinations in the study area. This analysis shows that trips from Brigham City to and from Ogden and points south form the largest potential travel market within the study area. This data is also the basis of the majority of the study's analyses and recommendations.

Station Catchment Area Market Comparison

The study team conducted a comparison analysis to better understand population and employment projections surrounding the proposed Brigham City FrontRunner station versus the existing Lehi station, Roy station, and proposed Spanish Fork station. The project team used the 2019 WFRC and Mountain Land Association of Governments (MAG) travel demand model population and employment 2019 data and forecasted 2050 data at the Travel Analysis Zone (TAZ) level buffered within three miles of the Brigham City, Roy, Lehi and Spanish Fork stations. The results of this buffer comparison analysis indicate two important considerations for the purposes of this study:

1. The buffer zone at the Brigham City station has anywhere between 10,000 and 80,000 fewer jobs and population than the other three station area buffers, both according to 2019 figures and 2050 projections.
2. The rate of growth from 2019 to 2050 projections is substantially lower both for population and employment at the Brigham City station than it is at any of the other three stations.



	Brigham City Station - 3 mile buffer	Roy Station - 3 mile buffer	Lehi Station - 3 mile buffer	Spanish Fork Station - 3 mile buffer
2019 Population	22,065	65,188	49,451	32,981
2050 Population	29,582	86,432	108,820	104,536
2019 Employment	14,101	40,036	30,694	20,549
2050 Employment	18,836	52,382	82,670	56,340

Figure 9: Populations and Employment at the TAZ level within a three-mile buffer of the station

In other words, there simply isn't the quantity of development in the Brigham City area.

3

STAKEHOLDER AND COMMUNITY ENGAGEMENT

The project approach emphasized a meaningful outreach process both internally to the project team and externally to the public. This chapter will outline the stakeholder and community engagement strategy used throughout the plan.

COMMITTEES

At the onset of the project, the project team worked with local staff to create a Policy Committee and a Technical Advisory Committee (TAC). The TAC met four times throughout the planning process and was intimately involved in setting the tone and direction of the study through feedback on analysis and recommendations on engagement strategies. All meetings were held in the Box Elder County. Table 3 outlines TAC members involved in the study:

NAME	TITLE	AGENCY
Scott Lyons	*Planning Director and Project Manager*	*Box Elder County*
Marcus Wager	*County Planner*	*Box Elder County*
Brian Carver	*Community Development Director*	*BRAG*
Zac Covington	*Senior Planner*	*BRAG*
Levi Roberts	*Strategic Planner*	*UTA*

Hal Johnson	*Manager of Project Development*	*UTA*
Bryce Wheelwright	*City Planner*	*Willard City*
Julie Bjornstad	*Transportation Planner*	*WFRC*
Christie Dahlberg	*Community Development Admin*	*WFRC*
Andrea Olson	*Region Planning Manager*	*UDOT*
Richard Brockmyer	*UDOT Planning*	*UDOT*
Mark Bradley	*City Planner*	*Brigham City*
Robert Barnhill	*City Planner*	*Perry City*
Bill Cobabe	*City Administrator*	*Pleasant View*

Table 3: Technical Advisory Committee Membership

The Policy Committee was primarily made up of elected officials or others in higher positions of authority. They were engaged in the planning process at two strategic phases of the study to receive critical updates and provide insights on the political nature of the study, speaking on behalf of the agency or location they represent. Table 4 outlines Policy Committee members involved in the study:

NAME	TITLE	AGENCY
Stan Summers	*County Commissioner*	*Box Elder County*
Jeff Scott	*County Commissioner*	*Box Elder County*
Jeff Hadfield	*County Commissioner*	*Box Elder County*
Chrisee Bennett	*Commission Assistant*	*Box Elder County*
Jeff Gilbert	*Transportation Planner*	*CMPO*
Eddy Cumins	*Chief Operating Officer*	*UTA*
Andres Colman	*Regional General Manager – Mt. Ogden Business Unit*	*UTA*
Shule Bishop	*Government Relations Director*	*UTA*
Beth Holbrook	*UTA Board of Trustees*	*UTA*
James Ebert	*County Commissioner*	*Weber County*
Jim Harvey	*County Commissioner*	*Weber County*
Kerry Gibson	*County Commissioner*	*Weber County*
Laura Hanson	*Planning Director*	*UTA*
Karen Cronin	*Box Elder County Rep to UTA Advisory Council*	*BEC/UTA*
Todd Beutler	*General Manager/CEO*	*CVTD*
Jordy Guth	*Facilities Planning*	*Utah State University*
Kevin Jeppson	*Mayor*	*Perry City*

Table 4: Policy Committee Membership

ADDITIONAL STAKEHOLDER INTERVIEWS

The project team spent time with additional stakeholders, outside of the Stakeholder group to delve into topic specific discussions. The following list outlines the additional stakeholder engagement and key take-aways.

- UTA FrontRunner extension and ballot initiative discussion: Hal Johnson (UTA) & project team members
  - Discussed the implications of the 2008 transit ballot initiative, including its prescriptive language on "commuter rail"
  - Discussed the status of the corridor preservation fund and right-of-way acquisition
  - Discussed potential interim uses of the rail corridor, before it is built out for commuter rail
- UTA Travel Demand Model discussion:
  - Team met with planning staff at UTA to review modeling methodology and results.
- BRAG Medical Voucher Program (MVP) discussion: Zac Covington (BRAG) and project team members
  - Participants discussed the previously completed studies in the area on the topic of travel reimbursement programing:
    - The BRAG MVP program is at capacity, but there is still demand for services
    - There are two central challenges for the MVP program: advertising and a lack of on-going funding sources
    - Over 50% of program participants self-identified as "disabled" or physically unable to drive a vehicle
- BRAG Interagency Meeting: Project team members attended an interagency meeting with the following attendance:

NAME	ORGANIZATION
Deanna Crockett	*Options for Independence*
Sarah Yates	*Acts Six Soup Kitchen*
Michael McCullam	*Bear River Assn. of Governments*
Judy Kearns	*Dept of Workforce Services*
Shelly Mathis	*Boys & Girls Club NU*
Diane Jones	*Bear River Health Dept*
Becky Egli	*Utah State University Extension/Create Better Health*
Kate Hinchee	*Vocational Rehabilitation*
Jill Scharrenberg	*Family Support Center*
Jenny Schulze	*Boys & Girls Club*
Susanne Case	*Pregnancy Care Center*

Table 5: BRAG Interagency Meeting - attendees

- Participants of the interagency meeting indicated that:
  - There was consensus among the group that there is a gap in transit service to/from and within Tremonton. A participant mentioned that there seem to be two Uber drivers that operate in that area (both of which are also police officers, apparently), but that that is not enough. And this group emphasized that their constituents are low income, refugee, and at-risk populations that don't have access to a vehicle, so this lack of service is very apparent.
  - Service from Brigham City north to Logan is needed. This came from the Division of Workforce Services representative. She indicated that the job market in Logan is difficult for her clients to access.
  - The idea of vanpooling was brought up and the group agreed that this type of service would be more appropriate than, say, traditional fixed route bus lines, due to the nature of the area and types of trips.

PUBLIC OUTREACH

In addition to the committees and targeted stakeholder outreach, the project team delivered a robust public outreach program, aimed at reaching diverse audience throughout the three counties. The project team collected public feedback during the initial phases of the project though both an online survey and face-to-face interactions with members of the public at three separate "pop-up" events.

The online survey was open for public comment between May 15th, 2019 – July 1st, 2019 and was shared via the project's website, www.boxeldermobility.org, and through social media posts from WFRC, Willard City, Perry City, Box Elder, and Cache County. The survey had over 270 responses (96% of which were complete) during the time it was open to the public.

In addition to the online survey, the project team prepared materials for and attended three separate existing community events with a pop-up booth to gather public feedback. The events the project team attended were:

- The Ogden Heritage Festival, in Ogden, for four hours on Friday, May 10th
- The Brigham City Arts Festival, in Brigham City, for four hours on Saturday, June 8th
- The Summer Fest Arts Faire, in Logan, for four hours on Friday, June 14th

The project team advertised each of these events, as well as the online survey, through existing social media channels. Figure 10 is an image of the social media advertising graphic used on the various social media sites. Overall, the project team interacted with roughly 100 community members total at all three of the events.

Figure 10: Social media advertising graphic

Pop-Up Events

This round of public engagement was gathered during the early stages of the Box Elder Mobility study. Therefore, the public was asked to provide feedback and comments on higher level questions regarding transit prioritization, including:

- Where the critical origins and destinations are throughout the region?
- Where they would rather see transit investments (either in local service or regional service)?

The project team was also prepared to field questions in relation to the proposed future extension of FrontRunner from Ogden to Brigham City.

In the Appendix is a compilation of all the informational boards and activities we used to engage with the public at the three pop-up events. Major themes heard during public outreach events included the following:

- The northern communities of Brigham City and Tremonton are currently lacking a frequent and "express" type transit option to access the transit hub in Ogden.
- Cache Valley currently lacks an "affordable[1]" transit option extending from the Logan area to Ogden (that then provides access to FrontRunner and Salt Lake County).

[1] Many people who provided this type of comment were aware of the services the Salt Lake City Express offers. Many believed it is not affordable as a consistent commuting option.

- Better regional connections were deemed more important than enhancing the local routes (either by way of frequency, or coverage).

These themes, while anecdotal in nature, provide some valuable insights into what residents and visitors feel are the biggest gaps in the existing transit network. From these insights we can conclude that a regional connection is a higher priority than enhancing the local service for residents in the area.

Other types of comments that came up at the pop-up events included a desire for some type of commuter transit connections to some of the major employers in the area (ATK, Hill Air Force Base, etc.), direct connections from Logan City to the SLC International Airport, and better first/last mile connections to existing bus stops.

Figures 15 and 16 display the pop-up event set-ups.

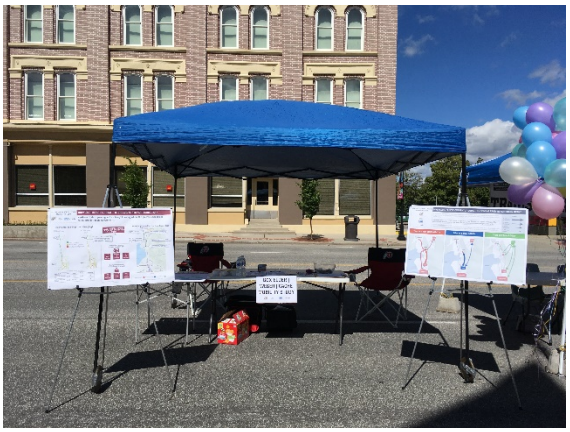


Figure 12: Booth set-up at the Brigham City Arts Festival

Figure 11: Booth set-up at the Logan SummerFest Arts Faire

Online Survey

The online survey was intended to provide an opportunity for those who were not able to attend one of the pop-up events to provide comments and feedback on the study and be easily accessible and quick to fill out to encourage more participation. There were over 270 respondents who took the survey, with a 96% completion rate. This section will outline some of the most important take-aways from the survey results.

When asked how often survey respondents utilize public transportation, 44% indicated that they "Occasionally" use the bus, FrontRunner, Vanpool, or other transit services. An additional 28% of respondents indicated that they take transit "Daily" or "Several times per week". Figure 13 outlines the breakdown of responses to this question.

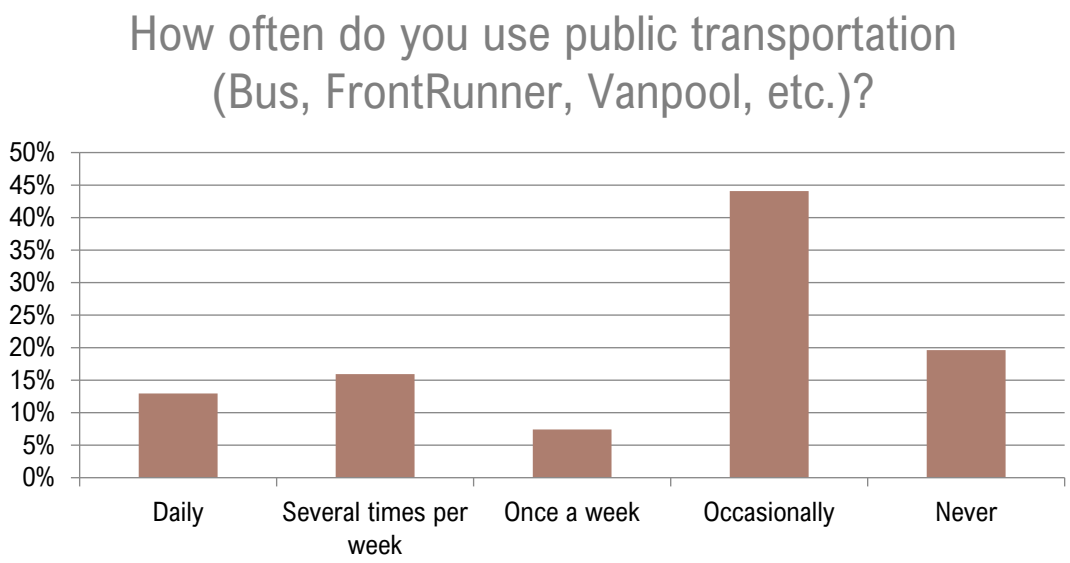


Figure 13: Frequency of Transit Use

When asked when survey respondents tend to take transit, the majority of respondents indicated that they take transit during the off-peak AM and PM times. Figures 18 and 19 show the break down for both the AM and PM times. The period after 7 PM experiences relatively high ridership, although there are only two to three directional routes in that timeframe.

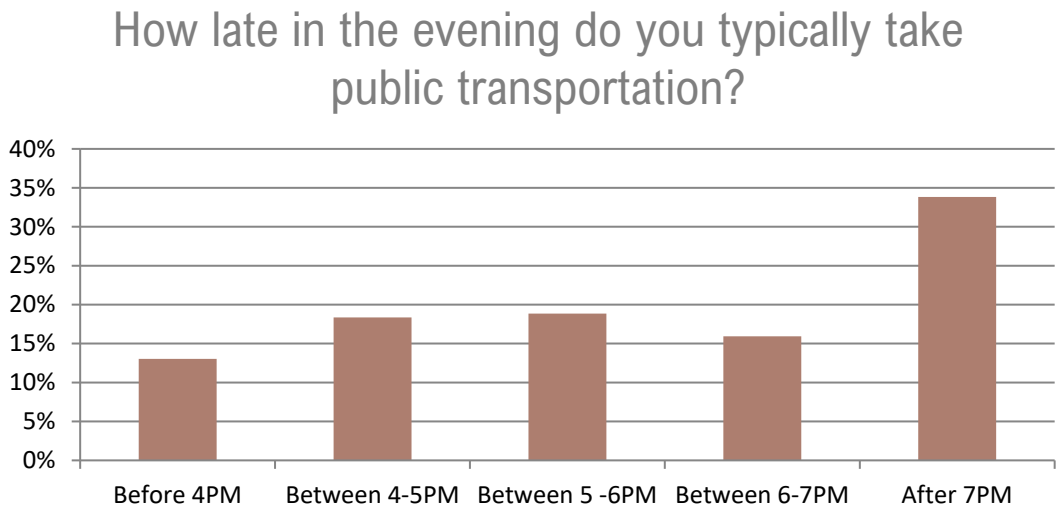


Figure 14: Time of Day of Typical PM Peak Hour Transit Trips

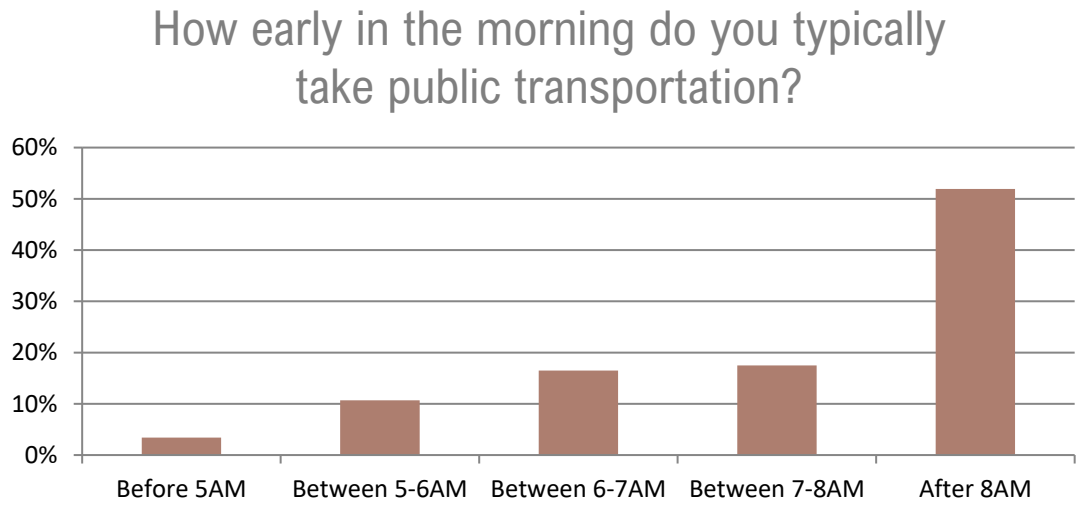


Figure 15: Time of Day of Typical AM Peak Hour Transit Trips

These responses indicate that most survey respondents are either using transit for non-commuting/non-work-related trips or are commuting during non-traditional time periods outside of typical peak hours.

The survey also asked respondents to indicate which type of transit they currently use most frequently. The highest responses were the FrontRunner and CVTD bus system, followed by TRAX Light Rail and UTA buses. Figure 16 breaks down all the responses. The responses to this question will help prioritize integration with existing transit services.

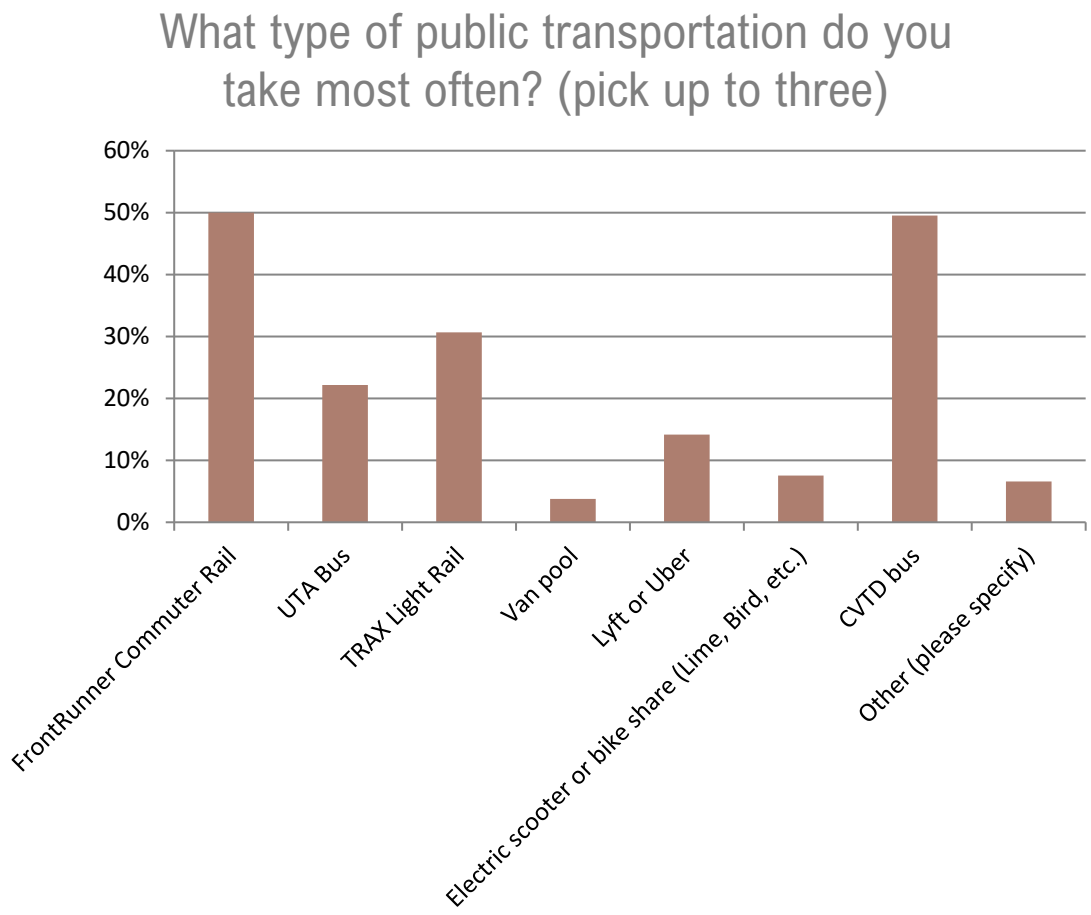


Figure 16: Most frequently used transit options

FrontRunner was the most frequently used service among survey respondents, indicating that connections to that system are a high priority, as it provides higher-speed service to more distant destinations across the Wasatch Front. The relatively high response rate associated with TRAX is somewhat surprising, due to the substantial distance between northern Utah and the nearest TRAX station. This may indicate that a sizeable number of FrontRunner users also transfer to TRAX to reach their ultimate destinations, but also may reflect mistaken answers (e.g. from infrequent users who may not distinguish accurately between TRAX and FrontRunner services).

The survey also asked respondents to indicate the top three barriers to using transit. This information was helpful for the project team in prioritizing barriers to address that can most effectively expand ridership. The top three responses were frequency of service, station/stop location being too far, and transit trip takes too long. Figure 17 breaks down responses to this question.

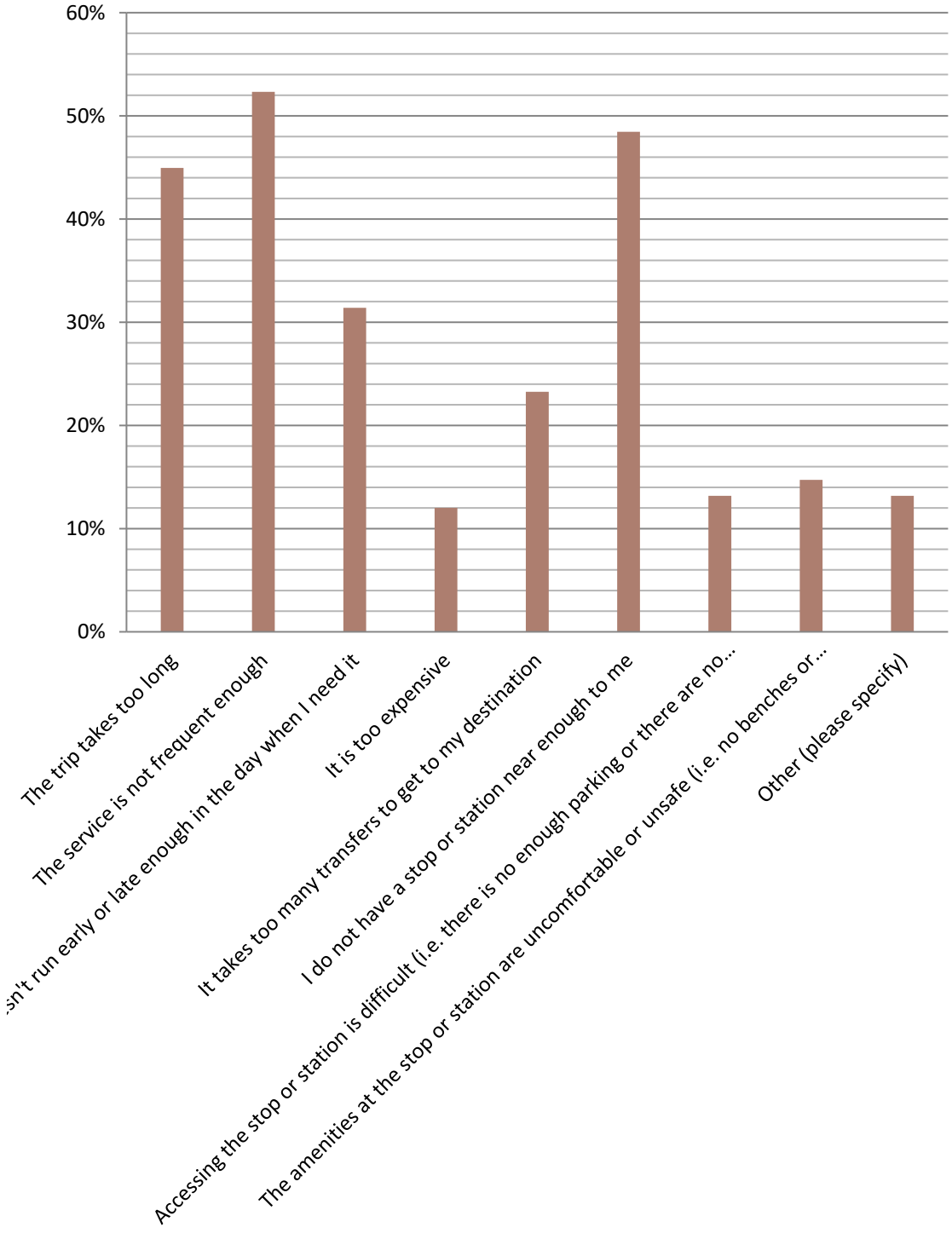


Figure 17: Barriers to Using Existing Transit Service

Finally, the survey asked respondents whether regionally oriented or locally oriented transit services should be prioritized for investment. Responses resoundingly indicated that regional connections are the highest priority, as illustrated in Figure 18 below.

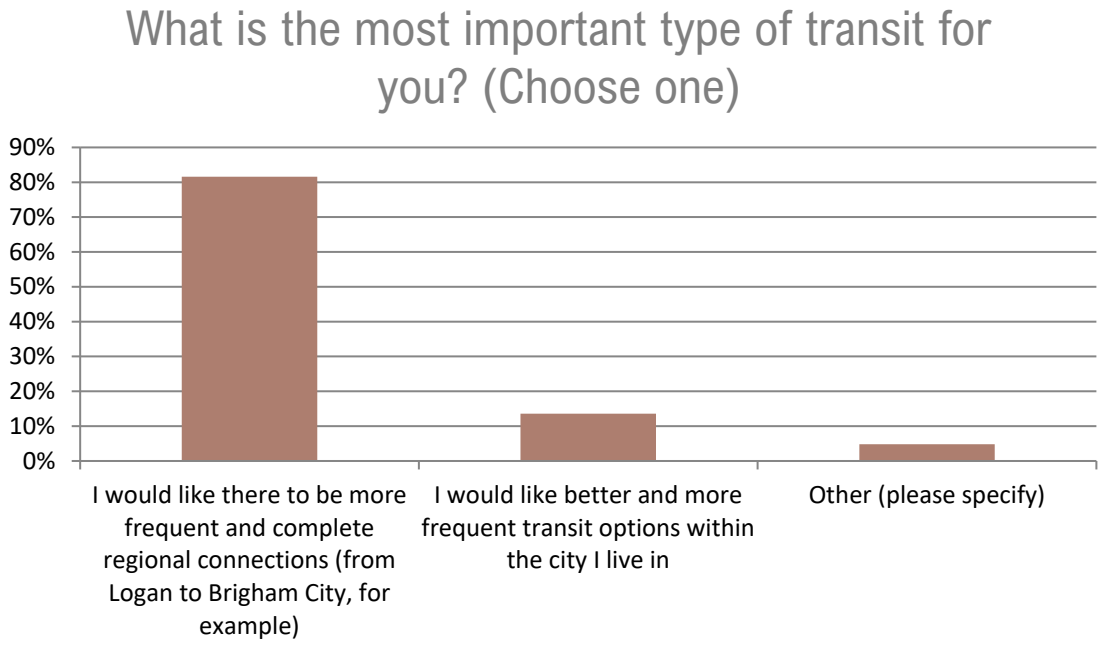


Figure 18: Transit Investment Priorities

Conclusions

Consistent throughout both the pop-up events and online survey was a prioritization of regional transit connections throughout the study area and to the Wasatch Front. Particularly, the connection from Cache Valley to Ogden and beyond. The information gleaned from the public outreach directly informs the recommended transit improvements.

4

ALTERNATIVES DEVELOPMENT

ALTERNATIVES DEVELOPMENT

The variety of alternatives evaluated as part of this study were developed based on several factors. The first is what was heard through the public engagement process: the desire to have more transit choices. The second factor was more based on the goals of the project, namely providing more short-term, realistic transit alternatives that can be implemented in a more reasonable timeframe without the extremely high cost of commuter rail. The last factor is the actual or perceived demand for something other than the private auto.

TRAVEL DEMAND FORECASTING

The Box Elder | Cache | Weber Transit Mobility Study used the Wasatch Front (WF) Travel Demand Model as the tool to analyze potential transit alternatives serving Box Elder and Weber Counties. Fehr & Peers used a draft version of the WF Travel Demand Model provided by the Wasatch Front Regional Council (WFRC) on January 30th, 2019. The existing base year 2019 and 2050 Regional Transportation Plan (RTP) scenarios were first used to establish a baseline.

2019 Existing Conditions

The purpose of the 2019 Existing Conditions is to evaluate current conditions and validate its results with other known datasets such as ridership data. In 2019, Box Elder County primarily has two transit routes:

- Bus Route 630: starts at 700 North in Brigham City and ends at the Ogden Station. It primarily runs through US-89 and it has a 60-minute headway.
- Flex Bus Route 638: flexible service where residents can use the fixed route, or they can call to schedule the bus to them up or drop them off up to ¾ mile from the fixed route. This route primarily services Brigham City, running through Main Street, Medical Center and 500 West. This route has a 60-minute headway.

Validation

The route-level boardings were compared with the data provided by UTA to validate the existing conditions. The dataset provided by UTA shows the following:

- Route 630: 429 weekday average daily boardings for August-December 2018
- Flex Route: 31 average daily boardings since August 2018
- FrontRunner: 1,380 weekday boardings at Ogden Station during August 2018 change day period (August-December)

Figure 19 shows the results from the WFRC model and UTA data.

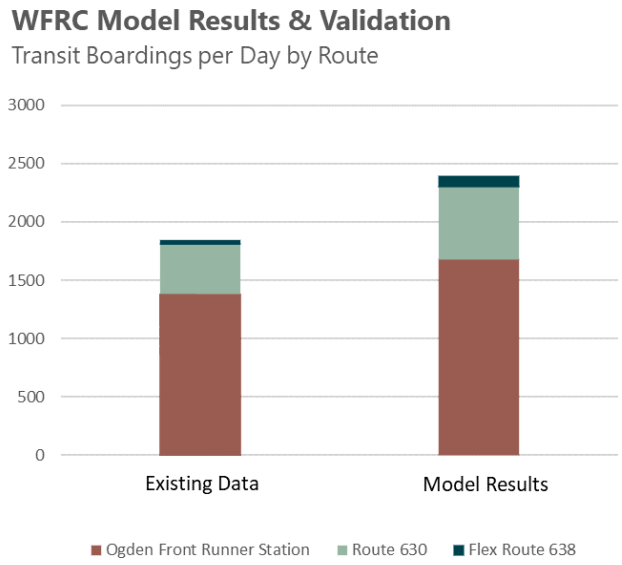


Figure 19. WF Model results and UTA data comparison.

The results of this comparison show that the WF Travel Demand Model reports a higher number of boardings than the datasets provided by UTA. It is important to note that data provided by UTA is for 2018 and boardings could be higher in 2019. Although the model and UTA data are not exactly the same, the WF Travel Demand Model was used as a tool as a tool to obtain high-level boarding estimates because:

- The number of boardings reported by the model are the same order of magnitude than the datasets used to validate the model; and,
- The tool is used to compare various alternatives, therefore the relative difference given by the model between different scenarios can still inform performance data.

2050 Baseline

WFRC developed a 2050 Regional Transportation Plan (RTP) scenario in the Travel Model. This scenario is used as the 2050 baseline to compare future alternatives in Box Elder. The 2050 RTP scenario has the same transit service as in 2019 with the following modifications:

- FrontRunner adds two stations in Weber: at Ogden BDO and Pleasant View.
- New Express Route from north Brigham City to Ogden Station with limited stops. This route is coded with a premium fare and has a 15-minute and 30-minute headway during the peak and off-peak periods, respectively.

Alternatives

The 2050 RTP scenario was modified to the 2050 RTP scenario to obtain high-level boarding estimates for several transit alternatives connecting Brigham City to other areas. The following alternatives were included in the model:

- Ogden-Brigham City Bus Rapid Transit (BRT): the express route with premium fare in the 2050 RTP was changed to BRT ("mode 5" in the model). All other attributes were kept the same (including headways).
- Pleasant View to Brigham City FrontRunner: FrontRunner service extended from Pleasant View to Brigham City. Route 630 connected to new Brigham City stations and Ogden-Brigham City Express removed. In addition to this scenario, three variations with different land use were tested:
    - Pleasant View to Brigham City FrontRunner + Increased Box Elder land use: Transit services modified as noted above. Perry and Willard have the current land use densities of Brigham City, and current Brigham City has the land use comparable to Ogden.
    - Pleasant View to Brigham City FrontRunner + Increased Box Elder/Ogden land use: Transit services modified as noted above. Perry and Willard have the current land use densities of Brigham City, Brigham City has the current land use of Ogden, and Ogden has the current land use of downtown Salt Lake City.
    - Pleasant View to Brigham City FrontRunner + Transit Oriented Developments: Transit services modified as noted above. Place representative TOD densities (based on Fireclay Avenue developments adjacent to Murray North Station) in 20

acres of TAZs by Ogden station, Pleasant View station, and two Brigham City stations.

- Pleasant View to Brigham City BRT on Preserved Corridor: new BRT route created along the preserved corridor (same corridor than the commuter rail alternative) from Pleasant View to Brigham City. FrontRunner ends at Pleasant View. Competing routes (Route 630 and Ogden-Brigham City Express) removed. BRT has a 15-minute headway during the peak and off-peak and new connections to the stations were created where appropriate in the WF Travel Demand Model.
- Ogden to Brigham City BRT on Preserved Corridor and I-15 + FrontRunner: new BRT route created from Ogden Station to Pleasant View station using I-15 and from Pleasant View station to Brigham City using the preserved corridor. FrontRunner also runs from Ogden station to Pleasant View station but Route 630 and Ogden-Brigham City Express were removed. BRT has 15-minute headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Ogden to Brigham City BRT on Preserved Corridor: new BRT route created from Ogden Station to Brigham City using the preserved corridor. FrontRunner stops at Ogden Station (does not go to Pleasant View) and Route 630 and Ogden-Brigham City Express were removed. BRT has 15-minute headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Ogden to Brigham City BRT on Preserved Corridor and US-89: new BRT route created from Ogden Station to Brigham City. New route along Wall Avenue and US-89 from Ogden Station to Pleasant View station and the preserved corridor from Pleasant View Station to Brigham City. FrontRunner stops at Ogden Station (does not go to Pleasant View) and Route 630 and Ogden-Brigham City Express were removed. BRT has 15-min headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Pleasant View to Brigham City BRT on I-15: new BRT route created from Pleasant View station to Brigham City along I-15 and FrontRunner extended to Pleasant View. Route 630 was included but the Ogden-Brigham City Express service was removed. BRT has 15-min headways during the peak and off-peak periods.
- Ogden to Brigham City BRT on I-15: new BRT route created from Ogden station to Brigham City along I-15 and FrontRunner extended to Pleasant View. BRT stops at Pleasant View Station. Route 630 included but Ogden-Brigham City Express removed. BRT has 15-min headways during the peak and off-peak periods.

The results of this high-level forecasting exercise showed that many alternatives were either too similar and/or ridership projections were too low to warrant detailed evaluation. However, five alternatives were selected for further evaluation:

- 2019 Existing Conditions
- 2050 RTP
- 2050 FrontRunner to Brigham City
- 2050 Ogden to Brigham City BRT (I-15)
- 2050 FrontRunner to Brigham City with Box Elder/Ogden Increased Land Use

The model results of these alternatives are shown in Figure 20. In general, these results indicate that if land use does not grow or change more rapidly than is currently projected, the overall ridership for Box Elder stays relatively the same (new routes get riders from other routes, keeping the overall ridership the same).

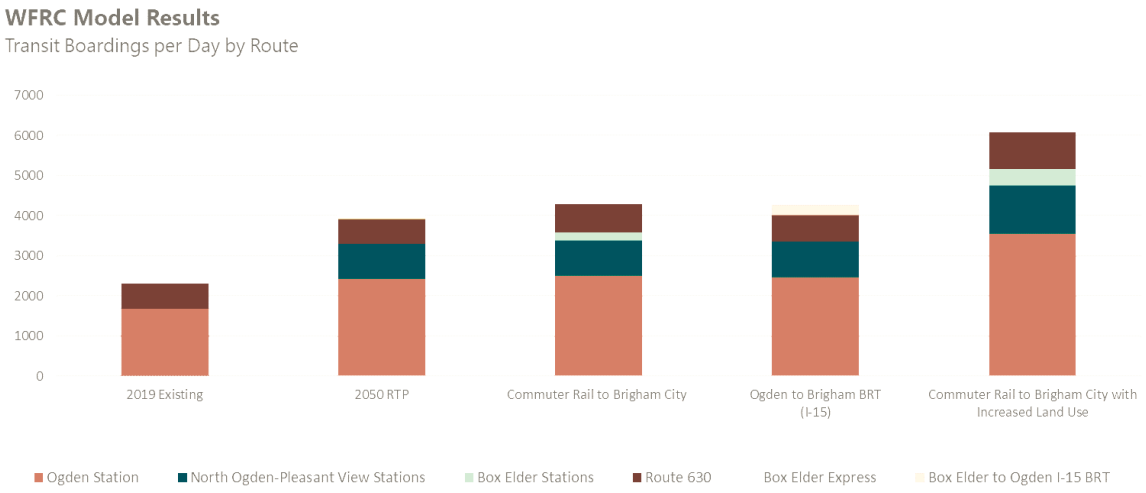


Figure 20. 2050 Ridership Forecasts by Scenario

Cache Valley Connection Alternatives

Two basic approaches were developed for concepts linking the Cache Valley to the Ogden Intermodal Center. The concepts are based on providing an express route between the Logan Transit Center and Ogden with limited stops. The first concept is based on the route being operated by Cache Valley Transit District and the second concept is to use a private transportation provider with a subsidized fare. In both concepts, the route begins at the Logan Transit Center and ends at the Ogden Intermodal Center. Stops would be included at the Wellsville park-and-ride lot in the Cache Valley and at the Utah State Campus in Brigham City.

Because the Cache Valley region is not included in the WF TDM, these service concepts were not evaluated using the forecasting techniques applied to the previously presented alternatives. Instead, off-model estimates of ridership were developed based on the size of existing travel markets.

CVTD/UTA Express Service

One option is for the express service to be operated by Cache Valley Transit District (CVTD) or UTA. The round-trip distance is 96 miles with an estimated run time of 2 hours and 30 minutes including stops and layover. The estimated cost for operation by CVTD is $4.25 per revenue-mile. Estimated operating costs are:

Two round trips, 255 days a year	$208,000
Two round trips, 365 days a year	$298,000
Each daily round trip	$400

The CVTD Short-Range Transit Plan looked at the potential for commuter service between Cache County and the Wasatch Front. Based on commute patterns and traffic counts, potential ridership for this service is about 250 one-way passenger-trips per day. Increasing travel between the two areas indicates that the demand has increased to about 300 one-way trips per day. However, with only two round trips, the demand for service is likely to be only 80 to 90 one-way trips on weekdays and 20 one-way trips on weekends.

The estimated cost per passenger-trip ranges from $10 to $13 for weekday only service and daily service.

Private Intercity Service

The second concept is to use an existing operator and subsidize passenger fares. Current fares for Salt Lake Express between Logan and Ogden range from $20 to $29. The current service does not stop at the Ogden Transit Center or connect to existing transit routes in Brigham City and would require contract negotiations to implement the service. This could be implemented with a subsidized fare and the subsidy could be set at any level. The fare is approximately twice the cost per passenger for operation by CVTD. Even with a subsidy equivalent to the cost of CVTD operation at $10, the one-way fare for passengers would still be $10 unless a discount is negotiated with the operator for a lower fare and subsidy. This is a higher cost option and unless a significant subsidy is provided, the fares are likely to be prohibitive for commuters with a much lower level of demand compared to the CVTD concept. In addition, the lack of ADA-accessible vehicles is another potentially limiting factor with this option.

This concept does have the advantage for a pilot project in that no equipment must be acquired. The cost to operate a new route between the CVTD transit center in Logan and the UTA transit center in Ogden 255 days a year is estimated to be about $230,000 and the cost to provide service 365 days a year is estimated to be about $320,000. These costs are slightly higher than operation by CVTD, but includes the vehicles needed to operate the service. Estimated demand would be the same as the concept for operation by CVTD, assuming the fare would be comparable.

5

ALTERNATIVES EVALUATION

EVALUATION CRITERIA

Once transit alternatives were developed, the next step was creating a set of criteria and metrics that would allow alternatives to be measured, evaluated, and compared against each other. The project team and the steering committee developed a set of criteria that captured the most important attributes of any new transit investment for all stakeholders, including the study area's counties and municipalities, UTA, and the public at large.

Discussions around criteria development emphasized that a complete evaluation of project alternatives must encompass both the direct benefits of potential transit services, such as convenience, ridership, travel time, and access to jobs, as well as indirect benefits, such as complementing existing services (e.g. Ogden FrontRunner station) and supporting local economic development initiatives. Another consideration that was raised was the question of whether alternatives could be scaled over time, starting with a smaller investment and expanding/enhancing service as transit-supportive land uses and associated ridership increase over time. Applying some of the criteria was inherently qualitative.

A full inventory of the criteria and metrics that were developed for evaluating all project alternatives is presented in the table below.

	Criteria	Metrics
1	Improved service to Ogden FrontRunner	Does the alternative enhance connections to FrontRunner?
2	Scalable	Can the alternative become enhanced or improved based on performance?
3	Improved Access to Jobs/Higher Education	Does the alternative improve access to jobs, including higher education?
4	Ridership/utilization	Does the alternative have good ridership? Is it well-used?
5	Convenient	Is the alternative well-connected to the community, like population and employment centers?
6	Equity	Howe well does the alternative serve Vulnerable Communities?
7	Supports Economic Development	Does the alternative support continued or new economic development?
8	Travel Time	How does this alternative compare from the perspective of travel time? How competitive to driving?

Table 6: Mobility alternative criteria and metrics

ALTERNATIVES EVALUATION

The five alternatives identified in Chapter 4 were evaluated against each of the eight evaluation criteria. Criteria 1, 4, and 8 were evaluated on proposed service operating characteristics and potential travel markets. Criteria 2 (Scalability) was rated based on likely startup costs of different service options and constraints to added service frequency. Criteria 3 (Improved Access to Jobs/Higher Education) was rated based on frequency and physical proximity of proposed service routes to major employment and educational centers, including Ogden and Weber State University (WSU). Criteria 5 (Convenience) and 7 (Supports Economic Development) were evaluated based on the proximity of proposed service stops to existing employment and housing, and potentially developable land, respectively. Criteria 6 (Equity) was based on the population of vulnerable communities (defined as low income, minority, and zero-car households) proximate to proposed service stops. Results of this evaluation criteria as applied to each alternative are shown in Table 7 below.

Criteria	2019 Existing	2050 RTP	2050 FrontRunner to Brigham City	2050 Ogden to Brigham City	2050 FrontRunner to Brigham City with Box Elder/Ogden Increased Land Use
Improved Service to Ogden Frontrunner	None	Medium	Good	Medium	Good
Scalable	Good	Good	Poor	Medium	Poor
Improved Access to Jobs/Higher Education	Poor	Medium	Medium	Medium	Medium
Ridership/Utilization	Poor	Medium	Medium	Medium	Medium
Convenient	Poor	Poor	Medium	Poor	Good
Equity	Poor	Poor	Medium	Medium	Medium
Supports Economic Development	Poor	Poor	Good	Poor	Good
Travel Time	Poor	Good	Good	Medium	Good

Table 7: Evaluation Criteria Results by Scenario

RECOMMENDED ALTERNATIVES

Based on the results of the evaluation process, the 2050 RTP projects that enhance connections between Brigham City and Ogden are recommended as appropriate courses of action. FrontRunner alternatives evaluated show that projected ridership is inadequate to justify the high level of investment required to provide an extension to Brigham City by 2050, even under aggressive assumptions with respect to future transit-oriented development patterns in Brigham City and Ogden. The BRT via I-15 option similarly fails to generate adequate ridership to justify investment in enhanced stops/stations and frequent service, while underperforming the FrontRunner options with respect to economic development potential, travel time, connections to FrontRunner stations south of Ogden, and convenience.

As a result of this analysis, it is recommended that the 2050 RTP's planned service maintaining existing bus service and implementing an express bus service between Brigham City and Ogden by 2050 remains an appropriate course of action.

In lieu of major investments in transit service/capacity, this study recommends implementing several additional projects or programs that are not major capital investments but will enhance mobility choices in the study area.

- Continued Corridor Preservation: continue the preservation efforts that are currently being conducted by UTA
- Community Enhancements along Corridor: consider "activating" the preserved corridor for community use until such time as a transit investment is warranted

- Cache Connection Pilot: implement a pilot project with service between Logan, Brigham City, and Ogden.
- Increased service on 630: increase headways
- Enhanced bus stops along 630: there are numerous stops for this route. Several should be upgraded based on UTA stop enhancement criteria
- Increased marketing of Vanpool Program: while there are several active vanpools currently in place, it is clear from the public engagement effort that more awareness of this opportunity exists.
- Land Use Study: conduct a more detailed land use study that focuses on transit supportive land uses.

Tremonton

Scheduled service to Tremonton is not warranted at this point. However, due to the nature of several large employers with shift schedules, it is recommended to increase marketing and awareness of UTA's Vanpool program due to the high number of shift workers. The schedule and nature of shift work creates a short window of peak ridership demand throughout the weekday, making busses an inefficient option. Vanpools have experienced great success in similar areas in similar situations - for example, in Clearfield and other municipaliities with a large number of employees at Hill Air Force Base.

PROJECT IMPLEMENTATION

This chapter discusses the recommended projects and ways to implement them.

CORRIDOR IMPROVEMENTS – INTERIM USE

A backdrop to this study is that rail corridor preservation is occurring between Ogden and Brigham City based on the transit ballot initiative passed in 2007 to implement Commuter Rail. However, this analysis has determined that Commuter Rail is not recommended. However, corridor preservation is recommended to continue, in part to fulfill the obligation of voters and allow for potential transit solutions in the future as technologies evolve and Box Elder County continues to grow. UTA will continue purchasing and preserving right-of-way. With that preservation comes opportunities to utilize that right-of-way for interim uses before it changes to longer-term uses.

While there are many potential interim uses for the right-of-way, one use that has already been evaluated and has support from the local community is creating a multi-use trail adjacent to the tracks. Called out in the "Southeastern Box Elder County 2017 Active Transportation Concept Plan" a multi-use trail has been proposed along the FrontRunner extension right-of-way from Willard to Brigham City. Figure 21 is an excerpt from that plan and displays the multi-use trail recommendation.

FRONTRUNNER TRAIL

Figure 3-7. The FrontRunner Trail provides connection to future development and FrontRunner stops.

CORRIDOR TYPES
- Proposed Shared-Use
- Other Proposed and Existing Corridors

EXISTING FACILITIES & FEATURES
- Municipal Parks
- Federal & State Public Lands
- Municipal Boundaries
- Water
- Roads
- Potential FrontRunner Stops

The FrontRunner Trail follows the Union Pacific railway from Willard to Reese Pioneer Park in Brigham City. The corridor connects western portions of Willard, Perry and Brigham City with few road crossings.

RECOMMENDED CORRIDOR TYPE: Paved shared-use path

RECOMMENDED CORRIDOR USES: Pedestrian, bicycle

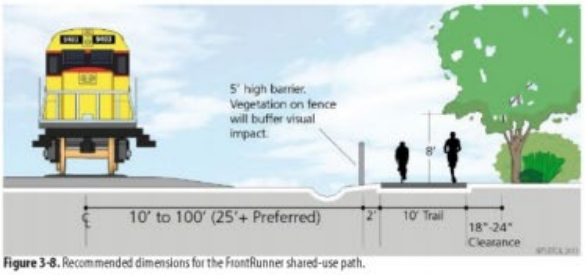


Figure 3-8. Recommended dimensions for the FrontRunner shared-use path.

LEVEL OF DIFFICULTY: Easy

CORRIDOR CONNECTIONS: FrontRunner stops, future development

APPROXIMATE CORRIDOR LENGTH:
- Willard: 4.0 miles
- Perry: 3.0 miles
- Brigham City: 2.0 miles
- TOTAL: 9.0 miles

RESPONSIBLE ENTITIES:
- Box Elder County
- Brigham City
- Perry City
- Utah Transit Authority (UTA)
- Union Pacific
- Willard City

PROPOSED TIMELINE: 2017-2040

Figure 3-9. The FrontRunner Trail would follow the current route of the Union Pacific railway between South Willard and Brigham City.

Figure 21: The "FrontRunner Trail" Plan from the Southeastern Box Elder County 2017 Active Transportation Concept Plan

Upon further evaluation, this study recommends extending the proposed multi-use trail to Pleasant View, creating a 15-mile route from Brigham City to Pleasant View. At this point the available right-of-way could be anywhere between 70' – 100' depending on the location. With this amount of space there are opportunities for additional amenities beyond a multi-use trail. As is called out in Figure 22 the right-of-way could encompass a trail in addition to parks and community gardens, depending on the location. The areas closer into community centers could have more programmed space, including parks and gardens, while the more remote areas could be dedicated to only a trail.

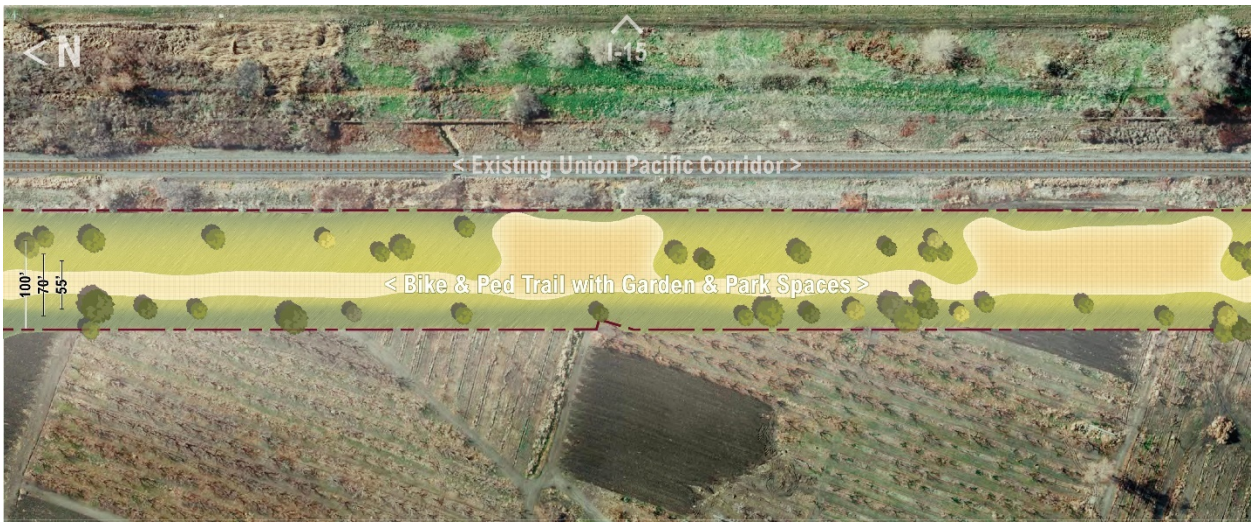


Figure 22: Oblique view of a multi-use trail rendering. Source: Fehr & Peers

As seen in Figure 23, a photo of a multi-use trail in Madison, WI, the large amount of available space opens the opportunity for creative uses.

Figure 23: Photo of Madison, WI, multi-use trail and adjacent community garden. Source: Fehr & Peers

Utilizing the right-of-way for a multi-use trail would be an asset to the communities both for recreation, active transportation and community health.

IMPLEMENTATION TIMING AND PHASING

Specific implementation steps have been identified for the recommendations on Route 630 and the Cache Valley Pilot Project. Proposed generalized phasing for implementation is shown in Figure 24. Implementation of the higher frequency service is recommended for late 2021 and implementation of the Cache Valley Pilot Project may be in early 2021. The implementation schedule is subject to change based primarily on availability of funding and vehicles.

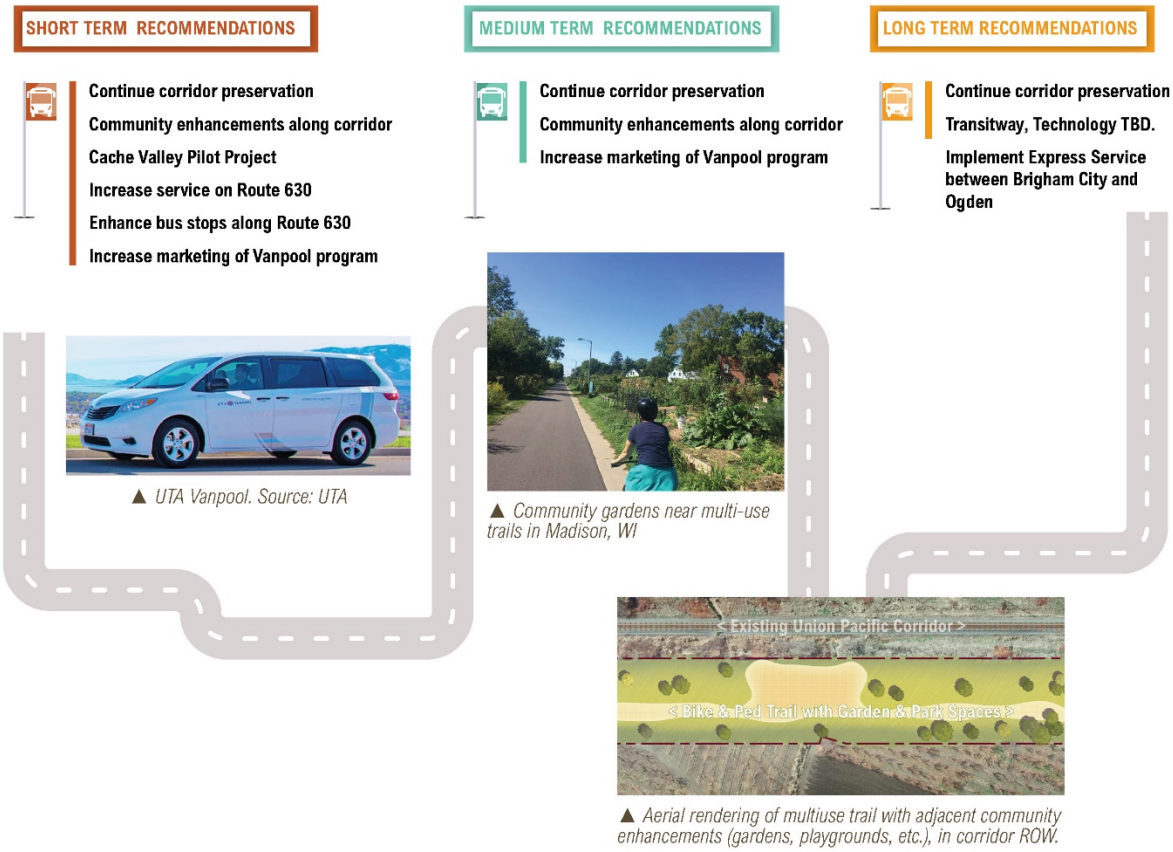


Figure 24: Generalized Timeline of Recommendations

Route 630

- Plan for and prioritize bus stop improvements – After stop improvement plans have been finalized, the stop improvements should be finalized so that the improvements may be incorporated in the overall program for UTA stop improvements. Prioritization should be based on existing passenger boarding counts and projected future boardings with the increased level of service.
- Program improvements in UTA bus stop improvement program – The stop improvements should be programmed in the overall stop improvement schedule for UTA. The stop improvements should be funded as part of the capital improvement program.

    - Complete bus stop improvements – The bus stop improvements will be completed based on the schedule for the system-wide stop improvements.
    - Finalize schedule – Finalize the operating schedule for increased service based on estimated passenger demand by time of day.
- Determine vehicle availability – Additional vehicles will be required to operate the increased service frequency. The number of vehicles required will be determined based on the final schedule. UTA must then determine if vehicles are available within the existing fleet. If vehicles are available, implementation plans may proceed. If additional vehicles must be acquired, the service implementation must be scheduled based on the timing to acquire the additional vehicles. An alternative would be to lease buses for the initial implementation.
- Refine capital and operating costs – The final schedule will be used to refine the operating costs. Capital costs will be determined based on the need for additional vehicles.
- Determine funding sources – Funding for the additional service must be obtained. This may include developing partnerships for funding of the enhanced service or use of other program funds as discussed in the section on potential funding sources.
- Marketing/publicity – The service changes must be publicized. UTA should prepare a marketing campaign to inform existing riders on Route 630 as well as a broader marketing campaign to reach potential riders who may be attracted by the increased frequency of service. A campaign of increasing publicity should begin approximately three months before service begins.
- Begin increased frequency service – This will require final development of schedules for drivers and integration of the additional trips on Route 630 into the UTA schedules for vehicles and drivers.

US-89 Bus Stop Enhancements

An outcome of this study was an evaluation of the existing transit service, specifically at the stop level to ensure that there are appropriate amenities at the stops for the 630 and F638. To determine which stops qualify for amenities, the project team evaluated the 2019 UTA Bus Stop Master Plan. According to that plan, there are average daily boarding thresholds stratified by frequency that need to be met in order to warrant levels of improvements. Table 8, from the Bus Stop Master Plan, was used to determine which stops on either the 630 or the F638 could be improved.

The project team used boarding data from August 2018 to determine average daily boardings at each stop. Then the team compared the amenities that currently exist at each stop and the average daily boardings to the criteria for stop improvements laid out in UTA's Bus Stop Master Plan to assess whether there are stops that warrant additional amenities. For example, stops that have more than 10 average daily boardings, but only had a pole and a sign, were flagged as needing improvement according to UTA's standards. Figure 25 is a map of the 17 stops that were identified as needing improvements, and Table 2 tabulates those same results.

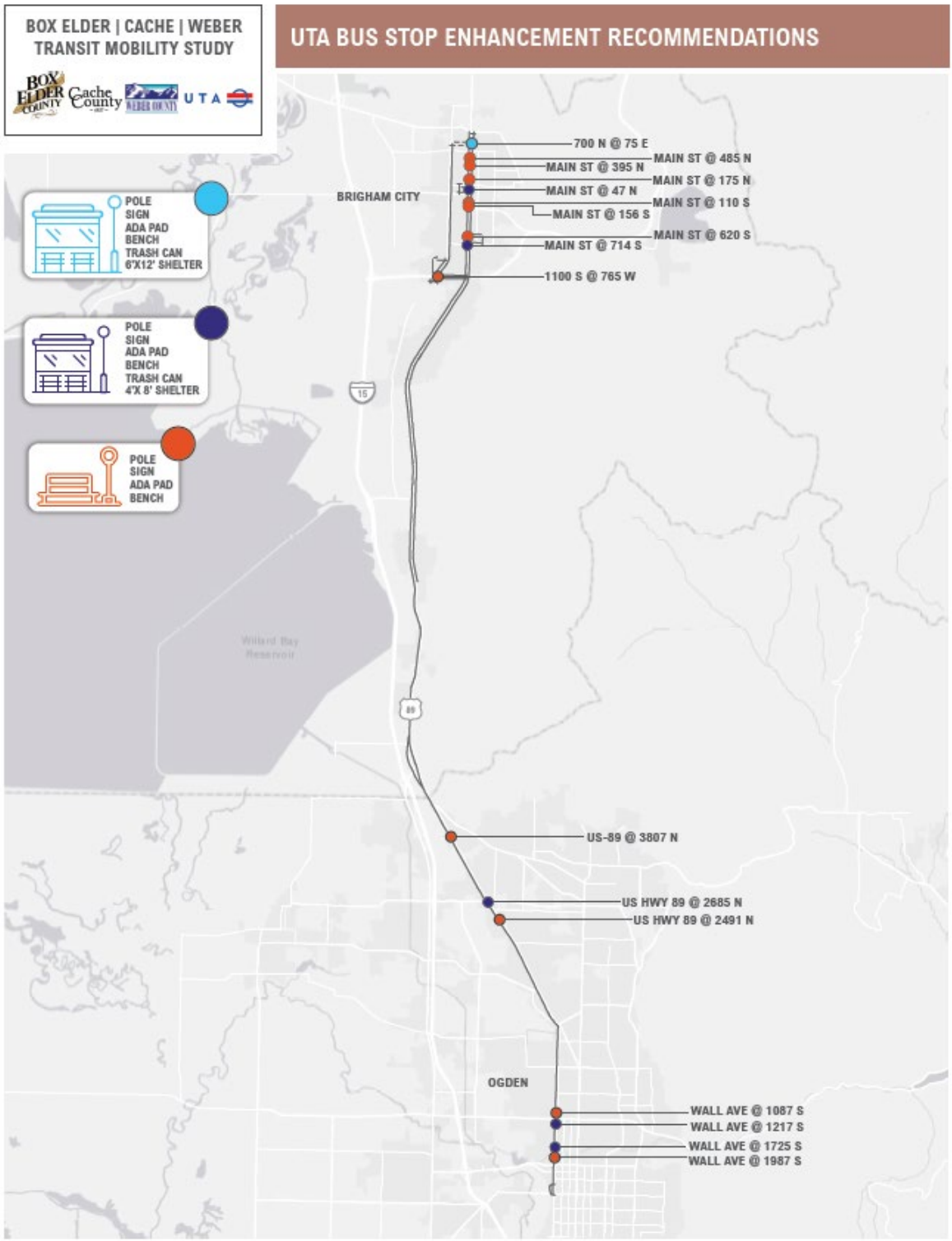


Figure 25: UTA Bus Stop Enhancement Recommendations

Stop	Stop Location	Existing Amenities	Recommended Amenities to Add	Stop Side	Average Weekday Boardings
603011	700 N @ 75 E (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 6'X12' Shelter	East & West	27.9
603013	Main St @ 485 N (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	7.8
603014	Main St @ 395 N (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	8.5
603016	Main St @ 175 N (Brigham City)	Sign & pole	ADA Pad, Bench	East	6
701024	Main St @ 47 N (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	West	11.2
605013	Main St @ 110 S (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	6.9
605076	Main St @ 156 S (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	9.7
605077	Main St @ 620 S (Brigham City)	Sign & pole	ADA Pad, Bench	East	8
605019	Main St @ 714 S (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East	10.3
605006	1100 S @ 765 W (Brigham City)	Sign & pole	ADA Pad, Bench	South	5.9
636082	Us-89 @ 3807 N (Pleasant View)	Sign & pole	ADA Pad, Bench	East & West	5
601045	Us Hwy 89 @ 2685 N (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East & West	10.3
610046	Us Hwy 89 @ 2491 N (Ogden)	Sign & pole	ADA Pad, Bench	East & West	6.2
601153	Wall Ave @ 1087 S (Ogden)	Sign & pole	ADA Pad, Bench	East & West	5.8
636108	Wall Ave @ 1217 S (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East & West	12.6
623202	Wall Ave @ 1725 S (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East	13.6
601206	Wall Ave @ 1987 S (Ogden)	Sign & pole	ADA Pad, Bench	East	6.7

Table 8: UTA Bus Stop Master Plan Bus Stop Levels by total stop activity.

Cache Valley Pilot Project

The Cache Valley Pilot Project has two approaches for implementation. The first would be for either UTA or CVTD to operate the route. As discussed in the service description, this approach is likely to require acquisition of additional vehicles. For the pilot project, use of a contract operator could allow the pilot service to begin with use of a contractor supplied vehicle. This is a key decision point for implementation.

- Finalize service plan – The number of trips and the schedule should be finalized. UTA should work closely with CVTD to schedule the service to maximize the opportunities for connections and transfers at the Logan transit center and the Ogden transit center.
- Determine operator – A decision must be made whether to contract for the service as a pilot program or for one of the transit systems to operate the initial service.
- Determine funding sources – Funding partnerships should be established for starting the pilot program. Partners should understand that this will be a pilot program only and if a

decision is made to continue the service in the future, new funding partnerships will be developed. The funding commitments should be limited initially to the pilot program.

- Contract if provider operator to be used – If the decision is made to use a contract operator, a Request for Proposals with the scope of work for the service should be developed and the standard procurement processes followed to select a contractor.
- Marketing/publicity – A broad marketing campaign will be needed to make potential users aware of the service. This marketing and promotion must take place in the Cache Valley and Box Elder County. Publicity through the CVTD community outreach should be used. A publicity campaign through Utah State University should be used to inform students, faculty, and staff. Recommendations would include mass email, posters in prominent locations (including on CVTD and USU buses), social media, and traditional media outlets. Outside advertising on the bus should be considered for promoting the new service as it begins.
- Begin Cache Valley Service – If a contract operator is used, a start date will be established as part of the contract.

COST ESTIMATION AND FUNDING SOURCES

Federal Grants and Funding Sources

The following grant and funding programs are available for transit planning and implementation projects, as well as related surface transportation investments, and should be considered in obtaining funding to implement the recommendations contained in this plan.

FEDERAL PROGRAMS

Access and Mobility Partnership Grants

This program provides competitive funding to support innovative capital projects for the transportation disadvantaged that will improve the coordination of transportation services and non-emergency medical transportation services.

Better Utilizing Investments to Leverage Development (BUILD) Transportation Grants Program (formerly TIGER)

This program funds investments in transportation and transit infrastructure.

Capital Investment Grants (CIG) - 5309

Provides funding through a multi-year competitive process for transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years to be eligible for funding.

Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310

Formula funding to states for the purpose of assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities. Funds can potentially be used for transit services that transport people either into, our out of, the urbanized area. These funds may be a potential funding source for a connector pilot between Cache and Box Elder Counties. It could also be used for funding other transportation services which get rural residents to the urban area for work, services, healthcare, etc.

Flexible Funding Programs - Congestion Mitigation and Air Quality Program - 23 USC 149

CMAQ provides funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate matter. States that have no nonattainment or maintenance areas still receive a minimum apportionment of CMAQ funding for either air quality projects or other elements of flexible spending. Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit.

Flexible Funding Programs - Surface Transportation Block Grant Program - 23 USC 133

Provides funding that may be used by states and localities for a wide range of projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle and pedestrian projects.

Formula Grants for Rural Areas - 5311

Provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000, where many residents often rely on public transit to reach their destinations.

Grants for Buses and Bus Facilities Formula Program - 5339(a)

Provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. In addition to the formula allocation, this program includes two discretionary components: The Bus and Bus Facilities Discretionary Program and the Low or No Emissions Bus Discretionary Program.

Integrated Mobility Innovation

FTA's Integrated Mobility Innovation (IMI) Program funds projects that demonstrate innovative and effective practices, partnerships and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety and improve the traveler experience.

Low or No Emission Vehicle Program - 5339(c)

Provides funding through a competitive process to states and transit agencies to purchase or lease low or no emission transit buses and related equipment, or to lease, construct, or rehabilitate facilities to support low or no emission transit buses. The program provides funding to support the wider deployment of advanced propulsion technologies within the nation’s transit fleet.

Metropolitan & Statewide Planning and Nonmetropolitan Transportation Planning - 5303, 5304, 5305

Provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.

Mobility for All Pilot Program Grants

This funding opportunity seeks to improve mobility options through employing innovative coordination of transportation strategies and building partnerships to enhance mobility and access to vital community services for older adults, individuals with disabilities, and people of low income.

Mobility on Demand (MOD) Sandbox Demonstration Program - 5312

Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.

Pilot Program for Expedited Project Delivery - 3005(b)

The Pilot Program for Expedited Project Delivery allows FTA to select up to eight capital transit projects for expedited grant awards.

Pilot Program for Transit-Oriented Development Planning – Section 20005(b)

Provides funding to local communities to integrate land use and transportation planning with a transit capital investment that will seek funding through the Capital Investment Grant (CIG) Program.

Public Transportation Innovation - 5312

Provides funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.

Rural Transportation Assistance Program - 5311(b)(3)

Provides funding to states for developing training, technical assistance, research, and related support services in rural areas. The program also includes a national program that provides information and materials for use by local operators and state administering agencies and supports research and technical assistance projects of national interest.

Safety Research and Demonstration Program

The Safety Research and Demonstration (SRD) Program is part of a larger safety research effort at the U.S. Department of Transportation that provides technical and financial support for transit agencies to pursue innovative approaches to eliminate or mitigate safety hazards. The SRD program focuses on demonstration of technologies and safer designs.

State of Good Repair Grants - 5337

Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans.

Technical Assistance & Standards Development - 5314(a)

Provides funding for technical assistance programs and activities that improve the management and delivery of public transportation and development of the transit industry workforce.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance for qualified projects of regional and national significance. Many large-scale, surface transportation projects - highway, transit, railroad, intermodal freight, and port access - are eligible for assistance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities. The TIFIA credit program is designed to fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital.

Urbanized Area Formula Grants - 5307

Provides funding to public transit systems in Urbanized Areas (UZA) for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.

Other Resource Options

UTA has developed a Shared Vehicle Program with retired transit vehicles. The use of these vehicles for coordinated or sharing purposes between agencies offers an economical solution in the face of scarce resources.

State Options

The Utah Department of Transportation (UDOT) has a new Technical Planning Assistance (TPA) program that would be a good resource for some of the specific recommendations. Box Elder County applied for and won a grant to update their general plan, for example. The Wasatch Front Regional Council (WFRC) has their Transportation Land Use Connections program (TLC) which is similar to the TPA program. Those funds would be excellent for a detailed land use effort along the corridor for example.

SB150 - 2020

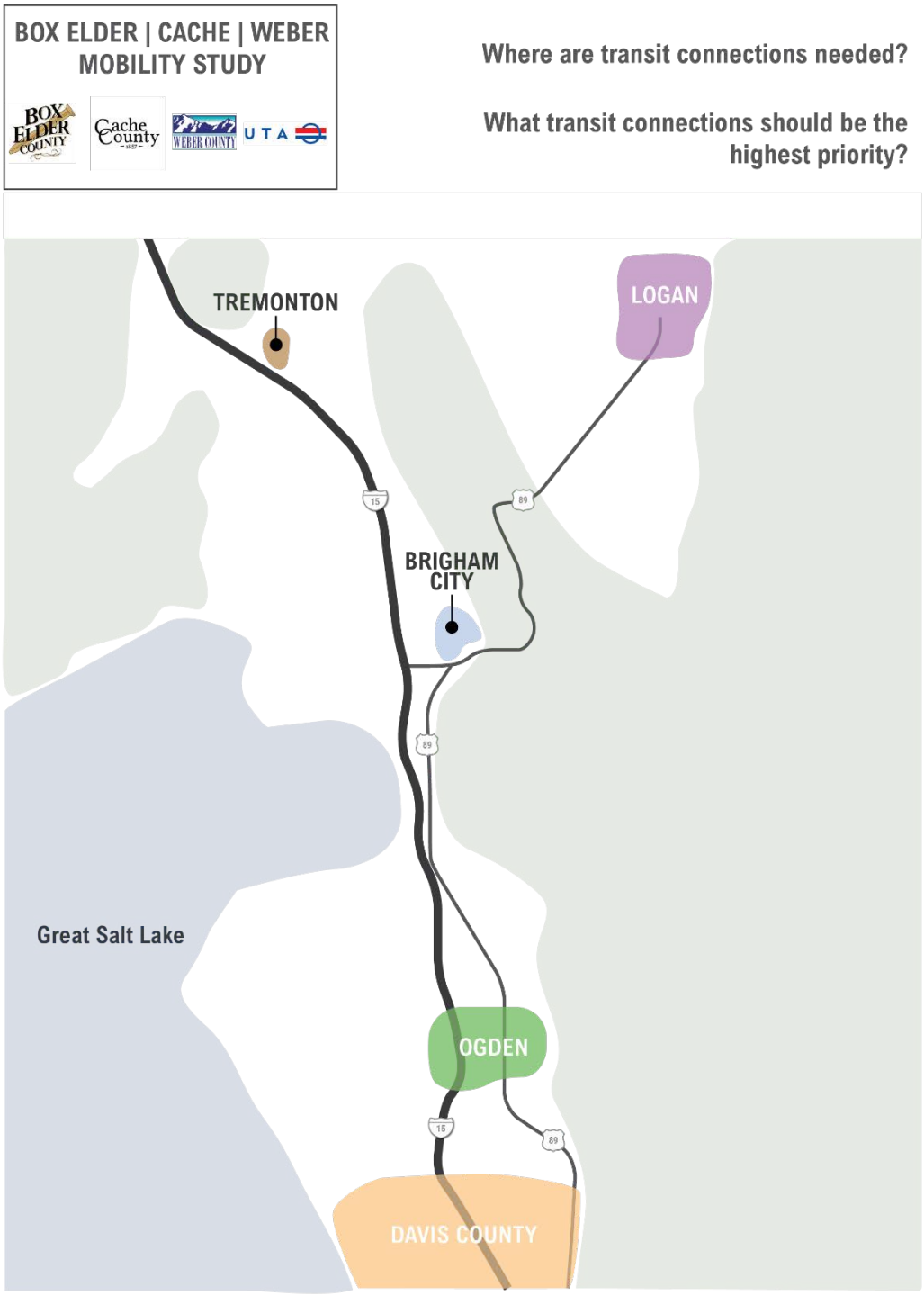
By far the most significant implementation opportunity that has occurred as a result of this study is the passage of SB 150 in the 2020 Utah Legislative session. There are specific provisions in this bill that deliver needed flexibility to the 2007 referendum that was prescriptive for commuter rail only. The language is here:

> *(4) (a) A county of the third class that has a portion of the county annexed into a large public transit district and that has imposed a sales and use tax under this section as of January 1, 2020, may change the list of purposes for which the sales and use tax revenue may be expended if:*
>
> *(i) the proposed uses of the sales and use tax revenue are allowed uses described in this section; and*
>
> *(ii) in coordination with a relevant large public transit district, the county legislative body passes an ordinance describing the allowed uses of the sales and use tax revenue.*
>
> *(b) Notwithstanding Section 59-12-2208, and regardless of whether the imposition of the sales and use tax imposed under this section was submitted to the voters as described in Section 59-12-2208, the county legislative body is not required to submit an opinion question to the county's registered voters to change the allowed uses as described in Subsection (4)(a).*

This section of SB150 applies directly to Box Elder County. The positive consequences of this new flexibility as a result of this bill cannot be overstated. It will allow the potential implementation of nearly all the recommendations, over time. It should be noted that this study recommends that corridor preservation continue as it has in the past, but other projects can now be considered more easily than before.

APPENDIX

INFORMATIONAL BOARDS AND ACTIVITIES FROM POP-UP EVENTS



BOX ELDER | CACHE | WEBER MOBILITY STUDY

WHERE ARE PEOPLE CURRENTLY GOING TO / COMING FROM IN NORTHERN UTAH?

An important part of making transportation recommendations for the future is knowing where the existing trips are coming from and going to. As part of this study we are looking at anonymized cell phone and GPS data to understand where most trips are happening in Northern Utah.

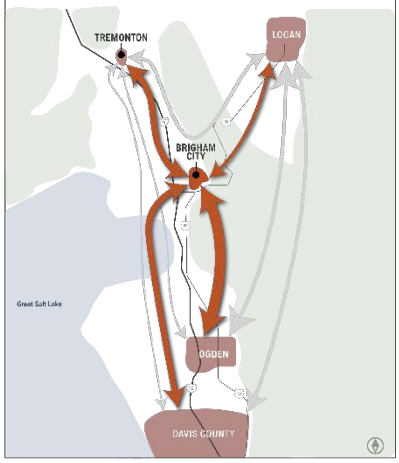
The images below show rough number of trips to and from Brigham City, Ogden, and Logan. The locations with the fattest arrows are where the largest amount of people are going from or to.

**Information about the data we are using:*
Travel volumes shown reflect average daily trip activity as measured from cellphone and GPS data sources. These volumes provide a basis for comparing trip activity between major destinations, but may be subject to under or over sampling compared to a precise traffic count.

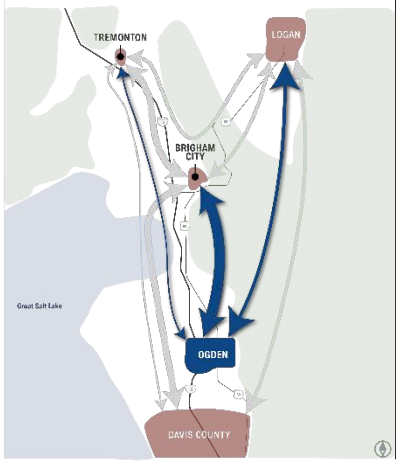
LEGEND

- 25,000 to 30,000 trips*
- 15,000 to 25,000 trips*
- 5,000 to 15,000 trips*
- 5,000 trips or less*

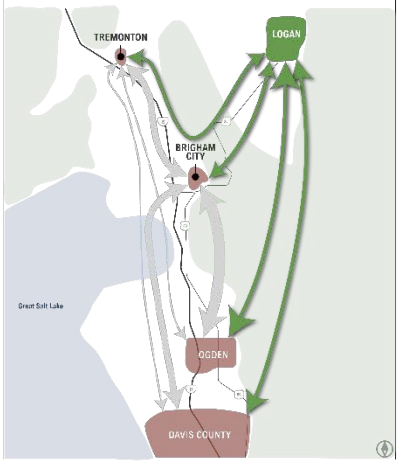
Trips to & from BRIGHAM CITY



Trips to & from OGDEN



Trips to & from LOGAN

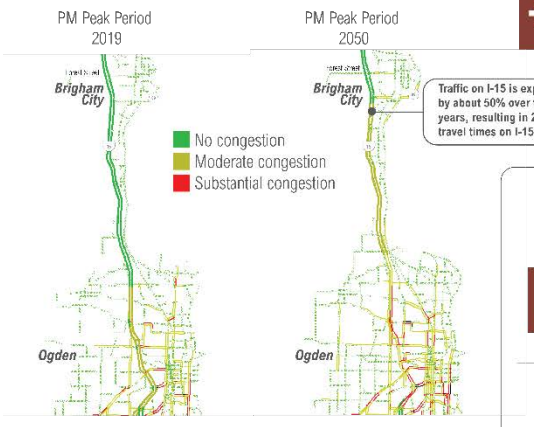


BOX ELDER | CACHE | WEBER MOBILITY STUDY

HOW CAN TRANSIT SUPPORT FUTURE GROWTH IN NORTHERN UTAH?

Northern Utah is growing and evolving! Knowing where the growth is happening helps inform transit investments.

How is traffic congestion changing?



+5 minutes to travel from Brigham City to Ogden

Traffic on I-15 is expected to grow by about 50% over the next 30 years, resulting in 20% longer travel times on I-15.

Source: WFRC Regional Travel Model

Daily Traffic	2019	2050	Change	% Change
I-15 south of Brigham City	53,000	81,000	28,000	**53%**
I-15 near 12th Street (Ogden)	81,000	125,000	44,000	**54%**

Population Projections % Growth from 2019 - 2050

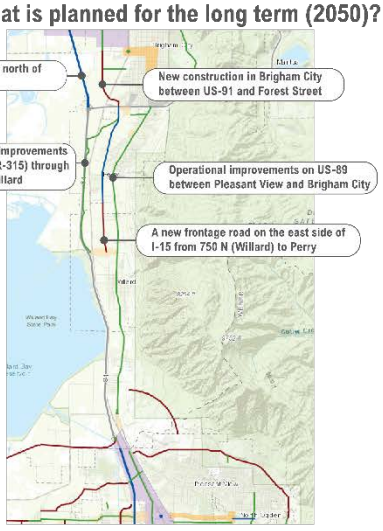
Logan	Brigham City	Ogden
49% Increase	41% Increase	34% Increase

Employment Projections % Growth from 2019 - 2050

Logan	Brigham City	Ogden
47% Increase	51% Increase	31% Increase

Source: Kem C. Gardner Institute

What is planned for the long term (2050)?



Legend

Phase 1 (2019 -30): Phase 2 (2031 - 40): Phase 3 (2041 -50):

Source: WFRC Regional Transportation Plan 2019 - 2050

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MOBILITY STUDY

DO YOU EVER WISH THAT TRANSIT IN NORTHERN UTAH WAS BETTER?

Tell us your ideas for transit improvements that you'd like to see in the Brigham City, Ogden, and Logan area!

Take a sticky note, write your idea on it, and stick it to this board. There are no wrong answers, we want to hear it all.

Put your sticky notes here!

FEHR PEERS

BOX ELDER | CACHE | WEBER MOBILITY STUDY

SHOW US WHERE YOU WANT BETTER TRANSIT CONNECTIONS

INSTRUCTIONS: Use the string and tape to connect your starting location to where you MOST would like transit to go. OR put dots on the cities where you want better city-wide transit amenities.