



URBAN

From the Indigenous Peoples of the Salt Lake Valley, to the Mormon settlers, and to the present, our creeks are the lifeblood of our cities. They are important areas of activation in our communities and connect us to place in this oasis on desert's edge. Greenways carry people to parks, open spaces, and civic, commercial, and recreational nodes throughout the Valley—allowing us all to prosper.

Youth chalk overtop an underground creek in Salt Lake City.

OUR URBAN CREEKS HAVE THE POTENTIAL TO BECOME AN EQUITABLE, INNOVATIVE, AND RESILIENT SYSTEM OF GREENWAY CORRIDORS.

VALUES

The Coronavirus (COVID-19) pandemic underscores the need for parks and recreational facilities, especially those close to home. They provide a way to get outdoors and exercise while protecting yourself and others. Salt Lake City's parks and public lands have seen an estimated 25% increase in visitation. Increases in visitation result in more user conflicts for pedestrians, cyclists, and other users. Conflicts lead to a perception of a diminished outdoor experience and view of our parks and open spaces.¹

Respondents to the 2014 "Your Utah, Your Future" survey want communities that provide convenient access to nature and recreation by walking, biking, and transit. They want to "connect communities with a system of trails and parks," especially those that integrate into other regional trail systems and provide access to destinations and public transit. Cooperatively planning networks at both the community and regional levels should be completed before significant population growth, according to the *Transportation & Communities Vision Book*.²

In the ten big ideas identified in *Reimagine Nature*, an urban green space network was

selected by 43 percent. It proposes developing a connected system of urban public space assets with a robust urban forest and diverse activities.³ Approximately 65 percent supported acquiring additional natural lands to connect wildlife habitat, and 55 percent supported acquiring additional riparian lands next to our creeks.

According to the *Watershed Public Opinion Survey*, Salt Lake County residents do not believe water quality should be impacted to facilitate development. Furthermore, they strongly support policies that require landowners to leave vegetation in place and plant new vegetation along waterways. In addition, policies that require new developments to set aside natural open space and create green infrastructure are strongly supported.⁴

HISTORY

Some 60 to 90 million years ago, rock layers folded, compressed, and thrust along the Wasatch Front. Erosion from glaciers and rivers further cut the seven major canyons in Salt Lake County. Out of each canyon flows melted snow and runoff to the Jordan River and onto the Great Salt Lake.

In 1852, Captain Stansbury came to the Salt Lake Valley to survey the land for the United States. Of the Valley, he said, "The site for the city is most beautiful: it lies at the western base of the [Wasatch] mountains... for twenty-five miles extends a broad level plain, watered by several little streams, which, flowing down from the eastern hills, form the great element of fertility and wealth to the community."⁵

Our creeks have sustained human settlement of the Salt Lake Valley for thousands of years. The Valley was of the ancestral lands of the



Figure 12: Banks of City Creek eroding near Canyon Road in Salt Lake City, circa 1909. Courtesy of Utah State Historical Society.

Eastern Shoshone Tribe, Goshute Indian Tribe, Northwestern Band of the Shoshone Nation, Ute Indian Tribe, and Shoshone-Bannock Tribes. These communities stewarded our creeks for centuries—hunting, fishing, and gathering along their banks.

Mormon settlers came to the Salt Lake Valley in 1847, looking for religious freedom. Within the first day, the new inhabitants began to impact our hydrology. City Creek in Salt Lake City was dammed for five acres of potatoes within the first two hours of arrival.⁶

Mills along the creeks put the waters to use. There were as many as 20 mills along Mill Creek at one point.⁷ Mining and logging in the canyons impacted water quality and laid creek banks bare, leaving wildlife without food or shelter.⁸

Waterways became the early sewer system due to their hydrology, flowing east-west out of our cities. Pollution from sewage, agriculture, and industry degraded water quality. Many of the early canals, diversions, and dams left channels devoid of water.

As our cities grew, white settlers imposed the Plat of Zion on the geography of the Wasatch Front. Houses were concentrated along creeks for its water source and cooling in the summertime. However, spring brought snowmelt and, with it, flooding. Floodwaters ravaged fields and houses along the banks.

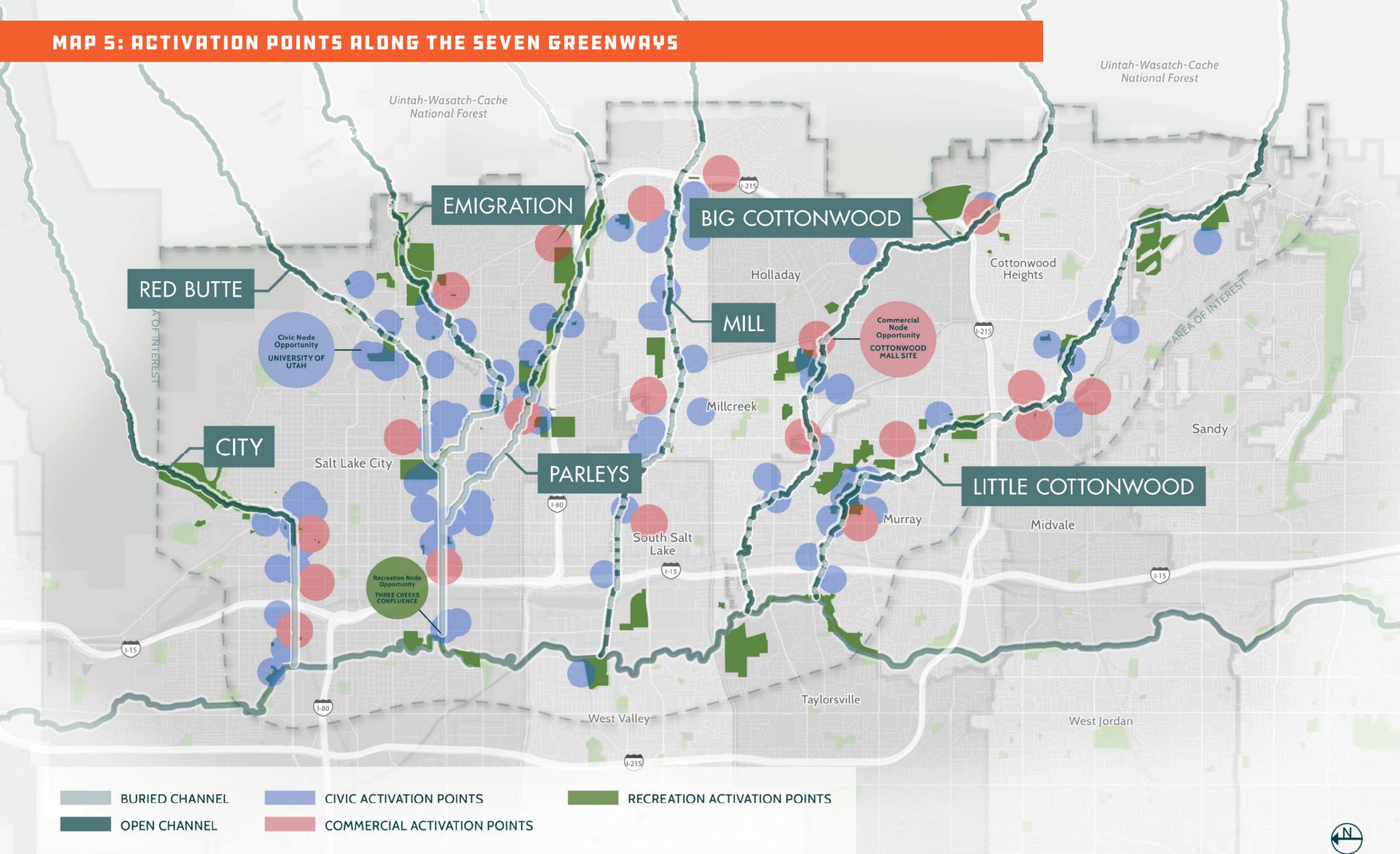
Instead of moving houses out of the floodplain to prevent damage, creeks were channelized as they entered the broad valley bottom, straightening the previously meandering channel. This caused banks to steepen and erode, creating a safety

1 - Salt Lake City, *Reimagine Nature Engagement Window #1 Summary Report* (2020).
2 - Envision Utah, *Transportation & Communities Vision Book* (2014).

3 - Salt Lake City, *Reimagine Nature Preliminary Engagement Findings* (2020).
4 - Salt Lake County, *Watershed Public Opinion Survey Report of Findings* (2015).
5 - Stansbury, *Exploration of the Great Salt Lake of Utah* (1852).

6 - Watson, *A Stream That Built A City* (1995).
7 - Salt Lake County, *Stream Care Guide* (2014).
8 - Bowman, *From Silver to Skis: A History of Alta, Utah, and Little Cottonwood Canyon, 1847-1966* (1967).

MAP 5: ACTIVATION POINTS ALONG THE SEVEN GREENWAYS



Source: Wasatch Front Regional Council, *Civic and Commercial Activation Points datasets* (2021); Utah Automated Geographic Reference Center, *Recreation Activation Points* (2021); and Salt Lake County, *Waterways* (2021).

issue for early residents.⁹ Pedestrians found a solution by building makeshift bridges spanning the nearly ten to 20-foot vertical banks.

This led to the burial of some creeks, which were dubbed a nuisance, in the early 20th Century. The green veins that once transported clean water, fish, and wildlife from the Wasatch Mountains downstream were replaced with bricks and mortar, concrete and asphalt. Even then, residents saw the damaging outcome.

A 1921 article from the *Deseret News* explains, “To cover City creek from Main to Third West streets and make of North Temple just an ordinary down-town thoroughfare, would be a desecration... In that open stream, with all its historic significance, in addition to its possibilities for beauty and attractiveness, the city has an asset of great value. To hide completely the flowing water within a conduit and to make of the street a stretch of ordinary pavement would be to throw away opportunity for which many cities would gladly pay a million dollars.”¹⁰

CONNECTIVITY

An activation point is a node at which users can access the system of greenways. They can be recreational—parks, natural areas, and open spaces, commercial—shopping centers, retail areas, and restaurants, and civic—schools, churches, and community institutions. Activation points provide community members access to the various amenities greenways can provide, and connectivity between them.

An estimated 20 commercial activation points, 80 civic activation points, and 116 recreation activation points are located within 1/2 mile of the seven creeks. Currently, access to our greenways is focused at existing public lands, such as parks, natural areas, and open space.

Private property complicates access. However, through partnerships with landowners, especially near commercial and civic activation points, access has been granted in formal or informal agreements.

For example, a trail winds along Big Cottonwood Creek through the Cottonwood and Old Mill Corporate Centers. The landowner donated rights-of-way as a means for tenants to access the creek and recreation opportunities.¹¹ The trail connects the city of Cottonwood Heights, the Old Mill Open Space, and the mouth of the Big Cottonwood Canyon underneath Interstate-215 to Knudsen Park and the rest of the city of Holladay.

Schools, churches, and other community institutions can create additional quasi-public private space for the greenways. Access agreements, with Bonneville First Ward, have extended the Miller Bird Refugee and Nature Park into Bonneville Glen along Red Butte Creek to create access on both sides of the park to the surrounding neighborhood.

According to the *Parks and Recreation Mail-in Needs Assessment Survey*, 75 percent of respondents are within a 15-minute walk to a park. However, 89 percent said they travel by car.¹² In Salt Lake City, most parks are easily accessible by car. According to the *Parks and Public Lands Needs Assessment*, pedestrian and bicycle access needs improvement through added bike lanes and trail connections.¹³ In the *Blueprint Jordan River Refresh Survey Findings*, most drive to the Jordan River—approximately 55 percent. However, those that live in northern communities of Salt Lake County and those that visit the corridor weekly more frequently walk, run, or bike.¹⁴

11 - Chakraborty, *5-mile trail coming to foothills near you* (2006).

12 - Guy, *Salt Lake County Parks and Recreation Mail-in Needs Assessment Survey* (2017).

13 - Salt Lake City, *Parks and Public Lands Needs Assessment* (2019).

14 - Envision Utah, *Blueprint Jordan River Refresh Survey Findings* (2020).

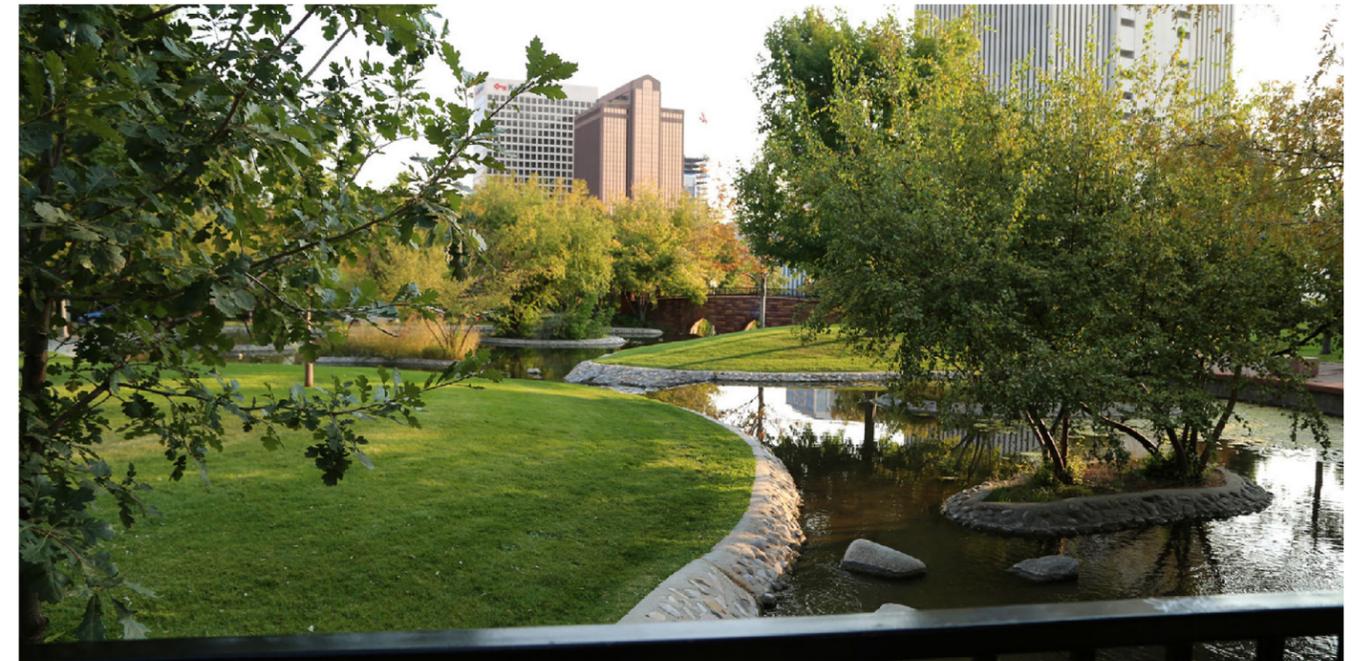


Figure 13: City Creek at City Creek Park in Salt Lake City.

In the *Blueprint Jordan River Refresh Survey Findings*, those with incomes less than \$40,000 were more likely to choose public transportation improvements as their first or second choice when asked what would enhance access to the Jordan River corridor.¹⁵ This underscores the need to provide plentiful and diverse connections to the greenways for lower-income residents, including regional public transit connections on buses, trains, and other forms of transit.

Community members may not have regular access to a personal automobile for recreation or are unwilling to drive to recreation opportunities. When asked about actions to improve livability in Salt Lake City, 46 percent responded improving networks for active transportation.¹⁶

There are 1 commuter rail stops, 10 light rail stops, and 1,049 bus stops within 1/4 miles of our creeks.

15 - Envision Utah, *Blueprint Jordan River Refresh Survey Findings* (2020).

16 - Salt Lake City, *Reimagine Nature Preliminary Engagement Findings* (2020).

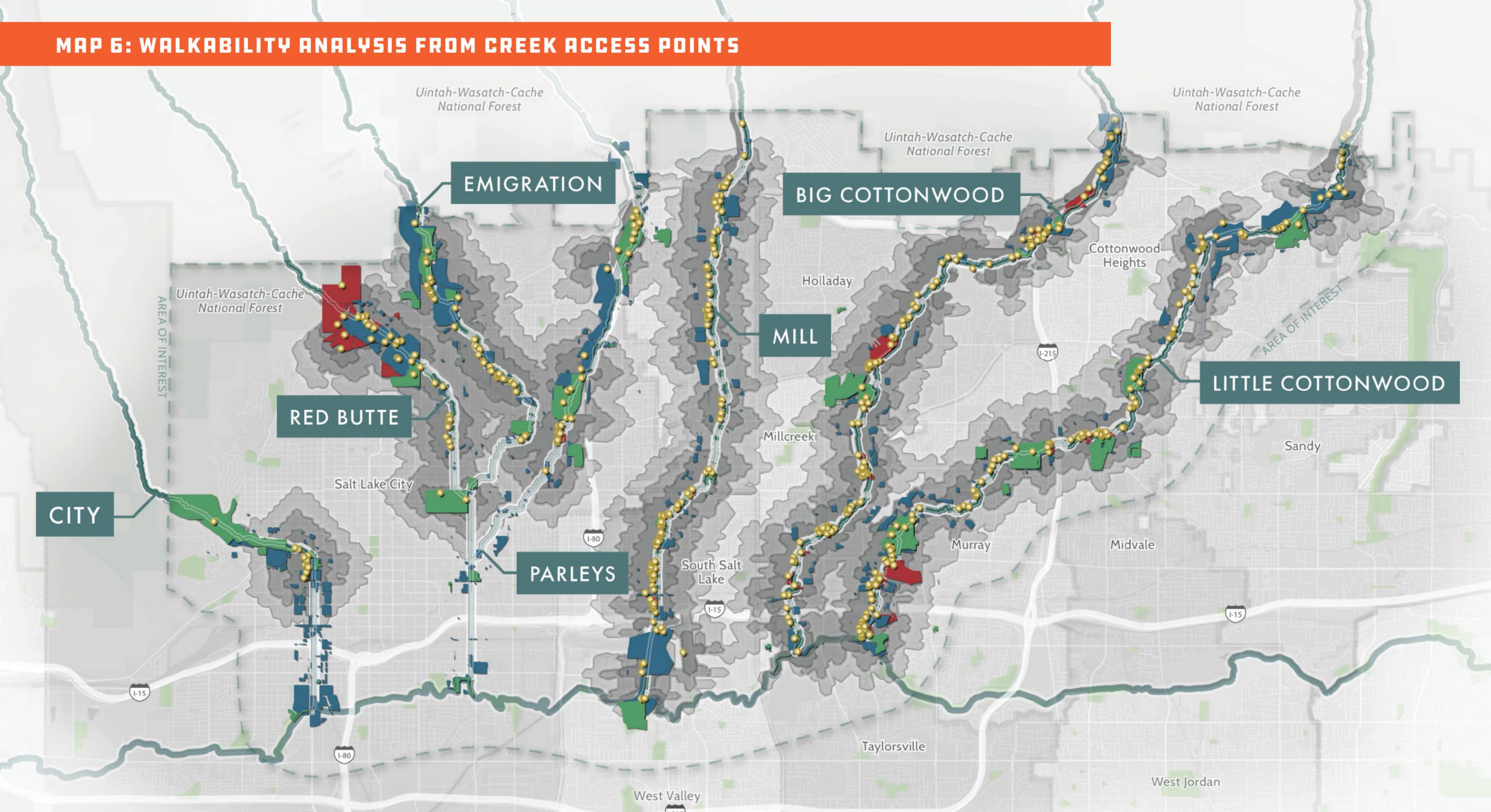
INFRASTRUCTURE & ECONOMICS

Many communities are finding cheaper alternatives to traditional methods of storm water management. As defined by the Clean Water Act, green infrastructure is “the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, storm water harvest and reuse, or landscaping to store, infiltrate, or evapotranspire storm water and reduce flows to sewer systems or to surface waters.”¹⁷ It can be a cost-effective, resilient tool to manage water in our cities. Conventional approaches, or “grey” infrastructure, utilize pipes to convey water away from the built environment as fast as possible. This has led to the degradation of our creeks—erosion, water quality impairments, and outright burial. Green infrastructure reduces and treats water at its source while improving the health of our creeks and delivering additional benefits.

Green infrastructure reduces the need for costly

17 - United States Environmental Protection Agency, *Green Infrastructure* (2021).

MAP 6: WALKABILITY ANALYSIS FROM CREEK ACCESS POINTS



Source: Utah Automated Geographic Reference Center, Parks, Public Space, and Commercial Areas datasets (2021); and Salt Lake County, Waterways (2021).



Figure 14: Parleys Creek at Intermountain Memorial Clinic in Salt Lake City.

grey infrastructure.¹⁸ In Kalamazoo, Michigan, city engineers found uncovering the creek would be cheaper than excavating, replacing, and reburying the deteriorating culvert.¹⁹ The life cycle costs associated with the construction, maintenance, and replacement of underground culverted systems often prove more expensive, or only marginally less, than uncovering the stream (without the additional benefits of daylighting).

By reducing the amount of runoff, green infrastructure reduces the frequency and severity of flooding.²⁰ Historic flooding, in 1983, resulted in an estimated \$34 million in damages through Salt Lake County.²¹ In 2017, a 200-year precipitation event, in Salt Lake City, resulted in \$1.5 to \$2 million in damages to the historic Sprague Library and \$2 to \$3 million in damages to four schools. One hundred homes were flooded and over 5,000 customers experienced

power outages.²²

Creek-side properties are desirable areas to live, work, and play. The \$8.4 million restoration project along the Ogden River, in 2011, has seen a significant return on investment. Between 2000 and 2017, the number of housing units around the project area increased by 37 percent, the number of jobs increased by 36 percent, and the area's median income increased by 34 percent. This is compared to increases across the entire city of 21, 16, and 28 percent, respectively.²³

The 60-acre River Bend Redevelopment Project Area plans to channel the momentum from the restoration project to create a mixed-use and mixed-income urban riverfront neighborhood. Residential developments, such as The Meadows at Riverbend and The View on 20th, have popped along the restored Ogden River, as well as retail spaces, like Gear:30, Ogden River Brewing, Slackwater, and others.²⁴

18 - Center for Neighborhood Technology, *The Value of Green Infrastructure* (2010).
 19 - Trice, *Daylighting Streams* (2016).
 20 - Center for Neighborhood Technology, *The Value of Green Infrastructure* (2010).
 21 - Hooton, *Memorial Day Weekend 1983* (1999).

22 - Mims, 'Torrential' thunderstorms flood East High School, SLC's Sprague Branch, *Wasatch Front intersections* (2017).
 23 - Hinners, *The Socio-Economic Impacts of the Ogden River Restoration* (2019).
 24 - Shaw, *Ogden Riverbend project still moving along, with new apartment complex possible* (2017).

In Salt Lake City, Hidden Hollow is a serene, natural oasis within the bustle of the Sugar House neighborhood. In 1990, a group of elementary kids from Hawthorne Elementary cleaned up around Parleys Creek in this area, and successfully protected it through a conservation easement. Wilmington Flats and other dense urban apartment buildings have been constructed near this area, advertising "as a gateway to Hidden Hollow and Sugar House Park."²⁵

Recreation, along greenways, also generates economic value. In Utah, anglers contributed \$259 million in direct spending to fish in 2011. Overall, the industry output was \$460 million with \$50 million in state and local tax revenue.²⁶ In Jackson Hole, Wyoming, increased recreational trails generated over \$18 million in economic activity in 2010. The original investment, over ten years, is estimated at \$1.7 million. Local businesses agree sales and rentals increased as trails increased.²⁷

ACTIVE TRANSPORTATION

Walking, biking, rolling, and even boating (where feasible) are affordable transportation options available to all ages and abilities. Active transportation is any human-powered mode of travel in our communities. It increases physical activity levels and improves air quality by reducing reliance on personal automobiles. It diminishes costs associated with the purchase, maintenance, and fuel of vehicles. In 2020, the cost to own and operate a car in the United States was \$9,561.²⁸ For comparison, bicycles cost an estimated \$350 per year.²⁹ Walking is virtually free.

25 - Wilmington Flats, *Home* (2021).
 26 - Man-Keun, *The Economic Contribution and Benefits of Utah's Blue Ribbon Fisheries* (2013).
 27 - Kaliszewski, *Jackson Hole Trails Project Economic Impact Study* (2011).
 28 - AAA, *Your Driving Costs* (2020).
 29 - Schwartz, *Americans Work 3.84 Minutes Each Day To Pay For Their Bicycles* (2011).

In 2014, Utah ranked 15th in bicycle commuting by state.³⁰ Along the Wasatch Front, walking represents 7.8 percent and biking: 1.7, of all trips taken.³¹ In Salt Lake City, an estimated 2.5 percent commuted by bicycle in 2014.³² Due to the 27 increase in bicycling in 2011, Salt Lake City jumped from 43rd (2010) to 26th (2012) in the "America's Most Bicycle-Friendly Cities" ranking.³³

GENTRIFICATION

The phenomenon of green gentrification can be an unfortunate impact of investments in our urban ecosystems, such as greenway creation, stream restoration, and daylighting. Efforts create desirable places to live, work, and play that attract wealthier, and often white, populations. Without comprehensive strategies in place to prevent displacement, the residents these strategies are designed to benefit can be excluded.³⁴

Policy strategies at the city, county, or state-level are needed to prevent displacement due to gentrification. In redevelopment projects adjacent to greenways, efforts should ensure the same amount of housing stock, based on income level. Put simply, if replacing low-income housing, the same amount of low-income housing should be provided in the redevelopment. Additional affordable housing stock should be a critical part of any creek-side development. Rent subsidies, well-devised forms of rent control, and community land trusts to protect low-income and affordable housing are important city-wide tools to prevent displacement.

30 - The League of American Bicyclists, *Where We Ride* (2014).
 31 - Resource Systems Group, Inc., *Utah Travel Survey* (2013).
 32 - The League of American Bicyclists, *Where We Ride* (2014).
 33 - Salt Lake City, *Pedestrian & Bicycle Master Plan* (2015).
 34 - Wolch, *Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'* (2014).

OPPORTUNITY

Activating and connecting our URBAN areas

The Salt Lake Valley and our cities are experiencing tremendous growth, an additional 600,000 people by 2065.³⁵ As urbanization continues, our creek corridors are increasingly important areas for connection, activity, recreation, solitude, entertainment, and enjoyment. Greenways help sell homes, increase property values and business revenues, and improve quality of life.³⁶ Developments along the greenways, where appropriate, can help build the system through trail creation, stream restoration, and daylighting.

Greenways are central to connecting and activating our urban cores. They strengthen community connections by providing buffered, safe, and beautiful space for leisure, commuting, and running errands on wheels or by foot. Increasingly, relocation decisions for professionals are based on quality of life considerations, such as robust active transportation networks and greenways.

Well-connected greenways, active transportation, and public transit networks connect underrepresented residents to employment, services, entertainment, recreation, and leisure. First-map last-mile gaps are barriers in transit that discourage ridership because stations and stops cannot be accessed from home, work, or other destinations. Greenways should prioritize connections between transit and destinations to fill critical gaps in the regional network.

A highly-accessible and connected system of greenways reduces the need for parking as users can utilize corridors to travel to and from destinations. Adequate parking should be a key consideration at parks and green spaces

that function as trailheads to the greenways. Connections to and from public transit are critical to move beyond the need for personal automobiles.

Trail-oriented developments fulfill the desire of residents and businesses to live and locate along waterways, trails, and other amenities. They bring density to corridors and offer amenities beyond the norm, such as bicycle storage, workrooms, rentals, and shower/locker facilities. They serve as an important tool in implementation, especially in urban areas where land is scarce and expensive.

Developers can be incentivized to uncover and restore creeks as an amenity for tenants and to improve property value. Furthermore, they can build publicly-accessible trails and other recreation opportunities along the creeks. Design standards can further require implementation of recommendations through ordinances, overlay zones, or other strategies.

Privately-owned public spaces are important for implementation of greenways. Through partnerships with landowners, access has been granted in formal or informal agreements. Corporate centers, commercial areas, and large apartment complexes can provide access on private property for its tenants and other users.

Additionally, churches, schools, and other institutions are situated all along our creeks and should be identified to serve as additional points of access and connectivity.

Residents from communities in which efforts would benefit should be involved in projects. Highly-visible daylighting and restoration projects increase community consciousness about our streams. A knowledgeable community likely supports further restoration and stewardship.

At the design stage, community members

should be involved in deciding which amenities the greenways provide. During implementation, particular emphasis should be given to involve local community members. Greenways create jobs in plumbing, landscaping, engineering, building, and design. Conservation corps and other entry-level jobs build capacity and technical expertise for residents. Efforts can lead to fulfilling careers in improving their neighborhood health and resiliency.

After completion, communities should be engaged in programming, activation, and works of art featured in the corridors. Artists

from surrounding communities can perform, create, and display their works in greenways. At the Three Creeks Confluence in Salt Lake City, community designs were laser cut into steel plates featured on the east-west bridge that spans the uncovered creeks. Efforts showcase local west-side artists and designs that represent the surrounding community while offering artists generous stipends for their work. Similar opportunities exist throughout the greenways.



Figure 15: Parleys Creek at the Sugar House Shopping Center in Salt Lake City.

35 - Perlich, *Utah's Long-Term Demographic and Economic Projections Summary* (2017).

36 - Crompton, *Perceptions of How the Presence of Greenway Trails Affects the Value of Proximate Properties* (2001).