December 2017

CACHE COUNTY TRAILS & ACTIVE TRANSPORTATION MASTER PLAN

DRAFT

AN AMENDMENT TO THE CACHE COUNTY COMPREHENSIVE PLAN THAT ADOPTS TRAIL AND ACTIVE TRANSPORTATION FINDINGS, OBJECTIVES, AND ASSOCIATED POLICIES AND GUIDELINES LANDS WITHIN CACHE COUNTY.

WHEREAS, on November 2nd at 5:35 p.m., the Planning Commission held a public hearing for said amendment, which meeting was preceded by all required legal notice and at which time all interested parties were given the opportunity to provide written or oral comment concerning the proposed amendment, and;

WHEREAS, on November 2nd, 2017, the Planning Commission recommended the approval of said amendment and forwarded such recommendation to the County Council for final action, and;

WHEREAS, on November 28th, 2017, at 5:30 p.m., the County Council held a public hearing to consider any comments regarding the proposed amendment, which meeting was preceded by all required legal notice and at which time all interested parties were given the opportunity to provide written or oral comment concerning the proposed amendment, and;

WHEREAS, following their review, and after considering all comments, the Cache County Council has determined that it is appropriate for the County to amend and implement this resolution.

NOW, THEREFORE, BE IT RESOLVED that the Cache County Council hereby adopts this resolution to amend the Cache County Comprehensive Plan to include the County Trails and Active Transportation Plan as identified in this document.

APPROVED AND ADOPTED this DATE, 2017.

	In Favor	Against	Abstained	Absent
Erickson				
Merrill				
Tidwell				
Ward				
White				
Worthen				
Zilles				
Total				

CACHE COUNTY COUNCIL

_____
Greg Merrill,
Chair, Cache County Council

ATTEST:

_____
Jill Zollinger,
Cache County Clerk

Acknowledgments

Cache County Executive
Craig Buttars

Cache County Council
Karl Ward
Barbara Tidwell
Greg Merrill
David Erickson
Gina Worthen
Jon White
Gordon Zilles

Municipal Support
Hyde Park
Hyrum
Lewiston
Logan
Mendon
Millville
Nibley
North Logan
Paradise
River Heights
Smithfield
Cache Metropolitan Planning Organization

Citizen Involvement
Bicycle Pedestrian Advisory Committee (BPAC)
Trails Committee - Holly Daines, Chair

Staff Support
Betsy Byrne - National Park Service - River, Trails and Conservation Assistance Program

Dayton Crites - Cache County Trails Planner

HOW THIS DOCUMENT WORKS

Use this button to go back to the last page viewed.

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This illustrates the ability to link from one page to another. Each chapter's table of contents can navigate to specific sub chapters.

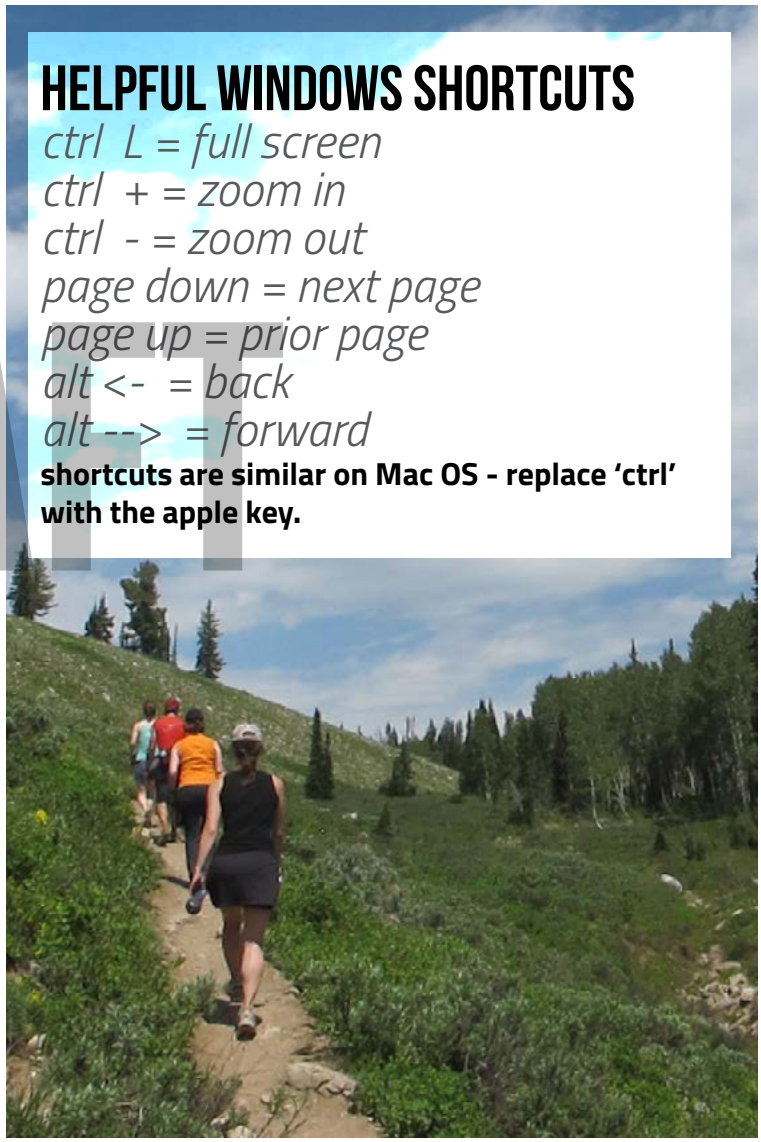
The tri-color mountain range at the bottom of each page allows users to navigate back to the main table of contents in each chapter from any page within the document.

In addition, colored text and chapter table of contents are all designed to link to their listed destinations. If you want to return to a chapter heading, simply use the mountain range below.

These navigational aids are designed to reduce the amount of scrolling you would otherwise do to navigate this document.

Thank you for taking the time to read through this document, and we hope you find it helpful. If you have any questions about the content of this plan, please reach out to the Cache County Trails Department:

Trails@CacheCounty.org
435.755.1646



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Executive Summary

Cache County residents value their open space, their ability to escape into nature just outside their back door, and a sense of safety that comes from living in small, tightly knit communities. Trails and active transportation improvements are critical to preserving this quality of life that so many treasure here in the valley.

Preserving routes that are safely traveled on foot and bicycle allows children to travel to a park or their school safely and ensures that as we age in place that options remain that allow us safe and comfortable access to our places of worship, public lands, and neighborhoods.

This master plan is the result of a collaborative effort in 2017, between Cache County's trails planning department, the National Park Service's Rivers and Trails Conservation Assistance Program, and the citizens of Cache County.

During the summer of 2017, over 500 community members participated in the planning process through on-line forms and in-person tabling events at local festivals and farmers markets.

The feedback from this public outreach, along with in depth research through existing trails and active transportation planning documents in Cache Valley helped create a plan that does not stand alone, but ties together existing community plans into a coherent whole, helping prioritize and connect our cities to their neighbors and the public lands surrounding them.

The results of this planning lay the groundwork for making Cache Valley an even better place to live, work and play, and seeks to ensure that no matter if you're driving to the trailhead,, taking a run along a nearby river, or biking to a peak, that you'll have a great place to go in Cache County.

Jardine Juniper Trail, Uinta Wasatch Cache National Forest

Vision, Goals & Strategies

These driving goals for the plan were vetted with multiple stakeholders from local government agencies, and various communities. These serve as the basic framework of the plan.

VISION

Build an interconnected, safe, and beautiful network of trails that will contribute positively to Cache County's economy, public health, tourism, and quality of life.

GOALS

- Connect population centers to public recreational lands and opportunities
- Connect residential centers to services, jobs, recreation and socialization opportunities
- Utilize trails to improve public safety and health
- Design and align trails to highlight Cache County's unique natural landscape
- Create systems that promote walking and bicycling as transport options

STRATEGIES

- Focus the plan on high value and achievable projects
- Illustrate the financial, professional, legal, and community driven implementation tools needed to achieve this plan
- Provide planning-level cost estimates and conceptual designs for major trail projects
- Prioritize projects with a low cost/high value as well as projects that close gaps and connect communities
- Prioritize trails and community connections that benefit the most county residents possible
- Identify and prioritize projects that are 'low hanging fruit' with willing landowners and partnerships available
- Identify routes both on and off of existing streets that can best provide current and future active transportations between homes and services

Public Input Process

Overview

Public feedback was key in gathering information across the valley regarding current conditions, network gaps, and future needs. This feedback played an important role in prioritizing projects for implementation. Public input was gathered through public events, multiple stakeholder meetings, and on-line maps and surveys.

Stakeholders

The following groups were consulted regarding the development of this plan:

- Cache County Bicycle and Pedestrian Advisory Committee (BPAC)
- Cache Trails Committee
- Cache Metropolitan Planning Organization (CMPO)
- Cache County Municipalities
- US Forest Service – Logan Ranger District, Uinta-Wasatch-Cache National Forest
- Utah Department of Transportation (UDOT)
- Utah State Department of Natural Resources

Public Outreach

Cache County conducted public outreach through on-line polling and crowd-sourced mapping, as well as ten separate in-person events from May 13 – June 10, 2017.

Feedback was gathered to understand key issues surrounding how people utilize trails and active transportation in the valley, and what improvements they feel are most needed in the future.

Notice of this public input period was announced through both traditional and social media, including a press release, the Trails Cache website, the Trails Cache newsletter, Facebook, Instagram, posters, and flyers. Partner organizations were asked to spread word through their own networks.

Partners organizations included:

- Cache MPO
- Cache County
- Cache County Municipalities
- Logan Downtown Alliance
- Cache Valley Transit District (CVTD)
- Utah State University
- Bear River Land Conservancy
- Cache Clean Air Consortium
- Local Bicycle and Sports Retailers

Along with the on-line survey and map, the trails plan was promoted and refined through informal public conversations at multiple events across the valley. Through spring and summer of 2017, plan representatives were present at the following events:

- May 13 – Smithfield Health Days
- May 15-19 – Bike to Work Week
- May 20 – Cache Valley Gardeners Market
- May 27 – Cache Valley Gardeners Market
- Jun 3 – Hyrum Classic Car Show

In sum, 148 participants took part in the on-line survey, 200 suggestions were made on the map, and over 200 individuals were reached through the in-person tabling events.

Public Open House

Once the initial public feedback was collected and analyzed, a public open house was conducted on August 23rd, 2017 to present the proposed network improvements. 40 attendees were present, representing elected officials and citizens from across the valley. Feedback was overwhelmingly positive, with concerns expressed about funding and private property challenges that could occur with future facilities.

Overall Findings

The public outreach period demonstrated strong public support for more trails and improvements to the active transportation network. The following pages illustrate the responses gathered through the on-line surveys. Map input was used in the analysis and creation of final trail master plan recommendations.

200

ON-LINE MAP ENTRIES

148

ON-LINE SURVEYS COMPLETED

OVER 200

IN PERSON CONTRIBUTIONS

As part of the survey, people were also asked what visionary trail or active transportation project they would like to see accomplished over the next decade. Top ranking themes included:

- Provide better connectivity between other trails and between destinations (corridors running east-west or north-south were frequently mentioned)
- Extend and/or improve Bonneville Shoreline Trail
- Establish or formalize canal trails
- Improve safety, including maintenance or sweeping
- Improve facilities on the Main Street corridor (including 100 E/200 E or 100 W as alternates)
- Create systems of trail loops or bike parks
- Establish long regional trails
- Extend and connect the Logan River Trail
- Improve safety on rural road biking routes
- Extend Blacksmith Fork River Trail
- Create a East-west connection to Mendon (including Mendon Road and alternates)
- Establish a Hyrum to Wellsville connection
- Create a Smithfield to Richmond connection

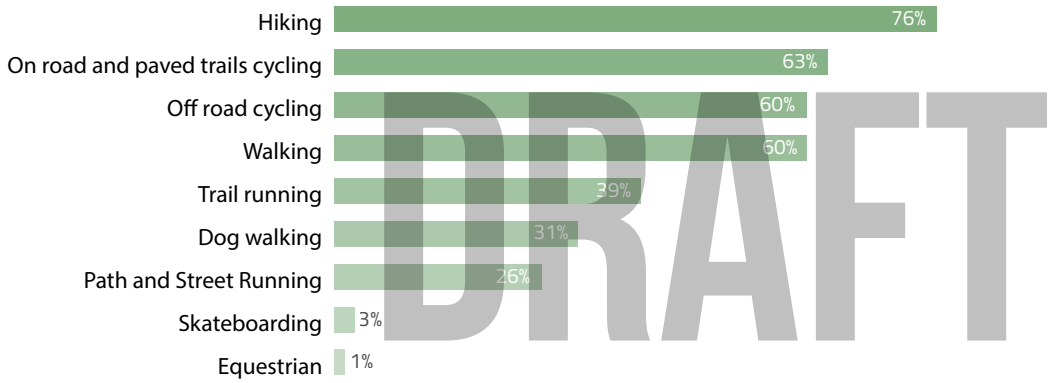
This public input was used as a factor in the analytical process to rank projects and also helped inform the final Cache County Trails and Active Transportation Major Recommendations.

Survey Results

An on-line survey was distributed through social media and partner organizations to solicit feedback regarding Cache County opinions on trails and active transportation.

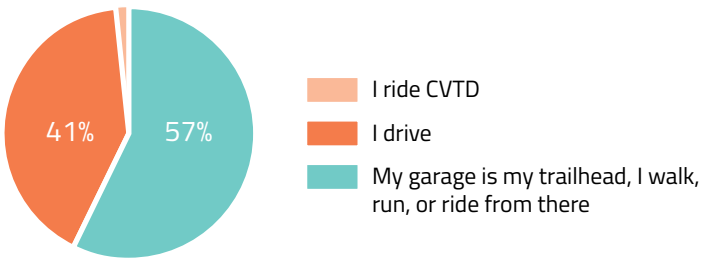
The survey garnered 148 responses over the one month period it was live. The following charts illustrate response trends.

How do you primarily use trails in and around Cache County?



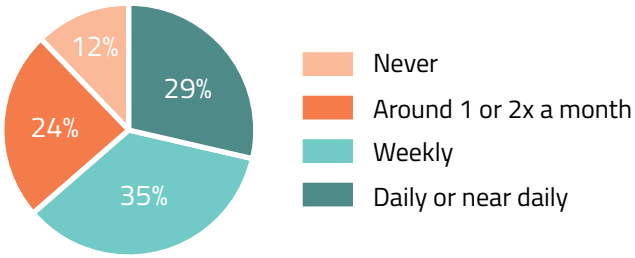
Why do you use trails in and around Cache County?

How do you get to the trailhead most often?

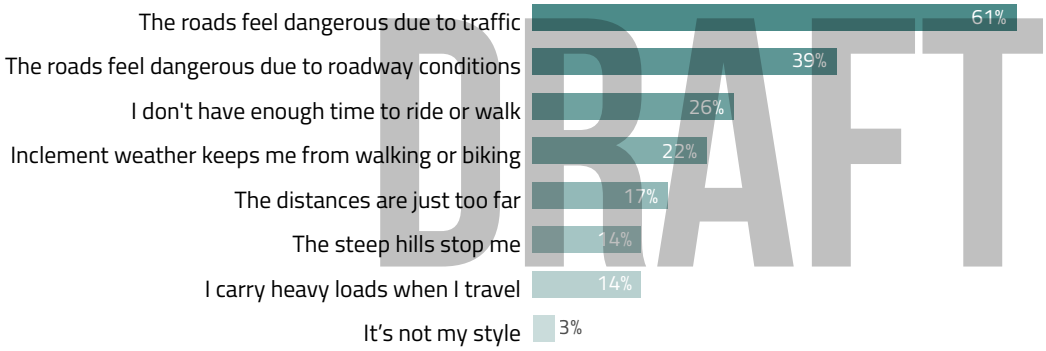


Survey Results (cont.)

How often do you use active transportation (walking / biking) to get where you're going in Cache County?



What is the biggest barrier to walking or biking to your destinations in Cache Valley?



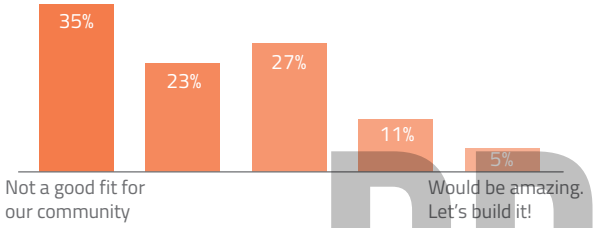
*9 people also cited having children as a reason they don't walk or bike to destinations.

Wind Caves, Uinta-Wasatch-Cache National Forest

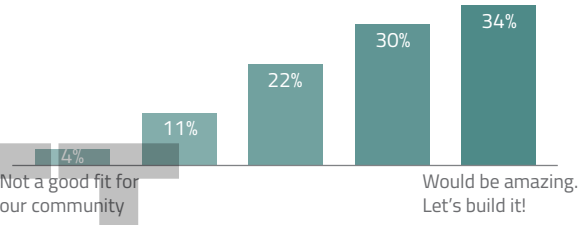
PROCESS & OVERVIEW
Survey Results (cont.)

How applicable is this trail type in Cache County?

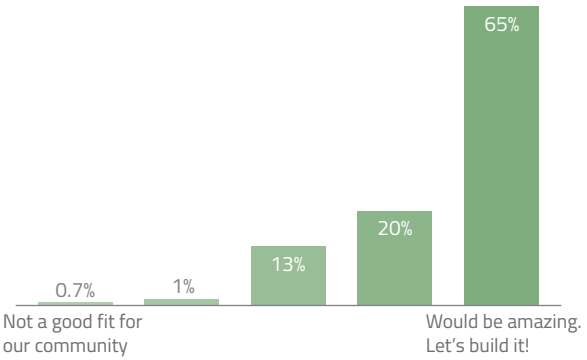
Shared Roadway



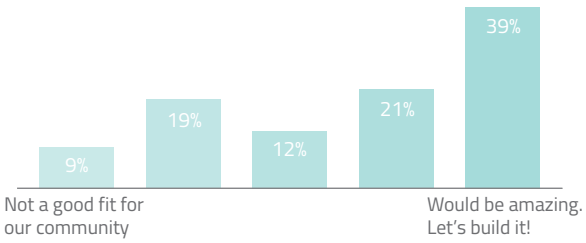
Bike Lanes



Shared Use Path



Two Way Cycletrack

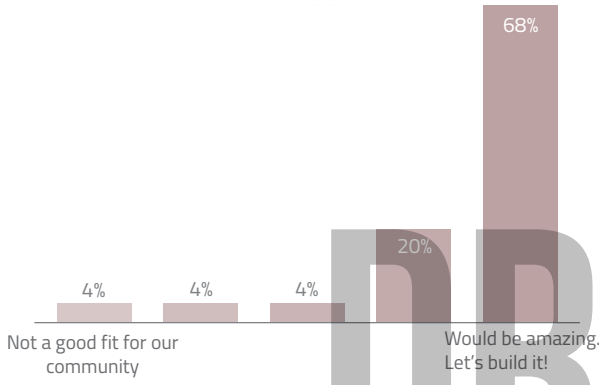


PROCESS & OVERVIEW

On a street with more traffic, how appropriate is this facility?

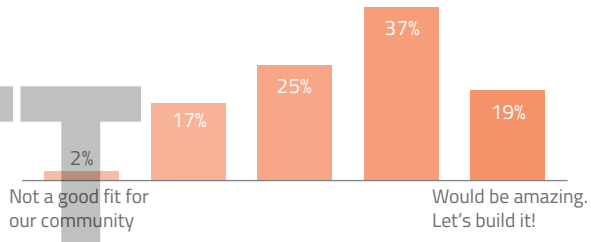
Cycletrack

High traffic volume roadway



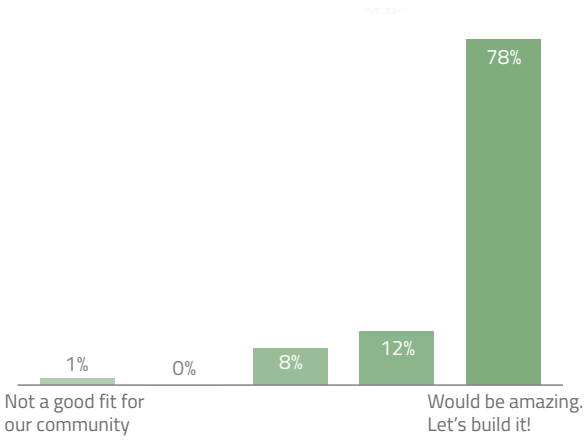
Bike Lanes

High traffic volume roadway

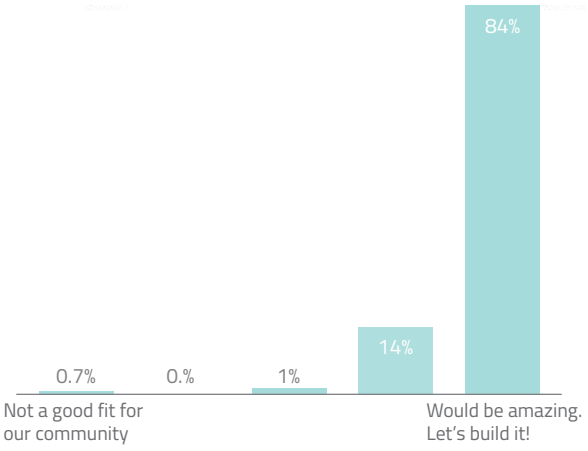


Now, for off-roadway trails...

Canal Trail



Natural Surface Trail



Analytical Process

Existing Conditions

In order to plan for Cache County's future growth and population, it is important to understand current conditions.

Much of Cache County's population, jobs, services, infrastructure, and traffic are concentrated on the north-south corridor along Hwy 91 on the east side of the valley. Utah State University, a major hub of activity, is situated in the heart of this corridor.

A 2003 effort created a cross county bike route with consistent signage. However, that route has become unsafe and difficult to identify due to changes in the roadways which did not take into account active transportation.

West Cache Valley contains several communities that are somewhat isolated from the population and employment hub of the eastern corridor. Other communities outside of the population center to the east are agricultural communities with rural roads that are popular with long distance cyclists. Though scenic, current rural road conditions pose mixed hazards to those using them by bicycle for recreational or utilitarian purposes.

The middle of the valley is characterized by the riparian corridors of the Logan, Blacksmith, and Bear Rivers and associated wetlands and reservoirs. These areas are high-value habitat for migratory birds and other animals. These areas pose challenges for trail development due to increased costs and potential ecological damage. However, if planned correctly, these lands also provide attractive land for scenic trails.

On the Shoulders of Giants

This project does not represent the first planning project for trails and active transportation in Cache County. It merely represents a county wide perspective for trails and active transportation.

Existing local and regional plans affecting trails and active transportation were consulted and integrated into the initial draft map that was presented to the public for feedback during the public outreach period

81% of the trails and active transportation features represented in this document have been sourced from previously adopted plans within Cache County.

Existing Plans consulted include:

- Logan City Parks and Recreation Master Plan (2016)
- North Logan Trails Master Plan (2016)
- Cache Metropolitan Planning Organization 2040 Regional Transportation Plan (2015)
- Logan Bicycle and Pedestrian Master Plan (2015)
- Mendon General Plan (2013)
- Richmond City General Plan (2013)
- Smithfield General Plan (2016)
- Northern Bonneville Shoreline Trail Plan (2002)
- Hyrum Trails Master Plan (1999)
- Providence General Plan (2000)
- Millville General Plan (2014)
- N. Bonneville Shoreline Trail Master Plan (2002)

81%

OF ALL RECOMMENDATIONS ARE SOURCED FROM EXISTING COMMUNITY PLANS

Local Detail vs. County Overview

In order to create a clear and concise plan, this plan references only facilities of regional significance. Local plans, particularly Hyde Park, Nibley, and Logan City's active transportation plans contain high levels of detail and contain many fine-grained projects that compliment the regionally significant facilities outlined in this plan.

Trail Ranking Criteria

With limited resources, how can we decide which trails are the most valuable and most important? In order to remove personal bias from the process as much as possible, a trail ranking matrix was developed to give each trail a score based on three major criteria - location, desire, and feasibility.

Not all contributing factors are weighted evenly. The combination of factors which contributed to Feasibility (sensitive lands, land ownership) were weighted three times the amount of the other two factors.

FEASIBILITY

Do landownership or geographic / geologic concerns represent excessive cost or barrier to completing the project?

DESIRE

Does the public exhibit a strong and clear desire for the trail or active transportation facility?

LOCATION

Does a trail or active transportation facility access goods, services and population centers? Does it increase our trail network connectivity in the valley?

Trail Ranking Criteria Diagram

PROCESS & OVERVIEW

Criteria Scoring Elements

In order to quantify the criteria and rank projects based on value, the following elements were mapped in GIS and ranked for each project considered as part of this trails plan.

Location Scoring Elements

- Proximity to social and recreational destinations (schools, churches, parks, trailheads)
- Gap completion (facilities or towns where no active transportation connection exists)
- Facility connection (connects to existing or planned trails or facilities)
- Population density
- Employment density
- Cache Valley Transit District routes and stops
- Proximity to Utah State University

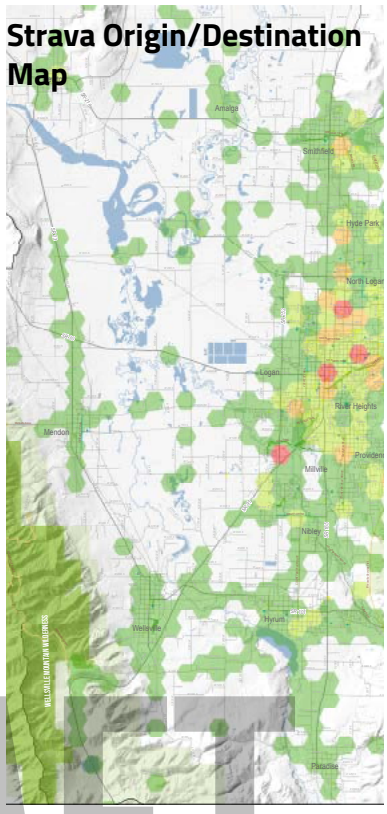
Desire Scoring Criteria

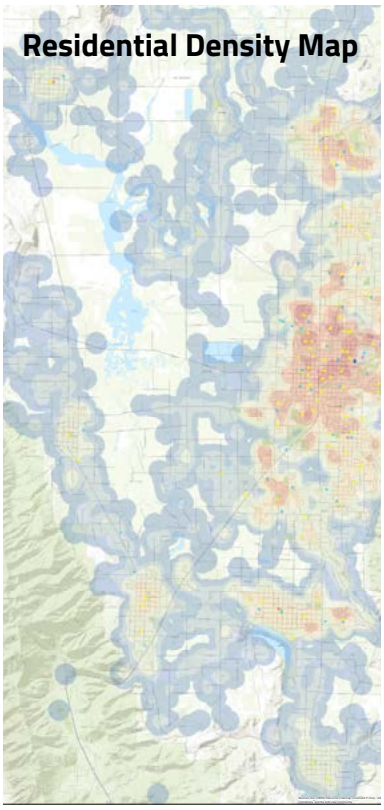
- Strava data (data collected from smart phones recording ride and run information) quantifying local use.
- Representation in existing master plans
- Public request in this planning process and public outreach.

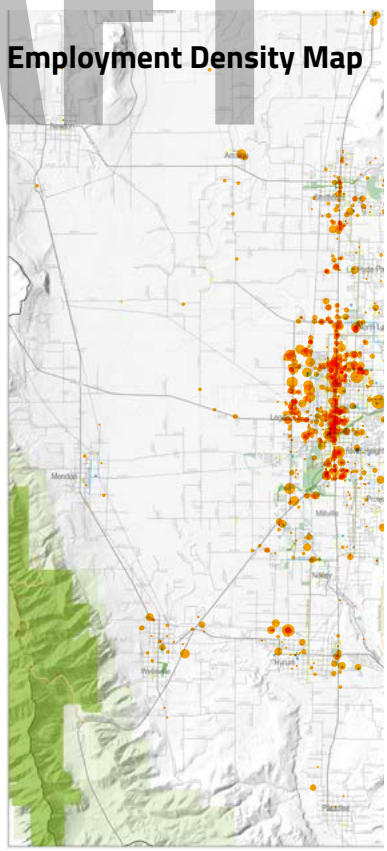
Feasibility Scoring Criteria

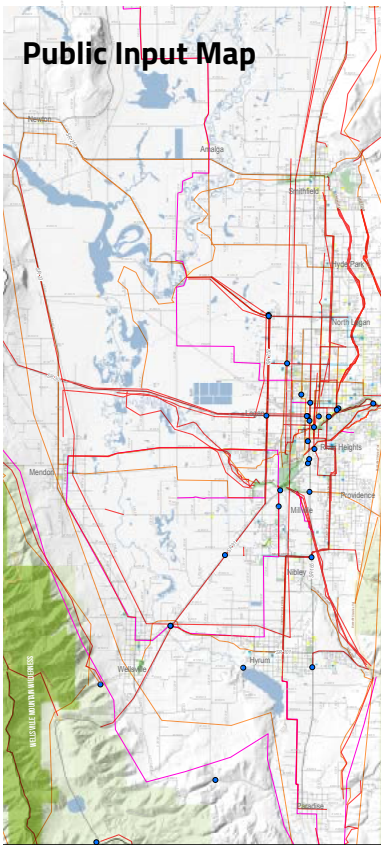
- Ownership barriers (more owners exponentially increases challenge and complexity)
- Sensitive areas (wetlands/floodplains)
- Cost (planning level estimates)

The scores were then compared, scaled, and ranked to give each trail a final score which, along with common sense judgment from the stakeholder groups of BPAC and the Trails Committee, was able to filter out top projects in each trail category. In order to represent the reality that a project's feasibility (cost, landowners, sensitive lands) is most determinant of a project being built, this category was weighted 3x higher than the other two, which were ranked equally.







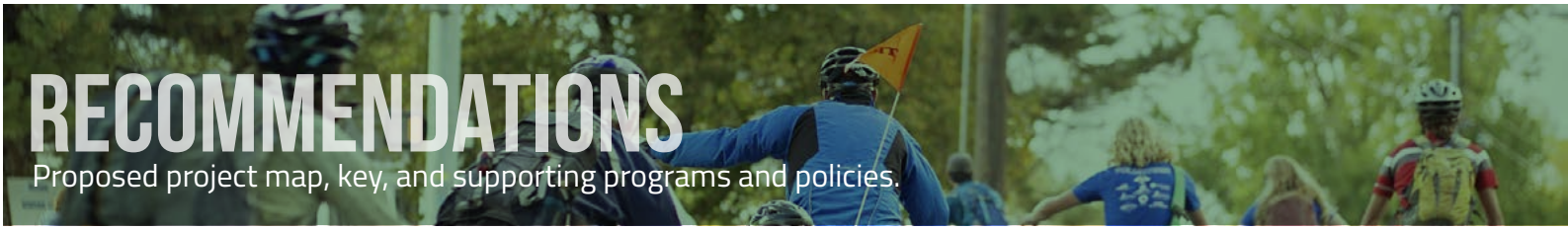


Examples of the analytical layers that the trail ranking criteria utilized in order to prioritize the most valuable trail and active transportation projects.

Analysis Matrix

The matrix on this page illustrates the analytical process that vetted each trail and active transportation facility included in this plan. Shared roadways were excluded from this analysis, as their implementation is more a question of new policies, rather than the project-specific focus of this matrix.

	Title	Description	High Rank	Med Rank	Low Rank
Location - no multiplier	Gap Completion	Facility closes a gap between communities or resources	Connects towns	Connects neighborhoods	Prior connections exist
	Connects to Facility	Facility connects to an existing or proposed trail/resource	Connect to existing facility	Connects to planned facility	Stand alone
	Public Service Access	Sum of schools, churches & bus stops within 1/4 mile	More than 10	Four to nine	Less than four
	Recreation Access	Sum of parks and trailheads within 1/4 mile	More than five	One to four	None
	USU Access	Facility within 1/4 mile of main USU campus	Yes	-	No
	Residential Core Access	Facility within core residential districts of valley	High density	Medium density	Low density
	Business Core Access	Facility access to multiple medium or large employers	More than four	one to three	None
Desire - 1.67 x	Strava Origin/Destination	Facility accesses major origin/ destination regions from Strava data	300 unique users	50-300 unique users	less than 50 unique users
	Strava Top Route	Facility accesses top-utilized route from Strava data	More than 1000 unique uses	500 to 1000 unique uses	less than 500 unique uses
	Exists in Adopted Plan	Facility is proposed in existing community plan	In existing plan	-	not in existing plan
	Current Demand	Facility was a top public input priority	More than eight unique mentions	three to seven unique mentions	less than three mentions
Feasibility - 7x	Ownership Count	Complexity of landownership	Single landowner	two -10 landowners	More than 10 landowners
	Sensitive Areas	Facility traverses wetlands, high slopes, or other sensitive areas	No sensitive areas	minor sensitive areas	major sensitive areas
	Cost Estimate	Cost categorization based on planning estimate.	Less than $250k	$250k-$1m	more than $1m



RECOMMENDATIONS

Proposed project map, key, and supporting programs and policies.

CACHE COUNTY TRAILS AND ACTIVE TRANSPORTATION PLAN

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TOP RANKED PROJECTS

Details regarding the top 6 trails and active transportation projects developed in this plan. 23

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Overview of proposed policy and programmatic recommendations. 28

CACHE COUNTY TRAILS AND ACTIVE TRANSPORTATION MASTER PLAN

DRAFT 8.2017

This plan was made possible through Cache County, her municipalities, and the National Park Service's Rivers and Trails Conservation Assistance Program. For more detailed information regarding the Cache County Trails and Active Transportation Master Plan, visit trails.cachecounty.org, or write the County Trails Planner via trails@cachecounty.org

LEGEND

	Proposed	Existing
Paved Pathways		
Unpaved Pathways		
Singletrack Trails		
Active Trans. Streets		
Shared Roadways		

Trailheads TH TH

Grade Sep. Crossings

Improved Crossings

Land Ownership
- USFS
- State
- All other private or local municipality.

Jurisdiction
- USFS
- Wilderness
- Municipality

Waterway

UDOT Roadway

Local Roads

2 Miles

Graphic Key

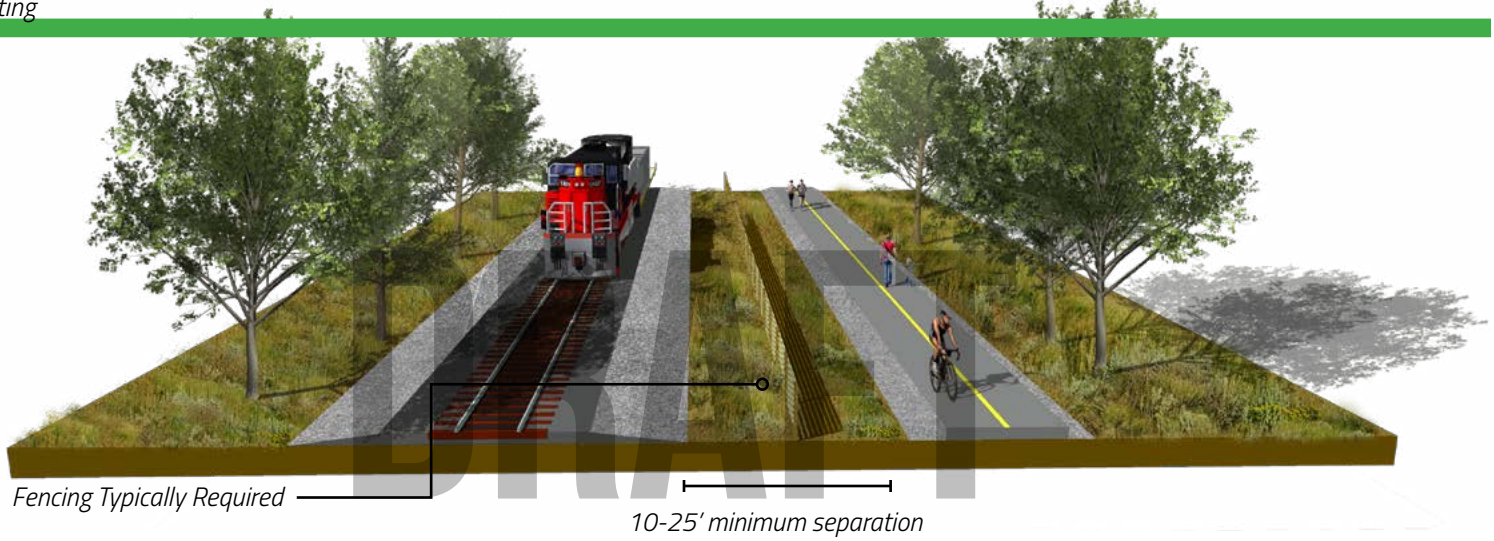
The following pages provide graphic reference to the prior page's Trails and Active Transportation Master Plan map. Color bars above images represent the same colors on the master plan map.

Further design recommendations and details regarding each proposed improvement are located in the Implementation Toolbox chapter of this document. Click on any of the images below to read more about their design guidelines, cost, and other considerations in the implementation toolbox.

Shared Use Path (railroad corridor example)

Proposed

Existing



Unpaved Pathways (powerline corridor example)

Proposed

Existing

Singletrack Trails

Proposed

Existing

Active Transportation Streets

Proposed

Existing

Shared Roadway

Proposed

Existing

Grade Separated Crossing

Improved Crossing

RECOMMENDATIONS

Top Ranked Projects

The following pages illustrate six of the top ranked projects in this plan, ranked by feasibility, public desire, and benefit to Cache County.

To review additional project scopes, cost estimates and additional details, visit the implementation toolbox.

Envisioned as Northern Utah's premier recreational trail, the Bonneville Shoreline Trail has the ability to connect communities along the mountain bench and make a significant positive impact to local quality of life and economic development.

Cache Valley is home to a rail line that carries minimal freight traffic, and connects centrally to nearly every community in the valley. A trail in the Union Pacific ROW would provide safe, accessible, and pleasant recreation and transportation for all.

CLICK FOR MORE INFO

NIBLEY UNDERPASS

Millville and Nibley's schools, parks, and quiet streets make it a family-friendly community. But due to Highways 89 and 165, Nibley is isolated, and no child can access neighboring communities without crossing a busy highway. An underpass at SR165 and the Blacksmith Fork River would resolve that issue and provide safe access to Ridgeline High School and between these adjacent communities.

CACHE BIKEWAY

CLICK FOR MORE INFO

As the eastern bench of Cache Valley grows, it becomes increasingly important to preserve quiet streets and connect on-street facilities for pedestrians and cyclists, not just to local parks, but to neighboring communities.

The Cache Bikeway would seamlessly connect on-street routes through development of safe and separated facilities from Hyrum to Smithfield, creating an ideal commuting or on-street recreation route.

CLICK FOR MORE INFO

VALLEY CONNECTOR

If active transportation is not prioritized, the communities of Wellsville and Mendon risk being cut off from the rest of the valley by a network of large and busy highways. A trail connecting the east bench to the west bench would provide not only a much needed connection, but a safe and incredibly scenic route for those wishing to leave traffic and busy roads behind.

CLICK FOR MORE INFO

LOGAN CANYON TRAIL

Windcaves, Right Hand Fork, Card Canyon and Dewit are some of the recreational areas connected by a highway and highway alone. A trail that connects the recreational resources of Logan Canyon would be a fantastic resource in and of itself while reducing impacts from heavily used trails like Wind Caves by dispersing users along an interconnected system, rather than a series of isolated loops.

Program Recommendations

Building and improving programs that promote education, encouragement, evaluation, and enforcement will support the infrastructure recommendations (engineering) in this plan. Together these "5 E's" will help increase the number of people using active transportation and trails as well as increase safety. Contact the Cache County Trails Planner for more information on implementing these recommendations.

Program	Description	Leadership	Cost
Education and Awareness Campaigns	Share information on safety, rules of the road, health, and quality of life benefits of biking and walking, etc.	County, municipalities	Low to medium
County-Wide Wayfinding and Signage	Develop consistent wayfinding signs with information on destination, direction, travel time, and distance. Signage for trails on Forest Service land should follow USFS guidelines.	County, municipalities, USFS	Medium
Ambassador Program / Mentorship	Ambassador or mentor programs employ experienced volunteers to engage with beginners and share information on best practices, safety, trail etiquette, equipment, basic maintenance, wayfinding, etc.	County, municipalities, volunteer orgs.	Low to medium
Commuter Incentive Program	Work with local businesses to provide incentives or discounts on products or services for people biking or walking to work or school.	County, municipalities, businesses	Medium
Community Events	Promote events encouraging walking and biking, such as Bike to Work Week, community bike rides, helmet or light giveaways.	County, municipalities	Low
Safe Routes to Schools Activities	Same as above, but focused at local schools. Create partnerships between towns, schools, and community members to identify infrastructure gaps or treatments to improve safety.	Municipalities, School Districts.	Medium
Bicycle Friendly Designation	Apply to become recognized as a Bicycle Friendly Community by the League of American Bicyclists. Encourage businesses to apply as a Bicycle Friendly Business.	Municipalities, businesses	Low
Annual or Seasonal User Counts	Conduct counts at key locations to collect data on changes in user rates. Use trail counters for the most complete data, or volunteers to do hand counts on consistent dates and times.	County, municipalities, USFS	Low
Bike Parking Inventory	Work with businesses, retail, schools, and multi-family housing complexes to identify and install necessary bike parking.	County, municipalities, businesses	Low
Crash Data Collection	Collect and analyze data on crashes or incidents involving pedestrians and bicyclist. Use this data to identify and improve key infrastructure problems.	County, UDOT, municipalities, Police Departments	Low

Policy Recommendations

The following recommendations outline and link to further information on policies that the County should adopt in order to support a county wide trails system.

Policy	Description	Resources
Bicycle Friendly Rural Road Standards	Adopt a county-supported road cross section that includes improvements, such as paved shoulders, that can be applied on select routes. Implementation funding for these route improvements could come from active transportation funds, and would improve safety for all road users.	▪ Design Guidelines
County Code Adjustments	Make minor ordinance adjustments that empower this plan and encourage the development of trail and active transportation resources as Cache County Grows and Develops	▪ Utah Code Reference Toolkit
Develop Partnership Funding and Manpower Sources	Work with private organizations, 501c3s and NGOs in the area to develop public/private funding solutions to support trail development.	▪ Cache County School District ▪ Intermountain Health ▪ Bear River Health Department ▪ Utah Conservation Corps
Develop strong volunteer trail maintenance workforce	Coordinate with non-profit trail stewardship groups and the USFS to help maintain, improve, reroute and build new trails on public lands.	▪ Cache Trails Alliance 501c3 ▪ USFS Trail Maintenance Priorities ▪ Utah Conservation Corps
Interlocal Agreement on Trail Development	As trails are developed that cross jurisidctional boundaries, work to establish a standard template to set responsibilities for maintenance, liability, and capitol improvements.	▪ Contact Trails Planner

IMPLEMENTATION TOOLBOX

Detailed project scopes, design guidelines, cost estimates, and funding sources.

IMPLEMENTATION GUIDELINES
Timelines and recommendations to develop, fund and implement projects
31

PROJECT SCOPES
Details, cost estimates and recommendations for projects, grouped by jurisdiction
32

CODE REFERENCE TABLE
Reference of Municipal code from around Utah that facilitates trails and active transportation facilities
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DESIGN GUIDELINES
Graphic guidelines and national design standards to guide the creation of various facility types
70

COST ESTIMATES
Graphic guidelines and national design standards to guide the creation of various facility types
88

FUNDING SOURCES
Details regarding grant funding sources specific to trails and active transportation
91

IMPLEMENTATION TOOLBOX

Implementation Guidelines

This document contains the nuts and bolts of planning, funding, and building a county wide trail system in Cache County.

This portion of the document is not intended to be read front to back, but rather, referenced as needed to guide city planners, elected officials, and others in the needed steps to promote Cache County's current and future trail system.

Refer to the table of contents on the following page in order to find details of individual projects that will help prepare budgets, fund-raisers, grant applications, and schematic designs to develop trail and active transportation improvements in Cache Valley.

7 Steps to Success

In order for this plan to be as successful as possible, each community in Cache County is encouraged to utilize this appendix as they follow these steps:

1. Adopt this plan as an official municipal document.
This action is a first step, both to familiarize staff and elected officials with the content and potential of the plan, and to support step 2.

2. Modify city ordinances to support this plan.
Once this plan is adopted, county and city ordinances, particularly subdivision and street ordinances, should be modified to support trail and active transportation projects. Much like a roads master plan, this document can then be referenced in conjunction with development and public works projects.

3. Select and pursue priority projects.
From the options presented to your community as part of this plan, identify, and select those projects which are the best for your community in the near term. Task staff and/or the regional trail planner with the research, coordination, and preliminary design necessary to identify what funds, agreements, and other steps will be required to implement your high-priority projects.

4. Fund priority projects.
Once preliminary design is complete (this is at times a line on a map and a commitment from city council), and appropriate agreements in place, projects can move towards a funding phase. Utilize this appendix to estimate costs and identify potential funding sources. Nearly all funding sources reward matching funds, so matching grants with fundraising and city fund sources is crucial.

5. Design and build priority projects.
Once funding is secure, the design and build phases can commence. For large projects, these may be two separate rounds of funding, and for smaller projects, the build process could be as simple as regular volunteer days led by experienced trail builders.

6. Celebrate, and repeat steps 3-6.

7. Maintain trails and active transportation infrastructure
Maintenance should include close coordination with city staff (public works or parks and rec) to understand how expanded facilities impact their budgets and needs. Each new mile of trail can require additional resources, so regular inventory of these facilities should consider the funding required to keep them in optimal condition.

IMPLEMENTATION TOOLBOX

Project Scopes

This segment of the document provides basic details on all recommendations created as part of this trails and active transportation plan.

Select any of the headers below to be directed to that table or project page.

County Wide 33

- Bonneville Shoreline Trail East
- Bonneville Shoreline Trail West
- Cache Bikeway
- Middle Canal Pathway
- Bridger Rail Trail
- Valley Connector
- Rural Bike Routes
- Table of County Projects

Cache National Forest 43

- Logan Canyon Trail
- Green Canyon Loop
- Maintenance Priorities
- Table of USFS Projects

Linear Projects by Jurisdiction 47

- Hyde Park
- Hyrum
- Logan+River Heights
- Mendon
- Millville
- Nibley
- North Logan
- Paradise & South Valley
- Providence
- Richmond
- Smithfield

County Wide Spot Improvements 61

- Nibley Underpass
- Table of Spot Improvement Projects

IMPLEMENTATION TOOLBOX

County Wide Projects

Bonneville Shoreline Trail East

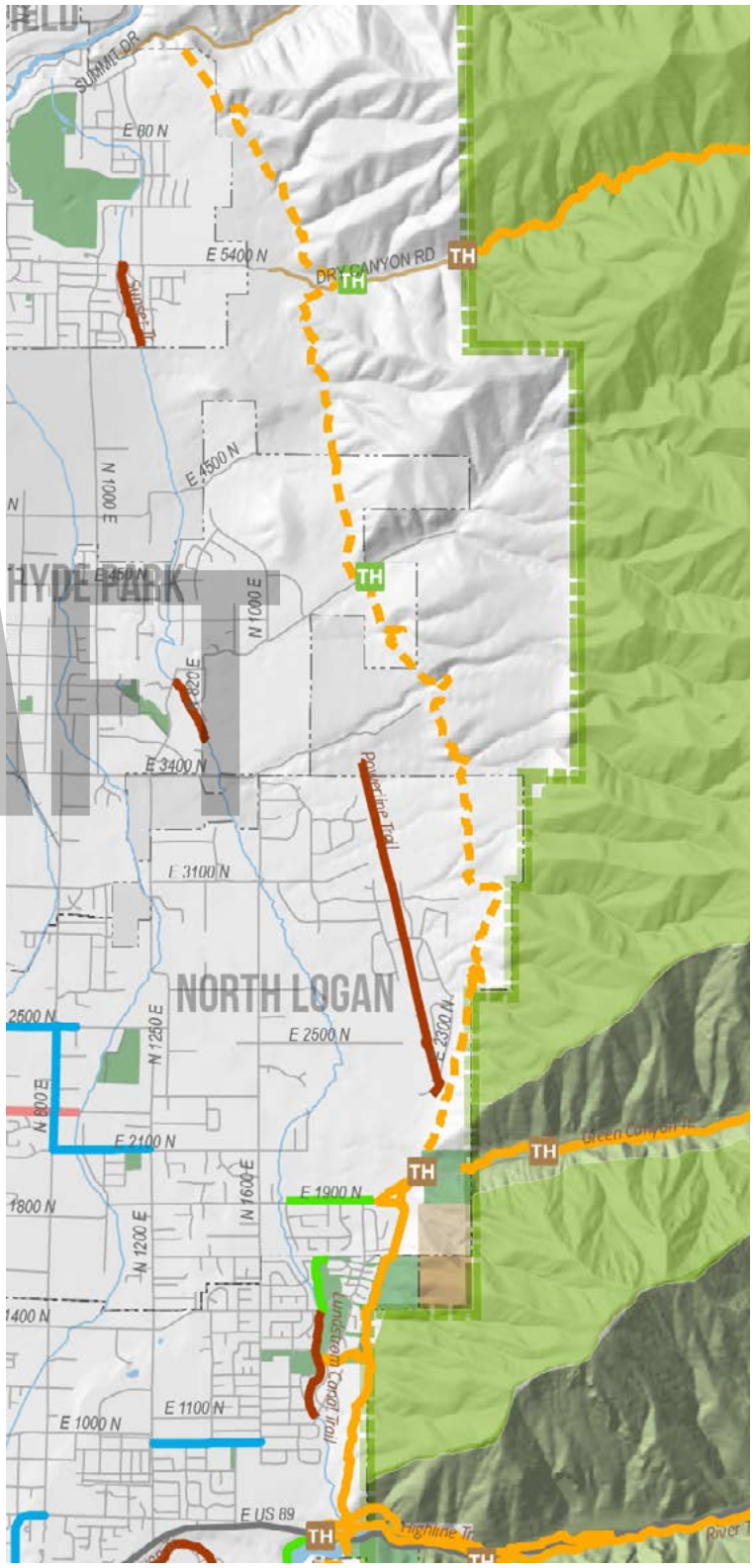
Overview
The top priority of Bonneville Shoreline Expansion is to connect Smithfield Canyon to Logan and southern communities via an uninterrupted mountain trail, nestled between development and preserved landscapes.

Next Steps
Continued outreach to landowners is critical. Small segments between existing canyon access roads that can be built first should be seen as priority segments.

Resources
Sportsmen for Fish and Wildlife, UTCO properties, and Lifestyle Homes are all private land owners that see significant value in dedicating portions of their properties to public trail access. Working with these landowners and the County trail planner, continued outreach to other landowners should be maintained to gain approval for a future Bonneville Shoreline Trail alignment.

Key Challenges
The current gap between Logan Dry Canyon and Logan Canyon is owned by a single property owner who has expressed opposition to a public trail on their property. Dialogue should be better established to understand what, if anything, could be done to make the trail an asset on this landowner's property.

Other landowners along this corridor have not expressed opposition, but many have expressed low interest in moving the project forward. Continued dialogue and outreach should be prioritized, utilizing familiar community members when possible.



IMPLEMENTATION TOOLBOX

County Wide Projects

Bonneville Shoreline Trail West

Overview

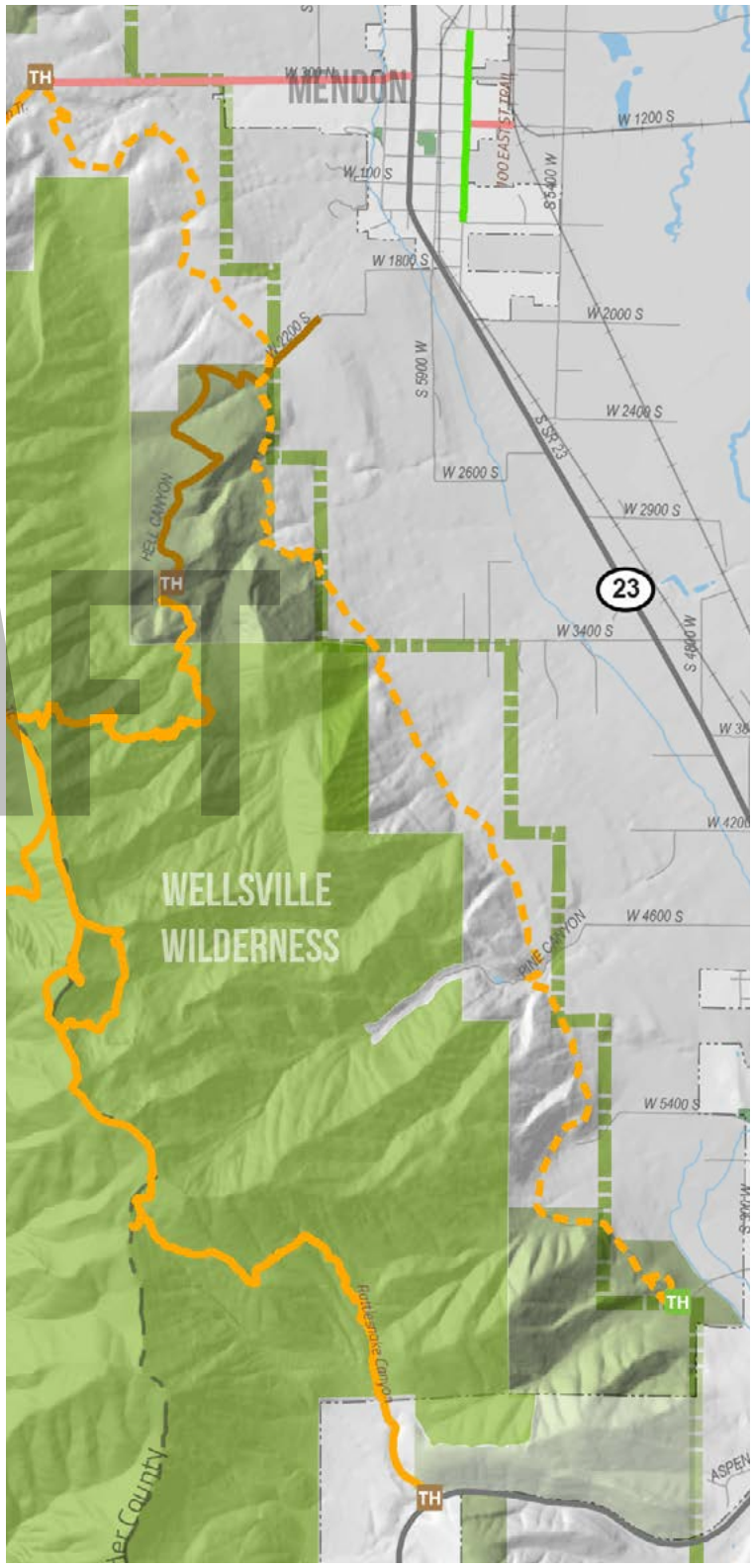
This segment of Bonneville Shoreline would provide residents on the western side of Cache Valley accessible mountain recreation right out their back doors, and provide an outlet for bicycle use that is currently prohibited on nearly all of the Wellsville mountains.

Next Steps

- Work with Wellsville and Mendon community members to approach and gain approval from landowners along the identified corridor
- Pre-approve an alignment corridor for USFS parcels
- Consider revocable easements to encourage private landowner support

Key Challenges

Landowners with functional farms and no plans for development may not immediately see the benefit of allowing trail access on the edge of their property. Working closely with community members to illustrate the property value and community wide benefits of this type of trail is crucial.



IMPLEMENTATION TOOLBOX

County Wide Projects

Cache Bikeway

Overview

A series of on-street facilities and separated pathways should connect Smithfield to Hyrum, providing those interested in active transportation and recreational cycling opportunities a clear, safe, and connected route to move north or south.

This route is modeled largely on the CMPO's existing on-street bikeway. However, the existing alignment of the CMPO route is becoming undesirable due to traffic loads and lack of dedicated facilities.

Next Steps

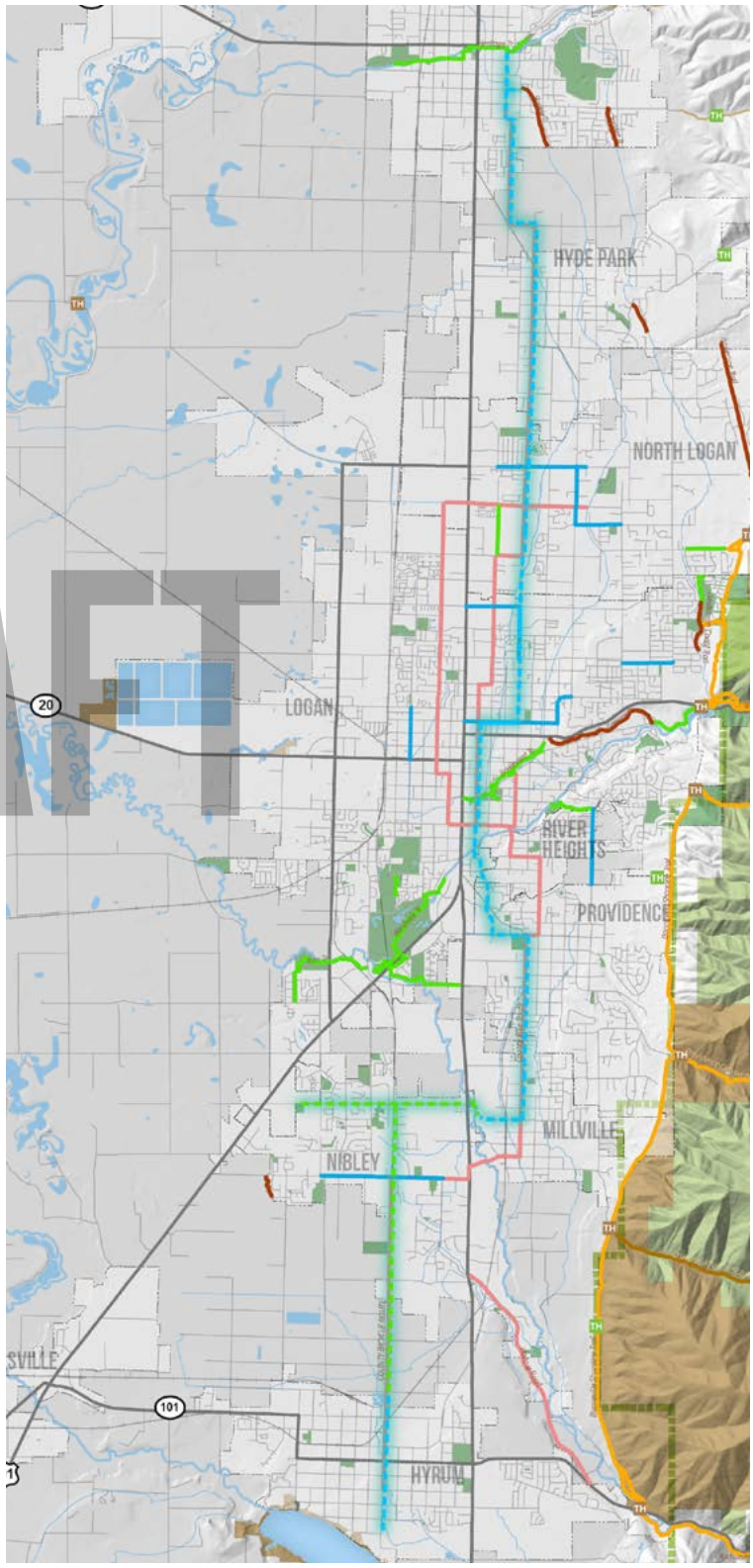
- Design of each street's current and future layout that will include at least a painted bicycle lane
- Coordinate with each municipality to ensure painted lines are maintained, and facility is recognized as a cross-county active transportation route
- Locate funding sources to help design and implement first phases of this project

Resources

- Logan Bicycle and Pedestrian Master Plan
- CMPO 2040 Transportation Plan

Key Challenges

- Coordination between county and nine distinct communities is a complex process. Consider approaching project one community at a time
- Ongoing maintenance of painted lines on street must be a priority
- Ensure future roadway expansion does not negate quality of bikeway



IMPLEMENTATION TOOLBOX

County Wide Projects

Middle Canal Pathway

Overview

The middle canal alignment utilizes a publicly owned stormwater channel and privately held canal company easement. The existing pathway alongside the canal utilizes both public and private land.

This project is highly contested by some landowners along the pathway and highly sought after by many others. Should it be completed, the project would offer a road-separate pathway connecting four communities.

Next Steps

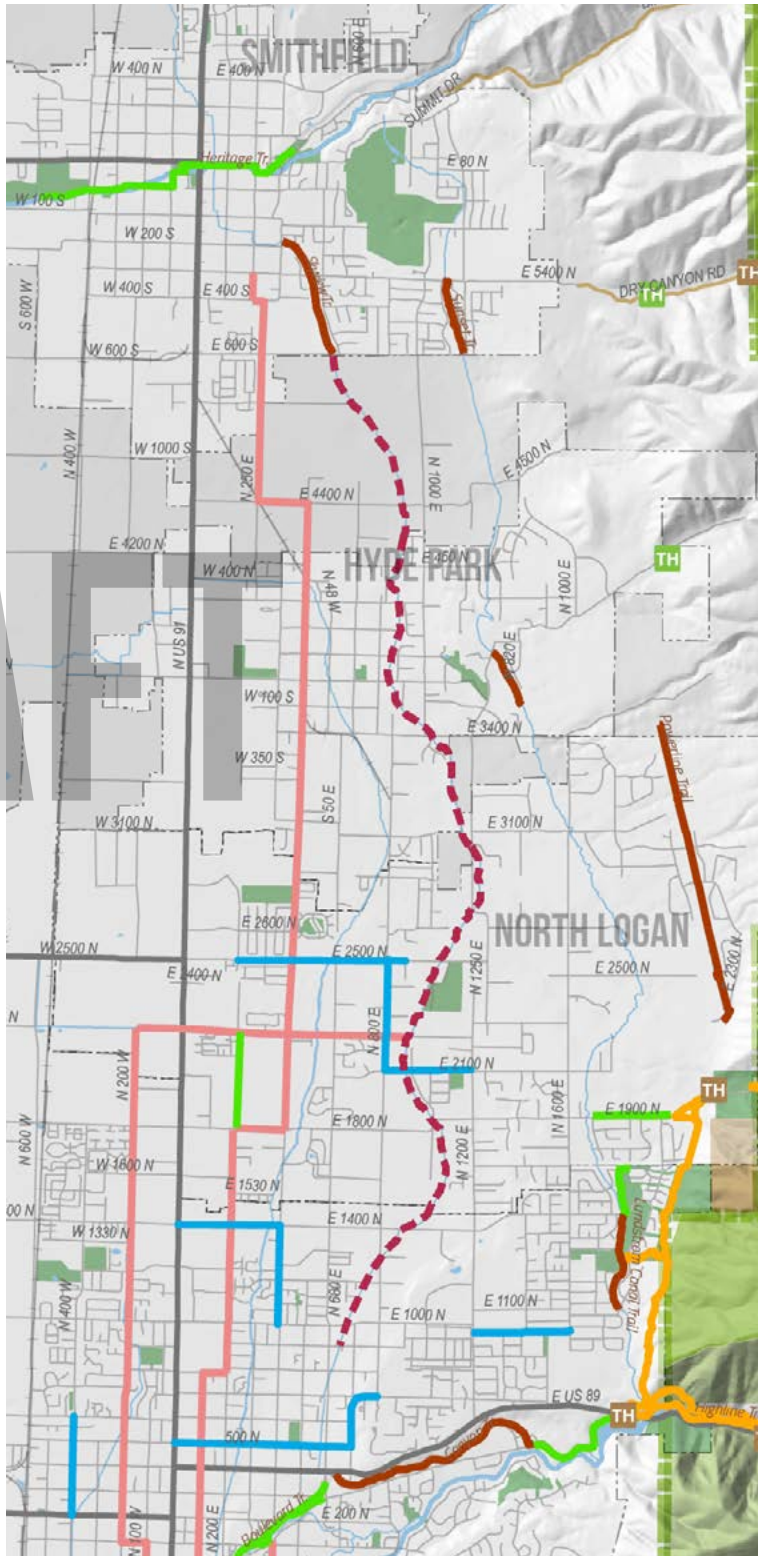
- Create an interlocal agreement to govern trail maintenance and improvements between partner cities and County
- Utilize the County's record of public feedback from spring 2017 to identify areas with low resistance to public trail to gain easements and illustrate positive value of pathway
- Create an easement offer template for landowners along pathway
- Locate funding to allow purchase of easements

Resources

- Contact Cache County Trails Planner for details on community feedback and potential easement options

Key Challenges

- Full connectivity will be difficult to acquire in some areas where no publicly owned channel exists.



IMPLEMENTATION TOOLBOX

County Wide Projects

Bridger Rail Trail

Overview

Should approval and funding be sourced, Cache Valley could have a paved, accessible, and continuous trail and bikeway providing a direct connection from Hyrum to Nibley, Logan, North Logan, Smithfield, and Richmond.

A rail trail would provide increased connectivity along the west side of these communities, and would have fewer road crossings than any similar alignment.

Next Steps

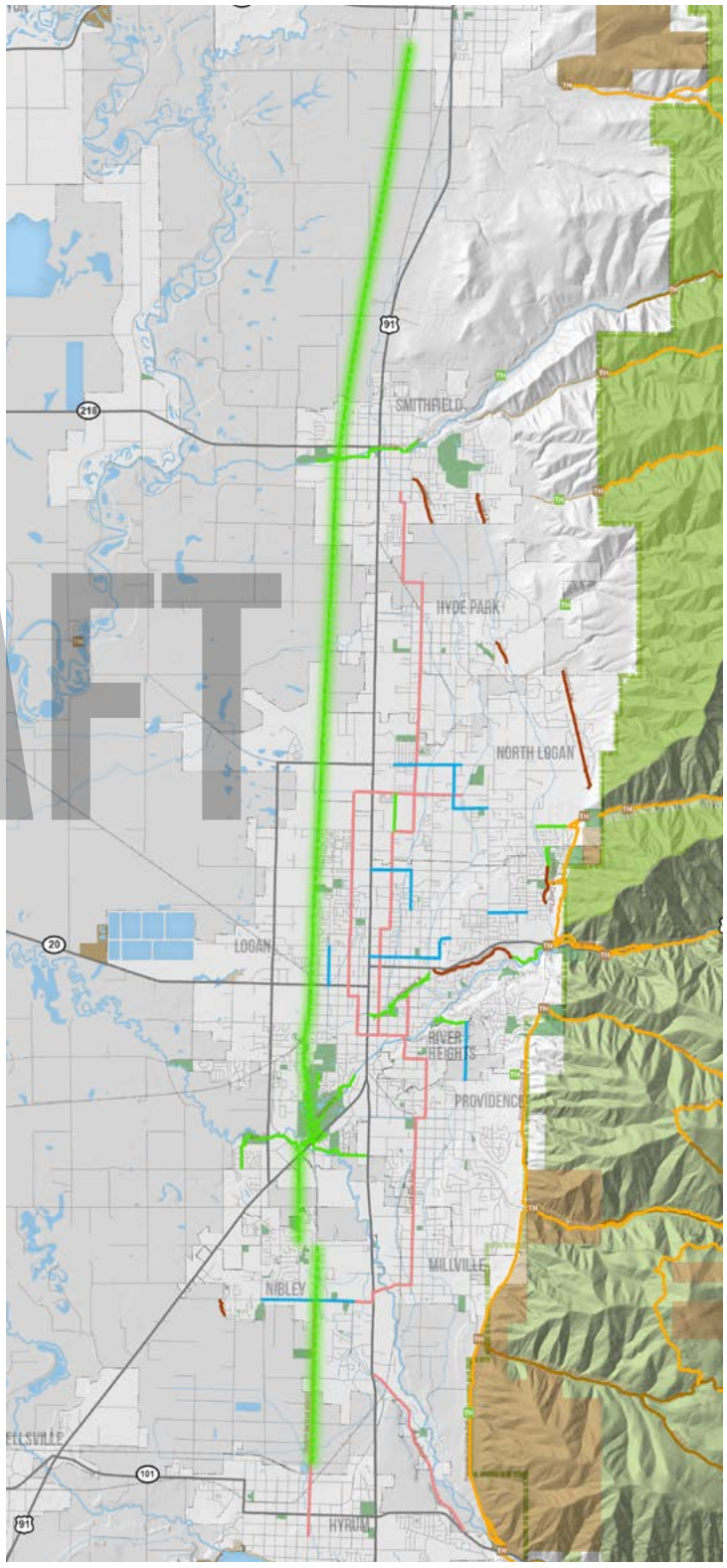
- Establish contact with Union Pacific representatives
- Study precedents of other rails with trails in the western United States and elsewhere
- Identify segments that could be established as small phases of this county-wide project
- Identify contacts at Rails to Trails Conservancy who can help create a strategic approach to a historically resistant Union Pacific

Resources

- Railstotrails.org
- Ownership of corridor is largely, if not wholly owned by Union Pacific, reducing complexity of permitting to a single organization

Key Challenges

- Historically, Union Pacific has been extremely reluctant to permit any recreational use of this rail corridor
- Safety concerns likely dictate a fence to be established along any future alignment, increasing construction costs significantly



IMPLEMENTATION TOOLBOX

County Wide Projects

Valley Connector

Overview

A pathway connecting communities on the east side of Cache Valley to those on the west would provide a critical active transportation link within the valley. In addition, it would have strong potential to attract additional tourism revenue as cycling and running events could take advantage of a beautiful, safe and separated route.

Three unique options exist - all with advantages and drawbacks. The CMPO has planned for a route paralell to SR30 along an expanded highway.

Mendon Road would require significant ROW purchase as part of any road improvement, but would provide the most direct and most desirable connection.

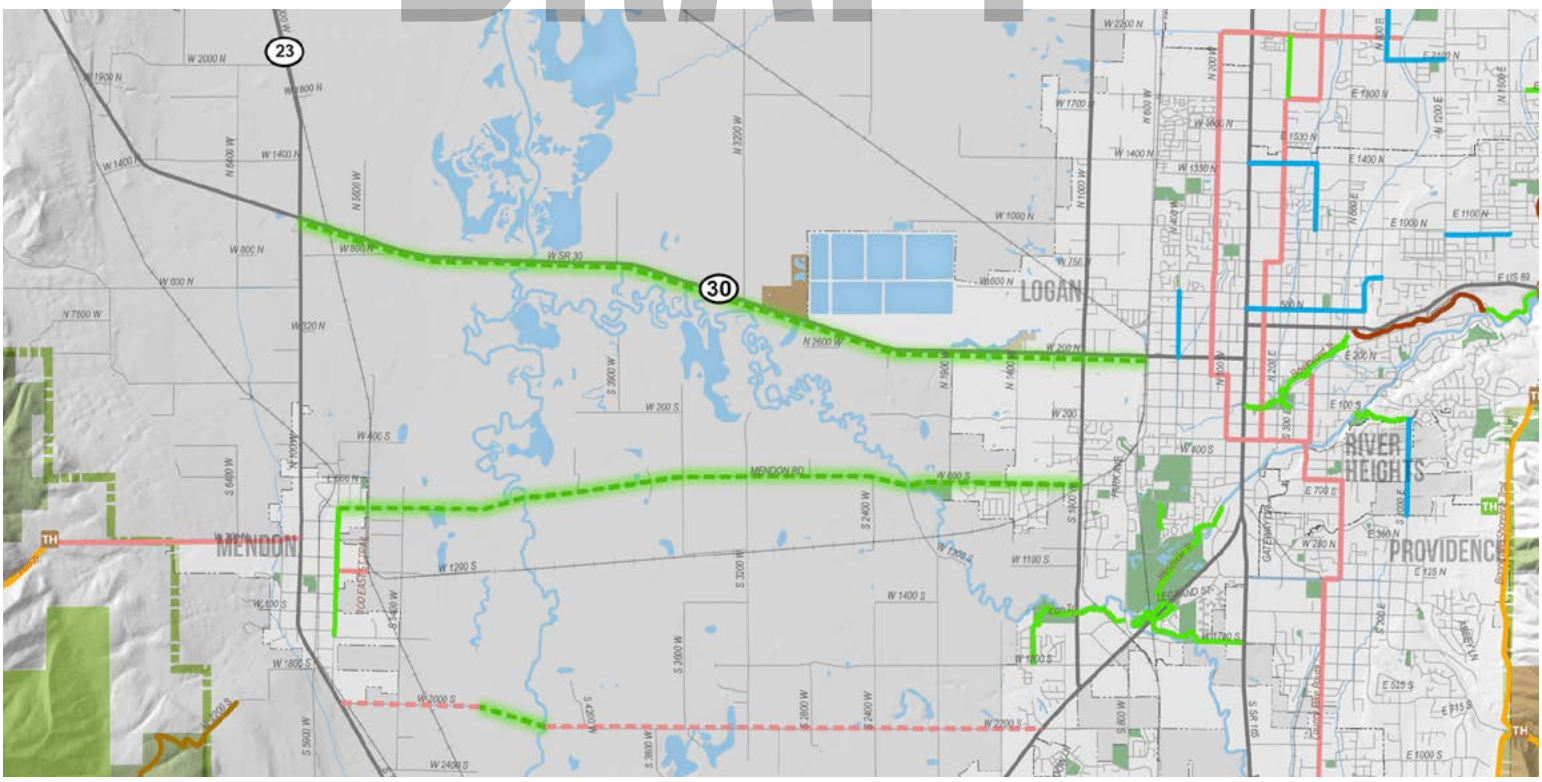
The least direct connection between Logan and Mendon is 2200 South, which would require only a small portion of trail built to link two existing rural roadways. If this connection were built to accommodate non-motorized vehicles, the existing roadways would still remain quiet streets.

Next Steps

- Work with UDOT and elected officials to pursue funding for SR30 paved pathway improvements
- Explore private landowner interest in 2200 S option
- Include paved pathway as part of future conversations on Mendon Road expansion

Key Challenges

- Wetlands and high costs associated with building in the valley exist for all options
- Private land acquisition required for all



IMPLEMENTATION TOOLBOX

County Wide Projects

Rural Routes

Overview

Cache County, UDOT, and rural municipalities operate some of the most beautiful roadways in Cache County. For generations, these roads have served both as transportation corridors for farmers, and recreational treasures for cyclists.

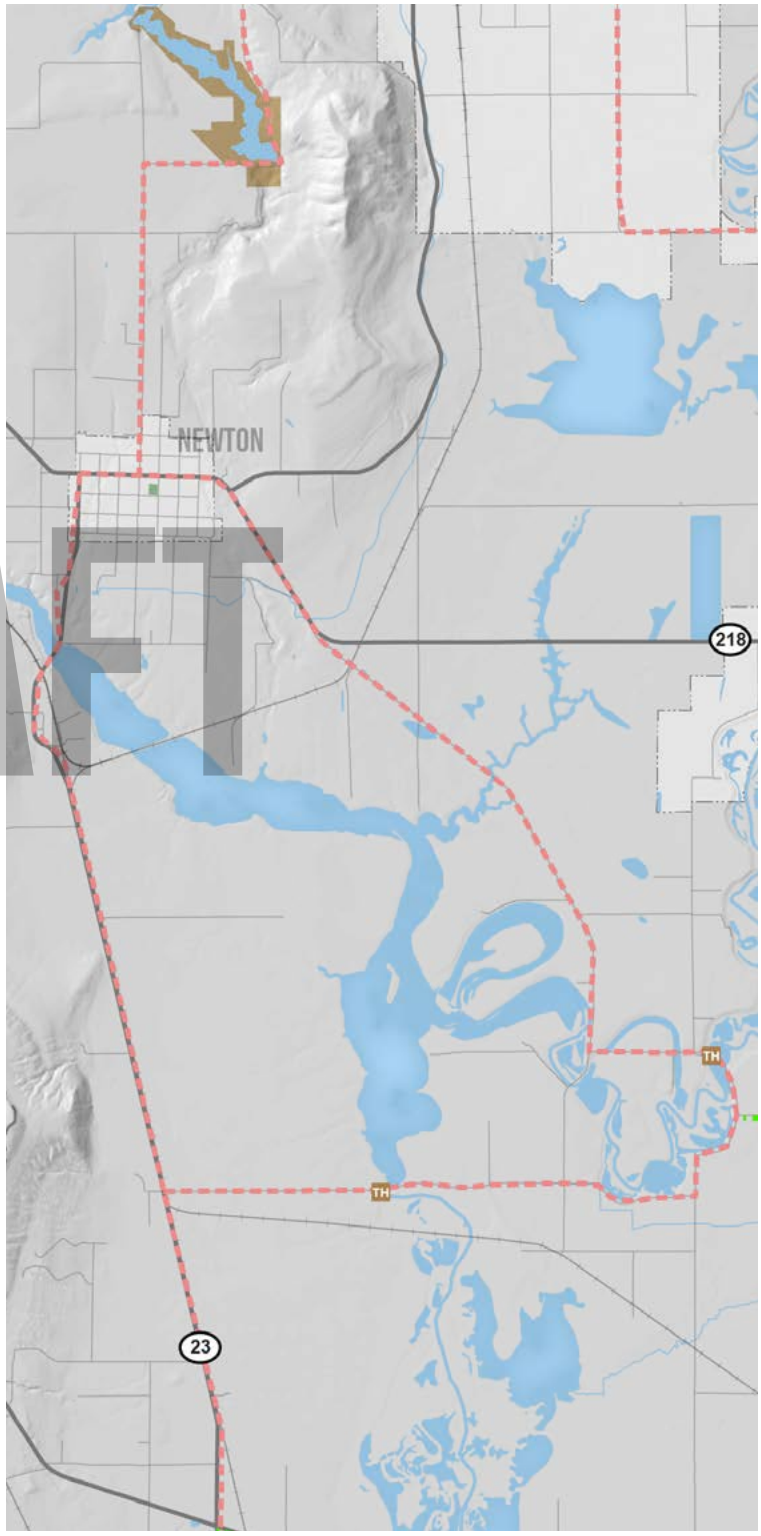
By identifying key routes preferred and utilized for road riding, a network of shared rural routes should be developed that implements basic improvements such as shoulders and signage that can improve safety and comfort for all road users.

Next Steps

- Work with UDOT, County, and local communities to identify feasible improvements
- Identify key corridors to prioritize among those identified in this plan
- Develop active transportation funding sources that can also be used for shoulder improvements on rural roads
- Develop and adopt county road standards that allow for shoulder improvements on certain routes

Key Challenges

- Rural roads are often only public by use, and acquiring additional ROW can be costly
- Involvement and discussion with rural community leaders is critical to the success of these projects
- Once established and signed, a careful eye must be kept on Average Annual Daily Traffic counts (AADT) to ensure that if traffic increases beyond a low-traffic rural standard, increased measures are pursued for cyclist, pedestrian, and motorist safety



IMPLEMENTATION TOOLBOX

The following pages contain tables which provide basic information regarding all linear and spot recommendations developed as part of this plan.

Each municipality's relevant projects are split out to their individual pages, and Cache County wide and USFS specific projects receive their own table listings.

Projects are listed in alphabetical order for each community.

Table of County Wide Linear Projects

ID #	*Name*	*Description*	*Length (mi)*	*Cost Est.*	*ROW ?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
213	1200E Shared Use Pathway	Pathway connecting Smithfield to Hyde Park, along future road construction	0.9	$$$	Private	30.34
204	Amalga to Smithfield Trail	Paved pathway along SR243 providing rural road access from Smithfield	3.2	$$$$	UDOT	21
170	Blacksmith Fork East River Trail	A shared use pathway on the eastern bank of the Blacksmith Fork River	4.3	$$$$$$	Private	18.68
209	Bonneville Shoreline Trail (BST) Elevated	An improved Bonneville Shoreline Trail increasing this popular trail's capacity and avoiding development conflicts	2.3	$	Private/ USFS	42.34
71	BST Green to Birch Canyon	New Bonneville Shoreline Trail, see pg. 31	7.0	$$	Private	39.68
168	BST Hyrum to Paradise	Future Bonneville Shoreline Trail linking southern Cache Communities	4.3	$$	Private	30.01
165	BST Mendon to Wellsville	Future Bonneville Shoreline Trail see pg.32	9.9	$$	Private/ USFS	30.01
193	BST Richmond to ID	Future Bonneville Shoreline Trail to state line	6.5	$$	Private	35.01
131	BST Smithfield to Richmond	Future Bonneville Shoreline Trail linking northern Cache communities	7.0	$$	Private	33.35

IMPLEMENTATION TOOLBOX

Table of County Wide Linear Projects (cont)

ID #	*Name*	*Description*	*Length (mi)*	*Cost Est.*	*ROW ?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
144	Bridger Rail Trail	Large scale rail with trail project connecting multiple communities. See pg. 33	5.6	$$$$$	Union Pacific Railroad	14.67
17	Cache Bikeway (200W Prov, Main Street Millville)	On street bike lane and sidewalk improvements between Providence and Millville	1.4	$$	County/City	56.35
18	Cache Bikeway	On street bike lane & improved shoulders between Smithfield and Hyrum	3.5	$$	County/City	50.01
197	Hwy 89 Pathway	Paved pathway providing a safe recreational route along HWY 89/91 to Sardine Canyon	21.3	$$$$$	UDOT	43.34
178	Hyrum to Paradise Route	Preserved and signed quiet street route for bike/ped access between communities	4.5	$$$$	UDOT	45.01
173	Hyrum Slough Trail	A low lying pathway connecting Nibley to Hyrum	2.7	$$$	Private	16.01
140	Mendon Road Trail	Off-street pathway to be included as part of future Mendon Road improvements	5.4	$$$$$	Private	24.34
162	Mendon to Wellsville Canal Trail	A federally owned, locally operated canal from Mendon to Wellsville	5.6	$$$$	US Dept. of Reclamation	16.34
15	Middle Canal	Middle canal improvements between Smithfield and Hyde Park	1.1	$$$	County/ Private	44.01
23	Milky Way Connector	Designated and signed quiet street connecting multiple N/S routes	1.4	$	County	40.34
179	Paradise to Hyrum Connector	Paved pathway alongside SR 165	3.8	$$$$	UDOT	23.34
n/a	Rural On Street Routes (NW County)	Bicycle boulevard / quiet streets throughout county	varies	$$	County / Private	39.34

IMPLEMENTATION TOOLBOX

ID #	*Name*	*Description*	*Length (mi)*	*Cost Est.*	*ROW ?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
9	Powerline Trail	Gravel Surfaced pathway utilizing powerline easements above Hyde Park and North Logan	2.4	$$	Private	33.67
139	Valley View Pathway	Paved pathway connecting Logan to Mendon see pg.36	6.8	$$$$$	UDOT/ Private	32.34
19	Smithfield to Richmond Hwy Connector	Shared use pathway connecting northern communities along Hwy 91	3.0	$$$$	UDOT	25.67
187	Valley Connector Trail	Short trail segment to link southern quiet streets across valley	0.6	$$$	Private	24.67
163	Wellsville to Hyrum Canal Trail	Federally owned, locally operated canal from Wellsville to Hyrum	5.7	$$$$	US Dept. of Reclamation	28.34

Logan River Trail, Logan

IMPLEMENTATION TOOLBOX

Cache National Forest Projects

Logan Canyon Trail

Overview
This four mile trail would connect a myriad of campsites, recreational trails, picnic, and wildlife viewing areas. By connecting lower Logan Canyon, this trail would disperse forest impact across a connected network, rather than concentrate use at isolated sites.

Next Steps
This project is purely conceptual at this stage, and due diligence must be done to identify potential alignments, feasibility on USFS lands as well as potential impacts to a pair of small private parcels further up canyon.

Resources

- Wasatch-Cache National Forest Plan
- USFS Trail Planning Handbook

Key Challenges
This is not a short term project. Simply identifying a suitable alignment, and undergoing requisite permitting procedures with the USFS will take several years. However, should the project be approved, relative to other paved pathways of similar lengths, this project could be relatively cost-effective.

IMPLEMENTATION TOOLBOX

Cache National Forest Projects

Green Canyon Loop

Overview

Green Canyon is one of the most popular recreation areas of Cache Valley's public lands. Trail counts in 2017 show peak use of nearly 300 users in a 10 hour period.

This use pattern coupled with a one way out and back trail results in user conflicts and safety hazards. A loop trail would reduce user conflict and improve safety while providing a greater sense of solitude for all.

Next Steps

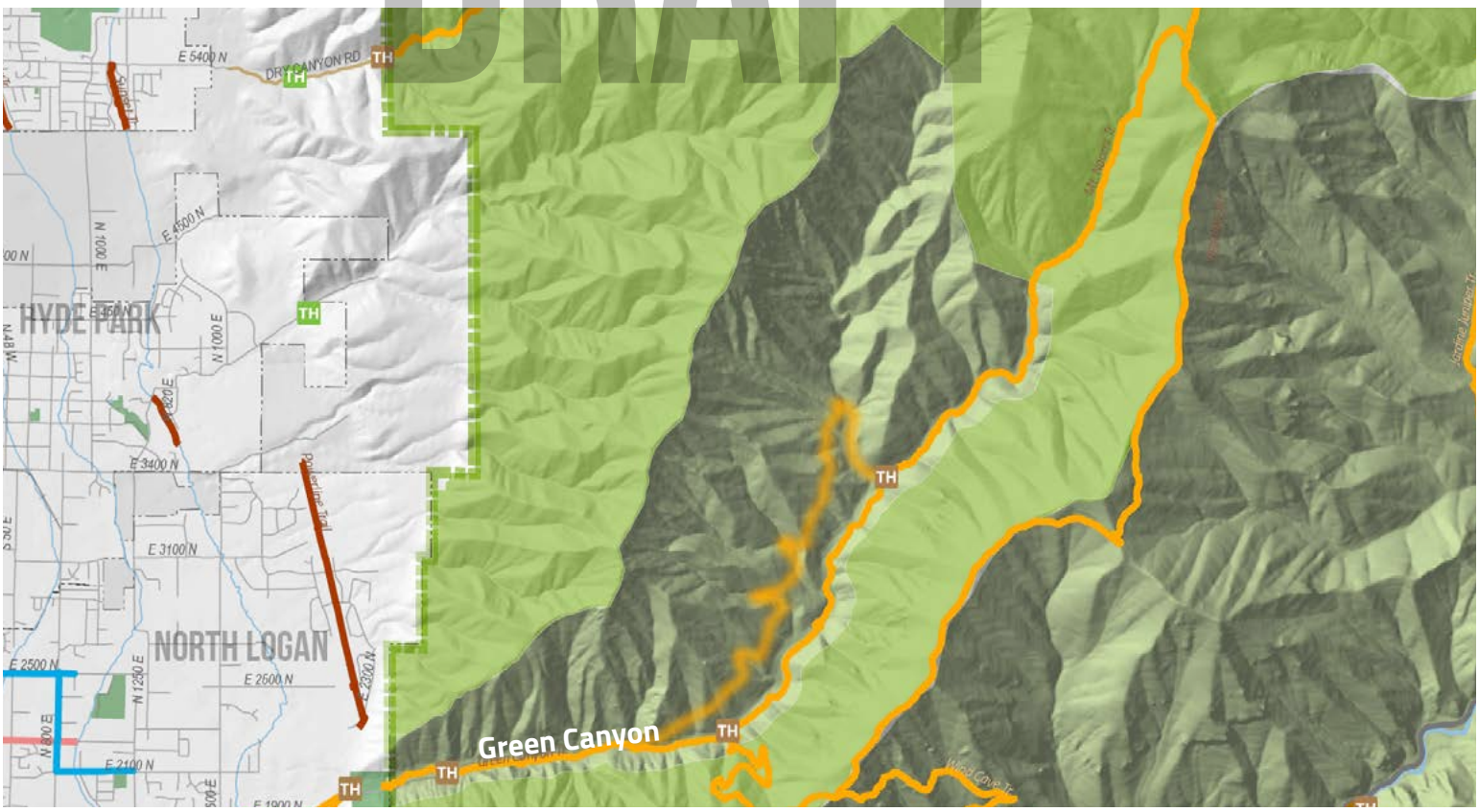
- Work with USFS to refine potential alignment on northern slopes of Green Canyon
- Create proposal for USFS consideration
- Seek funding for trail construction, including Utah Conservation Corps and volunteer maintenance

Resources

- Utah Conservation Corps
- Wasatch-Cache National Forest Plan

Key Challenges

Permitting will take time for this project, and feasibility of trail building on the northern side of the canyon varies based on soils and slopes.



IMPLEMENTATION TOOLBOX

Cache National Forest Projects

Maintenance Priorities

Overview

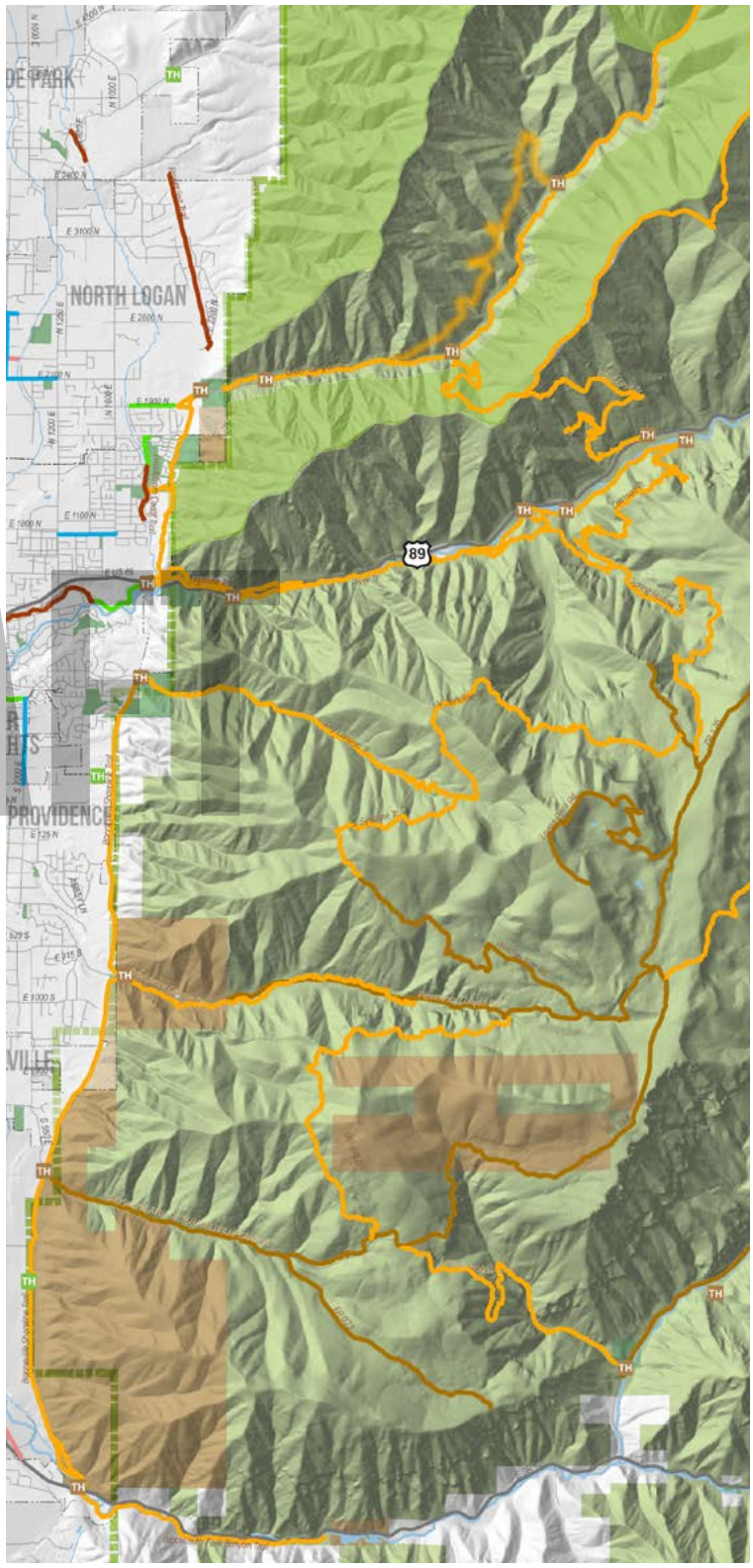
As Cache County grows, and more people chose to call this place home, use patterns will disproportionately favor trails close to the populated valley floor. Already, land managers note the severe wear that trails like Windcaves, Green Canyon, and Providence Canyon recieve.

Because of these wear patterns, trails in the front country, both on the western and eastern sides of the valley floor should be prioritized as high-maintenance trails.

Partnerships with non-profits such as Cache Trails Alliance,and organizations such as the Utah Conservation Corps should be pursued in order to facilitate regular maintenance and improvement on these local trails and resources as use grows.

Resources

- Utah Conservation Corps
- Wasatch-Cache National Forest Plan



IMPLEMENTATION TOOLBOX

Table of USFS Projects

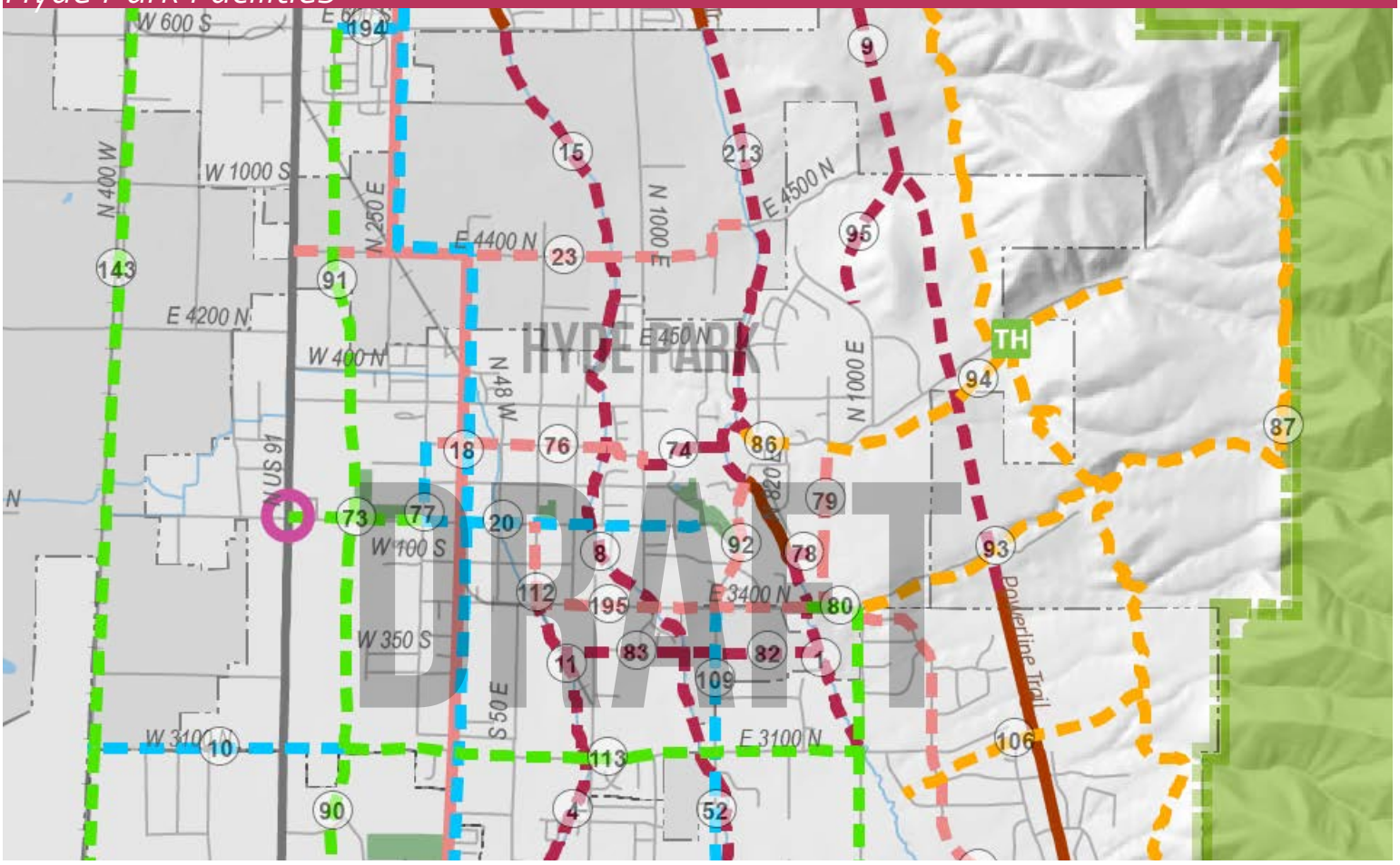
ID #	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
64	Blacksmith Fork to Left Hand Fork	Route a trail on one side or another of SR101 to connect Hyrum to Left Hand Fork.	3.0	$$$	Private/ USFS/ County	34.34
*	Bonneville Shoreline Trail Elevated	Alternate alignment between Logan Dry Canyon and Providence Canyon to avoid development conflicts and provide a more sustainable alignment	2.3	$$	USFS	*
*	Bonneville Shoreline Trail West	Lower bench trail linking Mendon's Deep Canyon to Wellsville's Narrow and Wide Canyons.	75	$$$	USFS	*
212	Green Canyon North	Create a loop trail system by building one or more trails on the northern side of Green Canyon	4.0	$$	USFS	41.34
196	Logan Canyon Trail	Connect trail systems at mouth of canyon to Wind Caves Trail and Right Hand Fork	3.7	$$$$	USFS/ Private	40.67
211	Mill Hollow Loop	Provide additional trail connecting Mill Hollow to a re-routed Spring Hollow Trail	2.9	$$	USFS	40.34
210	Millville Canyon Trail	Recreational out and back trail up Millville Canyon	2.4	$$	USFS	33.67
228	Narrow Canyon	Recreational trail looping the southern Wellsvilles - connects to Wide Canyon	1.8	$	USFS	*
227	Wide Canyon	Recreational trail looping the southern Wellsvilles, connects to Narrow Canyon	1.2	$	USFS	*

**due to time and budget restraints, these trails were added after the analytical process and were not calculated for relative score.*

IMPLEMENTATION TOOLBOX

Linear Projects by Jurisdiction

Hyde Park Facilities



ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
18	100W Bike Lane	Cache Bikeway segment, linking western schools and parks.	0.3	$$	Hyde Park	50.34
195, 112, 79, 92, 76	200S Route	Signed, quiet streets that connect planned and existing facilities within Hyde Park	varies	$	Hyde Park	45.01
91	200E Pathway	Pathway constructed along w/ 200E roadway expansion	1.8	$$$$	Hyde Park	37.35
10	3100N Bike Lane	Primary E/W bikeroute	0.9	$$	Hyde Park	46.67

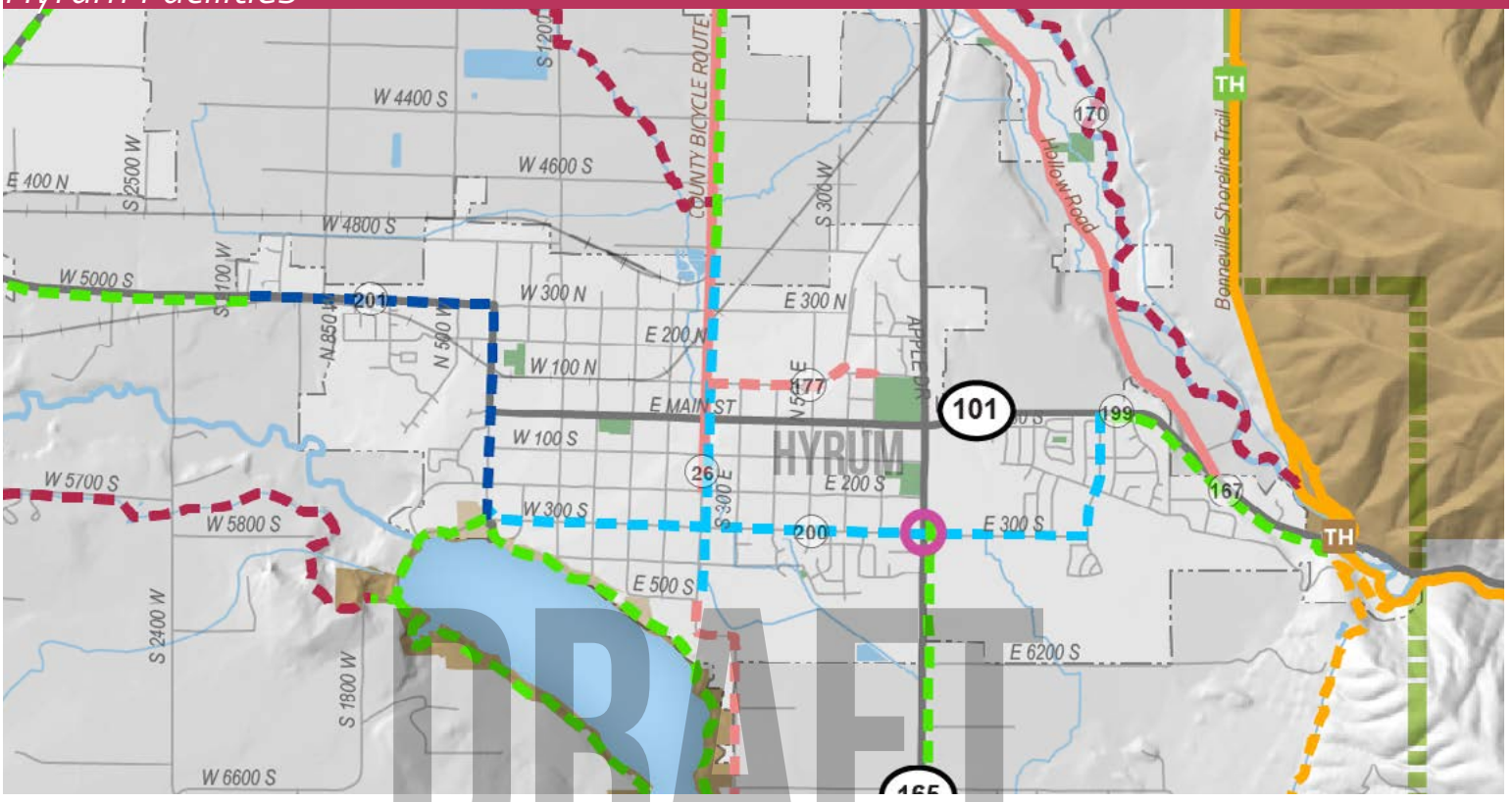
IMPLEMENTATION TOOLBOX

Hyde Park Facilities, continued

ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
113	3100N/600 S Pathway	Shared use pathway to be included as part of future road expansion	1.8	$$$$	Private / Hyde Park	44.01
86	Canyon Road Canal Connector	Connects Canyon Road trail to Upper Canal	0.2	$$$	Private	34.34
93, 94	Canyon Road Trail	Mountain trail on ridge above Canyon Road	1.2	$$	Private	38.67
20	Center Street Bike Lane	Central bike lane through Hyde Park	1.0	$$	Hyde Park	53.01
74	Hyde Park Cemetery Connector	Gravel surfaced shared use pathway	0.3	$$	Hyde Park / Private	41.34
73	Hyde Park Center St. Pathway	Paved pathway to future recreation area and 200E trail	0.5	$$$	Hyde Park / Private	46.01
11	Hyde Park Lower Canal	Potential for trail when canal is piped, pending local support	0.5	$$$$	Private	45.68
8	Hyde Park Middle Canal	Historic and scenic natural pathway	1.9	$$$	Cache County / Private	34.35
78	Hyde Park Neighborhood Connector	Gravel surfaced shared use pathway	0.1	$$	Private	40.67
1, 156	Hyde Park Upper Canal	Historic and scenic natural pathway	1.5	$$$	Private	34.35
83	Middle to Lower Canal Link	Linkage between Middle and Lower canal pathways	0.5	$$$	Cache County / Private	50.01
95	Powerline Access Trail	Extension of North Logan's existing powerline trail	0.5	$$$	Pacificorp/ Private	38.67
80, 82	Upper Canal Access	Link through farm property to upper canal pathway	0.4	$$$	Private	47.34
87	Wilderness Boundary Trail	Ridgeline trail along USFS wilderness	1.8	$$	Private	38.67

IMPLEMENTATION TOOLBOX

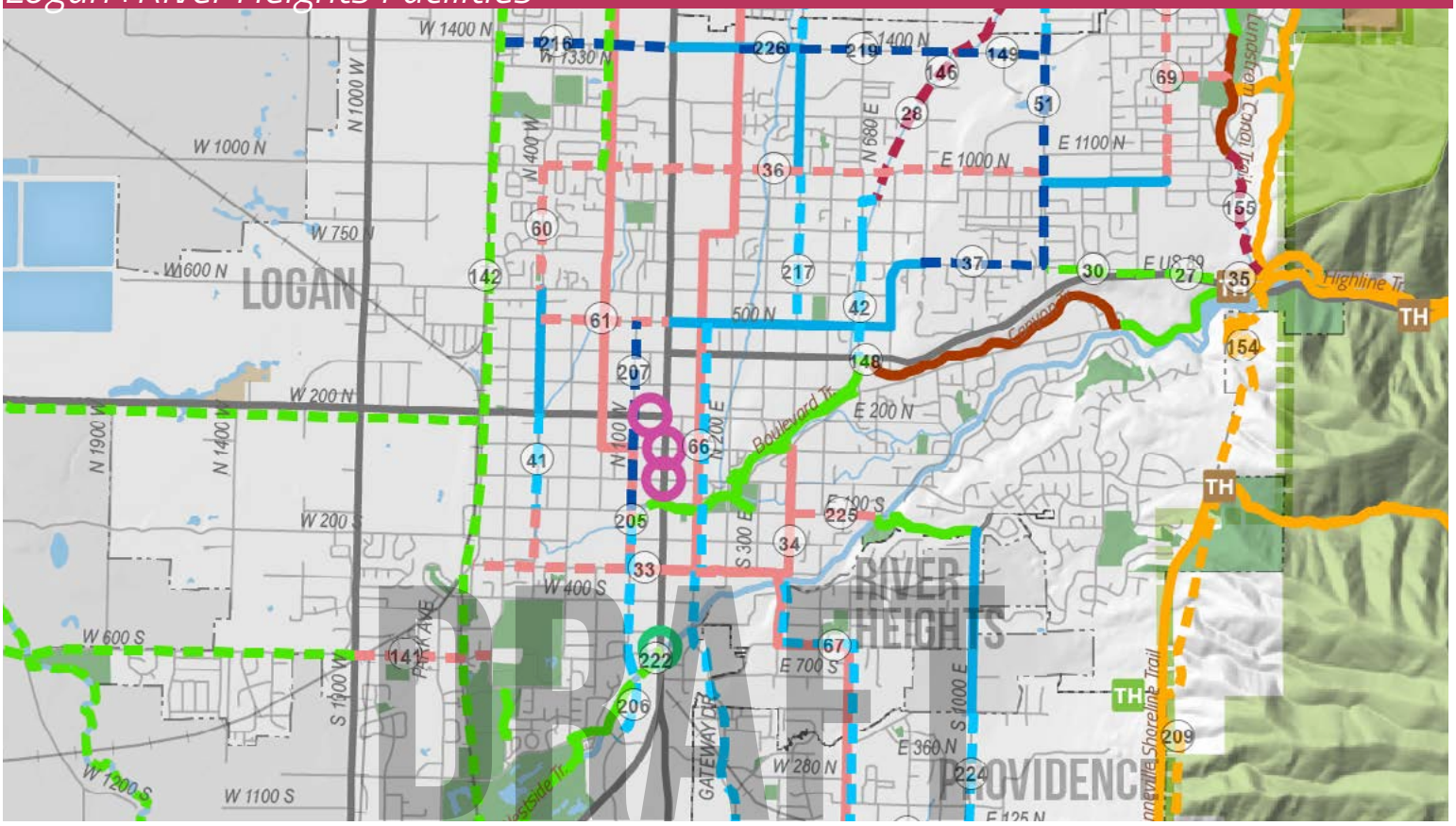
Hyrum Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
167	Blacksmith Fork Connector Trail	Connects eastern Hyrum to existing trails in Blacksmith Fork Canyon	1.0	$$$	UDOT	20.67
26	Cache Bikeway - Hyrum	Bike lane connecting Cache Bikeway route north to Nibley	1.4	$$	Hyrum	33.02
200	Hyrum Active Transportation Route	Bike lane and sidewalks providing east-west active transportation route.	2.9	$$	Hyrum	23.12
164	Hyrum Reservoir Trail	Recreational trail circling Hyrum Reservoir	5.2	$$$$	Utah State Parks	14.01
201	SR101 Pathway	Protected Bike Lane improving safety for all users along SR101	1.8	$$$	UDOT / Private	25.21

IMPLEMENTATION TOOLBOX

Logan+River Heights Facilities



ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
205, 206	100W Active Trans. Street	Protected bike lane to downtown and south on new road project	0.5	$$	Logan	56.01
51	1200 E Pathway	Connection north of USU, utilizing buffered bike lanes	1.0	$$$	USU/Logan	49.01
149, 226	1400N Bike Lane	Buffered bike lane / beyond simple bike lane	0.5	$$$	Logan	52.34
29	200W Canal Pathway	Pathway along canal alignment	2.0	$$$	Unknown	35.01
41	400W Active Trans. Street	Bike lanes accessing west side residential core and schools	0.4	$$	Logan	56.01
42	600E Active Trans. Streets	Bike lane connecting existing trails with USU and northern canal path	0.8	$$	Logan	57.68

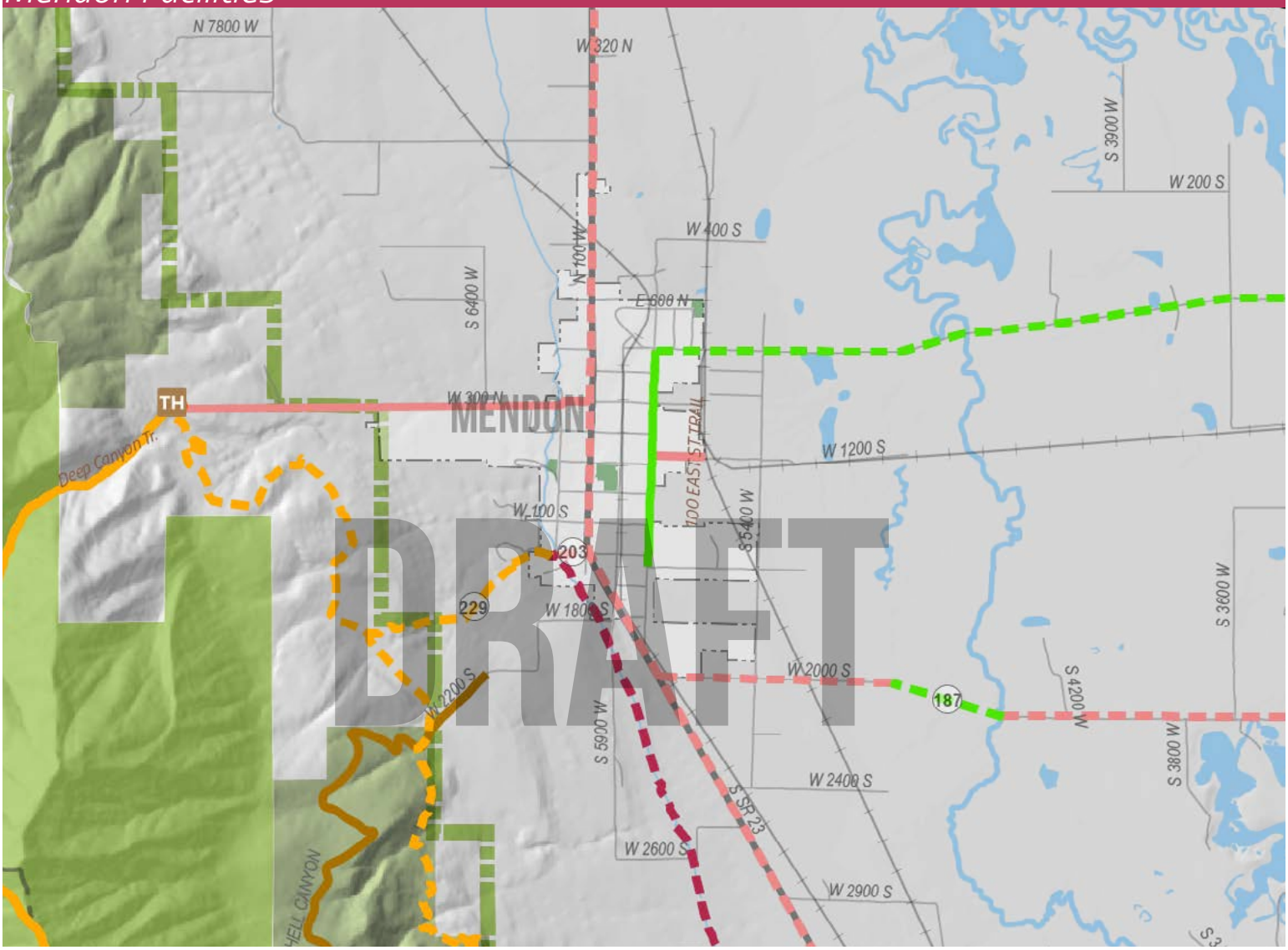
IMPLEMENTATION TOOLBOX

Logan+River Heights Facilities (cont)

ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	Project name	Basic Description of project		Order of magnitude construction cost estimate	Estimated ownership of project corridor	Analytical score from plan analysis
37	700N Aggie Trail	USU active transportation corridor	0.5	$$$	USU / Logan	49.01
6	800W Regional Trail	Paved trail connection between Nibley and Logan parks	0.9	$$$	Logan/Private	39.01
58	Airport Road Shared Use Pathway	Separated pathway improving recreational safety accessing rural valley roads	4.3	$$$$	UDOT	44.35
154	BST Logan to Dry Canyon	Bonneville Shoreline Trail connecting First Dam - Dry Canyon	1.7	$$	Private	47.68
142	Bridger Rail Trail - Logan	Paved pathway along lightly utilized rail line	5.6	$$$$$	Union Pacific	31.68
66, 215	Cache Bikeway - Logan	Bike lane accessing downtown Logan and other communities	1.8	$$	Logan	60.35
148	Canal-Boulevard Connector	Minor connection between major trail systems	0.1	$$	Private	53.34
136	Logan River Trail - Far west	Paved pathway between 6th south park and SR30 pathway	3.0	$$$$	Private / Pacificorp	15.01
152	Logan River Trail - Main Street	Riverwoods pathway to future Logan River Trail	0.2	$$	Private	51.68
222	Logan River Trail West	Logan River Trail west of Main Street	0.3	$$	Private	32.34
155	Lundstrom to Highline Pathway	Future connection through golf course property	0.6	$$	USU/Cache Highline	42.67
varies	Quiet Streets	Improvements to surfacing, wayfinding, and bike/ped access on street to connect with existing and planned facilities	varies	$	Logan	50.34
67	River Heights Bike Lane	Bike lane connecting River Heights to surrounding communities	1.3	$$	River Heights	47.01
135, 153	Trapper to 6th South Park	Future extension of Logan River Trail system	2.4	$$$$	Private	37.01
27	USU BST Connector	Connection between USU and mountain trail network	0.4	$$$	UDOT	40.68

IMPLEMENTATION TOOLBOX

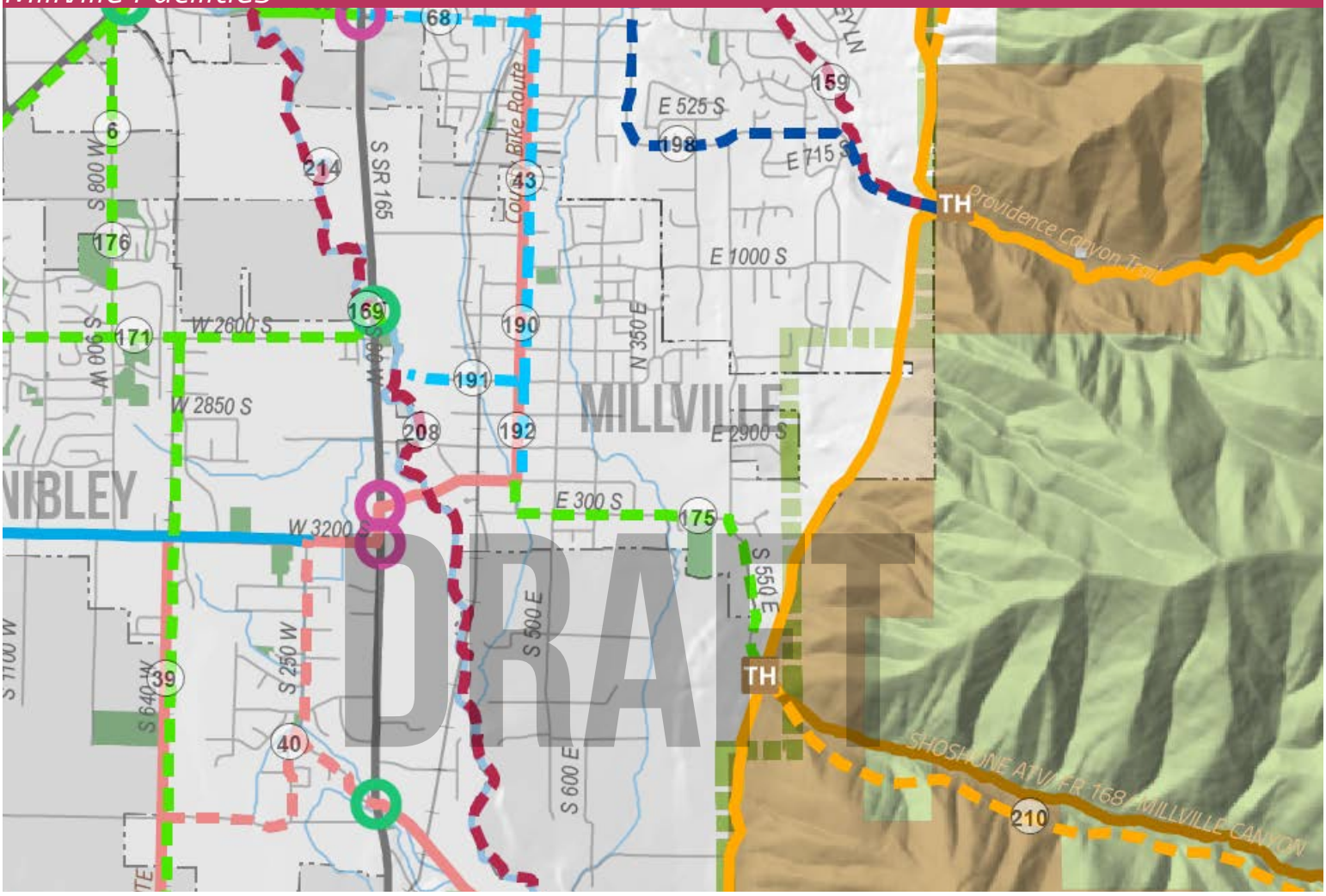
Mendon Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
229	Mendon BST Connector	Mountain trail connecting to future Bonneville Shoreline Trail	1.0	$$	Private	31.87
203	Mendon Canal Access	Quiet street and signage to provide wayfinding to Mendon Canal Pathway	0.1	$	Private/ Mendon	24.67

IMPLEMENTATION TOOLBOX

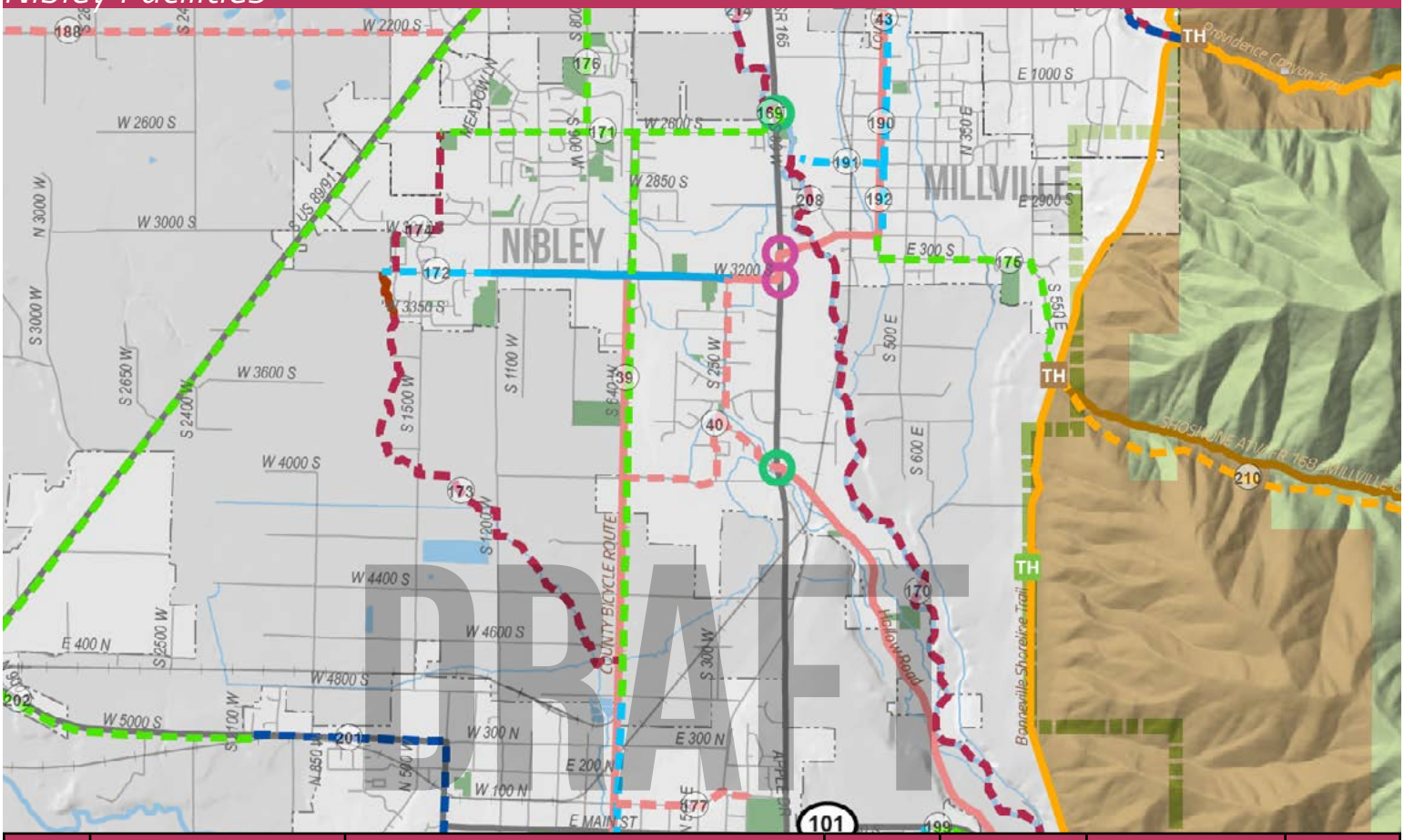
Millville Facilities



ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
214	Blacksmith Fork River Trail North	River trail connecting to Logan trails	1.5	$$$$	Private	19.67
191	Cache Bikeway 100N Millville	New bike route to be utilized in conjunction w/ underpass on SR165	0.4	$$$	Millville	45.01
192	Cache Bikeway - Main St.	Bike lanes and sidewalks to promote active transportation through town	0.4	$$	Millville/ County	55.35
175	Millville Canyon Connector	Side path connecting Millville to canyon	1.5	$$$	Millville / Private	34.68

IMPLEMENTATION TOOLBOX

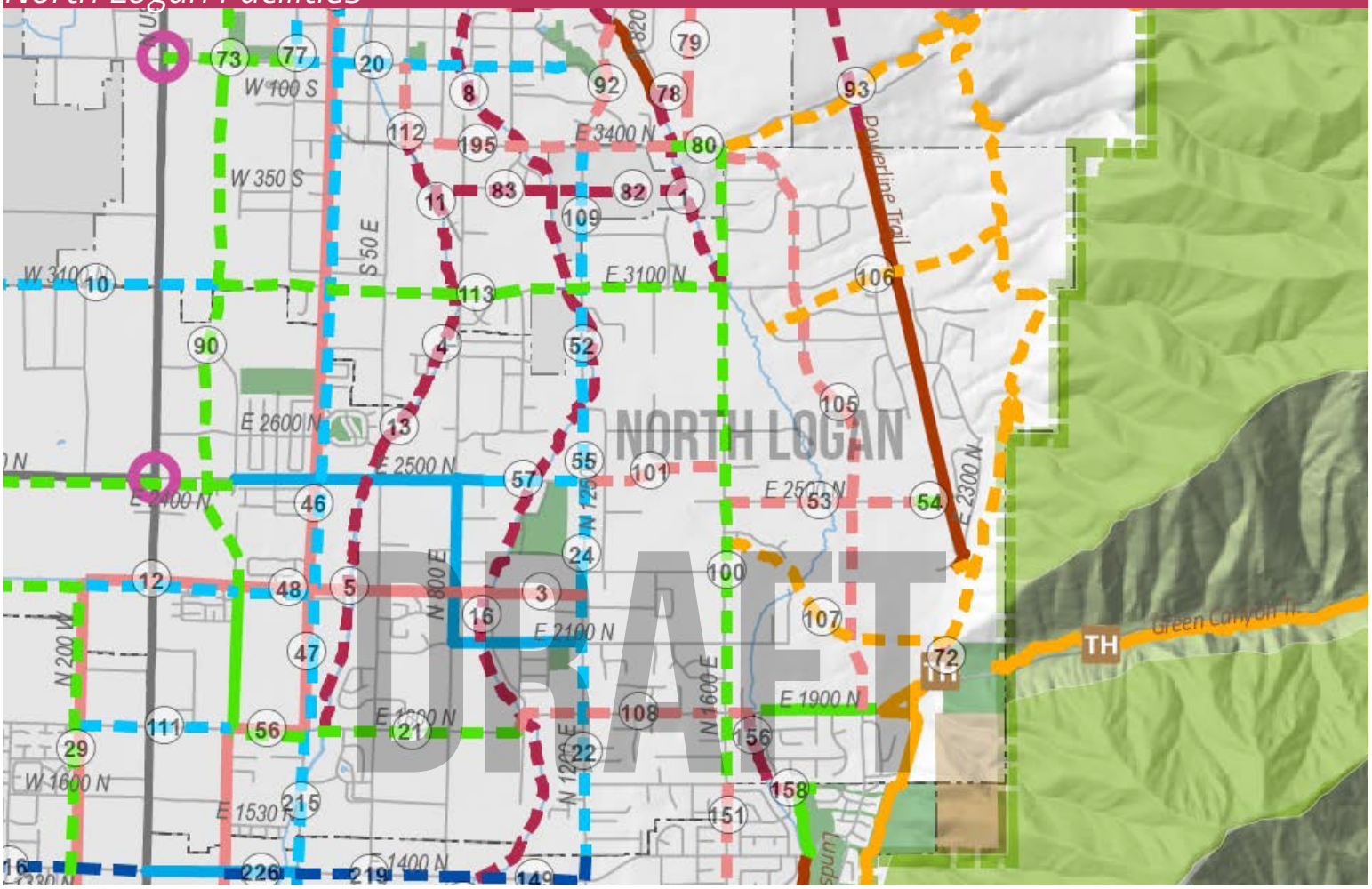
Nibley Facilities



ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
172	3200 S Bike Lane Extension	Bike lane E/W across Nibley	0.6	$$	Nibley	48.67
176	800W Nibley	Extension of regional trail to Logan	0.3	$$$$	Nibley/Private	34.67
39	Cache Bikeway - Bridger Rail Trail	Multi-use pathway along UP railroad & Cache Bikeway corridor	2.9	$$$$$	Union Pacific RR	36.68
174	Hyrum Slough Connector	Gravel surfaced shared use pathway	0.9	$$$	Private	40.67
171	Nature Way Trail	Pathway connecting high school, underpass, and Stokes Nature Center	1.7	$$$$	Nibley	38.34
40	Nibley Quiet Streets (250W south)	Quiet streets to be signed and traffic calmed	2.0	$	Nibley	40.01

IMPLEMENTATION TOOLBOX

North Logan Facilities



ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
90	200E Pathway	Regional connectivity provided through future road projects	1.8	$$$$	North Logan	34.01
22	1200E Bike Lane	Bike lane	0.9	$$	North Logan	54.34
100	1600 E Pathway	Recreational access route	2.3	$$$$	North Logan / Private	33.34
111	1800 N Bike lane	Bike lane	0.5	$$	North Logan	53.01

IMPLEMENTATION TOOLBOX

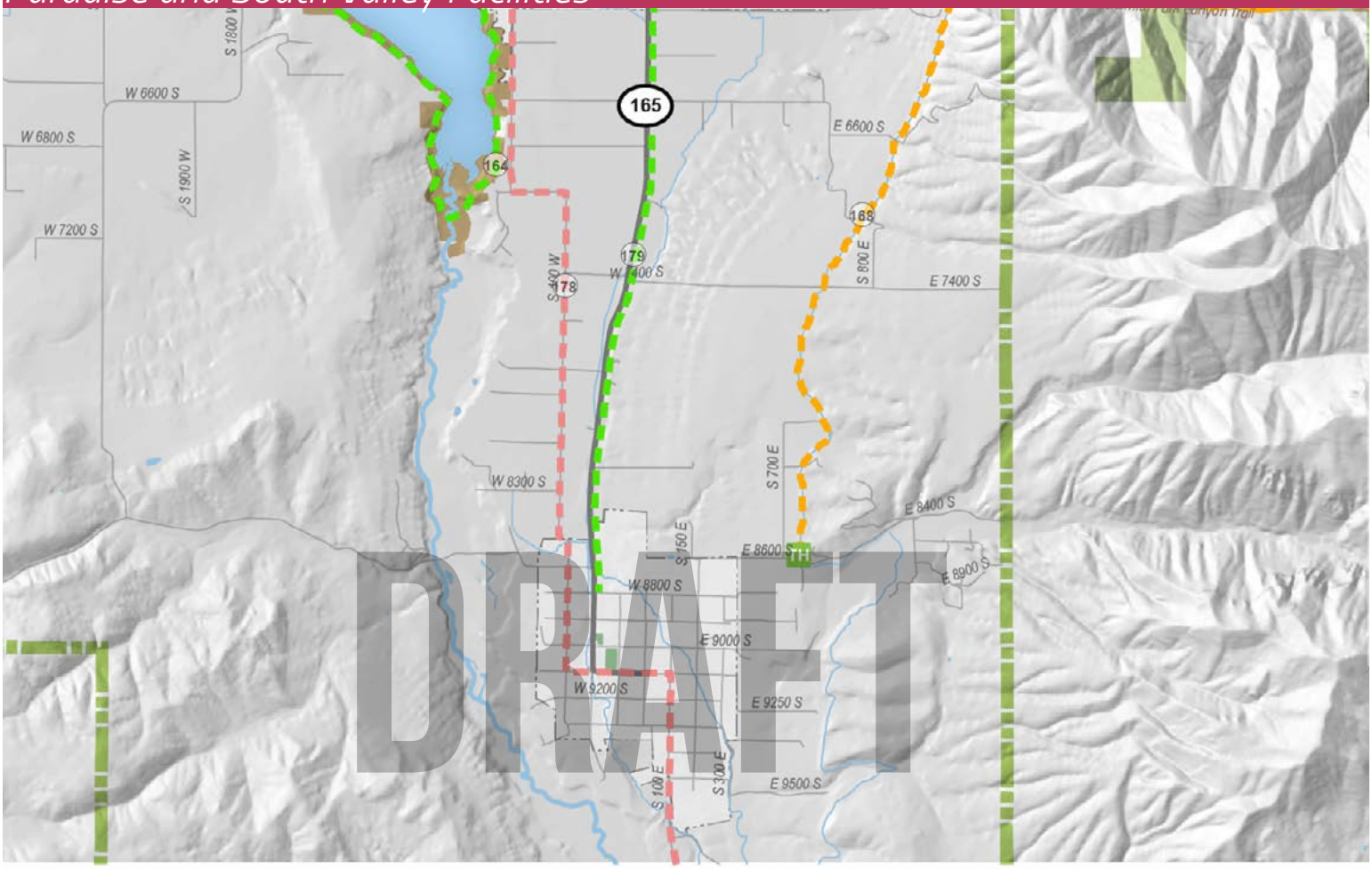
North Logan Facilities (cont)

ID#	Name	Description	Length (mi)	Est Cost	ROW?	Score
Map #	Project name	Basic description of project		Order of magnitude construction cost estimate	Estimated ownership of project corridor	Analytical score from plan analysis
21	1800 N Pathway	Shared use pathway	0.8	$$$	North Logan	40.68
57	2500 N Bike Lane	Bike lane	0.4	$$	North Logan	48.67
101	2500 N Route	Preserve quiet street route	0.5	$	North Logan	34.34
216	Cache Bikeway	400E Bike lane serving as core N/S Cache Bikeway	1	$$	North Logan	38.1
107	Canyon Gates BST Connector	Bonneville Shoreline Trail access	0.9	$$	Private	35.34
106	Canyon Ridge BST Connector	Bonneville Shoreline Trail access	1.0	$$	Private	40.67
5	Lower Canal	Piped canal and unpaved pathway	1.1	$$$$	North Logan	46.02
16	Middle Canal - North Logan	Core N/S route connecting multiple communities	2.1	$$$	Private/Cache County	29.35

Green Canyon, Cache National Forest

IMPLEMENTATION TOOLBOX

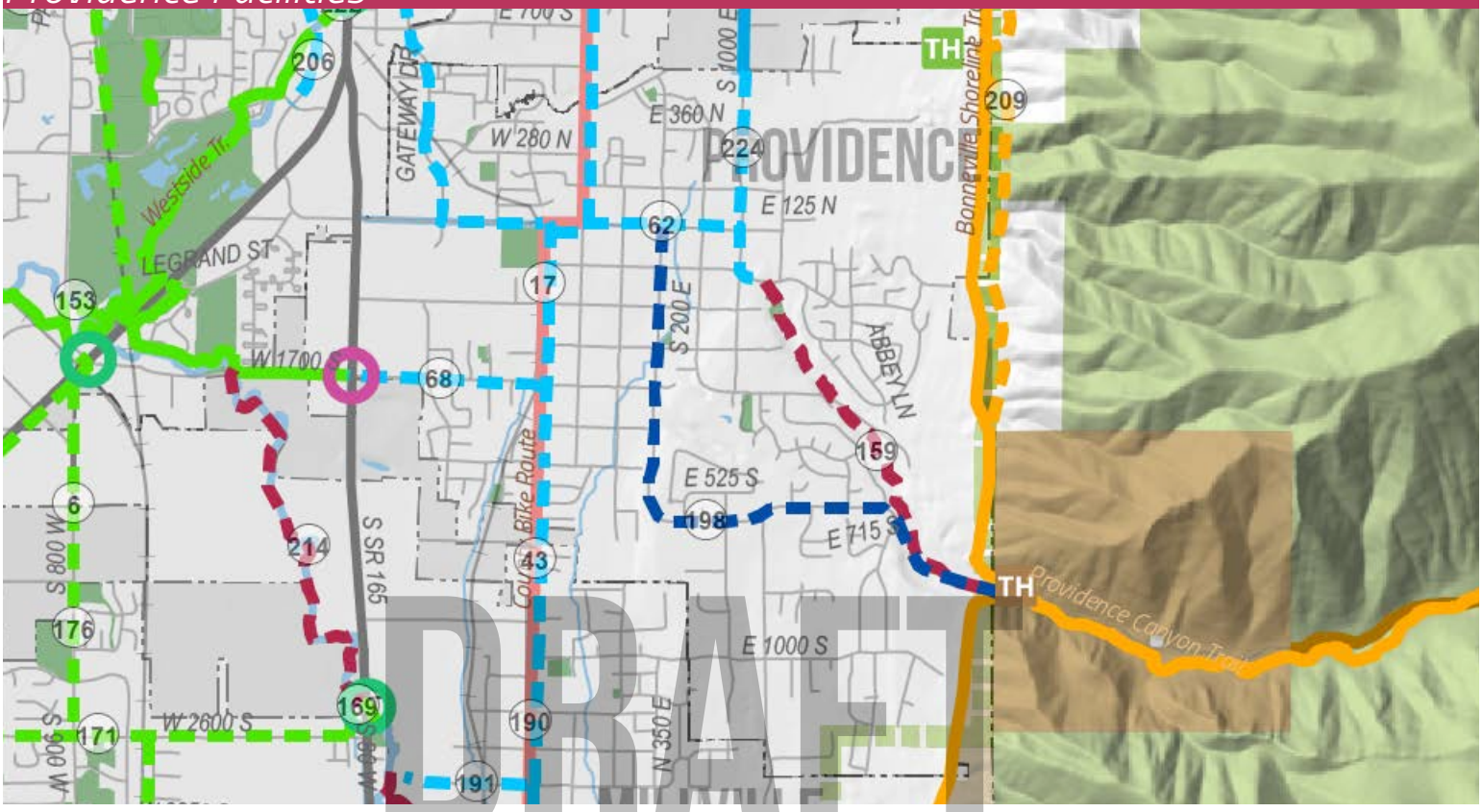
Paradise and South Valley Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
179	Paradise to Hyrum Connector	Paved pathway along SR 165 to connect the two communities	3.8	$$$	UDOT	22.1
178	South Valley Bike Route	Shared and signed roadway south to Avon and County limits, connecting to Hyrum	4.5	$	UDOT / County / Hyrum	18.2

IMPLEMENTATION TOOLBOX

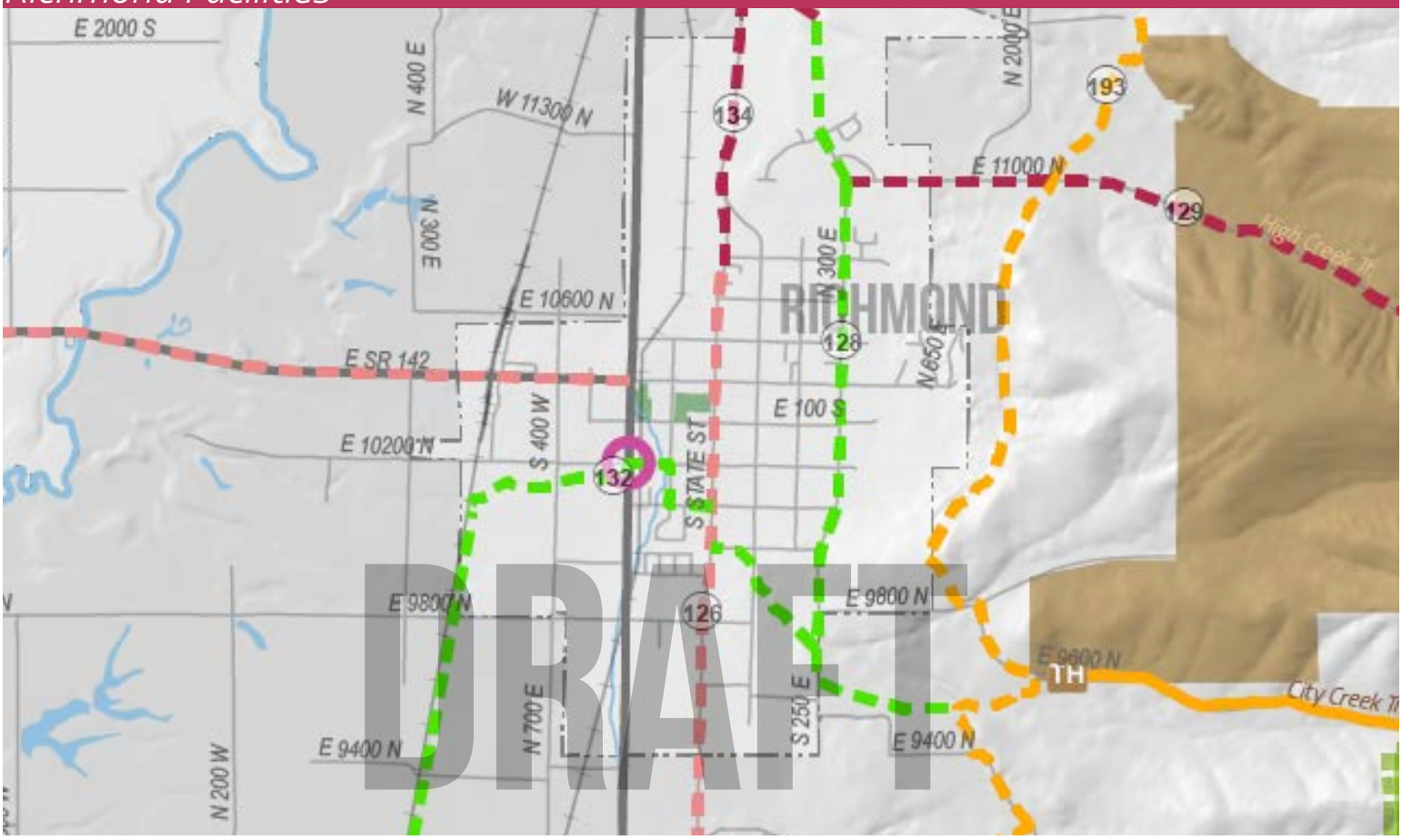
Providence Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
198	100 E Quiet Canyon Access	Improve safety for canyon access on foot or bicycle up hill.	2.2	$$$	Providence/ Private	44.34
62	100 N Active Trans. Street	Bike lane and sidewalks provide connection through town	0.9	$$	Providence	54.68
68	300 S Bike Lane	Bike lane to provide connectivity to development E and W of SR165	0.6	$$	Providence	54.68
224	Bench Active Trans. Street	Bike lane connecting bench communities - future road project	0.5	$$	Providence/ Private	43.34
63	Cache Bikeway-Providence	Key NS route connecting Providence to neighboring communities	0.7	$$	Providence	49.68
159	Spring Creek Trail	Aspirational connection to Providence Canyon	1.4	$$$$	Private	33.68

IMPLEMENTATION TOOLBOX

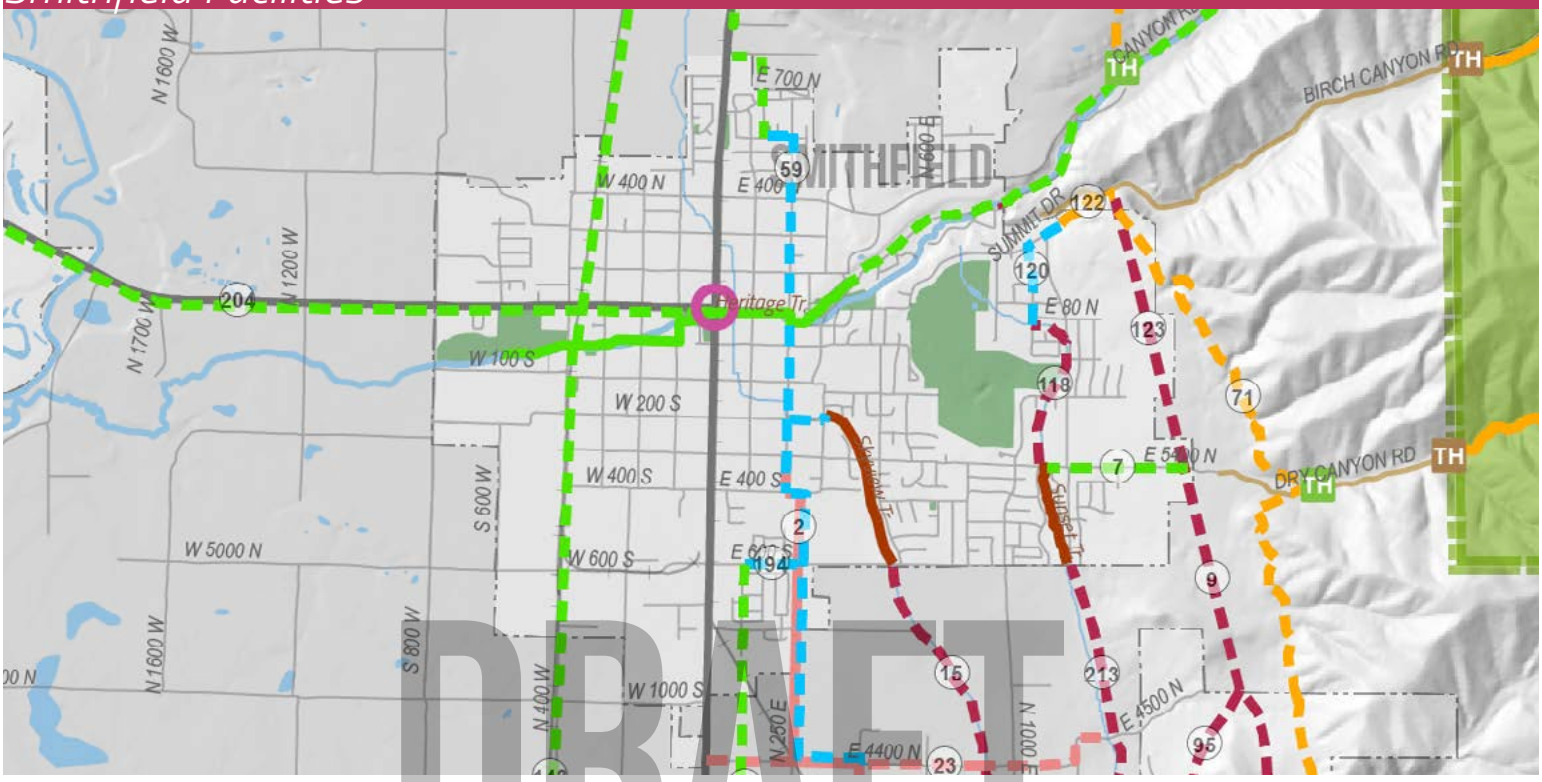
Richmond Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
128	300E Pathway	Shared use pathway connecting recreational canyon use	2.1	$$$$	Richmond	20.34
129	Cherry Creek Pathway	Natural surface, shared use pathway providing Cherry Creek access	2.3	$$$	Richmond / Private	25.67
132	City Creek Trail	Shaded pathway along City Creek	2.3	$$$$	Richmond / Private	18.67
134	State Street Trail	Shared use pathway accessing northern Richmond development	1.2	$$$	Richmond	26.34

IMPLEMENTATION TOOLBOX

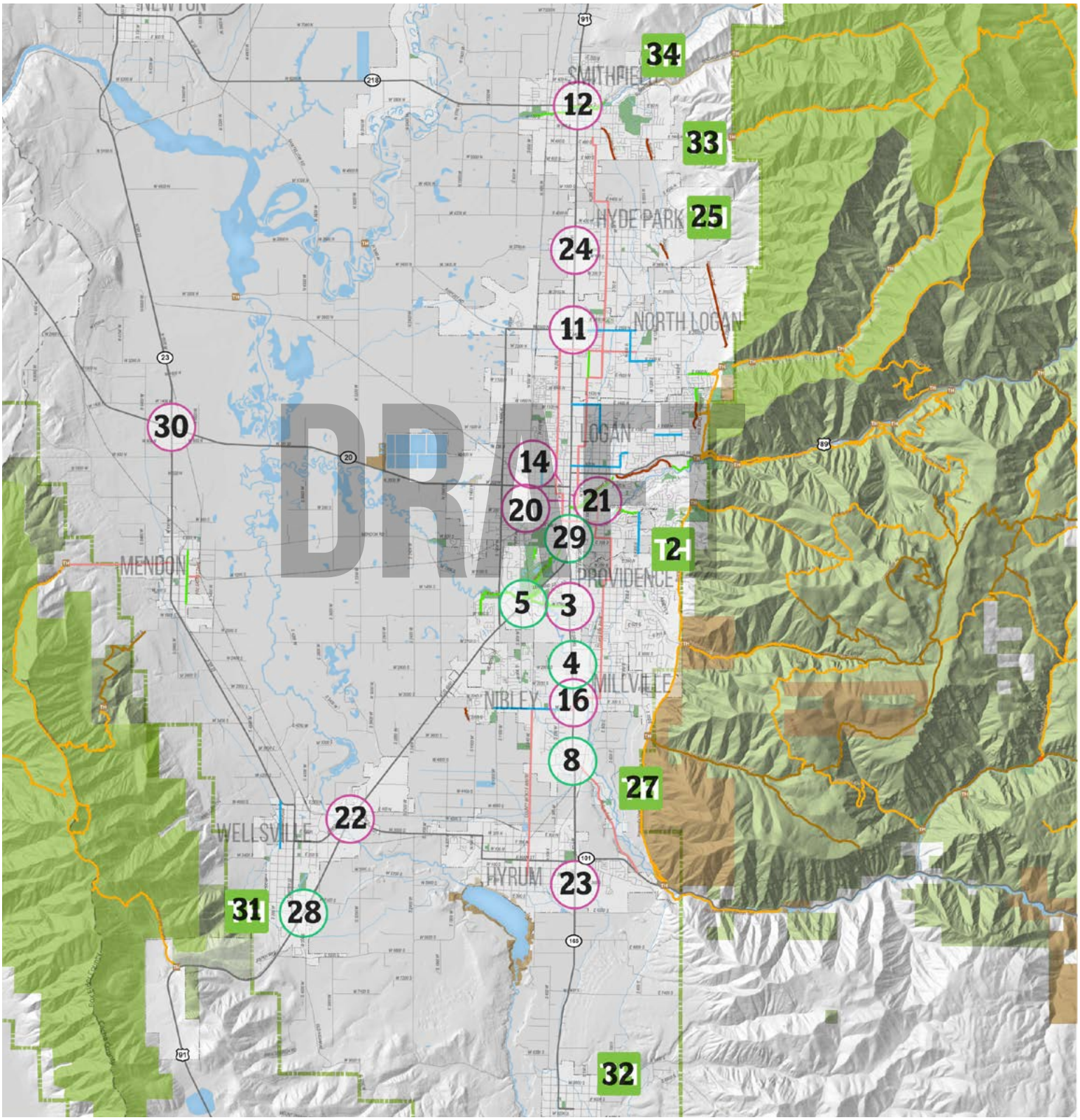
Smithfield Facilities



ID#	*Name*	*Description*	*Length (mi)*	*Est Cost*	*ROW?*	*Score*
Map #	*Project name*	*Basic description of project*		*Order of magnitude construction cost estimate*	*Estimated ownership of project corridor*	*Analytical score from plan analysis*
194	600S Bike Lane	Short connection between 200E regional trail and Cache Bikeway	0.2	$$	Smithfield	53.01
122	Birch Canyon Connection	Future connection to Birch Canyon Road	0.3	$$	Private	38.67
59	Cache Bikeway - Skyview Loop	Key N/S connector through central Smithfield	1.8	$$	Smithfield	53.17
7	Dry Canyon Connector	Sidepath along road providing canyon access	0.6	$$$	Smithfield/ Private	43.34
118	Golf Course Canal Path	Extension of canal pathway past golf course	0.5	$$$	Smithfield/ Private	45.01
123	Powerline Trail	Extension of powerline pathway from North Logan	1.1	$$$	Pacificorp/ Private	38.67
120	Summit Drive Access	Preserve singletrack neighborhood access to Birch Canyon access from Summit Drive	0.7	$	Smithfield	49.34

IMPLEMENTATION TOOLBOX

Key Projects by Jurisdiction - Spot Improvements

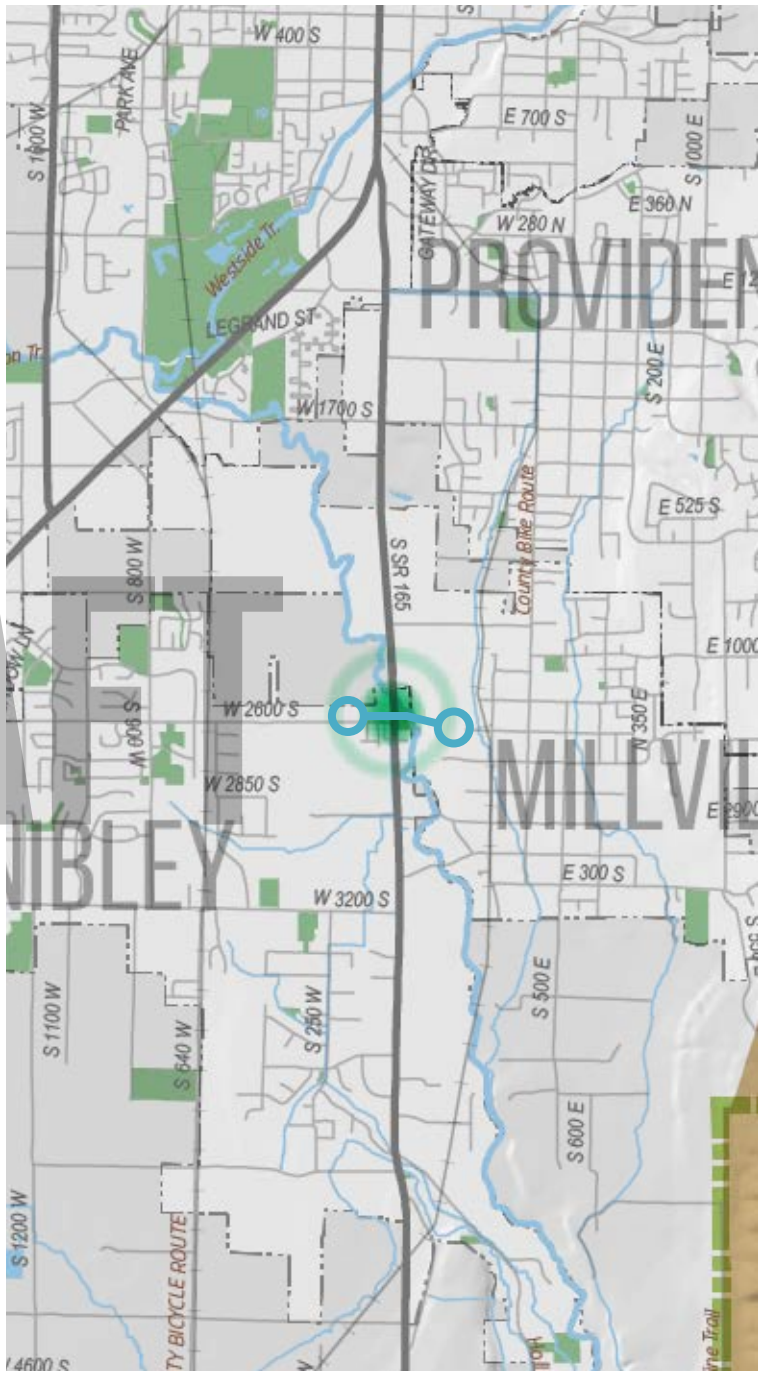


IMPLEMENTATION TOOLBOX

Nibley Underpass

Overview

This particular grade separated crossing has been identified as one of the most feasible and most valuable crossing improvements in Cache County. Not only would it provide safe access to the new Ridgeline High School serving the southern half of the valley, but would also provide a safe crossing along the Cache Bikeway route, linking the highway-isolated communities of Hyrum and Nibley with the rest of the eastern bench population in Cache County.



Next Steps

- Work with Nibley, Millville, and Cache County School District to identify funding sources that could be used to approach larger grants
- Continue to identify grant sources that could be leveraged to fund this type of improvement.
- Approach project permitting first, as Blacksmith Fork River impacts are anticipated.

Key Challenges

- This improvement could cost between 1-2 million dollars. Finding funding for this type of project can prove difficult
- UDOT has turned down the first grant request for this improvement as part of a competitive TAP program. Working with UDOT to understand how to improve this project's competitiveness could help future applications.

IMPLEMENTATION TOOLBOX

Table of Spot Improvement Projects

ID #	*Improvement Type*	*Location*	*Description*	*Cost*	*Score*
30	Safety Improvements for Highway Crossing	County	Improve crossing of SR30 for cyclists	$$$	*
24	Improved At Grade Crossing	Hyde Park	Add signal detection, bulb outs, and improved timing for bike/ped use	$$	40.5
25	Proposed Trailhead	Hyde Park	Future BST and other recreational trail access	$$$	11.75
23	Improved At Grade Crossing	Hyrum	Improve safety for high school students and recreational access	$$	40.5
29	Grade Separated Crossing	Logan	Utilize bridge at Main to cross under SR89, and link Logan River Trail	$$$$	27.5
20	Improved At Grade Crossing	Logan	Prioritize east/west bike &ped movement on 100N	$$	67.25
14	Improved At Grade Crossing	Logan	Connect Logan downtown through mid-block crossing	$$$	64.25
15	Improved At Grade Crossing	Logan	Add cyclists detection to stoplight	$	58.22
21	Improved At Grade Crossing	Logan	Improve pedestrian safety and comfort at Center Street	$$	62
33	Proposed Trailhead - Deep Canyon	Mendon	TH on USFS property to access BST and Narrow and Wide Canyons		*
27	Proposed Trailhead	Millville	Preserve future access to Bonneville Shoreline Trail System	$$$	12.75
16	Bike/Ped Activated Crossing Signal	Nibley	Provide safe way for cyclists and pedestrians to cross highway	$$	39.75
5	Grade Separated Crossing	Nibley	Provide grade separated crossing for trail network connections between multiple communities	$$$$	32.75
8	Grade Separated Crossing	Nibley	Connect Nibley residences to Hollow Road and Blacksmith Fork Canyon	$$$$	29.25
4	Nibley / Cache Bikeway - Grade Separated Crossing	Nibley	Provide grade separated crossing along Cache Bikeway, linking northern communities with Nibley and Hyrum	$$$$	24.5
11	Improved At Grade Crossing	North Logan	Primary SR91 crossing for bike/ped use	$$	41.75
32	Proposed Trailhead	Paradise	Future Bonneville Shoreline Trailhead for southern residents		*

IMPLEMENTATION TOOLBOX

Table of Spot Improvement Projects - cont.

ID #	*Improvement Type*	*Location*	*Description*	*Cost*	*Score*
3	Improved At Grade Crossing	Providence	Primary SR91 crossing for bike/ped use.	$$	34.25
2	Proposed Trailhead	Providence	Preserve future access to Bonneville Shoreline Trail system	$$$	12.75
13	Improved At Grade Crossing	Richmond	Primary SR91 crossing for bike/ped use	$$	39
12	Improved At Grade Crossing	Smithfield	Primary SR91 crossing for bike/ped use	$$	*
34	Proposed Trailhead	Smithfield	City TH to provide canyon and Bonneville Shoreline Access	$$$	*
31	Proposed Trailhead	Smithfield	Work with Sportsmen for Fish and Wildlife to install trailhead improvements and related BST facilities	$$$	*
28	Grade Separated Crossing	Wellsville	Future safe connection of canal pathway	$$$$	*
22	Improved At Grade Crossing	Wellsville	Primary SR91 Crossing for bike/ped use	$$	33.25

**due to time and budget restraints, these trails were added after the analytical process and were not calculated for relative score.*

IMPLEMENTATION TOOLBOX

Code Reference Table

The following pages provide a table of code references from Utah communities which are intended to serve as models to Cache County and her municipalities. As development and municipal codes are reviewed, this toolbox works to ensure that Cache County's growth will help, not hinder, future trails development through Cache County.

The furthest right column in the chart provides direct web links to the source code on-line, if this document is being viewed on a computer with an internet connection.

Provo River Trail, Provo UT

Code references are intended to achieve the following goals:

- Establish Purpose and Intent of Trails Plan requirements
- Define what trail and active transportation types are governed by the plan and code
- Allow the community to require trail development as part of development agreements
- Codify use of trails plan in development review.
- Provide flexibility to allow trails in place of park dedication
- Ensure that trail development is of a consistent quality, and reference master trails plan guidance
- Ensure developments have adequate access and circulation plans for people to walk and bicycle
- Ensure that development does not restrict residents from existing trail networks
- Ensure that development does not restrict access to trails along canals, rivers, or streams
- Establish plan for information and wayfinding signage
- Establish development standards
- Establish plans for ongoing maintenance of trails
- Make clear the design and use of trail corridors through private land
- Encourage facilities that include all forms of transportation including bicycle and pedestrian
- Provide an incentive for development to go beyond what is necessary in trail development

IMPLEMENTATION TOOLBOX

Topic	Code Intent	Code Example	Source & Additional Examples
Definitions	**Establish Purpose and Intent of Trails Plan requirements**	*Purpose and intent.* *The pathway element of the Ogden Valley general plan (Ogden Valley pathways master plan) was developed to promote, plan and protect non-motorized public pathways in order to maintain and enhance the Ogden Valley's beauty, pastoral atmosphere, rural lifestyle, outdoor recreational opportunities and sense of community. The vision is to establish a network of pathways linking all of Ogden Valley and to enable residents, visitors and their children to travel in safety on foot, bicycle, horseback, skates, snowshoes or skis, to a wide variety of destinations throughout the valley.* *(Ord. of 1956, § 40-1)*	*Source:* *Weber County, UT Sec. 108-17-1*
Definitions	**Define what trail and active transportation types are governed by the plan and code**	*10-1-4.5 Non-Motorized Trail Use* *DEFINITIONS.* *1. "Multi-Use Pathway" means a way or path no less than eight (8') feet in width that has a surface of concrete or asphalt and is separated from the roadway by an open space, a curb or other barrier.* *2. "Natural Surface Trail" means a way or route with a surface other than concrete or asphalt, which serves the primary purpose of passive recreational use, such as hiking, mountain biking, snowshoeing, cross-country skiing and equestrian activities.*	*Source:* *Park City UT, Sec 10-1-4.5* *Additional Examples:* *Farmington, UT Sec. 6-5-020* *Weber Co, Sec. 108-17-4* *South Salt Lake, UT Sec. 17.03.010*
Plan Adoption	**Allow the community to require trail development as part of development agreements.**	*13.06.070: EFFECT OF THE OFFICIAL PARKS, RECREATION, AND TRAILS MAP:* *A. The city may adopt an official parks, recreation, and trails map.* *B. The effect of the official parks, recreation, and trails map:* *1. May require a landowner to dedicate and construct parks, recreation, and trails as a condition of development approval; and* *2. Does not require the city to immediately acquire property it has designated for eventual use for parks, recreation, and trails.* *C. This section does not prohibit the city from:* *1. Recommending that an applicant consider and accommodate the location of the proposed parks, recreation, and trails in the planning of a development proposal in a manner that is consistent with law concerning exactions.* *2. Acquiring the property through purchase, gift, voluntary dedication, or eminent domain.* *3. Requiring the dedication and improvement of parks, recreation, and trails if it is found necessary by the municipality because of a proposed development and if the dedication and improvement are consistent with law concerning exactions. (Ord. 12-15, 7-11-2012)*	*Source:* *Taylorsville, UT Sec. 13.06.070* *Additional Examples:* *Summit Co. Sec 10-4-16* *Weber Co. Sec. 108-17-4*

IMPLEMENTATION TOOLBOX

Topic	Code Intent	Code Example	Source & Additional Examples
Development Review	**Codify use of trails plan in development review.**	*11-18-070: Development Plan Review* *5. Standards And Criteria: Development plan review shall be based on the following building and site design standards and criteria, which are formulated to achieve the intents and purposes of the mixed use districts in the short and long term. These standards and criteria shall be met unless an acceptable alternative is proposed that, upon review by the city and the SPARC, better meets the intents and purposes of the area:* *a. General Criteria:* *(1) Continue Farmington City's physical character of its traditional neighborhoods, including mixed use development, tree lined streets, detached sidewalks with park strips, interconnected street networks, and convenient access to parks, open space, transit and trails;* *(2) Provide an adaptable and interconnected transportation system that allows multiple modes of transportation, disperses traffic and provides streets that accommodate multiple transportation modes, including motor vehicles, transit, bicycles and pedestrians;*	*Source:* *Farmington, UT 11-18-070* *Additional Examples:* *Park City, UT 15-7.3-2*
Development Review	**Provide flexibility to allow trails in place of park dedication.**	*11-10-060: SITE DEVELOPMENT STANDARDS:* *D. Trail Dedications: Developers of major subdivisions in agricultural zones may be required by the city to dedicate equestrian and/or pedestrian trails, waterways or other open space corridors in order to allow internal circulation, separated from vehicular traffic, and connections to a regional trail system. At the discretion of the city, such dedications may be made in lieu of the park acquisition and development fee required by, and according to the standards established in, the subdivision ordinance.*	*Source:* *Farmington, UT 11-10-060*
Design Standards	**Ensure that trail development is of a consistent quality, and reference master trails plan guidance.**	*15-7.3-8 Sidewalks, Hiking Trails, Bike Paths, And Horse Trails* *A. REQUIRED IMPROVEMENTS.* *1. Sidewalks shall be included within the dedicated non-pavement Right-of-Way of all roads unless an alternate location has been specifically approved by the Planning Commission. In many cases pedestrian paths separate from the road Right-of-Way may be preferable due to snow removal concerns.* *2. Concrete curbs are required for all roads where sidewalks are required by these regulations or where required in the discretion of the Planning Commission.* *3. Sidewalks shall be improved as required in Section 15-7.3-4(F)(2) of these regulations.* *4. Trails, pedestrian paths, and bike paths shall be related appropriately to topography, require a minimum of Site disturbance, permit efficient drainage, and provide safe Access.* *5. Hiking trails, bike paths, and horse trails shall be provided by the Developer in accordance with the City Trails Master Plan and where otherwise necessary as determined by the Planning Commission. Trails should connect traffic generators such as schools, recreation facilities, commercial Areas, parks, and other significant natural features. Such trails shall be built to City specifications and easements shall be dedicated for such trails. The trails shall be constructed at the time of road construction, unless the Planning Commission determines otherwise, in which case cash deposits shall be required pursuant to Section 15-7.2 of this Code.*	*Source:* *Park City, UT 15-7.3-8* *Additional Examples:* *Ogden, UT, Sec 15-10-4* *Weber County Sec. 108-17-3* *Weber County, Sec. 108-17-4* *Taylorsville, UT, Sec 13.21.160*

IMPLEMENTATION TOOLBOX

Topic	Code Intent	Code Example	Source & Additional Examples
Design Standards	**Ensure that trail development is of a consistent quality, and reference master trails plan guidance.**	*12D-115 Development Regulations* *(5) Trails. Layout of trails shall conform to United States Forest Service (USFS) or International Mountain Bike Association (IMBA) trails construction guidelines (natural surface trails) or NACTO/AASHTO standards (paved surface trails). Rights-of way and easements should be of sufficient width to allow for a path or tread at the location which most nearly provides a level or uniform slope, minimizes the cost of construction and maintenance, and protects adjacent natural features, including but not limited to vegetation, associated with the trail. Trail location sizes and standards shall be in accordance with the City's general plan for trails.*	*Source:* *North Logan, UT Sec. 12D-115*
Foothill Development	**Ensure that development does not restrict residents from existing trail networks**	*11-30-050: REQUIRED PLANS AND DEVELOPMENT STANDARDS:* *G. Streets And Ways: 6. Development sites which are located near canyon trails will provide reasonable access to those trails. Parking areas may be required by the planning commission at trailheads.*	*Source:* *Farmington, UT 11-30-050* *Additional Examples:* *Ogden, UT Sec. 15-27-5*
Access Along Waterways	**Ensure that development does not restrict access to trails along canals, rivers, or streams**	*16.16.060 PUBLIC ACCESS ALONG WATERWAYS* *All subdivisions that contain or abut a canal, river, or stream shall dedicate to the city a permanent fifteen foot (15') right of way along the west or south bank of said waterway, unless actual property is dedicated to the county for trails. The right of way, which shall be measured from the inside bank of the waterway, will be for the purpose of providing permanent public access to the waterway for maintenance and recreational purposes. In the event the proposed development borders the east and north banks and the west and south banks have already been developed, then the dedication shall be from the east and north banks.*	*Source:* *Smithfield, UT 16.16.060* *Additional Examples:* *North Logan, UT 12C-118*
Parking	**Encourage the use of bicycle racks to encourage active transportation**	*11-19-100: PARKING:* *F. Bicycle Racks: Secure bicycle racks may be provided at likely destination stops to encourage the use of bicycles as a way to access those destinations. Racks shall be designed consistent with standards contained in the Farmington City trails and sidewalks master plan.*	*Source:* *Farmington, UT 11-19-100* *Additional Examples:* *Salt Lake City, UT 21A.44.050* *Taylorsville, UT 13.24.200*
Signage	**Establish plan for information and wayfinding signage**	*(3) Signage and facilities.* *a. Standard and consistent signs shall be used to designate trail heads, pathway uses, directional information, educational information and historical information along the pathways. Signs shall conform to the Ogden Valley sign ordinance which requires the use of natural materials.*	*Source:* *Weber County, UT Sec. 108-17-4*

IMPLEMENTATION TOOLBOX

Topic	Code Intent	Code Example	Source & Additional Examples
Maintenance	**Establish plan for ongoing maintenance of trails**	*108-17-4. - Pathway types and development standards.* *(5) Maintenance.* *a. Prior to construction of a pathway, the entity to be responsible for maintenance shall sign a maintenance agreement to be approved by the county attorney and the county commissioners. Privately owned pathways, such as one in a gated community, shall be the sole responsibility of the homeowner's association. Maintenance of a pathway on privately owned land over which a public easement is granted shall be determined by agreement between the county and the landowner.* *b. Volunteers from the Ogden Valley chapter of Weber Pathways and from other trail-advocacy organizations shall monitor the pathway system to report necessary maintenance issues to the county. In addition, volunteer efforts, by groups such as the Boy Scouts and various trail users, may be used for simple maintenance tasks. An adopt-a-trail program may be initiated.*	*Source: Weber County, UT Sec. 108-17-4*
Landowner Relations	**Make clear the design and use of trail corridors through private land**	*Sec. 108-17-5. - Landowner relations.* *(a) Respect for priv. property rights is an essential aspect of the pathways program. As shown on the master pathways map, the scenarios under which pathways are to be constructed or designated for public use invite the cooperation of private property owners & the expression of their opinions & concerns. Whenever a pathway is constructed along a pre-existing corridor formerly used for a different purpose, such as a canal or a power line, any pre-existing rights held by adjacent landowners concerning drainage, ditch maintenance, crossing and access, and other matters will continue to be honored.* *(b) Trespassing and liability are of concern to property owners adjacent to trails. ... signs shall be posted at all trail heads reminding users to respect private property by staying on the trail. Access shall not be allowed or provided from a pathway onto private property without the permission of the landowner. Landowners adjacent to a pathway may, & are encouraged to create their own access paths to connect to the pathway.* *(c) The q. of liability cannot be solved by the Ogden Valley pathways master plan or by this chapter; however, ... the potential liability incurred by property adjacent to a pathway is no greater than that experienced adjacent to a roadway. (...) the State of Utah has adopted a Limitation of Landowner Liability Public Recreation Act (section 57-14-1 et seq.). This act specifically protects landowners who allow the public onto their property free of charge for recreational purposes.*	*Source: Weber County, UT Sec. 108-17-5*

IMPLEMENTATION TOOLBOX

Design Guidelines

The following section outlines basic dimensions and design of various trail and active transportation facilities recommended in the Cache County Trails and Active Transportation Master plan.

Linear Facility Guidelines

- Natural Surface Trail / Singletrack
- Shared Use Path, Canal Corridor
- Shared Use Path, Powerline Corridor
- Shared Use Path, Railroad Corridor
- Sidepath
- Cycletrack
- 2 Way Cycletrack
- Protected Bike Lane
- On Street Bike Lane
- Shared Roadway

Spot Improvement Guidelines

- Grade Separated Crossings
- At Grade Crossing Improvements
- Trailheads

Treatments & Techniques

- Lane Reconfiguration / Road Diets
- Traffic Calming Measures
- Wayfinding Signage

IMPLEMENTATION TOOLBOX

Linear Facility Guidelines

Natural Surface Trail : Singletrack Trails

These simple paths through the natural landscape are some of the lowest cost facilities possible, and with appropriate construction techniques, need only a minimal amount of annual maintenance.

Expert construction is critical, however, as inexperienced trail construction can create erosion issues and maintenance headaches.

Though our public lands hold many miles of this type of facility, public input and use patterns in our front range canyons indicate significant passion and desire for improved singletrack closer to the valley floor.

Average Width & Surfacing:

- 3-5 feet - natural surface

Trail Construction Methods:

- Hand tools and volunteers for narrow, natural surface trails
- Mini excavators / Swecos to speed construction or improve compaction

Critical Considerations:

- Erosion will destroy poorly aligned trails. Keep horizontal slopes under 8%, with trail tread outsloped to approximately 1.5%
- Vertical clearance to be maintained to 9'
- Horizontal clearance to be maintained to 6'
- Vegetation management crucial to upkeep of trail
- Some natural surface trails inaccessible for strollers/wheelchairs

Planning Estimate Cost:

- $7000/Mile

Local Examples:

- Green Canyon, Jardine Juniper, Wind Caves Trails
- River Trail (crushed gravel surface)

Additional Resources:

- USFS Trail Construction and Maintenance Notebook
- International Mountain Bike Association's Guide to Building Sweet Singletrack

IMPLEMENTATION TOOLBOX

Shared Use Path (Canal Corridor)

The creation of canal systems irrigating farm fields is the story of Cache Valley. Some of these systems have been, and still are, utilized as informal trail corridors, both with and without support of adjacent land owners.

Public ownership exists on some corridors and should be utilized to create an accessible trail system safely linking multiple communities in our valley.

Average Width & Surfacing:

- 6-12 feet - crushed gravel surface

Planning Estimate Cost:

- $500,000/Mile

Trail Construction Methods:

- Construction equipment for improved pathways & use of piped canal corridors
- Paths of use on historic canal access routes

Local Examples:

- Logan's Canyon Road & Lundstrom Trails
- Smithfield's Middle Canal Trail
- Murdock Canal Trail (Utah County)

Critical Considerations:

- Some natural surface trails present accessibility challenges for strollers/wheelchairs
- Coordination with adjacent landowners and canal companies crucial
- Public prescriptive easements exist in some situations
- City stormwater funding partnerships recommended

Additional Resources/Contacts:

- Jim Price, Mountainland Association of Governments Active Transportation Planner (developed Murdock Canal Trail) - jprice@mountainland.org
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Shared Use Path (Powerline Corridor)

Where powerline easements have been established, the land below them can be utilized for trails with the private landowner's permission and alteration of the original easement documents with Pacificorp energy.

Average Width & Surfacing:

- 8-12 Feet - crushed gravel or paved (asphalt/ concrete)

Critical Considerations:

- Pacificorp / Rocky Mountain Power has easement with individual property owners
- Each property owner must agree to public trail usage through Pacificorp easement
- If property owners agree to trail easement, Pacificorp has ability to act as funding partner.

Planning Estimate Cost:

- $500,000/mile, dependent on surfacing

Local Examples:

- North Logan Bonneville Shoreline Alternate

Additional Resources:

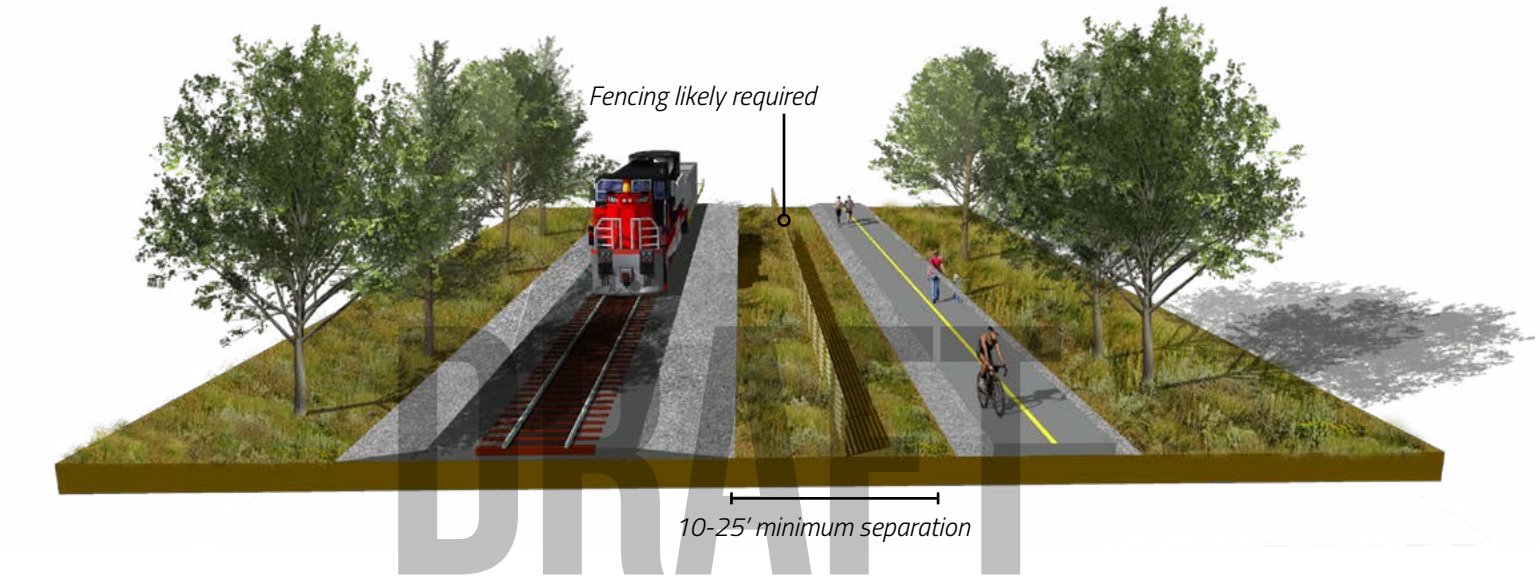
- George Humbert, Rocky Mountain Power -801.629.4221 :: george.humbert@ rockymountainpower.net
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Shared Use Path (Railroad Corridor)

The Union Pacific rail corridor that connects Hyrum to Richmond and beyond is an ideal candidate for a rail with trail corridor, as rail usage is no more than a single train daily.

Numerous examples exist around the country where active rail lines coexist with recreational trail use safely.



Average Width & Surfacing:

- 8-12 feet - crushed gravel or paved asphalt/ concrete
- Union Pacific controls access to rail corridors
- 10-25' minimum separation from active rail lines required
- 20' minimum separation recommended for user comfort
- Fencing likely required along active rail corridors
- Saw cut joints recommended in concrete pathways

Planning Estimate Cost:

- $1,000,000/mile

Local Examples:

- Historic Union Pacific Rail Trail (Summit County)

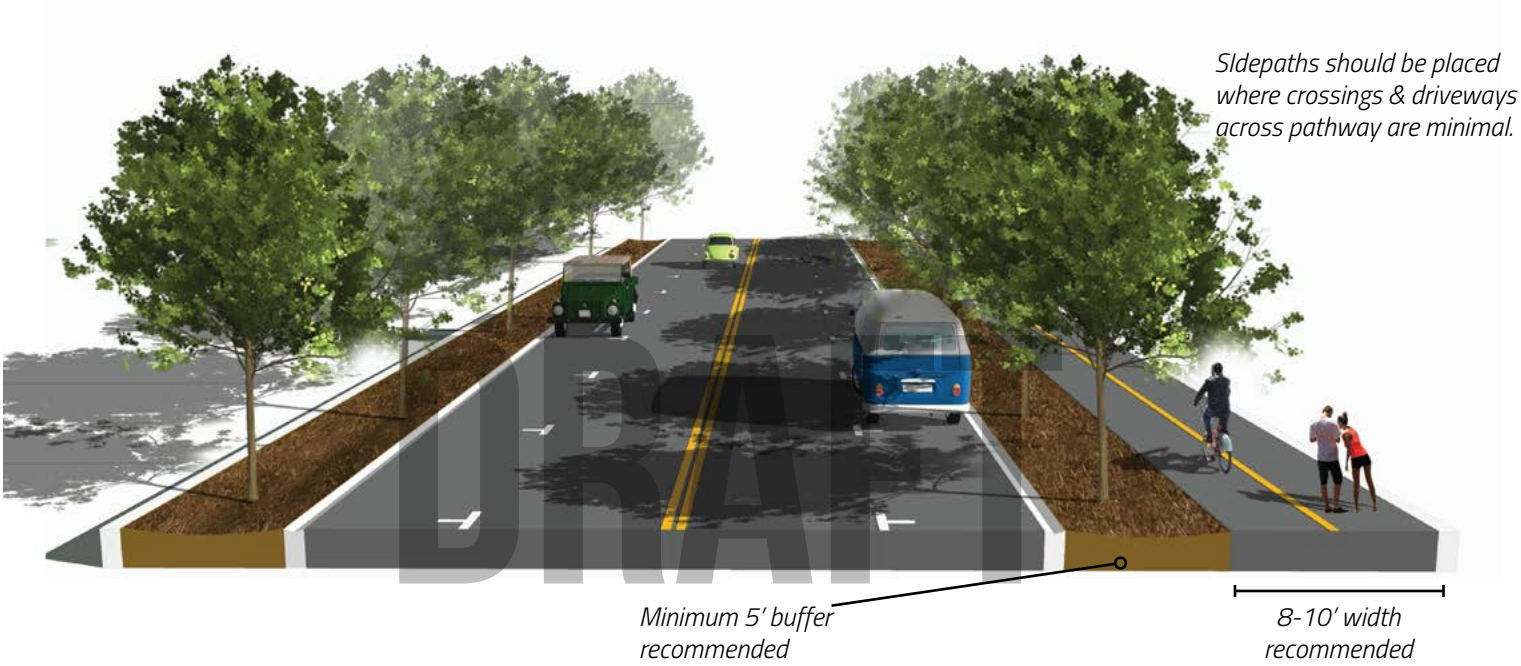
Additional Resources:

- Union Pacific Idaho & Utah Contact: Lance Kippen, 303.405.5039
- www.railstotrails.org
- FHWA: Rails-with-Trails: Lessons Learned, 2002
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Shared Use Path (Sidepath)

Also known as a sidepath, a shared use path is a two way travel path located immediately adjacent and parallel to a roadway. Sidepaths offer a high quality and safe experience for all ages and abilities, as opposed to on-street facilities. However, care must be taken to preserve continuity and not allow driveways and private parking to block and endanger sidepath users.



Average Width & Surfacing:

- 8-12 feet - paved, concrete or asphalt

Critical Considerations:

- Reducing driveway crossings to a minimum protects user safety and improves attractiveness/use of facility
- Maximizing buffer between street and non-motorized facility improves user comfort and safety
- Prohibit parking or other visual restrictions at intersections
- Road ROW must accommodate facility, else property acquisition required
- Plowing facility during snowy months requires specialized equipment

Planning Estimate Cost:

- $1,000,000/mile (w/o property acquisition)

Local Examples:

- Logan Boulevard Trail
- Logan Canyon Connector Trail (est. construction 2017)
- Green Canyon Access Trail (1900 North)

Additional Resources:

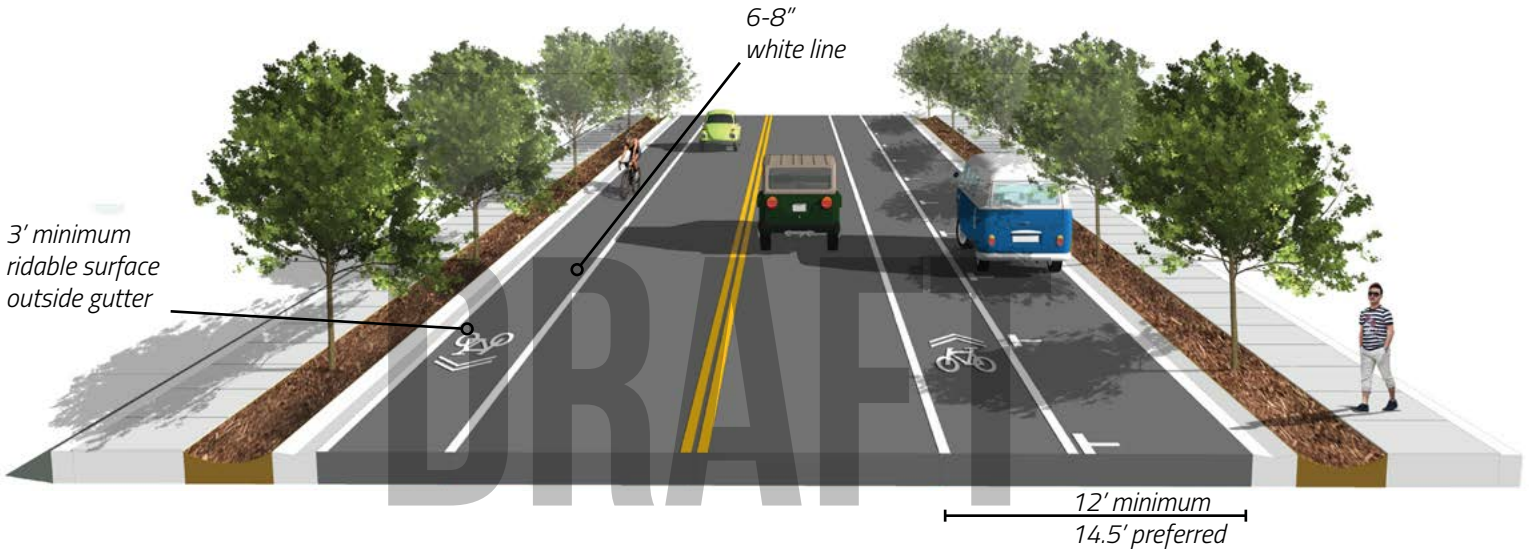
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Active Transportation Street : On-Street Bike Lane

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage.

The bike lane is typically located on the right side of the street,between the adjacent travel lane and curb, and is used in the same direction as motor vehicle traffic.



Average Width & Surfacing:

- 5-7 feet wide - asphalt surface similar to roadway

Critical Considerations:

- 4 foot minimum when no curb and gutter is present
- 5 foot minimum when adjacent to curb and gutter (3 feet more than the gutter pan width)
- 5 foot minimum if adjacent to on-street parking
- 7 foot maximum width for use adjacent to arterials with high travel speeds. Greater widths may encourage motor vehicle use of bike lane
- Configure as buffered bicycle lanes when a wider facility is desired

Planning Estimate Cost:

- $150,000/mile (w/o property acquisition)

Local Examples:

- 1000 N, Logan, UT
- 400 W, Logan, UT

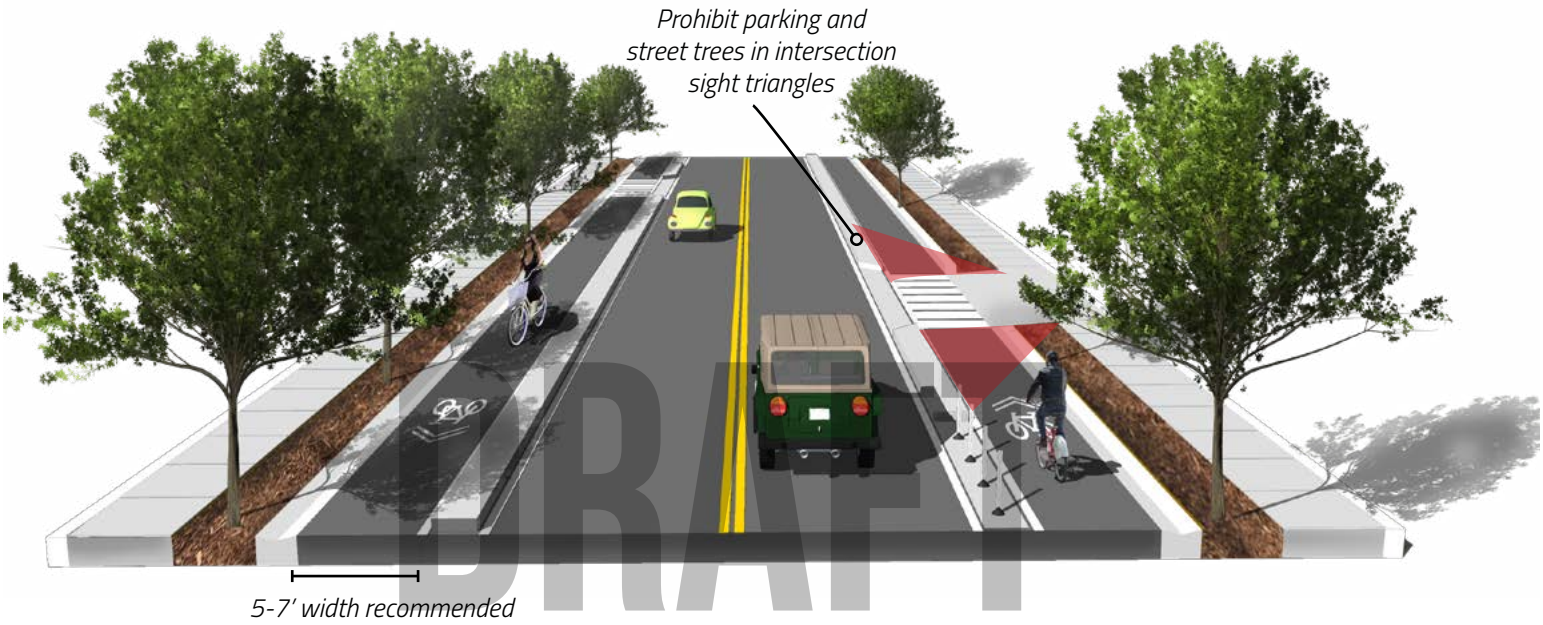
Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Active Transportation Street : Protected Bike Lane

Protected bike lanes are conventional bicycle lanes paired with a designated buffer space, physically separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. These buffers are designed to increase the space between the bike lane and the travel lane and/or parked cars.



Average Width & Surfacing:

- 5-7 feet wide - asphalt surface similar to roadway
- 2-3 foot separation from auto travel lane

Critical Considerations:

- Prohibit parking or other visual restrictions at intersections across raised protected bike lane
- Bollards, paint, movable planters, or raised barriers are possible separation options
- Plowing facility during snowy months requires specialized equipment
- This type of facility improves cyclist and pedestrian safety as well as the perception of safety

Planning Estimate Cost:

- $1,000,000/Mile (w/o property acquisition)

Local Examples:

- Grant Avenue, Ogden, UT
- 300 South, Salt Lake City, UT

Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Active Transportation Street : Two Way Protected Bike Lane

Two way protected bike lanes are physically separated facilities that allow bicycle movement in both directions on one side of the road. They may be configured as a raised facility or on street level, and be separated by a raised curb, flexible bollards, or a wide paint strip and parking

Average Width & Surfacing:

- Minimum 12 feet wide travel lane
- Minimum desired barrier: 3 feet
- Barrier can be painted separation to reduce cost

Critical Considerations:

- Prohibit parking near intersections to improve visibility
- Prohibit street trees or other impediments in 20' sight triangles around intersections.
- Plowing facility during snowy months requires specialized equipment
- This type of facility improves cyclist and pedestrian safety as well as the perception of safety

Planning Estimate Cost:

- $1,000,000/mile (w/o property acquisition)

Utilize When:

- Major destinations (schools / places of worship) are on one side of the street
- Streets with few crossing conflicts
- Desire for clear connection to other facility such as separated pathway or trail

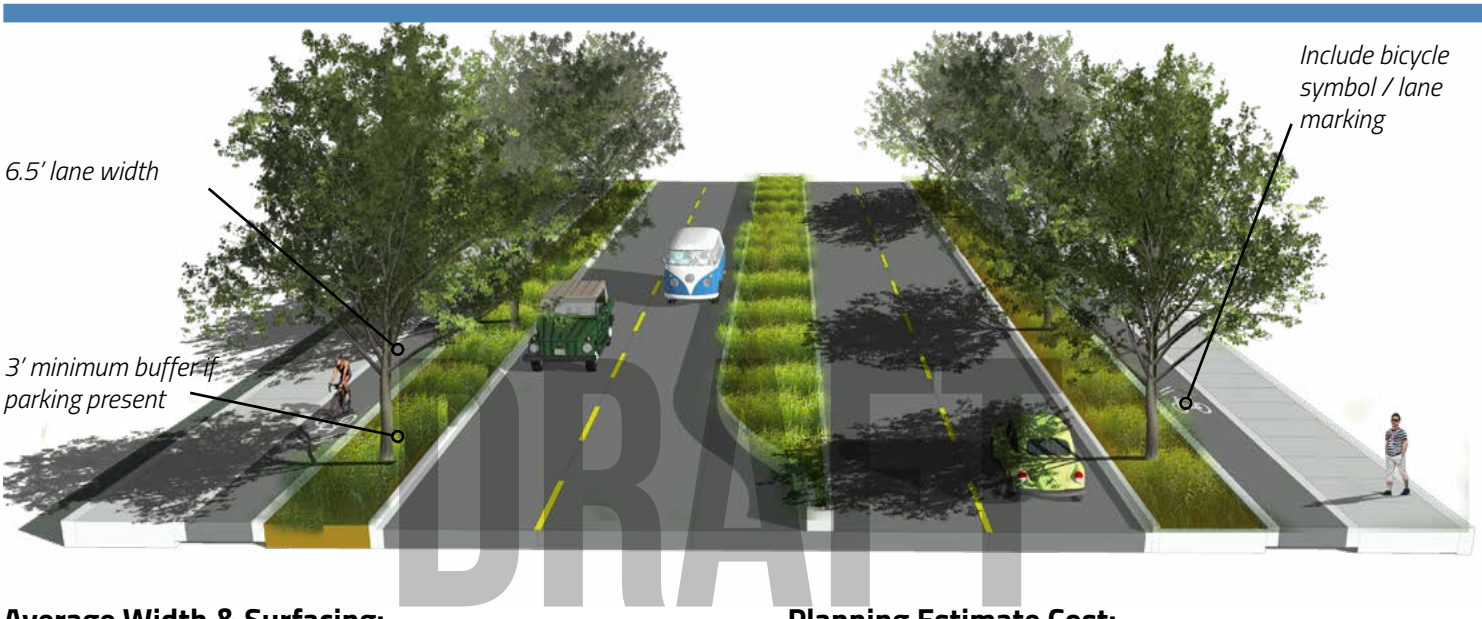
Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Active Transportation Street : Sidewalk Level Protected Bike Lane

Another form of protected bike lane is those created at the sidewalk level. These facilities are very common in Europe and provide a comfortable space for walking and bicycling, but require significant amounts of ROW to be implemented.



Average Width & Surfacing:

- 5-7 feet - asphalt surface similar to roadway, or concrete similar to sidewalk

Critical Considerations:

- Prohibit parking or other visual restrictions at intersections and crossings across raised protected bike lane
- Plowing facility during snowy months requires specialized equipment
- This type of facility improves cyclist and pedestrian safety as well as the perception of safety
- 3' roadway buffer required if on-street parking is present. Without on street parking, 1' buffer acceptable

Planning Estimate Cost:

- $1,000,000/mile (w/o property acquisition)

Utilize When:

- Adjacent roadways are high volume or high speed
- Streets where cars parking in the bike lane may be a concern
- Streets where high bicycle use is desired

Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Shared Roadway

These facilities are appropriate only in situations where automotive traffic is light enough that anyone would feel comfortable in the street.

On arterials or collector roads, a more developed bicycle facility should be utilized.

Average Width & Surfacing:

- Standard roadway cross sections may be used.

Critical Considerations:

- Install wayfinding signage to clearly mark designated rural cycling routes and destinations
- Routes should be signed to alert motorists to the presence of bicyclists in the roadway
- Establish policies for regular sweeping and maintenance of cracks and potholes to keep the road surface safe for bicyclists
- When possible, as funding is available or as roads are resurfaced, shoulders should be widened to separate bicyclists from vehicles
- As development occurs and traffic volumes increase, transition to separated facilities such as bike lanes or multi-use paths

Planning Estimate Cost:

- $880/mile (signage costs only)

Local Examples:

- Hollow Road connecting to Blacksmith Fork Canyon
- Smithfield Canyon Road

Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Spot Improvement Guidelines

Grade Separated Crossings

Grade separated crossings are by far the best way to ensure that active transportation users remain as safe as possible. Grade separated crossings allow a trail or active transportation facility to cross even the busiest highway without exposing users to any risk or discomfort posed by crossing a roadway at grade. However, the cost of a single grade separated crossing can cost a million dollars or more.

Underpass, Boulder CO


Overpass, Netherlands

Critical Considerations

- Groundwater levels and soil types can limit applicability
- Ideal to install as part of larger roadway project
- Existing roadway bridges or other structures can reduce costs of installation
- Lighting of space under roadway must be considered to improve safety and attractiveness
- Aesthetics of overpass may be poorly received by broader community
- UDOT and others do not prefer overpasses due to purported lack of use. (People prefer not to walk upstairs and down to cross a road)
- Large footprint is necessary to provide bicycle access through ramps at 8% grade or less

Local Examples

- Logan Canyon Gateway Trail underneath Highway 89 (Logan Canyon)
- 1st Dam to Bonneville Shoreline underneath Highway 89

Additional Information:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

At Grade Crossings

In most cases, trails and active transportation facilities will cross roadways at grade, meaning that people on foot and bicycle must be afforded a safe and low-stress method of crossing a roadway.


Bike Boxes, Portland OR


Intersection Crossing Markings, Missoula MT


Roundabout, Austin TX

image credit: NACTO

Bike Boxes

- Demarcated in green paint, bike boxes encourage cyclists to cue in front of traffic, reducing accidents from cars turning right and not seeing cyclists next to them.

Bike Lanes at Right Turn Only Lanes

- The solid boundary stripes of a bike lane should be marked with a single dashed line where cars will merge to a right hand turn lane. Where space allows, the bike lane should maintain its own space to the left of the right hand turn lane, or if space is limited, merged inside this lane.

Intersection Crossing Markings

- Dashed lines or dashed green bars are current best practices for indicating areas in crossings where potential for conflict exists and alerting motorists to the presence of people walking or on bicycle.

Roundabouts

- Roundabouts can slow traffic at crossings, reduce idling times and emissions, and provide safe access for people on foot and bicycle. See the design guidance links below for additional information.

Additional Resources:

- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- FHWA. Manual on Uniform Traffic Control Devices. 2009.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA, Small Town and Rural Multimodal Networks, 2016

IMPLEMENTATION TOOLBOX

Trailheads

As trails and active transportation facilities are developed throughout the valley, it is critical to consider how your community will access them, now and in the future. For on-street bicycle networks, trailheads may be unnecessary, but for projects like the Bonneville Shoreline Trail, each community should devote resources to planning for concentrated community access to the recreational tails system, or risk losing access to private development.

Neighborhood trailhead, Utah County

Design Considerations

- Trailheads can be designed as large, park-like facilities that serve the larger community, or simple neighborhood access points which serve only the local neighborhood
- Some conservation groups may be able to act as partners in land acquisition or license agreements to develop trailheads on non-civic property.

Design Elements

- Trailheads must include trail wayfinding signs and trail access
- Trailheads should consider including: parking, restrooms, rest and picnic areas, interpretive signage or kiosks, and/or water fountains.

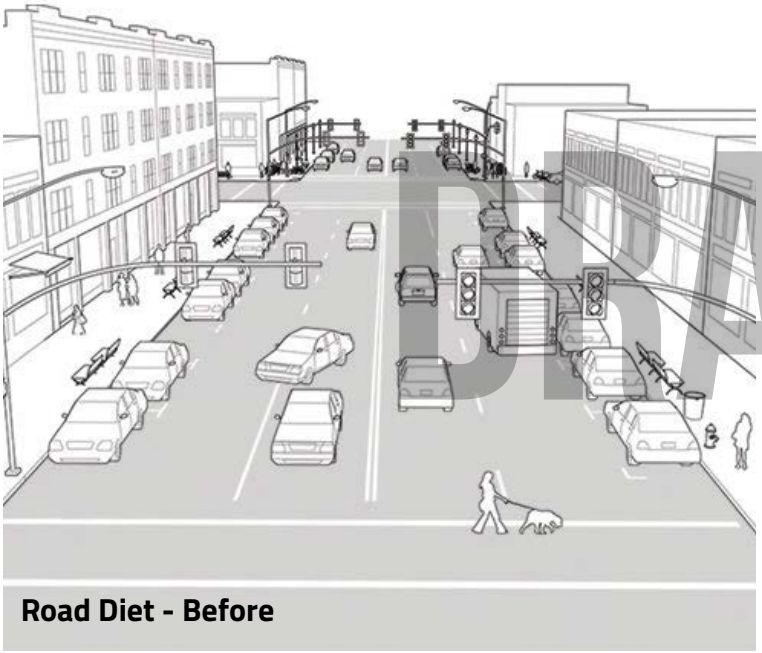
IMPLEMENTATION TOOLBOX

Treatments and Techniques

Lane Reconfiguration / Road Diet

Depending on a street's existing configuration, traffic operations, user needs, and safety concerns, various lane reduction configurations may apply. For instance, a four lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes.

Prior to implementing this measure, a traffic analysis should identify potential impacts.



Road Diet - Before

Road Diet - After

image credit: NACTO

Critical Considerations

- Lane configuration is dependent on context - middle turn lanes are not always merited when adjacent land uses are residential, park, or agricultural uses
- Reduction or slimming of lanes can provide needed real estate for on street active transportation facilities

IMPLEMENTATION TOOLBOX

Traffic Calming Measures

Motor vehicle speeds affect the severity of crashes that can occur on a roadway. Maintaining motor vehicle speeds closer to those of bicyclists greatly improves bicyclists' comfort on a street.

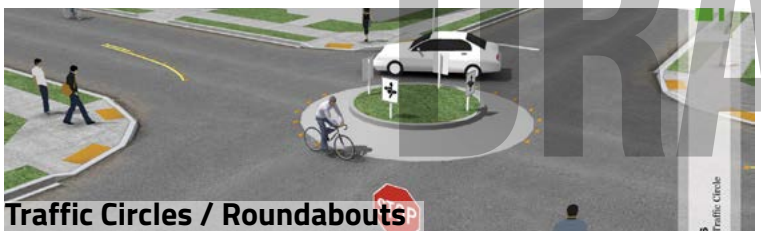
Slower vehicular speeds are often preferable for community residents who live alongside a street. Traffic calming measures consist of both vertical and horizontal calming measures.


Bulb Outs


Speed Tables / Raised Crosswalk


Chicanes


Speed Cushions


Traffic Circles / Roundabouts

Speed Humps

Horizontal Traffic Calming Measures

- Bulb outs and curb extensions temporarily narrow the roadway and slow passing traffic. They can also benefit pedestrians by reducing crossing distances
- Chicanes are a series of curb extensions, parking bays, or edge islands that require drivers to move in an 'S' pattern through narrowed travel lanes
- Traffic circles are raised islands placed at intersections that reduce vehicle speeds by narrowing turning radii and travel lane width

Vertical Traffic Calming Measures

- Speed humps are raised areas placed across both lanes. 14' long humps reduce impact to emergency vehicles
- Speed cushions are designed to have gaps to allow easier access for emergency vehicles
- Speed tables are long top speed humps that can be combined with pedestrian crossings
- For all vertical traffic calming, slopes should never exceed 1:10 or be under 1:25

Additional Resources

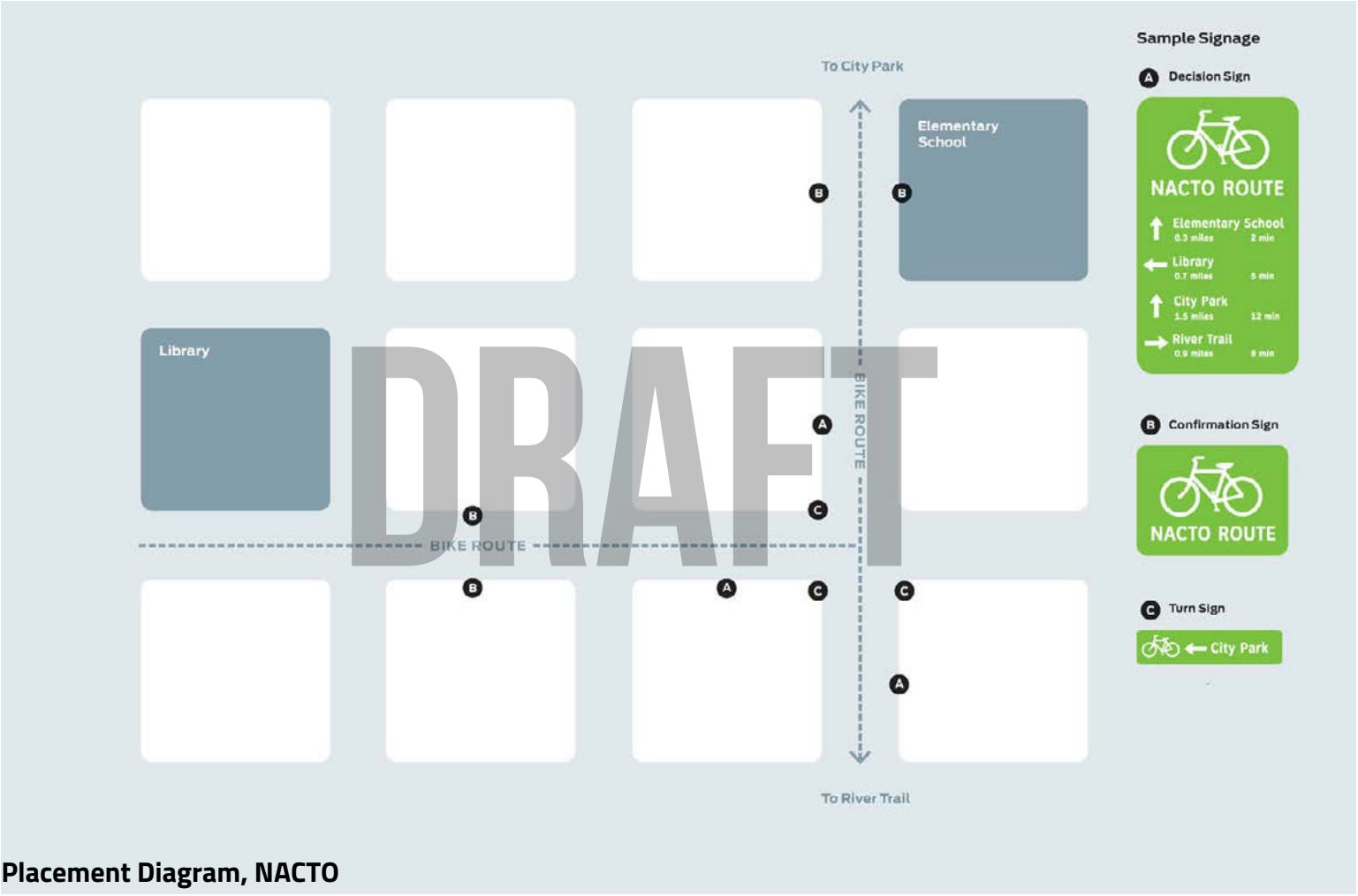
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- Alta Planning + Design and IBPI. Bicycle Boulevard Planning and Design Handbook. 2009.
- Ewing, Reid. Traffic Calming: State of the Practice. 1999.
- Ewing, Reid and Brown, Steven. U.S. Traffic Calming Manual. 2009.
- NACTO. Urban Street Design Guide. 2013.

IMPLEMENTATION TOOLBOX

Wayfinding Signage

Comprehensive signing and/or pavement markings provide a clear method of guiding cyclists to destinations along preferred routes.

Signs are placed at decision points along routes, at the intersection of two or more trails or active transportation facilities, and other key locations leading to and from a route.



Placement Diagram, NACTO

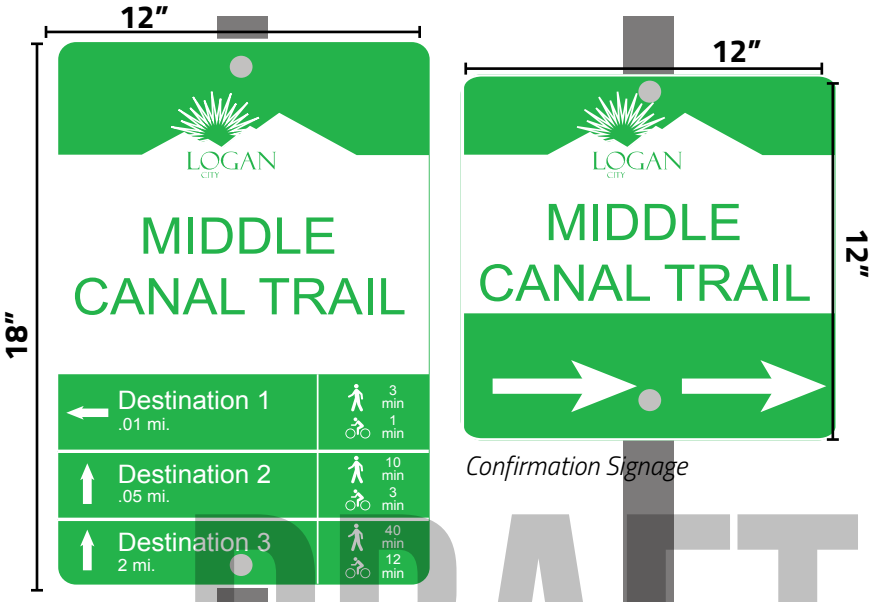
image credit: NACTO

Design Considerations

- MUTCD standards (section 9B.01) provides guidance for signage mounting height and lateral placement from edge of path or roadway. Additional standards are found in section 9B.20
- Decision signs should be ordered with the nearest destination at top, and farther destinations ordered below.

IMPLEMENTATION TOOLBOX

Wayfinding Signage Template



Wayfinding Signage

Confirmation Signage

Signage Placement

Cache County Wayfinding Signage Templates

This page illustrates trail signs templates currently utilized by Logan City. Additional cities are encouraged to adopt similarly styled sign packages to assist in a unified and legible trail wayfinding experience across the County.

Contact the Cache County Trails Planner for assistance in locating, funding, and designing a wayfinding package for your community.

Additional Resources:

- Russ Holley, Logan City Planner, and lead behind of Logan City's wayfinding signage program: russ.holley@logancity.org
- AASHTO. Guide for the Development of Bicycle Facilities. 2012.
- NACTO. Urban Bikeway Design Guide. 2012
- FHWA. Manual on Uniform Traffic Control Devices. 2009.

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Cost Estimates

The following pages contain cost estimate values for trail projects as of 2016. Where possible, sources are listed for the cost estimate for clarification or further investigation.

Important Note:
These figures are conceptual in nature only, and are only intended as an order of magnitude view of trail construction costs. Actual costs will certainly vary based on material and transportation costs at the time of bid.


Trail Building, Beaver Mountain

2016 Planning Level Cost Estimates

These very high level cost estimates are useful when applying for grant funding or budgeting the early stages of a project. When all that exists is a line on a map and public outreach, schematic and construction design documents, and bids are all still to come, these figures help develop a gross estimate of a future project's cost.

2016 Planning Level Cost Estimates

Category	Item	Unit	Unit Cost	Source	Notes
Facility	*Bike Lane*	*mile*	*$150,000.00*	*Utah Transit Authority*	
Facility	*Protected Bike Lane*	*mile*	*$1,000,000.00*	*Utah Transit Authority*	
Facility	*Separated Bike Path*	*mile*	*$1,000,000.00*	*Utah Transit Authority*	
Facility	*Sidewalk*	*per foot*	*$100.00*	*Utah Transit Authority*	
Facility	*Striped Crosswalk*	*ea*	*$1,000.00*	*Utah Transit Authority*	
Facility	*Hi - Viz Crosswalk*	*ea*	*$3,000.00*	*Utah Transit Authority*	*High Estimate*
Facility	*Raised Crosswalks*	*ea*	*$10,000.00*	*Utah Transit Authority*	*High Estimate*
Facility	*In-Pavement Flashing Crosswalk*	*ea*	*$25,000.00*	*Utah Transit Authority*	*High Estimate*
Facility	*HAWK Beacon*	*ea*	*$1,000.00*	*Utah Transit Authority*	*High Estimate*
Facility	*Crosswalk Illumination*	*ea*	*$40,000.00*	*Utah Transit Authority*	
Facility	*Streetlight*	*ea*	*$10,000.00*	*Utah Transit Authority*	
Facility	*Natural Surface Trail*	*mile*	*$7,000.00*	*Utah Conservation Corps*	*UCC crew costs + 25% for incidentals*
Facility	*Crushed Stone Trail*	*mile*	*$105,600.00*	*Tony Boone Trails*	*10' wide trail, @ 2$ psf*

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2016 Construction Level Cost Estimates

Once some preliminary designs are done, and you have an idea of the type of trail or active transportation facility that you are seeking to develop, the following figures help better determine rough costs of the facility.

2016 Construction Level Cost Estimates

Category	Item	Unit	Unit Cost	Source	Notes
Material - Surfacing	Base Course 4" thick, 10' wide	lf	$1.24	Logan City	Low Estimate
Material - Surfacing	Base course 6" thick, 14' wide	lf	$8.50	JUB	High Estimate
Material - Surfacing	Borrow - 14' wide	lf	$46.00	JUB	
Material - Surfacing	Road Base, 4" depth, 10' wide	lf	$2.42	Logan City	
Material - Surfacing	4" Thick Concrete, 10' wide	lf	$13.75	Cache County	$110 per cubic yard
Material - Surfacing	Asphalt	lf	$16.00	Logan City	
Material - Surfacing	Permanent Lane Striping	lf	$0.35	JUB	Does not include mobiliz. costs
Material - Surfacing	Lane Paint Symbol (Sharrow etc.)	ea	$75.00	JUB	Does not include mobiliz. costs
Material - Amenities	Benches	ea	$1,000.00	Alta Planning	Low Estimate
Material - Amenities	Benches	ea	$2,500.00	Alta Planning	High Estimate
Material - Amenities	Kiosk	ea	$5,000.00	Alta Planning	Low Estimate
Material - Amenities	Kiosk	ea	$10,000.00	Alta Planning	High Estimate
Material - Amenities	Wayfinding Signage	ea	$900.00	Alta Planning	
Material - Amenities	Bike Repair Stands	ea	$1,650.00	Alta Planning	
Material - Amenities	Bike Repair Stands	ea	$1,500.00	Utah Transit Authority	
Material - Amenities	Fencing - Wood	lf	$35.00	Alta Planning	
Material - Amenities	Fencing - Chain Link	lf	$35.00	Alta Planning	Low Estimate
Material - Amenities	Fencing - Chain Link	lf	$85.00	Alta Planning	High Estimate
Material - Amenities	Pedestrian Gate	ea	$1,000.00	Utah Transit Authority	

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2016 Labor Cost Estimates

From drawing a plan, to precisely built construction documents, or field verifying a final trail alignment, paid professionals are what make great trails happen. The following table outlines labor costs, both administrative and direct construction estimates.

2016 Labor Cost Estimates

Category	Item	Unit	Unit Cost	Source	Notes
Admin / Design	*UDOT Oversight*	*pct*	*5%*	*JUB*	*% of total project costs*
Admin / Design	*Prelim. Engineering and Environmental*	*pct*	*16%*	*JUB*	*% of total project costs*
Labor - Admin / Design	*Const. Engineering*	*pct*	*16%*	*JUB*	*16% of total costs*
Labor	*Utah Conservation Corps 4 Person Crew*	*wk*	*$2,800.00*	*Utah Conservation Corps*	*Actual Cost may be 1600 after Americorp matching funds*
Labor	*Rough Grading*	*lf*	*$0.32*	*Logan City*	
Labor	*Sub-Grading+ Compaction*	*lf*	*$0.52*	*Logan City*	
Labor	*Final Grading + Compaction*	*lf*	*$0.52*	*Logan City*	
Labor	*Final Finish Work*	*lf*	*$0.40*	*Logan City*	
Labor	*Equipment Operators*	*hr*	*$30.00*	*Cache County*	
Labor - Mobilization	*Mobilization - Crushed Gravel Trail*	*lf*	*$8.00*	*JUB*	
Labor - Mobilization	*Mobilization - Asphalt Trail*	*lf*	*$11.00*	*JUB*	
Labor - Mobilization	*Mobilization - Concrete Trail*	*lf*	*$13.00*	*JUB*	

2016 Operations and Management Cost Estimates

Clearing vegetation, replacing amenities and signage, and surface repair all require additional funding to maintain public facilities. The following tables provides some basic figures to be used by trail managers to estimate annual cost for public trail maintenance.

2016 Operations and Management Cost Estimates

Category	Item	Unit	Unit Cost	Source	Notes
O&M	*Bike Lane*	*mile*	*$6,500.00*	*UTA Tiger Grant*	
O&M	*Protected Bike Lane*	*mile*	*$6,500.00*	*UTA Tiger Grant*	
O&M	*Bike Path*	*mile*	*$6,500.00*	*UTA Tiger Grant*	
O&M	*Sidewalk*	*sf*	*$15.00*	*UTA Tiger Grant*	

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Funding Sources

	Name	Eligible Projects	Process Timing	Local Match Required	Funding Amount	Contact	Website
Local	Cache County RAPZ	Wide range of capital projects and operating expenses for publicly owned or operated recreation, parks, and zoos.	March	None	Up to $200,000 - Typically around $50-100k	Cameron Jensen (435) 755-1855 Cameron.Jensen@CacheCounty.org	https://www.cachecounty.org/rapz/
State and Federal	Utah Outdoor Recreation Grant	Outdoor recreation infrastructure including trails, trail facilities, all-ability outdoor rec facilities, natural-themed playgrounds, whitewater parks, not-for-profit camping facilities, etc. Cannot be used for project planning or the purchase of property.	Application period open May-June	Given as a 50/50 match. Up to 25% of total may be an in-kind match.	Various tiered grant sizes available from $20,000 up to $75,000 (will change in 2018)	Tara McKee (801) 538-8686 tmckee@utah.gov	http://business.utah.gov/programs/office-of-outdoor-recreation/office-of-outdoor-recreation-grant-program/
	Recreational Trail Program	Construction and maintenance of trails and facilities; trailheads; restroom facilities; trail signage; acquisition of property or easements; purchase / lease of trail construction and maintenance equipment; educational programs to promote safety and environmental protection.	Application period open February - May 1	50% (cash, in-kind services, volunteer labor, or donations)	Depends on federal funding	Utah DNR State Parks Chris Haller (801) 349-0487 chrishaller@utah.gov	http://stateparks.utah.gov/resources/grants/recreational-trails-program/
	Land & Water Conservation Fund	Ball fields, sports courts, spray parks, golf courses, public restrooms, swimming pools, skate parks, walking trails, land acquisition for recreation (must relate to the 2014 Utah State Comprehensive Outdoor Recreation Plan (SCORP))	Application period open February - May 1	50%	Depends on federal funding for the program	Utah DNR State Parks Susan Zarekarizi (801) 538-7496 susanzarekarizi@utah.gov	http://stateparks.utah.gov/resources/grants/land-and-water-conservation-fund/
	Community Development Block Grants (CDBG)	Planning, construction and maintenance of public facilities in cities and towns of fewer than 50,000 in population and counties fewer than 200,000 people	Must attend a workshop, held in October / November	None	Varies, typically up to $150,000	Bear River Association of Governments (435) 752-7242	http://jobs.utah.gov/housing/cdbg

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Funding Sources (cont.)

	Name	Eligible Projects	Process Timing	Local Match Required	Funding Amount	Contact	Website
State and Federal	FHWA Surface Transportation Block Grant Program (STBG) (includes set aside for Transportation Alternatives)	Construction, planning, and design of bicycle transportation facilities or pedestrian walkways; recreational trails; safe routes to school projects; environmental mitigation related to stormwater and habitat connectivity; vegetation management.	Varies	Can vary; up to 20%	Varies depending on federal funding & state allocation	Cache Metropolitan Planning Organization Jeff Gilbert (435) 755-1634 jeff.gilbert@cachecounty.org or UDOT Region 1	http://cachempo.org/?page_id=456 http://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm
	FHWA Congestion Mitigation & Air Quality (CMAQ)	Non-recreational bike/ped transportation improvements; projects that reduce air pollution or that shift traffic demand to other transportation modes.	Varies	Can vary; up to 20%	Varies depending on federal funding and state allocation	Cache Metropolitan Planning Organization Jeff Gilbert (435) 755-1634 jeff.gilbert@cachecounty.org or UDOT Region 1	http://cachempo.org/?page_id=456 https://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm
	Highway Safety Improvement Program (HSIP)	Safety projects that are consistent with the State's strategic highway safety plan (SHSP) , including pedestrian hybrid beacons, improvements that separate pedestrians from vehicles.	Varies	None specified	Varies depending on federal funding and state allocation	UDOT Region 1; Cache Metropolitan Planning Organization	https://safety.fhwa.dot.gov/hsip/
	Safe Routes to School	Qualification is within 2 miles of school: new sidewalks, off-street bike/ped facilities, pavement markings, connections between locations, bike parking facilities, traffic calming, installing school related signs.	Currently not available, but round of funding may take place in Fall 2017	None	Currently not available, but round of funding may take place in Fall 2017	UDOT Cherissa Olson, (801) 965-4486 cmolson@utah.gov	http://www.udot.utah.gov/main/

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Funding Sources (cont.)

	Name	Eligible Projects	Process Timing	Local Match Required	Funding Amount	Contact	Website
Non-Profit & Foundation Funding	National Forest Foundation On-the-Ground, Matching Awards Program	Recreation or restoration projects; trail maintenance, bridge and crossing construction or repair, installation of trail drainage structures; engaging youth/ underserved populations in stewardship; employing youth crews in restoration work.	Round 1: January Round 2: June	1:1 cash match	$500-$125,000 average is $30,000	Adam Liljeblad (406) 830-3357	https://www.nationalforests.org/grant-programs/map
	Doppelt Family Trail Development Fund (Rails-to-Trails Conservancy)	New multi-use trail construction, trail facility/ infrastructure (e.g., trailheads, bathrooms), improvements to existing trails; land acquisition; trail signage; significant maintenance tasks; capacity building for nonprofits or friends groups. (Preference given for rail-trails)	January	None	Project Transformation grant: $15,000 - $50,000; Community Support grant: $5,000 - $10,000	grants@railstotrails.org	https://www.railstotrails.org/our-work/doppelt-family-trail-development-fund/
	People for Bikes Community Grants	Bike paths, lanes, trails, bridges, rail-trails, mountain bike trails, bike parks, BMX facilities, bike racks, bike parking/storage; large-scale bicycle advocacy initiatives.	Two grant cycles a year, Spring and Fall; check website for process	None specified, but grant must not amount to >50% of project budget	$5,000 to $10,000	Zoe Kircos (303) 449-4893 x106 zoe@peopleforbikes.org	http://www.peopleforbikes.org/pages/community-grants