LOGAN CITY BICYCLE & PEDESTRIAN MASTER PLAN

Prepared for The City of Logan, Utah

Date: October 2015

Photo credit: Camilla Bottleberghe (bottom left, bottom right)

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alta
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AASHTO- American Association of State Highway and Transportation Officials

ACS- American Communities Survey

ADA- Americans with Disabilities Act

BPAC- Cache County Bicycle and Pedestrian Advisory Committee

BST- Bonneville Shoreline Trail

CMPO- Cache Metropolitan Planning Organization

CVTD- Cache Valley Transit District

FHWA- Federal Highway Administration

LAB- League of American Bicyclists

LTS- Level of Traffic Stress

NACTO- National Association of City Transportation Officials

NGO- Non-Government Organization

NPO-Non-Profit Organization

SRTS- Safe Routes to School

UDOT- Utah Department of Transportation

USACE- United States Army Corps of Engineers

USFS- United Stated Forest Service

USU- Utah State University

UTA- Utah Transit Authority

EXECUTIVE SUMMARY

The City of Logan will create and promote a convenient, accessible, well-maintained, and integrated bikeway and trail system that provides residents with attractive options for transportation and recreation. This system will help balance the city's multi-modal transportation network by comfortably accommodating users of all abilities and link neighborhoods, Utah State University, recreation areas, commercial centers, and adjacent communities while improving collective health and air quality.

INTRODUCTION

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Logan is already walking and biking more than many communities in Utah and around the nation, however, there are many reasons for Logan to invest in active transportation infrastructure and programs. Logan possesses many desirable traits that support biking and walking such as an active population, terrific access to public lands, a bustling university, and a thriving downtown.

By focusing on improving physical bicycling and walking conditions while simultaneously educating and encouraging residents to utilize active transportation, Logan has the potential to become a national leader in active transportation for communities its size. The Logan Bicycle and Pedestrian Master Plan seeks to establish a strategic road map for realizing this potential.

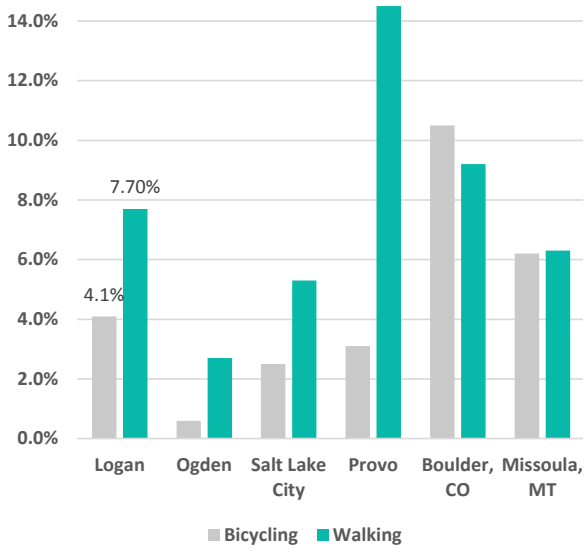
Vision Statement

The City of Logan will create and promote a convenient, accessible, well-maintained and integrated bikeway and trail system that provides residents with attractive options for transportation and recreation. This system will help balance the city's multi-modal transportation network by comfortably accommodating users of all abilities and link neighborhoods, the University, recreation areas, commercial centers, and adjacent communities while improving collective health and air quality.

Plan Goals

1. Develop bicycling and walking facilities to support people of all ages and abilities.
2. Design proposed facilities to optimize safety for people walking and bicycling.
3. Support, encourage and promote bicycling and walking through local events and programs.
4. Seek to increase bike, walk and transit trips while decreasing vehicle miles traveled (VMT) in Logan to improve local air quality, economics, overall health and quality of life.
5. Link Logan's major destinations and neighborhoods with comfortable biking routes, walking routes and supporting facilities.
6. Leverage funding for and invest in active transportation infrastructure.

ACS JOURNEY TO WORK MODE SHARE



PUBLIC PROCESS & EXISTING CONDITIONS ANALYSIS

PUBLIC INVOLVEMENT

The Planning Team conducted a variety of types of public outreach to engage the public in the development of the Logan City Bicycle and Pedestrian Master Plan.

These included stakeholder interviews with

- Aggie Blue Bikes
- UDOT Region 1
- Cache Valley Visitor's Bureau
- The Bicycle and Pedestrian Advisory Committee

The Planning Team also conducted four public open houses or workshops throughout the planning process. These included:

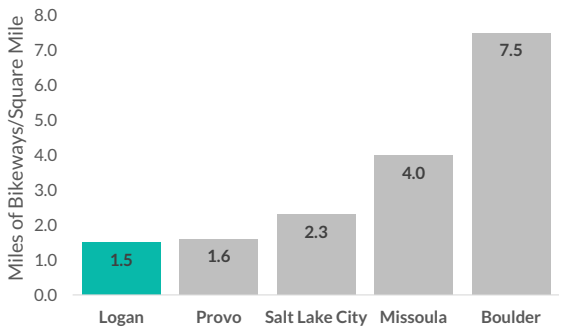
- An open house with the Logan City Neighborhood Council
- A table and presentation material at the USU Open Streets
- An open house at an Adams Neighborhood Meeting
- A recommendations open house a the Logan City Library

EXISTING CONDITIONS ANALYSIS

The existing conditions analysis examined a variety of data such as census data, Utah Travel Study data and survey responses, field observation, and public input to assess the existing bicycling and walking conditions in Logan.

The analysis determined a number of key findings:

1. Logan is relatively under served regarding access to biking and walking facilities compared to similar cities in the Mountain West.
2. State-owned roads such as Main Street, 200 N and 400 N present major obstacles to bicycle and pedestrian connectivity within the City.
3. Developing a safe bicycle and pedestrian connection to Logan Canyon is critical.
4. Connectivity between Downtown and the USU campus is also critical.



RECOMMENDATIONS

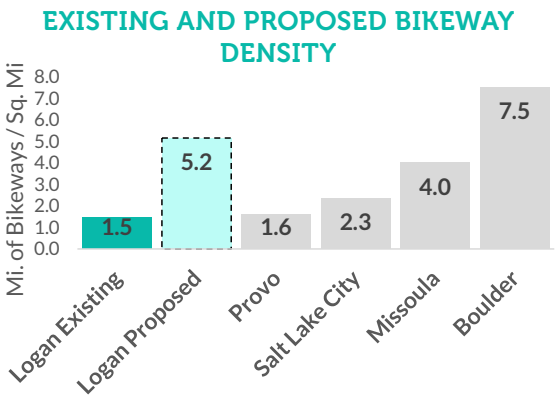
PROGRAM RECOMMENDATIONS

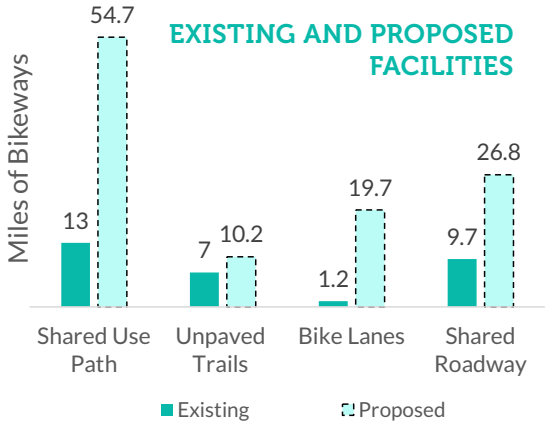
The Planning Team developed a number of program recommendations to aid in education, encouragement and evaluation efforts supporting active transportation. These programs have been developed specifically to address the needs discovered through the existing conditions analysis and to compliment Logan's existing bicycle and pedestrian programs and activities such as Bike to Work Day, Aggie Blue Bikes and UDOT's Road Respect.

EDUCATION	*ENCOURAGEMENT*	*EMPOWERMENT*
Education and Awareness Campaigns	Bike/Walk Focused Community Events	Formation of a NGO or Non-Profit Organization
Educational Courses	Commuter Incentive Program	*EVALUATION*
Volunteer Ambassador Program	Bicycle Mentorship Program	Annual Count Program
Bicycle Hub or Station	Create Maps	Annual Report
Create How-to Guides	SRTS Activities	Parent Survey SRTS
City-Wide Wayfinding and Signage Program	Walking School Bus/Bicycle Train/ School Pool	Hand Tallies SRTS
	Bicycle Valet Program	
	Road Respect Community Designation	
	Bicycle Friendly Community Designation	
	Bicycle Friendly University Designation	
	Walk Friendly Community Designation	

THE RECOMMENDED BICYCLE AND PEDESTRIAN NETWORK

The existing conditions analysis illustrated that Logan is under served by bicycle and pedestrian facilities relative to similar Utah communities. The Logan Bicycle and Pedestrian Plan seeks to remedy this by proposing a dense and diverse network of bikeways and trails. In addition, the plan prioritizes up to 33 miles of sidewalk infrastructure as "priority" and "near-term" projects. The charts below illustrate the proposed bikeway and trail density in relation to existing facilities and similar communities.

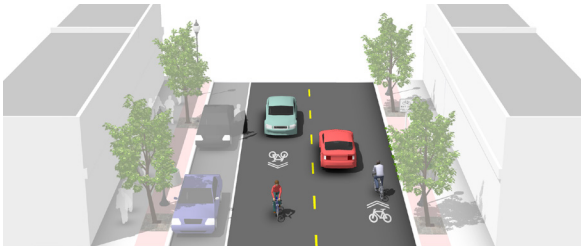




PROPOSED FACILITIES

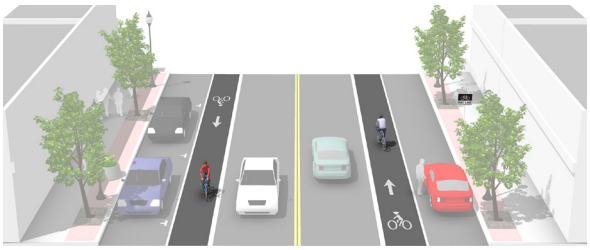
SHARED ROADWAYS & BIKE BOULEVARDS

Shared roadways are low-volume streets suitable for bicycle travel. Shared roadways are often marked with bike route signage and shared lane markings on the pavement. Bike boulevards are shared roadways with special enhancements, such as wayfinding or traffic calming that prioritize bicycle travel.



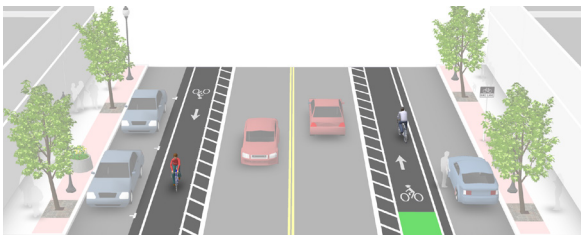
BIKE LANES

A bike lane provides a striped and stenciled lane for one-way travel on a street or highway. 500 North is currently the only bike lane in Logan.



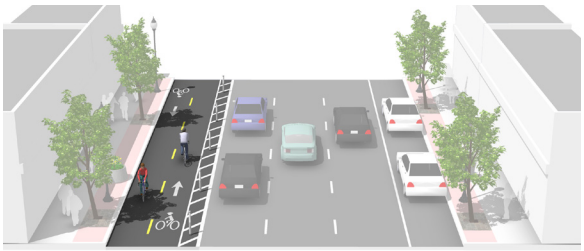
BUFFERED BIKE LANES

Buffered bike lanes are similar to a bike lane but they provide additional width to 'buffer' the bike lane, on the side of the adjacent travel lane and/or parking lane.



PROTECTED BIKE LANES

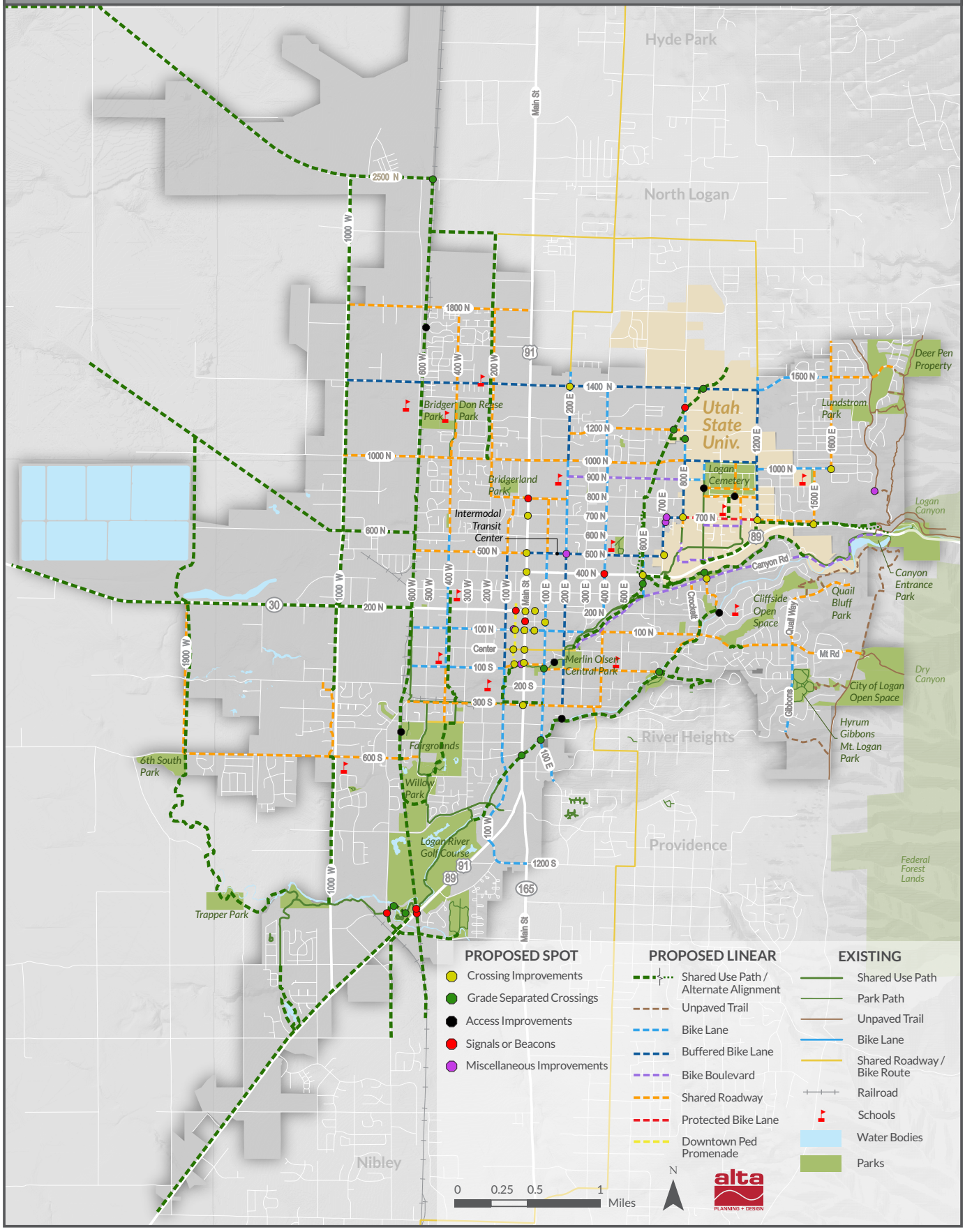
Protected bike lanes operate similar to a traditional bike lane but they include physical protection for bicyclists in the form of parked cars, curbs, delineator posts, or medians. Protected bike lanes can be one- or two-way depending on the configuration and compatibility with the adjacent street.



SHARED USE TRAILS AND UNPAVED TRAILS

Shared use trails are pathways that can accommodate bicyclists, pedestrians and sometimes other potential users. Unpaved trails are paths that can be utilized in constrained or environmentally sensitive areas where shared use trails may not be appropriate.

Citywide Existing & Proposed Bicycling & Walking System



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INTRODUCTION

The City of Logan will create and promote a convenient, accessible, well-maintained, and integrated bikeway and trail system that provides residents with attractive options for transportation and recreation. This system will help balance the city's multi-modal transportation network by comfortably accommodating users of all abilities and link neighborhoods, Utah State University, recreation areas, commercial centers, and adjacent communities while improving collective health and air quality.

1.1 MAKING THE CASE FOR ACTIVE TRANSPORTATION

OVERVIEW

Active transportation is defined as "human-powered modes of transportation, primarily walking and bicycling". In addition to providing a low-cost and accessible form of transportation, walking and biking offers many additional benefits to communities that choose to plan and invest in developing comprehensive and connected active transportation systems. Logan, Utah is uniquely positioned to realize many of these benefits such as improved quality of life for residents, enhanced community health, improved air quality and even economic benefits. The Logan Bicycle and Pedestrian Master Plan establishes a blueprint for developing a system and culture where bicycling and walking are integral parts of Logan's lifestyle.

WHY IS ACTIVE TRANSPORTATION IMPORTANT FOR THE CITY OF LOGAN?

Health

Walking and bicycling have profound effects on the health of individuals and communities. Levels of diabetes, high blood pressure, and obesity are all lower in cities with higher percentages of commuters bicycling or walking to work. Likewise, where commuters bicycle or walk to work in higher percentages, more of the population is meeting the recommended amount of weekly physical activity.

Cities with higher rates of bicycling and walking to work also have a higher percentage of the population meeting recommended levels of physical activity, and have lower rates of obesity, high blood pressure, and diabetes.[1]

Safety

Safety also has a strong relationship with bicycling and walking levels. In cities where a higher percent of commuters walk or bicycle to work, corresponding fatality rates are generally lower. This is likely due to motorists being more accustomed to sharing the road with bicyclists and more aware of pedestrians at crossings.

Cities with the highest rates of pedestrian fatalities are among those with the lowest levels of walking. Similarly, cities with the highest levels of bicycling generally have the lowest bicycle fatality rates[2]

Winter Air Quality

During winter inversions, Cache County suffers from some of the worst short term air quality in the nation. Encouraging biking and walking trips is one way to help mitigate this community-wide problem. Convincing Logan residents to bike or walk in January may seem difficult but it may actually be easier than you think. Studies have shown that commuter bicyclists can actually breathe in less harmful toxins by taking less congested routes than bus commuters. In addition, walking and biking can be quite popular in northern climates. On a statewide basis, nine of the top ten states for biking and walking activity are located in "northern" climates.

Automobile emissions are responsible for 50% of ground-level ozone, the main ingredient in smog.[3]

1 Alliance for Biking and Walking, Biking and Walking in the United States 2014 Benchmarking Report, 70

2 Alliance for Biking and Walking, 80

3 http://cleartheairchallenge.org/downloads/ctac-factsheet.pdf

Economics

Bicycling and walking can also have positive impacts on local economies in a variety of ways. Job creation through new bicycling and walking infrastructure, tourism, retail sales, property values and worker productivity can all be enhanced through active transportation.

Bicycle and pedestrian infrastructure projects create up to double the jobs (11-14) of road infrastructure projects (7) per $1 million spent.[1]

Quality of Life

Bicycling and walking are also important ways to improve quality of life for existing and prospective Logan residents. According to the National Association of Home Builders, trails consistently rank in the top five amenities desired by prospective home buyers.

In a survey of recent transplants to Portland, OR, 62% said that the city's bike-friendliness was a factor in their decision to move there. [2]

Utah State University

Utah State University (USU) is one of the major employers and key destinations in all of Cache County. College students are one of the most likely demographics to take walking and biking trips. Providing safe, convenient routes to facilitate trips to and from student housing, recreation areas, social destinations and academic buildings will be one of the primary focuses of the Logan Bicycle and Pedestrian Master Plan.

"One of the most significant directions that came from the USU Recreation and Open Space survey was the strong desire by USU students and employees for trails."

- USU Recreation & Open Space Master Plan

1 *Garrett-Peltier, H., 2010 - Estimating the employment impacts of pedestrian, bicycle, and road infrastructure, Political Economy Research Institute, University of Massachusetts, Amherst*

2 *City of Portland Bureau of Transportation, 2009 - Portland Bicycle Maps and Information Survey*

Types of Bicyclists

It is important to consider bicyclists of all skill levels when planning a network of bikeways. Infrastructure should allow for a comfortable experience for the greatest number of users and user types as possible. Figure 1.1 represents the four general types of bicyclists people identify as.

- **Strong and fearless bicyclists** will typically ride anywhere regardless of road or weather conditions, ride faster than other user types, prefer direct routes, and will typically choose to ride on the road, even if shared with vehicles, over separate bikeways like shared use trails.
- **Enthused and confident bicyclists** are fairly comfortable riding in dedicated bikeways but usually choose low traffic streets or shared use trails when available.
- **Interested but concerned bicyclists** (approximately 60% of population) comprise the majority of the population and are typically those who only ride on low traffic streets or shared use trails in fair weather. This demographic would like to bike more but have concerns such as safety.
- **"No way, no how"** people will not ride a bicycle under any circumstances.

According to a league of American Bicyclists survey, 53% of American adults would like to bike more. Of this demographic, almost 1/3 are dissatisfied with the quantity and condition of trails and bikeways in their area. The Logan Bicycle and Pedestrian Master Plan seeks to address this issue by recommending a denser and more comfortable network of bikeways in Logan.

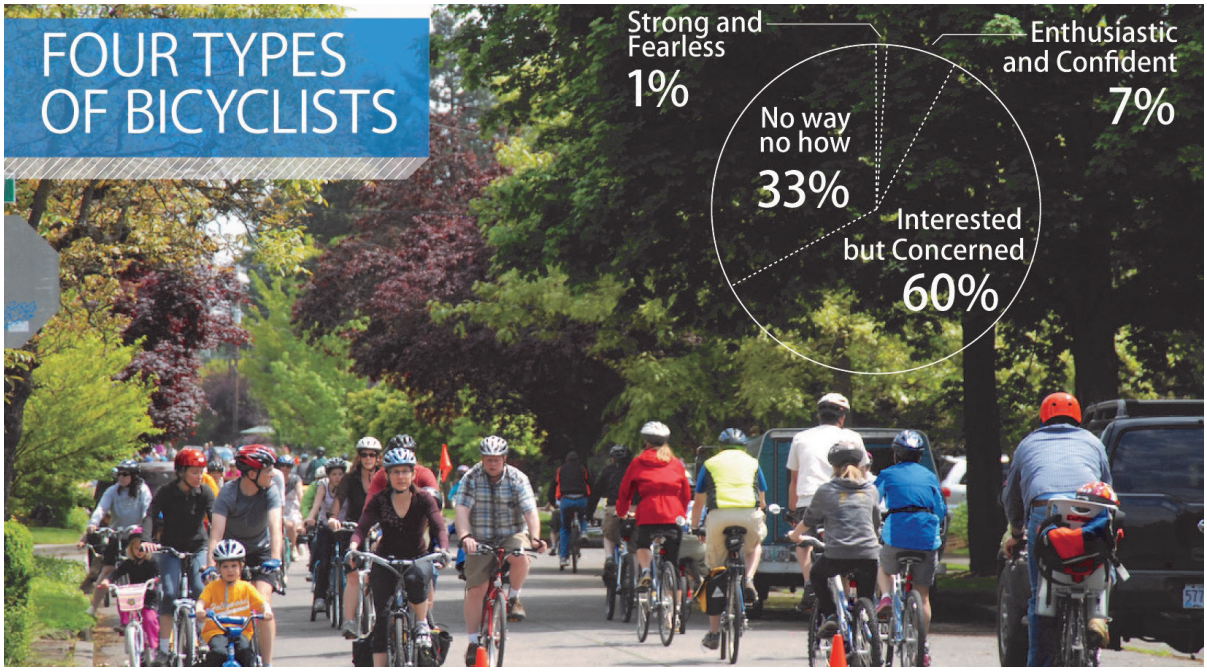

Figure 1.1: Four types of Bicyclists

1.2 VISION & GOALS

THE VISION FOR A BIKE-ABLE, WALKABLE LOGAN

Logan's Bicycle and Pedestrian Master Plan seeks to develop a cohesive vision for future facilities and programs to encourage frequent walking and biking among Logan residents. The Logan Bicycle & Pedestrian Plan Steering Committee has identified the following vision statement for the plan.

Vision Statement

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EXISTING CONDITIONS ANALYSIS

Cache County possesses a higher percentage of biking and walking trips than all other Utah Counties as measured by the 2012 Utah Travel Study.

2.1 DEMOGRAPHICS

AMERICAN COMMUNITIES SURVEY DATA

Commute to Work

Based on 2008-2012 American Community Survey (ACS) data, Logan boasts a high number of residents currently commuting to work on foot or by bike. Logan exceeds the statewide walking mode share (the percentage of the population traveling by a specific mode) by 2.5 times and exceeds the overall Cache County walking mode share by more than 1.7 times. Logan's biking mode share is equally impressive outperforming Utah and Cache County mode shares by 5 times and 1.8 times respectively. Logan's significant student population and lower than average household income likely influence these high levels of biking and walking.

Although Logan's biking and walking trips are high when compared to state and county averages, comparisons with similar university towns illustrate a more modest level of success. Comparing Logan to an established national leader in bicycle and pedestrian planning such

Table 2.1: ACS Commute Data

ACS Commute (Journey to Work) Data 2012: 5-Year Estimates	Utah	Cache County	Logan
Mode Share			
Walking	2.8%	4.5%	7.7%
Bicycling	0.8%	2.3%	4.1%
Driving*	88.1%	85.7%	80.4%
Travel Time to Work (mean, all trip modes)	21.4	16.8	14.2

Data: American Community Survey (ACS) Five-Year Estimates, 2008-2012

Driving mode share combines single occupancy vehicles and carpools

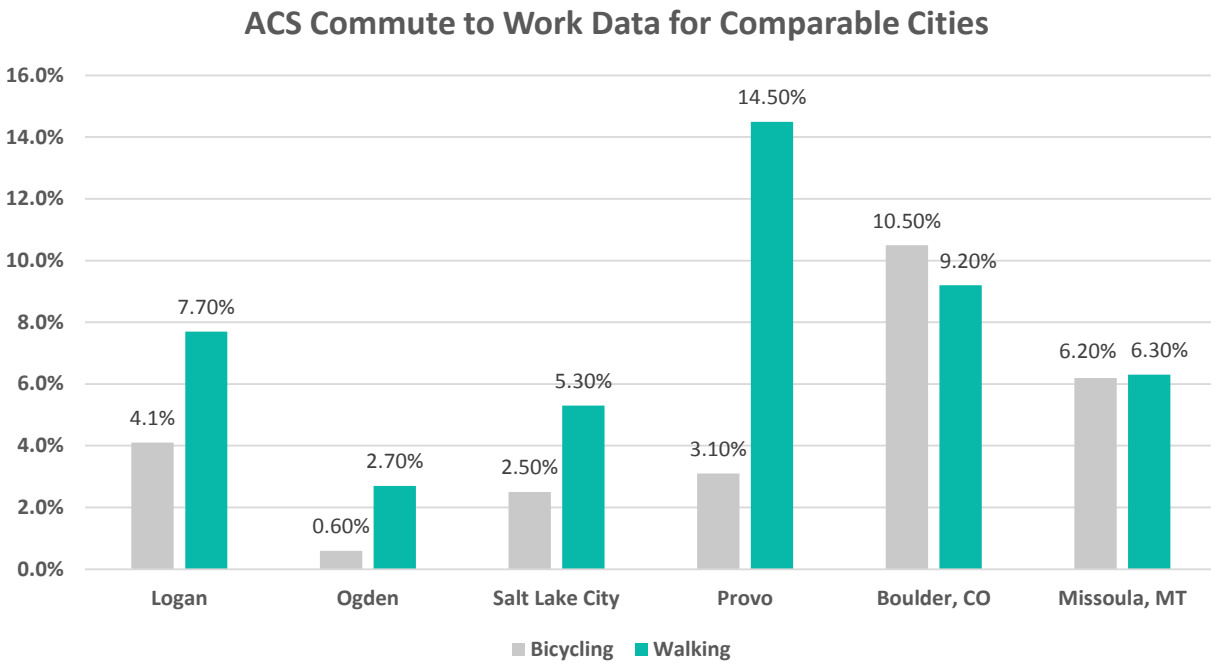


Figure 2.1: Comparable City Bicycling and Walking Mode Shares

as Boulder, Colorado demonstrates the work needed to develop a community committed to active transportation.

UTAH TRAVEL STUDY (2012)

Journey to Work data from the ACS is an important and consistent data source to measure changes in mode share over time; however, this data represents only one type of trip and does not accurately reflect overall levels of bicycling and walking for all trip purposes. For example, The National Household Transportation Survey shows that on average, for every bicycle commute trip there are 1.6 other utilitarian trips, 0.5 bike to school trips and 4.8 social/recreational trips taken.

The 2012 Utah Travel Study was developed as a statewide survey and report in conjunction with the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA) and several statewide metropolitan planning organizations, including the Cache Metropolitan Planning Organization (CMPO). The primary tool of the study was the household travel diary survey which was supplemented by additional surveys including the Long Distance Survey, the College Travel Diary, Bike/Pedestrian Debrief Survey, the Bike/Pedestrian Barriers Survey, the attitude Debrief survey and the Residential Choice Stated Preferences Survey. The study measured trips for all modes and all purposes (not just journey to work) and thereby paints a clearer picture of current transportation habits beyond ACS data.

As Figure 2.3 shows, Logan exceeds state and county averages for percentage of trips taken on foot and by bike. These high percentages of non-motorized trips are undoubtedly bolstered by the presence of Utah State University and the large number of students who don't own a car or don't use one frequently. USU has intentionally limited on-campus parking to discourage automobile trips and promote walking, bicycling, and transit trips. In addition, USU students benefit from many housing options near campus.

Other factors likely play a role in Logan's high number of non-motorized trips. Logan's relatively compact layout gives many residents the option of accessing major destinations (such as Downtown or USU) by walking or bicycling rather than driving. Average walking trips in the U.S. cover 1.1 miles while average biking trips cover 3.1 miles.

Traditional gridded streets are predominant throughout much of the central part of the City. This provides route options for people choosing to walk or bike to local destinations. In relation to the other Utah colleges and universities, USU students tend to bike and walk more than all other institutions surveyed. USU's non-motorized (bicycling and walking) trip mode shares totaled 41% of all home to college trips.

Although Logan (and USU) already exhibit high levels of walking and biking, there is great room for progress. The

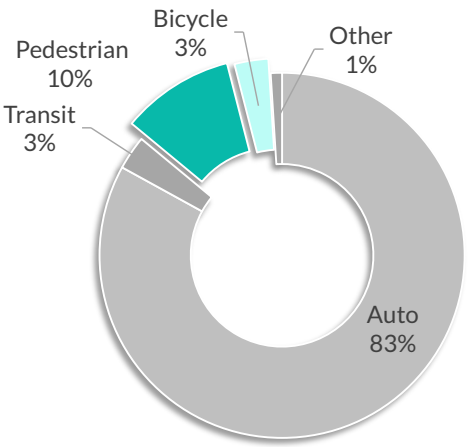


Figure 2.2: Logan City Trip Mode Share- Utah Travel Study

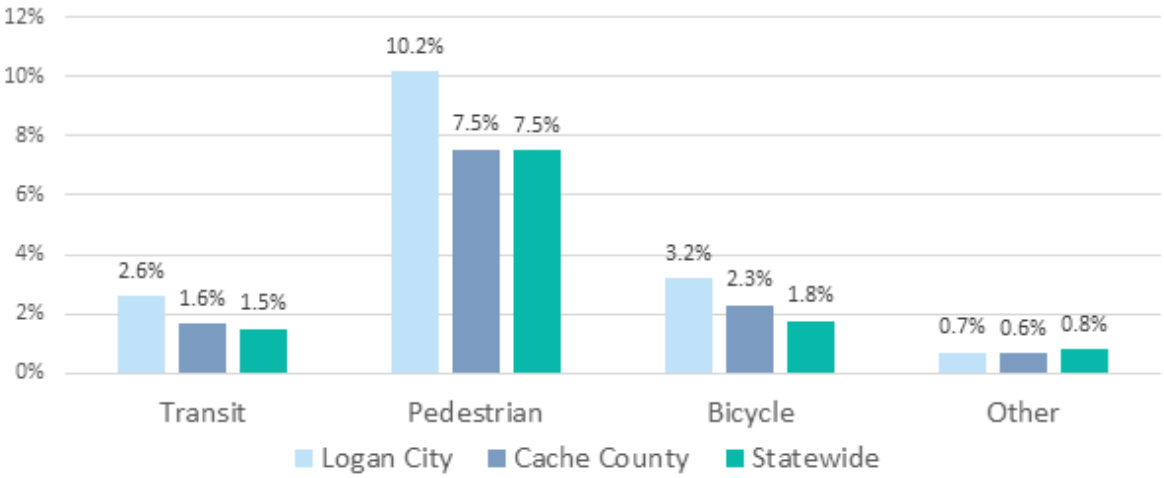


Figure 2.3 – Utah Travel Study Mode Share Comparison

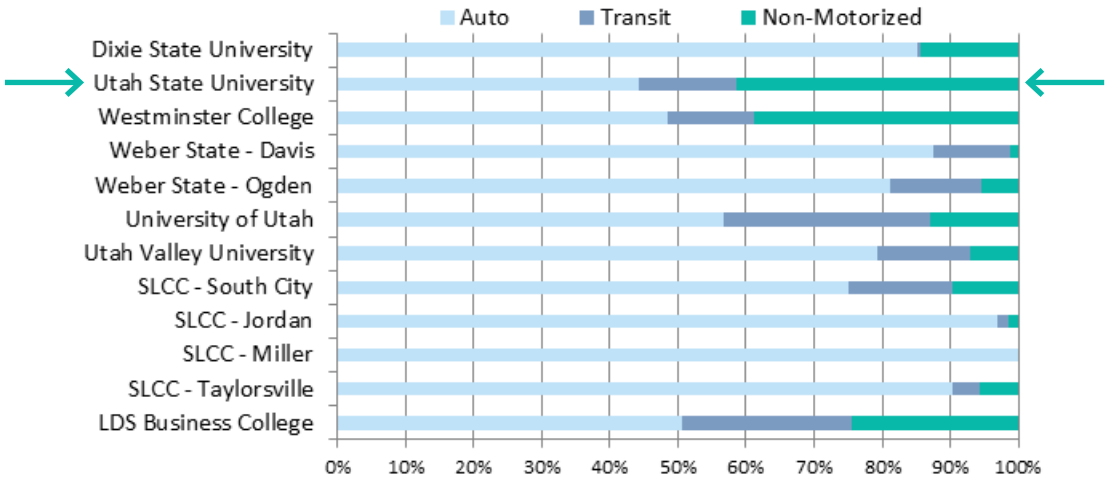


Figure 2.4– Utah Travel Study Home Based College Trip Mode Shares

Utah Travel Study data shows that 63% of all Cache County trips are less than or equal to 3 miles. This presents a tremendous opportunity to transform many of these short trips into biking or walking trips. Many of Logan's major destinations, such as downtown and USU, are centrally located and in normal biking or walking trip distance for many neighborhoods.

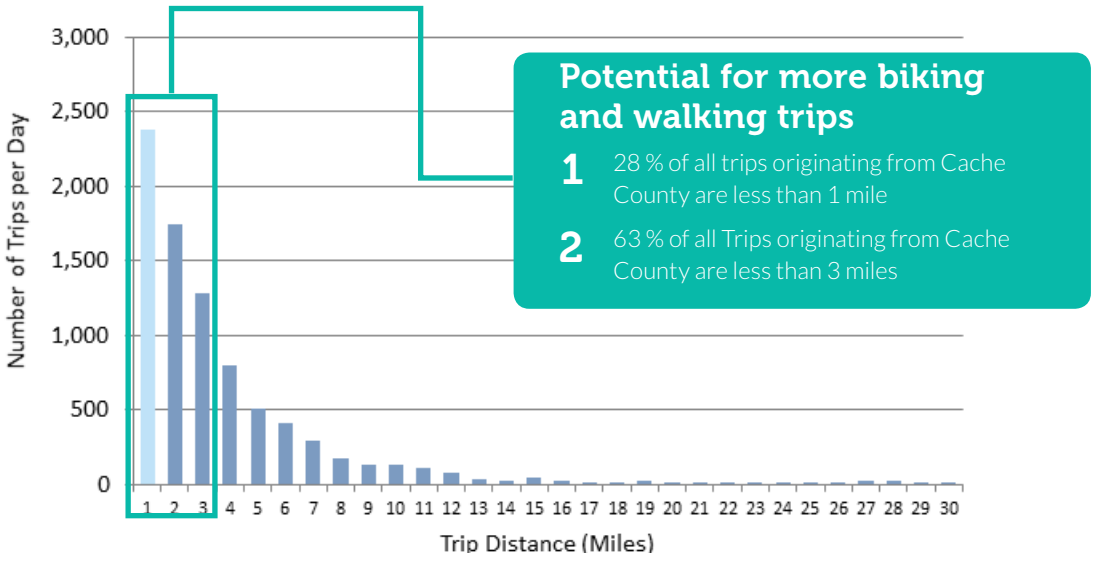


Figure 2.5– Utah Travel Study: Cache County Trip Distances

2.2 Existing Plans, Codes & Policies

Logan City One-Way Couplet Feasibility Study (2013)

Increasing congestion along Logan's Main Street led the city to undertake a feasibility study to determine the potential benefits and constraints related to implementing a one-way couplet system along and adjacent to Main Street. The study evaluated multiple scenarios including solutions that did not proposed a one-way couplet system. Criteria including multi-modal circulation, economic development, property impacts and costs were scored and tabulated to evaluate the potential success of the various scenarios. The highest scoring scenario recommended a pair of one-way couplets. Main Street and 100 West would serve as three lane one-way streets with Main Street traveling northbound and 100 West traveling southbound. 100 East and 200 East would make up the second pair of one-way streets. 100 East and 200 East would serve as 2-lane streets with one-way traffic traveling southbound on 100 East and northbound on 200 East. The preferred scenario opens up new opportunities for enhanced bicycle and pedestrian accommodations along the couplet streets; however, there are drawbacks. Speeds are likely to rise creating conditions less compatible with bicycling and walking. Access and economic considerations with Downtown businesses must also be taken into account.

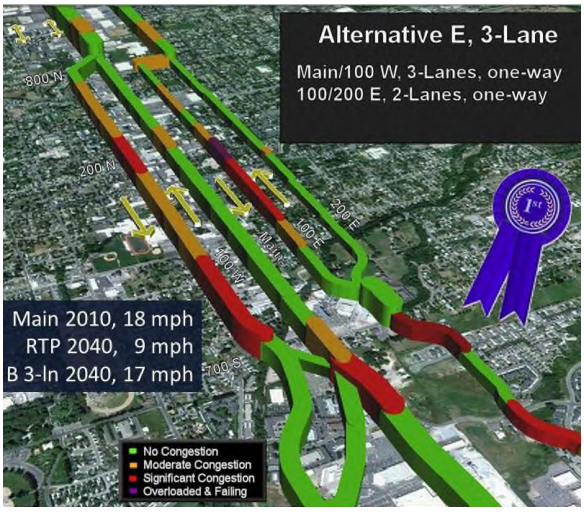


Figure 2.6: Logan One-way Couplet Feasibility Modeling

Adams Neighborhood Specific Plan (2013)

The Adams Neighborhood Specific Plan is the guiding document for one of Logan's oldest and most densely populated neighborhoods. The plan presents many important ideas and goals that are relevant to the development of the Logan Bicycle and Pedestrian Master Plan. These include general propositions such as:

- Create safer pedestrian crossings at all intersections, improve unmarked crosswalks and decrease crossings distances where feasible.
- Consider 200 East as a regional option for north/south travel while maintaining the character of the neighborhood.
- Remove excess asphalt in the center of roads and replace with landscaped medians, beginning with 900 North.
- Dedicate more resources to non-automobile infrastructure to promote healthy lifestyles, less pollution and dependence on natural resources.
- Provide additional trails including exploring canal corridors and ensure connectivity with other trails.
- Complete sidewalks gaps in the Adams neighborhood.
- Improve pedestrian crossings on 200 East, especially at 700 North.
- Request a warrant study from UDOT for a new traffic signal at the intersection of US-89 and 400 East.
- Add additional bike lanes on 100 East, 400 East and 900 or 1000 North.
- Convert the 500 North bike lanes into a separated bikeway or cycle track facility.
- Create neighborhood level programs and contests that reward and recognize actions and choices that encourage active transportation.
- Reduce speed and narrow vehicular lanes on local streets to create safer and more pedestrian-friendly streets.
- Develop an iconic trail that will connect Logan's most important destinations including Downtown, Temple, USU, the Canyon Road Canal Trail and Logan Canyon (see Figure 2.7).

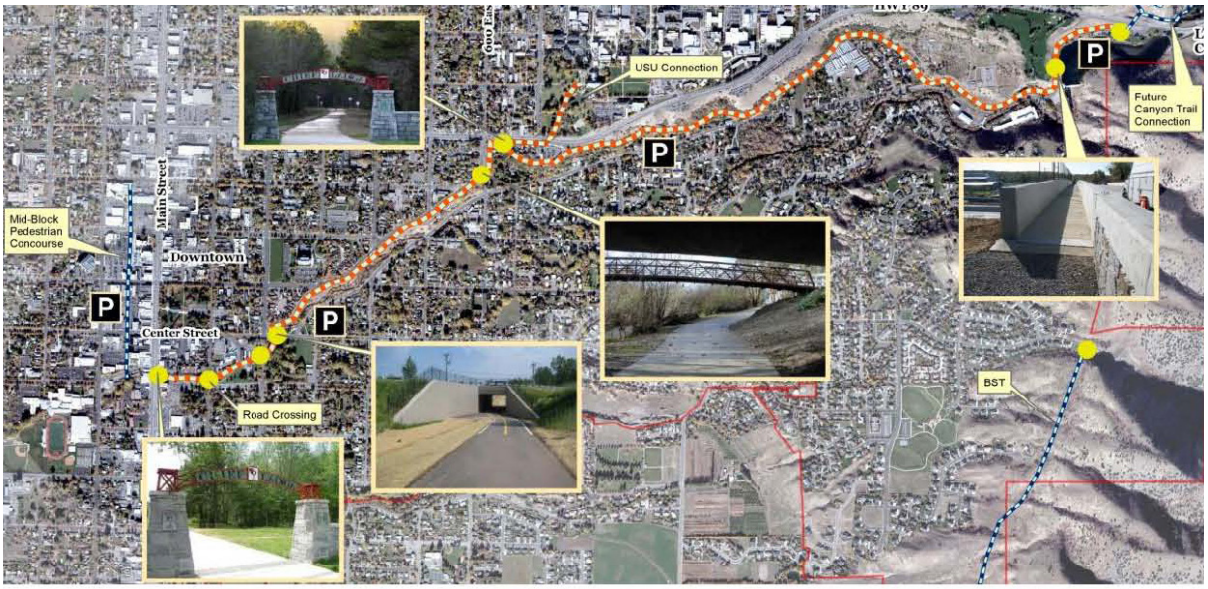


Figure 2.7 Preliminary plan for the Boulevard Trail

USU Recreation and Open Space Master Plan (2013)

The goal of the Recreation and Open Space Master Plan was to formalize clear direction in land use and infrastructure development towards the highest and best recreational and open space uses. The plan identifies three types of recreation and open space assets or improvements:

1. Recreation: Fields, courts and running pathways for organized recreational activities.
2. Civic: Un-programmed natural and man-made outdoor spaces for socializing and passive recreation activities.
3. Connecting: Pathways, sidewalks, trails and natural corridors.

All three features are important in the scope of the Logan Bicycle and Pedestrian Master Plan as they represent potential destinations and corridors for bicyclists and pedestrians. Recreation-specific proposals of the plan include the development of four "Recreation Hubs" throughout the campus.

Recreation Hub 1: Aggie Legacy Fields, new Recreation and Wellness Center and Health Physical Education and Recreation (HPER) Building.

Recreation Hub 2: Outdoor basketball courts, sand volleyball courts, multi-sport fields, parking and a perimeter trail

Recreation Hub 3: Tower Soccer Field (reorient fields) and tennis courts (existing)

Recreation Hub 4: 3 soccer fields, 2 flag football fields, 2 lacrosse, 1 rugby, 1 ultimate frisbee, 2 softball fields, 8 tennis courts and required parking.

Bike and Pedestrian Connectivity Improvements were also an important component of the plan. The highest

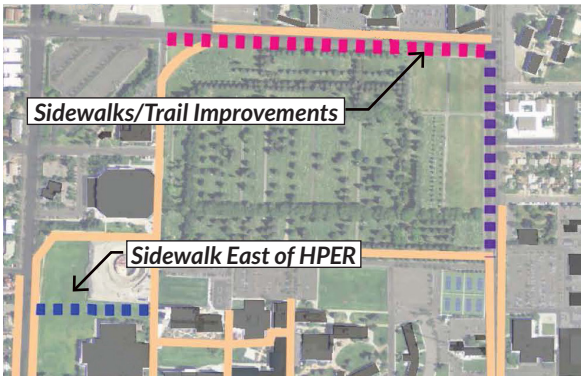


Figure 2.8 Proposed USU sidewalk & trail improvements

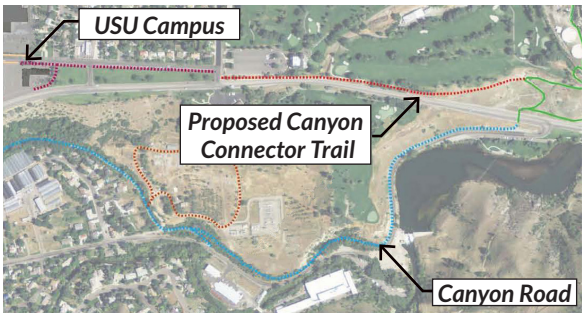


Figure 2.9 Proposed Canyon Road Connector Trail

priority project, designated the "Canyon Connector Trail", includes linking the USU Campus to Logan Canyon via trail through Mount Aire Park and along Highway 89. This would allow students and faculty to access the numerous recreation opportunities near and within the canyon such as the Bonneville Shoreline Trail, the Ray Hugie Hydro Park and the Canyon Road Trail in addition to others.

Proposed pedestrian connections include planned sidewalks along the east and north sides of the cemetery. Since development of the plan the eastern sidewalk has been constructed. Another trail corridor was proposed along the north side of the HPER building and future Wellness and Recreation Center. Finally, possible future bikeway corridors were also identified along the service road between the Fine Arts building and TSC, 700 North and 400 North.

Finally, the plan included Civic Open Space recommendations. The most important Civic Open Space recommendations in relation to Logan's Bicycle and Pedestrian Master Plan was to develop bike parking near the bottom of Old Main Hill and construct a sidewalk along the western edge of Old Main Hill connecting to the underpass below Highway 89.

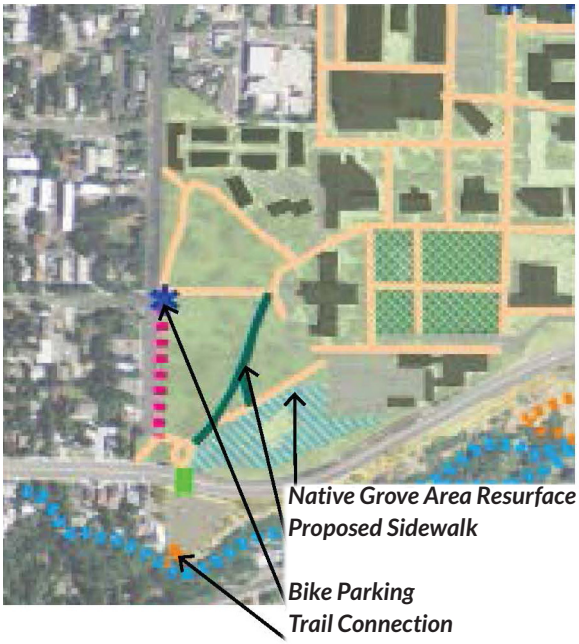


Figure 2.10: USU Old Main Hill Concept Plan

Source: CSG

Utah State University Bicycle Friendly University Report (2013)

In 2013, Utah State University (USU) applied for the League of American Bicyclists (LAB) Bicycle Friendly Community Designation. The University was recognized as a bicycle friendly university at the silver level. This is a significant accomplishment for USU and represents a committed effort on several fronts to supporting bicyclists throughout the campus. Key accomplishments noted by LAB included:

- Regular cycling skills and bicycle maintenance classes
- Free bike rentals and maintenance through Aggie Blue Bikes
- A high percentage of police patrolling by bike
- $180,000 received for bicycle-related improvements and infrastructure

Although USU scored highly, League of American Bicyclists (LAB) reported room for improvement in the following areas:

- Expanding the Bicycle Program Manager's time focused on bicycle projects, which would help scale up bicycle friendly university efforts.
- Adopt a Complete Streets policy and offer implementation guidance to planners and engineers.
- Continue to expand the bike network through use of different types of facilities (bike lanes, cycle tracks, and shared roadways).

Figure 2.11 USU Bicycle Friendly University Application

- Track bicycle, bicycle/pedestrian and bicycle/automobile crashes to help identify conflict points.
- Start a bicyclist and motorist ticket diversion program to expand educational opportunities.

The Utah Travel Study (2012)

The 2012 Utah Travel Study was commissioned as a statewide survey and report in conjunction with the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA) and several statewide metropolitan planning organizations, including the Cache Metropolitan Planning Organization (CMPO). The study contains a wealth of information on statewide transportation behaviors, attitudes and trends. The primary tool of the study was the household travel diary survey which was supplemented by additional surveys including the Long Distance Survey, the College Travel Diary, Bike/Pedestrian Debrief Survey, the Bike/Pedestrian Barriers Survey, the attitude Debrief survey and the Residential Choice Stated Preferences Survey. Data and analysis from this document can be found throughout the document.

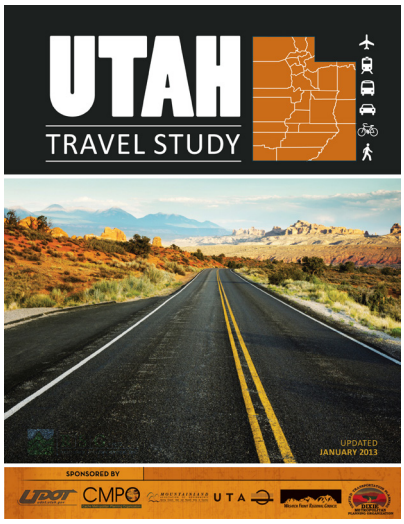


Figure 2.12 Utah Travel Study statewide survey and report

Logan Downtown Specific Plan (2012)

The Logan Downtown Specific Plan sets forth many important goals relating to improvement of the cycling and pedestrian environment. These include:

- Enhance the physical and social connections between the Downtown and the University
- Provide a circulation system that is safe, convenient, and efficient for pedestrians, bicyclists, public transit and automobiles
- Make downtown pedestrian friendly

Important recommendations of the plan include:

- Extend the mid-block pedestrian promenade between 100 W. and Main Street to span the entire length of the Downtown Specific Plan area (200 South to 500 North)
- Consider development of a more centrally-located Downtown transit hub
- Extend the Logan River Trail from the Old Thatcher Mill site, through Pioneer Parkway, to the Boulevard and linking up to the University
- Provide a network of bicycle trails along the canals and link with green spaces. Designate bicycle lanes Downtown on less vehicle-oriented streets
- New Thatcher Mill Park and Amphitheater redevelopment near 100 South and 100 West along the North Branch of the Logan River
- Planted medians and pedestrian crossing improvements along Main Street

Figure 2.13 Downtown Logan Specific Plan

- Reference to a potential 100 East/100 West One-Way Couplet
- Enhanced pedestrian streets along West Center, West 100 North and West 100 South with traffic calming, pedestrian furnishings, enhance pedestrian signalization, mid-block crossings, special pavement treatments and diagonal parking where space allows

USU Bicycle Master Plan (2012)

The USU Bicycle Master Plan summarizes existing biking programs, infrastructure and support facilities provided on-campus. It also makes a recommendation for expansion of the bikeway system between the campus and Downtown by prioritization of projects. Part of the development of the Bicycle Master Plan included the creation of a USU Bike Map (see Figure 2.14) which highlights important bicycle facilities including routes, bike parking, shower facilities and proper bicycling etiquette.

Notable programs include:

- Aggie Blue Bikes
- Open Streets Events
- Student and employee fitness programs
- Distribution of a Bike Map brochure fitness programs

Figure 2.14 Campus Bike Map

Utah State University Campus Master Plan (2011)

The Long Range Development Plan for the Logan campus of Utah State University defines the campus structure, organization of land uses and general land and building area requirements necessary to accommodate long range enrollment growth from a current population of 14,000 full-time equivalent (FTE) students to 26,000 FTE students in the future. Key aspects of the plan include redevelopment of key buildings south of the cemetery to form the "academic core". Additional expansion adjacent to and north of the cemetery will focus on other campus functions such as housing, sports and recreation, research and service functions.

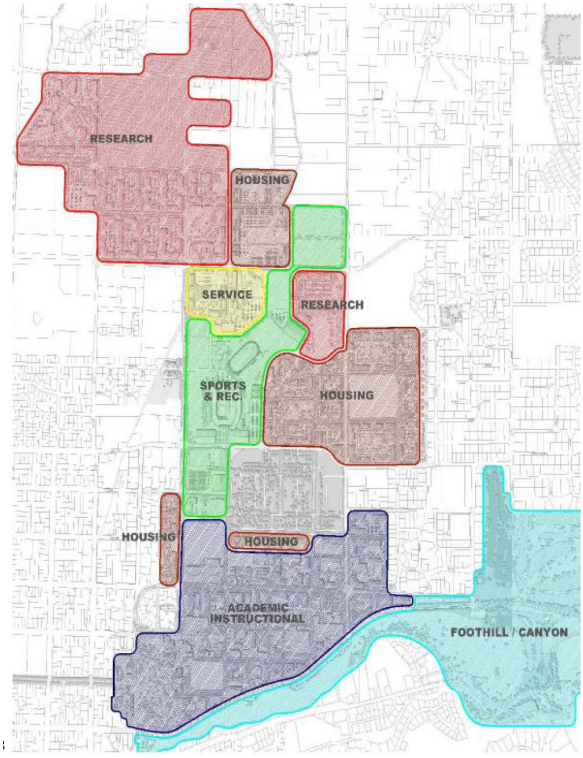


Figure 2.15 Conceptual USU Campus Master Plan Zones

Logan Transportation Master Plan (2011)

The Logan Transportation Master Plan (TMP) guides the location and type of roadway facilities that are needed to meet projected growth and development in the area. The Plan addresses all modes of transportation and provides a process for improving the region's transportation system. Key elements of the Plan include evaluating the existing transportation system and future transportation needs as well as identifying recommended improvements that will enhance mobility and economic development in the Logan area. Key recommendations of the plan include:

- Follow pedestrian design guidelines set forth in Logan TMP document
- Improve locations of high pedestrian activity such as the USU campus and the Central Business District (CBD). Types of facilities should include sidewalks as well as crosswalks, improved lighting, landscaping, resting areas, and transit stops
- Construct sidewalks on both sides of U.S. 89/91 between 100 West and Golf Course Road to increase pedestrian safety at the "Y" intersection
- Construct missing sidewalks in safe routes to school areas before other areas are completed
- Maintain street appearance by sweeping designated safe routes first
- Promote bicycle parking and help provide bicycle parking where appropriate through zoning and permitting measures
- Investigate the feasibility of providing incentives to encourage workplaces to provide bicycle parking and shower facilities
- Implement a maintenance program to keep the bicycle network in good repair. This includes replacing signage, repainting of striping and pavement markings, sweeping bike lanes at least twice a year, and repairing or replacing drainage grates
- Coordinate with the CMPO to implement the trails identified in the Countywide Trails Plan
- Implement the proposed bike routes as shown in figure 2.16
- Coordinate bicycle and pedestrian facilities with the transit system to provide access to transit stops in non-motorized ways

Cache County-wide Trails and Parkway Master Plan (2010) (Unofficial)

Though never officially adopted, the Cache County-wide Trails and Parkway Master Plan represents the region's most comprehensive study of both on- and off-street pedestrian and bicycle facilities to date. The breadth of the study area and topics included did not allow for a detailed analysis of every potential corridor. Nonetheless, the study does establish a solid framework for the Logan Bicycle and Pedestrian Master Plan to build on. Potential noteworthy trail or bikeway corridors include:

- The Union Pacific rail line on the west side of town near 600 W.
- Logan Hyde Park Canal
- Logan Hyde Park Smithfield Canal
- Logan Northern Canal
- Airport Road
- The Cutler Marsh Marina Trail

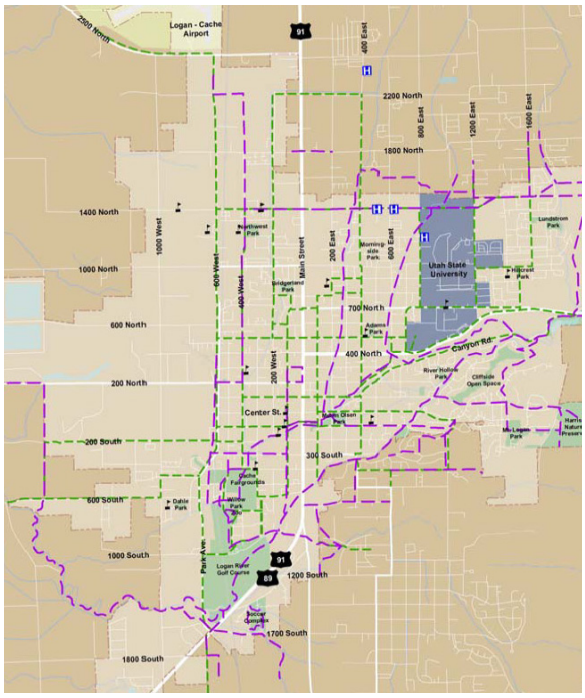


Figure 2.16: Logan Transportation Master Plan Trails and Bikeways Plan

- The abandoned railroad grade connecting Cutler Reservoir and Benson Marina to the Union Pacific Rail Line
- 1400 North to 1500 North to Bonneville Shoreline Trail
- 100 West from Logan River Trail to City Hall
- North Fork of Logan River Trail

The study also gives a good general overview of various trail planning issues relevant to Logan including development of trails on or near canals, rail trail development, Utah 10-Year continuous use rules and private property concerns.

Logan Bicycle Friendly Community Report (2011)

In 2011, Logan City applied for the League of American (LAB) Bicyclists Bicycle Friendly Community Designation. After review by LAB, Logan was recognized with an Honorable Mention. LAB noted that Logan is taking steps in the right direction to become a more bike-friendly community; however, there is still room to grow. Accomplishments noted by the feedback report included:

- Accommodations for bikes on CVTD buses.
- Community planners and engineers receiving training in bicycle and pedestrian planning.
- Most arterial streets having wide shoulders and some accommodations existing for bicyclists.
- Some elementary schools having Safe Routes to School programs.
- Safe driving training that is required for transit and school bus operators.
- Logan promoting National Bike Month and commuter breakfasts.
- A police officer as an active member of the Bicycle and Pedestrian Advisory Committee (BPAC).
- Having laws in place to protect bicyclists, such as specific penalties for failing to yield to a cyclist when turning, parking in the bike lane and for "dooring" bicyclists.
- "No Car Fridays" events, the LOTOJA annual race and the Annual Bike Fair, which were positive local events.

The feedback report also defined some key strategies to improve cycling in the community. They included:

- Expanding City staffs' time focused on bike projects.
- Developing a comprehensive bike plan in close coordination with the community and setting ambitious but attainable goals and targets.
- Ensuring that bicycle-safety and education is a routine part of public education and that schools and surrounding neighborhoods are particularly safe and convenient for biking. Work with BPAC, Logan City, and Logan School District to implement Safe Routes to School educational and encouragement programs.
- Continuing to educate motorists and bicyclists of their rights and responsibilities on the road, expanding public education campaigns and creating a dedicated bike page on a community website.
- Expanding encouragement efforts during National Bike Month in partnership with local advocacy groups. Host, sponsor and encourage bicycle-themed community events and encourage the mayor or council members to participate in events such as Bike to Work day.

Figure 2.17: Logan Bicycle Friendly Community Feedback Report

400 North Corridor Plan

The 400 North Corridor Plan (under development concurrently with the Logan Bicycle and Pedestrian Master Plan) seeks to improve the 400 North corridor from Main Street to the mouth of Logan Canyon. An enhanced streetscape is proposed through widened sidewalks, new street tree plantings and new site furniture along 400 North from Main Street to 600 E. East of 600 E, landscaped medians are proposed.

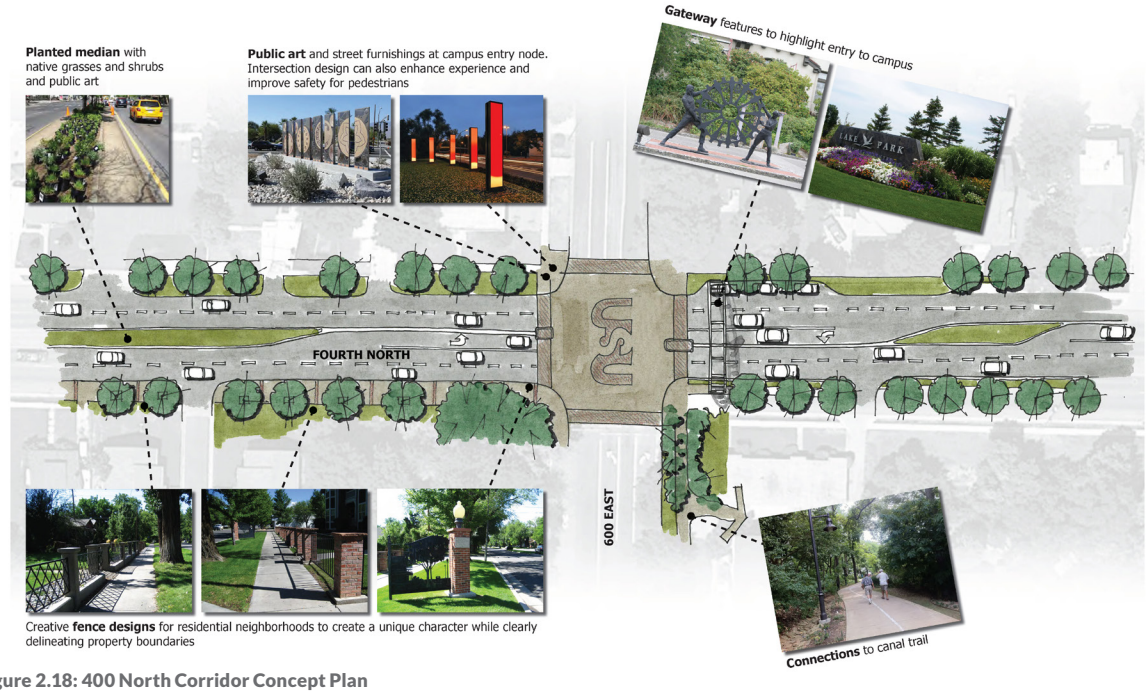


Figure 2.18: 400 North Corridor Concept Plan

USU Parking and Transportation Master Plan

The USU Parking and Transportation Master Plan is also under development concurrently with the Logan's Bicycle and Pedestrian Master Plan. Efforts have been made to coordinate the recommended bicycle and pedestrian projects between the two planning efforts. Major bicycle and pedestrian projects developed through the USU Parking and Transportation Master Plan include development of numerous bike boulevards (such as Champ Drive) and the closure of Aggie Boulevard to all vehicles except transit. In addition, Aggie Boulevard would be retrofitted to include a two-way protected bike lane on the north side.

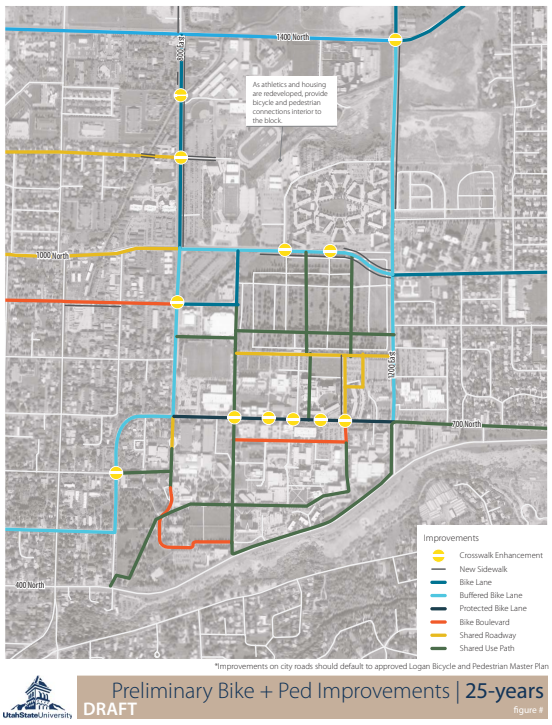


Figure 2.19: Draft USU Parking and Transportation Bicycle and Pedestrian Recommendations

2.3 Existing Bicycle & Pedestrian Facilities

EXISTING FACILITIES

Logan currently possesses 28 miles of bikeways and trails. Bikeway facilities include bike lanes, shared roadways, shared use trails, park paths and unpaved trails. Pedestrian facilities include shared use trails, park paths and unpaved trails.

Existing Bikeways

Bike Lanes

This type of separated bikeway uses signage and striping to delineate the right-of-way assigned to bicyclists and motorists. Bike lanes encourage predictable movements by both bicyclists and motorists. Logan currently has only one- 1.2 mile length of bike lane on 500 North, east of Main Street.

Figure 2.20 Existing bike lane on 500 North

Shared Roadways

Bikeways where bicyclists and cars operate within the same travel lane, either side by side or in single file depending on roadway configuration. This facility is used to connect other bikeways (usually bike lanes), or designate preferred routes through high-demand corridors.

Figure 2.21: Shared roadway along 700 North

Shared Use Trails

A combination trail/bikeway facility in rights of way separate from roads, and are for the use of bicyclists and pedestrians. Some of Logan's notable shared use trails include the Logan River Trail and the Canyon Road Canal Trail.

Shared Use Trails Adjacent to Roadways

Shared use trails adjacent to roadways are usually subject to additional traffic and safety considerations such as driveway/street crossings, roadway clear zones and more frequent conflict potential with motorists. On-street bikeways are often recommended adjacent to these types of facilities to accommodate more experienced bicyclists. An example of a shared use trail adjacent to a roadway would be the Boulevard Trail.

Figure 2.22 Existing Logan River Trail (shared use trail)

Unpaved Trails

Unpaved trails (dirt, gravel, etc...) are completely separated right of ways for exclusive use by bicyclists, pedestrians and occasionally equestrian uses . Unpaved trails can take the form of singletrack trails such as the Bonneville Shoreline Trail, or wider more accessible soft-surface trails.

Park Paths

Internal pathways refer to paths within parks or open space areas. These facilities may or may not be designed to accommodate bicyclists.

Figure 2.23 Existing Boulevard Trail (Shared use trail adjacent to roadway)

Existing Bikeway System

The existing bicycle network in Logan is currently made up of shared use trails, unpaved trails, bike routes (shared roadways) and bicycle lanes. The following chart illustrates the mileage of each facility type. Currently, Logan is heavily invested in shared use trails with only one dedicated bike lane throughout the City. Map 2.1 shows the existing bikeway and trail system in Logan.

Figure 2.24 Existing Bonneville Shoreline Trail (unpaved trail)

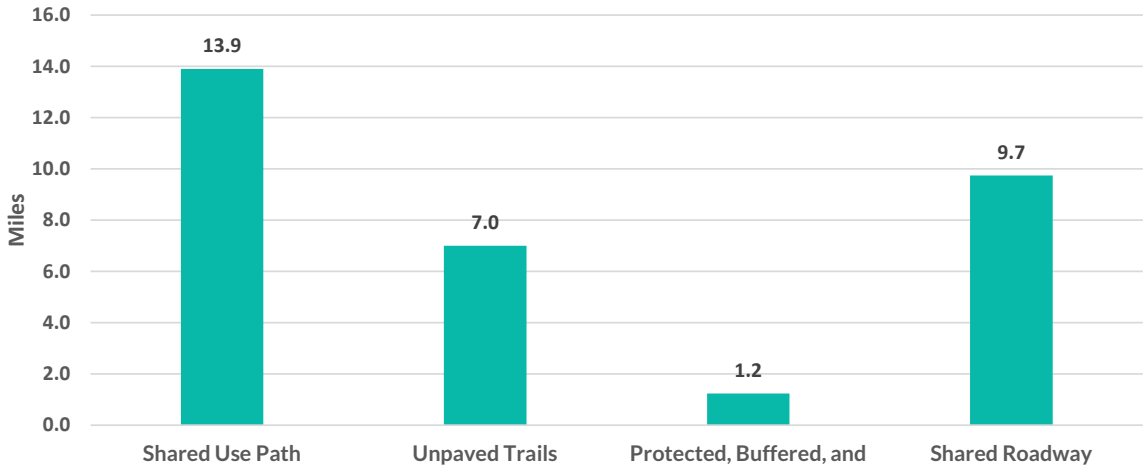


Figure 2.25 Logan existing bicycle and pedestrian facility mileage

Benchmarking Bikeway Facilities

Although Logan exhibits high levels of biking and walking among residents, the city is relatively under-served by bicycle and pedestrian facilities. Logan's bikeway density (its cumulative number of shared use trails, bike lanes and bike routes divided by the city area) is lower than many of its peer cities in Utah and in the western US. Bikeway density represents one way to measure how well a population is served by its bicycle infrastructure.

Figure 2.26 shows how Logan's bicycle and trail facility mileage per square mile(including signed bike routes, bike lanes and shared use trails) compares to peer cities and other cities in Utah.

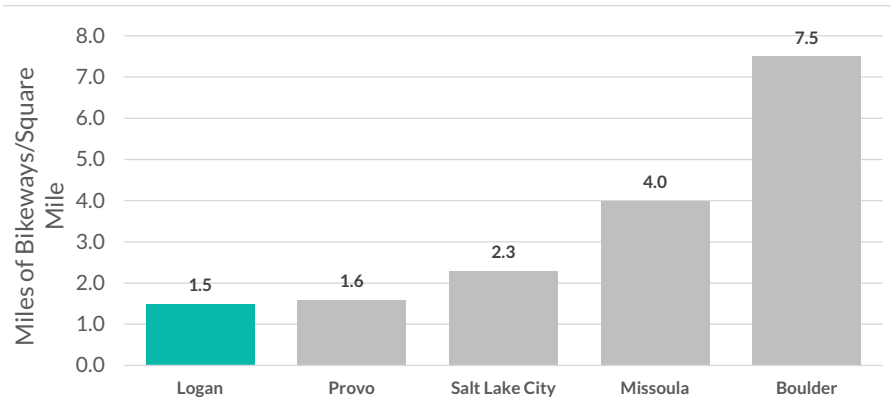


Figure 2.26 Logan existing bicycle and pedestrian facility mileage

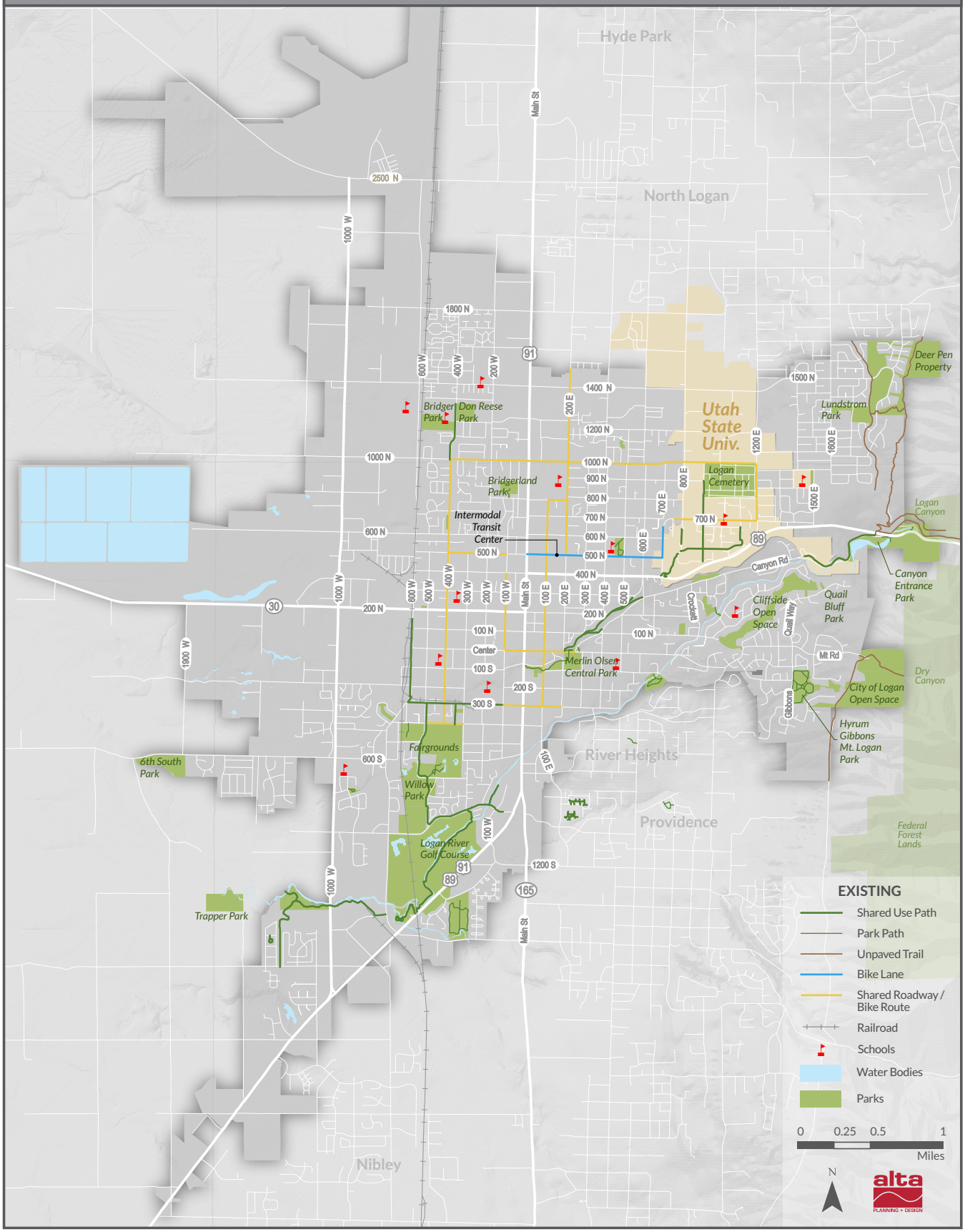
EXISTING PEDESTRIAN FACILITIES

Existing pedestrian facilities in Logan consist of shared use trails, unpaved trails, park paths and sidewalks. In the traditional block-grid sections of Logan, sidewalk connectivity is generally good. However, some neighborhoods constructed after World War II lack adequate sidewalk infrastructure. In addition, some commercial and industrial areas have also been developed without complete sidewalk networks. Figure 2.27 demonstrates a commercial area along Highway 89/91 that lacks continuous sidewalk facilities.

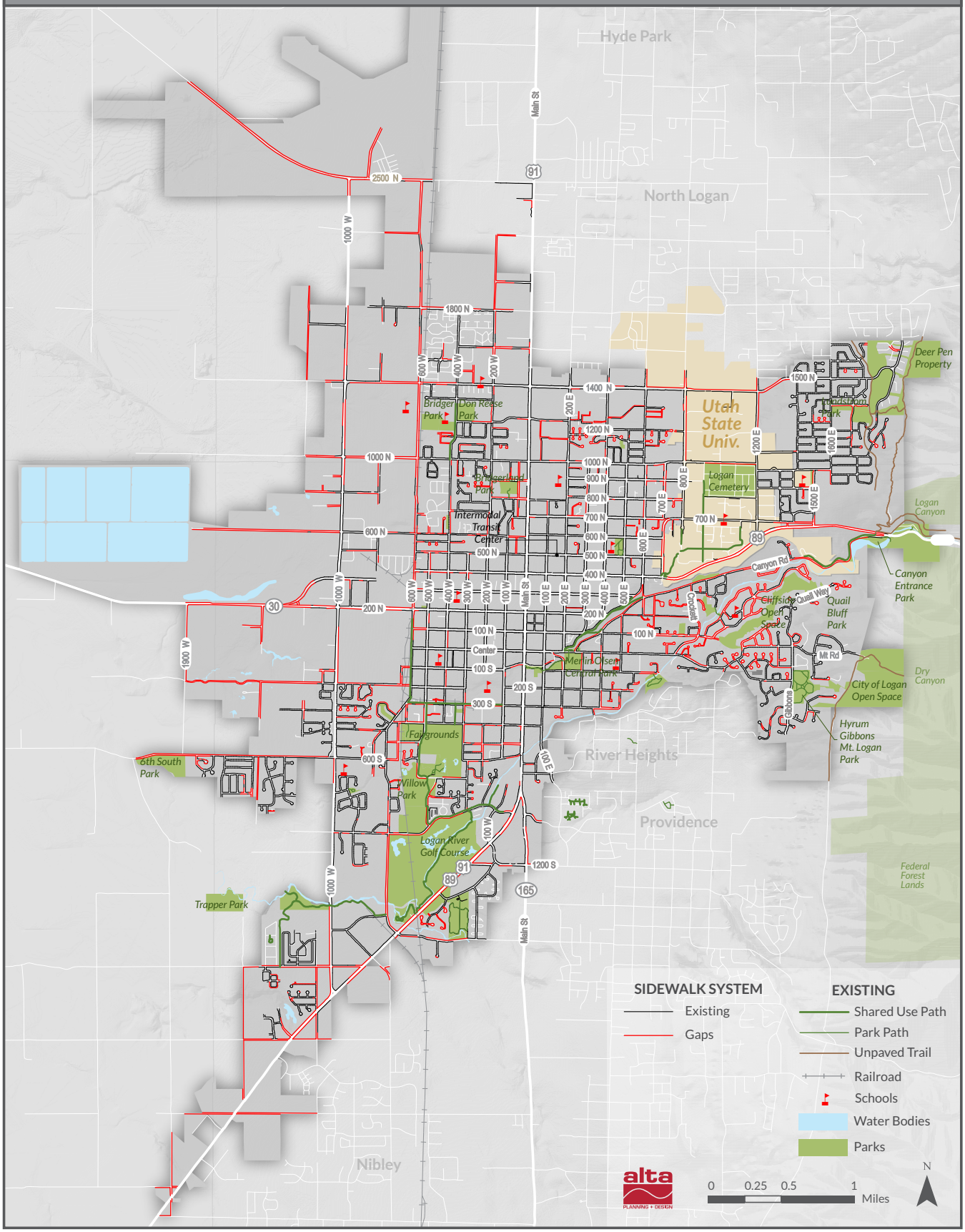
Today, Logan possesses over 200 miles of built sidewalks throughout the City. Based on the current roadway system, over 111 miles of sidewalk construction is needed to complete the existing system. Map 2.2 displays the existing sidewalk system and the remaining sidewalk gaps .

Figure 2.27 Existing sidewalk gap along Highway 89/91

Map 2.1: Existing Bikeway System



Map 2.2: Existing Sidewalk System



2.4 Connectivity to Transit

Transit trips often begin and end on foot or bicycle. When non-motorized connectivity to transit is poor, ridership and ease of use of the system is also negatively affected. Cache Valley Transit District operates bus service for Logan and the surrounding. CVTD's "fare-free" policy offers many benefits such as appeal to low-income users, convenience and overall enhanced capability to attract new riders. This great community asset also requires careful planning and coordination with bicycle and pedestrian systems to function at optimum levels. An integrated approach to transit, bicycle and pedestrian infrastructure and programming allows transit users to easily and conveniently access the first and last mile of their trips.

Figure 2.28 CVTD Bike Rack

ADA

All CVTD buses meet ADA requirements and accommodate patrons in wheelchairs and with other disabilities. All fixed route vehicles are low floor vehicles and have ramps that can be deployed at a passenger's request. CVTD also offers paratransit services to persons' who have cognitive or physical disabilities that prevent them from utilizing fixed route bus service.

Bikes on Buses

All CVTD buses have front end-mounted bike racks that carry three bikes each. Transit users are prohibited from bringing bikes onboard buses if the bike rack is full.

Bike Parking

CVTD maintains excellent covered and uncovered bike parking at the Intermodal Transit Center located at 150 East, 500 North. Recently, similar bike parking was installed near Logan Library.

Figure 2.29 CVTD Covered, secure bike parking

Photo credit: Camilla Bottleberghe

2.5 Existing Programs and Events

Open Streets

Utah State University's Open Streets Festival began in 2013 when Aggie Boulevard became open for three hours to cycling, walking, roller blading, dancing, and any other form of non-motorized transportation, in order to showcase how interactive a street can be when it's accessible to active transportation. In 2014 the event returned with transportation options, games, street performers, music, and local businesses.

Figure 2.30 USU Open Streets Event

Road Respect Designation and Tour

To encourage safe cycling and to promote positive interactions between bicyclists and drivers, Bike Utah, the Utah Department of Transportation, the Department of Public Safety, Utah Highway Patrol and Zero Fatalities hosted the 4th Annual Road Respect Tour in Logan. Events included a 65-mile group ride, a 5.5-mile family ride, running race, a classic car show, a police bike rodeo and live music. Logan was designated a Road Respect Community in 2014.

Figure 2.31 UDOT Road Respect

LOTOJA

LoToJA, the annual 206-mile bicycle race from Logan to Jackson, Wyoming attracts thousands of bicyclists and spectators every year. LoToJa is the longest USA Cycling sanctioned bicycle race in the country and offers incredible scenery and over 10,000 feet of climbing. The race typically draws over 1,500 participants and many more spectators.

Aggie Blue Bikes

Aggie Blue Bike's mission is to get more people on more bikes, more often. This is achieved through bicycle lending, education and advocacy. Aggie Blue Bikes provides daily and three-month bike checkouts for USU students and staff free of charge. One-on-one bike maintenance training is also available at no cost.

Figure 2.32 Aggie Blue Bikes

Cache Gran Fondo

The Cache Gran Fondo is an annual Italian-style ride in Cache Valley in Northern Utah. The ride is not officially timed. The ride occurs on the 2nd Saturday of every July

and riders can ride either on a 50-mile or 100-mile route.

National Bike Challenge Participation

USU publicizes, promotes and offers local prizes in coordination with the National Bike Challenge (https://nationalbikechallenge.org). Participants are encouraged to log miles biked using smart phone apps such as Endomondo, MapMyRide or Moves. Depending on the frequency and length of a participants ride, they can achieve different challenge levels (bronze, silver, gold, platinum and diamond) which provide entries into various prize drawings. USU also offers prizes for local participation including team challenges.

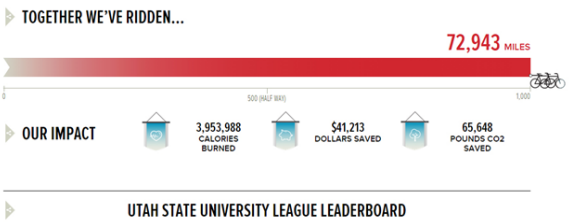


Figure 2.33 Screen-shot from National Bike Challenge Website

Tour of Utah (2015 only)

For the first time, Logan will host the pre-race team presentation and the start/finish of Stage 1 of the 2015 Tour of Utah, a seven-day professional cycling stage race and one of only five UCI-sanctioned, multi-stage, pro cycling events in North America. The event has a worldwide draw and will be an effective way to promote and highlight the City and further develop Logan's growing bicycle culture.

Logan Police Department and Cache County Sheriff Bike Rodeos

The Logan City Police Department and the Cache County Sheriff's Department have hosted bike rodeos at Logan City elementary schools. Bicycle rodeos teach children safe cycling skills and behaviors.

2.6 NEEDS ANALYSIS

To visualize existing walking and biking activity in Logan, ACS data was used to map biking and walking journey to work trips at the census block level.

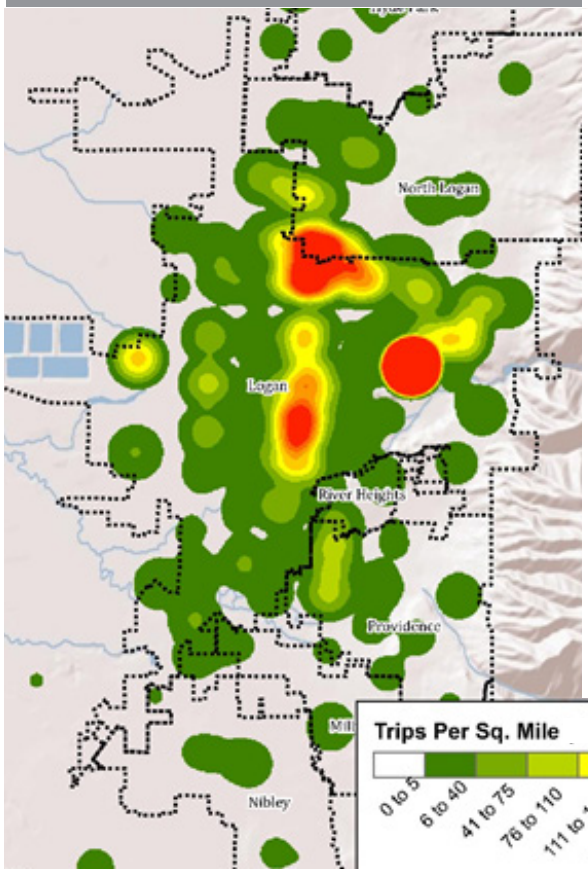
REGIONAL TRAVEL MODEL BICYCLE TRIP ORIGINS AND DESTINATIONS

Utilizing data gathered from the UTS, origins and destinations of biking trips were mapped throughout the city. Figure 2.34 shows the results of this effort (courtesy of CMPO and RSG Consultants). Major destinations include USU, Main Street shops and attractions, commercial centers along North Main Street and the Cache Valley Regional Hospital. Primary bike trip origin areas are spread through major portions of the Adams neighborhood and along 1400 North.

EXISTING ACS BIKING AND WALKING ACTIVITY

Map 2.2 and 2.3 depict current walking commute trips within Logan. The highest concentrations of biking and walking commute trips occur on the USU campus as well as in the Adams and Hillcrest neighborhoods. Walk commute trips generally decline west of Main St. with small pockets of higher concentrations. A moderate number of trips also originate out of "the Island" within Wilson Neighborhood

BICYCLE TRIP DESTINATIONS



BICYCLE TRIP ORIGINS

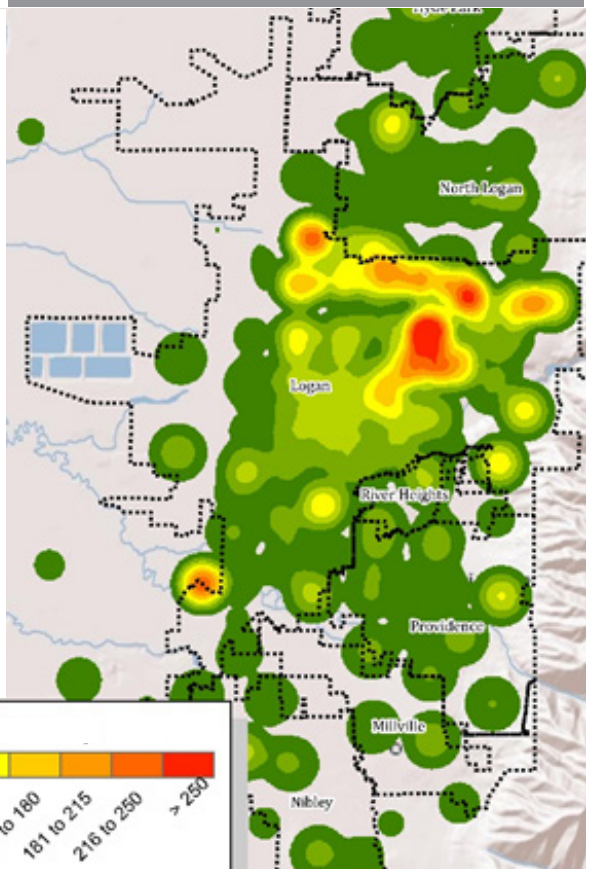
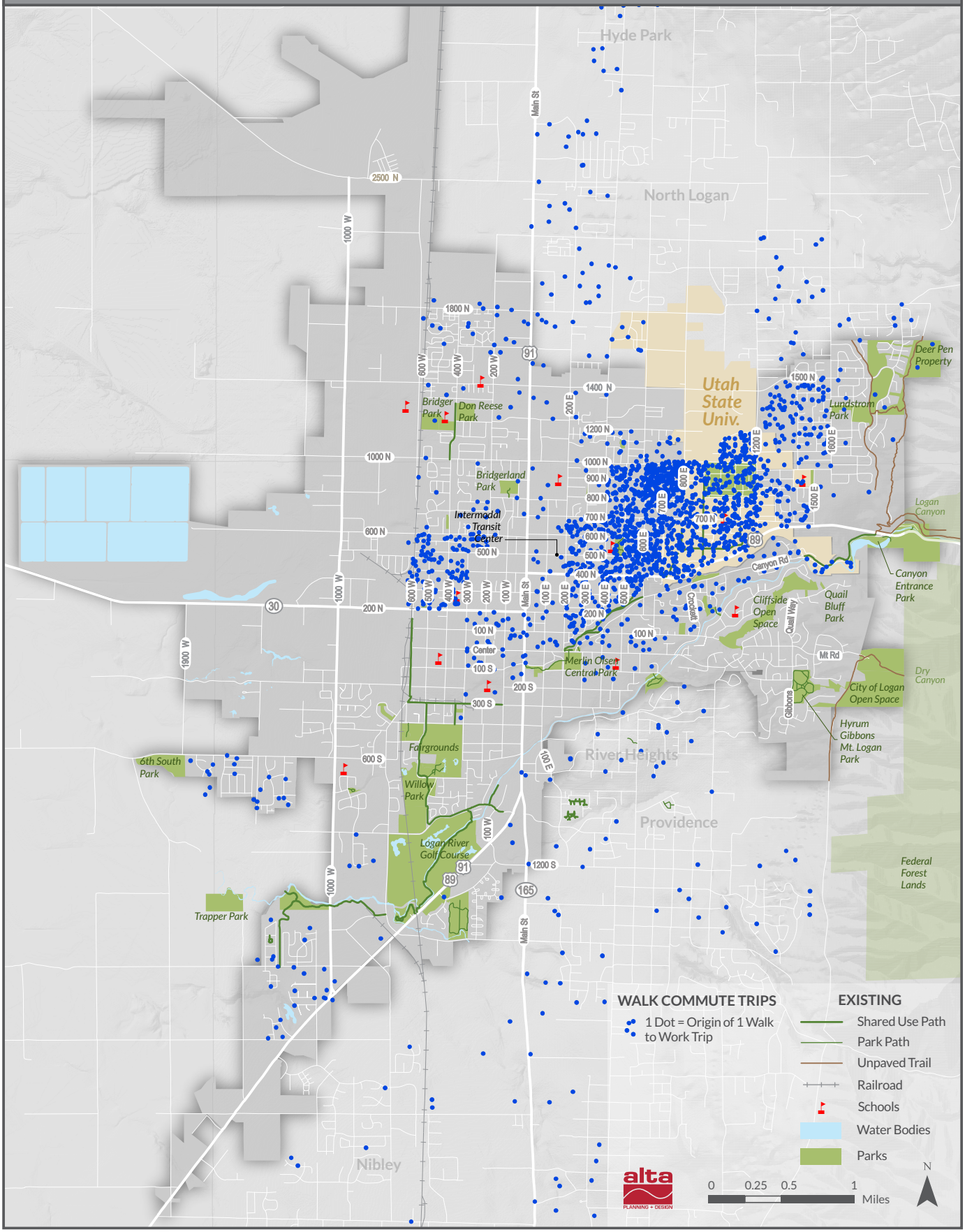
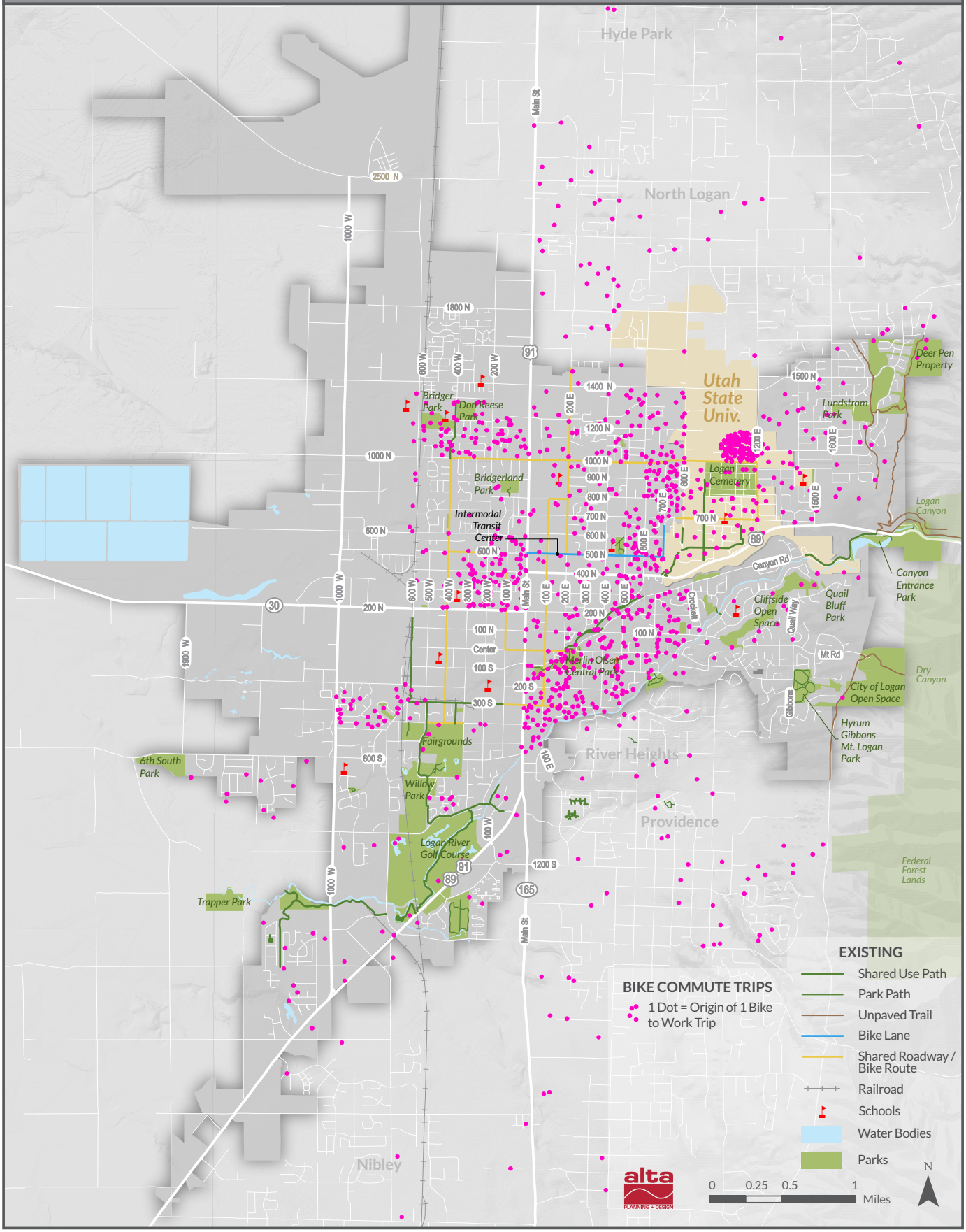


Figure 2.34 Bicycle Trip Origins and Destinations (Source: RSG)

Map 2.3: Existing Walking Activity



Map 2.4: Existing Bicycle Activity



UTAH TRAVEL STUDY BICYCLE & PEDESTRIAN BARRIERS SURVEY

Another component of the Utah Travel Study polled resident's perceived bicycle and pedestrian barriers. Respondents were asked to describe the nature of the barrier as well as rate the severity of the problem. Results of this effort for Logan are displayed in Figures 2.41 and 2.42.

Major barriers descriptions supplied by survey participants included:

Main Street

- *"There is not sufficient space between the parked cars and the moving cars to feel safe on a bicycle."*
- *"Most major retail is along this street, yet it is very inaccessible to bicyclists. Poor shoulders and heavy traffic."*

700 North / Aggie Blvd.

- *"The road through the USU campus is full of people walking and biking, and although there are crosswalks, they are often disregarded by cars. Only buses should be allowed to drive through that area of campus."*

South Main Street Y- intersection

- *"This area is very dangerous. It prevents us from getting to a shopping center, and the South end of the valley."*
- *"There is no place to safely cross Main Street. Our church building is only 2 blocks away, but we don't dare walk because of Main Street traffic. To get to a crosswalk, we have to walk to 300 S, which is 4 blocks out of our way, each way."*

600 East, Steep dugway

- *"No bike path or defined biking area. Between 5th and 4th east, the road is steep and narrow with no shoulder. Important roadway for commuters from "the Island within Wilson Neighborhood" to USU campus."*

400 North to Logan Canyon

- *"The highway has minimal shoulder for bikers and runners headed up the canyon."*
- *"No means of walking between the University and Canyon Road/1st Dam Park. Golf course on both sides of road does not allow any access and no sidewalk with busy traffic. No reasonable alternate route."*

Figure 2.35 Main St.

Figure 2.36 700 North / Aggie Blvd.

Figure 2.37 Main St. Highway 89/91 Y- intersection

Figure 2.38 600 East, Steep Dugway

Figure 2.39 400 North

1000 North

- *"Sidewalk is missing by the bus stop area and on the corner on 1000 N and 800 E, by the apartments. There are so many people walking here especially for games played at the stadium/football field. It's hard to take a stroller and stay off the street."*

1400 North

- *"Many USU students exit the bus on the north side of this intersection. There is no crosswalk at this location and no pedestrian signals."*
- *"The sidewalk on the south side of 1400 North ends prior to the railroad crossing forcing a pedestrian/ auto conflict in a dangerous location."*

Figure 2.40 1000 North

LOCATION AND NATURE OF PEDESTRIAN BARRIERS

In addition to the physical address of surveyed bicycle and pedestrian barriers, further information was also gathered. Respondents were asked to specify the environment that the barrier occurred in and the nature of the issue. For pedestrians, most barriers occurred along roadways, sidewalks or trails. Intersections and crossings also accounted for the location of many responses. The nature of the perceived problem was closely split between "missing or incomplete infrastructure" or "other problem types".

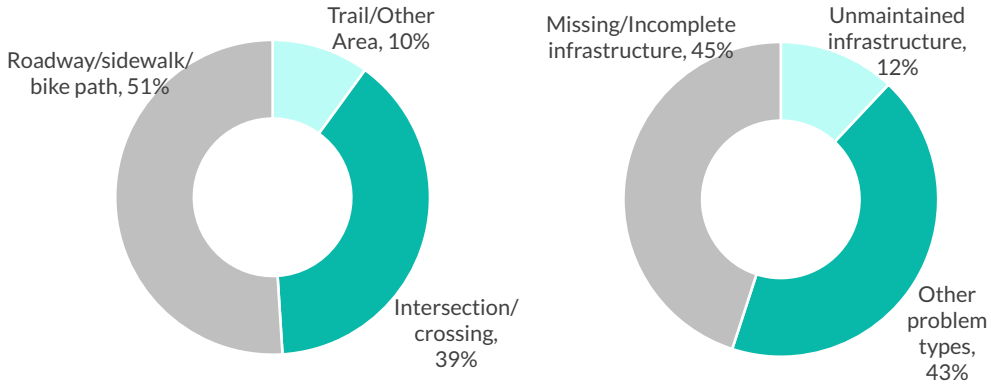


Figure 2.41 Location / Nature of Pedestrian Barriers

LOCATION AND NATURE OF BICYCLE BARRIER

For bicyclists, the vast majority of barriers occurred along roadways, sidewalks or trails. The nature of the barrier was more evenly split between "missing facilities", "other problems" and "maintenance".

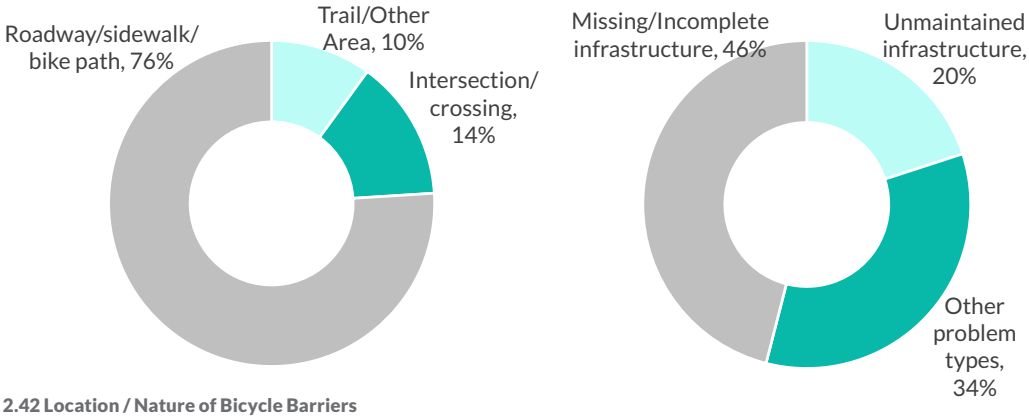
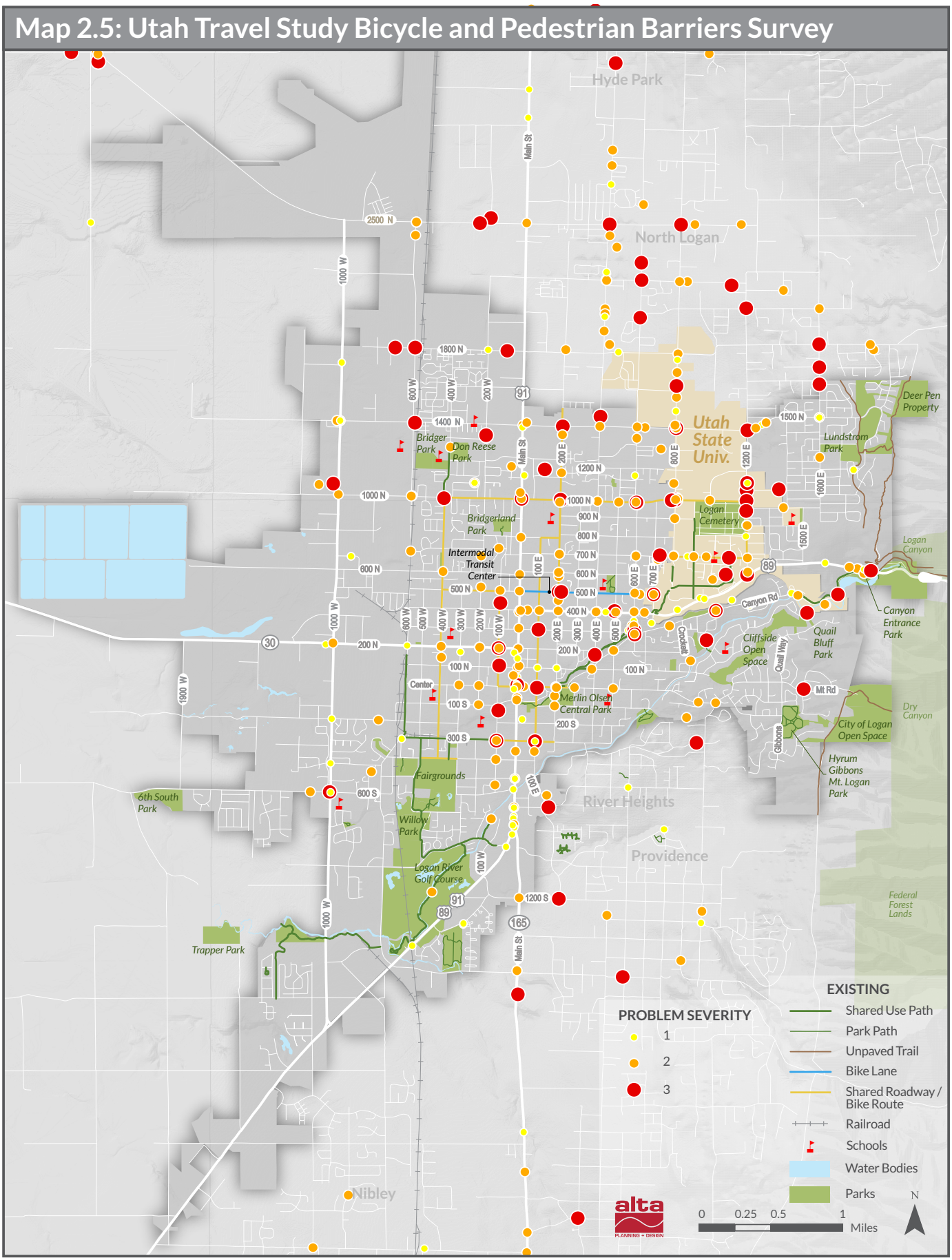


Figure 2.42 Location / Nature of Bicycle Barriers

Map 2.5: Utah Travel Study Bicycle and Pedestrian Barriers Survey



PEDESTRIAN AND BICYCLE CRASH DATA

Crash data is an important statistic in tracking and analyzing bicycle and pedestrian safety. The Logan Police Department supplied the bicycle and pedestrian crash data from March 2011 through July 2014. The number of collisions for each user is shown in Figure 2.43.

Pedestrian Crashes

The majority of pedestrian crashes occurred in the downtown core and more specifically along Main St. This is not surprising considering the heavy traffic volumes along Main St. and the high number of pedestrians. 400 North also exhibited many pedestrian-involved crashes. A handful of pedestrian crashes also occurred south of the Highway 89/91 Y- intersection near Walmart. These crashes appear to be clustered around transit stops and may result from transit riders attempting to cross the street in the absence of safe crosswalk accommodations.

Bicycle Crashes

Bicycle crashes follow similar distribution patterns as pedestrian crashes. Main Street and 400 North represent the most common areas for bicycle crashes. Additionally, some of the major commuting routes to and around campus also possess a moderate number of crashes. These streets include 500 N, Aggie Blvd, 800 E and 1200 E.

Bicycle & Pedestrian Safety Facts

1 Concern about safety is one of the most commonly stated reasons for not bicycling and walking.[1]

2 A review of 23 studies on bicycling injuries found that bike facilities (e.g. off-road paths, on-road marked bike lanes, and on-road bike routes) are where bicyclists are safest.[2]

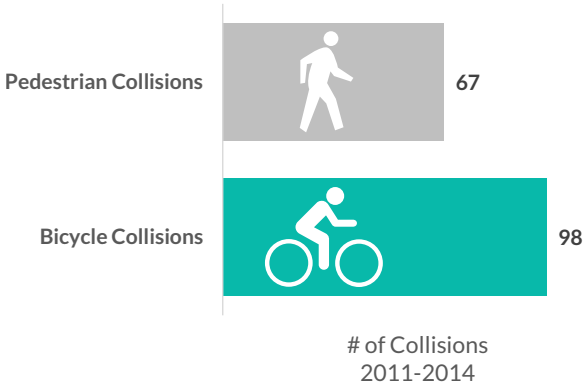
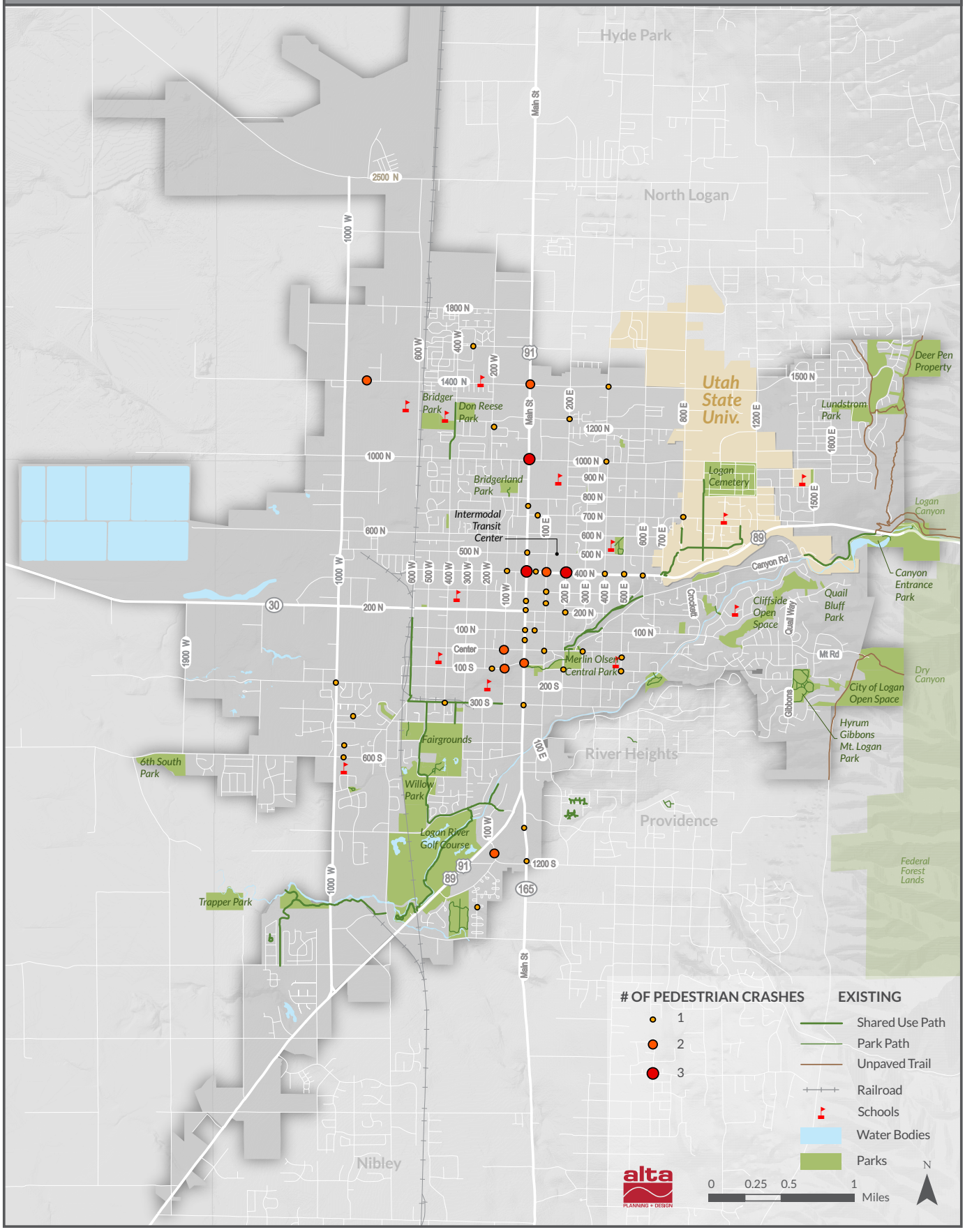


Figure 2.43 Logan City Bicycle and Pedestrian Collision

1 Alliance for Biking and Walking, Biking and Walking in the United States 2014 Benchmarking Report, 72

2 Reynolds, Conor, The impact of transportation infrastructure on bicycling injuries and crashes: a review of literature, Environmental Health Journal, 2012

Map 2.6: Pedestrian Crash Analysis



Map 2.7: Bicycle Crash Analysis

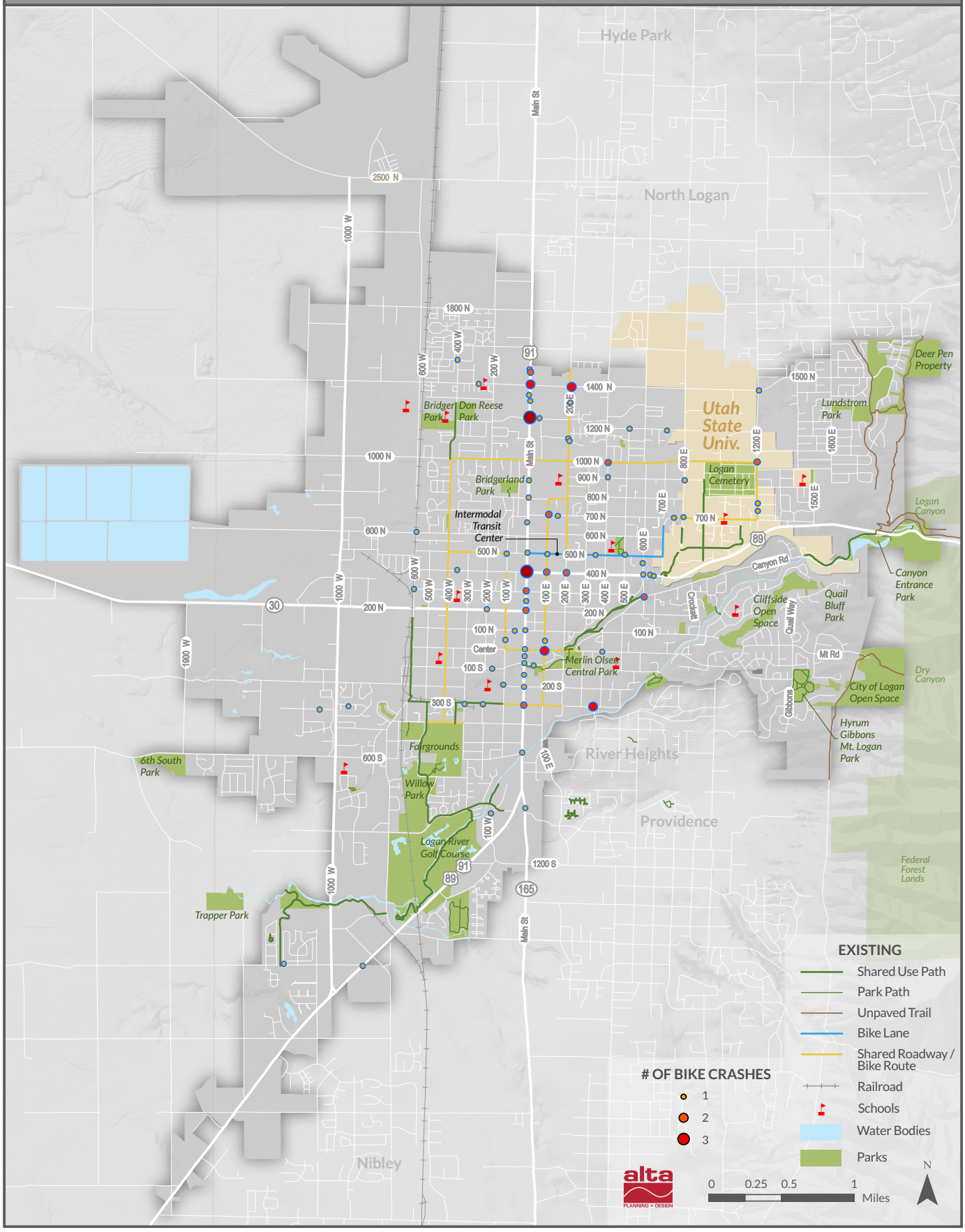


Photo credit: Camilla Bottleberghe

PUBLIC OUTREACH RESULTS

Stakeholder Interviews

The Planning Team conducted stakeholder interviews with a variety of groups representing different interests within the community that relate to walking or biking in Logan. Stakeholders included:

- Aggie Blue Bikes
- UDOT Region 1
- Cache Valley Visitor's Bureau
- The Bicycle and Pedestrian Advisory Committee

Existing Conditions Public Workshop Results

Two public workshops were held to solicit public comment on the bicycle and pedestrian plan. The first workshop was held in conjunction with the Logan Neighborhood Council monthly meeting on August 21st, 2014. The second workshop was held in conjunction with the Adam's Neighborhood monthly meeting on September 23rd, 2014. The format for both workshops was identical; however, the Adam's neighborhood workshop did not involve an introductory presentation. Workshop participants were invited to participate via three stations. Sticky notes and markers were available to allow meeting participants to draw directly on the maps. Handouts also provided space for participants to write down input.

- Station 1: sought input on the project vision statement and preferences/education on different types of facilities
- Station 2: sought input on barriers and perceived hazards that currently affects bicyclists and pedestrians in Logan
- Station 3: sought input on desired bicycle and walking routes and destinations

Results from the initial public workshops can be found in Maps 2.8, 2.9, and 2.10.

Figure 2.44 Public workshop station

Preliminary Recommendations Open House Results

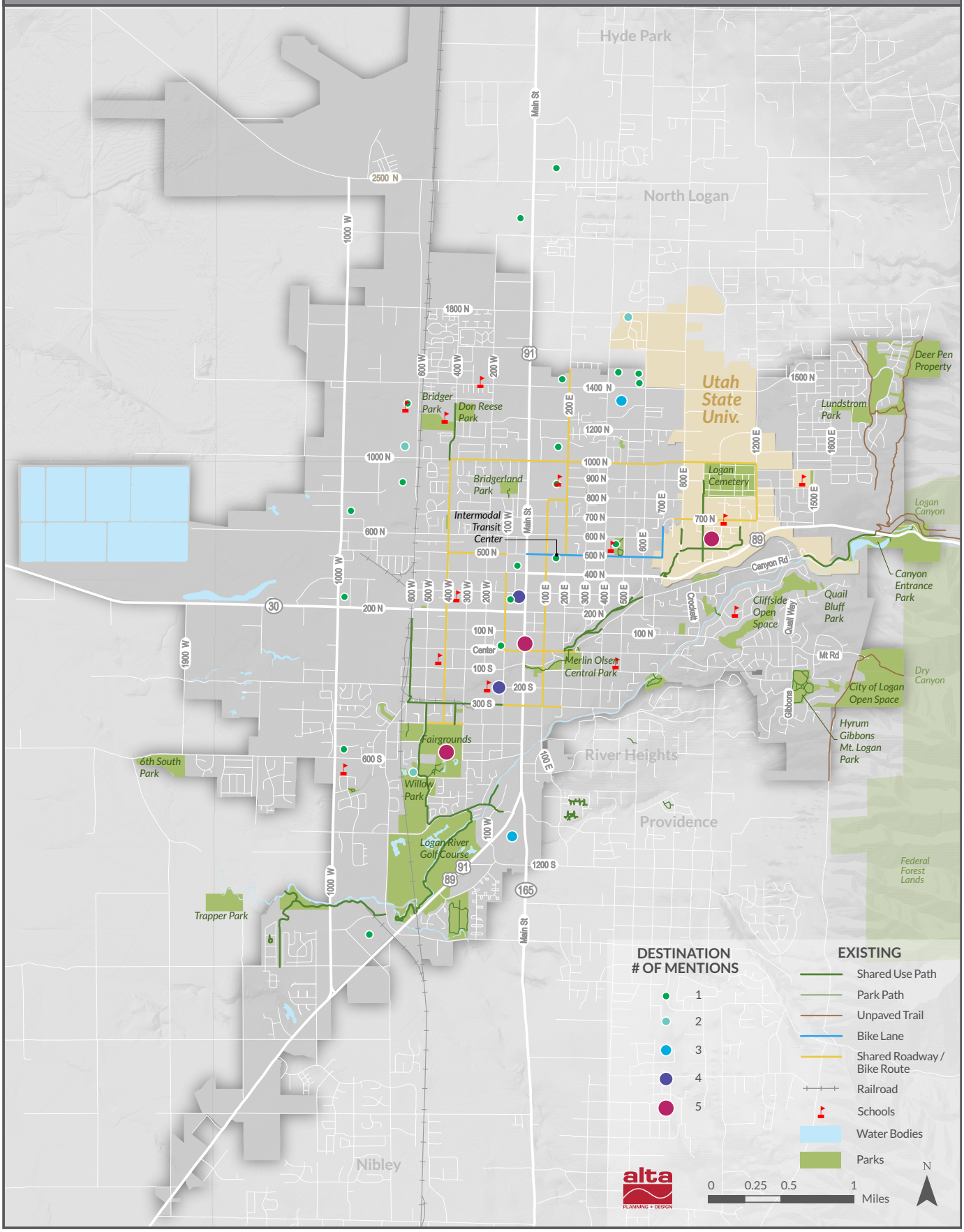
A public open house was held to present the Bicycle and Pedestrian Plan's preliminary recommendations on April 7th at the Logan City Library. Approximately 60 people attended the meeting and discussed the various proposals on display.

Meeting materials included an overview of

- Plan goals and objectives
- Proposed design guidelines and facility types
- Proposed bikeway and pedestrian routes
- Proposed programs

Feedback from the meeting was generally positive with a high level of community support for enhanced biking and walking options throughout Logan.

Map 2.8 Walking & Biking Destinations



LINEAR FACILITIES NEEDING IMPROVEMENT

The following facilities needing improvement were compiled from public comment received at the two public meetings and the USU Open Streets event. Comment was received in the form of surveys, comment notes attached to maps and by writing directly on the maps. Projects have been organized from most to least mentioned

1 *400 North (east of Main Street)*

The most commented on road in Logan. Provides access to USU, Downtown, Logan Canyon, and other recreation areas.

Public Comment Mentions: 25

2 *600 East Dugway*

This section of 600 East is a pinch point for people walking and bicycling to and from USU and "the Island within Wilson Neighborhood". Steep grades and limited shoulders .

Public Comment Mentions: 12

3 *Hwy 89/91 (south of Y-Intersection)*

This section was highlighted as one that is difficult to cross and use as a route. It provides an important link between neighborhoods and hospitality and commercial centers.

Public Comment Mentions: 12

4 *Main Street (North of 1000 N)*

Traveling to or from North Logan from Downtown and other locations in Logan is difficult for pedestrians and bicyclists.

Public Comment Mentions: 11

5 *Main Street (1000 N to 400 N)*

Main Street was one of the highest commented on streets in Logan. This section is north of the historic downtown core, but still has many businesses and destinations people would like to access.

Public Comment Mentions: 11

6 *Main Street / SR 165 (south of Y-Intersection)*

An excellent link between Logan (and employers) and communities southeast of downtown, both for commuting and recreation.

Public Comment Mentions: 11

7 *Main Street (400 North to 800 South)*

Many wanted a calmer downtown core so that walking and bicycling feels safer, businesses can attract more people, and it can be a destination.

Public Comment Mentions: 11

8 *400 North & Logan Canyon*

Providing safe access to and from Logan Canyon for recreational purposes. Open house attendees would like bicycles to be allowed on the High Line Trail.

Public Comment Mentions: 9

9 *200 North*

A route between "the Island within Wilson Neighborhood" and neighborhoods west of Main Street was proposed by the public in order to better connect two sides of Logan using 200 North.

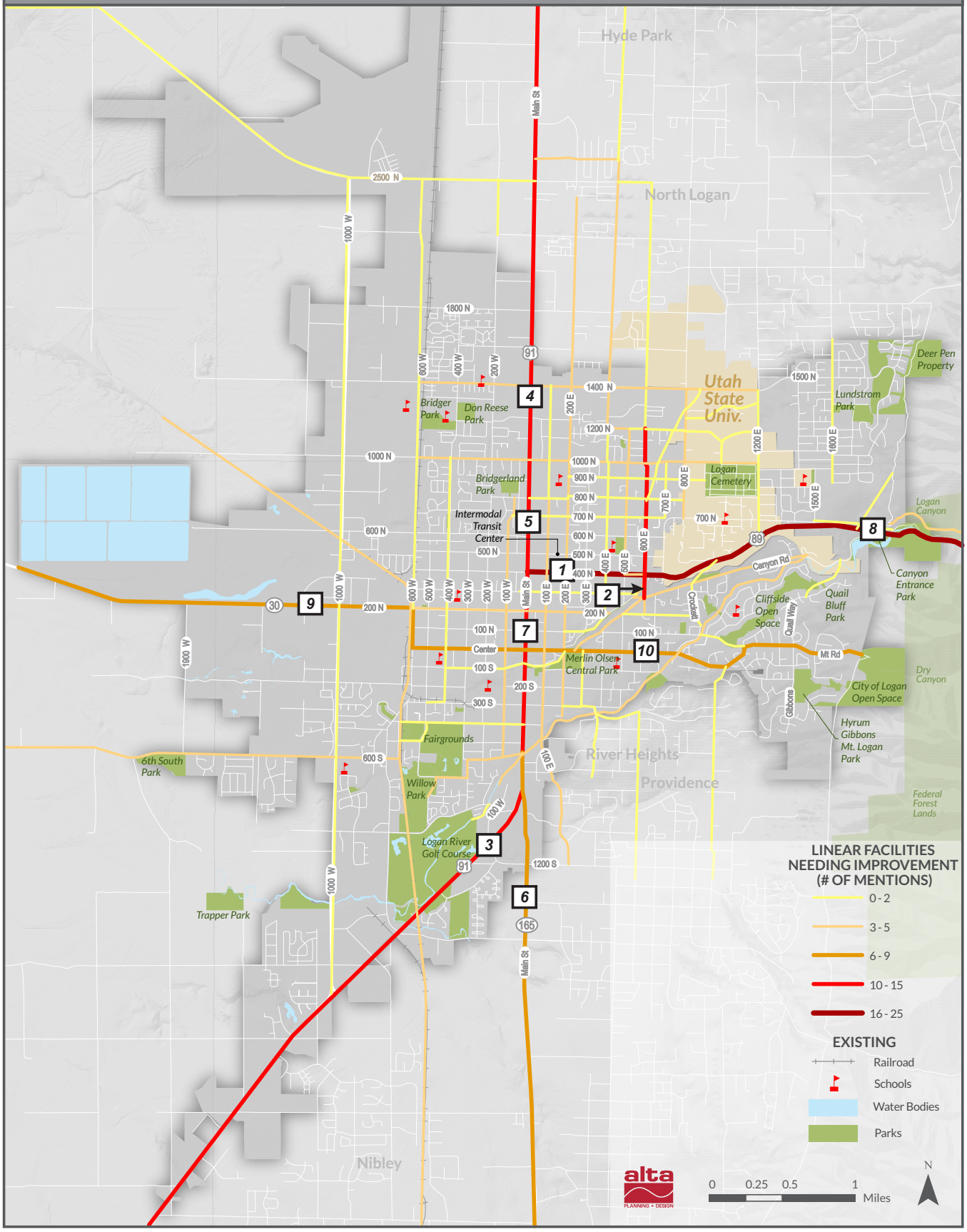
Public Comment Mentions: 8

10 *Center Street (east of Main Street)*

Several residents indicated a desire for more comfortable connections between neighborhoods east of Main Street and destinations and jobs downtown.

Public Comment Mentions: 8

Map 2.9: Linear Facilities Needing Improvement



SPOT BARRIERS AND HAZARDS

1 *Main Street & Hwy 89/91*

Heavy and fast traffic, and a lack of pedestrian accommodations inhibit bicycling, pedestrian comfort, safety, and access to retail at the south end of town.

Public Comment Mentions: 7

2 *Main Street & 200 South*

Fast and heavy traffic, and a lack of crossings, signals, and curb ramps were cited as deterrents to walking on or across Main Street.

Public Comment Mentions: 7

3 *500 North & Main Street*

This intersection is the beginning and end of the 500 North bike lane. The bike lane ends before the intersection and bicyclists merge with traffic. There is also no receiving facility on the west side of Main Street.

Public Comment Mentions: 6

4 *700 East & 700 North hill walkway*

Logan residents and students said that this walkway was steep, slippery, icy, and not ADA compliant, while also being one of the only east-west connections to campus.

Public Comment Mentions: 6

5 *400 North & 600 East*

In addition to being one of the 400 North north-south crossings, this intersection in particular was cited as having inadequate crossing times and too much congestion.

Public Comment Mentions: 6

6 *Main Street & ~600 South*

Fast and heavy traffic, and a lack of crossings, signals, and curb ramps were cited as deterrents to walking on or across Main Street.

Public Comment Mentions: 6

7 *Hwy 89/91 & Golf Course Road*

Concerns about comfort and safety similar to some Main Street crossings were cited here as well. Median prohibits auto movements.

Public Comment Mentions: 6

8 *200 North north-south crossings*

A lack of pedestrian crossings, signals, and curb ramp improvements were cited as a deterrent to walking on or across 200 North. Currently only four signalized crossing locations exist between 1000 W and Main St.

Public Comment Mentions: 5

9 *400 North north-south crossings*

The street itself was the most-mentioned linear barrier and hazard. Additionally, the lack of comfortable north-south crossings were cited as a barrier to walking, especially near campus. Currently only four signalized crossing locations exist between Logan Canyon and Main Street.

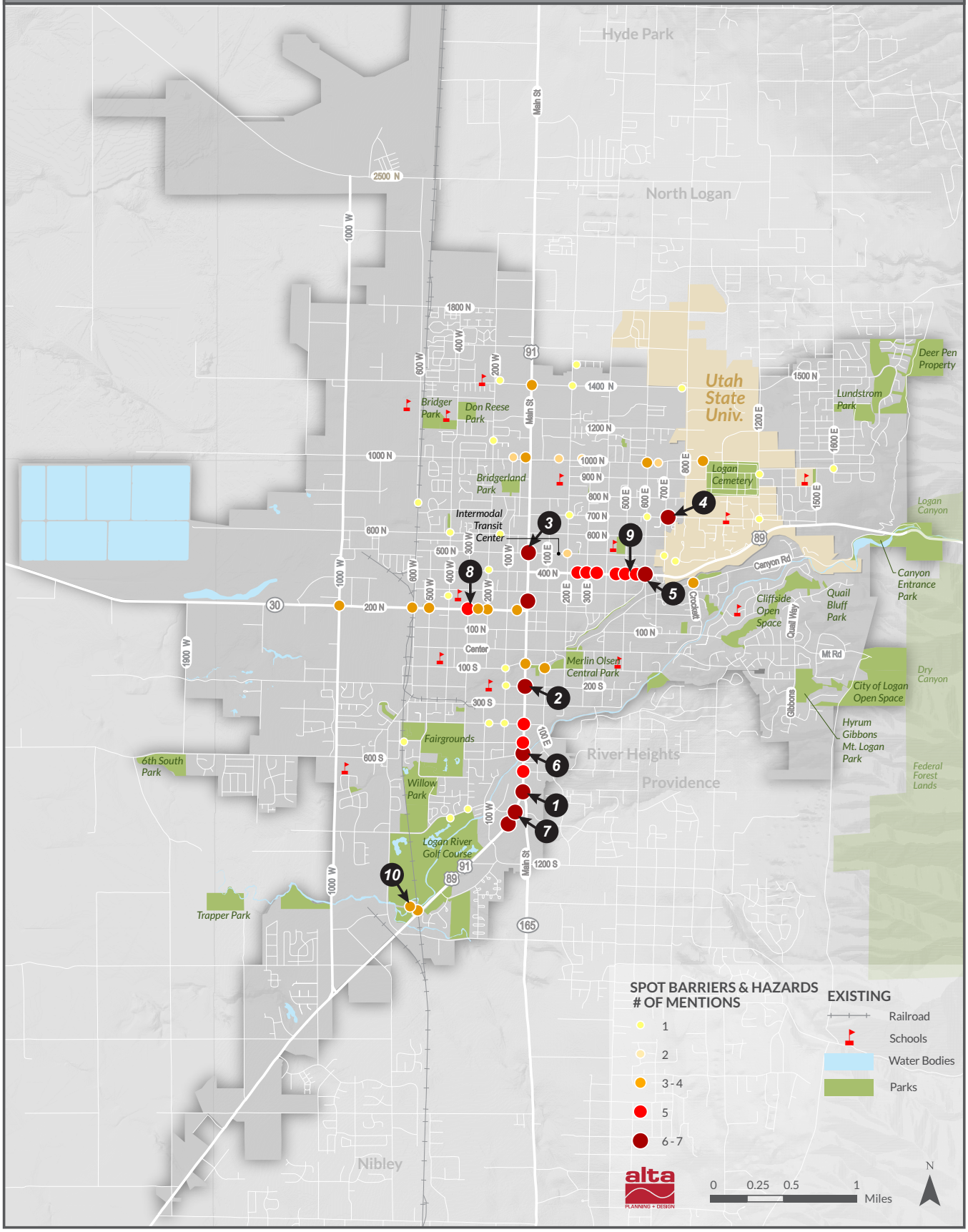
Public Comment Mentions: 5

10 *Logan River Trail & Rendezvous Park*

Many stated the crossing of the railroad tracks and not having a defined or protected crossing into/out of Rendezvous Park contributed to their not using the Logan River Trail as frequently.

Public Comment Mentions: 4

Map 2.10: Spot Barriers & Hazards Map



LEVEL OF TRAFFIC STRESS ANALYSIS

LEVEL OF TRAFFIC STRESS (LTS) METHODOLOGY

A bicycle network is likely to attract a large portion of the population if its fundamental attribute is low stress connectivity. In other words, a network should provide direct routes between origins and destinations that do not include links that exceed one's tolerance for traffic stress. The LTS Analysis is an objective, data-driven evaluation model which identifies high traffic stress links, bicycle network gaps and gaps between "low stress" links, and a score assessing the relative user comfort or level of stress a user may experience on each link is mapped. Each user is different and will tolerate different levels of stress in their journey so these maps should be used as a general guide rather than an absolute truth.

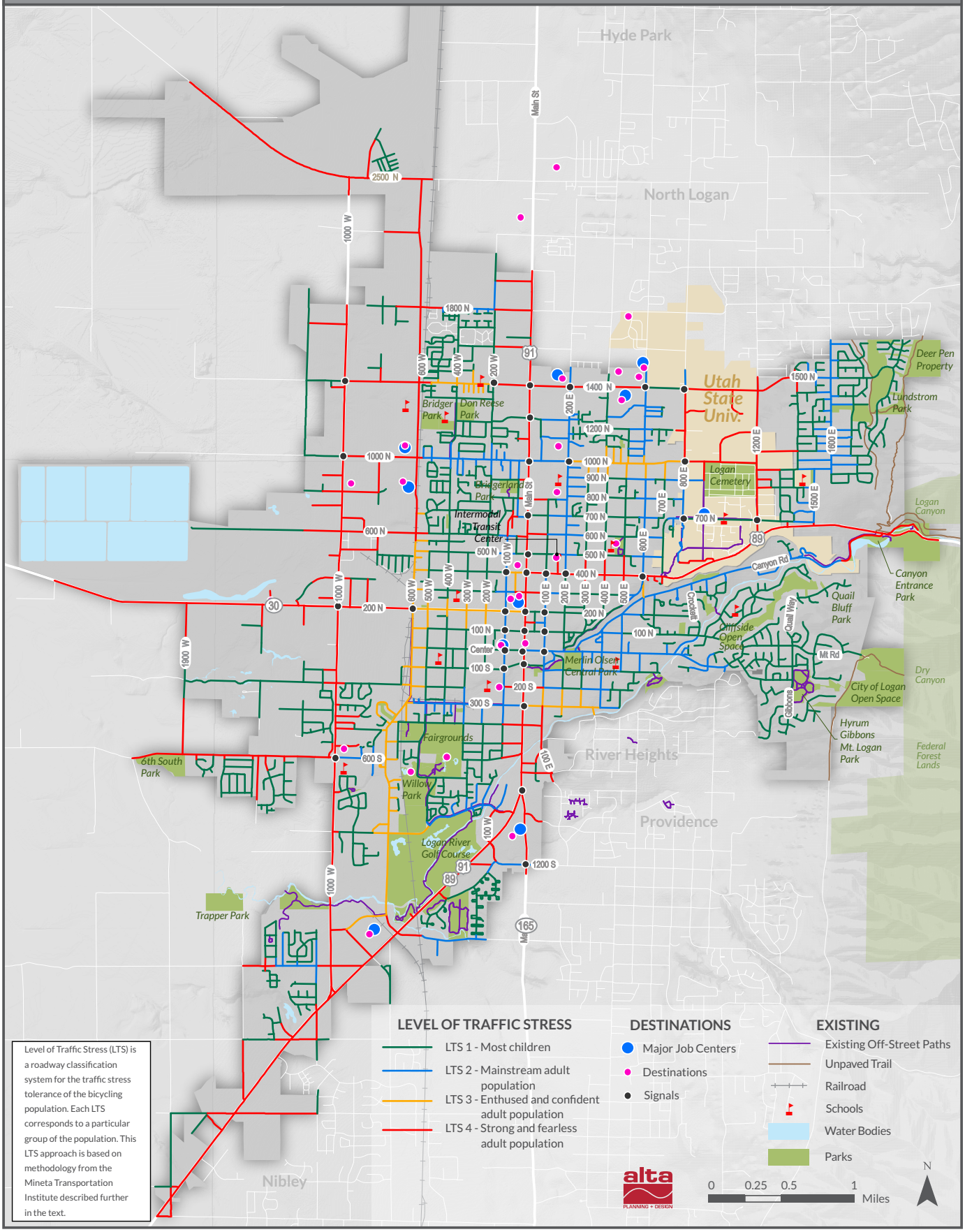
The methods used for the Level of Traffic Stress Analysis were adapted from the 2012 Mineta Transportation Institute (MTI) Report 11-19: Low-Stress Bicycling and Network Connectivity. The approach outlined in the MTI report uses roadway network data, including posted speed limit, the number of travel lanes, and the presence and character of bicycle lanes, as a proxy for bicyclist comfort level. Road segments are classified into one of four levels of traffic stress (LTS) based on these factors. The definitions and more detailed descriptions for each level of traffic stress are shown in Table 2.2.

There are some limitations to the analysis. The LTS analysis does not take steep slope, traffic volumes, availability of sidewalks, or shared use paths into account. The latter two are not considered because the analysis is specifically focused on the roadway itself. The former two are not considered because of the lack of available data. While the analysis does provide a snapshot of the low stress connectivity in Logan, it is not perfect. Manual adjustment may be necessary in the future.

Table 2.2 – Levels of Traffic Stress Definitions. Source: Mineta Transportation Institute Report 11-19

Level of Traffic Stress Definitions	
LTS 1	Presenting little traffic stress and demanding little attention from bicyclists, and attractive enough for a relaxing bike ride. Suitable for almost all bicyclists including children trained to safely cross intersections. On links bicyclists are either physically separated from traffic, or are in an exclusive biking zone next to a slow traffic stream with no more than one lane per direction, or are on a shared road where they interact with only occasional motor vehicles (as opposed to a stream of traffic) with a low speed differential. Where bicyclists ride alongside a parking lane, they have ample operating space outside the zone into which car doors are opened. Intersections are easy to approach and cross.
LTS 2	Presenting little traffic stress and therefore suitable to most adult bicyclists but demanding more attention that might be expected from children. On links, bicyclists are either physically separated from traffic, or are in an exclusive bicycling zone next to a well-confined traffic stream with adequate clearance from a parking lane, or are on a shared road where they interact with only occasional motor vehicles (as opposed to a stream of traffic) with a low speed differential. Where a bike lane lies between a through lane and a right-turn lane, it is configured to give bicyclists unambiguous priority where cars cross the bike lane and to keep car speed in the right-turn lane comparable to bicycling speeds. Crossings are not difficult for most adults.
LTS 3	More traffic stress than LTS 2, yet markedly less than the stress of integrating with multilane traffic, and therefore welcome to many people currently riding bikes in American cities. Offering cyclists either an exclusive riding zone (lane)next to moderate-speed traffic or shared lanes on streets that are not multilane and have moderately low speed. Crossings may be longer or across higher-speed roads than allowed by LTS 2, but are still considered acceptably safe to most adult pedestrians.
LTS 4	A level of stress beyond LTS 3.

Map 2.11: LTS Segment Analysis



2.7 Existing Conditions Conclusion

American Community Survey and Utah Travel Study data already show that Logan residents are walking and biking frequently as part of their daily lives. The City's walk and bike to work mode shares are already among the highest in Utah. Numerous factors are likely behind these high levels of walking and biking including the presence of Utah State University, a compact city ideally sized for biking and walking trips, a well-developed network of gridded streets and a diverse array of existing programs and events focused on walking and biking.

While this data is encouraging there is still significant room for improvement. Figure 2.45 shows that although Logan residents currently walk and bike more than Salt Lake City residents, they are comparatively under served by walking and biking facilities. This illustrates the tremendous potential inherent in Logan. By investing in a comprehensive and connected network of bicycle and pedestrian facilities, Logan has the potential to become a national leader for bicycle and pedestrian activity.

The other major result of the existing conditions analysis was that state-owned roads present major challenges to Logan bicyclists and pedestrians. Throughout the public process, comments were consistently received regarding difficult crossing conditions for Main Street, 400 N, and 200 N. The recommendations chapter offers numerous strategies to address these issues such as high visibility crosswalks, hybrid beacons and pedestrian undercrossings.

Chapters three and four seek to develop recommendations based on input from stakeholder groups, Logan residents, governments, tourists, business owners, and others, as well as the research summarized in this existing conditions analysis. Recommendations will act as the programmatic and infrastructure planning basis for bicycling and walking in the Logan area and will incorporate the vision of the community.

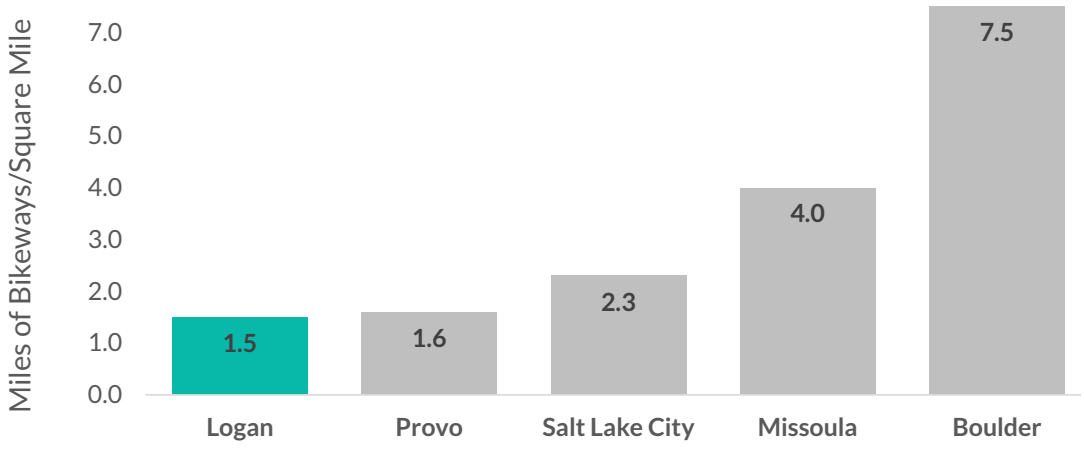


Figure 2.45 City Bikeway Density Comparison

3

PROGRAM RECOMMENDATIONS

A study of Safe Routes to School programs in four states found that active travel to school increased by 37% after implementation of the programs.

- MOVING FORWARD: SAFE ROUTES TO SCHOOL PROGRESS IN FIVE STATES, JULY 2012

Photo credit: Camilla Bottleberghe

3.1 SUPPORTING THE SYSTEM

Improvements to and continued support of education, encouragement, empowerment, and evaluation strategies are critical to increasing the number of bicycle and pedestrian trips and safety. These programs can ensure that more residents know about new and improved facilities, learn the skills they need to integrate bicycling and walking into their activities, and receive positive reinforcement about integrating these activities into their daily lives. In essence, the new and enhanced programs market the idea of bicycling and walking to local residents and ensure a shift to bicycling and walking as a transportation option.

Table 3.1 outlines the recommended programs and provides a brief overview of various factors for each program. The "sphere of influence" category indicates the organization most likely to implement each respective program. Each remaining factor is defined by three levels these include a program's level of complexity (low, medium, high), potential time frame (short, mid, long-term) and potential cost (low, medium, high).

Equally as important as providing bicycle and pedestrian infrastructure is ensuring that users are familiar with the treatments and know how to use them. This section presents additional recommended bicycle, pedestrian, and motorist education programs.

Figure 3.1 USU Open Streets Event (Photo credit: Camilla Bottleberghe)

Table 3.1 Recommended Programs Overview

Program Name	*Sphere of Influence*	*Quick Start*	*Level of Complexity*	*Potential Time Frame*	*Potential Cost*
EDUCATION					
Education and Awareness Campaigns	City, USU, School Dist.	✔	High	Short-term	Medium
Educational Courses	City, USU, School Dist.	✔	Medium	Mid-term	Medium
Volunteer Ambassador Program	City, USU	✔	Medium	Short-term	Low
Bicycle Hub or Station	City, USU		High	Mid-term	Medium
Create How-to Guides	City, USU, School Dist.		Medium	Mid-term	Low
City-Wide Wayfinding and Signage Program	City		Medium	Short-term	Medium
ENCOURAGEMENT					
Bike/Walk Focused Community Events	City, USU, School Dist.	✔	Low	Short-term	Low
Commuter Incentive Program	City		Low	Mid-term	Medium
Bicycle Mentorship Program	City, USU, School Dist.		High	Long-term	High
Create Maps	City, USU, School Dist.		Medium	Long-term	High
SRTS Activities	City, School Dist.	✔	Medium	Mid-term	Medium
Walking School Bus/Bicycle Train/School Pool	City, School Dist.	✔	Medium	Short-term	Low
Bicycle Valet Program	City, USU	✔	Medium	Mid-term	Medium
Road Respect Community Designation	City	✔	Low	Short-term	Low
Bicycle Friendly Community Designation	City	✔	Low	Short-term	Low
Bicycle Friendly University Designation	USU	✔	Low	Short-term	Low
Walk Friendly Community Designation	City	✔	Low	Short-term	Low
EMPOWERMENT					
Formation of a NGO or Non-Profit Organization	City		Medium	Mid-term	Medium
EVALUATION					
Annual Count Program	City, USU, School Dist.		Hard	Long-term	Medium
Annual Report	City	✔	Hard	Mid-term	Medium
Parent Survey SRTS	City, School Dist.	✔	Low	Mid-term	Low
Hand Tallies SRTS	USU, School Dist.	✔	Low	Mid-term	Low

Photo credit: Camilla Bottleberghe

3.2 EDUCATION

Education and Awareness Campaigns

Educating all users on rules of the road and creating awareness of bicyclist and pedestrian issues is the goal of any bicycle/pedestrian campaign. Creating and implementing customized campaigns allow targeted messages to get to the right audiences. Through this plan the City of Logan will be able to gauge and address its specific knowledge gaps. Understanding these gaps in knowledge is important before embarking on the creation of a campaign as well.

An education/awareness campaign can be as large or small as necessary to fit the time and budget of the implementation staff. Campaigns can include everything from Public Service Announcements (PSAs) on local media outlets, billboards, and bus wraps, to fliers around the community, interactive booths at farmers markets and announcements or notices through the schools.

Campaigns can focus on:

- Bike safety
- Pedestrian education
- Driver awareness of bicyclists/pedestrians
- Rules of the road
- Safe Routes to School (SRTS)
- Health benefits of active transportation
- Sharing the road
- Identifying as a bicyclist/pedestrian

Messaging within a campaign should be concise and clear. Some examples include a SRTS focused campaign in the City of Pasadena, CA, where they used PSA's with simple messages: "We make time to drive 25" and "We make time to brake for kids". Another approach could be to do an "I am a bicyclist" campaign to identify the range of people that use bicycles and to normalize the use of bicycles in every-day errands. Everyone is a pedestrian at some point of their day, yet few people would identify themselves as a pedestrian. Calling attention to this fact could be the basis of a pedestrian focused campaign.

Educational Courses

Educational courses are the cornerstone of an education program. Like education and awareness campaigns, educational courses should be selected for the appropriate audience and knowledge gap. Also, a local non-profit organization or similar group could create a course if one doesn't already exist.

Types of courses to be considered:

- Bicyclist and pedestrian courses for students
- In-class student education curriculum for SRTS
- Bicyclist and pedestrian courses for adults
- Drivers' education training
- Ticket diversion program for drivers and bicyclists
- Women-only program focused on education and support
- Winter bicycling 101 including tips, techniques, and gear
- Campus bicycling safety during student orientation

There are many resources already available online for a wide variety of courses through the League of American Bicyclists, SRTS National Partnership and SRTS National Center. Youth bicycle education or "Bike Rodeos" could incorporate pedestrian components and a simulated streetscape for students to practice their skills in a safe, off-street setting. A women-only program could include education before a ride, and example is the women-only "Mother's Day Ride" In Columbia, MO.

Figure 3.2 Example Educational Course Flyer

Volunteer Ambassador Program

A Volunteer Ambassador Program recruits and trains local residents, bicyclist enthusiasts, and walkers to reach out to budding bicyclists and would-be walkers to provide education and resources. The following list presents typical opportunities for this type program:

- Provide outreach presentations to schools, special events, bike rides, and other functions
- Bicycle safety courses taught by League of American Bicyclists Certified Instructors (LCI)
- Distribution of safety class schedules, bike maps and Share the Road Guides at community events
- Distribution of helmets and helmet fittings through community outreach and rodeos
- Bike rodeos and kids bike safety classes for scout troops, Boys and Girl's Clubs, and schools
- Women's bicycle mechanics classes and a general mechanics classes
- A Bike Booth on the Utah State University campus cold provide minor bike bike adjustments, bike registrations and outreach materials. A similar program is run by the University of Arizona.
- Outreach on trails

Develop a Bicycle Hub or Station

Building off Aggie Blue Bikes' current offerings, create a bicycle hub or station downtown where volunteers can provide assistance and resources to local residents and university students. Used as a resource center, the Bicycle Hub/Station can be the center of bicycling in Logan. Many resources and programs could be centered out of this Hub/Station. The Cache Valley Transit Center or current Aggie Blue Bikes shop are two potential venues that could support this concept.

Bicycle registration could also take place at the Bike Hub to help prevent bike thefts. Locating donors or finding funding to provide bicycle lights and bells to those who register their bicycles could help promote registration.

The Hub/Station can be where students come to register for a Bicycle and Pedestrian Campus Orientation course (see Education Courses above). If give-away items are secured, contests can be conducted to encourage and incentivize people to bicycle more and more.

Create How-to Guides

Guides are great resources for educating a community on a variety of topics, similar to education campaigns and courses, but these can go into greater depths than a campaign and can be more widely distributed than a course.

As with the campaigns and courses, guides can cover a wide range of topics, including:

- Sharing the road: Bicyclists, Pedestrians and Drivers
- Winter how-to guide for bicyclists and pedestrians
- Starting a Walking School Bus/Bicycle Train

The Cache Valley Visitor's Bureau has a biking guide geared towards recreational riding; they also have a historic downtown self-guided walking tour brochure and a hiking guide. These can be found here:

- https://www.explorelogan.com/assets/files/brochures/biking.pdf
- https://www.explorelogan.com/assets/files/brochures/walking.pdf
- https://www.explorelogan.com/assets/files/brochures/hiking.pdf

Another example of such a guide can be found here:

- http://www.activetrans.org/sites/default/files/Everyday_Biking.pdf

Photo credit: Camilla Bottleberghe

3.3 ENCOURAGEMENT

Bike/Walk Focused Community Events

Creating and hosting community-wide events that are focused on celebrating bicycling and walking is key in creating awareness and increasing participation within Logan.

Types of events could include:

- Expand current Bike Day event to Bike Month Celebration
- Celebrate 'Walktober' and International Walk to School Day in October
- Bike Festivals
- Bike rides open to the community such as 'Critical Mass' ride or a youth focused ride called 'Kidical Mass'
- Winter bike events and celebrations

Commuter Incentive Program

Figure 3.3 Commuter Incentive Discounts

Provide resources and incentives for residents and students to commute by bicycle or on foot. Create partnerships with local businesses to provide incentives, discounts, and services to participants. Run contests with prizes to engage people. Design a website as a central information center with the available perks and incentives available to those who participate.

Bicycle Mentorship Program

A mentorship program would partner someone who is new to bicycling with someone within the community who is an experienced rider and who can 'mentor' the beginners on tips, techniques and even suggest routes that they find most comfortable to use.

Safe Routes to School Activities

Encouraging more bicycling and walking to schools can be achieved through many of the recommended programs in this plan. In addition to the recommendations already listed, below are more ideas for implementing Safe Routes to School activities.

Potential Safe Routes to School (SRTS) activities could include:

- Create awareness of SRTS at back to school nights
- School assemblies
- Host "Walk and Roll to School" events
- SRTS related contests such as poster contests or which classroom had the most bicycle/walk to school
- Create Walking School Buses and Bicycle Trains
- Create a 'Caught Being Good' enforcement program where those who wear bicycle helmets or look both ways before crossing are 'ticketed' with a prize

The California SRTS Technical Assistance Resource Center has a comprehensive list of low cost SRTS activities by each of the '5 E's' located here: http://www.casaferoutestoschool.org/safe-routes-to-school-basics/low-cost-srts-activities/.

Create Maps

Creating maps are a great resource to promote awareness and to encourage people to utilize available facilities. In addition to the maps that are already available, consider creating additional maps, such as:

- City-wide bicycle map
- Themed walking maps
- Suggested walking and biking to school maps, utilizing SNAP maps as a base (http://www.udot.utah.gov/snap/)
- Bikeway maps by level of bicyclist comfort

Local hiking trails are already mapped out here: http://www.logancanyonhiking.com/ .

WALKING SCHOOL BUS/BICYCLE TRAIN/ SCHOOL POOL

A walking school bus is a group of children who are accompanied by one or more adults walking together to school. Students meet the 'bus' along a predetermined route or at designated locations at specified times. Walking school buses can be informal arrangements between neighbors with children attending the same school or official school-wide endeavors with trained volunteers.

Bike trains are the same idea as a walking school bus but the group rides their bikes together. Bike trains are best suited for older students who have undergone bicycle safety training. Adults act as "lead" and "sweep" to make sure the group stays together and follows the rules of the road.

BICYCLE VALET PROGRAM

Providing convenient, secure bicycle parking at large events can make bicycling to an event a more attractive option. Arenas, parks, and other venues and gathering places often do not have the bike parking capacity to accommodate very large crowds. Temporary facilities, such as corrals or mobile racks, can be brought on site to meet the demand. This type of service can also prevent damage to non-parking facilities, such as trees and hand rails that bicyclists use when appropriate facilities are lacking. Temporary bike parking can be staffed or used with standard locks to ensure security. The City could work with the University and the BPAC to do this type of program for city-wide events.

Road Respect Community Designation

Continue pursuing higher levels of the Utah Department of Transportation's (UDOT) "Road Respect Community" Program. Logan is currently at Level 1 of the program. This designation, in conjunction with a successful Bicycle Friendly Community designation will heighten the awareness of bicycling in the City of Logan.

Bicycle Friendly Community Designation

Since the City's 2011 application, many advancements have been made, including the development of this Plan. The City should reapply for designation to become a Bicycle Friendly Community.

Bicycle Friendly University Designation

Utah State University is currently designated a Silver Bicycle Friendly University (BFU). Through the recommendations in this plan as well as those in the 2013 BFU Feedback Report, USU should continue to pursue higher level designations.

Walk Friendly Community Designation

Similar to the Bicycle Friendly Community Designation, Walk Friendly Communities (WFC) is a national recognition program developed to encourage towns and cities across the U.S. to establish or recommit to a high priority for supporting safer walking environments. The WFC program recognizes communities that are working to improve a wide range of conditions related to walking, including safety, mobility, access, and comfort. The BPAC should apply for designation for the City of Logan.

Photo credit: Cache County BPAC

3.4 EMPOWERMENT

Implementation of this plan will be aided if the City is able to work closely with local groups, individuals, and advocates to achieve a common goal. Empowering advocates and creating a mechanism for creating change will enable these goals to be realized collaboratively.

FORMATION OF A NGO OR NON-PROFIT ORGANIZATION

Establishing a Non-Governmental Organization (NGO) or non-profit organization, such as a "Friends of Logan Trails", could allow local advocates to take a more active role in the development of Logan's bicycle and pedestrian network and culture . The Cache County BPAC committee currently provides guidance and encourages active transportation by hosting various programs throughout the year; however, there have been discussions in the past about how this group could become a more active participant in creating and encouraging active transportation. Though there are pros and cons to starting a new organization, an NGO would be able to reach out to local businesses or groups to help support and promote bicycle and pedestrian-related projects and programs such as those proposed in this plan. This type of group would be able to maximize and leverage funding opportunities available. Several non-profit groups exist throughout Utah that Logan advocates could look to such as the Southern Utah Bicycle Alliance (https://www.facebook.com/SouthernUtahBicycleAlliance) or Weber Pathways (http://www.weberpathways.org).

An NGO could serve a variety of purposes in the implementation of this plan, specific tasks could include:

- Advocate, promote, and encourage the development of the bicycle, pedestrian, and trails network throughout the community
- Educate citizens as to the benefits of biking and walking and trails and greenways
- Create and implement media campaigns
- Play an active role in raising funds for network development in concert with the BPAC
- Assist in securing right of way for implementation
- Help to organize volunteers to assist with implementation and management
- Sponsor or co-sponsor biking and walking and trail events
- Assist the City with property acquisition.

To minimize the initial paperwork requirements, fiscal sponsorship could be an option to create a local non-profit bicycle and pedestrian advocacy organization. Fiscal sponsors essentially loan out their non-profit status to groups with similar missions and goals. A written contract is normally drafted that spells out responsibilities and sometimes fees. Weber Pathways could be a potential organization with which to structure this type of agreement.

An example of an advocacy tool this organization could provide to the community is a guide to advocacy prepared by the Massachusetts Bicycle Coalition.

http://massbike.org/wp-content/uploads/2012/08/Shifting-Gears_Web-Version2.pdf

Photo credit: Cache County BPAC

3.5 EVALUATION

ANNUAL COUNT PROGRAM

One way to determine this Plan's success at increasing bicycling and walking rates and associated safety, is to establish an annual data collection program. At a minimum, this program should tally the number of bicyclists and pedestrians at key locations around the community (particularly at pinch points, such as in downtown or near schools). The same locations should be counted in the same manner annually. If major bikeway or greenway infrastructure projects are planned, baseline and post-construction user counts can be performed through this coordinated annual count process for maximum efficiency. This will provide the City and MPO with information about growth of bicycling/pedestrian rates. These counts can be conducted by volunteers or even by University students for credit. Automated trail/traffic signal technology for counting bicyclists and pedestrians can streamline the counting process and allow more frequent counts.

ANNUAL REPORT

The Logan Bicycle and Pedestrian Master Plan establishes a vision statement, goals, and performance measures defining the desired outcomes of the planning process. Publishing an annual report that measures accomplishments and performance against goals is a useful strategy to track progress and maintain momentum for the plan's implementation.

An annual report should include relevant bicycling and pedestrian metrics (count results, new bikeway/greenway/sidewalk facility miles, major completed projects, bicycle and pedestrian-involved crashes, number of organized events) and may also include information on user satisfaction, public perception of safety, or other relevant qualitative data that has been collected. A complete list of performance metrics can be found in Chapter V: Implementation and should serve as the basis for the Annual Report.

The report can be assembled annually through a joint effort between Logan City Planning and BPAC. The BPAC should present the findings to Council, along with recommendations about key efforts for the coming year.

The report can take many forms and be as simple or complex as desired. Billings, Montana annually conducts such a report. Their results can be found here: http://www.healthybydesignyellowstone.org/wpcontent/uploads/REPORT_BillingsCSBenchmarkRprt_2013.08.08_FINAL.pdf

Parent surveys help Safe Routes to School programs stay in touch with parents and understand their concerns and perceptions of walking and bicycling. Because they collect information about transportation mode choice and how far from school the family lives, they provide valuable insight into the potential for shifting to active or shared modes of transportation.

The National Center for SRTS parent survey is an established survey form and methodology. Results can be sent or entered into the Data Collection System, which generates reports by school and program-wide, comparing among time periods. More information can be found at: http://www.saferoutesinfo.org/program-tools/evaluation-parent-survey.

HAND TALLIES SRTS

Student hand tallies are a quick and effective way of gathering data about students' transportation mode for a Safe Routes to School program. Hand tallies are often required for Safe Routes to School (SRTS) funding. Teachers, program staff, and/or volunteers simply go to classrooms at participating schools and ask students how they get to/from school. Hand tallies are considered the most accurate method of collecting information about the school commute. The National Center for SRTS has developed a standard tally sheet for use. More information can be found at: http://www.saferoutesinfo.org/program-tools/evaluation-student-class-travel-tally.

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INFRASTRUCTURE RECOMMENDATIONS

The Logan Bicycle & Pedestrian Master Plan recommends the development of ***26*** miles of shared lane markings, ***20*** miles of traditional, buffered and protected bike lanes; and ***27*** miles of shared use trails.

4.1 LINEAR PEDESTRIAN RECOMMENDATIONS

OVERVIEW

All residents within Logan are pedestrians at some point in their day – whether walking the dog, walking to the store or work, or from a vehicle to a destination. This section includes pedestrian needs, including disabled pedestrian needs, system deficiencies, sidewalk infill prioritization, and proposed recommendations for pedestrian facility improvements that were developed from the public involvement process and from field observations.

FACILITY RECOMMENDATIONS

The proposed pedestrian network for Logan consists of:

- Sidewalk improvement and completing network gaps
- Crossing improvements, overall intersection improvement, and signals (shown in the supporting infrastructure improvements and spot improvements section)
- Shared-use trail projects (shown in the Bicycling Facility Recommendations section)

SIDEWALK INFILL PRIORITIZATION METHODOLOGY

The Planning Team developed the following framework for prioritizing sidewalk infill investment. Each criterion contains score-able information about a facility's ability to address an existing or future need. By combining the scores into a weighted index, a ranked project list can be developed that reflects each project's relative priority level for implementation. This provides assurance that relevant factors have been considered in the selection of projects. Prioritization factors considered are as follows:

Safety

Sidewalk infill projects are best positioned to improve safety conditions on streets with a history of pedestrian collisions. Proposed projects will score higher on this criterion if they are located on (or immediately adjacent to) these streets.

- Data Source: Collision data

Gap Closure

Filling gaps in the sidewalk network opens up new areas to pedestrian access. Projects that fill gaps will score higher than projects that do not (i.e. projects that are redundant with existing routes).

- Data Source: pedestrian network

Connectivity to Transit

Sidewalk infill that link to public transit increase the geographical distance that pedestrians and bicyclists are able to travel and provide an alternative in case of problems during a trip. Proposed projects that connect directly to transit facilities will score higher on this criterion.

- Data Source: Transit facility locations

Connectivity to Schools (K - 12)

Schools generate many daily trips that could be served by walking and cycling. Constructing safe routes to schools relieves parents of the need to drive each morning, encourages physical activity among children and instills healthy inter-generational habits. Proposed projects that connect directly to schools will score higher on this criterion.

- Data Source: K-12 school locations

Land Use

Commercial and higher density residential land uses are more likely to produce walking trips than low density residential areas.

- Data Source: City zoning

Major Activity Centers

Through examination of existing land use data, priority areas for infill will be designated based on expected intensity of use. Recommended priority areas include downtown and the USU campus.

- Data Source: Downtown business district and USU campus boundaries

Table 4.1 Sidewalk Scoring Criteria

Criteria	Score	Multiplier	Total	Description
Safety	1	2.0	2	Provides a pedestrian facility on a roadway that experienced one (1) or more pedestrian collision between 2010-2013
	0		0	Pedestrian crashes did not occur along the project corridor
Gap Closure	1	2.0	3	Resolves an existing network gap
	0		0	Does not resolve an existing network gap
Connectivity to Transit	1	1.0	1	Provides direct access (within one-tenth mile) to a transit stop
	0		0	Does not directly access a transit stop
Connectivity to Schools (K-12)	1	2.0	2	Is within one-quarter mile of a K – 12 school
	0		0	Does not directly access to a K – 12 school
Land Use	1	3.0	6	Provides a sidewalk along a higher density residential zones or commercial
	0		0	Provides sidewalks along other zones
Major Activity Centers	1	2.0	2	Provides a sidewalk in Downtown Logan or on the USU campus
	0		0	Provides a sidewalk elsewhere in the City

SIDEWALK INFILL PRIORITIZATION RESULTS

Based on the prioritization process previously identified, sidewalk infill projects were separated into four classifications:

- Priority (highest score): 8.02 miles
- Near Term (high score): 25.59 miles
- Mid Term (medium score): 30.70 miles
- Long Term (low score): 47.62 miles

Map 4.1: Sidewalk Prioritization

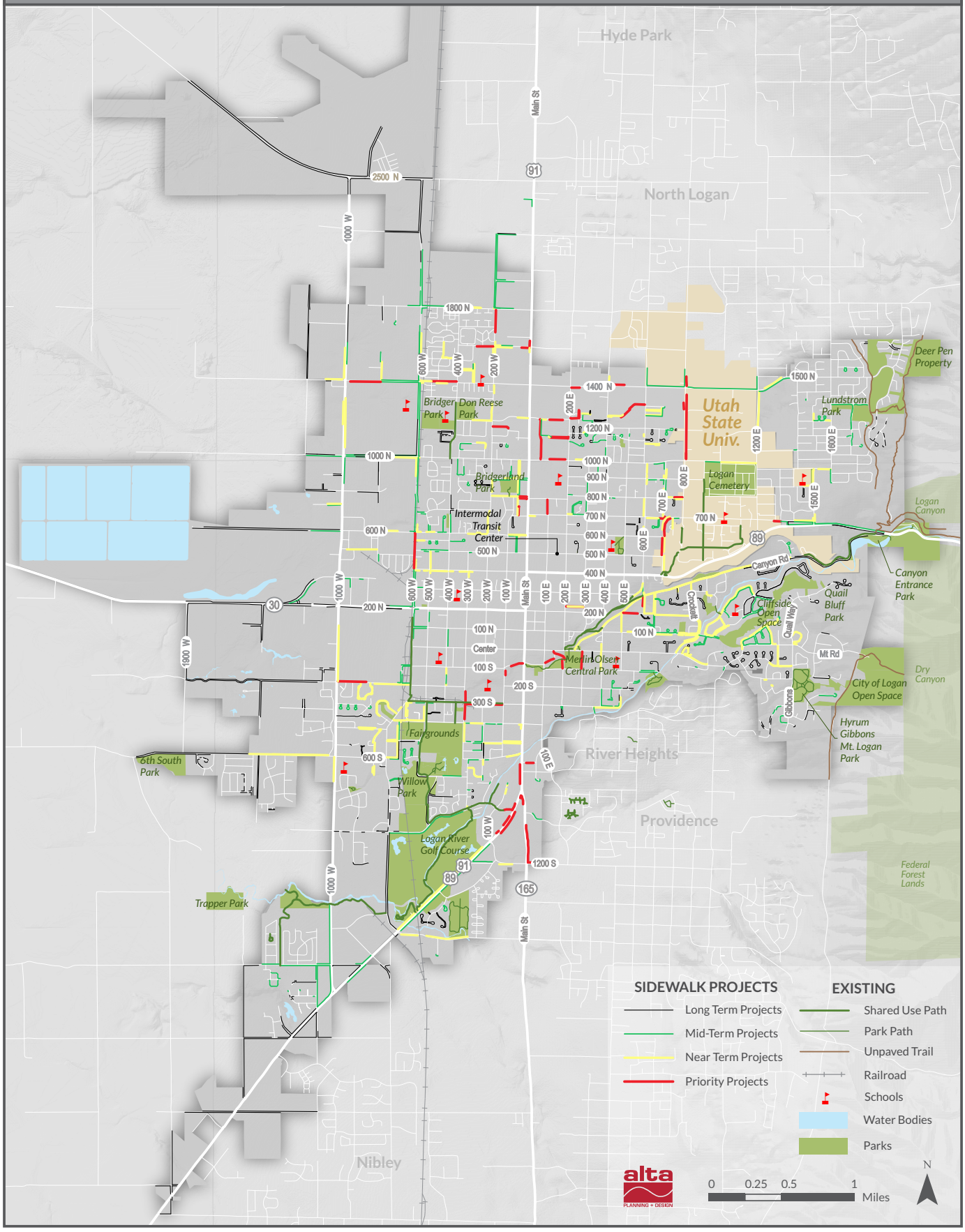


Photo credit: Camilla Bottleberghe

4.2 LINEAR BIKEWAY RECOMMENDATIONS

OVERVIEW

This section outlines potential on and off-street bikeways and trails that will better connect Logan's existing facilities and destinations. These recommendations are intended to encourage active living by residents and visitors alike while accommodating a variety of ability levels with particular emphasis on making the bikeway network more comfortable and accessible to a wider range of Logan residents.

FACILITY RECOMMENDATIONS

Bicycle facilities vary from bicycle routes designated by signage or shared lane markings to separated, off-street facilities along exclusive rights-of-way. Opportunities to develop bicycle facilities and a cohesive network also vary and may range from deliberate and coordinated development on the part of the City to taking advantage of independent street construction, reconstruction and resurfacing projects. Street re-surfacing in particular, is a low-cost way to provide bicycle infrastructure. When streets are resurfaced, new pavement markings are required. During this process, bicycle facilities can often be added depending on existing roadway width and feasibility.

The recommended Logan bikeway network represents a comprehensive set of existing and proposed bicycle transportation and recreation facilities. The proposed bicycling network for Logan consists of:

- Bicycle boulevards
- Shared roadways
- Bike lanes
- Buffered bike lanes
- Protected bike Lanes
- Shared use trails
- Unpaved trails

WHY SEPARATED ON-STREET FACILITIES

One's chance of injury drops by about 50 percent when riding on a major city street with a bike lane and no parked cars (as opposed to a major city street without bike lanes and with parking).[1]

Separated facilities also provide a buffer for pedestrians by creating more space between sidewalks and moving motor vehicle travel lanes. They also provided a breakdown lane for motorists and a clear recovery zone (for errant vehicles that leave the traveled way to recover into their own lane).

In addition, evidence has shown that increasing the number of cyclists on the road, improves safety for everyone. Cities with high bicycling rates tend to have low crash rates [2]

1 Kay Teschke, Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study, American Journal of Public Health, 2012

2 Marshall, W., and N. Garrick, 2011 - Evidence on why bike-friendly cities are safer for all road users. Environmental Practice. 13. 1

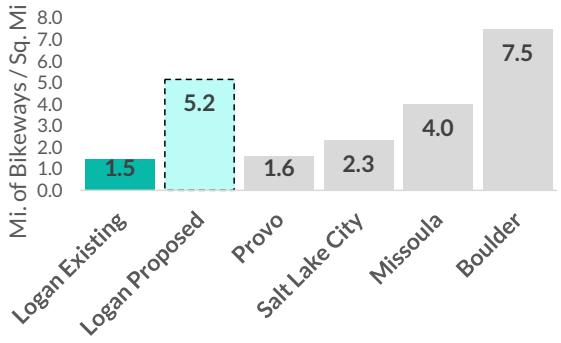


Figure 4.1 Logan Existing/Proposed Bikeway Density Comparison

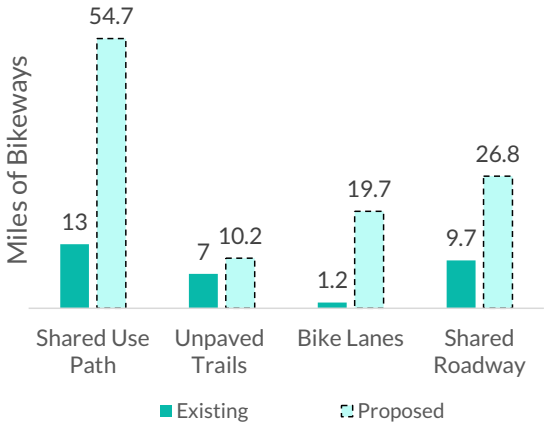


Figure 4.2 Logan Existing/Proposed Bikeway Mileage

PROPOSED ON-STREET BIKEWAY FACILITIES

Shared Roadways

A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper positioning within the lane. Shared roadways may be used on streets with a speed limit of 35 mph or under. In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles. In all conditions, SLMs should be placed outside of the door zone of parked cars.

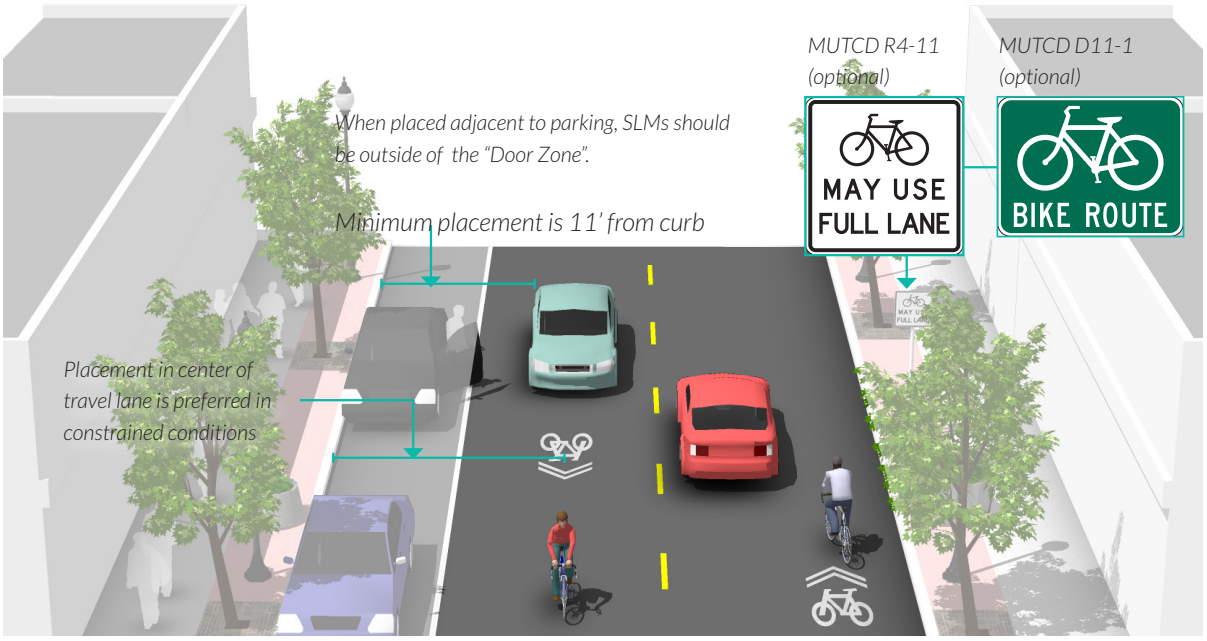


Figure 4.3 Shared Roadway

Bicycle Boulevards

Bicycle boulevards are low-volume, low-speed streets that enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic. Typically, local streets are the most comfortable for bicyclists with vehicle speeds at or below 25 miles per hour and vehicle volumes at or below 3,000 vehicles per day (with 1,500 vehicles per day preferred). When bicycle boulevards are proposed along streets exceeding these thresholds, speed or volume management treatments may be needed. Repaving, street sweeping and other maintenance should occur with higher frequency than on other local streets.

Many of the improvements made for bicycling are also advantageous for walking. Crossing improvements and more people on the street can improve comfort for pedestrians on the sidewalk as well.

Figure 4.4 Typical Bike Boulevard

Figure 4.5 Bike Boulevard Intersection Treatment

Bike Lanes

A bike lane provides a striped and stenciled lane for one-way travel on a street or highway. Many of the identified projects will occur with pavement resurfacing or roadway reconstructions. A 4 foot minimum width is recommended when no curb and gutter is present. A 5 foot minimum width is recommended when adjacent to a curb and gutter and a 7 foot maximum width is recommended when the bike lane is adjacent to arterials with high travel speeds. Paint is used to delineate bike lanes but will wear down in high traffic areas or in winter climates. Bike lanes should be cleared of snow through routine snow removal operations.

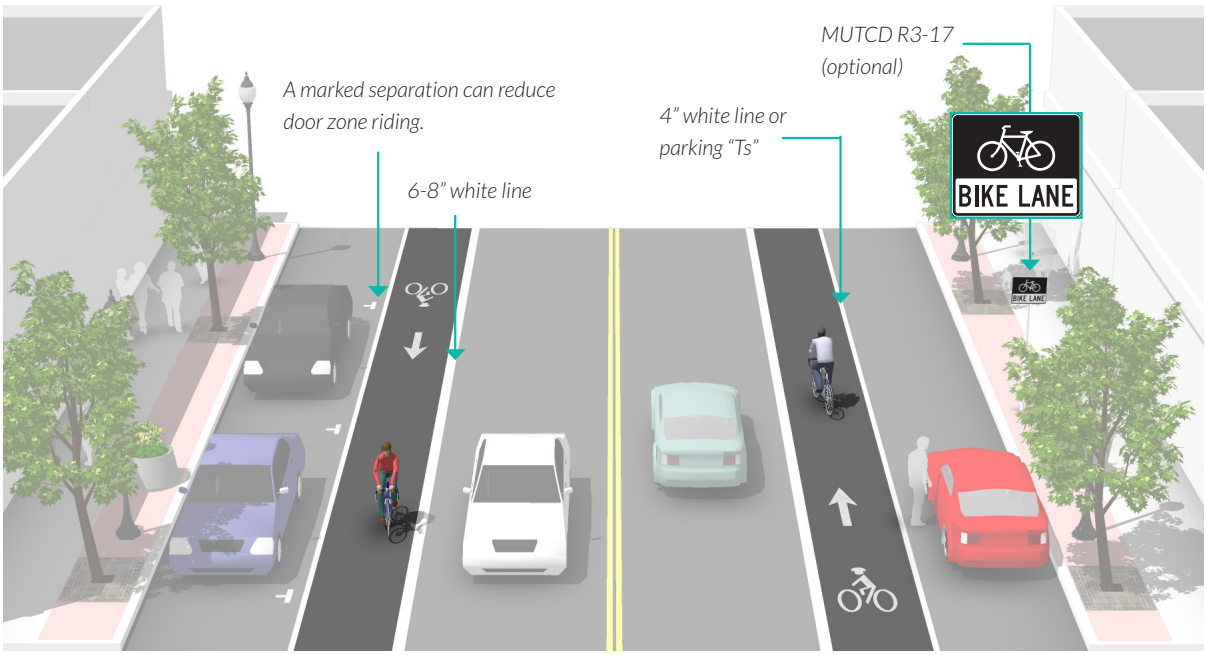


Figure 4.6 Bike Lanes

Buffered Bike Lanes

Similar to a bike lane in that a striped and stenciled lane is provided for one-way bicycle travel on a street or highway, buffered bicycle lanes provide additional width to 'buffer' the bike lane on the travel lane and/or parking lane edge. The minimum bicycle travel area (not including buffer) is 5 feet wide.

Buffered bike lanes provide a more comfortable experience for bicyclists, but they also are an effective tool to discourage motorists from driving or parking in the bike lane that would otherwise be excessively wide. This excessive width can sometimes be present when a roadway reconfiguration project converts an under utilized travel lane or parking lane to a bike lane.

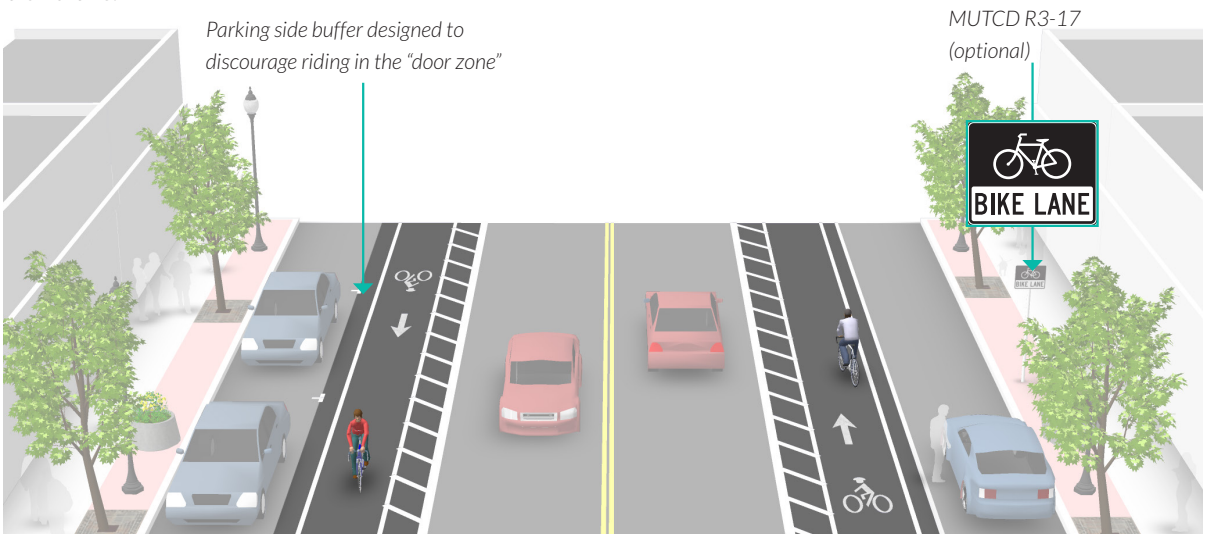


Figure 4.7 Buffered Bike Lanes

Two-way Protected Bike Lane

Two-way protected bike lanes are physically separated bike lanes that allow bicycle movement in both directions on one side of the road. Two-way protected bike lanes share some of the same design characteristics as one-way protected bike lanes, but may require additional considerations at driveway and side-street crossings.

A two-way protected bike lane may be configured at street level with a parking lane or other barrier between the protected bike lane and the motor vehicle travel lane and/or as a raised protected bike lane to provide vertical separation from the adjacent motor vehicle lane. They provide a more comfortable experience for bicyclists, but they also are an effective tool to discourage motorists from driving or parking in the bike lane that would otherwise be excessively wide. This excessive width can sometimes be present when a roadway reconfiguration project converts an under utilized travel lane or parking lane to a bike lane.

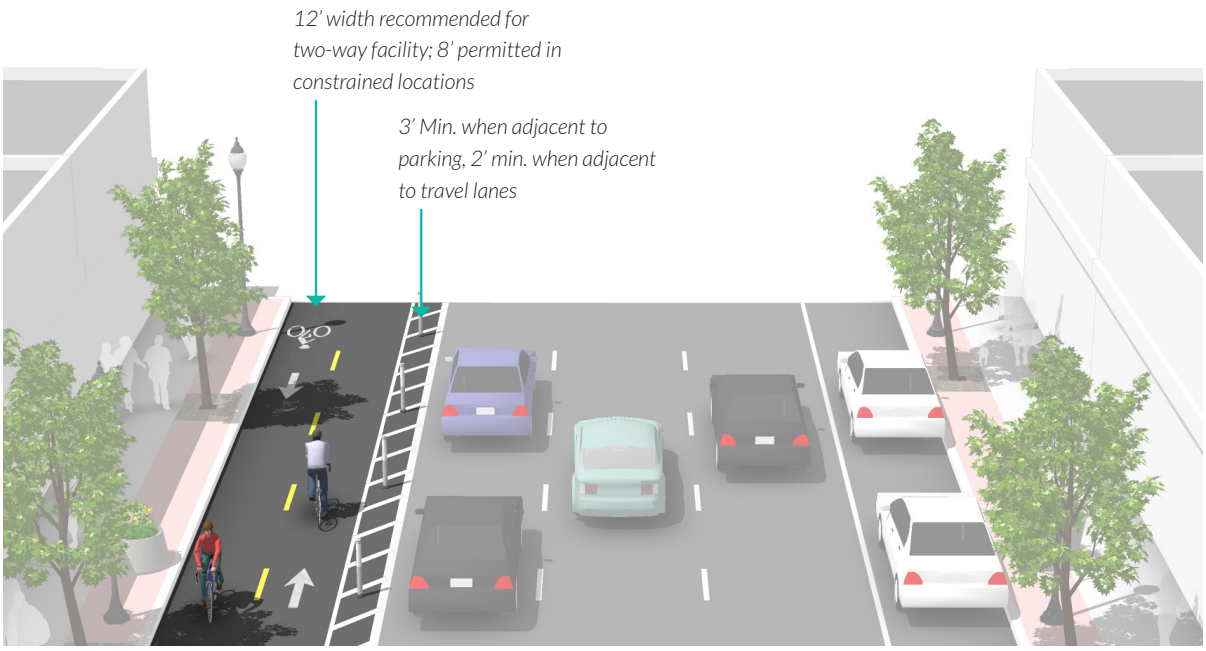


Figure 4.8 Typical Two-way Protected Bike Lane

PROPOSED OFF-STREET BIKEWAY FACILITIES

Shared Use Trails

Shared use trails can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. An 8' width is the minimum allowed for a two-way shared use trail and is only recommended for low traffic situations. 10' is recommended in most situations while 12' can be specified for heavy use locations. A 2' (minimum) shoulder and 3' obstruction-free clear zone are required on either side of a shared use trail. Centerline striping can be provided on tight or blind corners and on approaches to roadways. Asphalt and concrete are the most common surfaces for shared use trails. Crushed fines or other natural surfaces are permissible if they meet ADA requirements though they may deter certain types of users (such as rollerbladers) and present challenges in terms of durability, maintenance and skid resistance.

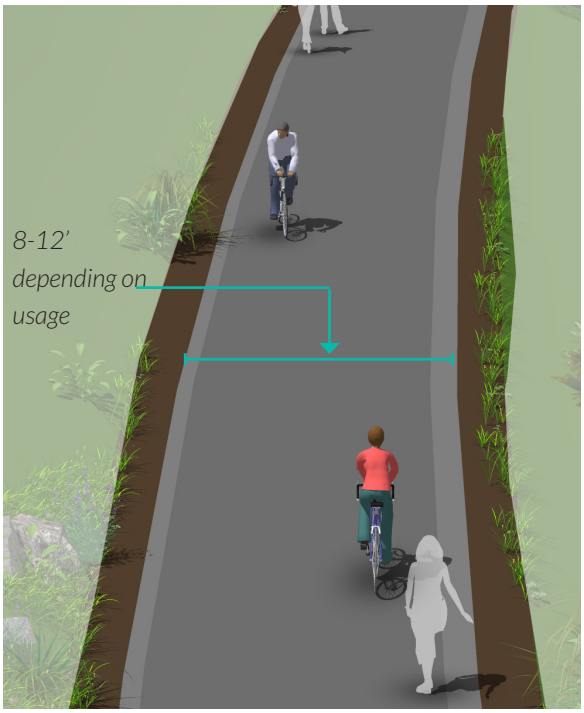


Figure 4.9 Typical Shared Use Trail

Unpaved Trails

An unpaved (dirt, gravel, etc...) trail exists in an independent right-of-way for exclusive use by bicyclists and pedestrians. Unpaved trails can vary from 18" widths to 10'-0" and greater. Unpaved trails may be suitable in corridors that are sensitive to fluctuations in stormwater quality or runoff such as stream corridors or canals. Unpaved trails generally are more focused on recreation than transportation.

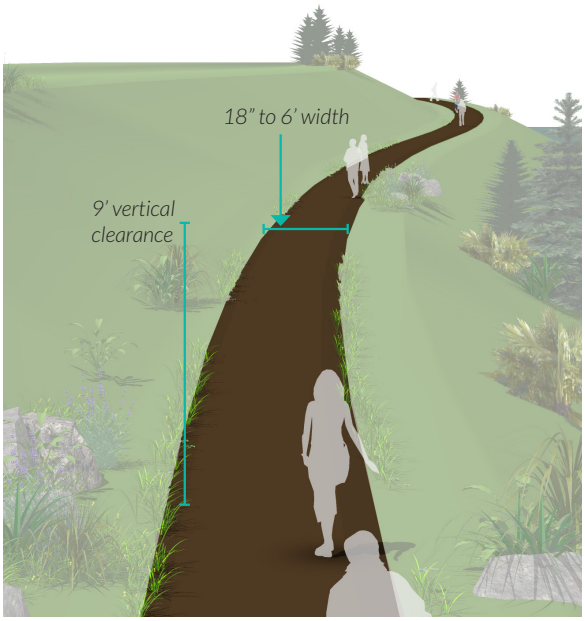


Figure 4.10 Typical Unpaved Trail

4.3 SPOT IMPROVEMENTS

There are many locations in Logan where site-specific improvements would greatly contribute to safer and more comfortable biking and walking conditions. Spot improvements have been recommended throughout the city. Some spot improvements can function as stand-alone projects where others are associated with proposed biking or walking facilities. Spot improvements have been classified into five categories:

- Grade-separated crossings
- Signals or beacons
- Crossing Improvements
- Access improvements
- Miscellaneous improvements

More detailed information about proposed spot improvements can be found in Chapter 5: Implementation and Appendix B: Design Guidelines. The following pages generally describe the primary spot improvement facilities recommended.

GRADE-SEPARATED CROSSINGS

Undercrossings

Undercrossings provide a grade-separated pedestrian non-motorized crossing of streets. Undercrossings are useful in crossing streets that exhibit high volumes and/or high speeds. Special considerations for lighting, safety and topography need to be considered when evaluating potential use of an undercrossing.

Figure 4.11 Recently completed undercrossing below 200 East

Overcrossings

Bicycle/pedestrian overcrossings provide critical non-motorized system links by joining areas separated by barriers such as deep canyons, waterways or major transportation corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Overcrossings require a minimum of 17 feet of

Figure 4.12 Typical Overcrossing

vertical clearance to the roadway below versus a minimum elevation differential of around 12 feet for an undercrossing. This results in potentially greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.

SIGNALS OR BEACONS

Rectangular Rapid Flashing Beacons (RRFBs)

An RRFB is a user-actuated amber flashing light that supplements warning signs at un-signalized crosswalks. Beacons can be actuated either manually by a push-button or passively through detection. RRFBs use an irregular flash pattern similar to emergency flashers on police vehicles and can used to facilitate crossing up to two lanes at a time before a refuge is required. Active warning beacons should be used to alert drivers to yield where bicyclists have the right-of-way crossing a road. RRFBs can improve driver yielding compliance to 95 percent in many locations.

Figure 4.13 Rapid Rectangular Flashing Beacons in Ogden, UT

Pedestrian Hybrid Beacon

A pedestrian hybrid beacon, also known as a High-intensity Activated CrosswalK (HAWK), consists of a signal-head with two red lenses over a single yellow lens. Hybrid beacons are encouraged to be used for mid-block crossings; however, many cities have found utility using them at intersections. With the hybrid beacon, there are no signal indications for motor vehicles on the minor street approaches. Hybrid beacons were developed specifically to enhance pedestrian crossings of major streets.

Hybrid beacons are used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal. The primary difference compared to a standard signal is that a hybrid beacon displays no indication (i.e., it is dark) when it is not actuated. Upon actuation (by a pedestrian or bicyclist on the minor street), the beacon begins flashing yellow, changes to steady yellow, then displays a solid red indication with both red lenses. During the solid red phase, drivers must stop and remain stopped, as with a standard traffic signal.

Figure 4.14 Typical Hybrid Pedestrian Crossing

CROSSING IMPROVEMENTS

Curb Extensions

Curb extensions visually and physically narrow the street creating shorter and safer crossings for pedestrians and bicyclists. One advantage of curb extensions at signalized intersections is that they also reduce the pedestrian phase and can thereby increase traffic flow.

Figure 4.15 Typical curb extension

Bike Boxes

A bike box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible space to get in front of queuing motorized traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box.

Figure 4.16 Typical bike box

Two Stage Turn Queue Boxes

Two-stage turn queue boxes offer bicyclists a safe way to make left turns at multi-lane signalized intersections from a right side cycle track or bike lane. Queue boxes are placed in a protected area such as an on-street parking lane or buffer area of a protected bike lane. "No Turn on Red" (MUTCD R10-11) signs should be installed on the cross street to prevent vehicles from entering the turn box.

Figure 4.17 Typical two-stage turn queue box

MISCELLANEOUS IMPROVEMENTS

Canyon Road Canal Park

The Canyon Road Canal Park could serve as an important hub in Logan's overall bicycle and pedestrian network. First, an ADA-accessible trail could be constructed through the park up to the Canal Trail. This would provide a good mid-point connection to the canal trail for residents of the "Island". In conjunction with the proposed Canyon Road/Old Main Hill Connector Trail, the Canyon Road Canal Park will likely serve as a major corridor for students walking and biking from the "Island" to campus. Crossing improvements near 970 East would enhance access to the property.

Figure 4.18 Canyon Road Canal Park Conceptual Improvements

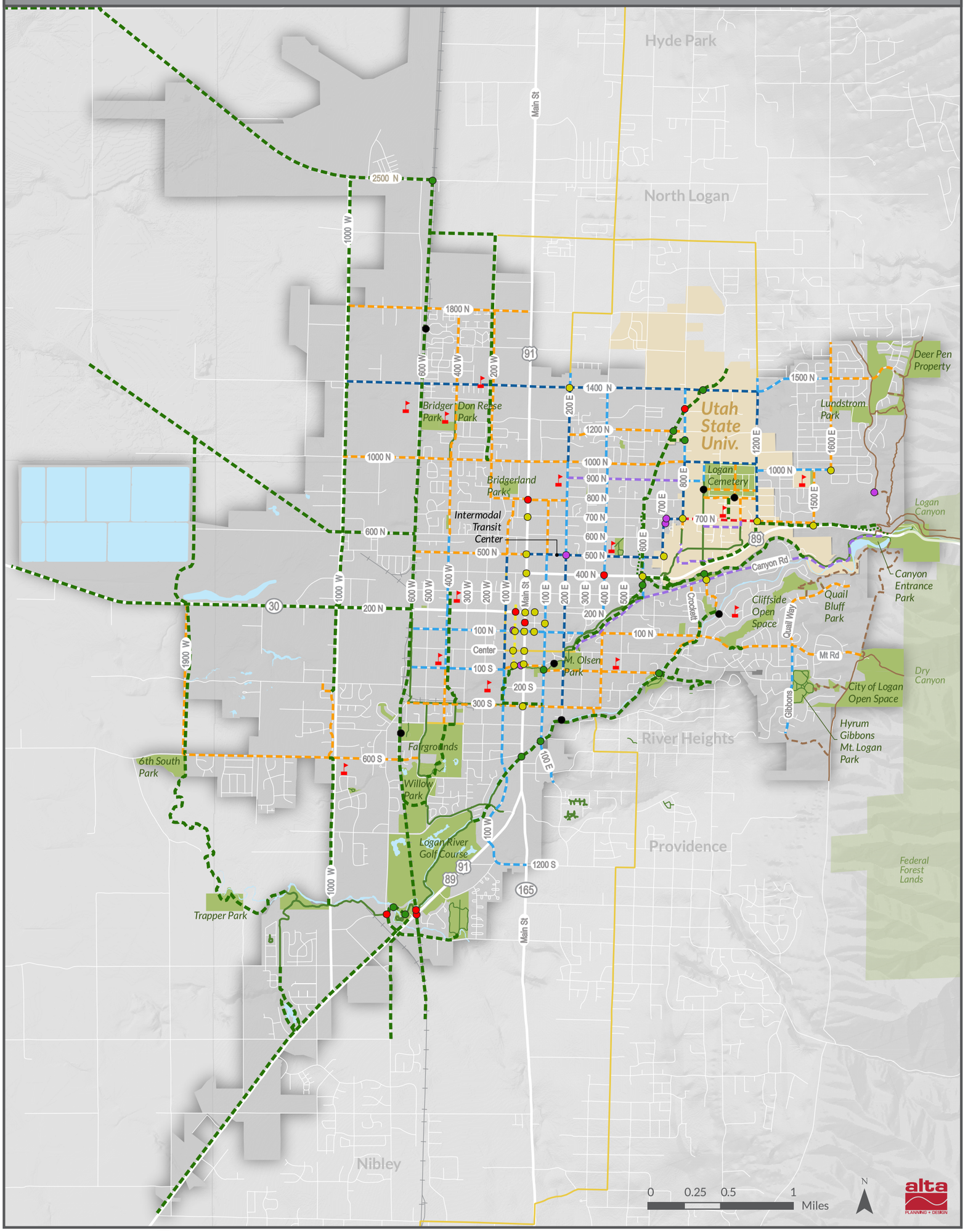
Old Main Hill

Improving connectivity between USU and downtown was an important message received at the public meetings. Old Main Hill currently acts as a barrier to bicycle and pedestrian access, especially from the west. By introducing a street-level plaza with pedestrian ramps at the intersection of 500 N and 700 E, bicyclists can access the Old Main hill pathway network which traverses up the hillside to the heart of campus. Widening the existing northern pathway to a minimum of ten feet would support bicyclist and pedestrian users. Bike parking at the base of Old Main Hill could serve students who use the area for passive recreation or social purposes.

Figure 4.19 Old Main Hill Conceptual Improvements

4.4 PROPOSED BICYCLE & PEDESTRIAN SYSTEM

Map 4.2: Citywide Existing & Proposed Bicycling & Walking System



PROPOSED SPOT IMPROVEMENTS

- Crossing Improvements
- Grade Separated Crossings
- Access Improvements
- Signals or Beacons
- Miscellaneous Improvements

PROPOSED LINEAR IMPROVEMENTS

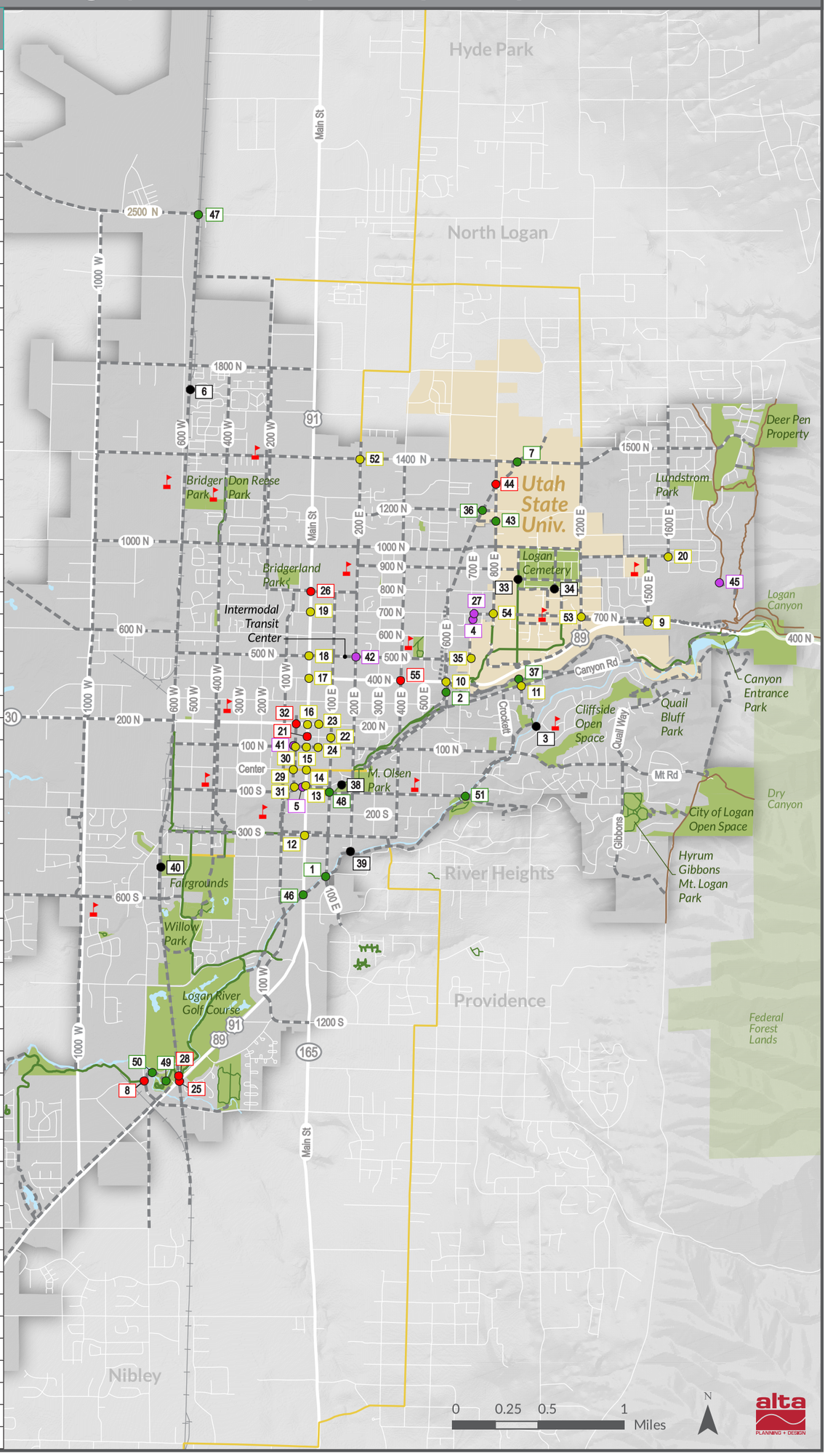
- Shared Use Path / Alternate Alignment
- Unpaved Trail
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Shared Roadway
- Protected Bike Lane
- Downtown Ped Promenade

EXISTING FACILITIES & FEATURES

- Shared Use Path
- Park Path
- Unpaved Trail
- Bike Lane
- Shared Roadway / Bike Route
- Railroad
- Schools
- Water Bodies
- Parks

Map 4.3: Citywide Existing System & Proposed Spot Improvements

Project Code	Project Name
SP-1	100 East Undercrossing or RRFB
SP-2	Boulevard Trail / Dugway Crossing
SP-3	Bridge & Path Widening in Sumac and River Hollow Park
SP-4	Buffered Uphill Bike Lane
SP-5	Canal Trail Entry Plaza
SP-6	Coordinate access with adjacent development
SP-7	1400 N Undercrossing
SP-8	Crossing Improvements
SP-9	Curb extensions
SP-10	High Visibility Crosswalks
SP-11	Curb Extensions with Crosswalks
SP-12	Curb extensions with high visibility crosswalks
SP-13	Curb extensions with high visibility crosswalks-2
SP-14	Curb extensions with high visibility crosswalks-3
SP-15	Curb extensions with high visibility crosswalks-4
SP-16	Curb extensions with high visibility crosswalks-5
SP-17	Curb extensions with high visibility crosswalks-6
SP-18	Curb extensions with high visibility crosswalks-7
SP-19	Curb extensions with high visibility crosswalks-8
SP-20	Ellendale Ave / 1600 E School Crosswalks
SP-21	Federal / Church Midblock Crossing with RRFB
SP-22	Federal/Church Midblock Crossings
SP-23	Federal/Church Midblock Crossings
SP-24	Federal/Church Midblock Crossing
SP-25	Future Grade-separated crossing
SP-26	Hybrid beacon with median prohibiting left turns
SP-27	Heated sidewalk
SP-28	Improve At-grade crossing
SP-29	Midblock crossing with bumpout and refuge
SP-30	Midblock crossing with bumpout and refuge - special crosswalk paving
SP-31	Midblock crossing with bumpout and refuge - special paving
SP-32	Midblock crossing with RRFB
SP-33	New Cemetery Access Gate
SP-34	New Cemetery Fence Gate and Ped Ramp
SP-35	Old Main Hill Improvements
SP-36	Ped Bridge Across Canal
SP-37	Improve Canyon Raod Trail access
SP-38	Pioneer Parkway Path Widening
SP-39	Pursue access easement
SP-40	Rail Trail Neighborhood Connections
SP-41	Restripe parking to reverse angle parking
SP-42	Roundabout bike lane intersection treatment
SP-43	Pedestrian Overcrossing
SP-44	RRFB with Median Refuge
SP-45	Tee Box Relocation
SP-46	Main St. Undercrossing
SP-47	2500 N Undercrossing
SP-48	Undercrossing or hybrid beacon
SP-49	Pedestrian Bridge
SP-50	Pedestrian Bridge
SP-51	Pedestrian Bridge
SP-52	Two Stage Turn Box
SP-53	Bike Box
SP-54	Bike Boxes
SP-55	Hybrid Beacon



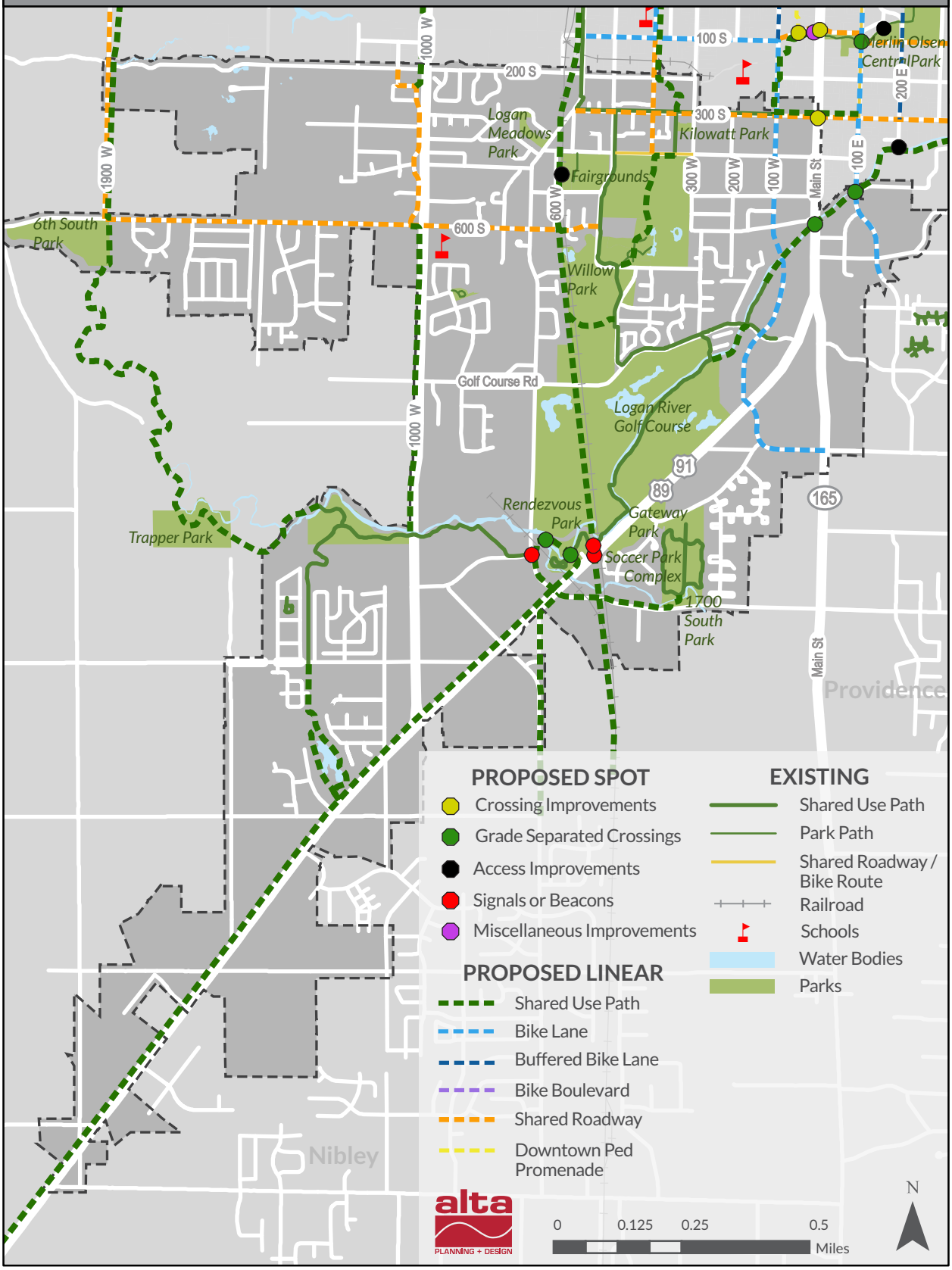
PROPOSED SPOT & LINEAR IMPROVEMENTS

- Crossing Improvements
- Grade Separated Crossings
- Access Improvements
- Signals or Beacons
- Miscellaneous Improvements
- All Proposed Linear Facilities

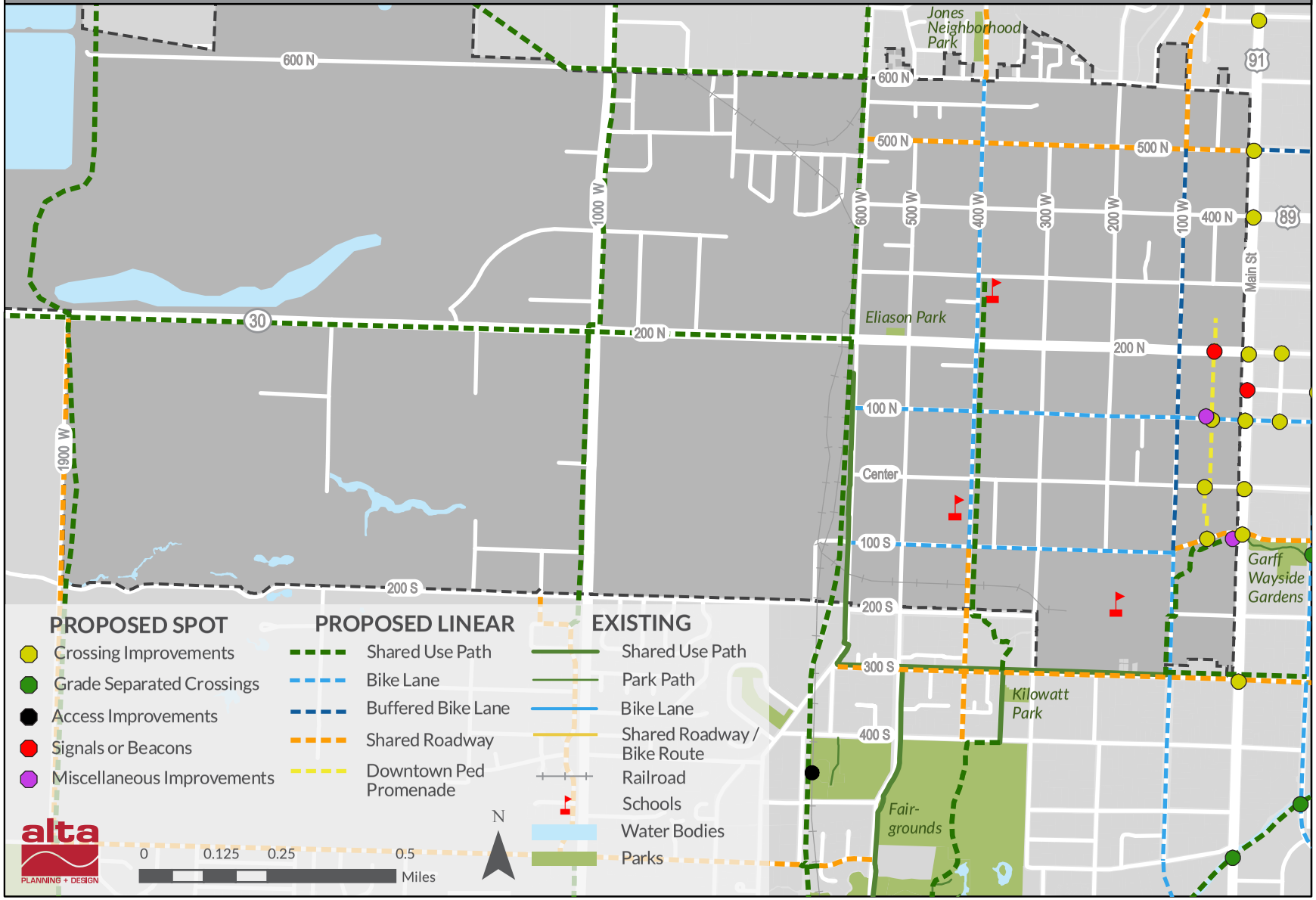
EXISTING FACILITIES & FEATURES

- Shared Use Path
- Park Path
- Unpaved Trail
- Bike Lane
- Shared Roadway / Bike Route
- Railroad
- Schools
- Water Bodies
- Parks

Map 4.4: Woodruff Neighborhood Existing & Proposed Bicycling & Walking System

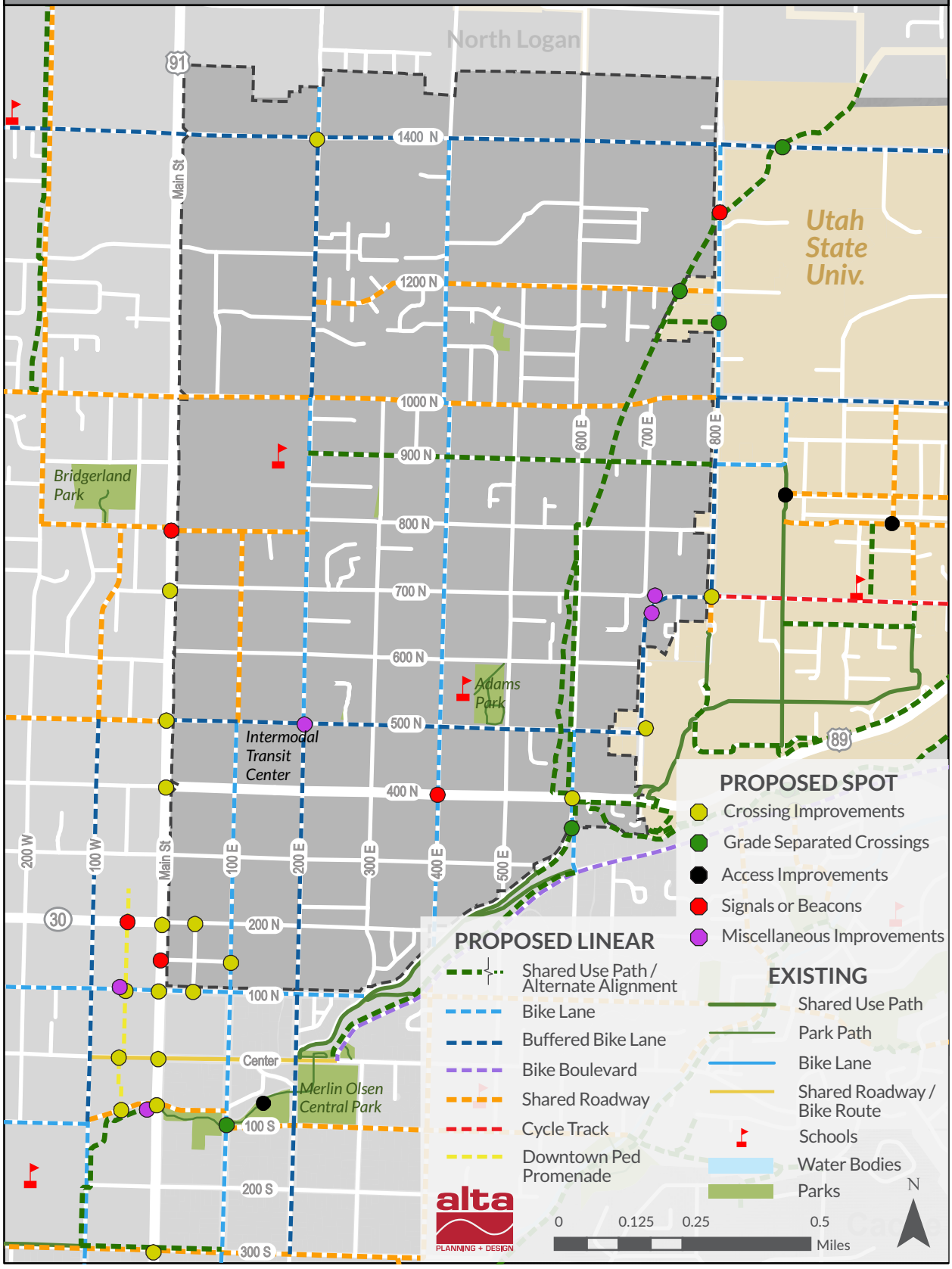


Map 4.5: Ellis Neighborhood Existing & Proposed Bicycling & Walking System

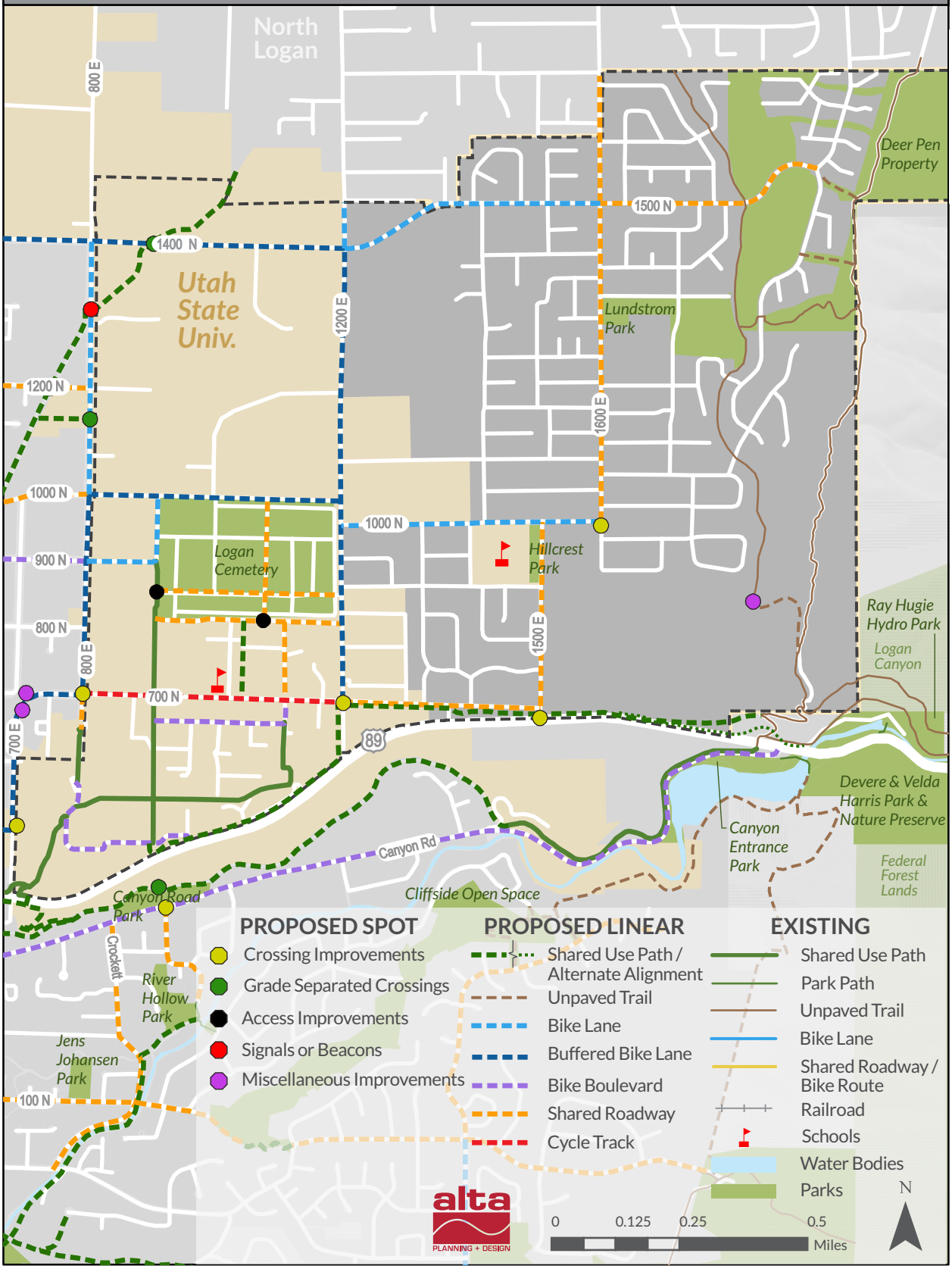


Map 4.6: Bridger Neighborhood Existing & Proposed Bicycling & Walking System

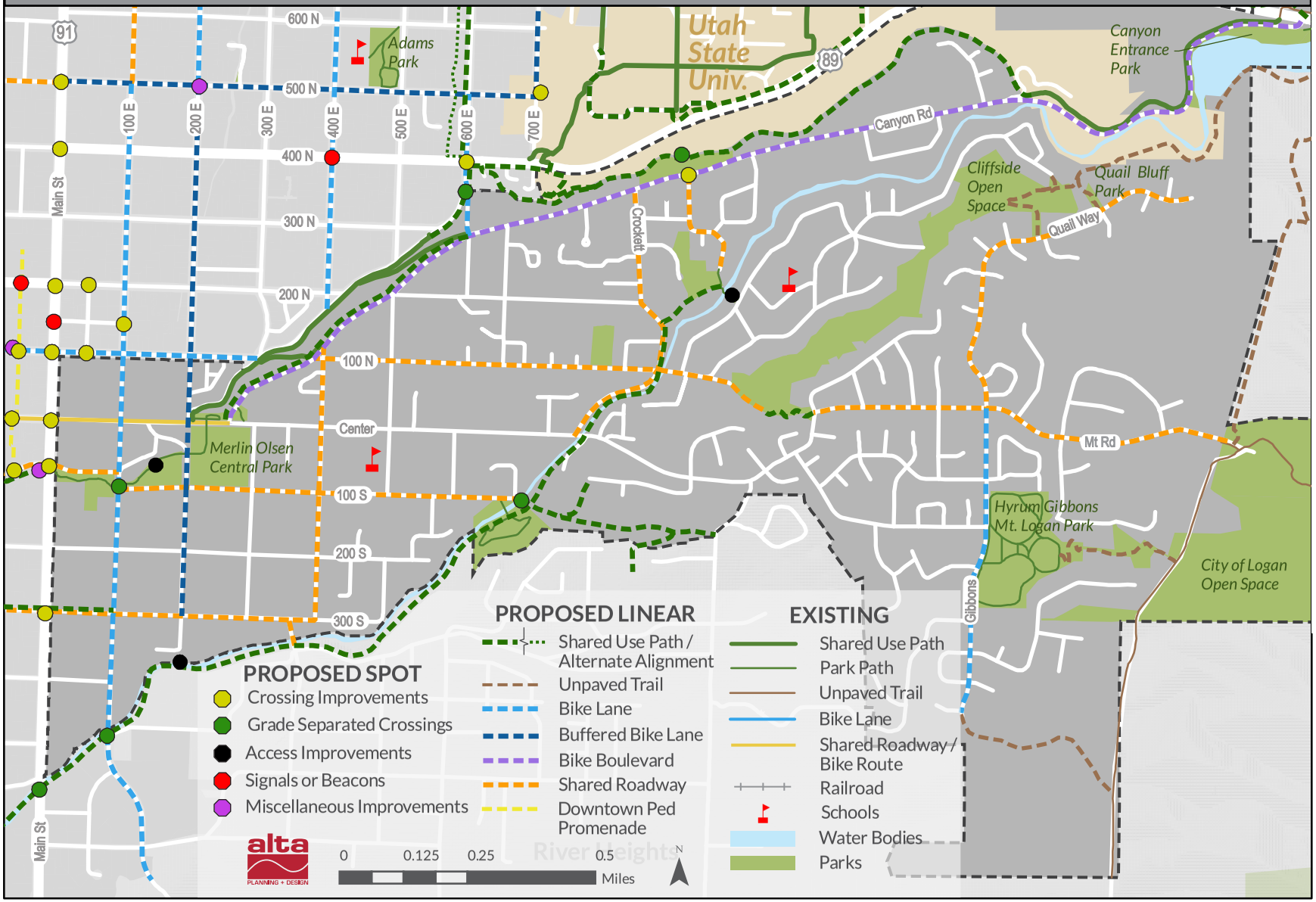
Map 4.7: Adams Neighborhood Existing & Proposed Bicycling & Walking System



Map 4.8: Hillcrest Neighborhood Existing & Proposed Bicycling & Walking System



Map 4.9: Wilson Neighborhood Existing & Proposed Bicycling & Walking System



4.5 IMPLEMENTATION CONSIDERATIONS

ON-STREET FACILITIES

Many major streets are characterized by conditions for which dedicated on-street bikeways are the most appropriate facility to accommodate safe and comfortable riding. Although opportunities to add on-street bikeways through roadway widening may exist in some locations, many major streets have physical and other constraints that would require street retrofit measures within existing curb-to-curb widths. As a result, much of the guidance provided in this section focuses on effectively reallocating existing street space through striping modifications. Ideally bike space can be provided without reducing roadway or parking capacity; however, it is often necessary to balance the needs of multiple roadway users.

The Logan Bicycle and Pedestrian Master Plan utilizes three main strategies to accommodate bikeways on existing roadways.

- Parking Reduction: Bike lanes can replace one or more on-street parking lanes on streets where excess parking exists (such as in large off-street lots) and/or the importance of bike lanes outweighs parking needs. In Logan, parking reduction has predominantly been recommended where the importance of bike lanes outweighs parking needs as the primary condition, and second where excess parking exists.
- Lane Narrowing: Many streets throughout Logan have travel lanes that are wider than those prescribed in national roadway design standards. Where roadway space has been proposed to be reallocated to accommodate dedicated bikeways, the Planning Team has designated a minimum travel lane width of 11'-0".
- Lane Reduction: The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects. The only lane reduction that is recommended by this plan occurs on 200 E, between 1250 N and 1400 N. Two southbound travel lanes on this roadway were recommended to be converted to one travel lane and bike lanes.

TRAILS IN CANAL CORRIDORS

Numerous canals within Logan present opportunities for trail development. The Crockett Canal that runs along the hillside between "the Island within Wilson Neighborhood" and USU has already been partially converted into a trail corridor. Accommodations for establishing trails within canal corridors can fall under two scenarios:

- Trails can be implemented over top of canals that have been piped for security or maintenance reasons. Benefits can include shared maintenance or transfer of liability.
- Trails can also be implemented with open canals. Canal companies can benefit from shared or limited maintenance of canal access roads in exchange for non-motorized public use of the corridor.

Public trails in canal corridors offers several potential benefits to canal companies:

- Liability due to public use can be carried by the City instead of the canal company.
- Potential reduced dumping or other vandalism. Would-be vandals or dumpers would run an increased risk of being seen with a developed trail versus the status quo.
- Trails can be built to a standard to support maintenance vehicles improving access and ease of maintenance for canal companies.
- City Parks departments can perform maintenance including weed abatement and mowing.
- Canal trail construction projects may provide opportunities for cost share or other improvements to canal function.
- Interpretive signage detailing the history of the canals and the importance to the community could foster stewardship of the canals and legacy for the canal companies.

The Logan Bicycle and Pedestrian Master Plan proposes trails along three canal corridors in Logan. These include:

- The Crockett Canal
- The Logan Northwest Field Canal
- The Logan and Northern Canal

4.6 SUPPORTING INFRASTRUCTURE POLICY

UNIFIED WAYFINDING PROGRAM AND TRAIL CORRIDOR BRANDING

Development of a complete wayfinding system for Logan's bikeways and trails could publicize and facilitate use of Logan's bicycle and pedestrian network. Wayfinding signage provides destination, direction, and distance information to bicyclists and pedestrians navigating through the City. Wayfinding signs can also be coupled with kiosks at major destinations that highlight bikeways, ideal walking routes, bike parking locations, and nearby points of interest. In addition, off-street corridors should be branded with unique names and logos. This branding effort could celebrate the area's history, emphasize unique trail features and even create opportunities for trail sponsorships. If desired, the program could utilize a similar color and design scheme as the vehicular scaled wayfinding system developed in 2012.

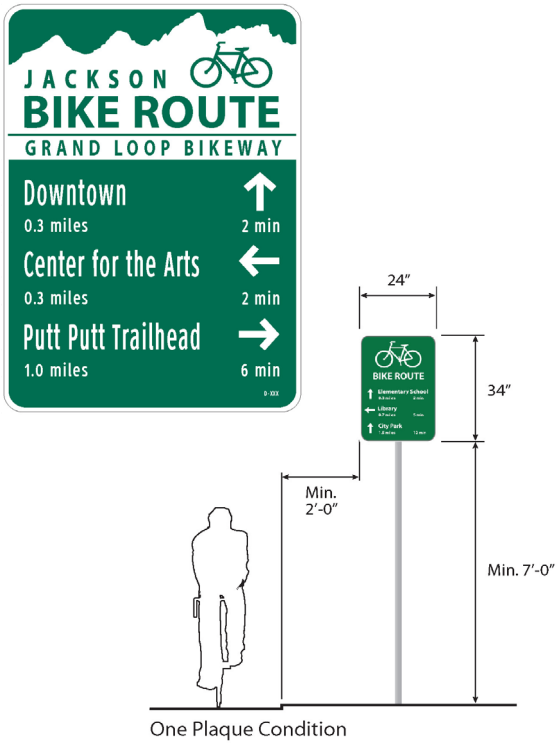


Figure 4.20 Typical Bikeway Wayfinding Signage

BICYCLE PARKING

Bicycle parking is an important component of the bicycle network. Secure end-of-trip accommodations encourage people to travel by bicycle. All recommendations in this section, when implemented and appropriate, with the exception of bicycle parking generation ordinance language, should be included in an update to the Section 17.38.100 of the City of Logan Land Development Code which currently requires bicycle parking. The following policies seek to enhance current efforts to provide functional, secure and convenient bicycle parking.

Bike Corrals

Develop appropriate policies and standards to allow and promote the implementation of bike corrals. Bike corrals offer more short-term bicycle parking (that would normally be placed on the sidewalk) in a consolidated space on the street, occupying a traditional motor vehicle parking space. Bike corrals are commonly installed at locations that attract bicyclists and where parking bicycles at traditional short-term racks may crowd or clutter available sidewalk space.

Before installing bike corrals, a maintenance plan should be developed defining responsibilities, schedule, and methods for improving their longevity, maintaining their utility, and how corrals will fit into snow removal and street sweeping programs. The City may also delegate the installation and/or the maintenance of bike corrals to the Downtown Alliance or similar local, district-based associations.

The bike corral parking area can be delineated or protected using poured concrete curbs, bollards, or planter boxes. Regardless of delineation type, corrals should be designed with the user in mind, maintaining ingress and egress and the same aisle and spacing standards desired for the short-term bicycle parking.

The benefits of bike corrals are not limited to the users themselves. Corrals can also provide, on average, a ratio of 8 to 12 customers to one parking space, thus fostering more commercial opportunities for nearby businesses.

Long-Term Bike Parking

Consider developing requirements for long-term bicycle parking where land uses might encourage high demand for more secure, weather-proof bicycle parking. These could include places like schools, universities, or places that offer end of trip facilities such as changing rooms and lockers.

These facilities may include:

- *Lockers.* Fully enclosed and secure bicycle parking space accessible only to the owner or operator of the bicycle.
- *Restricted Access Parking.* A location that provides short-term-style bicycle racks within a locked room or locked enclosure accessible only to the owners of bicycles parked within.
- *Personal Storage.* Storage within view of the bicycle owner either in his or her office or another secure location within the building.

Request-A-Rack

Implementing a Request-A-Rack program will allow and encourage requests for bike racks that meet the standards set forth in this section. The City should maintain a supply of standard bicycle racks that can be installed upon request by business and property owners, managers and other bicycle parking requestors to provide increase bicycle parking in the Logan and mitigate bicycles locked to posts, signs, and trees. The rack request form can be hosted on the city's website. Each request should be sent to the appropriate staff as well.

Figure 4.21 On-site, long-term employee bike parking

EVALUATE BIKESHARE FEASIBILITY

Logan should evaluate the potential to bring a bike share system to the region. Bike share is a public bicycle system that allows users to take a bike from one station and return it to another. Bike share could help contribute to many of Logan's goals such as promoting a vibrant downtown, improving air quality and enhancing "last mile" transit connectivity.

Bike share business models vary widely. Some have 100% government financing of capital costs and operations, like CaBi. Others are 100% privately financed through sponsors like CitiBank and MasterCard in NYC. In between, there is a mixture of government dollars (particularly for up-front capital costs), and some combination of user revenues, sponsorships, advertising, grants, and/or government monies, to pay for operations. Logan City should begin discussions with potential organizations such as CVTD, USU and the Downtown Alliance to develop partnerships and pool resources.

The first step in implementing a bike share program would involve conducting a feasibility study. The study would determine if a bike share program would contribute to the City's tourism, environmental and transportation objectives. It would also provide a general overview of the probable costs, bike share system types and suitability of the city to support a bike share program. New and improving bike share systems such as "free floating" bikes or "bike fleets" offer lower costs to traditional dock-based stations.

Figure 4.22 Salt Lake City's Greenbike bike share system

INSTALL TRAIL / SIGNAL COUNTERS

One way to determine success at increasing bicycling and walking rates and associated safety, is to establish an annual data collection program. Trail counters should be installed along key off-street trail segments throughout the corridor to provide reliable and simple collection of user counts. In addition, traffic signals with the capability to count bicyclists and pedestrians should also be specified as signals throughout the region are installed or upgraded. This will provide the City with up-to-date information about the growth of bicycling/pedestrian rates and simplify creation of the Annual Report recommended in the Programs chapter.

Figure 4.23 Infrared Trail User Counter

4.7 MAIN STREET COUPLET SCENARIOS

POTENTIAL MAIN STREET COUPLET FACILITIES

The 2012 Main Street Couplet study analyzed the potential implementation of various couplet roadway systems through and around Main Street. The study showed some traffic and multi-modal advantages to implementing a couplet series of roadways to move traffic north and south through Logan. Transitioning from the current roadway configuration of two-way streets to the preferred alternative pair of couplet roads would dramatically change the bikeway opportunities on 100 W, Main St., 100 E and 200 E. Although many obstacles still need to be addressed before a couplet system can be implemented this master plan seeks to provide some conceptual bikeways options that could be viable should the preferred couplet scenario be developed.

Main Street Two Way Cycletrack

Main Street is the central piece of the couplet study. A two-way cycle track, or protected bike lane, would allow bicyclists to travel north or south while the three lanes of one-way motor vehicle traffic can travel northbound. Special accommodation and/or signalization for north and southbound, contra-flow bicycle traffic should be provided at intersections, especially where there is heavy motor vehicle turning traffic. Consolidation or elimination of driveways may also be necessary.

100 West Buffered Bike Lane

The couplet scenario opens up additional opportunities for bicycling and enhanced parkway landscaping. A one-way buffered bike lane would accommodate southbound bicyclists moving with the flow of traffic.

Figure 4.24 Possible Main St. Couplet-scenario cross-section

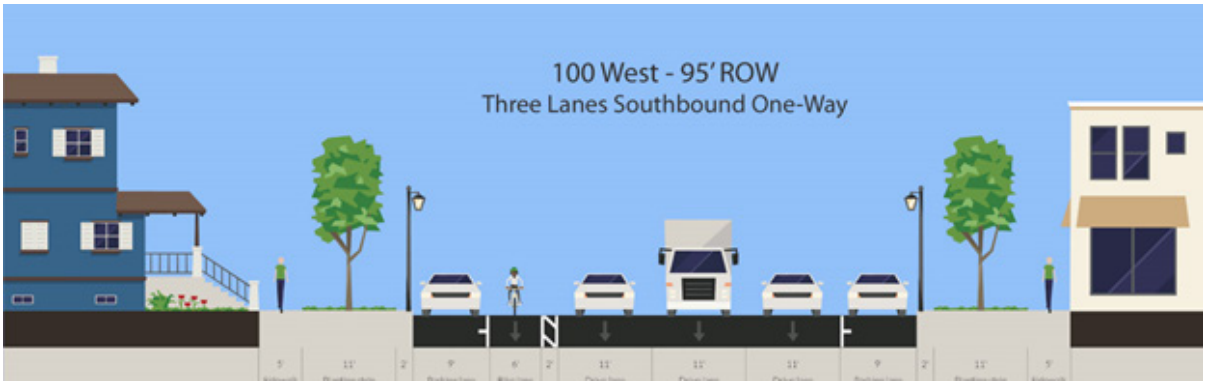


Figure 4.25 Possible 100 West Couplet-scenario cross-section

Figure 4.26 Possible 100 East Couplet-scenario cross-section

Figure 4.27 Possible 200 East Couplet-scenario cross-section

100 East and 200 East would also possess different opportunities for bikeway and pedestrian development should the preferred couplet scenario be advanced. These streets could accommodate buffered bikes lanes with ample buffers, parkways strips and on-street parking.

5

IMPLEMENTATION

53% of American adults would like to bike more per a People for Bikes 2015 survey. Of those 53%, 1/3 are dissatisfied with the trails and bikeway options in their neighborhoods[1]

1 U.S. Bicycling Participation Benchmarking Study Report, People for Bikes, 2015

5.1 PROJECT PRIORITIZATION

INTRODUCTION

This document summarizes the methodology for prioritizing recommended improvements for projects within the Logan City limits. Prioritizing these projects will allow Logan City to identify high priority projects and low-hanging fruit, as well as provide a foundation for implementation phasing. The prioritization framework relies upon facility-based criteria, as described in the following sections.

SCORING CRITERIA

Public Support

Public support is an important criteria when evaluating potential bicycle and pedestrian facility improvements. Through the Logan City Bicycle and Pedestrian Master Plan process, the Planning Team has conducted outreach at two public meetings and the USU Open Streets festival. Input from these meetings was used to determine the scoring of the public support category.

Proximity to Schools / Utah State University

To encourage more K-12 and college students to walk and bicycle to school, proposed facilities that directly connect to or travel within ¼ mile of any K-12 school (public or private) or the USU campus qualify for this prioritization criterion.

Connectivity to Existing Facilities

Creating connectivity to existing pedestrian facilities enable more trips to be made by bike, and provides bicyclists of varying capabilities multiple routes for reaching their destination. Facilities that connect to an existing bikeway or bikeways receive this scoring criterion.

Connectivity to Proposed Facilities

In addition to the existing bicycle and pedestrian network, the Bicycle & Pedestrian Master Plan proposes the addition of many projects throughout Logan. While not as immediately effective for bikeway continuity, facilities that connect to proposed facilities will help create a robust and cohesive network. Proposed facilities that intersect with other proposed facilities were awarded this criterion.

Network Gaps

Gaps in the bicycling and walking networks discourage use of these modes because they limit route continuity, safety, or require users to choose less direct paths to access their destinations. Some feel "stranded" when a facility abruptly ends or does not easily connect to their destination, forcing users to ride on a street that does not accommodate their proficiency level or increase the length of their trip. Facilities that fill gaps in the existing bicycling and walking network qualify for this criterion.

Connections to Activity Centers or Recreation

Activity centers are the major trip-driving destinations within Logan (e.g. recreation destinations, commercial districts, employment centers, Downtown, etc.). By increasing accessibility to major activity centers, the recommendations in the Bicycle & Pedestrian Master Plan can help reduce traffic congestion and support residents and visitors who choose to bicycle or walk. Projects that connect to these centers qualify for this prioritization criterion.

Jurisdiction (applicable only to Table 5.1)

This criterion considers which agency or agencies own the right-of-way for which changes are proposed and whether or not the project is partially or completely outside of the City limits. For example, a project that is on private land and is located beyond city limits would receive the lowest score, while a project utilizing existing right of way within city limits would receive the highest score. Project implementation can be much more time-consuming and costly when projects cross jurisdictional boundaries or private property.

Transit Integration (applicable only to Tables 5.2 and 5.3)

Biking and walking facilities offer valuable synergies with transit access and ridership. CVTD's fare free policy further enhances this relationship. Bicycling and walking are typically the primary mode of transportation for transit riders during the first and last mile of their transit trips. This criteria seeks to emphasize bicycle and pedestrian facilities that link to a high number of CVTD and USU shuttle stops.

Quick Wins

Bicycling and walking facilities range in project readiness and amount of planning/design work that needs to be completed before a facility can be installed. With regard to on-street bikeways, some streets can accommodate bike lanes with little effort; where as other projects may require significant changes to the travel lanes, medians, street parking, right-of-way, etc. Similarly, some trail and street crossings will be easier than others to implement. Many cities choose to pursue the "low-hanging fruit" projects to achieve quick wins and build support for more politically complex projects. Projects that require minimal changes to the built environment and have lower costs score higher on this criterion.

SPOT IMPROVEMENT PRIORITIZATION

Spot improvement projects have the ability to improve bicycling and pedestrian conditions throughout the city. Spot improvements critical to the implementation of proposed bicycle or pedestrian facilities should be evaluated in tandem with their respective proposed facilities; however, spot improvements not related to proposed routes can be prioritized for independent implementation.

SCORING MEASURES

The criteria discussed in the previous section will be applied to each facility. The facility will be assigned a numeric value to the degree it meets the criteria requirements. The criteria values are outlined in Table 5.1, 5.2, and 5.3.

CATALYST PROJECT IDENTIFICATION

In addition to developing a prioritization for implementing proposed facilities, the Planning Team has worked with Logan City staff and the Steering Committee to identify five "Catalyst Projects". These projects were selected from the projects that scored highly in the "Quick Wins" criteria and are capable of providing immediate tangible impacts in the community. The intent is to implement these projects quickly (within a year) after the Master Plan is adopted to demonstrate the City's commitment to building a comprehensive active transportation system and to develop community support for continued investment.

Table 5.1 On-Street Bikeway Scoring Criteria

Criteria	Score	Multiplier	Total	Description
Public Support	2	3.0	6	Street was identified by the public as desirable for a future facility (multiple times)
	1		3	Street was identified by the public as desirable for a future facility (once)
	0		0	Was not identified by the public as desirable for a future facility
Proximity to Schools / USU	2	3.0	6	Direct access to a Logan City school or USU
	1		3	Secondary access to a Logan City school (within 1/4 mile) or USU
	0		0	Does not directly or indirectly access a Logan City school or USU
Connectivity - Existing	2	3.0	6	Direct access to two or more existing bicycle or trail facilities
	1		3	Direct access to one existing bicycle or trail facility
	0		0	Does not directly or indirectly access an existing bicycle facility
Connectivity - Proposed	2	1.0	2	Direct access to two or more proposed bicycle or trail facilities
	1		1	Direct access to one proposed bicycle or trail facility
	0		0	Does not directly or indirectly access a proposed bicycle or trail facility
Network Gaps	2	3.0	6	Facility fills a network gap between two existing facilities
	1		3	Facility fills a network gap between an existing facility and a proposed facility
	0		0	Does not directly or indirectly fill a network gap
Connectivity - Activity Centers / Recreation	2	2.0	4	Connects to a major trip-driving destination or two or more major or minor destinations in Logan
	1		2	Secondary connectivity to a major trip-driving destination or connectivity to one destination in the Logan
	0		0	Does not directly or indirectly connect to an activity center
Transit Integration	2	2.0	4	Demonstrates a high level of connectivity with transit
	1		2	Demonstrates a moderate level of connectivity with transit
	0		0	Demonstrates little or no connectivity with transit
Quick Wins	2	2.0	4	Bikeway project can be constructed/installed in the near future with little planning, minor difficulty and low expense
	1		2	Bikeway project can be constructed/installed with moderate planning and moderate expense
	0		0	Bikeway project will require long-term planning and moderate to high expenses

Table 5.2 Off-Street Trails Scoring Criteria

Criteria	Score	Multiplier	Total	Description
Public Support	2	3.0	6	Trail was identified by the public as desirable for a future facility (multiple times)
	1		3	Trail was identified by the public as desirable for a future facility (once)
	0		0	Trail was not identified by the public as desirable for a future facility
Proximity to Schools / USU	2	3.0	6	Direct access to a Logan City school or USU
	1		3	Secondary access to a Logan City school (within 1/4 mile) or USU
	0		0	Does not directly or indirectly access a Logan City school or USU
Connectivity - Existing	2	3.0	6	Direct access to two or more existing bicycle or trail facilities
	1		3	Direct access to one existing bicycle or trail facility
	0		0	Does not directly or indirectly access an existing bicycle facility
Connectivity - Proposed	2	1.0	2	Direct access to two or more proposed bicycle or trail facilities
	1		1	Direct access to one proposed bicycle or trail facility
	0		0	Does not directly or indirectly access a proposed bicycle or trail facility
Network Gaps	2	3.0	6	Facility fills a network gap between two existing facilities
	1		3	Facility fills a network gap between an existing facility and a proposed facility
	0		0	Does not directly or indirectly fill a network gap
Connectivity - Activity Centers / Recreation	2	2.0	4	Connects to a major trip-driving destination or two or more major or minor destinations in Logan
	1		2	Secondary connectivity to a major trip-driving destination or connectivity to one destination in the Logan
	0		0	Does not directly or indirectly connect to an activity center
Jurisdiction	2	1.0	2	Trail is located within the city limits and within public right-of-way
	1		1	Trail is partially located within either the city limits or within public right-of-way
	0		0	Trail is not within the city limits nor within public right-of-way
Transit Integration	2	2.0	4	Demonstrates a high level of connectivity with transit
	1		2	Demonstrates a moderate level of connectivity with transit
	0		0	Demonstrates little or no connectivity with transit
Quick Wins	2	2.0	4	Trail project can be constructed/installed in the near future with little planning, minor difficulty and low expense
	1		2	Trail project can be constructed/installed with moderate planning and moderate expense
	0		0	Trail project will require long-term planning and moderate to high expenses

Table 5.3 Spot Improvement Scoring Criteria

Criteria	*Score*	*Multiplier*	*Total*	*Description*
Public Support	2	3.0	6	Project was identified by the public as desirable for a future facility (multiple times)
	1		3	Project was identified by the public as desirable for a future facility (once)
	0		0	Project was not identified by the public as desirable for a future facility
Proximity to Schools / USU	2	3.0	6	Direct access to a Logan City school or USU
	1		3	Secondary access to a Logan City school (within 1/4 mile) or USU
	0		0	Does not directly or indirectly access a Logan City school or USU
Connectivity - Existing	2	3.0	6	Direct access to two or more existing bicycle or trail facilities
	1		3	Direct access to one existing bicycle or trail facility
	0		0	Does not directly or indirectly access an existing bicycle facility
Connectivity - Proposed	2	1.0	2	Direct access to two or more proposed bicycle or trail facilities
	1		1	Direct access to one proposed bicycle or trail facility
	0		0	Does not directly or indirectly access a proposed bicycle or trail facility
Network Gaps	2	3.0	6	Facility fills a network gap between two existing facilities
	1		3	Facility fills a network gap between an existing facility and a proposed facility
	0		0	Does not directly or indirectly fill a network gap
Connectivity - Activity Centers / Recreation	2	2.0	4	Connects to a major trip-driving destination or two or more major or minor destinations in Logan
	1		2	Secondary connectivity to a major trip-driving destination or connectivity to one destination in the Logan
	0		0	Does not directly or indirectly connect to an activity center
Safety	2	3.0	6	Dramatically improves the safety of bicyclists or pedestrians
	1		3	Moderately improves the safety of bicyclists or pedestrians but more could be done
	0		0	Does not contribute to improved safety of bicyclists or pedestrians
Quick Wins	2	2.0	4	Project can be constructed/installed in the near future with little planning, minor difficulty and low expense
	1		2	Project can be constructed/installed with moderate planning and moderate expense
	0		0	Project will require long-term planning and moderate to high expenses

SHARED USE TRAIL PRIORITIZATION RESULTS

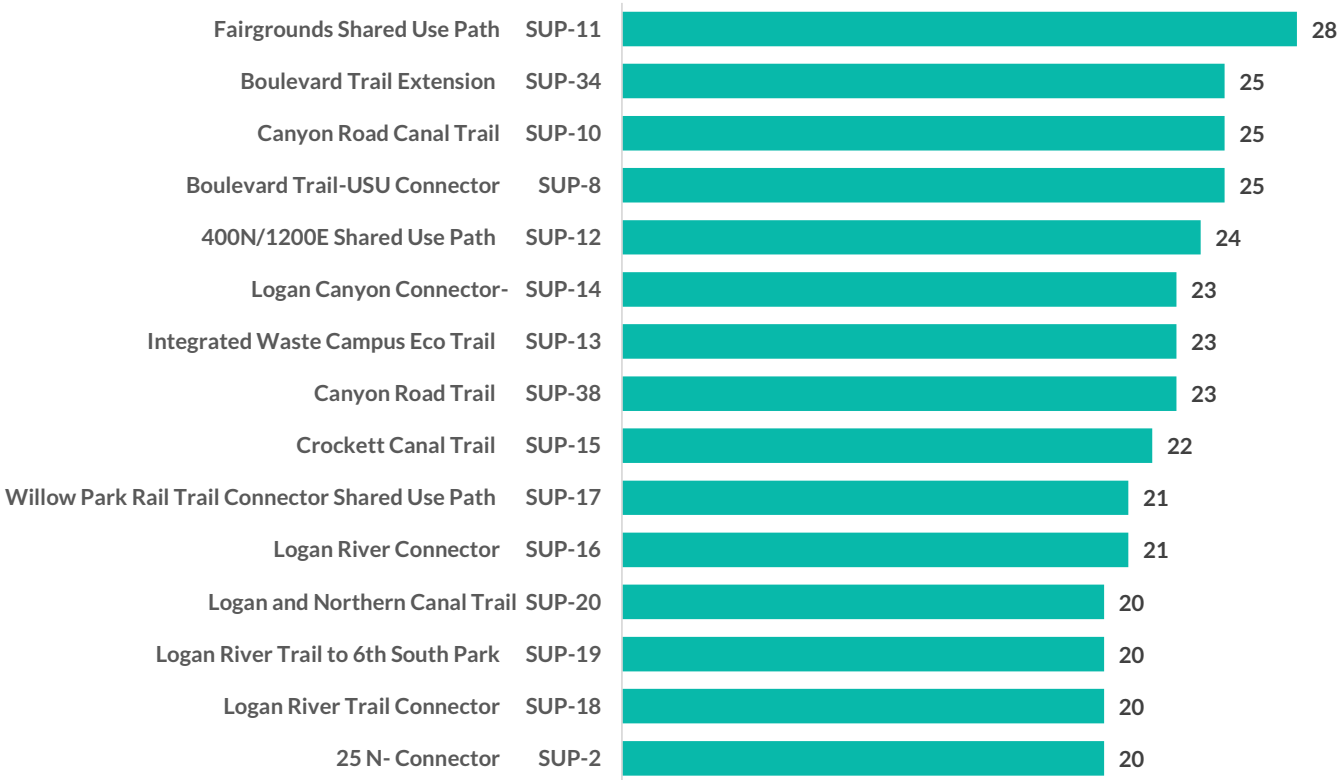


Figure 5.1 Top 15 Scoring Shared Use Trail Projects

ON-STREET BIKEWAYS PRIORITIZATION RESULTS

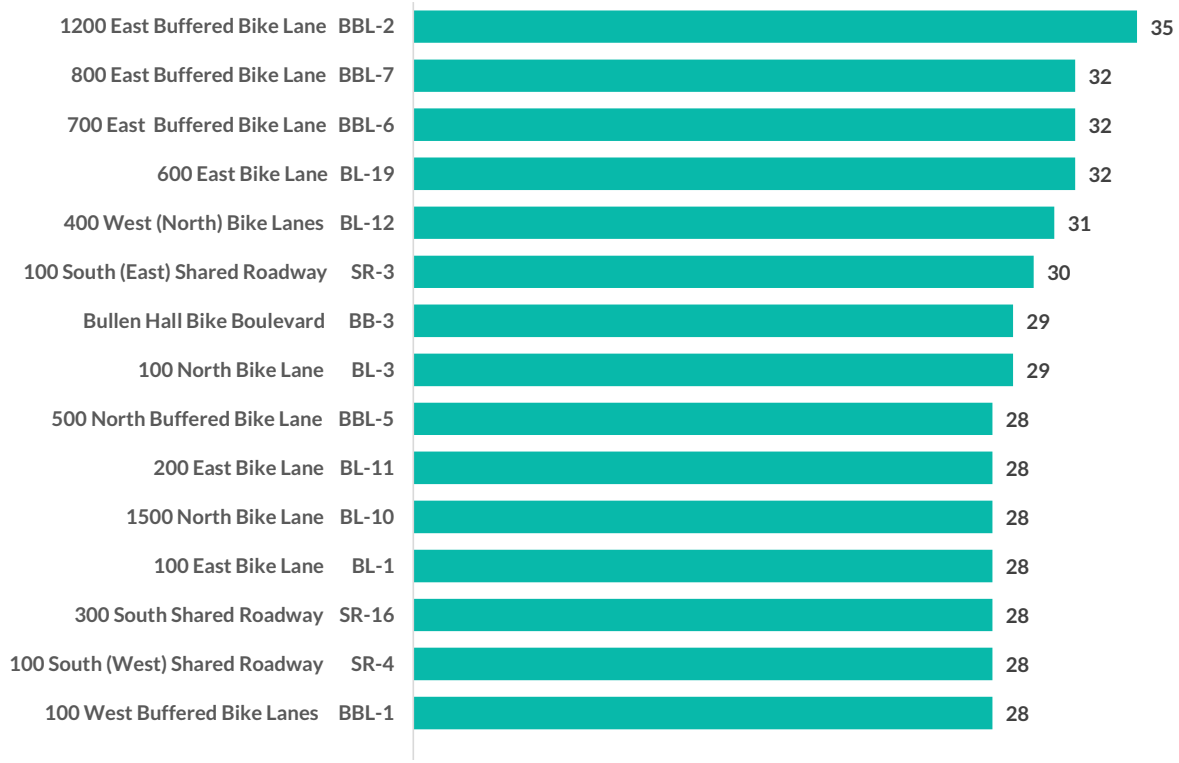


Figure 5.2 Top 15 On-Street Bikeway Prioritization Results

SPOT IMPROVEMENT PRIORITIZATION RESULTS

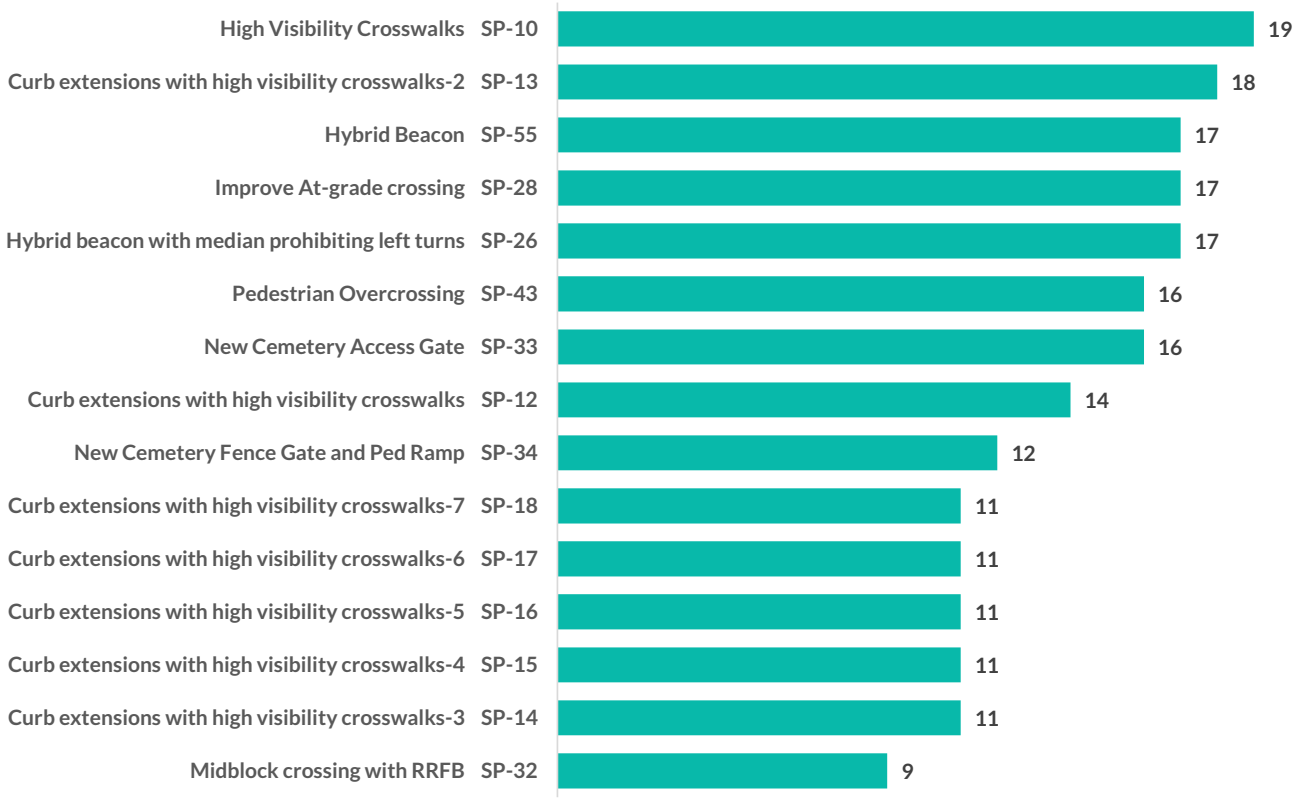


Figure 5.3 Top 15 Scoring Spot Improvement Projects

*Note: Only spot improvements capable of independent implementation have been scored using the prioritization methodology. Spot improvements associated with proposed routes would be installed in conjunction with their respective linear facility.

5.2 CATALYST PROJECTS

The following catalyst projects are projects that are readily implementable and can provide immediate positive effects on walking and bicycling conditions in Logan. Implementing the following projects quickly after adoption of the plan would establish early momentum to help carry the plan's other recommendations forward.

100 SOUTH BIKE LANE

The 100 South Bike Lane would provide an easily constructable bikeway link for the west side of Logan. The project would connect Westside neighborhoods to Logan High School and Downtown.

100 WEST BUFFERED BIKE LANE

The 100 West buffered bike lane will provide Logan's first low-stress dedicated bikeway connection that accesses Downtown destinations. Although the pavement management schedule for 100 West is not known at this time, implementation of this project should be coordinated with seal coating activities to take advantage of roadway striping efficiencies.

1200 EAST BUFFERED BIKE LANE

The 1200 East buffered bike lane takes advantage of existing wide streets along USU's eastern edge. Parking is already restricted along much of the road so no impacts to existing parking would be required. The bikeway would provide a low stress link from Aggie Village and the Hillcrest neighborhood to the academic core of campus.

800 EAST BUFFERED BIKE LANE

The 800 East buffered bike lane also takes advantage of existing wide streets within USU. Existing curb-to-curb widths allow implementation of the buffered bike lane without impacting parking. The bikeway would provide a low stress connection from northern campus destinations such as the stadium and Blue Square Apartments.

BOULEVARD-USU CONNECTOR

The Boulevard-USU Connector shared use path will provide a critical connection from the Boulevard Trail to the western pedestrian undercrossing below 400 North.

Catalyst Projects

1	BL-4	100 South Bike Lane
2	BBL-1	100 West Buffered Bike Lane
3	BBL-2	1200 East Buffered Bike Lane
4	BBL-7	800 East Buffered Bike Lane
5	SUP-8	Boulevard-USU Connector
6	SUP-10	Canyon Road Canal Trail
7	SP- 10	Crosswalks at 600 E / 400 N

This connection will enable USU students coming from "the Island within Wilson Neighborhood" or Downtown to reach campus without crossing 400 North.

CANYON ROAD CANAL TRAIL

Completing the Canyon Road Canal Trail will provide many Logan residents with an important linkage to Logan Canyon, a major recreation destination. Property acquisition is needed near the 400 N / 600 E intersection, however, providing this connection will address one of the most important gaps in Logan's existing trail system.

HIGH VISIBILITY CROSSWALKS AT 600E / 400N INTERSECTION

Construction high visibility crosswalks would improve connectivity from "the Island within Wilson Neighborhood" to USU. Construction should be coordinated with future 400 N streetscape improvements.

5.3 PROJECT IMPLEMENTATION MATRICES

The following pages contains project specific information for all bike boulevards, buffered bike lanes, bike lanes, protected bikes lanes, shared roadways, shared use trails, and spot improvements recommended by the Logan Bicycle and Pedestrian Master Plan. The following information is provided to deliver clear and concise guidance on the implementation of individual projects:

- **Priority / Project Ranking (by category):** Projects for on-street bikeways, off-street bikeways and spot improvements have been prioritized and ranked per Section 5.1 guidance. Projects for each category were evenly divided into high, medium and low priority tiers.
- **Project Code (SUP-1):** Designated project code for ease of reference.
- **Project Name**
- **Location**
- **Description:** Brief summary of the proposed project.
- **Responsible Entity:** Primary entity responsible for implementation of respective facility.
- **Stakeholders:** Parties affected by the implementation of the respective facility.
- **Length:** Lineal feet of proposed facility.
- **Feasibility Study Needed (Yes or No):** Specifies whether or not a feasibility study is required prior to developing final design.
- **Cost Estimates:** Cost estimates include a 20% contingency and labor to install. Estimates do not include cost of property acquisition, design, construction engineering, bidding services, mobilization, or traffic control. These costs will vary by project.
- **Design Guideline Reference:** Respective pages of the design guidelines that describe the treatments associated with the proposed facility.
- **Associated Projects:** Specifies other proposed projects critical to implementing the described facility or necessary to make meaningful connections to destinations or the broader bicycle and pedestrian network.

Unpaved trails have not been prioritized based on the limited number of proposed unpaved trails within the Logan City limits and their distinct function as primarily recreation corridors rather than transportation.

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BIKE BOULEVARD PROJECT MATRIX

Table 5.4 Bike Boulevard Project Matrix

Priority / On-street Ranking		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	7	BB-3	Bullen Hall Bike Boulevard	South of Laboratory Animal Research Center	Implement a bicycle boulevard along Bullen Hall Drive	USU	Staff, students	1583	N	$5,000.00	B-24-31	NA
	17	BB-4	Champ Drive Bike Boulevard	Champ Drive	Constructed a bicycle boulevard along Champ Drive. See the USU Parking and Transportation Plan for more details.	USU	Staff, students	2097	N	$6,500.00	B-24-31	NA
MED.	27	BB-1	900 N Bike Boulevard	200 E to 800 E	Shared roadway markings with landscaped median	Logan Public Works	Neighbors	4205	N	$13,000.00	B-24-31	NA
	27	BB-2	Canyon Rd. Bike Boulevard	Entire road	Conduct visiblity audit and develop traffic calming strategies	Logan Public Works	Neighbors	12811	Y	$37,500.00	B-24-31	NA

BUFFERED BIKE LANE PROJECT MATRIX

Table 5.5 Buffered Bike Lane Project Matrix

Priority / On-street Ranking		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	1	BBL-2	1200 East Buffered Bike Lane	N300 N to 500 N	Restrict parking 1 side of street (already parking restricted on at least one side)	Logan Public Works	Neighbors / USU	4672	N	$19,000.00	B-33, B-37	SP-54
	2	BBL-6	700 East Buffered Bike Lane	500 N to Aggie Blvd.	No traffic impacts	Logan Public Works	USU / Neighbors	1966	N	$8,500.00	B-37, B-38	SP-4, SP-35
	2	BBL-7	800 East Buffered Bike Lane	Aggie Blvd. to 1000 N	No traffic impacts	Logan Public Works	USU / Neighbors	2065	N	$8,500.00	B-37	SP-55
	7	BBL-5	500 North Buffered Bike Lane	Main St. to 700 E	Narrow travel lanes from 14' to 11'	Logan Public Works		4901	N	$20,000.00	B-37	SP-42
	9	BBL-1	100 West Buffered Bike Lanes	100 S to 500 N	Buffered Bike Lane with parking removal (east side); 12' Center turn / 11' lanes / 7.5' bike lane and buffer / 8' Remove east-side on-street parking; 12' Center turn / 11' lanes / 7.5' bike lane and buffer / 8' parking (west side only)	Logan Public Works	Neighbors / Downtown Alliance	4155	N	$16,500.00	B-33, B-37	NA
MEDIUM	27	BBL-3	1400 North/1500 North Buffered Bike Lane	1000 W to 1200 E	Restrict parking both sides. Expand west of Main Street to 1000 W as roadway improvements are made.	Logan Public Works	Neighbors / USU	14885	N	$59,500.00	B-33, B-37	SP-53
	27	BBL-8	1000 N Buffered Bike Lane	8000 E to 1200 E	11' travel lanes. In front of Aggie Village, use traditional 5-6' bike lane treatment. Where parking is restricted (everywhere else), use buffered bike lane treatment.	Logan Public Works	USU / Neighbors	2607	N	$8,500.00	B-33, B-37	SP-56
	38	BBL-4	200 East Buffered Bike Lane	400 N to 100 S	Restrict parking on Merlin Olsen Park overpass or eliminate continuous center turn lane. From 400 to 500 eliminate parking along west side of 200 E. Construct southbound buffered bike lane and northbound traditional bike lane. 11' travel lane, 5.0' bike lane (east side), 7.5' parking lane (east side)	Logan Public Works	Neighbors	4165	N	$29,000.00	B-33, B-37	SP-42
	45	BBL-10	200 East Buffered Bike Lane	1000 N to North Logan	Restrict parking both sides-13' center turn/ 12' travel lanes/6' bike lane with 2' buffer	Logan Public Works	Neighbors	2685	N	$11,000.00	B-33, B-37	SP-53
LOW	61	BBL-9	200 East Buffered Bike Lane (100S to 300S)	100 S to 300 S	Buffered Bike Lane with 1-side parking removal- 11' center turn / 11' lanes / 8' parking (one side) / 8' bike lane & buffer	Logan Public Works	Neighbors	1330	N	$6,000.00	B-34, B-37	NA

BIKE LANE PROJECT MATRIX

Table 5.6 Bike Lane Project Matrix

Project Ranking (On-Street)		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	2	BL-19	600 E Bike Lane	Canyon Rd. to 400 N	Develop a climbing bike lane on the steep dugway by widening the road 3-4'. Install 7' bike lanes north of 400 N.	Logan Public Works	Neighbors	1475	Y	$254,000.00	B-34, B-38	NA
	5	BL-12	400 West (North) Bike Lanes	400 West Bike Lanes (North Segment	No traffic impacts	200 N to 600 N	Neighbors	2728	N	$6,500.00	B-34	NA
	7	BL-3	100 North Bike Lane	600 W to 200 E	Restripe angle parking to reverse angle parking between Main St. and 100 W	Logan Public Work	Neighbors / Downtown Alliance	6150	N	$14,000.00	B-35	SP-41
	9	BL-1	100 East Bike Lane	500 N to 300 S	Bike Lane with parking removed (1 side), no curb reconstruction- 12' center turn / 11' lanes / 6' bike lane / 8' parking (one side)	Logan Public Works	Neighbors	5483	N	$13,000.00	B-33, B-34	NA
	9	BL-10	1500 North Bike Lane	1200 E to 1600 E	No impacts to traffic or parking		Neighbors	2763	N	$6,500.00	B-34	NA
	9	BL-11	200 East Bike Lane	1400 N to north city limits	Restrict parking both sides- 12' travel lanes/6' bike lanes	Logan Public Works		519	N	$2,000.00	B-33	SP-52
	9	BL-13	400 West (South) Bike Lanes	300 S to 200 N	"Remove east-side parking along canal 11' travel lanes"	Logan Public Works	Neighbors	2098	N	$5,500.00	B-33, B-34	NA
MEDIUM	20	BL-14	800 E Bike Lane	1000 N to 1400 N	12' Center Turn, 11' lanes, 8' parking, 5.5' bike lane= 83' min.	Logan Public Works	Neighbors	2615	N	$6,500.00	B-34	SP-55
	20	BL-20	400 E Bike Lane	Boulevard to 1400 N	Install 7' bike lanes on 400 E. Limit parking on one side north of 1000 W.	Logan Public Works	Neighbors	8402	N	$19,500.00	B-34	SP-55
	24	BL-15	900 N / 900 E Climbing Bike Lane	900 N / 900 E	6-7' bike lane on uphill side	Logan Public Works	Neighbors	1382	N	$3,500.00	B-38	NA
	27	BL-16	Ellendale Ave Bike Lane	1200 E to 1400 E	Restrict parking from 1400 E to 1600 E	Logan Public Works	Neighbors	2682	N	$6,500.00	B-33	NA
	34	BL-17	Gibbons Pkwy Bike Lane	Gibbons Parkway (all)	7' bike lanes	Logan Public Works	Neighbors	3183	N	$7,500.00	B-34	NA
	38	BL-18	200 East Bike Lane	500 N to 1000 N	11' travel lanes / 5' bike lane / 8' parking	Logan Public Works	Neighbors, Downtown Alliance	3362	N	$8,000.00	B-34	NA
	45	BL-2	100 East Bike Lane (South)	300 S to 750 S	"Bike Lane with parking removed (1 side)- 14' center turn / 12' lanes / 6' bike lane / 8' parking (one side)	Logan Public Works	Neighbors	2870	N	$6,500.00	B-33, B-34	NA
LOW	48	BL-4	100 South- W Bike Lane	100 W to 600 W	No impacts to travel lanes or parking	Logan Public Works	Neighbors / Downtown Alliance	3331	N	$7,500.00	B-34	NA
	54	BL-5	100 West (South)	600 S to 1200 S	Restrict on-street parking either side.	Logan Public Works	Neighbors / Downtown Alliance	3299	N	$7,500.00	B-33	NA
	54	BL-6	100 West Bike Lane (100 S to 300 S)	100 S to 300 S	Bike Lanes with one side parking restriction: 12' center turn / 11' lanes / 7' bike lanes / 8' parking (one side); delay implementation until Logan High School construction is finished	Logan Public Works	Neighbors	1316	N	$3,500.00	B-33, B-34	NA
	62	BL-7	100 West Bike Lane (300S to 600S)	300 S to 600 S	Bike lane without curb reconstruction and one-side parking restriction: 11' center turn / 11' lanes / 5' bike / 8' parking (one side)	Logan Public Works	Neighbors/ Downtown Alliance	1896	N	$4,500.00	B-33, B-34	NA
	65	BL-8	1200 East Bike Lane	1400 N to north city limits	Prohibit on-street parking, connects to bike lanes in North Logan	Logan Public Works	Neighbors	476	N	$1,500.00	B-33	NA
	66	BL-9	1200 S Bike Lane	Hwy 89/91 to Main St.	Restrict parking both sides; 12' travel lanes, 14' center turn, 6' bike lanes	Logan Public Works	Neighbors / Providence	1862	N	$4,500.00	B-33	NA

PROTECTED BIKE LANE PROJECT MATRIX

Table 5.7 Protected Bike Lane Project Matrix

Project Ranking (On-Street)	Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
20	PBL-1	Aggie Blvd Protected Bike Lane	800 E to 1200 E	Implement a two-way protected bike lane on the north side of Aggie Boulevard. Close Aggie Boulevard to vehicles except shuttles. New exclusive bike phases may need to be added to the 800 E and 1200 E intersections to accomodate diagonal movements from the two-way protected bike lane to the interfacing bike facility. Sufficient queing area should be provided at shuttle stops so that transit users do not impact the protected bike lane.	USU	Students, staff	2697	Y	$650,000	See 2015 USU Parking and Transportation Master Plan	SP-53, SP-54

SHARED ROADWAY PROJECT MATRIX

Table 5.8 Shared Roadway Project Matrix

Project Ranking (On-Street)		Project Code	Project Name	Location	Description	Responsible Entity	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	6	SR-3	100 South (East) Shared Roadway	100 W to 100 E		Logan Public Works	1468	N	$3,500.00	B-23	SP-13, SP-31
	9	SR-4	100 South (West) Shared Roadway	River Circle Dr. to 100 E		Logan Public Works	4143	N	$8,000.00	B-23	SP-52
	9	SR-16	300 South Shared Roadway	600 W to 400 E		Logan Public Works	6704	N	$13,500.00	B-23	SP-12
	17	SR-15	25 N Shared Roadway	Deer Fence Trail to Cliffside Dr.		Logan Public Works	4390	N	$9,000.00	B-23	NA
	19	SR-31	800 East Shared Roadway	USU / west of Bullen Hall	Implement shared lane markings and bike route signage.	USU	362	N	$1,000.00	B-23	NA
	20	SR-19	400 West Shared Roadway (South)	400 S to 100 S		Logan Public Works	1996	N	$4,000.00	B-23	NA
	24	SR-18	400 West Shared Roadway (North)	600 N to 1800 N		Logan Public Works	8168	N	$16,000.00	B-23	NA
	24	SR-30	850 North Shared Roadway	USU / South of cemtery		USU	1934	N	$4,000.00	B-23	NA
MEDIUM	27	SR-10	1600 East Shared Roadway	Ellendale Ave. to 1700 N		Logan Public Works	4593	N	$9,500.00	B-23	SP-20
	33	SR-1	100 East Shared Roadway	500 N to 800 N		Logan Public Works	1974	N	$4,000.00	B-23	NA
	34	SR-22	800 North Shared Roadway	200W to 200E		Logan Public Works	2763	N	$5,500.00	B-23	SP-26
	34	SR-23	970 East / Lauralin Dr. Shared Roadway			Logan Public Works	1226	N	$2,500.00	B-23	SP-11
	34	SR-24	Aggie Boulevard Shared Roadway	1200 E to 1500 E		Logan Public Works	2043	N	$4,000.00	B-23	SP-9
	38	SR-6	1000 North Shared Roadway	1000 W to 800 E	Shared route, upgrade to bike lane in the future as road improvements are made	Logan Public Works	12332	N	$24,000.00	B-23	SP-56
	38	SR-7	1200 N Shared Roadway	200 E to 800 E		Logan Public Works	4176	N	$9,000.00	B-23	SP-36
	38	SR-14	200 West Shared Roadway	800 N to 1800 N		Logan Public Works	6749	N	$13,500.00	B-23	NA
	38	SR-27	Crocket/ Riverside Shared Roadway	Center St. to Canyon Rd.		Logan Public Works	3107	N	$6,500.00	B-23	NA
	44	SR-25	Cemetery Shared Roadway-E-W	Logan Cemetery		Logan Parks	1872	N	$4,000.00	B-23	SP-33
	45	SR-32	1100 East Shared Roadway	USU / east side of Tower Soccer Fields	Constructed shared roadway with shared lane markings and bike route signage in conjunction with campus redevelopment.	USU	810	N	$2,000.00	B-23	NA

SHARED ROADWAY PROJECT MATRIX (CONTINUED)

Table 5.8 Shared Roadway Project Matrix (continuation)

Project Ranking (On-Street)		Project Code	Project Name	Location	Description	Responsible Entity	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
LOW	48	SR-8	1500 North Shared Roadway	1200 E to Aspen Dr.		Logan Public Works	2413	N	$5,000.00	B-23	NA
	50	SR-2	100 N Shared Roadway	Thrushwood Dr. to Canyon Rd.		Logan Public Works	4750	N	$9,500.00	B-23	NA
	50	SR-5	100 West Shared Roadway	500 N to 800 N		Logan Public Works	2045	N	$4,000.00	B-23	NA
	50	SR-17	400 East Shared Roadway	300 S to Canyon Rd.		Logan Public Works	3364	N	$7,000.00	B-23	NA
	50	SR-28	Mendon Road Shared Roadway	Center Ave. to 1900 W		Logan Public Works	7739	N	$15,500.00	B-23	NA
	54	SR-13	Oakwood Shared Roadway	600 S to 200 S		Logan Public Works	3052	N	$6,500.00	B-23	SUP-36,SUP-37
	54	SR-20	500 North- West Shared Roadway	600 W to Main St.		Logan Public Works	4030	N	$8,000.00	B-23	SP-18
	54	SR-21	600 South Shared Roadway	575 W to 500 W		Logan Public Works	553	N	$1,500.00	B-23	NA
	59	SR-9	1500 East Shared Roadway	400 N to Ellendalve Ave.		Logan Public Works	2055	N	$4,000.00	B-23	SP-9
	60	SR-26	Cemetery Shared Roadway-N-W	Logan Cemetery		Logan Parks	1230	N	$2,500.00	B-23	SP-34
	62	SR-11	1800 North Shared Roadway	600 W to Main St.	Shared roadway; upgrade to bike lanes as roadway improvements are made	Logan Public Works	9278	N	$18,500.00	B-23	NA
	62	SR-29	Quail Way Shared Roadway	Quail Way (all)		Logan Public Works	3926	N	$8,000.00	B-23	NA
	67	SR-12	1900 West Shared Roadway	Mendon Rd. to SR 30		Logan Public Works	5423	N	$11,000.00	B-23	NA

SHARED USE PATH PROJECT MATRIX

Table 5.9 Shared Use Path Project Matrix

Off-street Ranking		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	1	SUP-11	Fairgrounds Shared Use Path	Cache County Fairgrounds	Provide a shared use path from the north end of the fairgrounds at 400 S to Willow Park. (400 S to 500 West)	Logan Parks	Cache County	2591	N	$247,000.00	B-60	NA
	2	SUP-8	Boulevard Trail-USU Connector	400 N	Connect the Boulevard Trail with the western USU parking lot/undercrossing via a shared use path	Logan Public Works	USU, neighbors, UDOT	823	Y	$78,500.00	B- 65	NA
	2	SUP-10	Canyon Road Canal Trail	Logan and Northern Canal	Continue development of the Canyon Rd. canal trail. Connect the trail to 400 N.	Logan Parks	neighors	6900	Y	$655,500.00	B-60	SP-7, SP-37
	2	SUP-34	Boulevard Trail Extension	Existing Boulevard Trail to 600 E / 400N	Extend the Boulevard Trail from its current terminus to the southeast corner of 600 E/400 N.	Logan Public Works	Neighbors	922	N	$129,500.00	B-65	SP-2
	5	SUP-12	400N/1200E Shared Use Path	USU	Construct a shared use path along 400 N from Champ Drive to 1200 E, then north to Aggie Blvd.	Logan Public Works	USU	2937	N	$279,500.00	B-65	NA
	6	SUP-13	Integrated Waste Campus Eco Trail	Mendon Rd to Oregon Shortline RR	Develop a shared use path and shared use path connecting 6th South Park to the proposed Integrated Municipal Waste Campus and the Oregon Shortline Rail Trail.	Logan Public Works	City of Logan Environmental Dept.	11993	Y	$1,140,000.00	B-60, B-65	NA
	6	SUP-14A	Logan Canyon Connector- Option 1	Logan Country Club	Develop a shared use path/shared use path connection from Mt. Aire Park to the BST. Trail alignment should follow the edge of the golf course at the top of the Highway 89 road cut.	Logan Public Works	Logan Country Club	2341	Y	$223,000.00	B-60, B-65	SP-9
	6	SUP-14B	Logan Canyon Connector- Option 2	Logan Country Club	Develop a shared use path/shared use path connection from Mt. Aire Park to the BST. Trail alignment should follow Highway 89 while meeting adequate clear zone and shoulder minimums and provide crash-worthy barriers where needed.	Logan Public Works	Logan Country Club	2022	Y	$192,500.00	B-65	NA
	6	SUP-38	Canyon Road Trail	Canyon Rd (Center to 600 East)	Develop a shared use path between Center St and 600 E short dugway in order to create a loop for running, bicycling, and walking, in conjunction with the Boulevard Trail.	Logan Public Works	Canal company	3115	N	$296,500.00	B-65	NA
	10	SUP-15	Crockett Canal Trail	Logan High School to Main Street	Develop the Crockett Canal near Logan High School into a shared use path/shared use path.	Logan Public Works	Logan High School, neighbors, adja-cent business	2104	Y	$200,500.00	B-63, B-65	SP-5
	11	SUP-16	Logan River Connector	Blacksmith Fork / Logan River	Connect the Logan River Trail to the existing River Walk at 1600 S / Park Ave.	Logan Parks	Private property owners	920	N	$88,000.00	B-60	SP-8, SP-50, SP-51
	11	SUP-17	Willow Park Rail Trail Connector Shared Use Path	Willow Park	Develop a shared use path linking the shared use path along 500 W to the proposed Union Pacific Rail Trail.	Logan Parks	None	901	N	$86,500.00	B-60	NA
	13	SUP-2	25 N- Connector	Mountain Rd. / 25 N	Construct a shared use path from 25 N & Mountain Rd. to 100 N. Project involves steep slopes	Logan Public Works	Neighbors	615	Y	$86,500.00	B-60	NA
	13	SUP-18	Logan River Trail Connector	Golf Course Rd. to Logan River Trail	Develop a shared use path from Golf Course Rd. southward to the existing Logan River Trail	Logan Parks	Adjacent business	968	N	$92,500.00	B-63	NA
	13	SUP-19	Logan River Trail to 6th South Park	Logan River	Construct a shared use path from the end of the river walk to 6th South Park along the Logan River	Logan Parks	Logan River Golf Course	10902	N	$1,036,500.00	B-63	SP-51
	13	SUP-20	Logan and Northern Canal Trail - Option 1	Logan and Northern Canal	Construct a shared use path and shared use path along the Logan and Northern Canal from 400 North to the northern city limits. Trail would consist of a shared use path along 600 E.	Logan Public Works	Logan and Northern Canal Company, neighbors	8875	Y	$843,500.00	B-63	SP-10, SP-44

SHARED USE PATH PROJECT MATRIX (CONTINUED)

Table 5.9 Shared Use Path Project Matrix (continuation)

Off-street Ranking		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
MEDIUM	17	SUP-20A	Logan and Northern Canal Trail - Option 2	Logan and Northern Canal	Construct a shared use path and shared use path along the Logan and Northern Canal from 400 North to the northern city limits. Trail alignment would follow the canal.	Logan Public Works	Logan and Northern Canal Company, neighbors	2600	Y	$247,000.00	B-63	SP-10, SP-44
	16	SUP-21	Logan Northwest Field Canal Trail	Logan Northwest Field Canal	Develop a shared use path from 1000 N to 2200 N linking to the proposed Union Pacific Rail Trail. Develop shared use path in conjunction with adjacent vacant parcels.	Logan Public Works	Logan Northwest Field Canal Company, neighbors	10640	Y	$1,011,500.00	B-63	NA
	18	SUP-22	Mt. Aire Shared Use Path	Mt. Aire Park	Develop a shared use path through Mt. Aire Park/USU property to help link the University to Logan Canyon.	USU	Logan City Parks	1999	N	$190,000.00	B-60	SP-9, SP-54
	18	SUP-23	North Fork Logan River Shared Use Path	North Fork Logan River	Develop a shared use path along the Logan River from approximately 100 W to River Hollow Park	Logan Parks	Neighbors, private property owners, USACE	10974	Y	$1,043,000.00	B-63	SP-1, SP-39,SP-47
	18	SUP-29	Tower Soccer Field Path	West side of Tower soccer fields	Construct a new shared use path in conjunction with campus redevelopment.	USU	Students, staff	769	N	$73,500.00		
	18	SUP-31	USU Connection Shared Use Path	Highway 89 / Canyon Rd.	Develop a shared use path from the Canyon Rd. Canal Trail up the hill to the USU parking lot near 700 E / 400 N	Logan Parks	USU, UDOT, neighobrs	1263	Y	$177,500.00	B-60	NA
	22	SUP-24	Oregon Shortline Rail Trail	Oregon Shortline railroad grade	Develop the former Oregeon Shortline railroad as regional rail trail. Connect to Benson Marina.	Logan Parks	Private property owners, neighbors, Cache County	13639	Y	$1,296,500.00	B-61, B-65	NA
	22	SUP-25	River Heights-Cemetery Connector	Providence City Cemetery	Connect to the Providence City Cemetary from the 100 S. Connector shared use path	Logan Parks	River Heights	709	N	$67,500.00	B-60	NA
	24	SUP-26	Spring Creek Hatchery Shared Use Path	Highway 89 and 2177 S	Develop a shared use path loop trail from the end of the River Walk Trail.	Logan Parks	Neighbors	4155	Y	$395,500.00	B-60	NA
	25	SUP-27	SR 30 shared use path	SR 30 shared use path	Develop a shared use path along SR 30 out to the Cutler Marsh or other route via Pacificorp WMA	Logan Parks	UDOT, adjacent business, Cache County	14645	Y	$1,391,500.00	B-65	NA
	26	SUP-28	Stadium Connector	Blue Square Apartments	Connect the Logan and Northern Canal Trail to the stadium via a shared use path	Logan Parks	USU	610	N	$58,500.00	B-60	SP-43

SHARED USE PATH PROJECT MATRIX (CONTINUED)

Table 5.9 Shared Use Path Project Matrix (continuation)

Off-street Ranking		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
LOW	27	SUP-3	300 South Shared Use Path Extension	100 W to 100 E	Extend existing shared use path from 100 W to 100 E	Logan Public Works	Neighbors	1456	N	$139,000.00	B-65	NA
	28	SUP-1	100 South Connector Shared-Use Path	700 East to 1000 E	Construct a shared use path from 100 S to 1000 E through vacant property. Leverage trail through development process if possible.	Logan Public Works	Neighbors, River Heights	2087	N	$198,500.00	B-60	SP-52
	28	SUP-30	Union Pacific Rail Trail	Union Pacific Rail Trail	Maintain contact with Union Pacific Railroad Co. and pursue any potential rail trail or rails with trail opportunities that may present themselves	Logan Parks	Union-Pacific Railroad, adjacent businesses	30405	Y	$2,889,000.00	B-61, B-62	SP-6, SP-25, SP-28, SP-40, SP-48,
	30	SUP-33	Nibley to Logan Trail Phase 2-South	Highway 89 / Rendezvous Park	Develop a shared use path along Highway 89 from 800 South to the ???	Logan Parks	UDOT, landowners,	781	N	$110,000.00	B-65	SP-50
	30	SUP-35	Highway 89/91 Shared Use Path	College Ward to Park Ave.	Construct a shared use path along Highway 89/91 from Park Ave. to the southern city limits.	Logan Public Works	UDOT	13381	Y	$2,074,500.00	B-65	NA
	30	SUP-37	1000 W Trail - South Segment	Logan River to 600 S	Construct a shared use path along 1000 W. Property acquisition may be needed.	Logan Public Works	UDOT	5433	Y	$761,000.00	B-65	SR-13
	33	SUP-32	Nibley to Logan Trail	Highway 89/800 W	Develop a shared use path along Highway 89 and 800 W linking to Clear Creek Park in Nibley	Logan Public Works	Nibley	3954	N	$554,000.00	B-65	NA
	34	SUP-4	400 West Canal Shared Use Path	Logan Northwest Field Canal	If the Logan Northwest Field Canal company decided to pipe the canal, there would be an excellent opportunity to construct a shared use path atop of the pipe while providing convient access for canal maintenance vehicles.	Logan Public Works	Logan Northwest Field Canal Company, neighbors	4356	Y	$414,500.00	B-63, B-65	NA
	34	SUP-5	600 South Connector Shared Use Path	600 S / Center Ave.	Connect the proposed 600 South shared roadway and Mendon Rd. shared roadway via a shared use path	Logan Public Works	Neighbors	251	N	$24,500.00	B-65	NA
	34	SUP-6	800 West-100S -Logan River Connector Shared Use Path	800 W / 1700 S	Connect the the existing Logan River Trail and Rendezvous Park to Blackhawk Park via a shared use path along 800 W and 1700 S	Logan Public Works	Riverside RV Park, adjacent business	3134	N	$298,000.00	B-60, B-65	SP-8
	34	SUP-36	1000 W Trail-North Segment	200 S to 2500 N	Construct a shared use path along 1000 W. Property acquisition may be needed.	Logan Public Works	UDOT	18768	Y	$2,628,000.00	B-65	SR-13
	38	SUP-7	Airport Rd shared use path	Logan Cache Airport	Develop a side path linking the proposed Union Pacific Rail Trail along Airport Rd. out towards Cutler Reservoir. Coordinate with Cache County regional trail planning efforts.	Logan Parks	Logan Cache Airport, Cache County	17873	Y	$1,698,500.00	B-65	SP-48
	39	SUP-9	Canterbury Drive Connector	Canterbury Dr. culdesac	Develop a shared use path connector to the proposed 100 South Connector shared use path from Canterbury Dr.	Logan Parks	neighbors	490	N	$47,000.00	B-60	NA

SPOT IMPROVEMENT PROJECT MATRIX

Table 5.10 Spot Improvement Project Matrix

Project Ranking (Spot Improvement)		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
HIGH	1	SP-10	High Visibility Crosswalks	600 E / 400 N	Provide high-visibility crosswalks to improve crossing conditions at 400N/600E on the north-south crossings.	Logan Public Works		N	$3,000	B-12	Independent
	2	SP-13	Curb extensions with high visibility crosswalks-2	100 S / Main St.	Provide curb extensions at far-side corners to shorten crossing distances. Study right turning traffic volumes on Main Street to evaluate potential to combine thru and right turn lanes. If feasible construct curb extensions at all intersection corners.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	3	SP-26	Hybrid beacon with median prohibiting left turns	Main St./ 800 North	Install a Hybrid Beacon on Main Street at 800 N with a median prohibiting left turns onto 800 North. Incorporate pedestrian refuges and/or bike channels through the median. Alternatively, 700 North could be used as a corridor to cross Main Street using the existing traffic signal, however heavier traffic volumes will create a higher stress route than 700 North.	Logan Public Works	UDOT, Adjacent Businesses	N	$90,500	B-57	Independent
	3	SP-28	Improve At-grade crossing	Rendezvous Park	Construct an at-grade railroad trail crossing	Logan Public Works	Union Pacific Railroad	N	$60,000	NA	Independent
	3	SP-55	Hybrid Beacon	400 N / 400 E	Construct a hybrid beacon to facilitate crossing 400 N. Consider constructing a median to prevent left turns and serve as a pedestrian refuge. Coordinate with UDOT.	Logan Public Works	UDOT	Y	$115,000	B-57	BL-20
	6	SP-33	New Cemetery Access Gate	Logan Cemetery	Install gates and pathways through the cemetery fence to allow pedestrian circulation through the cemetery linking the north and south parts of campus.	Logan Parks	USU, Neighbors, plot owners	N	$7,000	NA	Independent
	6	SP-43	Pedestrian Overcrossing	1150 N / 800 E	Construct a pedestrian overcrossing of 800 E. Relocate access point to stadium parking lot in line with Blue Square apartment access. Alternative could include an at-grade crossing with hybrid beacon	Logan Public Works	USU, Neighbors	N	$270,000	B-73	Independent
	8	SP-12	Curb extensions with high visibility crosswalks	300 S / Main St.	Provide curb extensions at far-side corners to shorten crossing distances. Study right turning traffic volumes on Main Street to evaluate potential to combine thru and right turn lanes. If feasible construct curb extensions at all intersection corners.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	9	SP-34	New Cemetery Fence Gate and Ped Ramp	Logan Cemetery	Install gates and pathways through the cemetery fence to allow pedestrian circulation through the cemetery linking the north and south parts of campus.	Logan Parks	USU, Neighbors, plot owners	N	$7,000	NA	Independent
	10	SP-14	Curb extensions with high visibility crosswalks-3	Center St. / Main St.	Provide curb extensions at far-side corners to shorten crossing distances. Study right turning traffic volumes on Main Street to evaluate potential to combine thru and right turn lanes. If feasible construct curb extensions at all intersection corners.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	10	SP-15	Curb extensions with high visibility crosswalks-4	100 N / Main St.	Provide curb extensions at far-side corners to shorten crossing distances. Study right turning traffic volumes on Main Street to evaluate potential to combine thru and right turn lanes. If feasible construct curb extensions at all intersection corners.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	10	SP-16	Curb extensions with high visibility crosswalks-5	200 N / Main St.	Provide curb extensions on 200 N only. Provide high-visibility crosswalks.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	10	SP-17	Curb extensions with high visibility crosswalks-6	400 N / Main St.	Provide curb extensions on 400 N only. Provide high-visibility crosswalks.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	10	SP-18	Curb extensions with high visibility crosswalks-7	500 N / Main St.	Provide curb extensions at far-side corners to shorten crossing distances. Study right turning traffic volumes on Main Street to evaluate potential to combine thru and right turn lanes. If feasible construct curb extensions at all intersection corners.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent

SPOT IMPROVEMENT PROJECT MATRIX (CONTINUED)

Table 5.10 Spot Improvement Project Matrix (continuation)

Project Ranking (Spot Improvement)		Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
MEDIUM	15	SP-3	Bridge & Path Widening in Sumac and River Hollow Park	Sumac Park and River Hollow Park	Widen the bridge and pathway through Sumac and River Hollow Park to allow pedestrians and bicyclists to more easily access the Canyon Rd. Canal Trail and connections to USU.	Logan Parks	Neighbors	N	$121,000	NA	Independent
	15	SP-29	Midblock crossing with bumpout and refuge	Center St. / Pedesetrian Promenade	Construct midblock crossing with bumpouts, pedestrian refuge and curb extensions.	Logan Public Works	Downtown Alliance, UDOT	Y	$27,000	B-13. B-14	Independent
	15	SP-31	Midblock crossing with bumpout and refuge - special paving	100 S / Pedestrian promenade	Construct midblock crossing with bumpouts, pedestrian refuge and curb extensions.	Logan Public Works	Downtown Alliance, UDOT	Y	$26,500	B-13, B-14	Independent
	15	SP-32	Midblock crossing with RRFB	200 N / Pedestrian promenade	Construct midblock crossing with bumpouts, pedestrian refuge and curb extensions and RRFB. Coordinate with UDOT.	Logan Public Works	Downtown Alliance, UDOT	Y	$51,500	B-13, B-14	Independent
	19	SP-19	Curb extensions with high visibility crosswalks-8	700 N / Main St.	Provide curb extensions on 700 N only. Provide high-visibility crosswalks.	Logan Public Works	Downtown Alliance, UDOT	Y	$21,500	B-12, B-14	Independent
	19	SP-27	Heated sidewalk	Sidewalk between 700 North and Aggie Blvd	Install a heated pavement system to mitigate winter icing and falls at the sidewalk connecting 700 N to Aggie Blvd (near 700 E)	Logan Public Works / USU	USU Students and faculty; neighbors	N	$58,000	NA	Independent
	19	SP-38	Pioneer Parkway Path Widening	Pioneer Parkway	Widen the Pioneer Parkway Path to 10'-0". (8'-0" Min.)	Logan Parks		N	$138,000	NA	Independent
	19	SP-48	Undercrossing or hybrid beacon	100 E / Poplar Ave.	Develop an undercrossing or Hybrid Beacon below 100 E. connecting Garff Wayside Gardens to Pioneer Parkway	Logan Public Works	Canal Company	Y	$270,000	B-71, B-72	Independent
LOW	23	SP-20	Ellendale Ave / 1600 E School Crosswalks	Ellendale Ave / 1600 E	Add north/south and east/west crosswalks. Construct sidewalk along the golf course.	Logan Public Works	Logan School District, Neighbors	N	$23,000	B-12	Independent
	23	SP-22	Federal/Church Midblock Crossings	Federal / 150 N	Create mid-block crossings with curb extensions and crosswalks to all entrances to Logan's Federal / Church small-block zone	Logan Public Works	Downtown Alliance	Y	$18,500	B-12, B-14	Independent
	23	SP-23	Federal/Church Midblock Crossings	Church St. / 200 N	Create mid-block crossings with curb extensions and crosswalks to all entrances to Logan's Federal / Church small-block zone	Logan Public Works	Downtown Alliance	Y	$18,500	B-12, B-14	Independent
	23	SP-24	Federal/Church Midblock Crossing	Church St. / 100 N	Create mid-block crossings with curb extensions and crosswalks to all entrances to Logan's Federal / Church small-block zone	Logan Public Works	Downtown Alliance	Y	$18,000	B-12, B-14	Independent
	23	SP-35	Old Main Hill Improvements	Old Main Hill, USU	Curb extension, Bike parking, bike/ped ramps to 500 North, incorporate bike channel into staircase.	USU	USU Students and faculty	N	$141,000	NA	Independent
	28	SP-30	Midblock crossing with bumpout and refuge - special crosswalk paving	100 N / Pedestrian Promenade	Construct midblock crossing with bumpouts, pedestrian refuge and curb extensions.	Logan Public Works	Downtown Alliance, UDOT	Y	$27,000	B-13, B-14	Independent
	28	SP-45	Tee Box Relocation	Logan Country Club	Relocate locate #17 tee box at Logan Country Club to the west side of the canal. Route a trail connection between the existing canal trail and the Bonneville Shoreline Trail. Use plantings and berming to mitigate trail user's impact on golf.	Logan Parks	Logan Country Club, canal company	Y	$170,500	NA	Independent
	30	SP-21	Federal / Church Midblock Crossing with RRFB	Federal / Main St.	Create a mid-block crossing and install a Hybrid Beacon or RRFB in conjunction with curb and extensions and pedestrian refuge to access the Federal/Church small-block zone	Logan Public Works	Downtown Alliance, UDOT	Y	$90,500	B-56	Independent
	31	SP-36	Ped Bridge Across Canal	Ped Bridge	Construct a bike-pedestrian bridge across the Logan-Smithfield Canal linking 1200 N dead-end streets. (Note: If canal is piped as part of proposed Logan-Smithfield Canal Trail, only a pathway connection may be needed in lieu of a bridge.)	Logan Public Works	Neighbors	N	$52,000	B-73	Independent

SPOT IMPROVEMENT PROJECT MATRIX (CONTINUED)

Table 5.10 Spot Improvement Project Matrix (continuation)

Project Ranking (Spot Improvement)	Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
PROJECTS NOT RANKED, PRIORITIZE IN CONJUNCTION WITH ASSOCIATED LINEAR PROJECTS	SP-1	100 East Undercrossing or RRFB	100 E / Logan River	Develop a pedestrian undercrossing or at-grade RRFB crossing with median refuge	Logan Public Works	USACE, Neighbors	Y	$252,000	B-56, B-72	SUP-23
	SP-2	Boulevard Trail / Dugway Crossing	Boulevard / 600 E	Provide the needed refuge areas and crosswalks to link the Boulevard Trail to the proposed Canyon Rd. Canal Trail at 400 N.	Logan Public Works	Neighbors	N	$21,500	B-68	SUP-34
	SP-4	Buffered Uphill Bike Lane	700 East / Aggie Blvd.	Confine the travel lane to 12'-0 wide at the 700 East / Aggie Blvd. curve. Provide extra buffer area adjacent to the bike lane.	Logan Public Works	USU Students and faculty	N		B-38	BBL-6
	SP-5	Canal Trail Entry Plaza	100 S / Main St.	Create a pedestrian plaza where the canal crosses Main St. at 100 S. Provide bike parking, site furniture and wayfinding signage	Logan Parks	Private property owners	N	$81,000	NA	SUP-15
	SP-6	Coordinate access with adjacent development	Union Pacific RR / Oak Meadows Apartments	Provide trail connections into the Oak Meadows apartment community	Logan Public Works	Neighbors	N	$9,000	B-64	SUP-30
	SP-7	1400 N Undercrossing	1400 N Undercrossing	Construct an undercrossing below 1400 North in conjunction with roadway upgrades to facilitate the continuation of the Logan and Northern Canal Trail.	Logan Public Works	Neighbors / USU	Y	$1,200,000	B-72	SUP-20, SUP-20A
	SP-8	Crossing Improvements	800 W / 1600 S	Provide crosswalk for Logan River Trail	Logan Public Works		N	$6,500	B-12	SUP-6, SUP-16
	SP-9	Curb extensions	1500 E / Highway 89	Provide curb extensions to create a shorter trail crossing across 1500 E	Logan Public Works		N	$16,000	B-14	SUP-14, SUP-22
	SP-11	Curb Extensions with Crosswalks	970 E / Canyon Rd.	Provide curb extensions and crosswalks on Canyon Rd to provide north-south connections to the proposed Canal Trail.	Logan Public Works		N	$18,500	B-12, B-14	SP-7
	SP-25	Future Grade-separated crossing	Rendezvous Park	Develop a grade-separated (underpass or overpass) crossing of Highway 89/91 should the Union Pacific rail line ever be developed as a trail corridor	Logan Public Works	Neighbors	Y	$1,200,000	B-72, B-73	SUP-30
	SP-37	Improve Canyon Raod Trail access	Canyon Road Canal Park	Develop a consistent, ADA-compliant trail up to the Canyon Road Canal Trail and across the washout. Unstable soils present problems for stuctures and grading. Seek partnerships and/or Federal funding to develop a long-term solutions.	Logan Parks	Neighbors	N	$114,000	B-73	Independent
	SP-39	Pursue access easement	200 E / Logan River	Pursue easements to facilitate access from 200 E to the proposed Logan River Trail.	Logan Parks	Neighbors	N	$140,500	NA	SUP-23
	SP-40	Rail Trail Neighborhood Connections	Fairview Park	Construct access points to the proposed Union Pacific Rail Trail.	Logan Parks	Neighbors	N	$10,000	B-64	SUP-30
	SP-41	Restripe parking to reverse angle parking	100 N / 50 W	Re-stripe angle parking to reverse angle parking to improve visibility of bicyclists in bike lane and provide other benefits related to reverse angle parking	Logan Public Works	Downtown Alliance	N	$4,500	B-35	BL-3
	SP-42	Roundabout bike lane intersection treatment	200 E / 500 N	Stripe roundabouts and mixing zones to facilitate bikes through the intersection	Logan Public Works		N	$3,000	B-46	BBL-5
	SP-44	RRFB with Median Refuge	1300 N / 800 E	Construct an mid-block crossing with pedestrian refuge and RRFB's to serve the proposed Logan and Northern Canal Trail.	Logan Public Works	USU, Neighbors	N	$52,500	B-56	SUP-20
	SP-46	Main St. Undercrossing	Logan River at Main St.	Develop a pedestrian undercrossing along the proposed North Fork Logan River Trail below Main St.	Logan Public Works	UDOT, Army Corps of Engineers, Wilson Neighborhood, River Heights	Y	$1,380,000	B-72	SUP-23
	SP-47	2500 N Undercrossing	Rendezvous Park	Develop an undercrossing of 2500 N along the Union Pacific rail line should the corridor be developed as a trail	Logan Public Works	UDOT	Y	$1,200,000	B-72	SUP-30
	SP-49	Pedestrian Bridge	Rendezvous Park	Construct a pedestrian bridge over the Logan River to facilitate the Nibley to Logan-Phase2	Logan Parks	Army Corps of Engineers	N	$137,500	B-73	SUP-16
	SP-50	Pedestrian Bridge	Logan River Golf Course	Construct a pedestrian bridge over the Logan River to facilitate the Nibley to Logan-Phase2	Logan Parks	Army Corps of Engineers,Logan River Golf Course	N	$137,500	B-73	SUP-16

SPOT IMPROVEMENT PROJECT MATRIX (CONTINUED)

Table 5.10 Spot Improvement Project Matrix (continuation)

Project Ranking (Spot Improvement)	Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
PROJECTS NOT RANKED	SP-51	Pedestrian Bridge	100 S / North Fork of Logan River	Construct a pedestrian bridge over the north fork of the Logan River at the end of 100 S	Logan Public Works	Army Corps of Engineers,Logan River Golf Course	N	$137,500	B-73	SUP-1
	SP-52	Two Stage Turn Box	1400 N / 200 E	Install a bike turn box on 1400 N to facilitate left turns onto 200 E.	Logan Public Works	USU	N	$875	B-45	BBL-3
	SP-53	Bike Box	Aggie Blvd. / 1200 E	Install bike boxes on Aggie Blvd. E to queue large numbers of bicyclists and facilitate transition to protected bike lane.	Logan Public Works	USU	N	$1,750	B-40	PBL-1, SR-24
	SP-54	Bike Boxes	Aggie Blvd. / 800 E.	Install bike boxes on Aggie Blvd. E to queue large numbers of bicyclists and facilitate transition to protected bike lane.	Logan Public Works	USU	N	$1,750	B-40	BBL-3, PBL-1

UNPAVED TRAIL PROJECT MATRIX

Table 5.11 Unpaved Path Project Matrix

Project Ranking (Spot Improvement)	Project Code	Project Name	Location	Description	Responsible Entity	Stakeholders	Length (ft)	Feasibility Study Needed	Estimated Cost	Design Guideline Reference	Associated Projects
UNPAVED TRAILS NOT RANKED	UP-1	1570 E Connector	1570E Quail Way		Logan City Parks	Neighbors	419	N	$7,000.00	B-66	NA
	UP-2	Bonneville Shoreline Trail			Logan City Parks	Landowners	5447	Y	$79,500.00	B-66	NA
	UP-3	BST Connector -3	Bonneville Shoreline Trail off of Aspen Dr. roundabout		Logan City Parks	Neighbors	441	N	$7,000.00	B-66	NA
	UP-4	BST Connector -4	450S Gibbons Pkwy		Logan City Parks	Landowners	2007	N	$30,000.00	B-66	NA
	UP-5	BST Connector -1	Deer Fence between Mt. Logan Dr/Quail Canyon Dr.		Logan City Parks	Landowners	1640	N	$24,000.00	B-66	NA
	UP-6	BST Connector -2	Bonneville Shoreline Trail off of Aspen Dr.		Logan City Parks	Neighbors	582	N	$8,500.00	B-66	NA
	UP-7	BST Connector-5	1470E Quail Way to Bonneville Shoreline Trail		Logan City Parks	USU, Neighbors	4857	Y	$71,000.00	B-66	NA
	UP-8	Canal-BST Connector	Logan Golf and Country Club to Bonneville Shoreline Trail		Logan City Parks	Logan Country Club	1105	N	$16,500.00	B-66	SP-46
	UP-9	Sumac Dr. Connector	Sumac Dr to Connector 5 off of Quail Way		Logan City Parks	Neighbors	266	N	$4,500.00	B-66	NA

SPECIAL PROJECTS

Table 5.12 Special Project Matrix

Project Code		Project Name	Location	Description	Responsible Entity	Length (ft)	Estimated Cost	Design Guideline Reference	Associated Projects
NA	SW-1	Downtown Pedestrian Promenade	100 S to Cache County Library	Continue to invest in lighting, sidewalk and landscaping along the Downtown Pedestrian Promenade. Focus efforts on the identified spot improvements along the corridor and in developing the proposed segment from 100 S to 200 S.	Logan Public Works	2395	$409,333	B-6, B-10	

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5.4 PERFORMANCE CRITERIA

The performance measures in this plan are important for assessing whether the plan is meeting its goals over time, highlighting the need for any adjustments, and for determining how effectively funding is being allocated and spent. The City should measure the success of the plan and its work to make bicycling and walking safe, normal, and popular choices in Logan by using the performance measures in this section. The outcomes of these measures can also help the City of Logan celebrate victories, small and large, and keep momentum moving forward.

The performance measures are based on the goals found in Chapter I and are generally outcome-based. The intent of these types of measures is to prioritize investments that do the best job of achieving desired plan outcomes, as opposed to output-based metrics that are more dependent upon available resources that may fluctuate year to year. As often as possible, performance measures should be based on rates rather than raw numbers in order to accurately and effectively show change over time. For example, a 30% increase in walking trips rather than 20,000 new walking trips. Performance measure should also strive to focus on outcomes (more people walking) rather than strictly outputs (street trees planted).

Simply tracking trends, like the increasing percentage of trips taken by walking and bicycling, miles of bicycling and walking facilities being completed from the proposed system plan or other plans, new or improved connections to Utah State University, crosswalks added, or dollars spent on sidewalk replacement, are effective and relatively easy performance measures. Some performance measures focus on downward, negative trends like fewer traffic fatalities, less wait time for bicyclists and pedestrians at roadway crossings, and lower average speeds on particular roadways. Tracking progress of all performance measures over time will also give the City of Logan both more transparency while building more momentum and public support in the community. Measures can be evaluated either by meeting performance targets, trending in the desired direction, or both.

Tracking and analyzing performance measures should not be restricted to one or two departments within the City. The City of Logan can collaborate with other organizations such as, City Council, CMPO, UDOT, Cache County, BPAC, tourism and recreation organizations, Division of Air Quality, Bear River Health Department, Utah State University, Logan School District, regional and state law enforcement agencies, emergency responders, and others that will encourage higher level policy-related and programmatic changes.

The measures in the plan were selected based on data that, when collected and used, can help inform project selection and design, the development and success of education and encouragement programs, measures to improve safety, and other issues. While performance measures are focused on assessing progress over the long-term, data on these measures should be collected on a regular basis to help track continuing progress.

Table 5.13 Safety Performance Metrics

Plan Goal	Performance Measure	Baseline Measurement	Changes in Data Collection	Partner Organizations	Performance Target	Desired Trend
Design proposed facilities to optimize safety for people walking and bicycling.	Bicycle and pedestrian collision rate	Existing Police Department crash data	Track or gain access to more detailed crash information (i.e. time of day, fault, vehicle speeds, location, intersection- or crosswalk-related)	Logan Police Department, UDOT	Reduce bicycle and pedestrian collision rate by half (50%) by 2025	Decrease
	Number of serious injuries and fatalities	Existing Police Department crash data	Track or gain access to more detailed crash information that will identify the severity of crashes and associated injuries	Logan Police Department, UDOT	Zero fatalities by 2020	Decrease
	Percentage of Logan residents who identify safety as a major impediment to bicycling	n/a	Begin market research phone surveys; coordinate with future Utah Travel Study surveys	CMPO	n/a	Decrease
	Average speed of roadways where bicycle and pedestrian facilities do or will exist and/or where activity is high	UDOT and Logan City traffic analysis	Analyze within and outside of the parameters of 85th percentile speed analysis	Logan Public Works, UDOT	n/a	Decrease

Table 5.14 Support All Users / Link Destinations Performance Metrics

Plan Goal	Performance Measure	Baseline Measurement	Changes in Data Collection	Partner Organizations	Performance Target	Desired Trend
Develop bicycling and walking facilities to support people of all ages and abilities.	Neighborhoods with bicycle facilities and pedestrian facilities, or both (i.e. shared use trail)	2015 percentage	GIS analysis as system is improved	Logan Public Works, Logan Parks	100% of neighborhoods with internal facilities and external connections to adjacent neighborhoods by 2025	Increase
	Percentage of underserved populations (females, older adults, and minorities) who ride a bicycle or walk regularly (meaning a few times a month or more)	n/a	Begin market research phone surveys	BPAC	n/a	Increase
Link Logan's major destinations and neighborhoods with comfortable biking routes, walking routes and supporting facilities.	Percentage of bicycle and pedestrian proposed network completed	2015 percentage (calculate by adding existing mileage to proposed network mileage and dividing the former by the sum)	n/a	Logan Public Works, Logan Parks	75% of system constructed by 2025; 100 percent by 2035	Increase
	Percentage of households within 1/4 mile of a lower stress, all ages and abilities bicycling facility and walking facility, or both (i.e. shared use trail)	2015 percentage	GIS analysis as system is improved		100% of households within 1/4 mile of these types of facilities by 2025	Increase
	Percentage of high demand locations (offices, restaurants, stores, parks) with convenient bicycle parking	2015 percentage	GIS analysis as system is improved	Logan City Planning	75% of locations with bicycle parking by 2025	Increase
	Bicycling and walking connections to adjacent communities	2015 percentage	n/a	CMPO	n/a	Increase

Table 5.15 Leverage Investment Performance Metrics

Plan Goal	Performance Measure	Baseline Measurement	Changes in Data Collection	Partner Organizations	Performance Target	Desired Trend
Leverage funding for and invest in active transportation infrastructure.	Percentage of funding spent on each transportation mode	2015 percentage	n/a	Logan Public Works, Logan City Parks	Funding percentages equal to or greater than rates of walking and bicycling (i.e. 10% of funding for 10% walk mode share) by 2025	n/a
	Business licenses on streets improved for bicycling and walking	Existing licenses on streets or corridors where bicycle and/or pedestrian facilities are proposed in the plan	Analyze license applications and granted licenses after bicycle and/or pedestrian facilities are implemented or improved	Downtown Alliance, Community Development	n/a	Increase
	Positive feedback from nearby landowners, business owners, and/or home owners/residents about the quality and efficacy of existing and/or newly constructed or improved bicycling and walking facilities	n/a	Begin data collection and analysis to establish a baseline	Downtown Alliance	n/a	Increase

Table 5.16 Decrease VMT / Programs Performance Metrics

Plan Goal	Performance Measure	Baseline Measurement	Changes in Data Collection	Partner Organizations	Performance Target	Desired Trend
Seek to increase bike, walk and transit trips while decreasing vehicle miles traveled (VMT) in Logan to improve local air quality.	Number of bicyclists and pedestrians counted at locations throughout Logan	2012 Utah Travel Study survey counts; regular or automated counts in the future will create new baselines	"(1) Establish a regular annual count and data analysis, and/or (2) Install automated trail and signal-related bicyclist and pedestrian counters to automate process, improve data quality and quantity"	Logan Public Works, Logan Parks, CMPO	300% increase in bicycle ridership and 50% increase in walk mode share by 2025	Increase
	Rate of children walking or bicycling to school	2015 rate	Begin data collection and analysis to establish a baseline if it does not already exist; utilize parent surveys and student hand tallies	Logan School District	40% by 2025	Increase
	Percentage of transit stops accessible via sidewalks and curb ramps	2015 percentage	n/a	CVTD	100% by 2025	Increase
	Transportation-related emissions and air quality	Existing Division of Air Quality figures related to transportation emissions	n/a	Utah Department of Environmental Quality	n/a	Decrease
Support, encourage and promote bicycling and walking through programs	Self-reported physical activity	Bear River Health Department figures	Increase reach and quality of reporting by teaming with BRHD	Bear River Health Department	n/a	Increase
	Reach of and participation in existing programs and those recommended in the plan	2015 reach and participation, existing programs	Begin data collection and analysis to establish a baseline if it does not already exist	USU, Logan School District, BPAC, and others	n/a	Increase

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6

CONCLUSION

The Logan Bicycle & Pedestrian Master Plan establishes a vision and blueprint for cultivating a culture where bicycling and walking are fundamental elements of Logan's identity.

6.1 LOGAN'S BIKING AND WALKING FUTURE

Logan possesses significant potential to develop into a regional, or even national leader for bicycling and walking. The City already has many outstanding characteristics that contribute to the walkability and bike-ability of Logan. These include:

- Logan's relatively compact development resulting in much of the city lying within easy walking or bicycling distance of major destinations such as Downtown and USU.
- The City's traditional grid street network allowing residents many route options to reach local destinations.
- CVTD's fare-free bus system allows residents easy and convenient transit options.
- Utah State's presence within the community also contributes thousands of students and staff who are likely to make biking and walking trips part of their daily lives.
- An active and engaged group of advocates and event organizers, such as BPAC and Aggie Blue Bikes contributing to an emerging biking and walking culture in Logan.
- Finally, a full suite of events, races and activities from the Bike to Work day breakfast hosted by BPAC and Aggie Blue Bikes to the Tour of Utah contributing to a culture and economy where biking and walking are valued and celebrated.

In addition, Logan residents have shown strong support for bicycling and walking. Residents have not only expressed that biking and walking are important contributors to their quality of life, but they are willing to use transportation funds to help pay for enhanced opportunities. Figure 6.1 illustrates Cache County residents' positive views towards active transportation.

With Logan's population expected to grow to over 70,000 by 2040, the time to plan for future active transportation improvements is now. Logan residents already take many of their trips on foot or by bicycle and will undoubtedly use future facilities. Advocates and stakeholders such as BPAC, Aggie Blue Bikes and USU have also shown a commitment to support future facilities with complimentary programs and encouragement. The Logan Bicycle and Pedestrian Master Plan hopes to leverage these existing assets to create a walkable, bike-able future for the City of Logan.

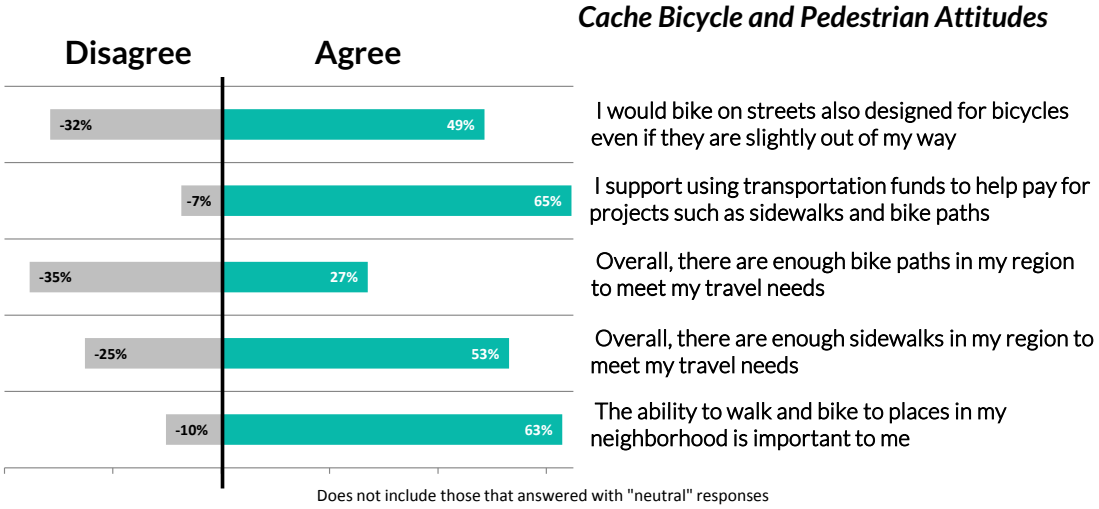

Figure 6.1 Cache County Active Transportation Views