



Ogden City Bicycle Master Plan



FINAL REPORT • FEBRUARY 2016

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ORDINANCE NO. 2016-8

AN ORDINANCE OF OGDEN CITY, UTAH ADOPTING THE OGDEN CITY BICYCLE MASTER PLAN; AND PROVIDING THAT THIS ORDINANCE SHALL BECOME EFFECTIVE IMMEDIATELY UPON POSTING AFTER FINAL PASSAGE.

WHEREAS, the Ogden City Planning Commission, after notice and public hearing, has reviewed an Ogden City Bicycle Master Plan and recommended to the City Council that the Bicycle Master Plan (Master Plan) be approved.

WHEREAS, the master plan includes projects that will help provide solutions to the goals, objectives and strategies identified in the Transportation Element of the City's General Plan as adopted by the City Council.

WHEREAS, the City Council, after recommendation from the City Administration, determines whether infrastructure projects described in the master plan are included in the City's Capital Improvement Plan budget.

WHEREAS, approval of the master plan provides policy direction from the City Council and background information that the Council should have as it considers the City Capital Improvement Plan annually.

WHEREAS, approval of the master plan provides policy direction from the City Council to the city administration in the form of proposed objectives and strategies regarding the implementation of bicycle transportation solutions within the City.

NOW, THEREFORE, the Council of Ogden City hereby ordains:

SECTION 1. Bicycle Master Plan Approved. The Council of Ogden City hereby approves the Ogden City Bicycle Master Plan, dated December 2015, which is attached hereto as Exhibit A and incorporated herein by this reference.

SECTION 2. Effective date. This ordinance shall become effective immediately upon posting after final passage.

PASSED, ADOPTED AND ORDERED POSTED this 2nd day of February, 2016.

[Signature]
CHAIR

ATTEST:

[Signature]
CITY RECORDER



TRANSMITTED TO THE MAYOR ON: Feb 3, 2016

MAYOR'S ACTION: ☒ Approved ☐ Vetoed

[Signature]
MAYOR

ATTEST:

[Signature]
CITY RECORDER



POSTING DATE: Feb. 11, 2016

EFFECTIVE DATE: Feb. 11, 2016

APPROVED AS TO FORM: [Signature] 12/7/15
Legal Date

acknowledgements

Project Steering Committee

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Perry Huffaker	Ogden City Public Ways and Parks
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Introduction

Bicycling is increasingly recognized as an important component of the transportation system. The Ogden Bicycle Master Plan (Plan) establishes a vision for making Ogden a highly bicycle-friendly community.

This Plan serves as a guide for elected officials, City staff, and Ogden residents to implement infrastructure necessary to achieve the Plan's vision. The Ogden Bicycle Master Plan does this by proposing a network of bikeways connecting neighborhoods to key activity centers (such as employment, shopping, schools, and parks) throughout the City, establishing a range of facility types to appeal to all kinds of cyclists in Ogden's communities, and identifying a high-priority first phase of bicycle corridors for construction. It also pinpoints locations where intersection improvements (such as HAWK beacons, two-stage left turns, and bike detection) are recommended to help cyclists navigate the network. This plan also recognizes areas of Ogden which may be most suitable for implementing a bikeshare program, including specific locations for stations.

National organizations such as the League of American Bicyclists give recognition to communities who strive to become more bike-friendly. The recognition comes in the form of various rankings, which are based on each community's efforts to improve its cycling environment through better enforcement, education, engineering, evaluation, and encouragement. Community rankings range from Bronze to Platinum; currently Ogden is ranked as Bronze by the League of American Bicyclists, but has set a goal of Platinum. The vision of this Plan is to establish a bicycling network in Ogden that leads to an eventual Platinum designation.

Making the Case for Investment

Both bicycling and walking are effective ways for people to improve their health and wellbeing. However, the benefits of active transportation go beyond the health of the individual. A growing body of research shows that active transportation can also benefit the environment and positively influence travel conditions. The addition of active transportation infrastructure can even boost economic viability. Along the urban areas of the Wasatch Front, problems such as air quality, traffic congestion, and growth pressures might be mitigated through more bicycling and walking. A short summary of research regarding the benefits of active transportation infrastructure is provided below (references for footnotes are provided in Appendix A).

MAKING THE CASE

According to research conducted in the Portland area, every 1% increase in miles traveled by active transportation instead of by car reduces regional greenhouse gas emissions by 0.4%.

Air Quality

- Research indicates that transportation accounts for roughly 28 percent of the United States' total greenhouse gas (GHG) emissions¹. Of commuting modes, automobiles have the largest impact on air quality. Bicycling and walking have a negligible contribution to GHG impact (outside of the production needed in the manufacturing of the bicycle), and can even help reduce overall GHG if the number of people substituting automobile trips with cycling or walking trips are significant.

- The Rails to Trails Conservancy estimates that bicycling and pedestrian travel can offset between 3 percent and 8 percent of GHG emissions in the United States caused by surface transportation².

Reduced Vehicle Miles Traveled

- Vehicle miles traveled (VMT) measures the number of cars and the distance they drive in a given area or in a certain corridor, and high VMT levels often contribute to traffic congestion and lower air quality. However, many trips regularly done by car can be done by bicycle. The national average trip length is 2.25 miles for a one-way bicycling trip. Half of all trips taken in the United States are three miles or less, with 40 percent under two miles. However, 90 percent of trips fewer than three miles are taken by car³.
- A study in King County, Seattle, WA found that a 5 percent increase in walkability of a community reduced vehicle miles traveled per capita by 6.5 percent and increased time spent in physically active travel by 32.1 percent⁴.

MAKING THE CASE

An analysis of Portland, Oregon's bicycle infrastructure on health savings shows that completion of their 2030 Plan would help the City save \$800 Million due to fuel cost savings, health care savings, and the value of reduced mortality.

Increased Bike Commuting

- Each additional mile of bicycle lane per square mile is correlated with an approximate one percent increase in the share of bike-to-work trips⁵.
- Cities with higher levels of bicycle infrastructure (lanes and paths) also saw higher levels of bicycle commuting⁶.
- The construction of a bicycle and pedestrian bridge in Charleston, South Carolina led to more cycling throughout the City. A survey conducted on trail use showed that 67 percent of users claimed their physical activity had increased since the path opened⁷.

Health Benefits

- Communities with higher rates of bicycling and walking have lower obesity rates than communities with lower levels of active transportation⁸.
- Researchers from Harvard University found that bicycling for as little as five minutes each day can prevent weight gain for middle aged women⁹.
- The National Institutes of Health have shown that people are more likely to consistently ride a bicycle or walk than to maintain a gym-based exercise program¹⁰.
- Commuters using active transportation modes are happier with their commutes¹¹.
- People who use active transportation to commute report fewer days of work missed due to illness than those with non-active commutes¹².
- A study by the National Institute of Health determined that physically active employees incurred approximately \$250 less in health care costs annually compared to sedentary employees¹³.

Transportation Safety

- There is safety in numbers. The walking/bicycling crash risk decreases as walking/bicycling rates increase¹⁴.
- The National Institute of Health found that for every doubling of the number of cyclists, the number of fatalities increases by 25 percent, thus reducing the overall risk of cycling by 37 percent¹⁵.
- The presence of bike lanes have been shown to reduce the overall crash rate by 18 percent compared to streets without any bicycle facility¹⁶.

Economic Benefits

- The combined potential value of bicycling in Wisconsin totals nearly \$2 billion yearly¹⁷.
- There is a 12.5 percent increase in productivity of employees who exercise as compared to those who do not exercise¹⁸.
- A survey of residents along bicycle boulevards indicated that the majority of respondents felt that bicycle boulevards have had a positive impact on home values, quality of life and sense of community, along with reducing noise, improving air quality, and providing convenience for bicyclists. Additionally, 42 percent of respondents said living on a bicycle boulevard makes them more likely to bike¹⁹.
- Installation of bike lanes and bike racks can have a positive influence on the local economy. Fort Worth, Texas spent \$12,000 to purchase 80 bike racks and \$160,000 on local road diets in one district in town. As a result, local restaurants experienced a 200 percent increase in business²⁰.
- Portland's bicycle industry has also contributed significantly to the local economy. In 2008, revenues in the bicycle-related economic sector were found to be nearly \$90 million²¹.

MAKING THE CASE

Bike lanes reduced the risk of fatalities in pedestrian-involved crashes by 40%.

Job Creation

- A national study of employment impacts following the installation of bicycle and pedestrian infrastructure estimated that each \$1 million in bicycle-related projects creates 11.4 jobs from direct, indirect and induced construction spending. In contrast, road-only projects generated 7.75 jobs per \$1 million. Spillover (indirect) employment adds an additional 3 jobs per \$1 million²².
- In Colorado, the bicycling industry has created 513 manufacturing jobs and 700 full-time equivalent retail jobs²³.

- Similar results have been shown in Wisconsin, where the bicycling industry (consisting of manufacturing, distribution, retail, and other services) contributes \$556 million and 3,418 jobs to the Wisconsin economy²⁴.

Objectives and Strategies

Objectives and strategies for the Ogden Bicycle Master Plan were developed initially by the Steering Committee, and presented to stakeholders and the public in outreach events for comment and refinement. These principles provide a guiding document for Ogden in creating, maintaining, and promoting bicycle infrastructure and programs both now and in the future. The objectives and strategies were refined based on input from the Ogden Bicycle Master Plan Stakeholder Group, and also were informed by the League of American Bicyclists 5 E categories (Engineering, Education, Enforcement, Evaluation, and Encouragement).

Objectives and Strategies

Objective 1: Develop a connected bicycle network throughout Ogden and with adjoining communities.

Strategy 1a: Create a citywide bicycle network that serves key destinations including the Ogden FrontRunner Station, Weber State University, Downtown, and Business Depot Ogden (BDO).

Strategy 1b: Improve the connections between Ogden's street network and the regional trail network (e.g. Weber River Trail, Ogden River Trail, Ogden Canyon, and trailheads).

Strategy 1c: Eliminate gaps and physical barriers to cycling (such as missing segments in bike lanes, lack of connections over barriers like rail lines and rivers, or other issues).

Strategy 1d: Partner with UDOT, UTA, Weber County, and adjacent municipalities to develop facilities that connect into neighboring communities.

Strategy 1e: Coordinate with Weber State University to make connections to campus from neighboring communities.

Strategy 1f: Adopt a complete streets ordinance to ensure cycling facilities are routinely considered in new construction, maintenance, and temporary traffic control.

Objective 2: Enhance bicycle safety.

Strategy 2a: Construct bike facilities based on characteristics of the road and traffic to promote safe and comfortable riding.

Strategy 2b: Maintain bike paths to ensure that the pavement is in good condition and that they are free of ice, snow, and debris.

Strategy 2c: Invest resources at intersections within the identified bicycle network and on high-volume roadways to provide safe crossing opportunities.

Strategy 2d: Enhance safety for cyclists at major intersections along bicycle facilities and where barriers or issues exist.

Strategy 2e: Establish bicycle enforcement policies and procedures including enforcement, education, warnings and citations issued for unsafe bicycle behavior, and targeted patrolling of critical bicycle/automobile interface locations.

Strategy 2f: Incorporate bicycle requirements into engineering standards so they can be integrated into the permitting process. This could include code enforcement, ensuring construction projects maintain/replace bikeways, temporary construction detours, and traffic control plans.

Strategy 2g: Provide educational programs to teach children and adults bicycling “rules of the road.”

Strategy 2h: Include bicycle laws, behavior, and rights in automobile driver education.

Objective 3: Encourage bicycling for all ages and abilities.

Strategy 3a: Work with school districts to develop a comprehensive Safe Routes to School program that includes accommodations for cycling.

Strategy 3b: Design and publish local and regional bike and trail maps both in paper and online to highlight bike routes, cycle tracks, bike parking, and other bike service facilities available in the city.

Strategy 3c: Encourage a bike share program.

Strategy 3d: Provide bicycle outreach at the Ogden Arts Festival and other citywide events.

Strategy 3e: Proactively reduce bicycle theft and increase recovery of stolen bicycles.

Strategy 3f: Introduce way-finding signage to help residents and visitors navigate through the city.

Strategy 3g: Support community-based organizations that provide resources and education and are consistent with the goals and objectives of Ogden City.

Objective 4: Improve the bicycling culture in Ogden by actively encouraging businesses and government organizations to support cycling.

Strategy 4a: Establish a long-term goal of receiving a Platinum ranking from the League of American Bicyclists Bicycle Friendly Community program.

Strategy 4b: Encourage business and organizations to apply for recognition from the League of American Bicyclists Bicycle Friendly Business program.

Strategy 4c: Develop and support citywide bike-to-work programs.

Strategy 4d: Create and enforce bicycle parking ordinances, and encourage additional cyclist amenities (i.e. showers).

Strategy 4e: Include bicycle components in neighborhood and citywide planning documents.

Strategy 4f: Include bicycle facilities into new development and redevelopment projects.

Objective 5: Develop an evaluation process of Ogden’s bicycle programs, projects, and procedures.

Strategy 5a: Identify city staff to lead bicycle efforts and be liaisons to the bicycle and business community.

Strategy 5b: Prioritize funding and other resources based on a monitoring and evaluation program.

Strategy 5c: Monitor bicycle facilities to ensure they are in a safe and operational condition.

Strategy 5d: Create an active bicycle advisory committee.

Strategy 5e: Institute a program to monitor use through regular counts. Coordinate with active transportation advocacy groups and other partners to encourage volunteer opportunities.

Strategy 5f: Secure funding for bicycle improvement activities and proposals through various state and federal grants, and local programs like the Weber County Recreation, Arts, Museum, and Parks (RAMP) program.

Existing Conditions

Study Area Context

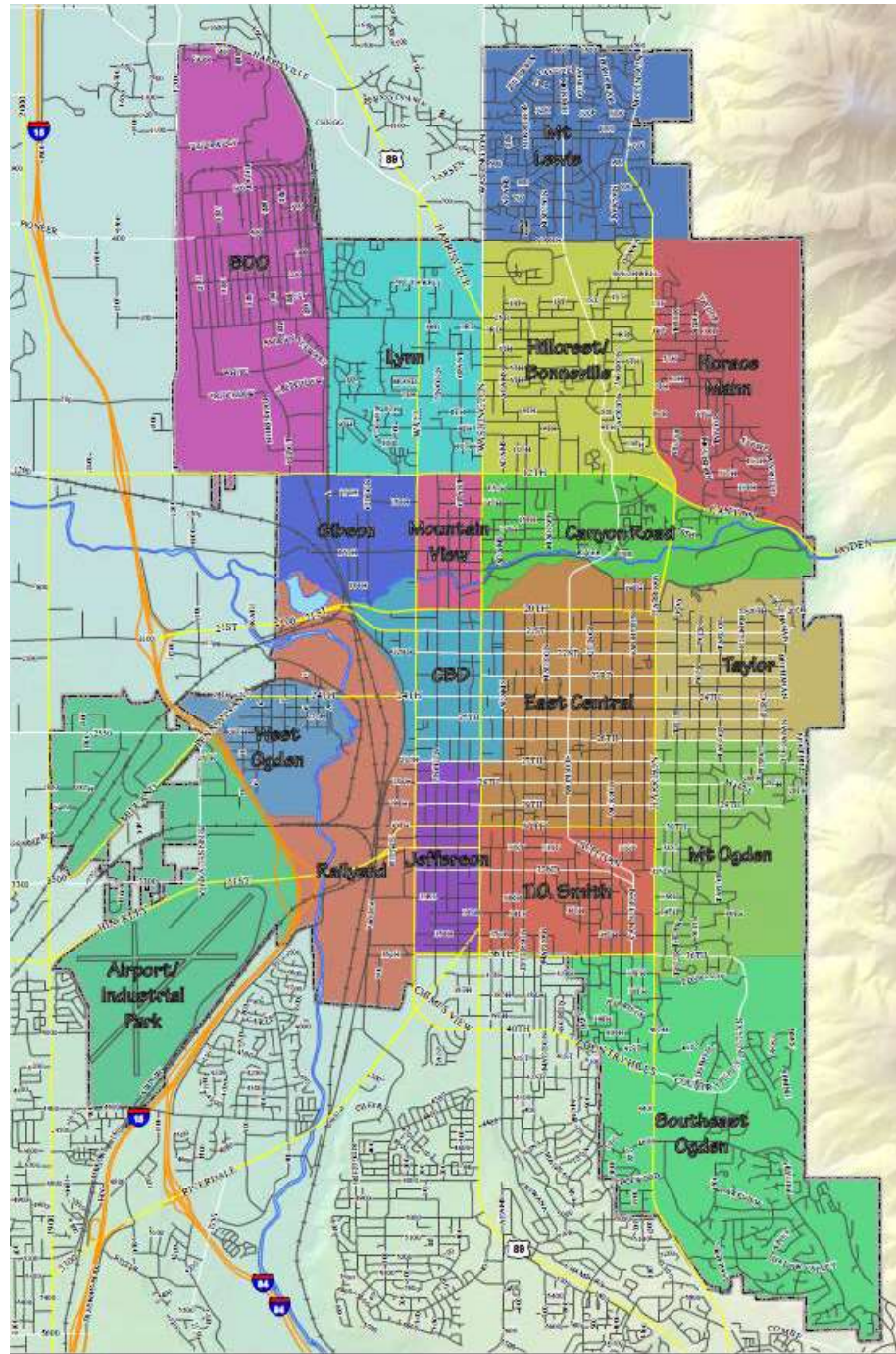
Ogden is situated in central Weber County, neighboring Marriott-Slaterville and West Haven to the west, North Ogden and Harrisville to the north, and Roy, Riverdale, and South Ogden to the south. To the east, Ogden is bound by the foothills of the Wasatch Mountains with close proximity to Snowbasin Ski Resort. The foothill and mountain region are a mix of publicly- and privately-owned parcels, including lands owned and managed by the Uinta-Wasatch Cache District of the US Forest Service. US Interstate 15 (I-15) cuts through Ogden on its west side; both I-15 and the railroad tracks create barriers for east-west cycling (and also driving and walking) trips, due to limited access points across these facilities. The Great Salt Lake and the Ogden Bay Waterfowl Management Area are due west of Ogden. The 2010 United States Census population of Ogden was 82,825 residents. Ogden is known throughout the country as a premier outdoor destination and has been extremely successful at recruiting recreation-oriented companies to relocate to the Ogden area – notably bicycle manufacturing, distribution, and retailers. City leaders have recently responded to the prevalent and growing culture of cycling in the region by investing in bicycle planning and infrastructure, including the development of this Plan.

Ogden has fourteen Planning Communities and four Planning Districts (Figure 1), representing a wide array of diverse land uses ranging from residential to industrial. These Planning Communities and Districts are briefly described below.

Planning Communities

A planning community is a geographical division of the city, primarily consisting of residential uses. Presently, Ogden has fourteen planning communities.

- **East Central, Jefferson, and T.O. Smith** – these communities are located close to the CBD. They are mostly older residential neighborhoods comprised of duplexes, apartments, and single family homes. This area also has schools, few commercial areas, and the Ogden City Cemetery.
- **West Ogden** – located between I-15 and the Railyard, West Ogden has large industrial buildings and a mix of residential housing types. Fort Buenaventura Park and the Weber River Parkway are located in West Ogden.
- **Mt. Ogden and Taylor** are located in eastern Ogden along the foothills between Weber State University and Ogden Canyon. This area is comprised primarily of single family homes. The close proximity to the foothills provides these neighborhoods with several hiking/mountain biking trail heads.



Source: Ogden City

Figure 1: Ogden Planning Communities and Districts, 2012

- **Southeast Ogden** – The Weber State University campus is located in Southeast Ogden. There are single family homes along the foothills and apartments and multi-family housing close to the campus. The Weber State campus has student housing. This community has close access to several hiking/mountain biking trail heads in the foothills. The western portion of southeast Ogden along Harrison Boulevard has a number of big box retail and restaurants.
- **Canyon Road and Mountain View** – these communities are located in east central Ogden, along the Ogden River Parkway. They have a mix of housing types including single family residential and apartments, schools, and offices. El Monte Golf Course is located in the Canyon Road community.
- **Hillcrest/Bonneville, Lynn, Horace Mann, and Mt Lewis** – located in northeast Ogden, these neighborhoods are primarily single family residential, with limited multifamily residential. There are commercial buildings along the major roads, such as 12th Street, Washington Boulevard, Wall Avenue, and Harrison Boulevard.
- **Gibson** - located in western Ogden, Gibson has large warehouses, storage areas, office buildings, and single family residential houses.

Several of these Planning Communities (Railyard, Jefferson, T.O. Smith, and East Central) contain census tracts where the population is composed of at least 50% minorities, and where poverty rates are considerably higher than the local average. Because biking is a low-cost transportation option, bike routes can be very valuable to economically disadvantaged populations in these districts.

Planning Districts

A planning district is a geographical division of the city, primarily consisting of commercial/manufacturing uses. Presently, Ogden has four planning districts.

- **Central Business District (CBD)** – located in the heart of Ogden, the CBD is the primary commercial, governmental, and cultural/dining center of Ogden.
- **Business Depot Ogden (BDO)** – located in northwest Ogden, the BDO is a fast-developing business district created after the closure of the Army supply base known as Defense Depot Ogden (DDO). Some planning conversations have centered on the possibility of a new FrontRunner station near the BDO and rail-to-trail conversions to the south, which would open up more opportunities for cycling to/from transit in this area.
- **Railyard** – this district is located between the CBD and Airport and is dominated by train facilities, but has a few houses on the eastern edge. The railyard represents a major mobility barrier in Ogden: crossing points are very limited, and right-of-way can be challenging if not impossible to obtain.
- **Airport/Industrial Park** – located in southwest Ogden, this is the location of the Ogden Hinckley Airport, which serves northern Utah. Aviation-related manufacturing uses are near the airport and large-scale industrial uses make up the remainder of land development.

Existing Plans and Policy Framework Review

The following planning documents provide context on existing conditions of bicycle facilities in Ogden:

- Ogden City General Plan (Involve Ogden) (2002)
- Local Community Plans (2002)
- Corridor Plans (12th Street - 2005, 24th Street - 2005, Wall Avenue – 2005, and 21st Street - 2012)
- Weber County Cooperative Pathways Master Plan (2010)
- Utah Collaborative Active Transportation Study (UCATS) (2013)

Ogden City General Plan (Involve Ogden)

The 2002 Ogden City General Plan (Involve Ogden) set forth a vision for the city. The General Plan serves as the official planning policy document for the Mayor, the City Council, and the Planning Commission. Involve Ogden identifies the following nine categories as the foundation of the General Plan: Community Facilities and Services, Community Identity, Economic Development, Environmental Resources, Housing, Land Use, Neighborhoods, Parks and Recreation, and Transportation. Of these, there are several goals that relating to bicycle travel in Ogden (outlined below).

- Create pedestrian and bicyclist connections.
- Promote the development of a network of bikeways and trails for recreation and commuting.
- Develop bike paths, lanes, and other routes throughout the City to create an interconnected network.
- Enhance and extend the trails in the natural environment. Integrate the trails and bike lane system with bike planning efforts.
- Work with other communities and trail advisory groups to finish their sections of the 26-mile Centennial Trail and Bonneville Shoreline Trail. Once finished the Centennial Trail would provide a looped trail system around the community.
- Develop and maintain a system of bicycle routes, trails and improvements that are safe, convenient, and designed to meet the varied needs (or various types) of bicyclists.
- Participate in the Wasatch Front Regional Council's (WFRC) bikeway planning efforts.
- Identify and implement street design standards that encourage bicycle and pedestrian use and encourage slower traffic, such as through the use of traffic calming measures.
- Provide bicycle racks as part of the streetscape design and require bicycle supportive improvements in private office and retail development through the zoning ordinance.
- Consider development of personal and business incentives for using non-motorized modes of transportation.
- Promote bicycling in the city (e.g. holding races, skill contests, annual events such as “bicycle day” for commuting to work or school, etc).

Planning Community and Planning District Policies

Seven of the planning communities and districts identified previously have elements that are relevant to the Bicycle Master Plan.

Central Business District (CBD)

- A key element of a downtown's vitality is the ability to move around. Ideally, a downtown will have multiple options for modes of transportation. These would include bus, rail, auto, bicycle, walking and perhaps others.
- Bikeways and a looped transit system are additional modes that are desirable transportation components to Ogden's CBD.
- The city should look for ways to incorporate the river experience into Ogden's downtown, by creating pedestrian and bike connections from downtown to the river.
- Install defined bike lanes in a connected downtown system.
- Promote bicycle and pedestrian access into and around the CBD. Create a defined bike/pedestrian-only route from the FrontRunner Station to the Ogden River west of Wall Avenue.
- Provide support for placement of the proposed (18) additional bike racks in the CBD.
- Grant Avenue from the river to 25th Street. This connection should be enhanced by a widened and tree-covered pedestrian walk way and defined bike lanes.

East Central

- Formally develop the connection from Madison Avenue through to River Road from 20th Street for bicycle and pedestrian use only.
- Develop a formal pedestrian- and bike-only linkage using the old Madison extension connection from 20th Street to the Ogden River.
- Establish an equestrian/bike trail just below the bluff on the north side of the cemetery.
- There is an increasing demand for walkability, the use of bicycles, and transit options within the City and State rights-of-way. There are physical changes the City can make to enhance these modes of travel. The City should include in the bicycle/pedestrian circulation plan in neighborhood designs that incorporate methods to achieve more "complete streets." Designate Jackson and Madison Avenues as "enhanced" bicycle routes for north/south travel.
- Designate 22nd and 28th Streets as "enhanced" bike ways for east/west travel.
- Consider adopting "complete street" concepts to include bike boulevards, sharrows, and/or road diets as the design for the bike routes.
- Street sweeping priority to be based upon location of bike lanes.
- Consider parking requirements that decrease parking in the area and promote walkability and bicycle access.

Hillcrest Bonneville

- The preferred street design option for Harrison is one traffic lane in each direction with a center turn lane with adequate shoulder width to accommodate parking and bicycle lanes.

Horace Mann

- Many residents enjoy the opportunity to walk, jog, or ride a bicycle without competing with traffic. This comfortable scenario occurs along Polk Avenue because the street does not serve as a through street from one area of the City to another. Creating alternative transportation routes within the developed area and linking them to the trail system is a desirable community asset.

Jefferson

- Grant Avenue should be the main north/south bike route through this neighborhood. As a minimum, a bike lane should be striped to define this route.
- Provide appropriate bicycle routes in the community.

Mount Lewis

- Extend the bicycle route along Monroe Boulevard to the North Ogden City limits.
- Extend the bicycle route along Mountain Road to the North Ogden City limits.

- Extend the bicycle route from the corner of 1100 North and Monroe Boulevard along 1100 North to the west to meet Washington Boulevard.

West Ogden

- Develop Old Landfill as a Park. The area needs to be more inviting and provide bicycle and pedestrian access from the residential neighborhood to the site.
- The Denver Rio Grande Rail Trail in Roy City should be connected to the Centennial Trail. This would provide a valuable connection to other cities and generate more pedestrian and bicycle traffic on the trails.
- Install pedestrian/bicycle access gates at developed trailheads.
- Develop bicycle lanes along 24th Street.
- Develop bicycle lanes from the E Avenue and A Avenue trailheads to 24th Street.
- Develop safe and accommodating bicycle and pedestrian paths across the 24th Street rail-yard bridge that will also allow for ADA access.

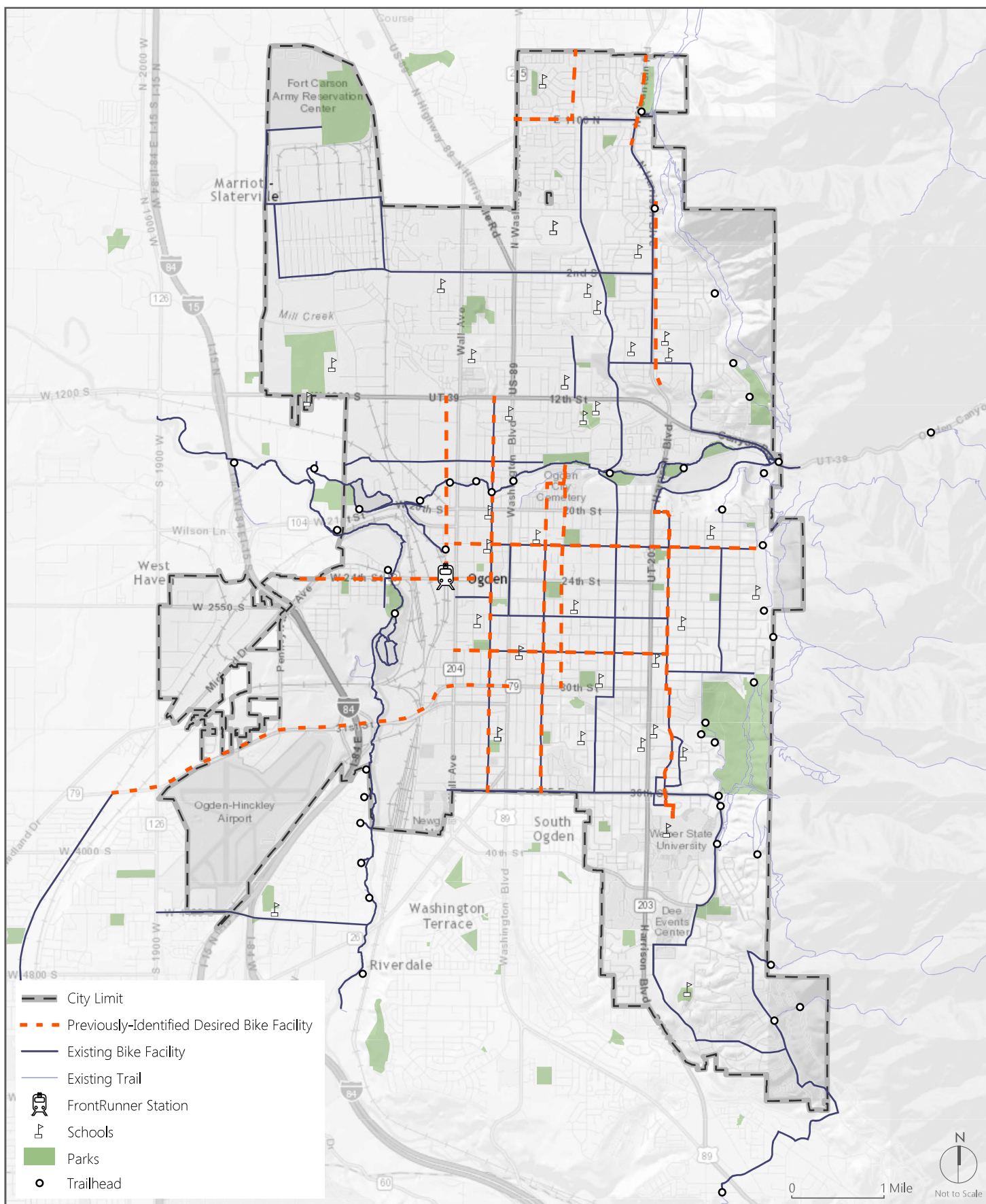
Figure 2 shows locations where these planning documents indicated a need for cycling facilities in Ogden. At this writing, UDOT and Weber County are analyzing travel and safety needs on SR-39 in Ogden Canyon and will be making a recommendation for active transportation improvements in that canyon.

Weber County Cooperative Pathways Master Plan (2010)

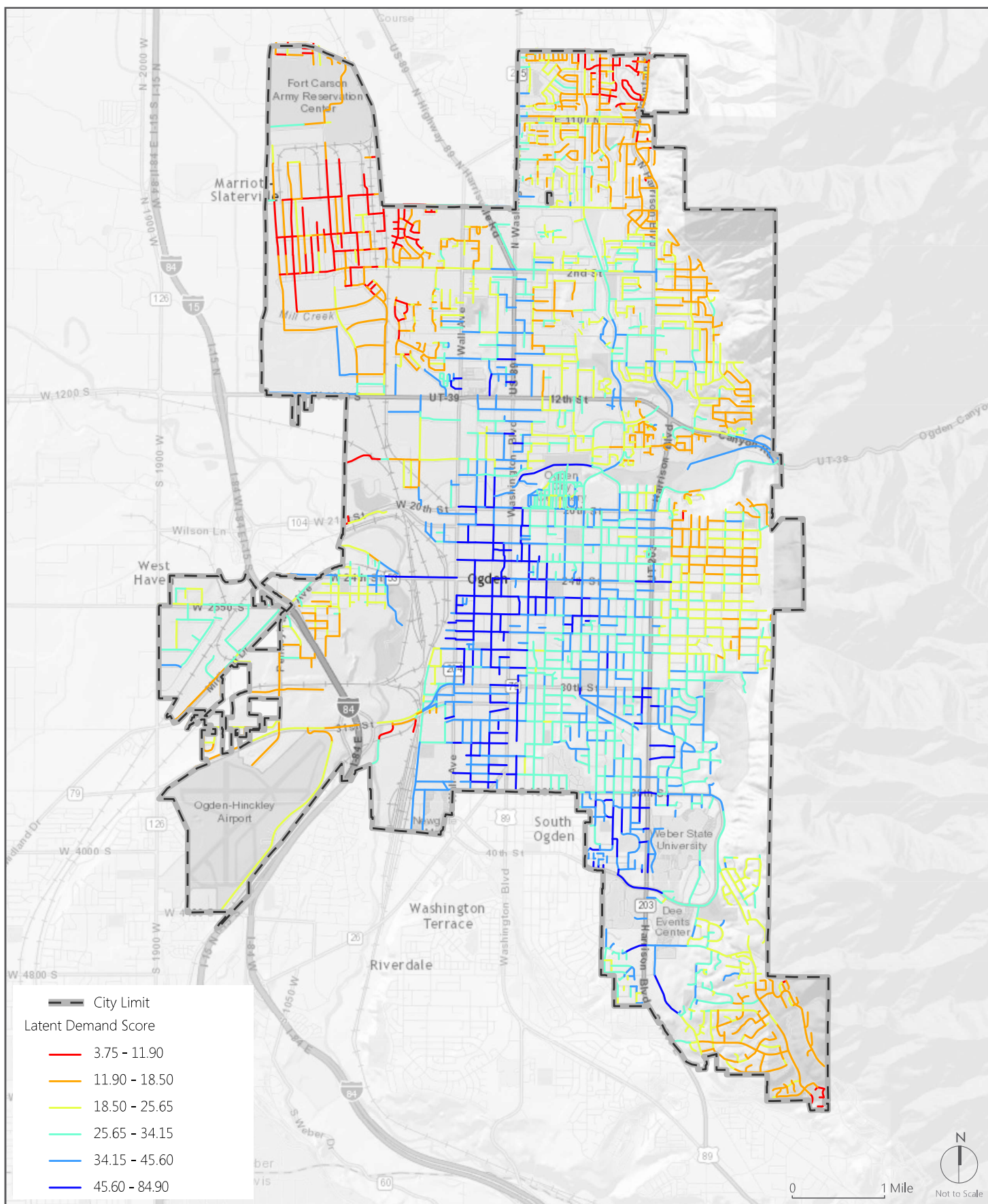
The Weber County Cooperative Pathways Master Plan was an effort to unify trails planning and development in Weber County to create or facilitate county-wide inter-connections. This was a joint project between the municipalities, Weber County, the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA), WFRM, and the United States Forest Service (USFS). This project focused on improving regional trail connectivity. The Ogden River Parkway and Weber River Parkway were highlighted for their importance in providing connections to various trail systems. The Weber County Cooperative Pathways Master Plan also includes descriptions of mountain bike trails in Ogden.

Utah Collaborative Active Transportation Study (UCATS)

The Utah Collaborative Active Transportation Study was a joint planning effort between UDOT, UTA, WFRM, Salt Lake County, and the Mountainland Association of Governments (MAG) to identify a regional bicycle network throughout the Wasatch Front. In Ogden, UCATS identified extension of the Grant Avenue cycle track as a Top 25 project. UCATS recommended extending the cycle track southward to 36th Street, and also recommended adding bike lanes on 23rd Street between Grant Avenue and the FrontRunner station. The UCATS effort also provided data for this Plan such as existing facilities and locations where cycling activity was likely to be high based on certain factors. These factors included housing and employment densities, demographic information, and proximity to important destinations such as parks, schools, shopping areas, and transit routes, and are shown in Figure 3. The higher the score, the more likely there is to be bicycling activity.



Desired Bicycle Facilities from Previous Plans



Ogden UCATS Bicycle Potential

Existing and Planned Bicycle Network

Ogden's roadway network has been developed in a grid system. The southeastern residential section of town has several cul-de-sac streets. There are several north/south streets traversing the city including: Wall Avenue, Washington Boulevard, and Harrison Boulevard. Major east/west streets include 2nd Street, 12th Street, 20th Street, 24th Street, and 30th Street. Overall there are 36 north/south multi-lane roadways and there are 39 east/west multi-lane roadways.

There are several existing bicycle facilities in Ogden, ranging from protected paths to signed bike routes. Figure 4 shows existing bicycle facilities (including bicycle racks) in Ogden. This map was based on Ogden GIS data and verified in the field.

Other planning documents developed by Ogden City or regional agencies show a range of proposed facilities, from cycle tracks to bike boulevards.

Existing Network

Grant Avenue Promenade

Grant Avenue is a north/south roadway that runs through the heart of Ogden's downtown. Recently completed, Phase 1 of the Promenade's protected bicycle lane runs from 20th Street to 22nd Street. Phase Two will extend the protected bike lane to 18th Street on the north end, and 25th Street on the south end. This facility runs or will run adjacent to many of Ogden's premier attractions, including: the Ogden Temple, The Junction, Lindquist Field, City Hall, and Historic 25th Street. Grant Avenue was recognized as a high-priority corridor in the UCATS Study, and the Grant Avenue Promenade is part of an overall economic revitalization strategy for downtown Ogden as well.



Ogden River Parkway

The Ogden River Parkway is a 5.5-mile east/west paved, mixed-use trail along the Ogden River, beginning at the mouth of Ogden Canyon and ending at the confluence with the Weber River. The trail opened in early 1990s as part of a larger vision to connect the trail with other municipalities along the Ogden and Weber Rivers, as well as the Bonneville Shoreline Trail in the foothills. This larger trail system is known as the Centennial Trail, a 28-mile intercity loop.



Many of Ogden's most significant venues line the Ogden River Parkway including: Rainbow Gardens, George S. Eccles Dinosaur Park, Big Dee Sports Park, El Monte Golf Course, Lorin Farr Swimming Pool, Lorin Farr Park, Ogden Pioneer Stadium, West Stadium Park, High Adventure Park, Goode Ski Lake, and Kayak Park. Recently, the Ogden River Trail was also connected to the FrontRunner Station to provide pedestrian and bike access directly to the river.

Weber River Parkway

The Weber River Parkway is an 8.2-mile north/south mixed-use trail along the Weber River, beginning at the confluence of the Weber and Ogden Rivers and presently ending east of Riverdale with plans for continued expansion to Weber Canyon. Venues along this trail include the Kayak Park, Miles Goodyear Park, King Fisher Aviary, and Fort Bonaventura. This trail is part of the Centennial Trail, a planned 28-mile loop around Ogden that also includes the Ogden River Parkway and the Bonneville Shoreline Trail.



Other On-Street Facilities

In addition to the River Parkways and Grant Avenue cycle track described above, Ogden has two connected streets in the Central Business District and East Central Community that have dedicated bike lanes.

- Washington Boulevard – north/south from 20th Street to 26th Street
- 26th Street – east/west from Washington Boulevard to Harrison Boulevard

In eastern Ogden, Fillmore Avenue running north/south from 22nd Street to 29th Street is marked as a dedicated bike lane. Field visits to this road have shown that the dedicated bike lane is in need of being restriped.

Ogden currently has a number of shared routes (signed facilities). This facility type can be found on Quincy Avenue, 36th Street, Jefferson Avenue, 29th Street, 2nd Street, 1140 West, Liberty Avenue, Monroe Boulevard, 17th Street, 1100 North, Harrison Boulevard, 9th Street, Canyon Road, Valley Drive, Skyline Parkway, and A Avenue. Sharrows (bike stencil pavement markings) are located to the north of the Weber State campus, along Tyler Avenue, Polk Avenue, Iowa Avenue, and 37th Street. While there are cyclist-oriented wayfinding signs at various locations in Ogden, the area does not currently have a comprehensive cycling-oriented wayfinding system.

Planned Bicycle Network

Ogden has a number of expansions planned for the bicycle network. These include proposed bike boulevards on Jefferson Avenue, Tyler Avenue, 22nd Street, and 28th Street.

Needs and Opportunities

The needs and opportunities (outlined below) were identified through field review, stakeholder discussions, and previous studies, such as UCATS.

Connectivity Opportunities

Linking already existing facilities improves citywide bicycle connectivity without the need for extensive new facilities. The Grant Avenue cycle track and the Washington Boulevard bike lane should be connected with the Ogden and Weber River Parkways and the 26th Street bike lane. Improved connections to the CBD, the Weber State campus, and the BDO in northwest Ogden should be implemented.

Schools

The majority of schools in Ogden are located east of Washington Boulevard (US-89) between 1100 North and 36th Street. Weber State's campus is located to the east of Harrison Boulevard and south of 36th Street. Providing students defined and safe bicycle connections to school has a number of benefits, including: reducing multiple auto-trips (dropping off and picking up), providing an independent travel mode, and improving student health. Providing bike routes to schools also benefits employees, especially university campuses which are centers of employment. High Schools and Universities in Ogden are listed below.

- Ben Lomond High School is located in the Hillcrest/Bonneville community, in northeastern Ogden. The campus is adjacent to Harrison Boulevard, Jackson Avenue, and 9th Street which are signed as shared, but is not near paved paths or bike lanes.
- St. Joseph High School is located in the East Central community. The campus is not adjacent to any bike facilities. Jackson Avenue and 28th Street, both signed as shared, are located two blocks away.
- Ogden High School is located in the Mt Ogden community, in southeastern Ogden. The campus is adjacent to 28th and 29th Street which have shared road signage and Tyler Avenue which has bike sharrows. The closest dedicated bike lane is on 26th Street, two blocks to the north.
- George Washington High School is located in the East Central community. The campus is adjacent to 28th Street, which signed as a shared road. 26th Street and Washington Boulevard are the closest bike lanes, two blocks north of the campus.
- Weber State University is located in the Southeastern Ogden community. Skyline Parkway runs along the east edge of the Weber State campus and is marked with limited shared signage. Tyler Avenue, Iowa Avenue, and 37th Street are located directly north of the campus and are marked with sharrows. The Mt. Ogden trailhead is also just north of campus, which provides mountain bike connections to the north and east.
- Ogden-Weber Applied Technology College is located at 200 North Washington Boulevard, and offers a range of training courses to students in the area. It is near signed shared routes on 2nd Street and Monroe Boulevard.

Identified Barriers

There are many factors of the urban environment that can act as barriers to cycling. These could include high-traffic roadways that are difficult to cross at-grade, limited-access facilities like freeways or rail corridors where crossing opportunities are few and far between, a lack of end-of-trip amenities like bike racks, or even psychological barriers like fear or anxiety about cycling. Several roadways and features identified for this plan are clear barriers to bicycle travel in Ogden. These include:

- I-15 between the Airport/Industrial Park, West Ogden, and the communities west of Ogden.
- The railyard between the CBD/Jefferson communities and West Ogden, Weber River Parkway, and Fort Buenaventura Park. The rail tracks also isolate Gibson and the Lynn communities from communities to the west.
- 12th Street (SR-39) is a high-traffic roadway that has two lanes for eastbound and westbound traffic, wide shoulders, and a center turn median. Grant and Lincoln Avenues abruptly end at 12th Street.
- The three major north/south facilities, Wall Avenue, Washington Boulevard, and Harrison Boulevard, are high-traffic roadways that are intimidating to most cyclists.
- The 2012 Utah Household Travel Survey asked Utah residents to identify areas that were problematic. Within Ogden, 12th Street (SR-39) and Washington Boulevard were identified as having multiple hazards. In particular, the intersection of 12th Street and Harrison Boulevard was highlighted as having high speeds, missing sidewalks, and a high volume of pedestrians and bicyclists.
- During the public outreach efforts for this Bicycle Master Plan, the following locations were frequently identified as barriers as well: the 24th Street viaduct over the rail yards, 12th Street, and Wall Avenue. Community members also cited the need for more bike racks in downtown Ogden and on FrontRunner trains. Public outreach comments are summarized in Appendix B.

Collision Summary

In 2013, UDOT mapped locations of bicycling collisions over five years, between 2006 and 2011. Most collisions occurred along major corridors, primarily Washington Boulevard and Harrison Boulevard, as shown in Figure 5. The locations that had the highest number of reported collisions involving cyclists were the intersections of Washington Boulevard/30th Street and Washington Boulevard/12th Street (circled numbers on the map refer to routes owned by UDOT).

Data from Ogden City mirrors data from UDOT. Between November 2011 and November 2014, there were 32 collisions involving a driver and a bicyclist. Of these collisions, 28 resulted in an injury and none resulted in a fatality. Bicycle accidents are increasing in frequency, which

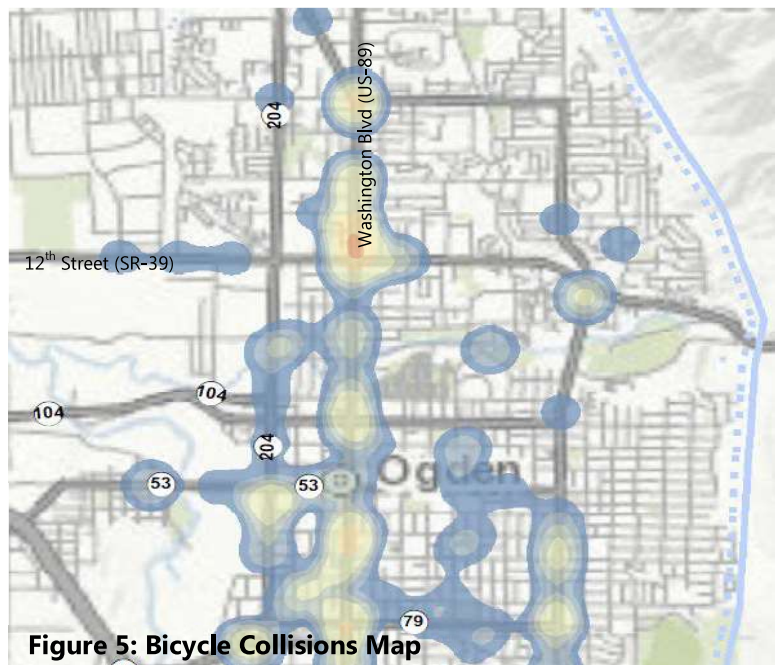


Figure 5: Bicycle Collisions Map

follows national trendlines as well. There were no bicycle collisions on record in 2012, four in 2013, and 28 in 2014. Major roads such as Wall Avenue, Washington Boulevard, and Harrison Boulevard experienced the highest number of bike collisions.

Connection to Other Transportation Modes and Networks

The FrontRunner Station along Wall Avenue and 24th Street in the CBD is the principal transit facility in Ogden. There is currently a UTA transit study examining future transit alternatives between the Ogden Intermodal Center and Weber State University and McKay-Dee Hospital. The Ogden-Weber State University Transit Project Study examined transit alternatives and was a partnership between UTA, Ogden City, Weber County, Weber State University, the Utah Department of Transportation (UDOT), the Wasatch Front Regional Council (WFRC) and McKay-Dee Hospital. That Study recommended a bus rapid transit (BRT) alignment between the Ogden Intermodal Center and Weber State University via 25th Street and Harrison Boulevard. The UTA First/Last Mile Strategies Study recommended implementation of bicycle network improvements near the station (such as those identified earlier in this section), along with a bike share station and wayfinding to bike racks and lockers.

Public Outreach and Input

Public outreach is a key component of any master planning effort. The objective of this outreach was to reach a broad, diverse public in which to discuss ideas for an improved bicycling environment in Ogden. Public outreach was conducted in a variety of ways including stakeholder meetings, public open houses, and City Council presentations preceding each open house. The Steering Committee also conducted a field trip to San Francisco to further educate the team on facility types and implementation.

Stakeholder Meetings

The Ogden Bicycle Master Plan Stakeholder Group consisted of representatives from Ogden City staff as well as Planning Commission and City Council representatives, UDOT, Weber County, Weber Pathways, Weber State University, the Ogden Bicycle Collective, the Weber Ogden Bicycle Advisory Committee (WOBAC), the Utah Transit Authority, Wasatch Front Regional Council, ENVE Composites, and City Cycle. The stakeholder group met in December 2014 to discuss the plan's goals and objectives and identify needs in the communities, and also in May 2015 to review the draft proposed bicycle network and make refinements.

Public Open Houses

There were two open houses held for the Master Plan, both at Union Station near downtown Ogden. The purpose of the first open house, in February 2015, was to get approval for vision, objectives, and strategies by the community; to identify bicycle issues and potential alternatives; to identify key destinations; and to understand facility types that the community would use. The purpose of the second open house, in July 2015, was to present the recommendations of the plan and obtain feedback for prioritizing the recommendations. Public open houses were advertised through the Ogden email list-serve; city newsletter; flyers; website; Facebook; and directly contacting interested parties, including schools. Documentation of the open houses is available in Appendix B.



Mapping Comments from the first open house

Proposed System & Project Prioritization

The proposed bicycle network is designed to fulfill the vision for bicycling in Ogden. The proposed system was the result of an existing conditions evaluation, discussions with the Steering Committee and stakeholders, input from the public, analysis of needs and opportunities, and engineering judgment. The proposed system was prioritized through a set of evaluation criteria that included public feedback.

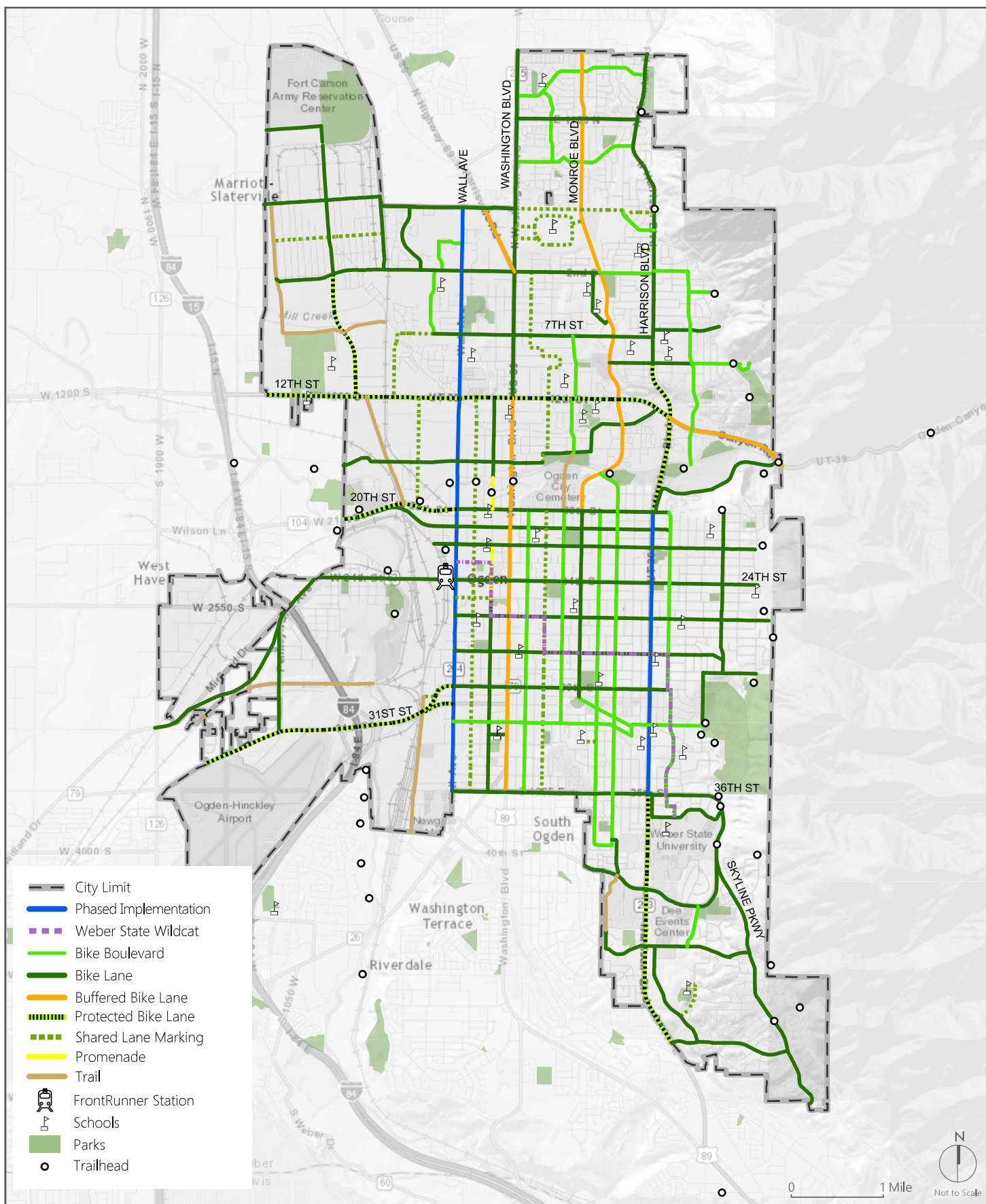
Bicycle Facilities

The proposed bikeway network consists of routes that are designed to be the primary system for bicyclists traveling around and through Ogden. Streets or corridors selected for inclusion in the network are targeted for specific improvements in this Plan, such as the installation of bicycling lanes and off-street paths. By law, unless explicitly prohibited, bicyclists are allowed on all streets and roads regardless of whether the streets and roads are a part of the bikeway network.

Figure 6 illustrates the Proposed Bikeway Network. The proposed system includes a total of approximately 135 miles of new bikeway facilities as shown in Table 1.

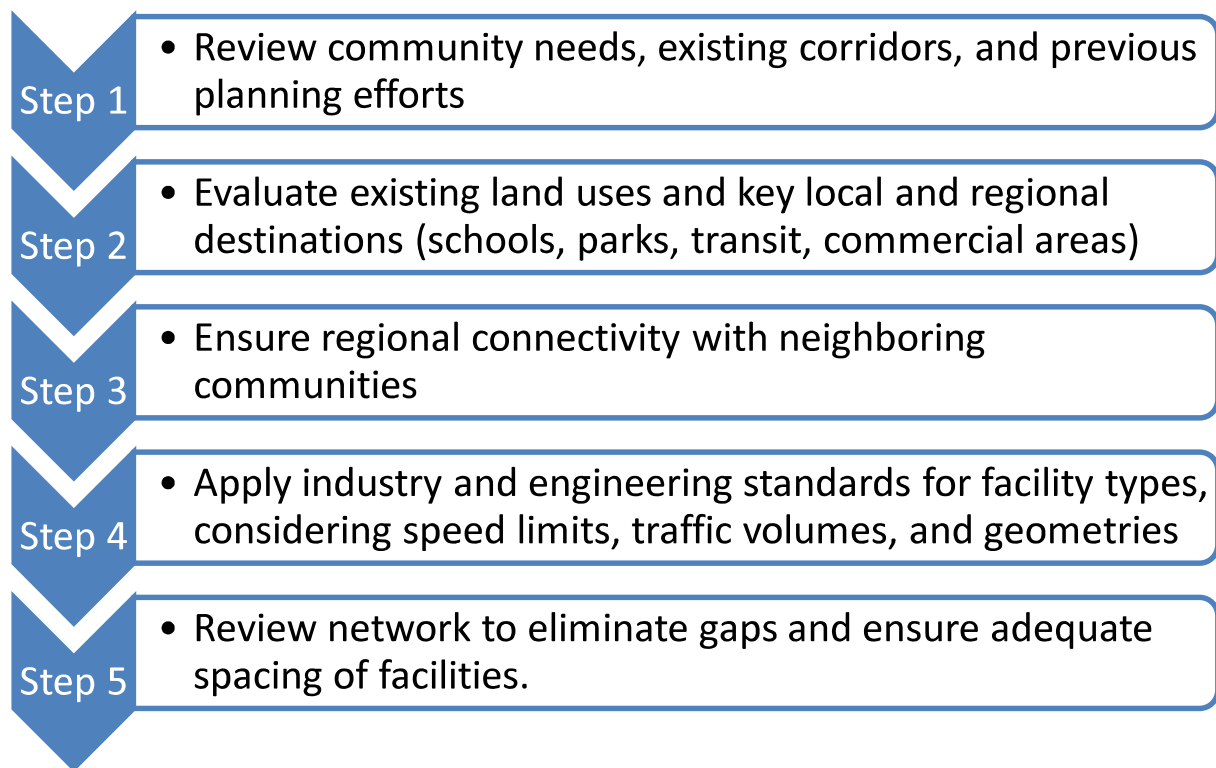
TABLE 1 LENGTH OF PROPOSED BICYCLING NETWORK

Bikeway Classification	Proposed
Shared Lane Markings	13.7 miles
Bicycle Boulevards	24.3 miles
Bicycle Lanes	58.7 miles
Buffered Bicycle Lanes	8.8 miles
Protected Bicycle Lanes	11.2 miles
Phased Implementation Projects	7.0 miles
Promenade	0.7 miles
Shared-Use Trails	6.5 miles
WSU Wildcat	3.9 miles
Total	134.8 miles



Proposed Bikeway Network

The proposed system was developed according to the following process:



The proposed bicycle network was reviewed with the Steering Committee, stakeholders, and the public and checked to ensure connectivity within Ogden and to adjacent communities, appropriateness, and completeness.

Proposed Facility Types

The proposed Ogden bicycle network is composed of shared roadways, bicycle boulevards, traditional bicycle lanes, buffered bicycle lanes, protected bicycle lanes, and shared use trails, as shown in Figure 6. These facility types are described below.

Bicycle Lanes

Bike lanes provide a restricted right-of-way and are designated for the use of bicycles with a striped lane and signage on a street or highway. They can increase bicyclists' safety and comfort by providing a visual separation between modes. Washington Boulevard near downtown Ogden is one example of bike lanes already installed in the city. Bike lanes should be at least 5' wide and with adequate space for cyclists to pass parked vehicles or



other obstructions. The rendering to the right shows how a bicycle lane might look on 17th Street.

Shared Lane Markings

Shared lane markings, or sharrows, provide a right-of-way designated by pavement markings for shared use with motor vehicles and are used where traffic volumes and speeds are relatively low or where it is not possible to install higher-level bikeways like bike lanes. Typically, sharrows should be not installed if the speed limit is greater than 35 mph. Sharrows can be used on roadways with on-street parking and multiple lanes of traffic.

Bicycle Boulevards

Bicycle boulevards combine shared lane markings with other features to provide a cycling-friendly environment on typically quiet streets. Traffic calming elements such as speed lumps, traffic circles or diverters, or raised crosswalks are also often constructed as part of a bicycle boulevard network. These



elements help to keep traffic volumes low and vehicle speeds slow on bicycle boulevards. Bicycle boulevards can also incorporate changes to vehicle right-of-way: for example, stop signs can be used to control traffic on side streets and give the bike boulevard priority of movement. Wayfinding signs, directing cyclists to popular destinations and providing estimated distances or riding times, are also common features of bicycle boulevards. Ogden can begin to implement a citywide system of bicycle boulevards in tandem with a citywide

wayfinding signage plan, geared towards cyclists with appropriate information and at an appropriate design scale.

Buffered Bicycle Lanes

Buffered bike lanes are bike lanes that provide a greater level of separation from vehicular traffic and/or parked vehicles by creating a buffer adjacent to the bicycle lanes through striping or physical separation. Buffered bike lanes also sometimes include a striped buffer between the bike lane and cars parked on the shoulder. The rendering at right demonstrates how a buffered bike lane might look on Monroe Boulevard.



Protected Bicycle Lanes

Protected bicycle lanes are separated bikeways adjacent to roadways. The Grant Avenue Promenade near downtown Ogden is one example of a protected bicycle lane. They are located within the street right-of-way but are physically separated from auto traffic using curbs, planters, flexible posts, or similar barriers. Pedestrian cross-flow is permitted but vehicular crossings are minimized. Intersection treatments are a very important part of cycle track design



and must be designed to ensure safe transition for the bicyclist. Protected bicycle lanes may be one-way, resembling a bike lane, or two-way. Because of these considerations, protected bicycle lanes may require special treatment, such as bicycle signal phases, at intersections. The Urban Bikeway Design Guide published by the National Association of City Transportation Officials (NACTO) also provides extensive guidance for these facilities.

Phased Implementation Projects

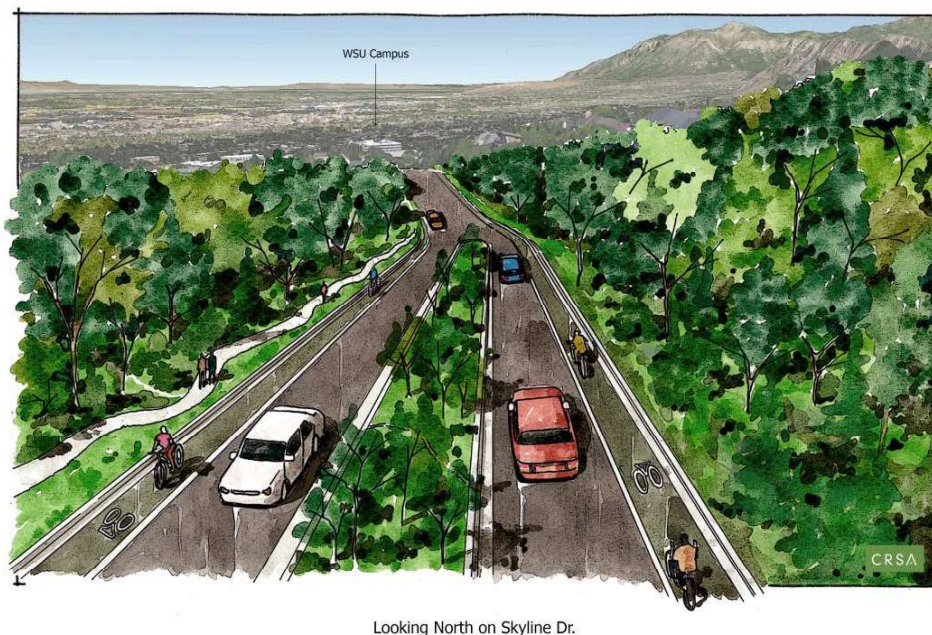
This Bicycle Master Plan is geared towards identifying the best possible vision for cycling in Ogden. However, some projects have more barriers to implementation than others, and this plan acknowledges those challenges. The ultimate preferred facility on “Phased Implementation” routes (Harrison Boulevard and Wall Avenue) is a protected bike lane, but these may not be feasible for construction in the near term. Ogden City intends to pursue buffered bike lanes in these locations, in coordination and cooperation with UDOT, which has jurisdiction over both Phased Implementation projects. When construction budgets and right-of-way acquisition opportunities make protected bike lanes on these corridors feasible, the City and UDOT will pursue implementation of protected facilities at that time.

Shared Use Trails

These provide a desirable facility, particularly for novice riders, recreational trips, and cyclists of all skill levels preferring separation from traffic. Shared use trails generally provide new travel opportunities with a completely separated right-of-way for exclusive use of bicycles and pedestrians with cross-traffic minimized to avoid conflicts. However, they are among the most expensive bikeway types.

The “Weber State Wildcat” Bicycle Route

Ogden City staff and residents expressed a need for a comfortable bicycle connection between downtown Ogden (and the FrontRunner station) and the Weber State University campus in the southeast corner of Ogden. The topography between the FrontRunner station and campus presents a hilly climb that can be challenging for some riders. Inspired by San Francisco’s “Wiggle” bicycle facility between Market Street and Golden Gate Park, Ogden City identified a similar zig-zag route through the City to lead riders between the train station and campus on typically quiet streets with a gradual incline. The City should explore the possibility of developing a branded stencil (perhaps incorporating Weber State insignia) for riders to follow along the route (shown in Figure 6 as the Weber State Wildcat). This route would essentially be a shared lane facility, replacing the standard sharrow pavement markings with a branded marking to indicate the route.



Proposed Intersection Improvements

In addition to corridor-level bicycle improvements, some high-priority intersection improvements are needed in Ogden as well. These intersection improvements can help facilitate crossing of busy streets and turning movements across multiple lanes of heavy traffic, and are described below and shown in Figure 7.

HAWK Beacons

A HAWK (High-intensity Activated crossWalk) beacon can be used in locations of high bicycle and pedestrian crossing volumes, to effectively stop traffic while still minimizing the amount of delay experienced by drivers. The signal faces of a HAWK beacon remain dark until activated by a pedestrian or cyclist wishing to cross, at which point the signal begins a sequence of flashing-yellow/steady-yellow/steady-red. On red, pedestrians and cyclists are given the right-of-way to cross the street. For the purposes of this Bicycle Master Plan, HAWK beacons are proposed on 12th Street near its intersection with Liberty Avenue, and near the Madison Avenue/20th Street intersection. Both HAWK beacons are situated along a proposed north/south bicycle boulevard on Madison and Liberty, and the 12th Street crossing location was frequently mentioned by members of the public as a problematic location for both cyclists and pedestrians. The 12th Street/Liberty location is in close proximity to an elementary school and junior high school as well, and could benefit students and parents trying to get between these locations.

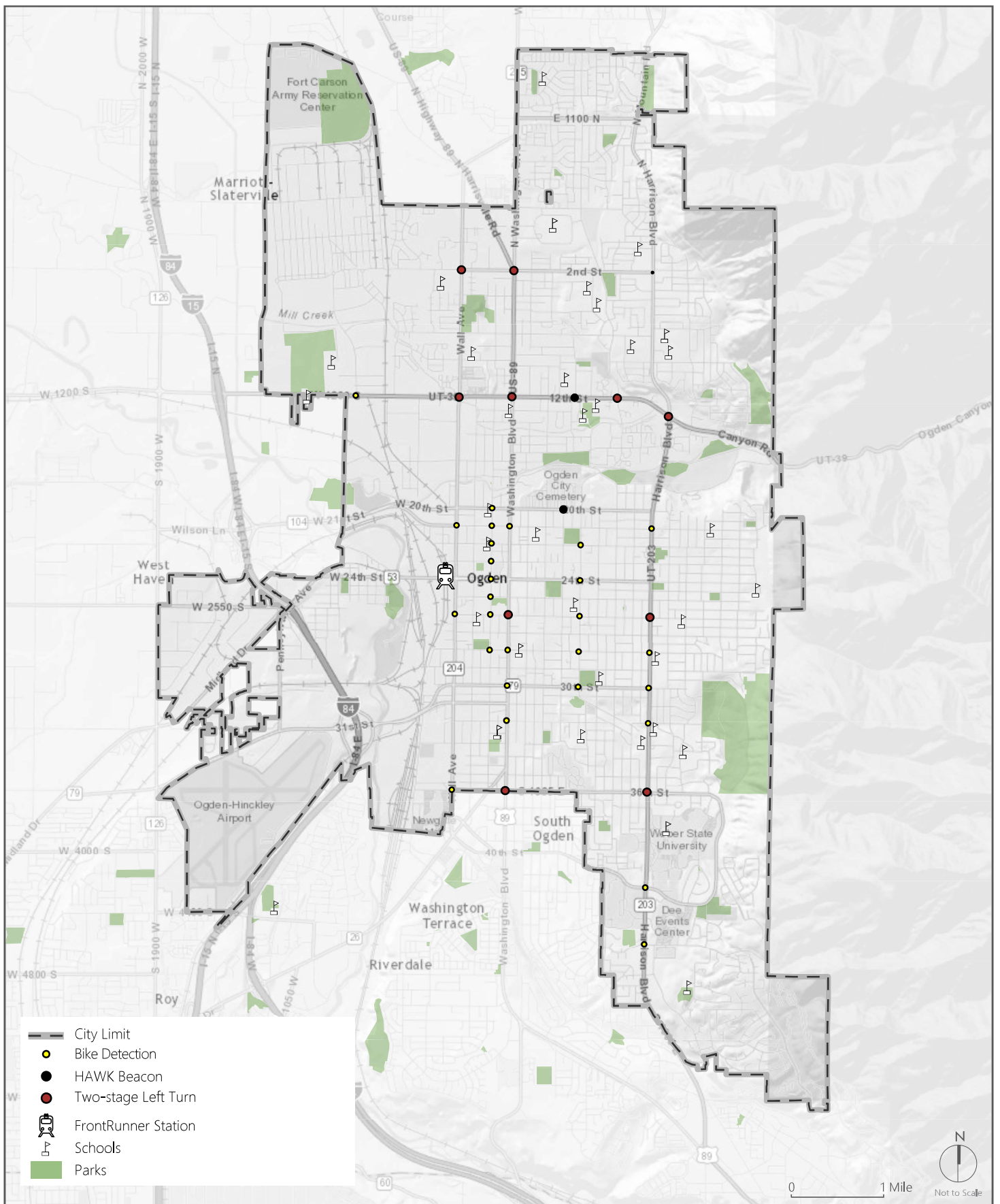
In- Pavement Bike Detection

Bike detection can be installed under the pavement at intersections to alert the signal controller that cyclists need to cross through the intersection. Detection should be installed in bicycle lanes on intersection approaches at signals that are actuated (programmed with specific signal timing, which can be automatically changed if demand in a certain direction is low or a cyclist is detected waiting at an intersection). Pavement markings should be placed in the bike lane or boulevard so cyclists know where to stand in order to be detected. In this plan, bike detection is proposed at major signalized intersections where bike lanes or bike boulevards are planned on the minor streets. These generally include where routes like 24th, 26th, 28th, 30th, and 32nd Streets intersection with Wall Avenue, Washington Boulevard, and Harrison Boulevard; several other locations are indicated in Figure 7 as well.

Two-Stage Left Turns

Two-stage left turn boxes (sometimes known as “Copenhagen Lefts”) are used to help cyclists cross multiple lanes of traffic at intersections from a right-side bicycle facility. Instead of merging across traffic to make a left turn, cyclists ride partway through the intersection and stop at a painted box adjacent to the crosswalk for cross traffic, and then proceed through the intersection when cross traffic receives a green light. Two-stage left turns are particularly useful on roadways with multiple lanes of heavy traffic, or in locations where a physical barrier on a protected bike lane limits left turn opportunities otherwise. In this plan, two-stage left turns are proposed at intersections of bike facilities on Phase 1 corridors, including Washington Boulevard, Harrison Boulevard, 12th Street, 21st Street, and 26th Street, as shown in Figure 7.

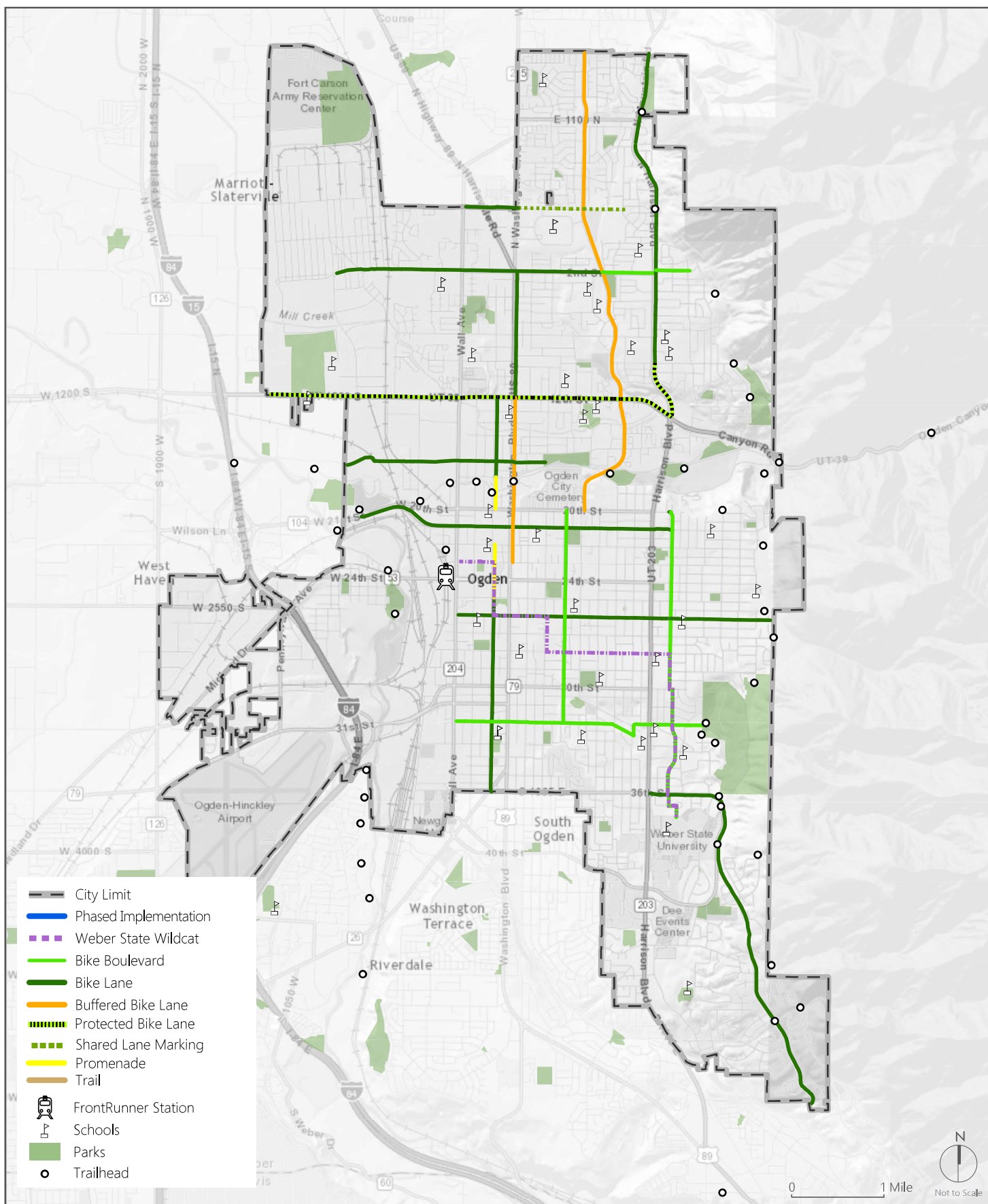




Proposed Intersection Improvements

Bicycle Project Prioritization

The proposed roadway network was broken into separate projects so that projects could be prioritized and completed incrementally as funds are made available. Figure 8 identifies the highest-priority bike projects, referred to as “Phase 1”. Phase 1 projects were identified to develop an initial backbone network through the City, including a variety of routes and treatment types to get north/south and east/west across Ogden. As roadway resurfacing, utility work, and new road projects are put into construction, the City should use these opportunities to implement network segments that require “sign and paint only.”



Phase 1 Network

Bike Share Suitability Analysis

Ogden has expressed interest in installing a bike share program to provide an alternative mode of transportation to its residents and visitors. In order for such a program to be successful, the location of bike share stations should be able to meet local needs and accommodate potential users effectively. This requires stations to be strategically installed at locations that have the highest potential to maximize the social and economic benefits of the bike share program. A successful citywide bike share program could provide an active transportation alternative in the city, and enhance first/last mile connectivity between Ogden destinations and the Ogden Intermodal Center.

High Suitability Area

Academic literature suggests that the suitability for bike share stations depends on a series of demographic and urban design factors. For this plan, population density, employment density, and intersection density were used to evaluate the suitability of different areas within the city for bike share stations. While population and employment densities were used to measure potential bike share customers and trip origins and destinations, intersection density indicates how well-connected the street system in an area is. The results of this suitability analysis are illustrated in Figure 9. Areas in dark green have high population, employment and intersection density, which means they are more suitable for bike share than areas shown in red.

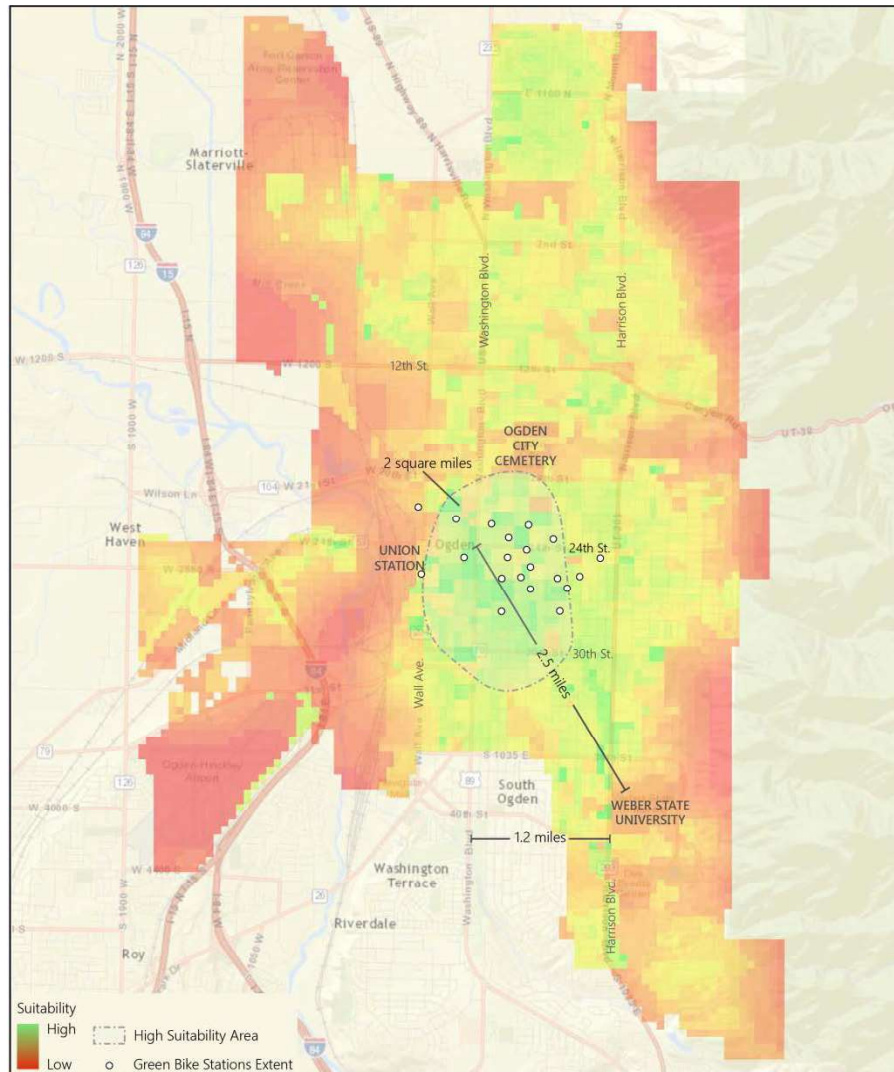


Figure 9: High Bike Share Suitability Area

Based on the quantitative analysis explained above as well as the local conditions such as major activity centers and attractions, the area that has the greatest potential for bike share is identified in Figure 9. The white dots shown represent an overlay of station spacing for the GREENbike stations in Salt Lake City, shown here to illustrate the desired general spacing in Ogden. The circled area represents the geographic range of the highest-suitability neighborhoods for bike share stations.

Facilities near Bike Share Stations

Research suggests that the typical facilities served by bike share stations can be classified into five categories as following:

- Community and civic facilities
- Major commercial activity centers
- Local and tourist attractions
- Major transit terminals

- Higher density residential neighborhoods and developments.

These facilities provide customer base or major destinations for bike share users. All these facility types can be found in the high suitability area.

Bike Station Density

Based on the local need the number of bike share stations varies from case to case. As of 2014, Salt Lake City's GREENbike program had 20 bike share stations. A study of peer systems¹ show that core market bike share station densities range from 5 to 25 stations per square mile, with an average of 9 stations per square mile. The system-wide densities of the peer systems range from 4 to 15 stations per square mile, with an average of 5 stations per square mile. While each peer system has unique demographic distribution pattern and urban layout, these numbers could serve as a benchmark when considering bike share location and spacing in Ogden.

Recommended Bike Station Locations

Based on the suitability analysis and discussion with Steering Committee members, the following locations were identified as preferred bike share locations if a system were to be developed in Ogden:

- Washington Boulevard/22nd Street
- Ogden FrontRunner Station
- Weber County Library (Jefferson Avenue/25th Street)
- City Hall Plaza (Grant Avenue/25th Street)
- Lindquist Field (Lincoln Avenue/23rd Street)
- The River Project development (Grant Avenue/20th Street)
- Ogden Eccles Conference Center (Washington Avenue/24th Street)
- Historic 25th Street/Wall Avenue
- Weber State University

Facility Design Standards

Many excellent resources are available to Ogden City to determine proper standards for designing individual facilities. Ogden City can select from the standards available, as applicable and needed, when establishing cross-sections for various roadways. Several options are listed below:

Mainstream Traditional Resources:

- American Association of State Highway Transportation Officials (AASHTO)
 - A Policy on Geometric Design of Highways and Streets (Green Book)
 - Guide for the Development of Bicycle Facilities (Bike Guide)
- Manual of Uniform Traffic Control Devices (MUTCD), 2009 edition

Mainstream Innovative Resources:

- National Association of City Transportation Officials (NACTO)
 - Urban Bikeway Design Guide
 - Urban Street Design Guide

¹ The study examined bike share programs in Washington D.C./Arlington, Minneapolis, Miami Beach, Boston, and Denver.

- CROW Design Manual for Bicycle Traffic (CROW is a Dutch non-profit organization that publishes transportation design and infrastructure manuals)
- FHWA Separated Bike Lane Planning and Design Guide
- ITE Recommended Practice: Recommended Design Guidance to Accommodate Bicyclists and Pedestrians at Interchanges

These documents can be used by Ogden City as necessary to create the most appropriate solution for cyclists and the local environment on individual corridors.

Bicycle Parking

Bicycle parking, for both short- and long-term storage, is an important component of an overall bicycle network. A lack of adequate, safe, and well-lit bicycle parking could deter a substantial number of cyclists who might otherwise choose to ride. As part of this Plan, updated bicycle parking recommendations were created based on the City's existing code and can be adopted into the General Plan. These recommendations were based on best practice guidelines such as those published by the Association of Pedestrian and Bicycle Professionals.

Incorporating bicycle parking requirements into municipal codes is one way to increase the supply of bicycle parking in Ogden. The same land use codes that the City currently uses for automobile parking were used to provide short- and long-term parking generation requirements and recommendations. Refer to the Ogden City bicycle parking ordinance for more information on the bicycle parking requirements.

Funding and Implementation

Implementation of the proposed bicycle system will require funding from local, regional, state, and federal sources and coordination with multiple agencies. To facilitate funding efforts, this section presents conceptual cost estimates for the proposed system along with a brief description of past expenditures for bicycle facilities. The conclusion of this section provides a brief overview of overall funding and implementation strategies.

As infrastructure projects come under construction, the City should use opportunities such as roadway repaving or utility work to implement network segments that require limited changes or consist of “sign and paint only.” These features can be implemented relatively rapidly at low cost and greatly expand the network, which would both facilitate and encourage increased cycling in the City. This approach allows the City to implement more of the plan at a quicker pace, with the intent of effectively providing alternative mobility choices.

While this Bicycle Master Plan represents the cycling vision for Ogden City, several Phase 1 projects are located on UDOT roads. These include Washington Boulevard, Harrison Boulevard, 12th Street, and part of 21st Street. In some instances, this Plan identifies proposed facilities on corridors where UDOT does not have funding in the near term to make improvements. Ogden City and UDOT can collaborate in sections where priorities and timelines align, and Ogden City can lead implementation of Phase 1 projects on City-owned streets. Coordination among various City departments and divisions (engineering, public works, planning, and community development) can maximize opportunities to incorporate bicycle projects into other construction projects as applicable.

Bikeway Costs

Planning-level cost estimates for Phase 1 facilities listed in the plan were developed for each of the identified categories:

- Shared Lane Markings (Sharrow)
- Bicycle Boulevards
- Bike Lane
- Buffered Bike Lane
- Protected Bike Lane
- Promenade
- HAWK Beacons
- Two-Stage Left Turns
- In-Pavement Bike Detection

Each high-priority proposed facility was assigned to one of the categories, and a per-mile construction cost for each category was developed. These estimates include the following assumed additional factors:

- Mobilization: 5%
- Construction Management: 10%
- Traffic Control: 10%
- Design/Engineering: 15%
- Contingency: 25%

For purposes of this Plan, conceptual costs for the proposed system were based on the following assumptions:

Shared Lane Markings (Sharrows): This category assumes signage and shared-use pavement markings (“sharrows”) along the length of the route at intervals of 250 feet (as per MUTCD guidelines) in each direction and at intersections. This assumes that the roadway does not require rehabilitation or maintenance. The assumed unit cost is **\$5,100 per mile**.

Bike Lane: This category assumes that there is sufficient curb-to-curb width to install the bike lane and associated pavement markings, but that modifications to existing striping would be necessary to make room. It assumes that the road is in good condition and doesn’t require maintenance or rehabilitation as part of the striping project. It also assumes signage in each direction at the entry to each block. The cost is **\$22,000 per mile**.

Buffered Bike Lane: This category assumes that there is sufficient curb-to-curb width to install the bike lane, but that modifications to existing striping would be necessary to make room. This includes removal of existing striping and installation of new striping, along with bike lane signage. No modifications to intersection signal equipment are assumed. The cost is **\$22,400 per mile**.

Bike Boulevard: This category assumes signage and shared-use pavement markings (“sharrows”) along the length of the route at intervals of 250 feet (as per MUTCD guidelines) in each direction and at intersections. It also assumes placement of wayfinding signage in both directions every quarter-mile. This assumes that the roadway does not require rehabilitation or maintenance. The assumed unit cost is **\$6,500 per mile**.

Protected Bike Lane: This category assumes that adequate space exists along the roadway to add striping and markings without modifying the roadway further. It assumes a new centerline, two edge lines to separate bicycles and traffic, bike stencils at driveways and on both ends, and soft hit posts every 15 feet. The cost is \$5,000 per segment or, with the additional factors listed above, **\$54,500 per mile**.

Promenade: This category is a continuation of the Grant Avenue Promenade, extending the facility from its current length between 20th and 22nd Street. The Grant Avenue Promenade will eventually be built from 18th Street to 25th Street. The cost estimates included in this plan for the Promenade were provided by Ogden City, and include other related project costs (for instance, bridge upgrades at Grant Avenue and the Ogden River). Ogden City estimated an overall cost of \$6.5M for the continuation of the Promenade.

Unit costs for intersection improvements are as follows:

- HAWK Beacon: \$100,000

- Two-Stage Left Turn Boxes: \$1,000 (assuming two per signalized intersection along multi-lane Phase 1 routes)
- Bike Detection Loops: \$2,000 (assuming two per selected intersection, on minor approach streets only)

Table 2 summarizes the total conceptual costs of the Phase 1 network, applying mobilization, traffic control, design, and contingency rates to each individual project. Construction of the Phase 1 system would require approximately \$7.9M.

TABLE 2 PHASE ONE BICYCLE PROJECT COSTS

Bikeway	Type	From	To	Length	Cost
North Street	Shared Lane Markings	Washington Boulevard	Harrison Boulevard	1.13 miles	\$6,000
North Street	Bike Lane	Wall Avenue	Washington Boulevard	0.43 miles	\$16,000
36 th Street/ Skyline Parkway	Bike Lane	Tyler Avenue	Southern Ogden Boundary	3.27 miles	\$119,000
26 th Street	Bike Lane (incl. Detection Loops)	Wall Avenue	1825 East	2.55 miles	\$106,000
Grant Avenue	Bike Lane	a) 12 th Street b) 25 th Street	a) 18 th Street b) 36 th Street	2.23 miles	\$81,000
Grant Avenue	Promenade	a) 18 th Street b) 22 nd Street	a) 20 th Street b) 25 th Street	0.69 miles	\$6,490,000
Washington Boulevard	Bike Lane	2 nd Street	12 th Street	1.03 miles	\$37,000
2 nd Street	Bike Lane	Depot Drive	Harrison Boulevard	2.18 miles	\$79,000
Harrison Boulevard	Bike Lane (incl. Two-Stage Left Turns)	Northern Ogden boundary	12 th Street	3.03 miles	\$113,000
17 th Street	Bike Lane	Western Ogden boundary	Lorin Farr Park	1.65 miles	\$60,000
21 st Street	Bike Lane (incl. Detection Loops)	Western Ogden Boundary	Tyler Avenue	2.60 miles	\$108,000
Monroe Boulevard	Buffered Bike Lane	Northern Ogden boundary	20 th Street	3.97 miles	\$147,000
Washington Boulevard	Buffered Bike Lane (incl. Two-Stage Left Turns)	12 th Street	23 rd Street	2.37 miles	\$95,000
Tyler Avenue	Bike Boulevard	20 th Street	Edvalson Street	2.57 miles	\$17,000
32 nd Street	Bike Boulevard (incl. Detection Loops)	Wall Avenue	Taylor Avenue	2.14 miles	\$27,000
Madison Avenue	Bike Boulevard	20 th Street	32 nd Street	1.73 miles	\$11,000
2 nd Street	Bike Boulevard	Monroe Boulevard	Polk Avenue	0.71 miles	\$5,000

Weber State Wildcat	Bicycle Boulevard (incl. Detection Loops)	Ogden Intermodal Center	Weber State University	3.91 miles	\$32,000
12 th Street	Protected Bike Lane (incl. Two-Stage Left Turns and HAWK Beacon at Liberty Avenue)	Western Ogden boundary	Harrison Boulevard	3.36 miles	\$365,000
Total Phase 1 Costs: \$7,914,000					

Funding Sources

Many funding sources are potentially available at the federal, state, regional, county, and local levels for Ogden to implement the projects and programs in the Bicycle Master Plan. The majority of public funds for bicycle projects are derived through a core group of federal and state programs. Federal funds from the Surface Transportation Program (STP), Transportation Alternatives Program (TAP), and Congestion Mitigation Air Quality (CMAQ) programs are allocated to UDOT and Wasatch Front Regional Council and distributed by those agencies at their discretion. The Utah Transit Authority has been applying transit funds in communities throughout its service area to increase active transportation access to its FrontRunner and TRAX stations, within a ½-mile walking distance or a 3-mile biking distance.

County or City funds may also be used to construct bicycle facilities. For example, Salt Lake County recently established a funding stream for bicycle improvements by increasing vehicle registration fees in the County. This source has directed nearly \$1M annually to Salt Lake County to implement bicycle projects, which is distributed amongst the incorporated and unincorporated areas of the County as project designs are completed. In addition, Weber County residents approved a local-option sales tax in November 2015, which increases the sales tax by ¼ percent and dedicate those funds to a mix of road, transit, and active transportation funds.

Table 3 provides a list of funding sources that may be applicable to projects identified in this plan. Most of these sources are highly competitive and require the preparation of applications. For multi-agency projects, applications may be more successful if prepared jointly with other local and regional agencies. The City should also take advantage of private contributions, if appropriate, in developing the proposed system. This could include a variety of resources, such as volunteer labor during construction, right-of-way donations, or monetary donations towards specific improvements.

TABLE 3 FUNDING OPPORTUNITIES

Funding Opportunity	Eligible Project Types	Qualifications	Lead Agency	Submittal Specifics
Municipal Funds				

TABLE 3 FUNDING OPPORTUNITIES

Funding Opportunity	Eligible Project Types	Qualifications	Lead Agency	Submittal Specifics
Bond Financing	Varies	Varies	Varies	Bonds can be approved by voters to fund a range of projects. A local successful precedent is the 2012 Parks and Trails Bond in Salt Lake County, which authorized \$47 million in bond funds to complete the Jordan River Parkway, the Parley's Trail, and acquire land for and construct new parks throughout the County.
Sales Tax	Varies	Varies	Varies	It is possible to pass a specified sales tax that could be used to fund active transportation improvements. Precedents include the San Diego region, which approves a half-cent sales tax in 2008 to generate funds for highway, transit, and local road (including bicycle) projects; and the Great Rivers Greenway in the St Louis area, where voters passed a proposition in 2000 to create a 0.1% sales tax for parks, open space and trails. Proposition 1, which passed in November 2015, provides additional sales tax funds for transportation improvements.
Special Assessment or Taxing Districts	Varies	Varies	Local Government	Local municipalities can establish special assessment districts for infrastructure improvements. For example, Urbandale, Iowa established a special assessment program in 1996 for building sidewalks in existing developments where they were missing. Exception clauses allowed residents to apply for hardship status, or to allow residents to petition for sidewalks on only one side of the street rather than both.
Parking Fees	Varies	Varies	Local Government	Some cities have instituted parking fees to pay for infrastructure improvements. Pasadena, CA installed paid parking meters to gather revenue to maintain streets, alleys, and sidewalks in Old Pasadena, and also to provide new signs, lighting, pedestrian-friendly alleys, and other aesthetic improvements.
Development Impact Fees	Varies	Varies	Local Government	Development impact fees are one-time charges collected from developers for financing new infrastructure construction and operations and can help fund bicycle and pedestrian improvements. Impact fees are assessed through a city's impact fee program.
New Construction	Varies	Varies	Local Government	Future road widening and construction projects are methods of providing bike lanes. To ensure that roadway construction projects provide bike lanes and walkways where needed, it is important that the review process includes a designated bicycle and pedestrian coordinator. Planned roadway improvements in Ogden should provide bikeways in the City. Ogden should also coordinate with UDOT to find opportunities for bike facilities on state road construction projects.

TABLE 3 FUNDING OPPORTUNITIES

Funding Opportunity	Eligible Project Types	Qualifications	Lead Agency	Submittal Specifics
Weber County Recreation, Arts, Museums and Parks (RAMP)	Construction of recreation facilities	For cities and non-profit organizations within Weber County	Local government	Funded facilities must be physically located in Weber County, with preference given to collaborative projects. Walking and bicycling trails and neighborhood pathways have all been previously funded projects.
State Funds				
ADA Ramps	ADA-related improvements	For missing ADA ramps on State routes only	UDOT	Applications are submitted to the Region Coordinator. Missing ramps can be found in the UDOT database from a recent survey of ramps. (http://udot.utah.gov/main/uconowner.gf?n=13652716548952568)
Safe Sidewalks Program	Sidewalks	Sidewalks on State routes only	UDOT	Applications are submitted to the Region Safe Sidewalk Program coordinator and require scope and cost estimate. Local jurisdiction must agree to maintenance and the sidewalk must be built within one year of money allocation. (http://www.udot.utah.gov/main/uconowner.gf?n=104675223364328443)
Community Development Block Grants-State Administered Program	Street improvements	Best if benefits low- or moderate-income populations. Part of a Consolidated Plan.	HUD, State, and Local Government	The Grantee for these grants cannot be a principal city of a metropolitan statistical area a city with less than 50,000, or a county with a population with less than 200,000. Applications are submitted to the State. (https://www.hudexchange.info/cdbg-state/)
State Legislation	Legislation dependent	Legislation dependent	State of Utah	State legislation can create laws that have dedicated bicycle funding components. Two examples of this are the Oregon "bike bill" which requires including bicycle and pedestrian facilities when any road, street or highway is built or rebuilt and the California Bicycle Transportation Account, which provides state funds to cities and counties wishing to improve safety and convenience for bicycle commuters. (http://oregon.gov/ODOT/HWY/BIKEPED/Pages/bike_bill.aspx and http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm)
Federal Funds				

TABLE 3 FUNDING OPPORTUNITIES

Funding Opportunity	Eligible Project Types	Qualifications	Lead Agency	Submittal Specifics
Transportation Alternatives Program	Bicycle and pedestrian improvements	Funds can be used for construction, planning and design of on- and off-road facilities.	WFRC and UDOT	WFRC funds are distributed to projects during the Transportation Improvement Plan project selection process. Most TAP projects will have an 80/20 federal/local match split. Projects can include sidewalks, trails, bicycle facilities, signals, traffic calming, lighting and safety infrastructure, and ADA improvements. Rails-to-trails conversions are also allowed. The Recreational Trails Program is included in Transportation Alternatives, as is the Safe Routes to School program. (http://www.fhwa.dot.gov/environment/transportation_alternatives/)
Community Development Block Grants-Entitlement Communities Program	Street improvements	Best if benefits low- or moderate-income populations.	HUD and Local Government	Grantee is a principal city of a metropolitan statistical area, a city with a population over 50,000, or a county with a population over 200,000. Part of a Consolidated Plan. (http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/entitlement)
Surface Transportation Program	Bicycle and pedestrian improvements	Generally not used on local minor collectors with exceptions for bicycle/ pedestrian walkways.	UDOT	Concept reports due to MPO for consideration of programming funds. (http://www.fhwa.dot.gov/map21/factsheets/stp.cfm)
Congestion Mitigation and Air Quality	Bicycle and pedestrian improvements	Reduce congestion or improve air quality in nonattainment or maintenance areas by shifting travel demand to non-automobile modes.	WFRC	Projects must be included in the TIP. WFRC calls for projects from local communities each year. (http://www.fhwa.dot.gov/map21/factsheets/cmaq.cfm)
Land and Water Conservation Fund	Bicycle and pedestrian trails, or acquisition of land for trails	Projects that create outdoor recreation facilities, or land acquisition for public outdoor recreation.	DNR	The Land and Water Conservation Fund (LWCF) provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources. 50/50 match is required, and the grant recipient must be able to fund the project completely while seeking reimbursements for eligible expenses. (http://stateparks.utah.gov/resources/grants/land-and-water-conservation-fund)

TABLE 3 FUNDING OPPORTUNITIES

Funding Opportunity	Eligible Project Types	Qualifications	Lead Agency	Submittal Specifics
Federal Lands Access Program	Planning, engineering, construction, and other activities	Projects must be on, adjacent to, or provide access to federal lands.	UDOT	Fund is administered through UDOT in coordination with the Central Federal Lands Highway Division, which develops a Programming Decisions Committee. The Committee prioritizes projects, establishes selection criteria, and calls for projects. Next call for projects is anticipated for 2016. (http://www.cflhd.gov/programs/flap/ut/)
Rivers, Trails, and Conservation Assistance Program	Planning assistance for bicycle and pedestrian projects.	Staff support for facilitation and planning.	National Park Service	Projects need to be related to conservation and recreation, with broad community support, and supporting the National Park Service's mission. Applicants must submit National Park Service applications by August 1 annually, including basic information as well as letters of support. The local contact is Marcy DeMillion, at 801-741-1012 or marcy_demillion@nps.gov .
Private or Corporate Funds				
Cambia Health Foundation Children's Health Program	Programs and possibly infrastructure	Projects must improve access to healthy foods, recreation facilities, and encourage healthy behavior for families.	Cambia Health Foundation	Grants are typically in \$50,000 - \$100,000 range. Focus is on programs. Contact foundation staff at cambiahealthfoundation@cambiahealth.org for additional information. (http://www.cambiahealthfoundation.org/programs/childrens-health)
Bikes Belong Foundation	Bicycle infrastructure	Projects must improve the cycling environment	Bikes Belong	Bike Belong has awarded 272 grants to non-profit organizations and local governments in 49 states and the District of Columbia, since 1999.
Community Fundraising	All	Small dollar amounts	Local agency or non-profit	Lead agency manages the details, marketing, and range of a community fundraising campaign. Successful examples include Softwalks' Kickstarter campaign for sidewalk amenities in New York City, and use of volunteer labor for trail construction in Springdale, Utah. Follow link below for more ideas. (http://www.bicyclinginfo.org/funding/sources-community.cfm)

Monitoring

This section presents a framework for monitoring the success of implementation of the Plan through benchmarking progress, engaging local citizens, and continuing to generate interest in bicycle issues after this plan has been adopted. Evaluation and monitoring allow Ogden to track progress made as it

implements the bicycle master plan. Three major components to monitoring bicycle planning efforts should follow plan adoption:

- Tracking progress on implementing planned projects and meeting the master plan's stated goals;
- Monitoring needs for small-scale spot improvements on bicycle facilities; and
- Monitoring public sentiment and engagement in bicycling issues.

TABLE 4 MONITORING ACTIVITIES

Monitoring Activity	Actions to Take
Track plan implementation	Staff time to document projects and policies implemented, for internal reporting purposes as well as for ongoing applications for LAB Bicycle Friendly Community status upgrades
Volunteer reporting of maintenance needs	Staff time to receive input and respond to reports
Reactive maintenance	Staff time to respond to maintenance requests
Continued engagement with advocacy groups	Create a framework for continued engagement with the advocacy community (WOBAC may be a good avenue for this) to keep awareness of cycling issues high, continue support for implementation of the bike plan, and solicit feedback on ongoing cycling needs
Ensure project funding through inclusion in Capital Facilities Plan	Staff time to coordinate between planning and budget departments
Proactive maintenance of bicycle facilities	City and/or contractor staff to monitor needs, make needed repairs, plan for funding in municipal public works or operations budgets
Online reporting mechanism for maintenance and repairs	Staff time to develop a web-based forum to receive public input, and respond to reports
Ongoing local communication around bicycle issues	Staff time to maintain an Ogden cycling website (or partner with another organization such as WOBAC or Weber Pathways, and provide content), generate other communication outlets, and host events to increase participation and enthusiasm
Pursue outside funding for bicycle projects	Staff time to evaluate grant programs, prepare applications, and coordinate with funding agency representatives
Measuring progress by benchmarks	Staff, volunteer, or intern/student time for before-and-after data collection and surveys, and review of multiple datasets. Benchmarks could include: <ul style="list-style-type: none"> • Number of people bicycling on-street and using off-street facilities • Mileage of on-street bicycle facilities • Percentage of households within ¼ miles of a bicycle facility • Percentage of K-8 students biking to school • Bike parking racks installed in the public right-of-way and with new development
Identify additional financing opportunities for bicycle projects, such as public-private partnerships or impact fees	Staff time to build partnerships, and potential need for outside consultant to identify defensible impact fees and ensure compliance with state and local laws.
Regular bicycle counts	Partner with local advocacy groups like WOBAC and Weber Pathways, boy scouts, schools, and WFRC to conduct annual bicycle counts and an annual monitoring program that reviews and compares these counts. Additionally, Ogden can require that all traffic study counts include bicycles to estimate bicycling levels and changes in bicycling levels over time.

TABLE 4 MONITORING ACTIVITIES

Monitoring Activity	Actions to Take
Bicycling Audits	Encourage staff to conduct bicycle and walking audits as part of outreach strategies for new development projects. A bike/walk audit leads stakeholders on a set course to discuss safety concerns and strategies to improve safety.

Plan Implementation

Ogden should regularly revisit this Bicycle Master Plan to review progress in implementing projects. Key review components are described below.

Implementing Projects

City staff should review project implementation within two or three years after plan completion, to document how many Phase 1 projects have been implemented or are in the process of being implemented, and whether new projects from the plan should be added to current implementation efforts. At five years following plan completion, staff members should again evaluate how many Phase 1 projects have been implemented. Staff members should not be unduly concerned if something less than 100% of projects have been implemented; however, if only minor progress has occurred since plan completion, an evaluation of possible obstacles might be helpful (see sidebar text on barriers to implementation). Ogden City should also focus on developing a master transportation plan which would integrate the recommendations from this Bicycle Master Plan and provide a multi-modal vision for the City going forward. In addition, Ogden's Complete Streets ordinance needs to be adopted.

Implementation Barriers

Here are some common barriers to implementation, and suggestions for overcoming them.

Low political support

- Engage local advocacy groups, such as the Ogden Bicycle Collective, Weber Pathways, WOBAC, PTA's or trail clubs, to show their support. Elected officials may be persuaded by their constituents.
- Take local leaders on a tour of an area that has implemented similar plans.
- Build momentum around a handful of low-risk, low-cost projects.
- Find a project champion within city staff, elected officials, or the business community.

Lack of funding

- Build bicycle facilities (bike lanes, sharrows, etc) into already-planned construction projects.
- Partner with other agencies – UDOT, Robert Wood Johnson Foundation, or utility companies - to stretch available funds.
- Apply for Local Planning Resource Funds through WFRF, or Transportation Alternatives funding through WFRF or UDOT.

Building Partnerships

Relationships with regional and local transportation agencies such as UDOT, UTA, Wasatch Front Regional Council, Weber State University, WOBAC, the Utah Department of Health, Weber-Morgan Health Department, adjacent communities, and other organizations can be helpful for Ogden while attempting to build bicycle networks. Staff members should establish strategic working relationships with their

counterparts and leadership at these agencies, and at adjacent municipalities. Building partnerships takes time and effort, however, and the results may take some years to come to fruition. Municipalities should take stock of their partnering efforts at the three- to five-year mark following completion of a bicycle master plan. Staff members should re-evaluate their strategies if partnering efforts do not result in some increase of political and agency support of bicycle issues – other strategies or methods of building support may be necessary. Building partnerships should also extend to Ogden City’s law enforcement staff, to increase compliance of cycling laws by both drivers and cyclists and improve safety in doing so.

Maintaining Projects

As indicated in Table 4, ongoing routine maintenance of constructed projects (and responding to maintenance needs reported by users) is an important part of creating a reliable and safe cycling network. Some rule-of-thumb guidelines for maintenance of bicycle facilities are provided below. It should be noted that the conceptual cost estimates provided for Phase 1 projects in this plan do not include ongoing maintenance and operational costs. City budgeting processes should take into account the ongoing maintenance costs for a bicycle network, and plan funding accordingly.

TABLE 5 MAINTENANCE ACTIVITIES

Maintenance Activity	Frequency	Level of Cost
Pavement markings restriping or replacement	As needed	Medium
Signage replacement	As needed	Medium
Pavement sealing	5-10 years	High
Debris removal and sweeping	As needed, with higher frequencies during the fall season	Medium
Vegetation trimming/removal	Twice annually (spring and fall)	Low
Pothole repair	As needed in response to reports	Medium
Inspections	Annually, in spring	Low

Online Monitoring Feedback

While most local and state transportation divisions have internal methods for monitoring transportation facility conditions, many have additional mechanisms for citizens to report problems. Several online options are available as well. For instance, Salt Lake City has a “Bicycle Route Maintenance Request Form” online, through which the public can identify cycling routes in need of maintenance work such as sweeping, pothole repair, pavement maintenance, or other problems. The form can be found online through the Salt Lake City Transportation Division website. UDOT has a “Click N Fix” mobile app, which Ogden residents can use to report maintenance issues on state roads in Ogden. Ogden City may wish to

develop its own site, app, or webmap to crowdsource maintenance needs on local streets as facilities get built, or on already-existing facilities (for instance, the 24th Street viaduct was mentioned in several public outreach efforts as needing shoulder sweeping and maintenance).

Other cities, such as Portland Oregon, also seek online feedback on transportation conditions such as desired curb ramps, traffic safety concerns (i.e. speeding, crosswalk needs, visibility, or school zones), and street light problems. Portland's online forms can be found through the Portland Bureau of Transportation website. Cities may also state timelines for responding to requests – within a day, several days, or a week – which demonstrates a commitment to the public's traveling needs. Currently, several cities incorporate crowd-sourced or volunteered geographic information (VGI) into maintenance requests. Users can submit requests for repair by sending a GPS-marked photo through a smartphone application, categorizing the photo based on repairs needed (striping, sweeping, pothole repair, etc). Reno, Nevada is one example of a municipality engaging its citizens this way in monitoring for maintenance needs.

Crowdsourcing data can also be a valuable source to see how Ogden's bicycle network gets used. Mobile apps like Strava or Cycle Tracks can gather GPS data from participating cyclists, which can be purchased by Ogden City. This kind of data can help the City better understand which routes are most popular with selected cyclists, and how much demand there is for facilities on various routes. While these kind of datasets aren't fully representative (they only show cycling activity by people who have and use the apps), they can be combined with in-person bicycle counts to create a more robust picture of overall bicycle travel in Ogden.

Appendix A: Benefits Research References

1. Moving Cooler Steering Committee. *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*. Prepared by Cambridge Systematics, Inc. July 2009.
2. Oregon Metro. *The Case for Active Transportation*. Spring 2009. Accessed online June 2013: [http://library.oregonmetro.gov/files//case for at.pdf](http://library.oregonmetro.gov/files//case%20for%20at.pdf)
3. America Bikes and the League of American Bicyclists. *National Household Travel Survey – Short Trips Analysis*. Accessed online June 2013: <http://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis>
4. Frank, L. D., J. F. Sallis, T. L. Conway, J. E. Chapman, B. E. Saelens and W. Bachman (2006). "Many Pathways from Land Use to Health: Associations between Neighborhood Walkability and Active Transportation, Body Mass Index, and Air Quality." *Journal of the American Planning Association* 72(1): 75-87
5. Dill, Jennifer and Carr, Theresa. "Bicycle Commuting and Facilities in Major U.S. Cities: If you build them they will come – another look." Accessed online June 2013: http://www.des.ucdavis.edu/faculty/handy/ESP178/Dill_bike_facilities.pdf.
6. Dill, Jennifer and Theresa Carr. (2003). *Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them They Will Come – Another Look* Transportation Review Board 2003 Annual Meeting.
7. "Wonder's Way Bike Pedestrian Pathway on the Arthur Ravenel, Jr. Bridge: A Successful Model for Facilitating Active Living in Lowcountry South Carolina" (http://media.charleston.net/2009/pdf/crbpathstudy_032609.pdf). http://www.des.ucdavis.edu/faculty/handy/ESP178/Dill_bike_facilities.pdf
8. "Walking and Cycling to Health: A Comparison of Recent Evidence from City, State, and International Studies" (<http://www.cfah.org/hbns/archives/viewSupportDoc.cfm?supportingDocID=943>).
9. "Bicycle Riding, Walking, and Weight Gain in Premenopausal Women" (<http://archinte.ama-assn.org/cgi/reprint/170/12/1050>).
10. "Randomised controlled trials of physical activity promotion in free living populations: a review" (<http://www.ncbi.nlm.nih.gov/pubmed/7499985>).
11. "Like commuting? Workers' perceptions of their daily commute" (<http://www.statcan.gc.ca/pub/11-008-x/2006004/pdf/9516-eng.pdf>).
12. "Physical activity, absenteeism and productivity: an Evidence Review" (<http://www.tfl.gov.uk/assets/downloads/businessandpartners/Physical-activityabsenteeism-and-productivity-evidence-review.pdf>).
13. "Relationship of body mass index and physical activity to health care costs among employees" (<http://www.ncbi.nlm.nih.gov/pubmed/15167389>).
14. "Safety in numbers: more walkers and bicyclists, safer walking and bicycling" (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1731007/pdf/v009p00205.pdf>).
15. "An expert judgment model applied to estimating the safety effect of a bicycle facility" (<http://www.ncbi.nlm.nih.gov/pubmed/10868762>
16. "Adult Bicyclists in the United States: Characteristics and Riding Experience in 1996" (<http://www.enhancements.org/download/trb/1636-001.PDF>)
17. Gabrow, Maggie, Micah Hahn, Melissa Whited. (2010). *Valuing Bicycling's Economic and Health Impacts in Wisconsin*. The Nelson Institute for Environmental Studies and the The Center for Sustainability and the Global Environment. University of Wisconsin-Madison. Prepared for Representative Spencer Black.

18. Campbell, Richard and Wittgens, Margaret. (2004). *The Business Case for Active Transportation: The Economic Benefits of Walking and Cycling*. Prepared for Better Environmentally Sound Transportation
19. VanZerr, Mariah. (2009). *Resident Perceptions of Bicycle Boulevards: A Portland, Oregon Case Study*. Submitted to the Transportation Research Board for the 89th Annual Meeting.
20. Elly Blue's Bikenomics series: <http://grist.org/biking/2011-04-11-the-economic-case-for-on-street-bike-parking/>
21. "The Value of the Bicycle-Related Industry in Portland"
22. Garrett-Peltier, Heidi (2011). *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*. Political Economy Research Institute. University of Massachusetts, Amherst. <http://www.peri.umass.edu/236/hash/64a34bab6a183a2fc06fdc212875a3ad/publication/467/>
23. "Economic Impact of Bicycling in Colorado" (<http://atfiles.org/files/pdf/CObikeEcon.pdf>).
24. "The Economic Impact of Bicycling in Wisconsin" (<http://www.dot.wisconsin.gov/business/econdev/docs/impact-bicycling.pdf>).

Appendix B: Public Involvement Summary

Overview

The objective of public involvement for the Ogden Bicycle Master Plan was to collaborate with individuals and organizations that wanted to help shape the bicycling environment in Ogden City. The project team sought feedback to better inform the planning process, prioritize highly valued elements, and ensure community support for the plan. Outreach occurred at four distinct levels: a project Steering Committee, Ogden City Council updates, a stakeholder group, and the general public. These efforts are described below.

Steering Committee

This group included representatives from Ogden City, UDOT, and Wasatch Front Regional Council in addition to the consultants from Fehr & Peers. Steering Committee members provided overall guidance and oversight for the project. Individual Steering Committee members included:

- Justin Anderson (Ogden City)
- Jay Lowder (Ogden City)
- Greg Montgomery (Ogden City)
- Daniel Gillies (Ogden City)
- Perry Huffaker (Ogden City)
- Josh Jones (Ogden City)
- Glenn Symes (Ogden City)
- Daryl Ballantyne (UDOT)
- Jory Johnner (WFRC)
- Scott Hess (WFRC)
- Maria Vyas (Fehr & Peers)
- Kyle Cook (Fehr & Peers)

City Council

Fehr & Peers led two work sessions (on January 13th, 2015, and June 23rd, 2015) with the Ogden City Council in advance of the public open houses. The work sessions updated the City Council on plan progress, and solicited feedback at critical points to ensure accuracy and proper direction for the plan.

Stakeholders

The project team led two stakeholder group meetings (on December 3, 2014 and May 14, 2015) with individuals that had a high level of interest in the Bicycle Master Plan and were committed to volunteer time to aid in decision making. Stakeholder participation was critical in refining goals and objectives, identifying needs and opportunities, and refining the proposed bicycle network. Participating stakeholders included:

- Caitlin Gochmour, Ogden City Council
- Marcia White, Ogden City Council
- Robert Herman, Ogden City Planning Commission
- Bill Cook, Ogden City Council staff
- Dave Adamson, UDOT Region One
- Darin Fristrup, UDOT Region One
- Ken Anson, Utah Transit Authority
- Holin Wilbanks, Weber County
- Charlie Ewert, Weber County
- Brad Mortenson, Weber State University
- Mark Benigni, Weber Pathways
- Rod Kramer, Weber Pathways
- Jo McNurlan, WOBAC
- Dan Schroeder, Sierra Club
- Joe Wignall, Enve Composites
- Dustin Eskelson, Ogden Bicycle Collective
- Drew Johnson, City Cycle

General Public

All members of the public were invited to review plan materials and provide comments. Two public open houses were held: one on February 5, 2015, following the review of existing conditions; and another on July 15, 2015, after a proposed bicycle network had been drafted. Open houses were advertised to the public on the Ogden City webpage; through Facebook posts by Ogden Bicycle Collective and Weber Pathways; via emails to stakeholder groups and cycling-related listserves such as WOBAC and Cycling Utah; and by fliers posted around Ogden City leading up to the events.

Public Comment Summary – Open House #1

The first of two Ogden City BMP open houses was held on February 5, 2015 at Union Station. It was well attended with over 200 attendees. The purpose of this open house was to present the purpose, goals, and objectives of the BMP and to get the public's input on identifying issues, key destinations, and desired facility types.

Large format maps were placed throughout the Union Station to allow attendees to highlight locations of needed improvements. Three visual preference boards (bikeways, intersection treatments, and destination amenities) were used to detail different types of bicycle amenities. Comments could also be provided via a written comments box in addition to marking on the maps and visual preference boards

Topics that were commented on by multiple open house attendees included: connections, infrastructure, safety, education/encouragement, and maintenance/operations. Ogden Canyon was also mentioned by several attendees. Below is a summary of the comments received at the first open house.

Connections

- Improve connections citywide
- Connect to trailheads

- Utilize alleyways
- Connections over or under Railyard, I-80, I-89, Harrison, and Wall
- More east/west connections
- Work with neighboring municipalities

Infrastructure

- Bike lane suggestions throughout Ogden
- Bike Boxes at critical intersections
- Improve bike detection
- Bike parking
 - Downtown
 - 24th, Harrison, 25th
 - FrontRunner Station
- Bike share
 - Bike share is super cool, very handy for out of town visitors. It says "this is a bike friendly community"
 - Downtown
 - WSU
 - Union Station

Safety

- Cars respect cyclists more when there is a painted lane
- Separating bicyclists with trees or cars would be incredibly helpful
- Consider mid-block crossing at busy streets
- Inform cyclists of safe practices: right-side of the street, signals, lights at night etc.
- Please do not incorporate "cycle-tracks." They are unsafe
- Efforts to curb bike theft

Education/Encouragement

- Maps and wayfinding improvements (online and printed)
- Maximize existing facilities
- Communicate that Ogden fundamentally supports intermodal transportation
- Support/help the Bike Collective
- Raise motorist awareness of cyclists
- Bikes on Transit
 - Busy during peak periods
 - Vertical bike racks and more bike cards
 - UTA bus passes on Red days to encourage public transit
- Inform public that cyclists are allowed on all roads, not just those with bike facilities

Maintenance/ Operations

- 24th Street Bridge needs to be cleaned
- Shoulder need to be clean of glass and debris
- Regular snow maintenance on bike routes and paths
- Weber River path maintained and cleared year round

Positive Feedback

- Great job in offering this forum!
- I am super pleased and very thankful of Josh Jones, the mayor, WOBAC, Weber pathways, and many, many people who have placed a priority and a plan into effort. Keep up the great work. Thank you!

Public Comment Summary – Open House #2

The second open house was held on July 15, 2015 at Union Station with around 100 attendees signing in. The purpose this open house was to present the proposed bicycle network to the public and ensure that no routes were missing. Members of the public were also asked to identify their two highest priority routes on the maps, and written comments were solicited as well. The table below shows where participants indicated their highest priorities for providing bicycle facilities.

Prioritized Routes

Road (North/South)	Score (north of 12 th)	Score (12 th -36 th)	Score (south of 36 th)	Total
Harrison	4	12	7	23
Washington	2	5	0	7
Monroe	1	5	0	6
Madison/Chatelain	0	5	0	5
Tyler	0	3	0	3

Wall	2	0	0	2
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Grant	0	1	0	1
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Lincoln	0	1	0	1
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Downs	1	0	0	1
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Pennsylvania	0	0	1	1
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Skyline	0	0	1	1
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Road (East/West)	Score (west of Wall)	Score (Wall - Harrison)	Score (east of Harrison)	Total
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12 th Street	2	3	8	13
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30 th /31 st Street	7	0	0	7
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24 th Street	3	1	0	4
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Chatelain	0	3	0	3
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2 nd Street	0	1	0	1
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26 th Street	0	1	0	1
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Written Comments

- Thank you for working on this! Consider natural topography and using abandoned alleys to connect WSU to downtown via string of existing parks to create a protected, dedicated bike lane where cars can only travel on the block where they live (local traffic only) the Chatelain diagonal is a perfect example. It eliminates hill climbs and stays away from major roads
- Route need to tie in to Glasman. Route to hospital – west side. There needs to be cooperation and connections from Ogden into South Ogden. Harrison is busy, how would cyclists be protected? With BRT/rail Harrison will be busier
- Bike detection markings at stop lights and sensitive to detect bikes - Thank you for trying
- Please do continue the dialogue and outreach efforts and emphasis cycling and public transportation. Great job – keep up the work and thank you for including and encouraging this action plan
- Bike trail in Ogden canyon. All new surfacing wide enough for a shoulder. At least state highways in Colorado do it.
- How do bikers get safely from Wall to W Ogden? Viaduct needs to be redone
- Please continue adding more protected bike lanes like the one on Grant. One up 25, 26, or 27 all the way to Harrison (or the trails) would be awesome. Also bike sharing.
- I like this ambitious plan to make Ogden an extremely bikable, bike useful city. I'd like to see "bike highways" where bike would have priority over cars. Residents would have car access, but other drivers discouraged. Ogden should be a national leader in solid planning for safe bike riding. There should be regular water refill station throughout the city.
- How do residents get to bike lanes from S Ogden? Glasman is wide and could support a bike lane. How do you mitigate hazards to cyclists with a bike lane. What about Ogden Canyon?
- There are very few bike friendly ways to get into or out of Ogden. 30/31, 2nd, 24th, viaducts are narrow with grates, merging traffic and high speeds. There has to be a safer way.

- I would like to see bike stations set up at trailheads. It's nice to have an easy work station to work on our bike, next to the very trails we ride.
- I love the master plan ideas, especially of the protected lanes, that allow mobility around the city. I was recently hit by a car while in a bike lane near Washington, so I definitely support more awareness and added protection. Thanks for all you are doing.
- Bike lanes need loads of improvement. Painted lanes, signs, etc.
- All of the project goals are important and reasonable. One thing that I see missing is the idea of education and enforcement. We talk about encouraging cycling and finding businesses/organizations to support it, but that needs to go hand in hand with educating cyclists and motorists on the laws and how to be safe around each other. In order for this to be effective there must be consistent enforcement of related laws.
- We seem to be looking at Ogden's busiest roads for bike paths. Why? There seems to be no connection to existing trails, i.e. the river parkway, skyline, Weber River. More off traffic routes thru Ogden or to Ogden. Paths separated from traffic. Children (youth) are not going to use traffic path.
- I think that it would make economic sense to begin projects that cost the least. Washington, for one, since it is already so wide.
- It's too hard to see the details on the "proposed master plan" map, and there is too much information on it to assimilate in such a venue. Some general comments. We can't develop a bike plan in isolation, we need to incorporate pedestrians, transit, parking, trees, etc. Ogden isn't isolated from its neighbors. We need connections that continue in all direction beyond the city limits. There are a lot of blue lines on this map. We should develop a list of priorities, not just an all-encompassing wish list.

Network Maps:

- Make Monroe Boulevard a buffered bike lane from beginning to end
- Make 36th a protected bike lane from Wall to Harrison (ie not stop at Adams from Wall)
- Protected bike lane up 26th (?) Love the "perimeter" bike lanes but let's put one (maybe just one type?) permanent up the middle of East Central!
- It's very important to get bike traffic in and out of the city safely. If you build it they will come but only if they can get there safely!
- Could we have a bike work station on the trail heads? 22nd and 29th
- Too much emphasis on protected lanes on Wall/Harrison. Focus on 2nd any bike friendly streets 1-2 blocks over
- Get GreenBikes
- East/west cross town to Ogden Airport
- Follow topography and string of parks to connect downtown to WSU via Chatelain and abandoned avenues as much as possible in a dedicated, bike priority path with local car traffic only
- I like having a bike "only" highway (residents excluded) that parallels (by one block) the major car traffic roads. Make bikes stop on major car roads and cars stop at bike roads.

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OGDEN CITY BICYCLE MASTER PLAN



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