SPRINGVILLE
ACTIVE TRANSPORTATION PLAN

springville
ART CITY

NOVEMBER 2023

SPRINGVILLE
ACTIVE TRANSPORTATION PLAN

ACKNOWLEDGMENTS

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Mike Snelson

Craig Jensen

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Jason Miller

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Ralph Calder

SPRINGVILLE CITY ACTIVE TRANSPORTATION ADVISORY COMMITTEE (ATAC)

UTAH DEPARTMENT OF TRANSPORTATION

BIKE UTAH

CONSULTANT TEAM

Alta Planning & Design

Fehr & Peers

Adopted November 7, 2023

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THE VISION

INTRODUCTION

SPRINGVILLE

The City of Springville is located in Utah County along the southern portion of the Wasatch Front. With a population of 35,268 (2020 census), Springville is considered one of the major population centers for Utah County as evidenced by its 11.8% growth since 2010. The city's area of approximately 14 square miles includes a population density of 2,450 people per square mile.

WHY THIS PLAN? WHY NOW?

Like many suburban communities along the Wasatch Front, for years, Springville has been characterized as a bedroom community for the larger Provo-Orem metropolitan area and even Salt Lake City. However, consistent population growth and development within and surrounding Springville City limits has made obvious the need to address transportation strategies, including plans for active transportation.

Active transportation is defined as human-powered transportation, such as walking or biking. The City has been included in regional active transportation plans and addressed bicycle and pedestrian infrastructure and policy in various City and neighborhood plans, but this plan is the first city-wide plan focused solely on active transportation.

The purpose of this plan is two-fold:

1) re-evaluate existing street and trail corridors to identify opportunities for better bicycle and pedestrian connections, and

2) establish plans and policies to shape growth and development in order to ensure the creation of a bike-able and walkable city. The creation and adoption of this plan comes at a critical time as Springville is currently experiencing rapid growth and greenfield development, and expects increasing growth in the coming years.

THE CASE FOR ACTIVE TRANSPORTATION

Most western American cities have developed their urban form and transportation systems around the optimization of automobile use, and driving a car alone is by far the most common way that people get around, as is true for Springville. Dependence on vehicle ownership and use impacts several personal and community factors, including safety, health and wellbeing, economic sustainability, environmental quality, and overall quality of life and community character.

PLANNING FOR SAFETY

According to Utah Department of Transportation (UDOT) crash data, 296 people died on Utah's roads in 2021. Fifty-two of these fatal crashes involved someone walking or riding a bicycle. Additionally, 1,414 crashes resulted in serious injury on Utah's roads in 2021 (191 involved a pedestrian or cyclist). While the details and circumstances of these crashes vary, most of these crashes are preventable. Education and enforcement are important strategies for improving roadway safety, but safe infrastructure that is designed for slower vehicle speeds and separation between motorists, bicyclists, and pedestrians is the most effective way to reduce roadway crashes and crash severity.

Speed management is important in preventing both crash instances and crash severity. Nearly 30 percent of the 296 fatal Utah crashes mentioned previously involved excessive speeds. Research shows that driver behavior, especially speed, is largely driven by roadway design, more so than posted speed limits or enforcement, and that streets designed for slower speeds result in fewer crashes.1 Streets that are safe for pedestrians and bicyclists improve safety for all roadway users, including those driving motor vehicles.

Crash severity, especially in pedestrian-involved crashes, is closely tied to vehicle speed.

1 Ewing, Reid and Dumbaugh, Eric. 2009. The Built Environment and Traffic Safety. Journal of Planning Literature. Volume 23 Number 4.

Pedestrians struck by a car traveling 20 mph have a 95% chance of survival, whereas pedestrians hit by a car traveling 40 mph only have a 15% chance of survival.2

COMMUNITY HEALTH

The Centers for Disease Control and Prevention recommends that adults get 150 minutes of moderate-intensity physical activity every week (e.g., 30 minutes a day for five days) to reduce chances of chronic diseases, such as diabetes or cardiovascular disease. Most recent data shows that roughly 80 percent of American adults do not achieve this.[3] Communities that make walking and bicycling safe and convenient ways to travel enable residents to incorporate physical activity into their daily routines.

Despite the inherent risks tied to bicycling, studies have shown that the health benefits of bicycling to an individual outweigh the risks 9 to 1, even when accounting for higher exposure to air pollution and risk of traffic collisions.[4]

2 National Traffic Safety Board (2017) Reducing Speeding-Related Crashes Involving Passenger Vehicles. Available from: https://www.ntsb.gov/safety/safety-studies/Documents/SS1701.pdf

3 Centers for Disease Control and Prevention. https://www.cdc.gov/physicalactivity/index.html

4 de Hartog, Jeroen Johan; Boogaard, Hanna; Nijland, Hans; Hoek, Gerard. 2010. Do the Health Benefits of Cycling Outweigh the Risks? Environmental Health Perspectives. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920084/

QUALITY OF LIFE & URBAN CHARACTER

Research from the National Association of Realtors shows that increasingly more Americans have a desire to live in walkable and bikeable communities, which enable a lifestyle that provides transportation options and reduces reliance on motor vehicles. This research also shows that people who perceive their community as walkable indicate an increased satisfaction with their quality of life.[5] In the survey conducted for this plan, 41 percent of respondents expressed interest in using a bicycle for transportation more, but that they are concerned about safety (See Chapter 3).

5 NAR 2017 Community and Transportation Preference Survey. https://www.nar.realtor/reports/nar-community-and-transportation-preference-surveys

In addition to personal preference, some community members may not be able to drive and must walk or bike to get around independently; this includes children, aging adults, people with disabilities, and people who lack access to a vehicle. A strong active transportation system expands the autonomy and freedom of choice of these individuals.

Encouraging more walking and bicycling in Springville can help maintain the City's quiet, small-town character and foster spontaneous social interaction among residents that is more difficult to achieve in an environment dominated by cars.

ECONOMIC SUSTAINABILITY

Investment in active transportation has the potential to provide economic benefits to individuals, as well as the City. Vehicle ownership and maintenance can be an expensive endeavor in America, especially for lower-earning households. 2019 national research shows that lower-earning American households proportionately spend roughly twice as much of their income as the average-earning household on transportation. In 2016 the lowest earning 20 percent of the population spent almost 30 percent of their income on transportation costs.[6] Having more transportation choices, including biking, walking, and transit, presents important opportunities for individuals and families to be more financially stable and self-reliant.

Research suggests that active transportation also has the potential to contribute to the general economic vitality of the community. For example, a number of studies document increased economic indicators, such as employment and sales, for businesses facing streets with improved walking and bicycling infrastructure.[7] [8] Another study found that proximity to bicycle boulevards and separated bike lanes was associated with increasing residential property values, as was access to a denser and more extensive bicycle network.[9]

Several direct and indirect factors go into the benefit-cost analysis of active transportation projects, and each project can be evaluated on a case-by-case basis. In general, however, the cost of implementing and maintaining bicycle and pedestrian infrastructure is significantly lower than that of improvements for motor vehicles.

6 ITDP (Institute for Transportation & Development Policy). The High Cost of Transportation in the United States. 2019. https://www.itdp.org/2019/05/23/high-cost-transportation-united-states/

7 Garrett-Peltier, H. (2011). Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts. University of Massachusetts, Amherst, Political Economy Research Institute. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.362.5819&rep=rep1&type=pdf

8 Liu, J. H., & Shi, W. (2020). Understanding Economic and Business Impacts of Street Improvements for Bicycle and Mobility – A Multicity Multiapproach Exploration (NITC-RR-1031). National Institute for Transportation and Communities, Portland State University.

9 Liu, J. H., & Shi, W. (2017). Impact of Bike Facilities on Residential Property Prices. Transportation Research Record: Journal of the Transportation Research Board, 2662, pp 50–58. https://doi.org/10.3141/2662-06

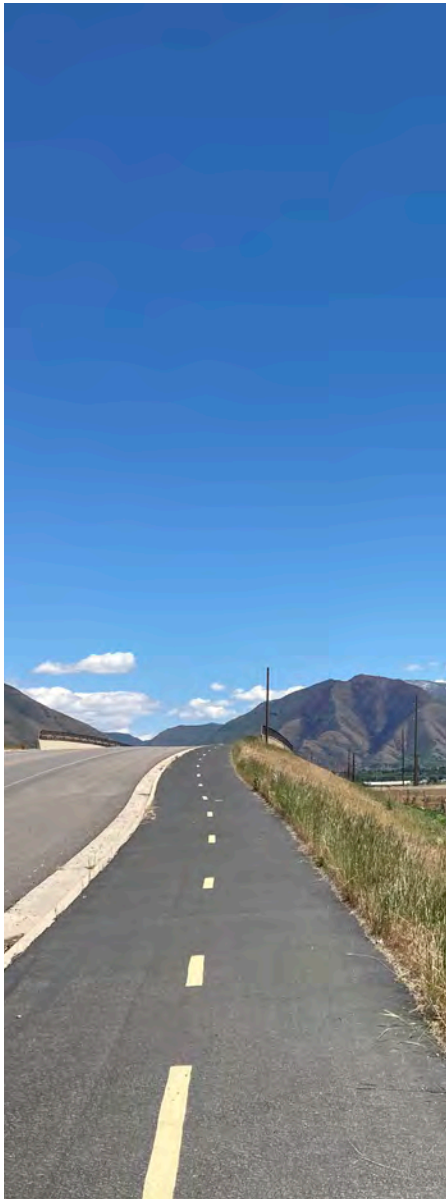
AIR QUALITY

Motor vehicles are the biggest source of air pollution in Utah.[10] Encouraging Utahans to walk, bike, and take public transit, while providing the infrastructure to do so, can reduce reliance on motor vehicles for daily trips and help clean Utah's air, especially during winter inversions. Air quality is closely tied to public health and directly affects those who want to exercise outdoors as well as young and old populations and people with asthma, lung disease, or heart disease.

IF YOU BUILD IT, WILL THEY COME?

Survey responses received during this study suggest that Springville residents will walk and bike more if infrastructural improvements are made. These results are in line with observations from around the country that show an increase in bicycle ridership when bicycle facilities are installed. One example includes a cross-sectional study analyzing data from 43 U.S. cities, which found that for every one-mile increase in length of on-street bicycle facilities, there was a one-percent increase in bicycle ridership[11].

However, it is important to note that not all bicycle facilities are suitable for the average cyclist and may see less use. This is typically due to one of two factors: 1) the bike facility is isolated and does not tie into a larger network, limiting its utility in connecting to destinations, and 2) the bike facility itself is not suitable for the average person interested in riding a bike in terms of perceived safety (e.g., it lacks adequate separation from motor vehicle traffic). Increased bicycle use is evident when network connectivity and facility quality are provided.



10 Utah Division of Air Quality, 2019. https://deq.utah.gov/air-quality/taking-stock-of-emissions-in-utah

11 Dill J, Carr T. Bicycle Commuting and facilities in major U.S. cities: If you build them, commuters will use them. Transp Res Rec. 2003; 1828: 116-123

TYPES OF BICYCLISTS

Who should the city be designing for? It is important to consider people of all skill and comfort levels when planning a network of bikeways and trails in order to accommodate the greatest possible number of people who are interested in using active modes of transportation. Research in the field of active transportation and transportation behavior suggests that people can generally be categorized into one of four groups when it comes to riding a bike for transportation.

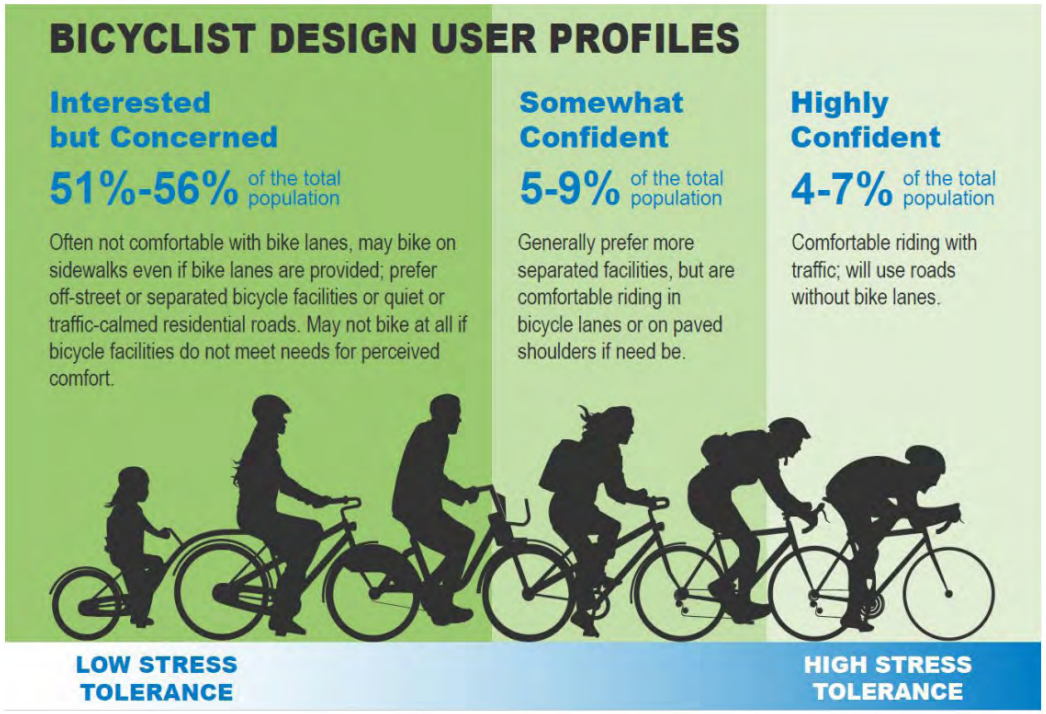


Figure 1.1 Bicyclist Design User Profiles. Source: FHWA Bikeway Selection Guide. 2019.

Strong and Fearless bicyclists will typically ride regardless of road or weather conditions. They often ride faster than the average bicyclist and typically choose to ride on the road, even if shared with vehicles, over separated bike lanes or trails. This group makes up a very small percentage of the total population.

Enthused and Confident bicyclists are fairly comfortable riding in dedicated, on-street bikeways, but usually choose low-traffic streets or separated trails when available.

Interested but Concerned bicyclists comprise the majority of the population (approximately 60%) and are typically those who only ride on low traffic streets or separated trails in fair weather conditions, and prefer separation from motor traffic. This demographic would like to bike more but have concerns, especially about safety.

Not Interested Yet, sometimes referred to as the "No way, no how" group, is the group of people that express no interest in riding a bicycle, either due to physical ability or overall lack of interest.

According to a survey conducted by People for Bikes, nearly half of American adults (47 percent) would like to ride a bicycle more often, and 43 percent would be more likely to ride if bikeways were physically separated from motor vehicles[1], confirming that the potential for higher ridership is there, but that a lack of comfortable infrastructure is a major barrier.

1 U.S. Bicycling Participation Study - Corona Insights and People for Bikes. (2018)

THE HISTORY OF ACTIVE TRANSPORTATION IN SPRINGVILLE

PREVIOUS PLANNING EFFORTS

Several local and regional studies have been completed in and around Springville that directly or indirectly address active transportation. This plan seeks to build on previous planning efforts in order to develop appropriate recommendations. The following studies were reviewed to determine their impact on the Springville Active Transportation Plan. This section provides highlights from these plans.

- South Utah County Active Transportation Plan (SUCATP) (2016)
- Utah Collaborative Active Transportation Study (UCATS)(2013)
- Springville City General Plan (GP) (2011)
- Springville Transportation Master Plan (TMP) (2020)
- Lakeside Community Plan
- Historic Center Community Plan
- The Westfields Community Plan

KEY THEMES

- Trails are integral to the future growth of the region
- There needs to be collaboration and a shared vision among jurisdictions in the region
- Active transportation infrastructure and policies should reduce dependency on vehicles
- Expand access to public transportation options
- Given the projected growth of the City, there is a need for accommodating all modes, including people walking and biking
- Provide active transportation access to recreation opportunities and daily needs, such as work, school, and shopping

NON-INFRASTRUCTURE RECOMMENDATIONS

- Implement a wayfinding/signage system locally and regionally
- Develop design and maintenance standards for trails and other active transportation facilities
- Fund street improvements resulting from growth through impact fees
- Adopt or update standards for complete streets and traffic calming strategies
- Re-evaluate and adjust posted speed limits
- Conduct a review of all public rights-of-way to improve the quality of life for those with disabilities
- Update the zoning ordinance to require private developers to accommodate active transportation
- Develop a city-wide bicycle circulation plan
- Develop block size standards for new developments

INFRASTRUCTURE RECOMMENDATIONS

Many of the plans reviewed in this section recommend specific infrastructural improvements in Springville, from retrofitting existing corridors for active transportation to improving intersections for pedestrians. See Map 1.1 for infrastructure improvements previously planned in Springville.

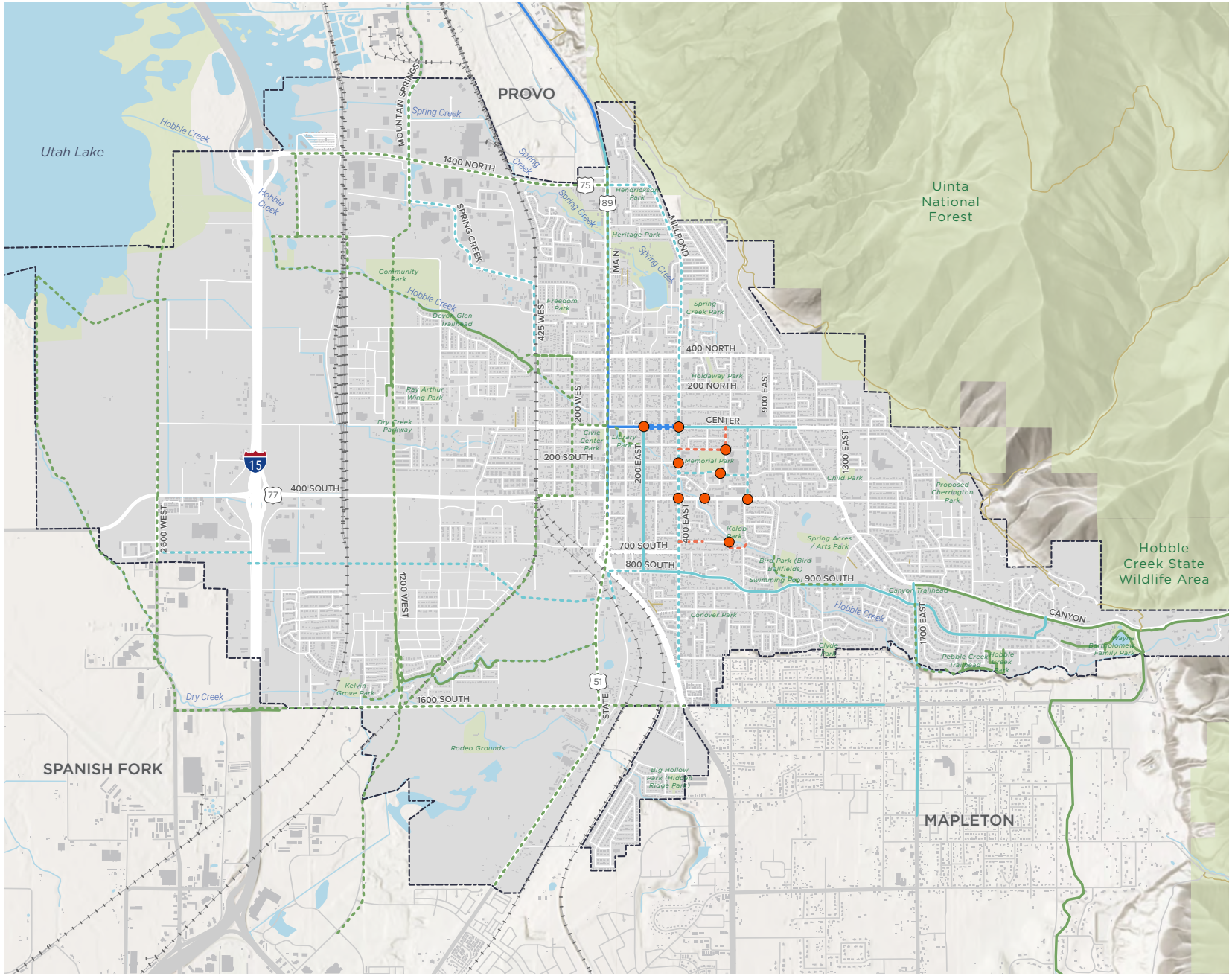
PREVIOUSLY PROPOSED FACILITIES

Springville Active Transportation Plan

PREVIOUSLY PROPOSED FACILITIES
- Bike Lane
- Buffered Bike Lane
- Shared Use Path
- Sidewalk
- Spot Improvement

EXISTING FACILITIES
- Bike Lane
- Buffered Bike Lane
- Shared Use Path

BASEMAP FEATURES
- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits



Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

CONCURRENT PLANNING EFFORTS

In addition to previously adopted plans, several concurrent planning efforts related to trails, transit, and development in Springville took place during the development of this plan and were considered in developing recommendations.

- **Transit plans.** Utah Transit Authority (UTA), in collaboration with Union Pacific Railroad, UDOT, and the City of Springville is making plans for expanding transit offerings in Springville. Plans include the connection of the Sharp and Tintic rail lines in an effort to extend commuter rail service to south Utah County. This would include the abandonment of roughly two miles of the Tintic service line in Springville (rail-to-trail opportunity). The proposed location for the Springville FrontRunner Station is at about 700 S, just west of 1200 W.
- **Trails and open space plans.** The City of Springville is in the process of drafting a new Parks, Trails, and Recreation Master Plan, which identifies opportunities for improving the trail network.
- **Corridor studies.** Two major corridors within Springville will soon be studied from a transportation and land use perspective - 1600 S and Main Street. The 1600 S study will look at multi-modal transportation circulation in conjunction with future land use strategies. This corridor crosses the to-be-abandoned Tintic service line, represents a major east-west connection for all modes, and is likely to see new development. Through UDOT's Technical Planning Assistance funds, Main Street will be studied from Center Street to the HWY 89/HWY51 junction in an effort to better strategize land uses and transportation through and across the corridor.
- **Development plans.** On the west side of Springville, between 1400 N and 400 S, a new mixed-use development called Lakeside Landing is in the design phase. This and other future developments present an opportunity for this plan to influence decisions made not only in the design of streets, but also the preservation of corridors for off-street trails.

GOALS OF THIS PLAN

The goals of the Springville Active Transportation Plan play an important role in shaping the plan's recommendations, determining priority projects, and guiding the implementation process over the next several years. Many of the goals for this plan originate from previous planning efforts and are supplemented by modern-day needs and input from the community.

When implemented, Springville's active transportation network and policies should...

MAKE CONNECTIONS

Active transportation infrastructure should connect people to where they want to go, including schools, work, parks, grocery stores, transit stops, and other daily needs. The network should tie into and make connections to existing trails and bikeways, both local and regional, and overcome current barriers that prohibit safe, convenient connections.

ACHIEVE AN ALL-AGES-AND-ABILITIES NETWORK

Not all bikeways are created equal in the user experience they provide. The network should provide low-stress facilities that people of varying ages and abilities feel comfortable using. Springville's active transportation network should work for people of all socioeconomic backgrounds.

PROMOTE ACTIVE LIVING

The infrastructure, policies, and initiatives from this plan should make the decision to use active transportation an easy one. A network and practices that make active transportation modes safe and viable on a year-round basis should be created. In addition to transportation access, opportunities for recreation should be expanded in Springville.

INCREASE ECONOMIC VITALITY

Springville's trails and bikeways should serve as an attraction to the City, making Springville a desirable place to visit, work, and live. By connecting to local businesses and employment centers, the active transportation system should attract employers and promote local commerce, benefiting individuals, businesses, and the city. Investment in walking and biking should be especially prioritized in the historic Springville downtown area.

IMPROVE AIR QUALITY

Springville's active transportation system should reduce reliance on motor vehicles, thus contributing to cleaner air.

02

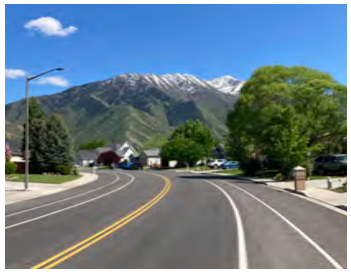
ACTIVE TRANSPORTATION IN SPRINGVILLE TODAY

CURRENT TRAVEL TRENDS

Based on the Census Bureau's 2020 American Community Survey (ACS) 5-year estimates, the majority of residents within Springville commute to work by driving alone (75.3%), followed by those carpooling (11.2%). .7% of residents commute to work by walking and .6% commute by bicycle. It is important to note that commuting trips represent fewer than 30,000 daily trips in Springville, little more than the annual average daily trips on 400 South. Many more trips are taken for errands, school transportation, and other activities. As discussed below, many of these trips could be replaced with bike trips on a comfortable and complete active transportation network.

While current bicycle / pedestrian mode share is low in Springville, there is great room for progress. The ACS data shows that 16.4% of commuting trips are less than 10 minutes, a distance that could likely be easily traveled on a bicycle. This presents a tremendous opportunity to transform these short trips into walking or bicycling trips. In addition, many of the City's major destinations, such as downtown and community gathering places, are centrally located and within short walking and bicycling distance for many neighborhoods. Substantial localized traffic congestion occurs in these areas, particularly around school. Maps 2.2 and 2.3 show great potential for converting trips to biking and walking in these areas.

5.3 Miles

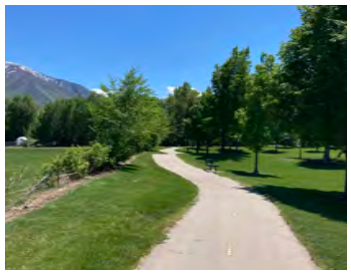


Bike Lanes are a common facility type in many cities, designating 4-7 feet of roadway width with 6-inch striping.

1.1 Miles

Buffered Bike Lanes are visually separated from traffic and/or parking by a striped buffer, but lack any physical separation.

4.0 Miles



Sidepaths & Shared Use Paths, sometimes called trails, are paved off-street paths/trails found adjacent to roadways, along riparian or rail corridors, or through parks and open space. Typically 10-12' wide (8' minimum), they are designed to accommodate two-way travel by people walking, biking, rolling, or using other non-motorized modes.

10.4 total miles of bikeways and trails in Springville today

EXISTING CONDITIONS: INFRASTRUCTURE

Like most cities in the western United States, Springville is made up of a transportation network predominantly designed for automobiles. Existing bikeways and trails lack continuity throughout the city and aren't particularly suited to meet the daily transportation needs of most residents. The historic street grid of Springville, however, provides good pedestrian connectivity in the downtown area, and the City contains several well-connected neighborhood streets that, while not designated bikeways, provide low-stress connections for people walking, biking, or rolling on non-motorized devices. This section outlines the existing conditions of Springville's active transportation infrastructure, analyzes network quality, and identifies opportunities and challenges for improving conditions for active modes.

EXISTING ACTIVE TRANSPORTATION NETWORK

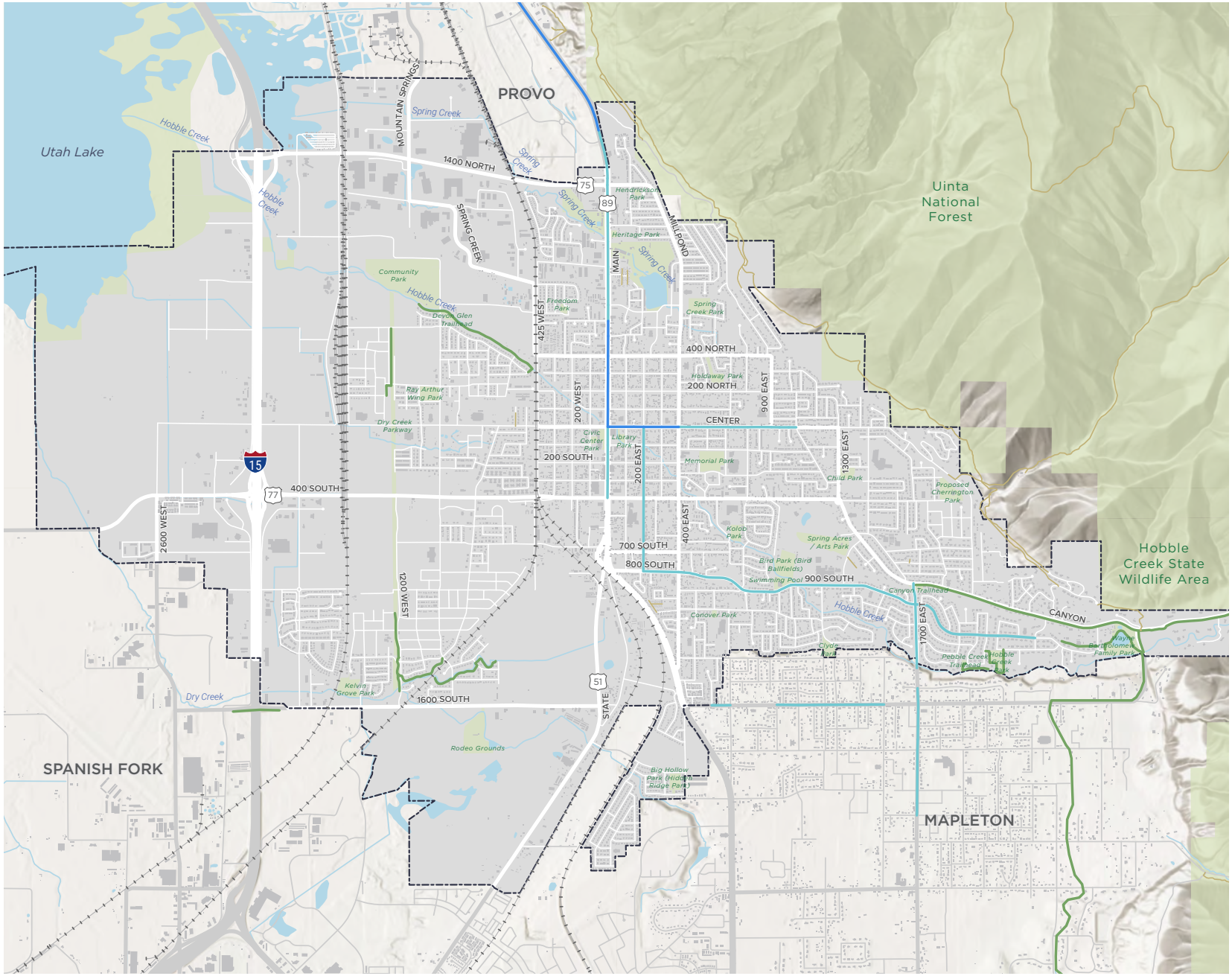
In total, Springville has roughly ten miles of bikeways and trails (excluding sidewalks and narrow walking paths), made up of bike lanes, buffered bike lanes, and shared-use paths. As shown in **Map 2.1**, existing facilities are concentrated on Main Street, Center Street, 800/900 S, and Canyon Road, with smaller paved trail segments along some of Springville's creeks.

EXISTING TRAILS & BIKEWAYS

Springville Active Transportation Plan

EXISTING FACILITIES
- Bike Lane
- Buffered Bike Lane
- Shared Use Path

BASEMAP FEATURES
- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits



Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

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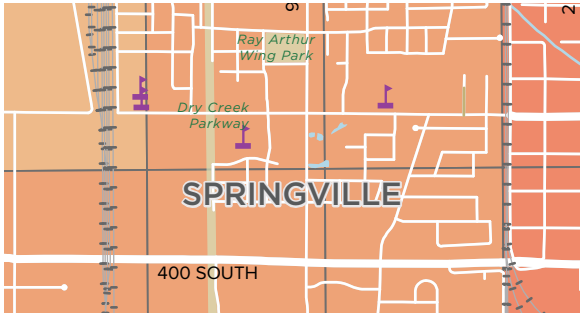
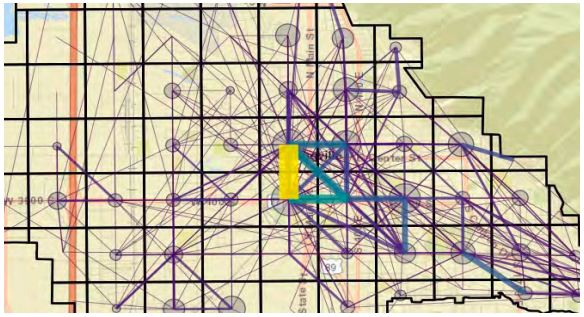


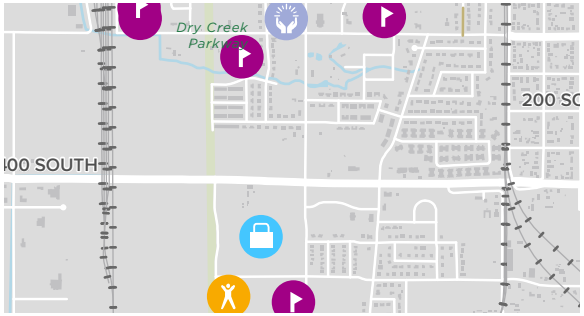
ACTIVE TRIP POTENTIAL

Shorter trips are more suitable for walking and biking. The average adult can walk one mile in 20 minutes and bike about three to four miles in roughly the same amount of time. **Map 2.2** and **Map 2.3** illustrate the potential for shifting from vehicle trips to active modes of travel by using GPS-based phone data to map where trips of certain distances start or end. In both maps, the darker grid squares on the map indicate areas where there are a higher percentage of trips starting or ending. Map 2.2 shows areas where the potential for walking trips (0-1 mile) are more likely. In other words, the darker the grid square in any given area, the more trips are beginning or ending (regardless of mode) that are 1 mile or less – a distance typically traversable by foot. **Map 2.3** shows areas where the potential for biking trips (1-5 miles) are more likely. The data available for this analysis only used one and five miles as the thresholds. Three miles is a more realistic threshold when estimating the potential for converting vehicle trips to bike trips, especially for a City the size of Springville; nonetheless, this analysis points to areas where short trips are starting/stopping and has implications for infrastructure investment priorities.



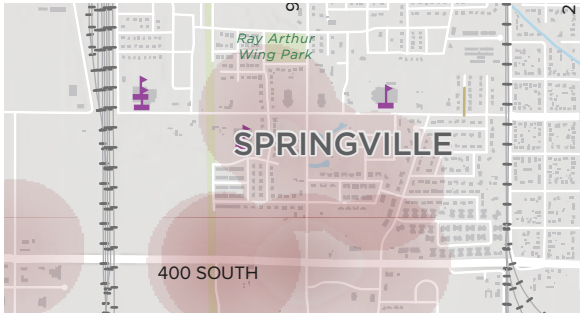
ORIGIN/DESTINATION ANALYSIS

The origin/destination analysis tells the story of where people's trips are beginning and ending within Springville. Using third party data that anonymously pings cell phones using GPS, the maps found in **Appendix A** illustrate biking, walking, and driving trips that a) begin **and** end in Springville and b) either begin **or** end in Springville. This data mostly confirms what is already locally understood rather than revealing new pattens, but it is nonetheless helpful to build understanding and provide some quantitative backing. The area surrounding Springville High School, the Downtown area, the employment hub near 1400 N, and the area surrounding the Wal-Mart and Springville Recreation Center all show high volumes of trips.



CONNECTIONS TO DESTINATIONS

A basic indicator as to how well a city's active transportation network serves the community is mapping common community destinations in relation to existing active transportation facilities. **Map 2.4** overlays everyday destinations, such as schools, parks, grocery stores, libraries, places of worship, and other places of interest with the existing bikeway and trail network. While several destinations are accessible via designated bikeways and trails, there are many major destinations that lack access. Of course, this analysis illustrates a general picture of accessibility, but does not account for the continuity and connectivity of the active transportation network.



CRASHES IN SPRINGVILLE

Bicyclist and pedestrian crashes in Springville have increased during the period of 2016 to 2020, with 2020 recording the most crashes in that five-year period. **Map 2.5** highlights locations in Springville where crashes are occurring most often.

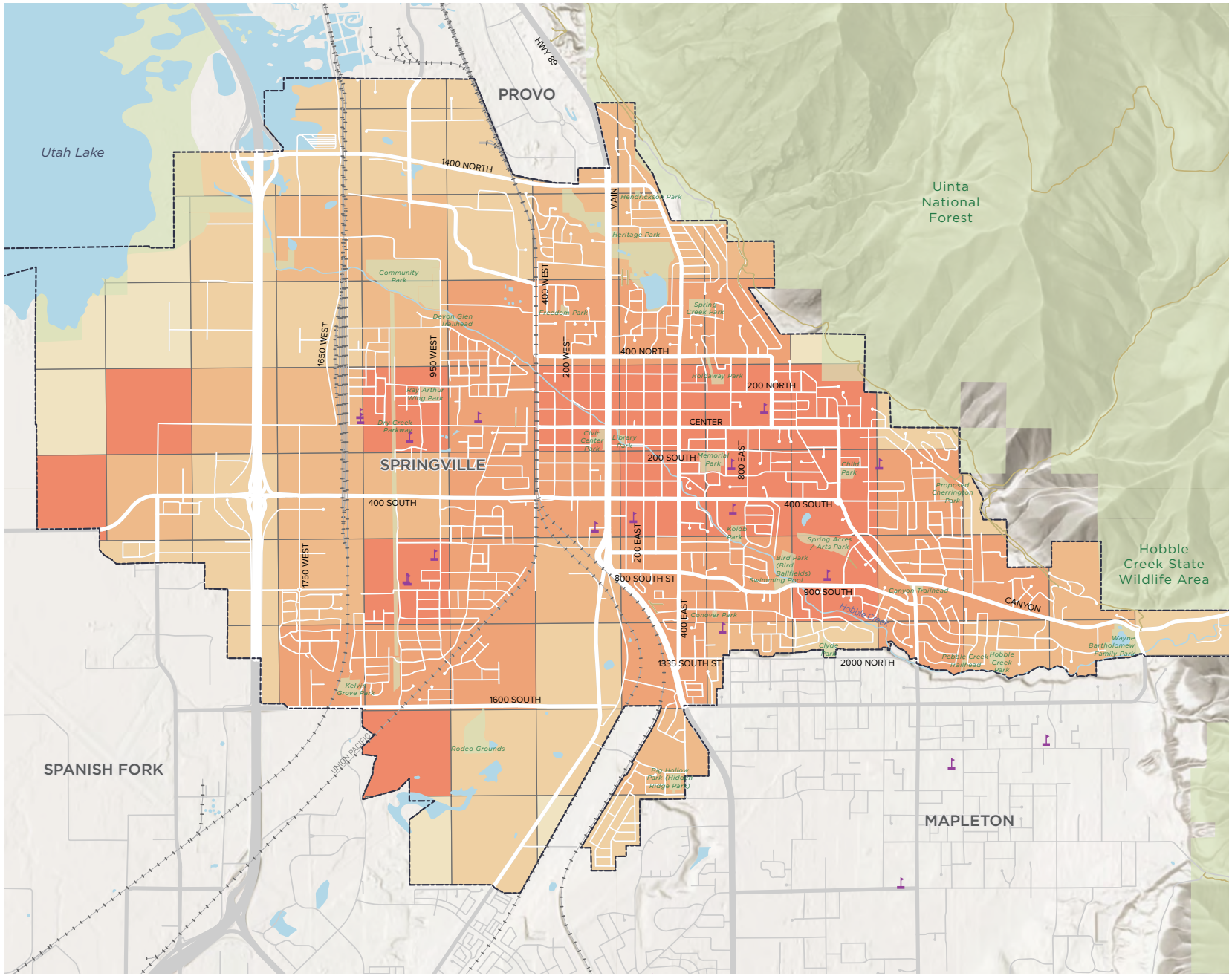
Common safety issues include but are not limited to a lack of bicycle infrastructure, wide roadways with long intersection crossings, and dimly-lit roadway sections. Addressing hot spots and improving infrastructure at intersections near community assets (schools, parks, transit, etc.) can be a first approach to improve active transportation safety throughout the city.

EXISTING TRANSIT

Making safe biking and walking connections to transit stops is critical in promoting more transit use. UTA operates two bus routes, 821 and 822, in Springville, serving 30 stops throughout the city. All buses operating in Springville provide bike racks to facilitate multimodal travel. As shown in **Map 2.6**, both routes operate along the Main Street/400 North/400 East/400 South corridor. Future transit plans in Springville include the extension of UTA's FrontRunner through Springville. Existing and future transit service in Springville is summarized in **Appendix D**.

PEDESTRIAN ACTIVE TRIP POTENTIAL

Springville Active Transportation Plan



POTENTIAL PEDESTRIAN TRIPS

Trip Length 0-1 mi (%)

- < 1%
- 1% - 5%
- 5% - 7.5%
- 7.5% - 10%
- > 10%

BASEMAP FEATURES

- School
- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

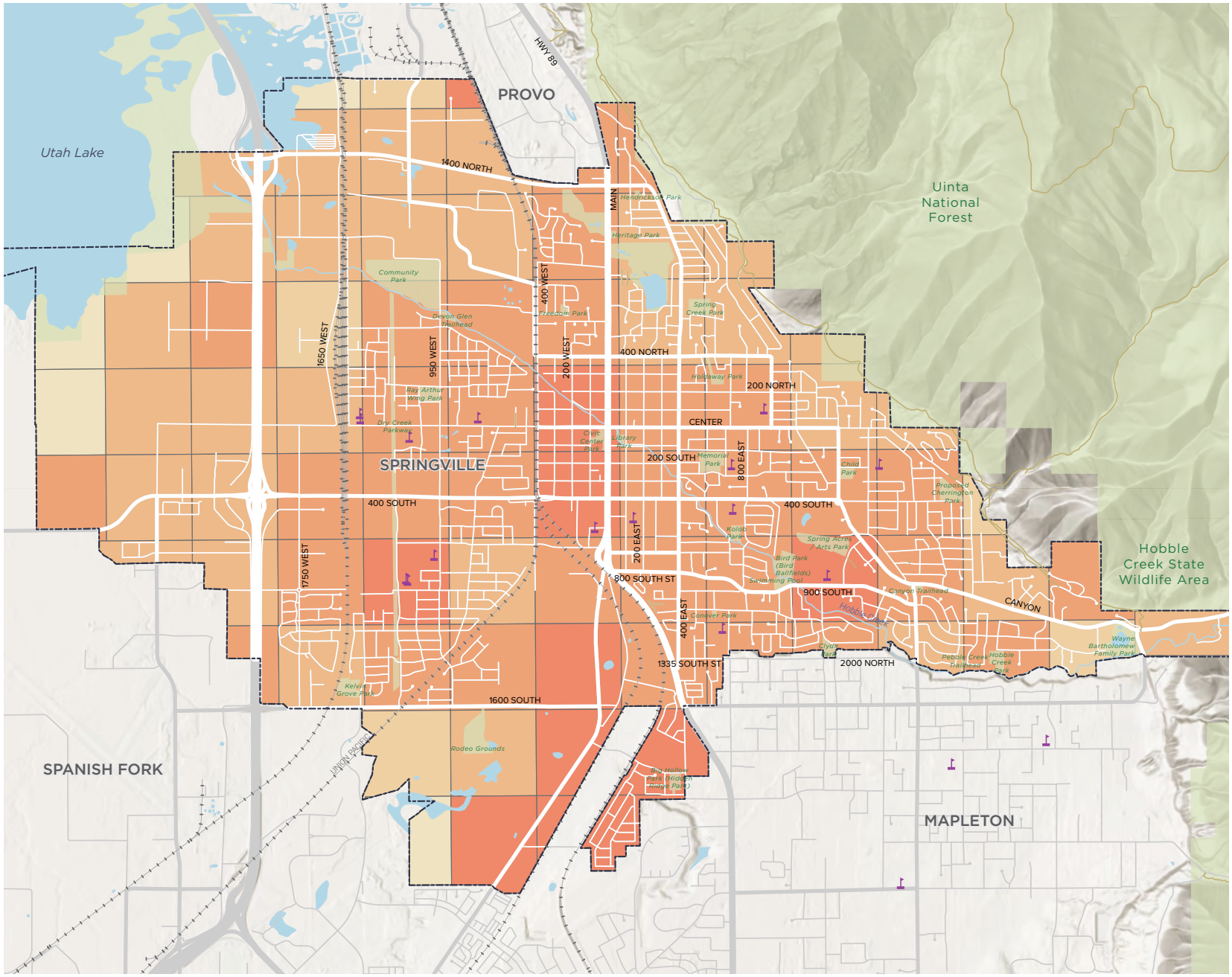
Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

BICYCLE ACTIVE TRIP POTENTIAL

Springville Active Transportation Plan



POTENTIAL BICYCLE TRIPS

Trip Length 1-5 mi (%)

- < 10%
- 10% - 30%
- 30% - 40%
- 40% - 50%
- > 50%

BASEMAP FEATURES

- School
- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

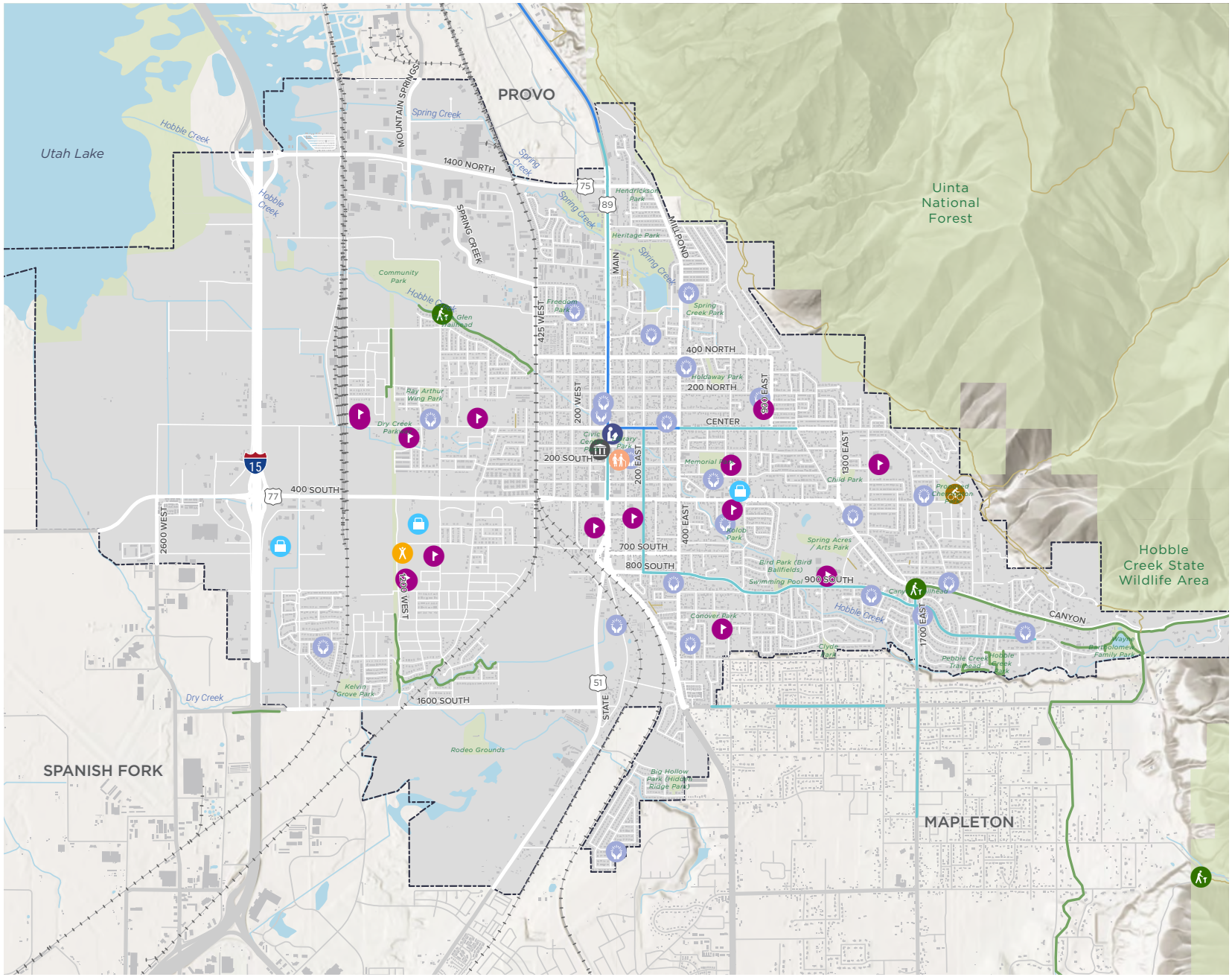
ACESS TO DESTINATIONS

Springville Active Transportation Plan

DESTINATIONS
- School
- City Hall
- Shopping / Grocery
- Libraries
- Senior Center
- Places of Worship
- Trailheads
- Recreation Center
- Mountain Bike Skills Park

EXISTING FACILITIES
- Bike Lane
- Buffered Bike Lane
- Shared Use Path

BASEMAP FEATURES
- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits



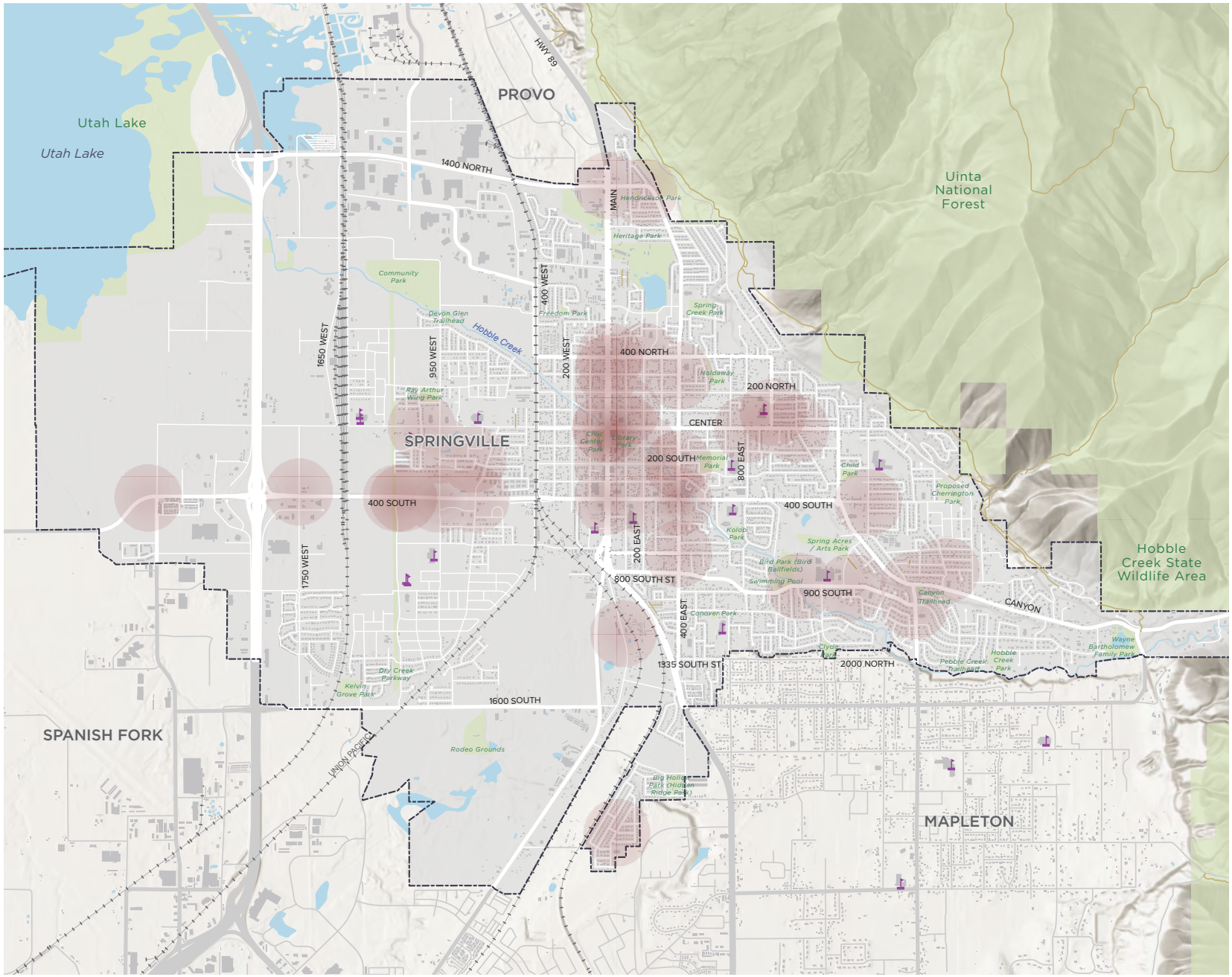
Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

BICYCLE & PEDESTRIAN CRASHES

Springville Active Transportation Plan



BICYCLE & PEDESTRIAN CRASHES

Density of Crashes

- Sparse
- Dense

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

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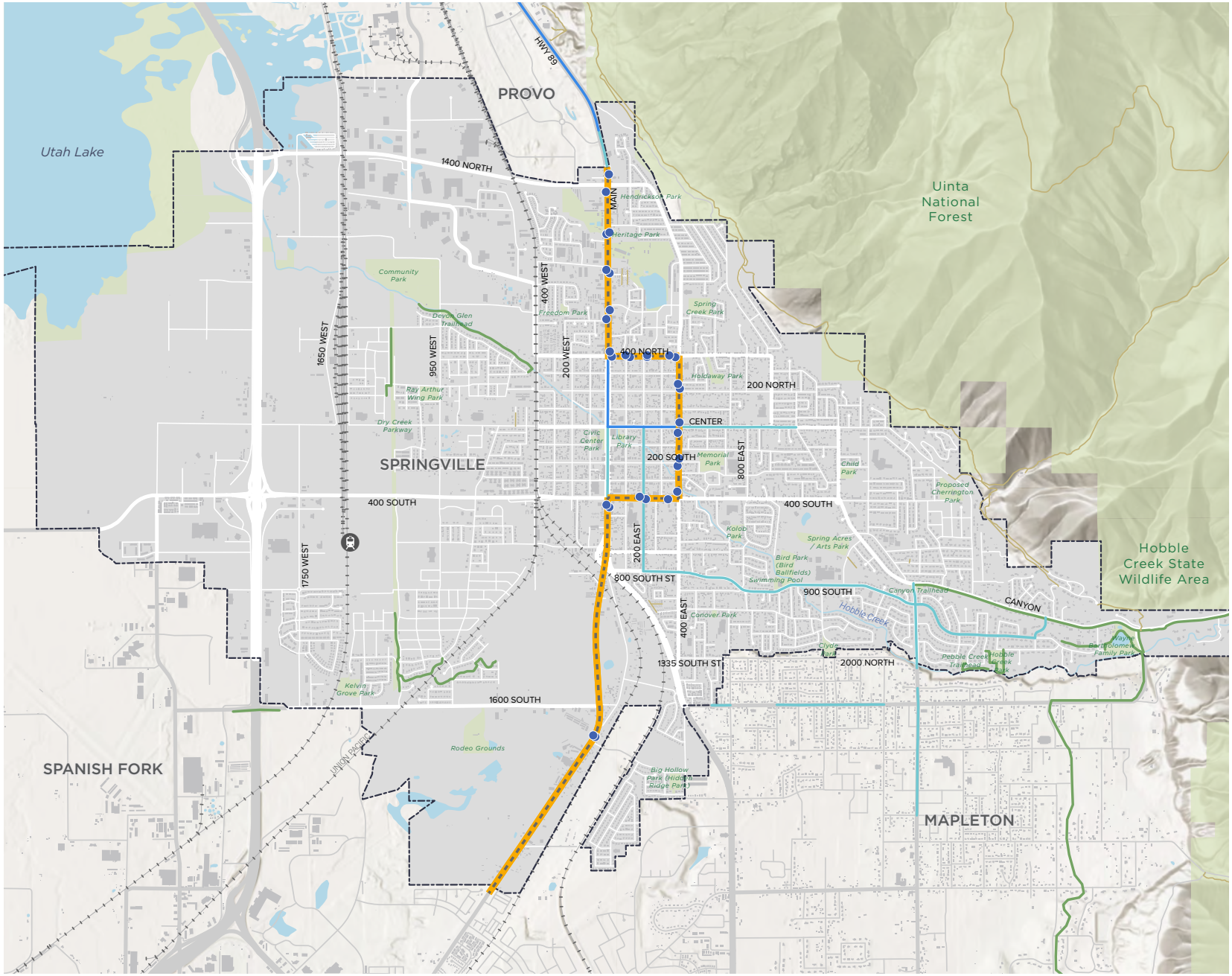
EXISTING TRANSIT STOPS & ROUTES

Springville Active Transportation Plan



SPRINGVILLE TRANSIT

- Bus Stop
- Future FrontRunner Station
- 821 and 822 Bus Routes

EXISTING FACILITIES

- Bike Lane
- Buffered Bike Lane
- Shared Use Path

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

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NETWORK BARRIERS AND OPPORTUNITIES

Map 2.7 illustrates some of the initial barriers and opportunities identified in Springville's street network based on the existing conditions analysis outlined in this chapter. This summary is focused on major barriers currently limiting city-wide connectivity and identifies some of the "low-hanging fruit" opportunities for active transportation improvements, and does not represent an exhaustive list of opportunity corridors in Springville.

BARRIERS

Rail and highway corridors. The I-15 interstate, multiple Union Pacific railways (Sharp, Tintic, and Provo lines), and the US-89 highway (Springville's Main Street) all run in a north-south fashion through the City. Because access points across these barriers are so few and far between, these corridors significantly limit east-west connectivity.

Main Street. As the central spine of the City and downtown area, Main Street is where people need to go, but the nature of the roadway, in terms of its design, traffic volume, and traffic speeds, presents a major barrier in making Springville an easy place to get around using active modes.

400 S (SR-77). As the primary connection from I-15 to the heart of Springville, 400 S is a very busy, auto-centric arterial, and not conducive to people traveling along and across the corridor on foot or bike. It is also owned and operated by UDOT.

Wide Streets

Waterways

Rail-to-Trail and Rail-with-Trail Corridors

OPPORTUNITIES

Wide Streets. While wide streets currently serve as a barrier to active transportation (enabling high traffic speeds and making street crossings difficult), ultimately, they present an opportunity for retrofitting the street cross section to accommodate all modes of travel, including active modes. Within the historic downtown grid, several residential streets such as 200 N, 200 W, 200 S, and Center Street are sometimes as wide as 80 feet, and only need to accommodate two travel lanes and on-street parking. For comparison, Main Street is roughly 90-95 feet wide, but contains 5 lanes, buffered bike lanes, and on-street parking.

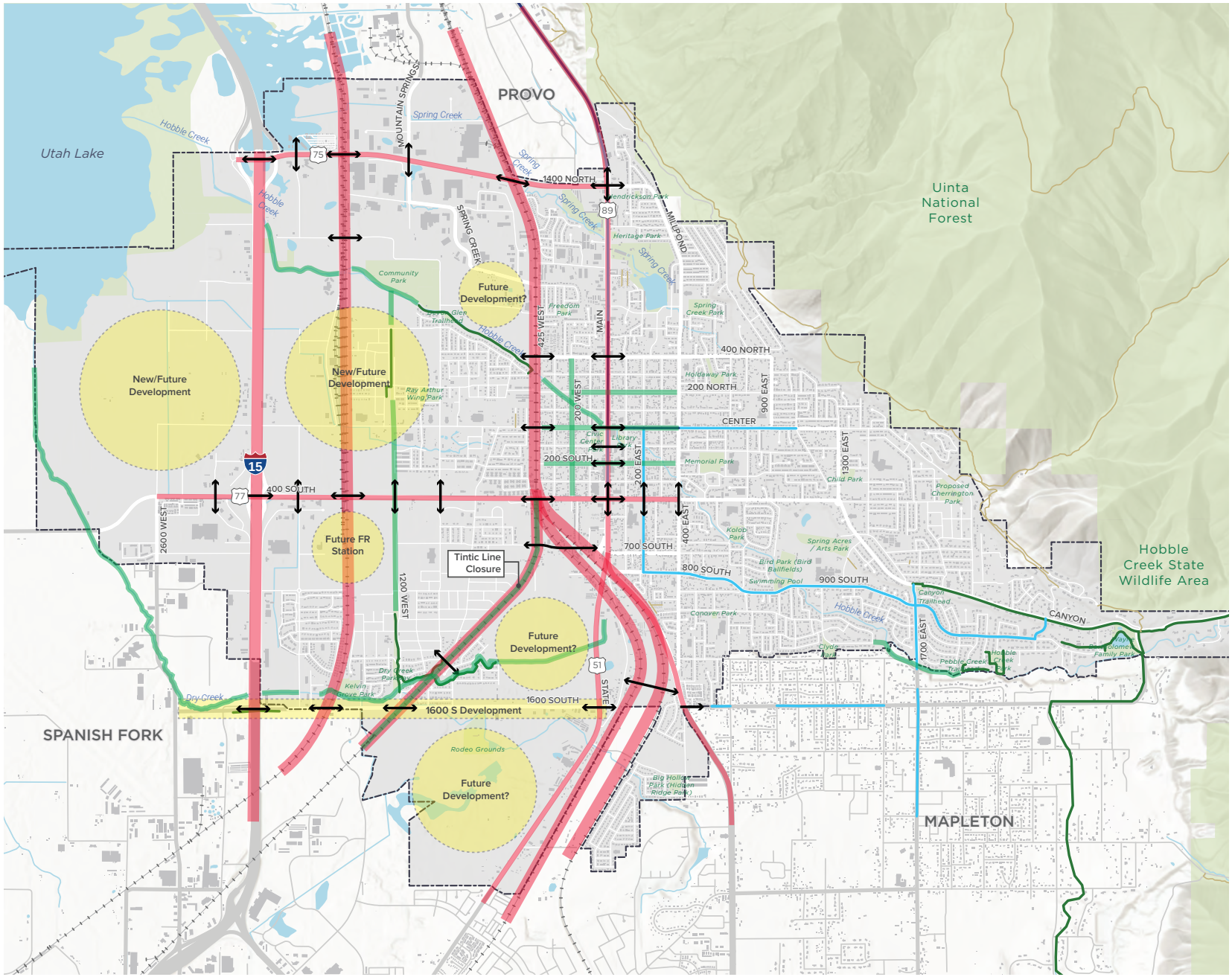
Waterways. Hobble Creek, Dry Creek, Spring Creek, and other waterways such as canals present opportunities for fairly continuous, off-street trail connections. Many segments of these riparian corridors run through undeveloped land and should be preserved for active transportation and recreation as new development occurs. Much of the land surrounding Hobble Creek between Downtown and Hobble Creek Canyon has been developed and is an example of a missed opportunity to utilize riparian corridors for trails.

Rail-to-Trail and Rail-with-Trail Corridors. The Tintic Industrial Lead line, operated by Union Pacific Railroad and Utah Transit Authority, is slated for a realignment that would close the corridor to rail operations from roughly Williams Ln to 400 S. This corridor presents a major opportunity for a rail-to-trail facility and trail-oriented development. Other rail corridors should also be explored for potential rail-with-trail opportunities.

Current and Future Land Development. Many parts of Springville are either currently experiencing development where farms and fields once were, or are slated for development in the future. These parts of the City present opportunities for creating synergy with private developments to get active transportation facilities built, both off-street and on-street. This can be addressed by updating zoning ordinances and design standards to which private developers can be held.

OPPORTUNITIES & CONSTRAINTS

Springville Active Transportation Plan



OPPORTUNITIES & CONSTRAINTS

- Major crossing barrier
- Existing access across barriers (signalized or controlled for bike/ped)
- Major opportunity corridor due to off-street continuity or excess ROW
- Area of new/future/potential development

EXISTING FACILITIES

- Buffered Bike Lane
- Bike Lane
- Paved Trails (±10' wide)

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

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EXISTING CONDITIONS: POLICIES AND STANDARDS

POLICY

In addition to physical infrastructure, a city's adopted policies, ordinances, and standards can play a major role in promoting the use of active modes of travel. This section highlights existing policies and standards from Springville's City Code and development standards. Some of the areas in which City ordinance has the potential to impact active transportation include:

- Parking requirements
- Bike parking requirements
- Street and pedestrian connectivity requirements
- Parks and open space requirements
- Transit oriented development
- General funding allotment

The City of Springville should first establish which of these policies exist and then determine if they should be updated to meet best practice and industry standards. Recommendations for improvements to the City ordinance and development standards will be given as part of this plan in a later phase.

DESIGN STANDARDS

The City of Springville's Standard Drawings and Specifications contain several drawings that dictate the design, construction, and retrofitting of streets, intersections, and pedestrian facilities such as sidewalks and curb ramps. While several typical cross sections for both minor and major streets account for on-street bicycle facilities and separated trails, current standards don't achieve best practice accommodations for people on bicycles.

ADA ramp standards for intersections (RD-08) specify diagonal ramps as opposed to directional ramps. Directional ramps are advantageous from an ADA perspective in that they align pedestrians with the crosswalk, in the direction that they need to travel in order to safely cross the street. Diagonal ramps funnel pedestrians towards the middle of the intersection, presenting a potential hazard for people on wheelchairs or people with vision impairments.

New standards for these and other street elements will be explored as part of this plan at a later phase.

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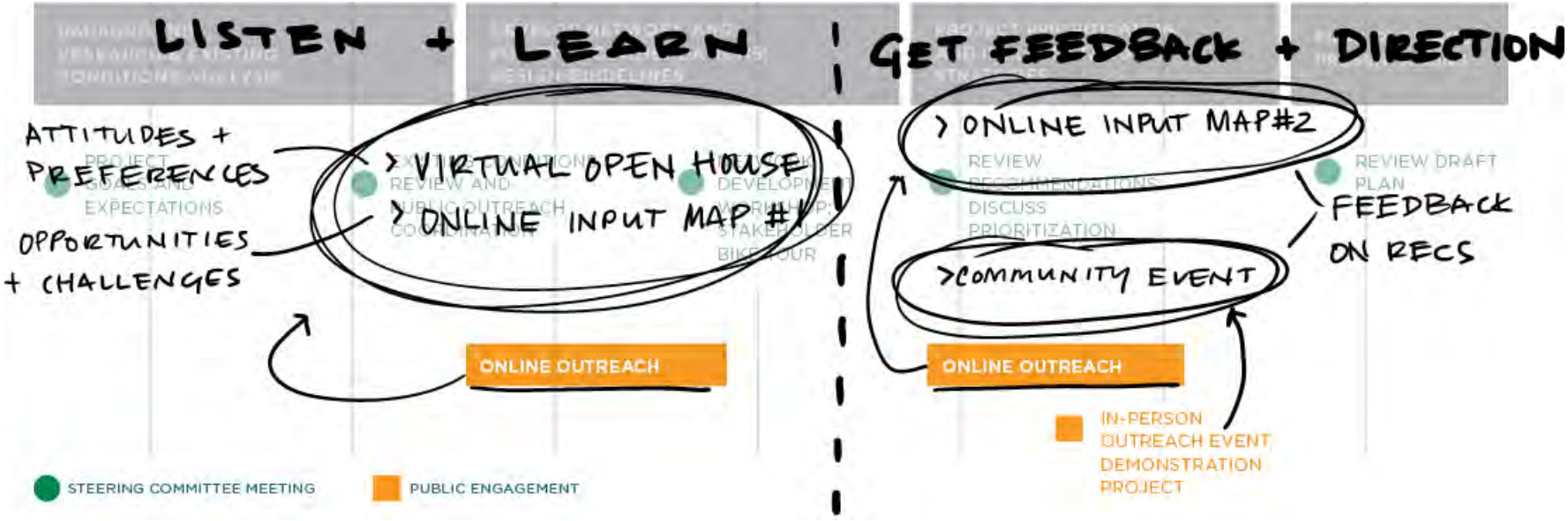
03

COMMUNITY VOICE

PUBLIC INPUT

Hearing from people who live, work, and play in Springville is critical in identifying opportunities, challenges, goals, and priorities for the pathway system. That is why two phases of public outreach were made available to the public and completed as part of the planning process. During Phase I (Listen & Learn) of community outreach, input and ideas were solicited online and in-person using an online survey and interactive map. Phase II (Get Feedback & Direction) of the community outreach process was geared toward getting feedback on network recommendations and understanding community priorities. This chapter summarizes what we heard.



PHASE I OUTREACH: LISTEN & LEARN

Phase I of the community outreach efforts took place in the beginning stages of the project while the planning team was conducting background research and analyzing existing conditions. During this phase, the general public and the Steering Committee were engaged in an effort to gather more information regarding challenges and opportunities related to active transportation in Springville.

ONLINE SURVEY #1

Over 600 people responded to an online survey geared toward understanding how often and why people walk or bike, as well as general attitudes and preferences related to active transportation.

KEY INSIGHTS

Most of the survey results are illustrated on the following pages; a couple highlights include:

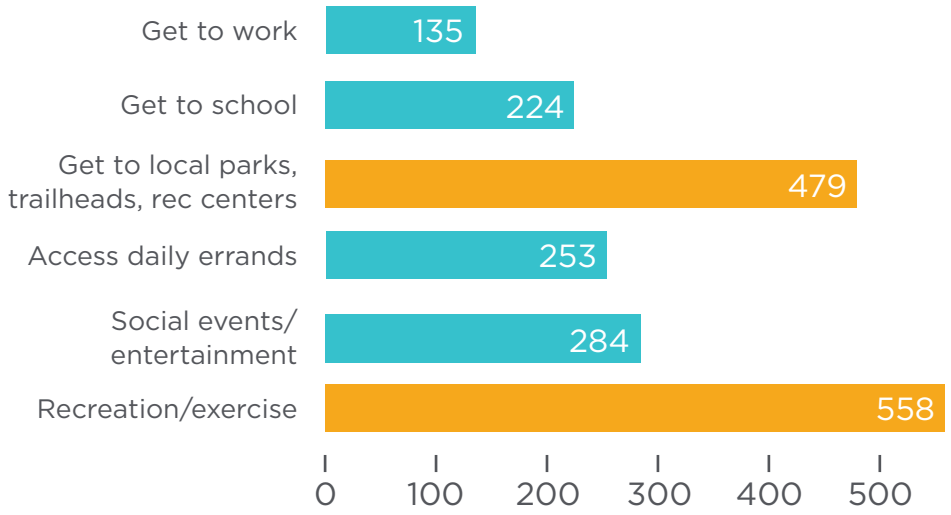
- Most respondents want to use active modes for recreation and exercise
- 41 percent of respondents are considered "interested but concerned"
- Over one-third of respondents currently use active modes for transportation at least a few times a week; and of the 41 percent who said they currently rarely or never bike or walk for transportation, 75 percent expressed interest in using a bike to get around

SURVEY RESULTS

627

TOTAL SURVEY RESPONSES

DESIRED USES FOR BIKEWAYS, PAVED TRAILS, AND SIDEWALKS IN SPRINGVILLE



TOP REASONS PARTICIPANTS LIKE TO WALK, BIKE, OR ROLL

- Stay active/healthy
- Pleasure, fun, or socializing
- Spend time outdoors

TOP REASONS PARTICIPANTS DO NOT WALK, BIKE, OR ROLL

- Existing facilities don't connect to where I want to go
- I feel unsafe interacting with vehicle traffic
- Driving is more convenient

FREQUENCY OF WALKING, BIKING, OR ROLLING

	Daily	A few times a week	A few times a month	Rarely	Never
For **Recreation or Exercise**	37%	40%	16%	7%	1%
Transportation (To Work, School, Etc.)	11%	26%	21%	31%	10%

SURVEY RESULTS

HOW PARTICIPANTS DESCRIBE THEMSELVES WHEN IT COMES TO RIDING A BICYCLE

7%

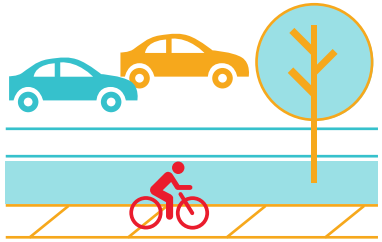
Strong & Fearless

I don't mind sharing the road with cars, even without a dedicated bike lane

37%

Enthused & Confident

I prefer separated bikeways, but I'm comfortable riding in regular bike lanes or on paved shoulders



41%

Interested but Concerned

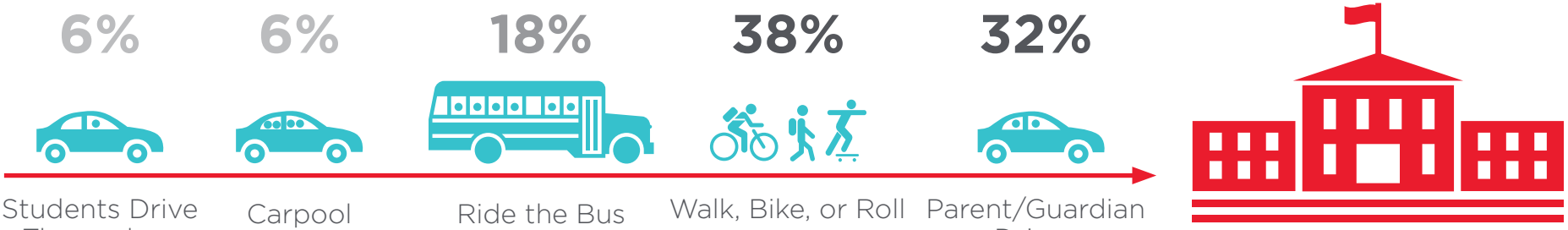
I'm not very comfortable riding in bike lanes, and may choose to ride on the sidewalk even when bike lanes are present. I would like to ride a bike more, but I'm concerned about safety

15%

Not Interested

I'm not currently interested in using a bicycle to get around

HOW CHILDREN GET TO SCHOOL (OF PARTICIPANTS WITH SCHOOL-AGED CHILDREN)



ONLINE INTERACTIVE MAP

The online interactive map included in the survey prompted participants to a) draw lines/routes where they would like to see safe connections, b) mark destinations they commonly visit or would like to visit using active modes, and c) identify barriers to walking and biking throughout Springville. Over 280 unique map users drew roughly 500 features on the map.

SUGGESTED ROUTES

Roughly 50 new active transportation connections were suggested by the community, and map users were able to "like" suggested routes to voice support. These routes are shown on Map 3.1. The most commonly "liked" routes are detailed below:

HOBBLE CREEK BIKE PATH

The most "liked" route recommendation (17 likes) shows a paved trail connecting the end of the northern segment of the existing Hobble Creek Trail (at 300 N and 400 W) with the Hobble Creek Parkway Trail (at 900 S and 1700 E).

Another suggested route along Hobble Creek that received relatively strong support (10 likes) extends from the terminus of the existing Hobble Creek Bike Path at Community Park to the I-15 culvert.

TINTIC RAIL CONVERSION

A route drawn along the Tintic Industrial Lead line from 700 S and 425 W to the Dry Creek Trail entrance at 950 W received 15 likes. Suggestions included turning the unused tracks into a walking/biking path in order to provide recreational opportunities and a connection to the city center from neighborhoods to the south.

1200 WEST

1200 West was another well-liked recommended route, coming in at 14 likes. Several routes were drawn along this corridor, with notes of wanting to connect neighborhoods to the west, south, and east to the Rec Center and Smiths with safe bike facilities and improved pedestrian access.

Seven likes were added to a route from the Rec Center/Smiths area north along 1200 West up to Center Street.

425 W TO STATE ST ALONG 700 S

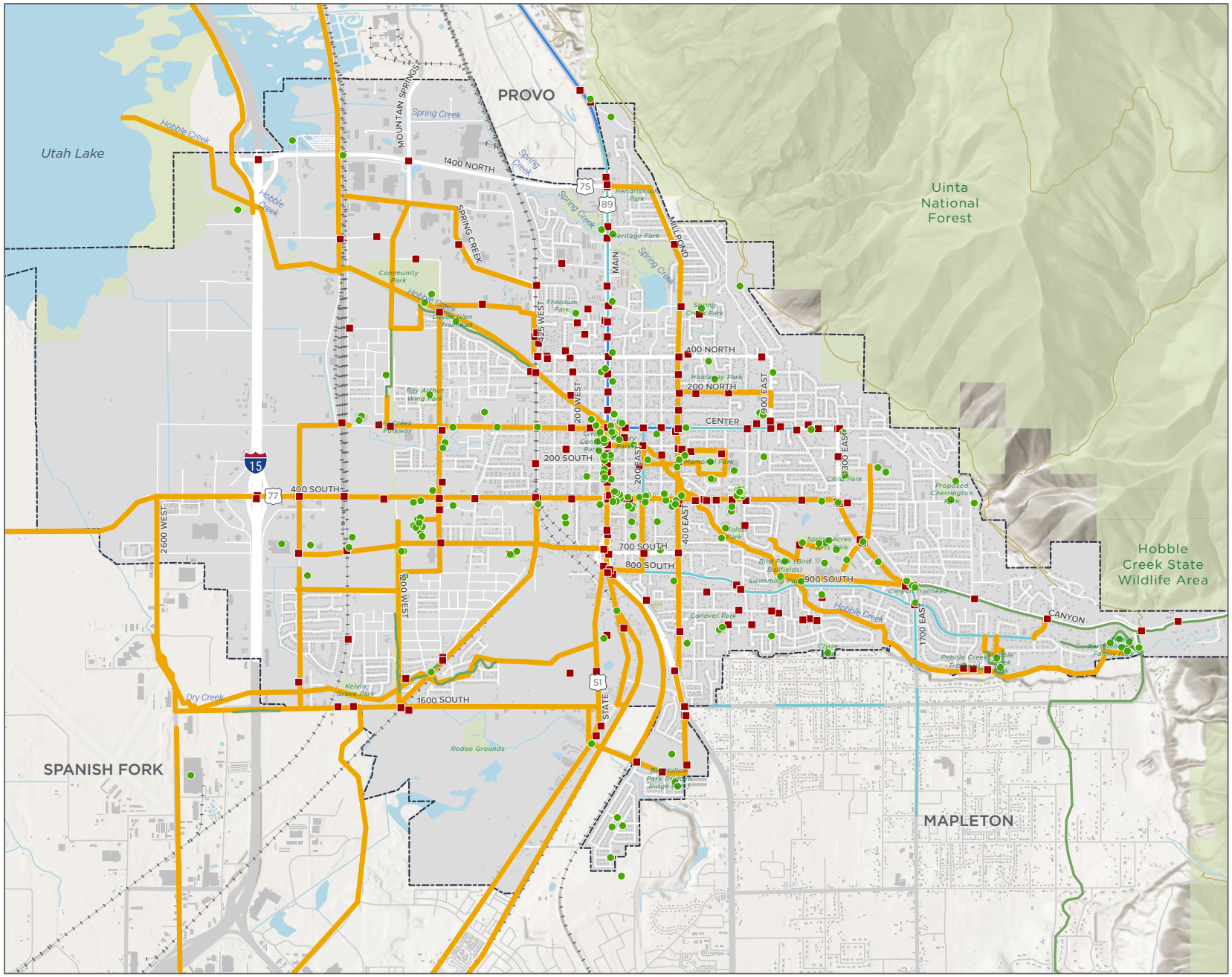
A route drawn from 425 W to State St along 700 S received 10 likes, with a description noting the need for safer biking and walking facilities due to the narrow road and railroad tracks. The description also mentioned that a safe route here would improve access to the elementary and middle school, and Rec Center/Smiths area.

CENTER STREET

10 likes were given to a route drawn along Center Street from 950 W to Main Street (and the library more specifically). It was noted that Center Street is narrow and many parts are unfinished, making biking along this corridor a challenge.

WEB MAP PUBLIC INPUT

Springville Active Transportation Plan



WEB MAP PUBLIC INPUT FEATURES

- Community-identified destinations
- Community-identified barriers
- Suggested routes

EXISTING FACILITIES

- Bike Lane
- Buffered Bike Lane
- Shared Use Path

BASEMAP LAYERS

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: September 2021

0 0.5 1 Miles

N

BARRIERS

Participants were asked to identify where they experience barriers to walking and biking throughout Springville.

OVERALL THEMES:

- Railroad tracks create barriers to accessing all parts of Springville.
- Safely crossing busier streets such as 400 S and Main Street is a challenge
- Lack of bike lanes or other bike-friendly infrastructure throughout the community
- Unsafe intersections (too wide, lacking crosswalks, traffic going too fast)
- Lack of, or poorly-maintained/inaccessible sidewalks
- Overgrown plants and goatheads on sidewalks and trails

AREAS OF CONCENTRATED BARRIERS:

- 400 S
- Center St
- Main/State St
- 400 E
- Railroad tracks along 425 W

DESTINATIONS

Destinations that participants visit frequently were marked on the map, revealing key areas that would benefit from better biking and walking connections. Some of the most frequently mentioned destinations are shown below (larger circles indicate more emphasis from the community).

- Wayne Bartholomew Family Park - 6
- Spring Acres Arts Park - 7
- Reams Market - 12
- Smiths - 9
- Businesses/services along Main St - 19
- Businesses/services along 400 S - 23
- Springville Public Library - 11
- Rec Center - 4
- Civic Center/Park - 7

PHASE II OUTREACH: GET FEEDBACK & DIRECTION

The purpose of Phase II outreach was to solicit feedback on the preliminary infrastructure recommendations and goals of the plan in order to aid the prioritization process and fine tune the recommended network.

ONLINE SURVEY #2

The second phase of outreach saw limited participation in comparison to Phase I, but the feedback received was still important in refining recommendations and identifying community priorities. 120 individuals responded to an online survey geared toward understanding community values regarding prioritizing active transportation in Springville. The survey was kept simple, with two questions.

Stakeholders reviewed the outcome of the survey due to the small sample size of responses. The stakeholder group agreed with most priorities and their rankings, making only two changes: 'Provide separation between motorized & non-motorized modes of travel' changed from rank #4 to rank #2 and 'Fill a gap between existing bikeways or trails' changed from rank #2 to rank #4.

RANKING PRIORITIES

The first question asked respondents to rank the importance of different types of investment in the development of the active transportation network in Springville. The nine priorities displayed in **Figure 3.1** on the following page were the options included for participants to rank from 1 (most important) to 9 (least important). These nine ranked priorities were given weights based on the rankings they received

Of the priorities included, the following were rated as the top three most important:

1. Connect to community resources (e.g. schools, grocery stores, libraries, parks, etc.) (*#1 priority*)

2. Fill a gap between existing bikeways or trails (*#2 priority*)

3. Overcome an existing barrier (e.g. crossing I-15, the railroad, or 400 S) (*26 votes for #3 priority*)

WHAT ELSE SHOULD BE CONSIDERED?

For the second question, respondents were asked to provide their open-ended input when asked "What else should the City consider when prioritizing future active transportation projects?". The overarching themes of these responses are summarized in **Figure 3.2**.

Figure 3.1 Rank Order of Investment Priorities from Survey Respondents in Springville

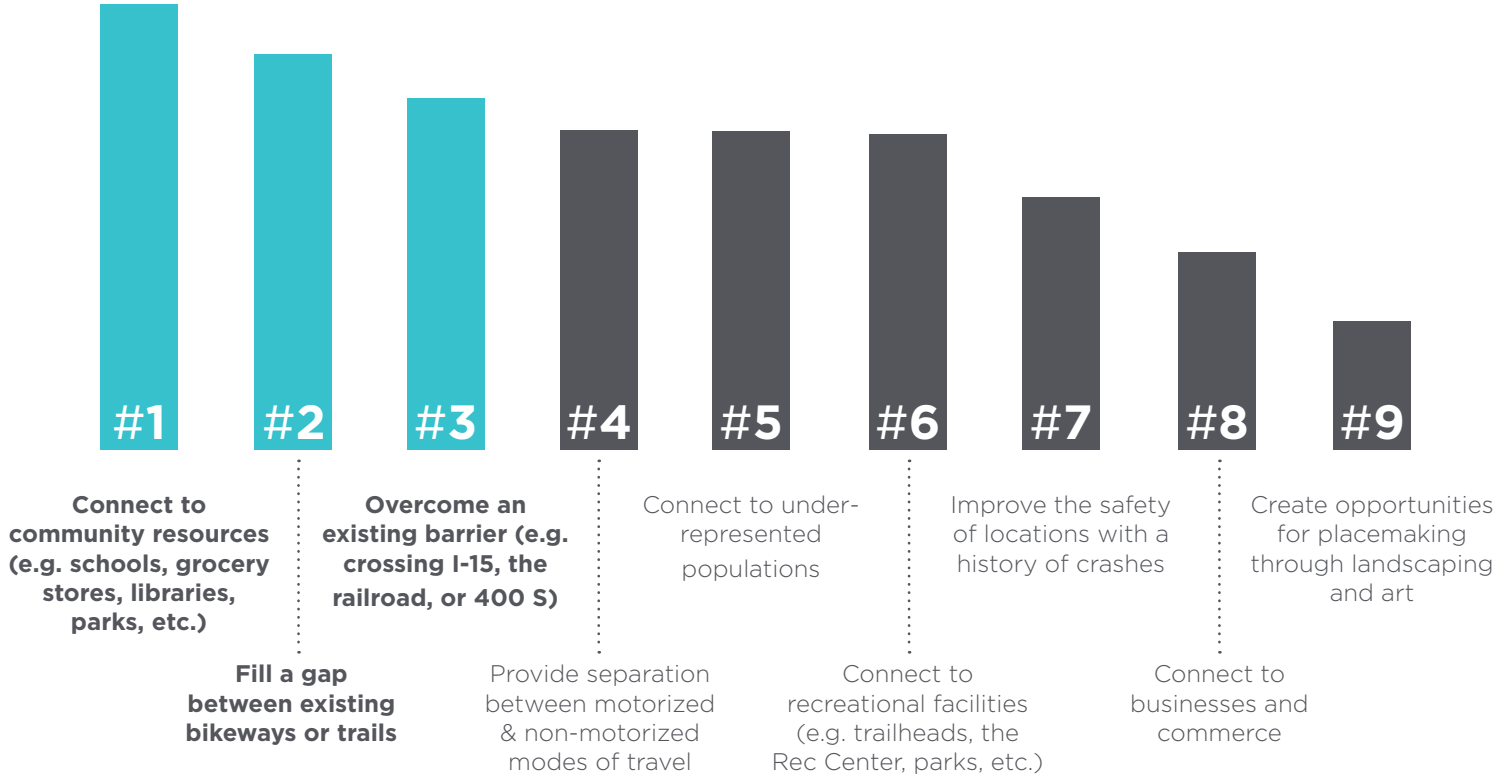


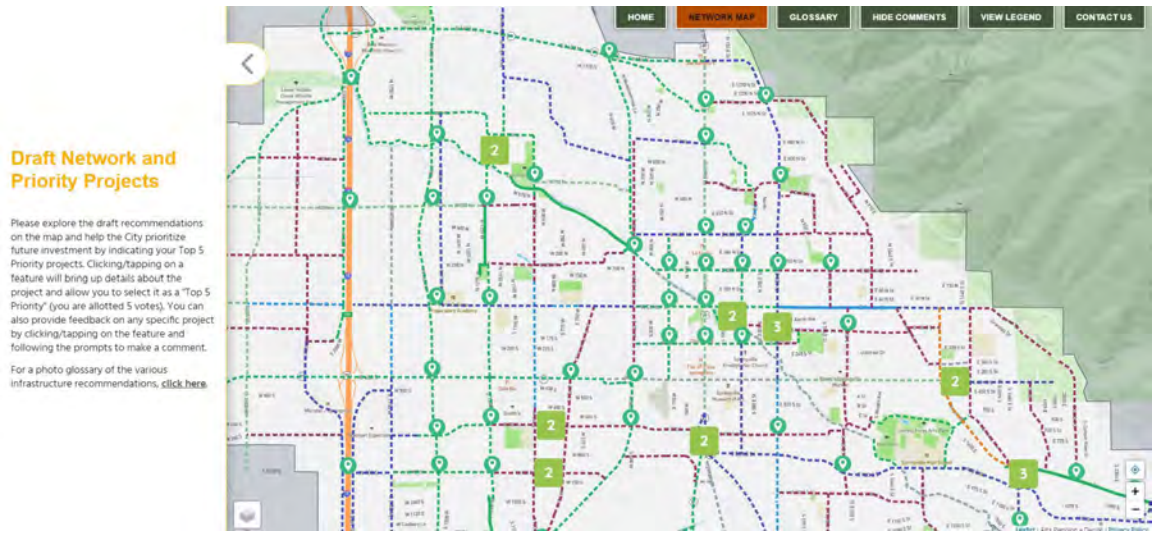
Figure 3.2 Responses to "What else should the City consider when prioritizing future active transportation projects?"

ONLINE INTERACTIVE MAP

The online interactive map included in the survey prompted participants to a) rank their top five projects (including both active transportation facilities and spot improvements) and b) comment on the proposed projects to provide additional feedback. 37 unique map users provided their top five priority projects, and 128 comments were added to the proposed projects.

Of the included proposed facilities/spot improvements, several stood out as being highly-desired by the community based on their frequent selection as a top priority project. These facilities/spot improvements are shown on **Map 3.2**.

Figure 3.3 Screen capture of the active online interactive map



TOP PRIORITY ROUTE THEMES

The top-rated proposed routes revealed the following themes:

- A trail along Hobble Creek in southeast Springville is highly desired
- Strong east-west connections are important
- Safe routes for kids to get to school are a priority for many in Springville
- Many individuals are interested in making downtown Springville more accessible for bikes and pedestrians

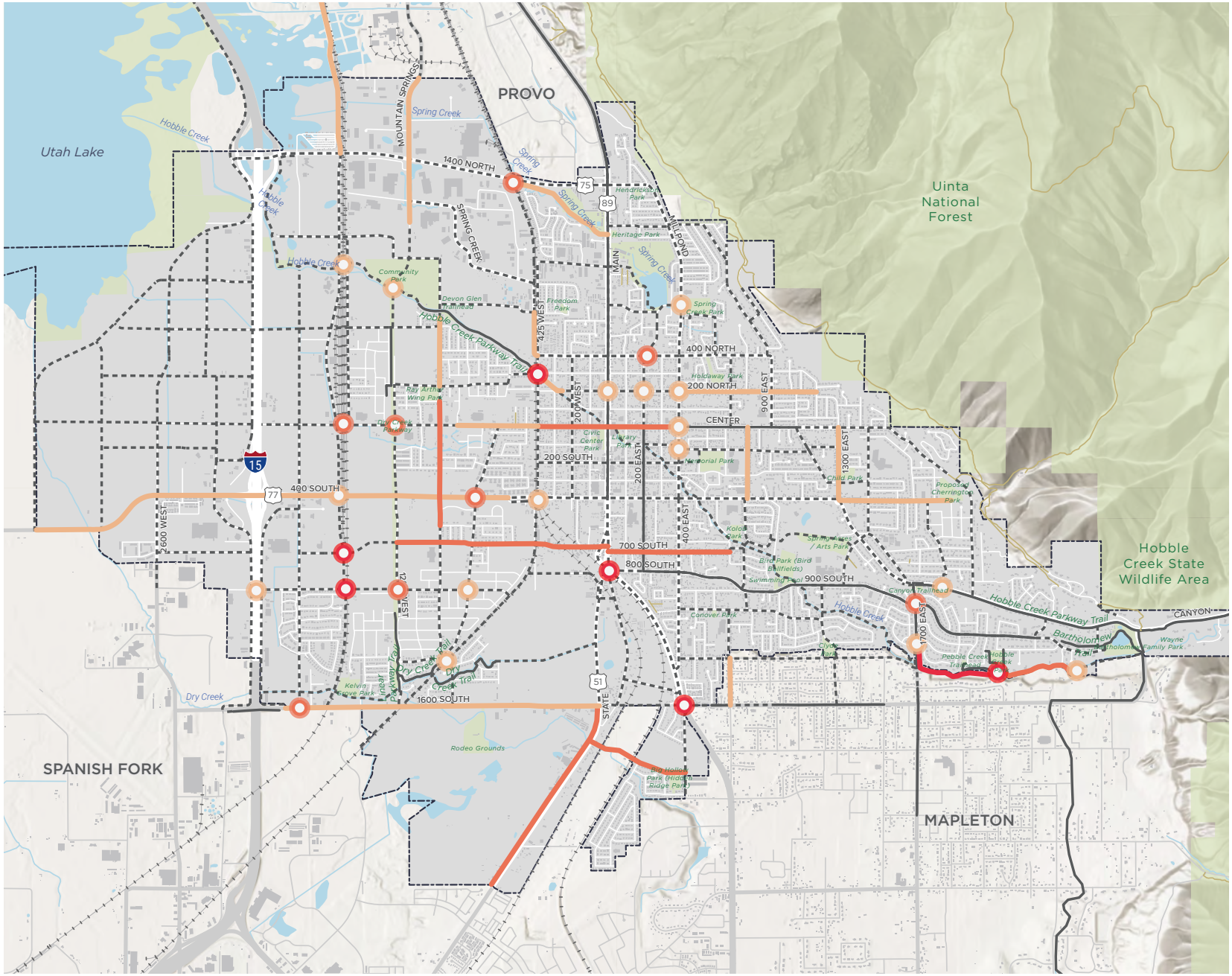
TOP PRIORITY SPOT IMPROVEMENTS THEMES

The top-rated proposed spot improvements revealed the following themes:

- Crosswalks are a critical addition to the active transportation network throughout Springville
- Grade-separated bike/pedestrian crossings along the railroad corridor are highly desired
- Safer intersections will create critical connections for those that live in neighborhoods near major intersections

PHASE 2 OUTREACH: TOP PRIORITY PROJECTS

Springville Active Transportation Plan



TOP PRIORITY ROUTES

- 1 vote
- 2 votes
- 3+ votes

TOP PRIORITY SPOT IMPROVEMENTS

- 1 vote
- 2 votes
- 3+ votes

ACTIVE TRANSPORTATION FACILITIES

- Existing Facility
- Proposed Facility

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limit

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

04

INFRASTRUCTURE RECOMMENDATIONS

INTRODUCTION

Building on the 10.4 miles of existing bikeways and trails in Springville, this plan recommends an expanded network of approximately 101 miles of active transportation facilities. **Figure 4.1** and **Map 4.1** illustrate the proposed network.

The proposed network is the complete long-term buildout of Springville's active transportation system. Because the plan includes all the elements for the future complete network, some of the recommendations are highly aspirational and the total cost of the proposed network is significant. Springville recognizes that the complete implementation of this plan may take decades, but believes strongly that having an adopted plan is invaluable for seeking funding, guiding investment in capital facilities, and maintaining a long-term vision.

Proposed infrastructure recommendations emphasize the creation of a strong, consistent biking and walking network that is comfortable for all ages and abilities. Such a network will make active transportation a viable option for a wider array of people. The proposed system will provide new or enhanced connections to important community destinations such as schools, libraries, parks, and businesses, and will include details along the way to make each active transportation trip comfortable and safe.

To break down the massive scope of this plan, Springville selected four top projects with which to begin implementation. These are listed in Appendix G Prioritized Projects.

90.7 total miles of newly-proposed bikeways and trails

THE PROPOSED NETWORK

Figure 4.1 Recommended facilities by type and additional mileage

2.8 Miles

Bike Lanes are typically 4-7 feet in width and designate space for bicyclists with 6" white striping

17.2 Miles

Buffered Bike Lanes are similar to bike lanes, but also include an additional striped buffer to provide more visual separation.

28.3 Miles

Shared Use Paths, or trails, are paved off-street pathways, completely separated from roadways and are designed to accommodate two-way, non-motorized travel.

8 Miles

* **Separated Bikeways** include a physical barrier between bicyclists and adjacent vehicular travel lanes. These can be located at street level or sidewalk level (raised bike lanes).

25.1 Miles

* **Bicycle Boulevards** are quiet neighborhood streets that have low vehicle volumes and speeds. Bicyclists and pedestrians are accommodated by managing vehicle speeds and volumes with a toolbox of traffic calming elements. Signage and pavement markings can also be implemented. Each bicycle boulevard will be designed with engineering and safety judgement applied to the unique context of each facility.

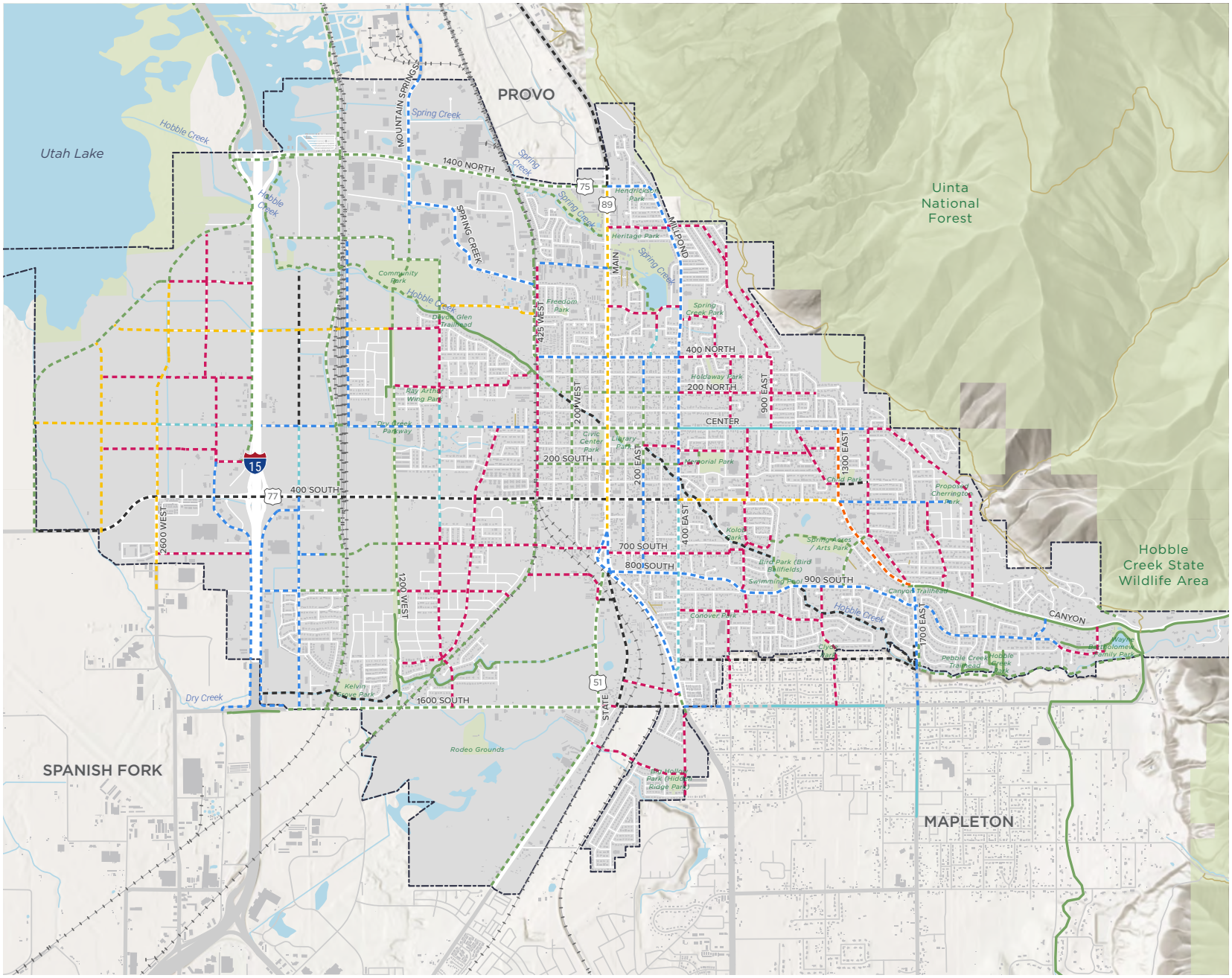
8.3 Miles

Routes that **Need Further Study** are important routes for the overall bike network, but need further study to determine appropriate facility type.

* *Facility types new to Springville*

RECOMMENDED NETWORK

Springville Active Transportation Plan



PROPOSED FACILITIES

- Bike Lane
- Buffered Bike Lane
- Separated Bikeway
- Signed Route with Sharrows
- Bicycle Boulevard
- Shared Use Path
- Future Vision; Needs Further Study

EXISTING FACILITIES TO REMAIN

- Bike Lane
- Shared Use Path

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limit

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

SPOT IMPROVEMENTS

Treatments of intersections and crossings should be carefully considered when designing and constructing bikeways and trails. Failing to do so can make an otherwise comfortable route seem dangerous and less useful for many people. **Map 4.2** identifies opportunities to make location specific spot improvements that achieve connectivity where barriers might exist.

SPOT IMPROVEMENTS BY TYPE

The following spot improvements are recommended for the Springville active transportation network. For more information, see **Appendix F**:

- Enhanced intersections: improvements at intersections, including elements like sidewalk bulbouts, mini roundabouts, added/updated signalization, etc.
- Mid-block crossings: bicyclist/pedestrian crossings mid-block, often added to make trails continuous and reduce the need to cross at an intersection.
- Grade-separated crossings: under or overpasses created to eliminate roadway conflicts.
- Railroad crossings: under or overpasses to avoid railroad tracks where crossings are needed.
- Trail Access: provide connections to trails in Springville

RECOMMENDED SPOT IMPROVEMENTS

Springville Active Transportation Plan

SPOT IMPROVEMENTS

- Enhanced Intersection
- Mid-block Crossing
- Grade-Separated Crossing
- Railroad Crossing
- Trail Access

Note: Specific treatment to be determined based on engineering analysis

PROPOSED BIKEWAYS & TRAILS

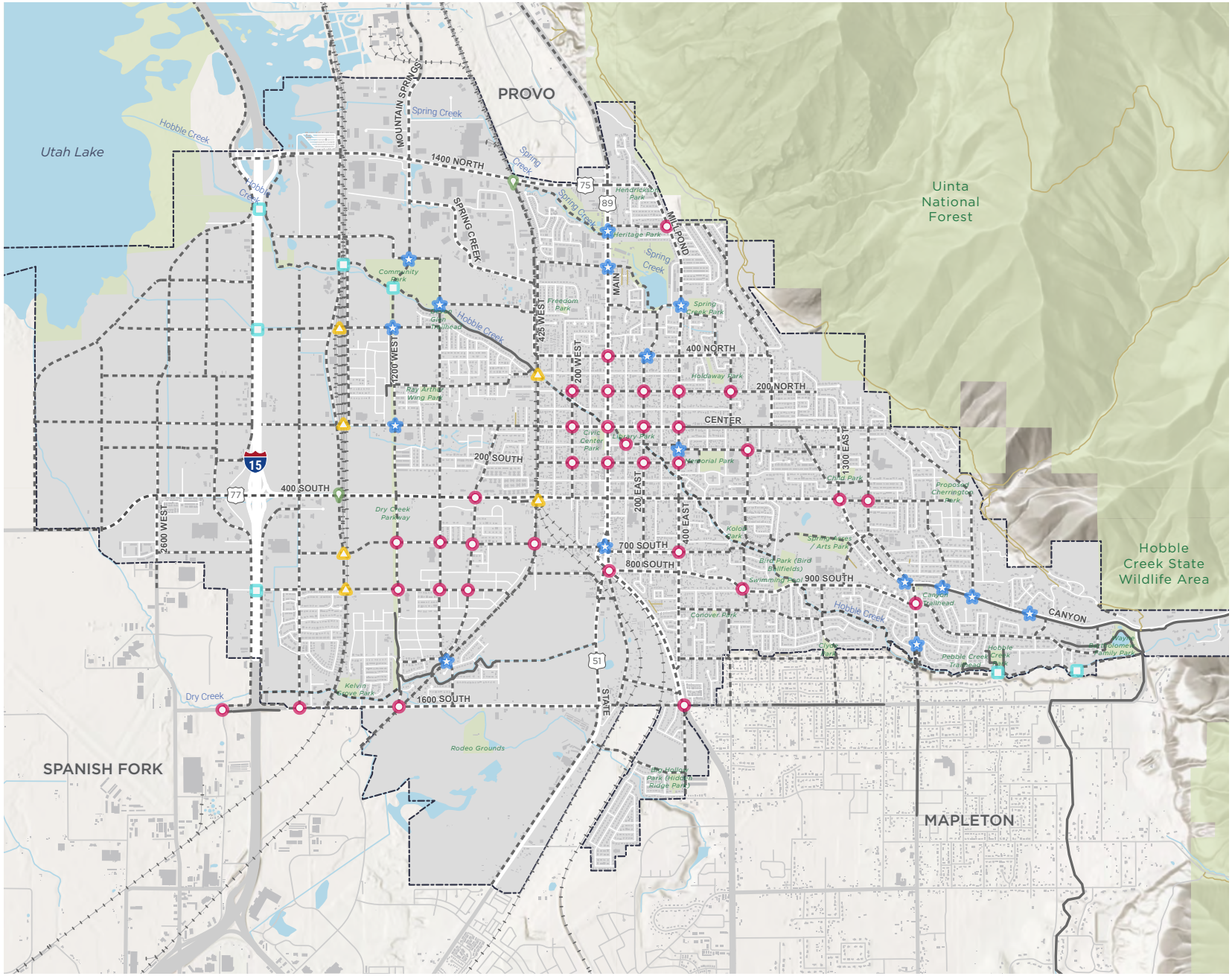
- Proposed Bikeways & Trails

EXISTING FACILITIES TO REMAIN

- Existing Facilities to Remain

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits



Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

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05

POLICY + PROGRAM RECOMMENDATIONS

INTRODUCTION

A key goal of Springville's active transportation plan is to promote active living by make biking and walking more accessible and convenient for the City's residents, workers, and visitors. While large infrastructure projects expand the physical reaches of an active transportation network, a comprehensive active transportation plan will include measures on how to improve the complete trip for all traveling by active modes – from first-mile/last-mile amenities to everything in between. This chapter provides recommendations for improving the Springville active transportation network that complement the large capital projects proposed in this plan.

EDUCATION

Education is necessary for all transportation facility users to travel safely and courteously. The City will partner with non-profits, schools and other governmental organizations to implement bike and walking safety education in primary schools. Additional public education campaigns will be undertaken by the city to spread awareness of how to safely navigate new infrastructure for bikes, pedestrians, and vehicles.

SAFETY

New bike and pedestrian infrastructure should avoid conveying a false sense of security and safety to vulnerable road users. We must avoid placing signage, road markings, or other improvements in a way that encourages behaviors that are dangerous or inappropriate for the context.

BICYCLE AND PEDESTRIAN COUNTS

Permanent bicycle and pedestrian counters provide quantitative data that could inform active transportation funding decisions. In 2016, the Federal Highway Administration (FHWA) developed *Exploring Pedestrian Counting Procedures*[1], a summary of existing procedures, best practices, and recommendations. In the same year, Utah Department of Transportation (UDOT) published the *Utah Bicycle & Pedestrian Counts Guidebook*, a guide to standardizing non-motorized counts in Utah. Both resources outline count duration and timing, count site selection, technologies, and count data management to help conduct counts in an efficient manner.

COUNT DURATION AND TIMING

Two types of active transportation counts are common: short-duration counts and continuous counts. Although not always the case, short-duration counts tend to be collected manually due to the purpose of the count and availability of resources, while continuous counts tend to be collected automatically with a counter technology. Short-duration counts can help understand peak-period usage of a facility, while continuous counts provide insight into general travel patterns, including the peak times of day and seasonality of active transportation infrastructure.While collecting count data during all months of the year is optimal,

1 Available at https://www.fhwa.dot.gov/policyinformation/travel_monitoring/pubs/hpl16026/hpl16026.pdf

Springville is likely to experience the most active transportation usage from April to October when the weather is warmer. If year-round counts are not possible, recording counts during these warmer weather months will help inform walking and biking trends and patterns.

COUNT SITE SELECTION

It is important to carefully select count sites that will provide helpful insight into active transportation trends without exceeding budgets. Different locations and facility types can provide insight into different types of travel trends, and these locations should be selected in a way that achieves community goals. Counters on established facilities can inform decision makers on the success of a project, while counters at a location with no active transportation infrastructure could inform decision makers on the need for such a project. Other considerations when selecting counting sites include:

- Proximity to trails (trailheads and park entrances are often locations for permanent counters)
- Existing on-street facilities
- Barrier crossings (rail crossings, highway/arterial under-/over-passes, bridges over waterways, etc.)
- Cyclist and pedestrian crash hot spot locations
- Roadways that fill gaps in the dedicated active transportation network
- Low-stress roadways that offer good connectivity to community resources
- Common, or known jaywalking locations
- Locations near community resources
- Proximity to transit
- Proximity to mixed land uses
- High-stress locations in the network
- Locations based on constituent feedback

It is also wise to conduct counts in a variety of land use contexts (urban, suburban, and rural) as well as on different types of facilities (delineated bike lanes, shoulder lanes, trails, shared roadway facilities, etc.) and in a range of socioeconomic characteristic locations throughout the city. While there are many factors to consider when selecting count sites, the final decision will depend on context, community goals, and available resources.

TECHNOLOGIES

The count duration, timing, location, and overall goals will inform the type of counter to be used. The technologies available to conduct these bicycle and pedestrian count collections range from manual counts to automated video imaging, to everything in between. While manual counts involve more direct labor than an automated count technology, they can be cheaper overall for detail-oriented counts that are short in duration, allowing for data collection on attributes an automated machine might not identify. Manual counts can be conducted via tally sheets, mechanical counting devices, electronic counting devices, and video observations.

Automated counters do not involve as much direct labor as manual counters, and thus are used more frequently for continuous counts. Several technologies are available for conducting automated counts, as detailed in **Figure 5.1.**

Figure 5.1 Summary of Automated Count Technologies. Source: UDOT.

Counter Type	Detection		Typical Location	Accuracy
	Peds	Bikes		
1 Pneumatic Tubes		✓	On-road bikeways Exclusive bike paths	> 96%
2 Inductive Loop		✓	On-road bikeways Mixed-use paths	>95% on-road 90-95% off-road
3 Piezoelectric Strips		✓	Paved locations with no vehicle traffic (e.g. bicycle and multi-use paths)	90%
4 Pressure Pads	✓	✓	Unpaved trails Unpaved walkways Public stairways	Data not available
5 Acoustic Pads	✓		Unpaved trails Unpaved walkways Public stairways	Data not available
6 Active Infrared	✓	✓	Off-street paved or unpaved paths	90%
7 Passive Infrared	✓	✓	Sidewalks Off-street paved or unpaved paths	>97%
8 Laser Scanning	✓	✓	Large detection areas Transit station/plaza	Data not available
9 Radio Waves	✓	✓	Off-street trails On-street detection for bikes and vehicles	80% bicycles 60% pedestrians
10 Radar Signals	✓	✓	Signalized intersections with bike lanes	90-95% (limited local testing)
11 Micro Radar	✓	✓	Off-street paved or unpaved paths	> 95% (limited local testing)
12 Video Image	✓	✓	Roadway intersections and corridors	Data not available
13 Magnetometers		✓	Mountain bike trails Off-street trails (no more than 6' wide)	Data not available

Another technology that supplements counts but does not conduct counts on its own is the bicycle barometer. This automated display reports bike counts to increase awareness of cyclists and the active transportation network. These displays can also contribute to place making and community character. Of these technologies, EcoCounters are most widely used by MAG for their durability, online interface, and customer support. The Pyro EcoCounters are used for shared-use paths while the in-pavement Urban Zelt EcoCounters are used for bike lanes. More details on the benefits and drawbacks behind these technologies, their installation processes, and costs are found in the Utah Bicycle & Pedestrian Counts Guidebook. Selecting the right counter technology will depend on the desired data specificity that will meet community goals and availability of resources for procurement and maintenance.

COUNT DATA MANAGEMENT

Once data collection technologies are implemented and data is collected, the management and communication of this data is important to raise awareness of active transportation needs and influence active transportation decisions and funding. The Federal Highway Administration (FHWA) recommends storing count data on a cloud-based service to ensure data security and timely availability. Once the data is collected, a data manager should parse through the dataset, looking for errors such as timing errors (fewer than 24 hours for a given record, 7 or more consecutive daytime hours with zero volume, etc.), duplicate data, and inconsistent data formats. Once the quality of the data is verified and is loaded into a database, it can be shared online with fellow agencies and active transportation users, depending on data accessibility limitations by the web host and/or data vendor. The availability and communication of this data is important to provide quantitative reasoning to influence the implementation of this plan and of future active transportation infrastructure and policies.

WAYFINDING

Wayfinding is an essential element of an accommodating and accessible active transportation network. Wayfinding is a system of signs, pavement markings, and maps to inform system users of recommended routes and to increase overall orientation and comfortability within the active transportation network. The National Association of City Transportation Officials (NACTO) produces national standards on multi-use path signage with the goal of guiding users to their desired destination along preferred routes. NACTO outlines three types of signs: confirmation signs (to indicate to users that they are on a designated multi-use path and to make motorists aware of the path at roadway crossings), turn signs (to indicate where a path may deviate), and decision signs (to mark the junction of two or more paths and to inform users of the destination of each path).

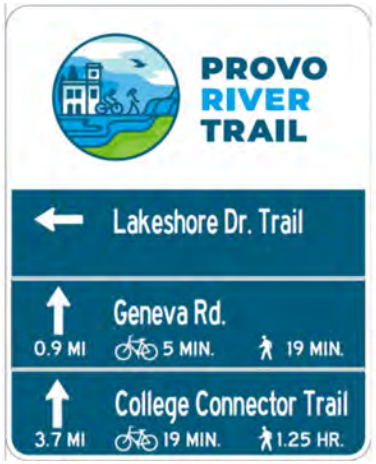
MOUNTAINLAND ASSOCIATION OF GOVERNMENTS (MAG)

MAG developed a Wayfinding Guide for Multi-Use Paths[2] along with a series of sign templates in 2020. This guide outlines the two goals of wayfinding for Utah County: increase awareness of the connectivity of trails and their amenities; and contribute to placemaking through branding and connectivity.

The guide details the components of a successful wayfinding system as well as style guidance and pricing on common multi-use path signage, such as:

- **Decision Signs** – located at trail intersections informing users of the intersecting route as well as other destinations with travel times (see **Figure 5.2**)
- **Fingerboards** – useful for trail intersections, especially when several destinations are available from multiple directions or when trails do not intersect at right angles
- **Turn Arrows** – direct users to trail from on-road facilities
- **Confirmation Signs** – located after complex intersections
- **Mile Markers** – placed at every ¼ mile, mile markers reconfirm the trail route, locate emergencies, and help track progress
- **Street Labels** – indicate upcoming streets to help users orientate themselves

Figure 5.2 Decision Sign
Source: MAG



2 Available at https://web.mountainland.org/wayfinding

Figure 5.3 Sign Families. Source: Ogden Wayfinding Design Guidelines (2018).

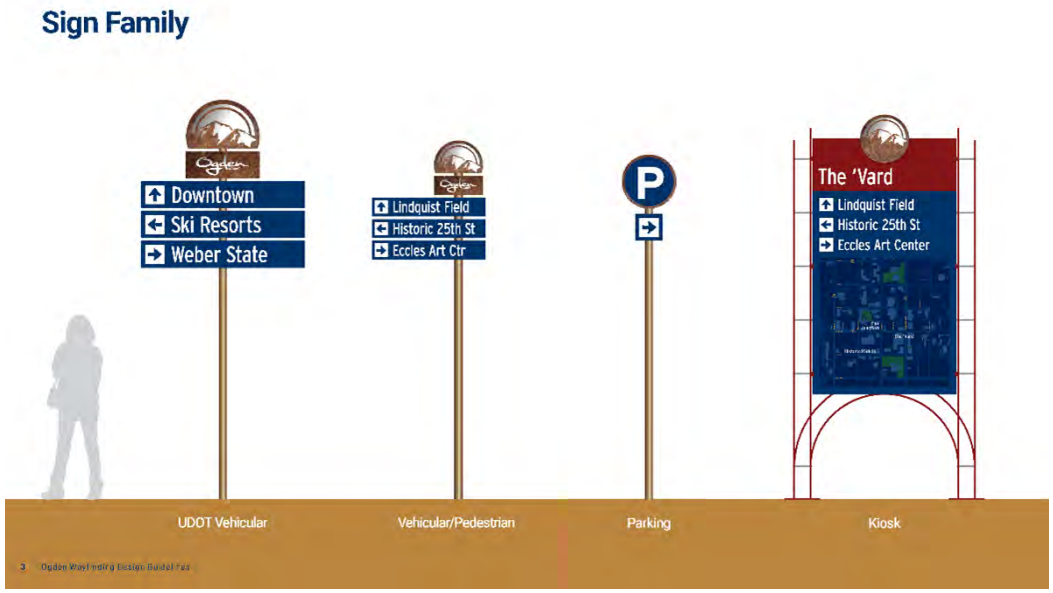
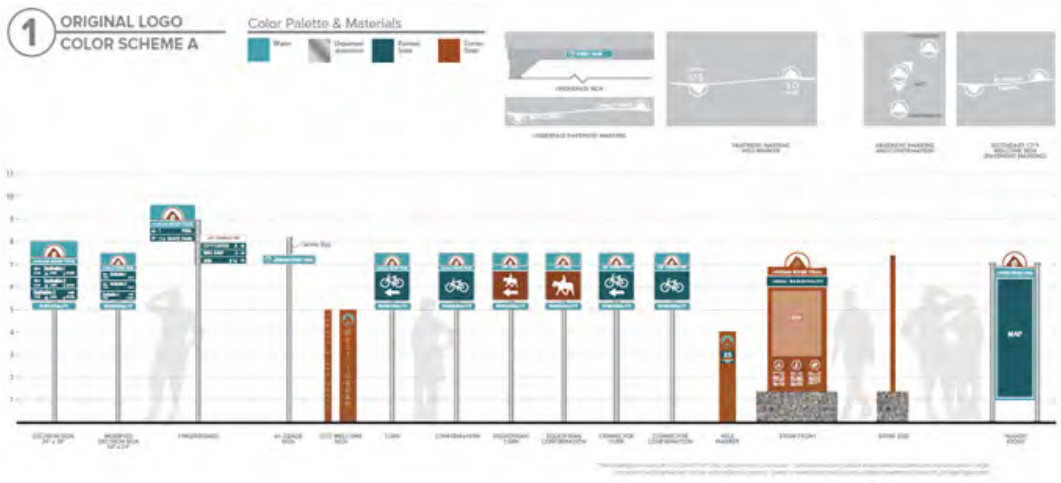


Figure 5.4 Jordan River Trail Wayfinding Family Signage. Source: Jordan River Commission



OGDEN

The Ogden Wayfinding Design Guidelines (2018) define colors, materials, fonts, logos, and design elements for each wayfinding sign throughout the city. Signs are distinguished by sign family: UDOT vehicular signs, vehicular/pedestrian signs, parking signs, and kiosks. The guidelines detail the dimensions, colors, materials, and assembly of each design family, as shown in **Figure 5.3**.

The Ogden wayfinding system helps orient residents, workers, and visitors within the city and provides a cohesive sense of place.

JORDAN RIVER TRAIL

The Jordan River Trail is an extensive trail stretching across fifteen cities in three counties along the Wasatch Front – Davis County, Salt Lake County, and Utah County. In 2016, the Jordan River Commission and Alta Planning + Design initiated the Jordan River Trail Wayfinding Signage Plan to encourage an increase in physical activity by providing a streamlined signage design to enhance the trail experience. On-trail wayfinding signs include trailhead kiosks, mile markers, decision signs, confirmation & turn signs, and street crossing signs, as shown in **Figure 5.4**.

These wayfinding designs are implemented on the entirety of the Jordan River Trail, from Utah Lake to the Great Salt Lake. The Jordan River Parkway Design Guidelines also recommend including Trail Etiquette signage to remind users on best practices to be courteous to the facilities and to others. These Trail Etiquette signs feature a QR code that directs users to myjordanriver.org for additional information about the Jordan River Parkway. The variety of information offered from this wayfinding plan ensures a complete and cohesive experience for trail users.

A wayfinding system should include guidelines on sign designs that are easy to create and deliver a sense of place on the trail and within the region. Establishing wayfinding at trail intersections, on-/off-street facility transitions, street crossings, and mile markers can help orient system users throughout Springville and can provide a new opportunity to express the Art City's character. Signs can feature designs and art that promote the creativity and uniqueness of Springville while providing helpful information that encourages a healthy lifestyle.

ADOPTING A COMPLETE STREETS POLICY

Complete streets policies provide codified guidance on street design elements in pursuit of striking a balance between vehicle capacity and multimodal mobility. Policies and ordinances that prioritize non-automobile investments and modes of travel are important in developing a strong active transportation network.

In developing a complete streets policy for adoption by City leadership, several items should be kept in mind:

- Develop and communicate a clear set of goals or target outcomes in support of implementing a complete streets policy. This will help navigate trade-offs if new infrastructure investments are made.
- Be honest and transparent about trade-offs inherent to complete streets implementation with regards to potential parking loss, reduced speed limits, and travel time changes.
- Engage with partner agencies early and often in the development of a complete streets policy, including police and fire departments, transit providers, UDOT, public utilities, and relevant advocacy and stakeholder groups to increase support for complete streets in advance of policy adoption.

- Reference local and national best practices in complete streets implementation to ensure clearer actions following policy adoption, including development of funding sources and design standards.

Complete streets policies have been adopted elsewhere in Utah, and subsequent implementation guided by those policies have improved multimodal mobility, supporting a broader range of transportation modes. Thoughtful planning in advance of complete streets policy adoption will improve outcomes for all parties involved. The Smart Growth American National Complete Streets Coalition identified ten elements of a comprehensive Complete Streets policy to help cities initiate policies in communities where such policies do not currently exist. These ten elements are:

1. **Vision and intent**: Establish goals for how and why the community wants to complete its streets. Identify four modes, two of which must be biking or walking.
2. **Diverse users**: Benefit all users equitably, particularly the vulnerable and underserved.
3. **Commitment in all projects and phases**: Apply to new, renovation, maintenance, and ongoing projects.
4. **Clear, accountable exceptions**: Outline exceptions and approval procedure.
5. **Jurisdiction**: Coordinate between public agencies.
6. **Design**: Implement latest best practices in design criteria and guidelines.
7. **Land use and context sensitivity**: Consider the surrounding current and future land use
8. **Performance measures**: Establish clear performance standards and make publicly available.
9. **Project selection criteria**: Prioritize funding through specific criteria.
10. **Implementation steps**: Specify steps for policy implementation.

These ten elements (detailed further on the Smart Growth America website[3]) provide guidance on how to develop a Complete Streets policy from the ground up. Complete streets can bridge gaps in the current active transportation network as well as continually expand the current network as roads get reconstructed or new roadways emerge.

3 Smart Growth American Website: https://smartgrowthamerica.org/resources/elements-complete-streets-policy/

INTEGRATING ACTIVE TRANSPORTATION ELEMENTS INTO ZONING & DEVELOPMENT CODES

Active transportation infrastructure is not limited to bike lanes and sidewalks – elements such as bicycle parking, showers at places of employment, and streetscape enhancements all encourage an active lifestyle and community. Integrating active transportation infrastructure into municipal zoning and development codes is vital to providing a complete network from start to finish. Municipal codes can offer parking requirement reductions, tax incentives, and bonuses to incentivize the provision of active transportation facilities.

BICYCLE PARKING REQUIREMENTS AND OTHER PARKING REDUCTIONS

Developing bicycle parking requirements is a common way to integrate active transportation infrastructure into city codes. For example, Salt Lake City requires that all uses (except for single-family, two-family, and twin home residential uses as well as nonresidential uses having less than 1,000 ft2 of usable floor area) must provide bicycle parking based on context as outlined in **Table 5.1**.

The code expands on these requirements to state

Table 5.1 Salt Lake City Minimum Bicycle Parking Requirements

USE	CONTEXT			
	GENERAL	NEIGHBORHOOD CENTER	URBAN CENTER	TRANSIT
Residential	1 per 5 units	1 per 4 units	*1 per 3 units*	*1 per 2 units*
Public, Institutional, and Civic	1 per 10,000 ft2	1 per 5,000 ft2	*1 per 5,000 ft2*	*1 per 3,000 ft2*
Commercial	1 per 20,000 ft2	1 per 5,000 ft2	*1 per 4,000 ft2*	*1 per 2,000 ft2*
Industrial	No requirement	No requirement	*No requirement*	*No requirement*

Note for all uses: In determining the minimum number of bicycle parking spaces required, fractional spaces are rounded to the nearest whole number, with one-half counted as an additional space.

Source: Salt Lake City, Off Street Parking, Mobility, and Loading, Table 21A.44.040-C Minimum Bicycle Parking Requirements.

that each secure/enclosed bicycle parking space and each permanent public bicycle rack or bike corral located within 50' of the building entrance space may be used to satisfy the requirement of two required bicycle parking spaces.

Providing bicycle parking can also be a metric by which to reduce overall car parking minimums. In Seattle, a developer can reduce up to 5% of the required car parking stalls by replacing one stall with four bicycle parking spaces. Portland has a similar policy, allowing a reduction of up to 25% of the required car parking stalls by replacing one stall with five bicycle parking spaces. While these programs begin to address the need for accessible bicycle parking, developers may be more interested in the reduced construction costs associated with these incentives. Because four or five bicycle parking spaces is about the size of a parking stall, the construction cost of a parking lot or garage does not change for the developer with this level of requirement. A lower bike rack to parking stall ratio policy could be a more enticing incentive to developers.

The City of Pittsburgh offers a one-to-one ratio for off-street parking reduction with the provision of bicycle parking, excluding certain land uses, up to a 30% reduction in required parking stalls[4]. A similar one-to-one or two-to-one bike rack to parking stall ratio policy could offer more incentivizing benefits to developers, leading to an increased chance that developers would start to use the policy.

The City of Miami Beach, Florida offers parking reductions for several types of amenities. As in other cities, Miami Beach policy allows for a parking requirement reduction for the provision of bicycle parking. However, this policy offers greater reduction allowances for long-term bicycle parking (one off-street parking stall for every five long-term bicycle parking spaces) compared to short-term bicycle parking (one off-street parking stall for every ten short-term bicycle parking spaces)[5]. The policy also allows for parking reductions in exchange for the provision of carpool/vanpool parking stalls, drop-off and loading zones for ridesharing companies like Uber and Lyft, parking spaces for microtransit, and non-residential showers and changing facilities. These different opportunities for parking reductions encourage

4 Available at https://library.municode.com/pa/pittsburgh/codes/code_of_ordinances?nodeId=PIZOCO_TITNINEZOCO_ARTVIDEST_CH914PALOAC_914.04OREPAEXREAR

5 Available at http://docmgmt.miamibeachfl.gov/WebLink/DocView.aspx?dbid=0&id=212111&page=1&cr=1

developers to take part in reaching the City's mode split and carbon emission reduction goals.

Several cities in Utah County also have bicycle parking requirements incorporated into their city code. Provo (requirements based on short-term and long-term bicycle parking[6]), Orem (10% of the required automobile spaces[7]), and Mapleton (1 bike rack for every 50 required automobile spaces[8]) all have bicycle parking space requirements built into their municipal codes. More details on bike parking best practices will be discussed later in the **Bike Parking Guidelines** section.

6 Available at https://provo.municipal.codes/Code/14.37.065

7 Available at https://orem.org/wp-content/uploads/2017/07/3291.pdf

8 Available at https://www.mapleton.org/wp-content/uploads/2016/05/Commercial-Standards-Low-Resolution.pdf

BICYCLE AMENITIES

The decision to travel by bicycle involves more than the availability of established bicycle routes. A cyclist also needs an available and secure location at which to park their bike, as well as facilities in which to recuperate from the ride. A commuter who currently drives to work may not be encouraged to switch to their bicycle if it means they must show up to work covered in sweat. Facilities such as showers and bike lockers can make the switch from a personal vehicle to bike much more feasible. FAR exemptions, tax credits, and density bonuses can be based on the inclusion of any of the following:

- Locker room facilities (shower, dressing area, lockers – secure but open to all tenants of the building)
- Bicycle parking (discussed in further detail in **Bike Parking Guidelines**)
- Provision of bike repair facilities
- Provision of water fountains

Requiring or offering benefits for these amenities can eliminate barriers to traveling by bike and can encourage a mode shift from personal vehicle to bicycle.

PEDESTRIAN AMENITIES

Providing robust pedestrian infrastructure is important to the health and vitality of a community as nearly everyone uses this infrastructure on a daily basis, even if simply to travel between a parking stall and a storefront. Increasing incentives to walk can be an easy first encounter for residents to interact with the active transportation network. Developers and land use codes can incorporate any of the following amenities to eliminate barriers to walking:

- Provision of trash and recycle receptacles
- Provision of sidewalk that meets or exceeds city code
- Provision of streetlights and pedestrian-scaled lighting
- Provision of water fountains
- Provision of benches in areas where pedestrians might naturally wait or sit to enjoy the outdoors
- Streetscape improvements: raised planters, special pavers, special street lighting, flag and banner poles, and hanging baskets that exceed minimum standards
- Provision of pedestrian pathways and connectivity (define requirements for separated bicycle and pedestrian facilities)
- Sidewalk widening
- Through-block connections (connects two streets)
- Provision of pedestrian walkways through parking lots
- Walkways between abutting lots

Providing safe, welcoming, and accessible pedestrian infrastructure can encourage residents, workers, and visitors of Springville to explore the city in a new way while supporting a healthy lifestyle.

FORM-BASED CODE

A form-based code is a land development regulation that fosters predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code.[9] Traditional zoning focuses on the individual types of land use while form-based code plans around building types and their interaction with the streetscape, as shown in **Figure 5.5**.

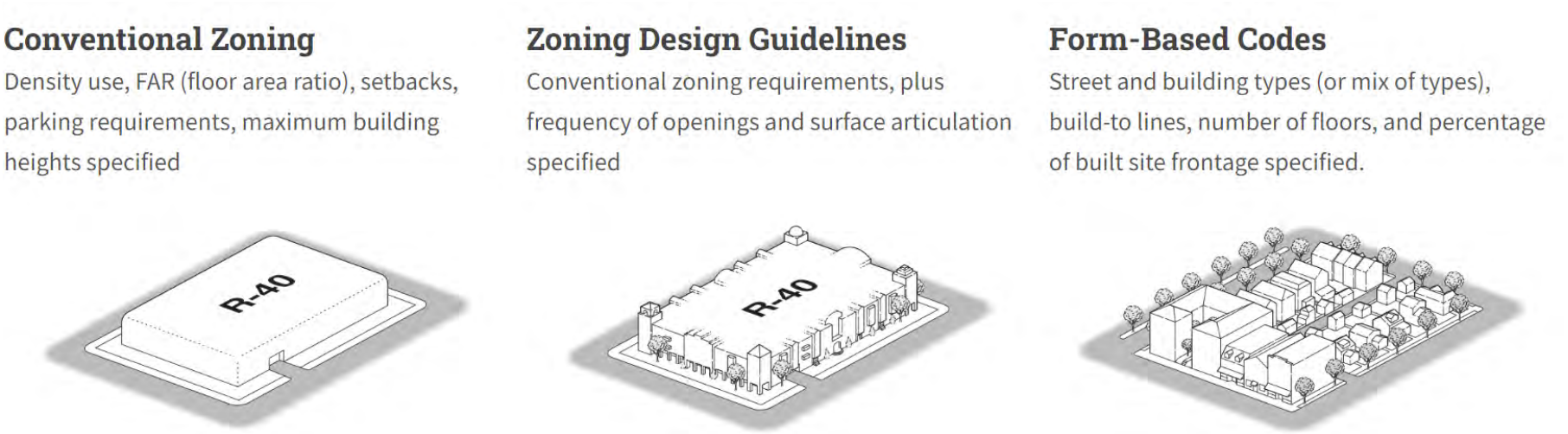
Form-based code encourages a walkable streetscape by encouraging a mix of land uses, offering several resources within a small, walkable area. Large cities such as Salt Lake City, Denver, Miami, and Nashville have adopted a form-based development code, as well as smaller cities such as Delray Beach, FL; Benicia, CA; and Belleview, KY. Form-based code can also be applied to neighborhoods and districts such as the Near South Side in Fort Worth, TX and at the Pleasant Hill BART station area in Walnut Creek, CA.

The Wasatch Front Regional Council (WFRC) developed a template[10] to guide municipalities on the creation of a form-based code. The template is available through Adobe and is free to access. The WFRC Form-Based Code website also further discusses the benefits of a form-based code and includes a corresponding organization chart, example place and building types, a visual library,

9 Form-Based Codes Institute. Available at https://formbasedcodes.org/definition/

10 Available at https://wfrc.org/vision-plans/wasatch-choice-2050-3/toolbox/form-based-code/#1509132171013-b6ccb845-0325

Figure 5.5 Conventional Zoning, Guidelines, and Form-Based Codes. Source: Form-Based Codes Institute.



frequently asked questions, and helpful links and downloads. Incorporating elements of or adopting a form-based code can increase the walkability of Springville.

OTHER CONSIDERATIONS

Active transportation is influenced by travel modes other than walking and biking. Transit and vehicular traffic can affect an active transportation network's success. The following improvements do not directly involve pedestrians or cyclists, but can have a lasting effect on their comfort in utilizing the active transportation system:

- Transit station improvements: provide seating, shelter, and access improvements to bus stops and any future rail stations
- Transit, car-sharing, and active transportation commuter programs
- Apply Level of Service (LOS) standards to all modes of transportation: include and prioritize the LOS of active transportation and transit along with vehicular traffic. The City of Springville may wish to accept some traffic congestion in key locations if it results in safer and more comfortable conditions for people walking and biking.
- Consider establishing modal priorities for Springville streets. For example, Salt Lake City's Typology Design Guide identifies streets on which pedestrians or bicyclists are a higher priority than vehicles, and provides recommendations on streetscape design to make those corridors more comfortable for people walking or bicycling. In other areas, agencies such as the San Francisco County Transportation Authority have adopted policies to prioritize people moving by transit, walking, or biking over people moving by private vehicle. These types of policies could be adopted at a citywide level, or applied on a case-by-case basis to individual streets.
- Vehicle Miles Traveled (VMT) is another metric by which to assess the quality and efficiency of a transportation network and associated land use. This metric helps to analyze the interaction between land use and transportation by measuring the length of trips rather than the amount of traffic delay as in LOS. The further people need to travel to reach school, work, stores, and

other desired destinations, the less viable active transportation becomes as an efficient mode of travel. Lowering VMT can create opportunities to walk, bike, or take transit. Implementing VMT as a required metric by which to analyze development traffic impact can encourage land use diversity. A mixed-use environment will lead to lower VMT which increases the viability of walking and biking as effective transportation options.

- Reduction in required off-street parking for land uses that share a parking lot.

Transit and vehicular traffic always involves active transportation users in some form: a cyclist might put their bike on the bus to travel uphill, or a pedestrian might drive their personal vehicle to the post office and then walk to the library across the street. Considering other modes' effect on the active transportation network is important when developing a comprehensive plan.

BIKE PARKING GUIDELINES

Providing parking for bicycles is an important way to increase the accessibility of biking throughout a city. Non-recreational bike trips may be limited if cyclists cannot securely lock their bike at their desired destination. Selecting the correct style and location of bike rack can ensure a cohesive network for both pedestrians and cyclists.

TYPES OF BICYCLE PARKING

There are two types of bicycle parking: short-term and long-term parking. Short-term parking serves bicycle trips typically no longer than two hours. Often these short-term parking trips include errands and quick activities. Short-term racks should be placed in an accessible and highly visible location near the entrance of establishments. While short-term parking racks are often located outdoors, it is best practice to install the racks under existing structures when possible to protect bicycles from weather. Short-term parking relies heavily on proximity to the destination and ease of use.

Long-term bicycle parking serves trips longer than two hours. Long-term bicycle trips can stay in one location all day (trips to work) or even overnight. Due to long periods without supervision, long-term bicycle parking should provide more security and protection from weather than short-term bike racks. Effective long-term racks include bike lockers, bike rooms, or a secured parking area. These types of parking facilities protect bikes from the elements and reduce the risk of theft, allowing the cyclist to park their bike with confidence.

RACK STYLES

There are a variety of bike rack styles. The choice of style of a bike rack depends on facilities available (concrete pad or existing post for mounting ring racks) as well as nearby space and preference in aesthetics.

A bike rack should meet the following performance criteria:

- Support the bike upright without putting stress on the wheels
- Accommodate a variety of bicycles and attachments
- Allow for locking of frame and at least one wheel with a standard U-lock
- Provide security and longevity features appropriate for the intended location
- Be intuitive in use

These performance criteria provide guidance in selecting bike rack designs for new installations. The most common bike racks in the public space primarily support short-term parking but can also accommodate long-term parking if placed in a sheltered and secured area. These include inverted U (staple, loop), post & ring, and wheelwell-secure (more robust wheelwell with lock points for both the bike tire and the frame) as detailed in **Figure 5.6**. These rack styles typically fulfill all the above criteria for a successful bike rack when properly designed and installed.

Figure 5.6. Racks for All Applications. Source: Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking report (2015).

RACKS FOR ALL APPLICATIONS		When properly designed and installed, these rack styles typically meet all performance criteria and are appropriate for use in nearly any application.
INVERTED U also called staple, loop		Common style appropriate for many uses; two points of ground contact. Can be installed in series on rails to create a free-standing parking area in variable quantities. Available in many variations.
POST & RING		Common style appropriate for many uses; one point of ground contact. Compared to inverted-U racks, these are less prone to unintended perpendicular parking. Products exist for converting unused parking meter posts.
WHEELWELL-SECURE		Includes an element that cradles one wheel. Design and performance vary by manufacturer; typically contains bikes well, which is desirable for long-term parking and in large-scale installations (e.g. campus); accommodates fewer bicycle types and attachments than the two styles above.

Figure 5.7 High-Density Racks. Source: Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking report (2015).

HIGH-DENSITY RACKS

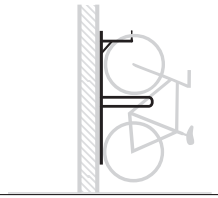
These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

High-density rack systems can maximize the use of limited parking space, but they don't work for all users or bicycles. If installing these racks, reserve additional parking that accommodates bicycles with both wheels on the ground for users who are not able to lift a bicycle or operate a two-tier rack, or for bikes that are not compatible with two-tier or vertical racks.

STAGGERED WHEELWELL-SECURE

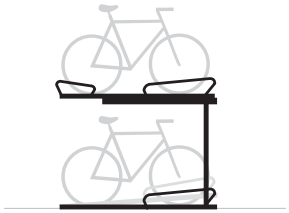
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

VERTICAL



Typically used for high-density indoor parking. Not accessible to all users or all bikes, but can be used in combination with on-ground parking to increase overall parking density. Creates safety concerns not inherent to on-ground parking.

TWO-TIER



Typically used for high-density indoor parking. Performance varies widely. Models for public use include lift assist for upper-tier parking. Recommend testing before purchasing. Creates safety concerns not inherent to on-ground parking, and requires maintenance for moving parts.

While these common bike rack designs are universal and easy to install, they primarily serve low-density bike parking needs. High-density racks, as shown in **Figure 5.7** may not always meet all performance criteria but can help provide necessary parking in limited spaces.

Although these high-density racks may not meet all the above criteria of a successful bike rack, they serve a need not provided by low-density racks. Some racks, however, are commonly found throughout cities, but are not best practice bike parking design. These designs, as outlined in **Figure 5.8**, are not recommended for future installation due to their failure to meet the above performance criteria.

These bike rack designs should be avoided as they do not meet important performance criteria. If these racks exist within a city, they should be phased out as they deteriorate and replaced with one or multiple of the recommended bike rack designs.

Figure 5.8 Racks to Avoid. Source: Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking report (2015).

RACKS TO AVOID		Because of performance concerns, APBP recommends selecting other racks instead of these.
WAVE also called undulating or serpentine		Not intuitive or user-friendly; real-world use of this style often falls short of expectations; supports bike frame at only one location when used as intended.
SCHOOLYARD also called comb, grid		Does not allow locking of frame and can lead to wheel damage. Inappropriate for most public uses, but useful for temporary attended bike storage at events and in locations with no theft concerns. Sometimes preferred by recreational riders, who may travel without locks and tend to monitor their bikes while parked.
COATHANGER		This style has a top bar that limits the types of bikes it can accommodate.
WHEELWELL		Racks that cradle bicycles with only a wheelwell do not provide suitable security, pose a tripping hazard, and can lead to wheel damage.
BOLLARD		This style typically does not appropriately support a bike's frame at two separate locations.
SPIRAL		Despite possible aesthetic appeal, spiral racks have functional downsides related to access, real-world use, and the need to lift a wheel to park.
SWING ARM SECURED		These racks are intended to capture a bike's frame and both wheels with a pivoting arm. In practice, they accommodate only limited bike types and have moving parts that create unneeded complications.

RACK MATERIALS AND COATING

The most common material used for bike racks are carbon steel or stainless steel. Carbon steel requires a surface coating in order to avoid rusting whereas stainless steel does not require additional coating. Stainless steel, however, is the more expensive option of the two and can be a target for theft due to its value. Carbon steel is cheaper and can have a variety of coatings that range in cost and benefits. A galvanized coating is typically the cheapest coating material and is highly durable and requires little maintenance. Thermoplastic steel coating is more expensive than galvanized coating and provides good durability, but its appearance is more likely to degrade over time than galvanized or stainless steel. While powder coating is another option for carbon steel, it is generally more expensive than a galvanized coating and is not very durable in weather-exposed areas. Thus, galvanized carbon steel and stainless steel are the most common bike rack materials for their durability, with galvanized carbon steel often preferred for its low cost.

PLACEMENT

Bike racks should be placed in a location that supports the design's accessibility and security goals. Racks should be placed a minimum of 36" apart and 24" from the curb to allow for easy access and should be secured to the ground or an existing pole to decrease the risk of theft. Sidewalk racks should be placed between parking stalls to avoid conflict with opening car doors. These racks should also maintain an accessible pedestrian walkway, particularly allowing for emergency access. Racks should be placed under existing structures whenever possible to protect bicycles from the outdoor elements. Short-term racks should be placed within 50' of the main building entrance.

Long-term bicycle parking structures should be placed in more secure areas. Whether in a parking garage, an office, or a secured outdoor locker, these facilities should offer more security and protection than a typical short-term bicycle parking rack. Long-term racks should be placed on the ground floor of a building, unless accessible by an elevator or a parking garage ramp. A cyclist should not carry their bicycle up or down stairs to use a bike parking facility.

POLICY & PROGRAM CONCLUSION

There are several ways to support the existing and planned physical active transportation network. Bicycle and pedestrian data collection can inform funding decisions, wayfinding can increase system users' awareness and comfort, and municipal codes can encourage developers to help solve the first-mile/last-mile issue of walking and biking. Including components such as these into an active transportation plan can integrate an active lifestyle into several sectors throughout the city and raise overall awareness of the system. The more residents, workers, and visitors know about and use the system, the more support the city can gather to further develop the network and make active transportation a part of daily life in Springville.

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06

IMPLEMENTATION

PRIORITY PROJECTS

PRIORITIZATION CRITERIA

Based on the goals of the plan (See Chapter 1), the following criteria were used to prioritize the recommended projects.:

- Connecting to community resources such as schools, shopping, libraries, recreational facilities, and parks
- Filling gaps in the existing walking and biking network
- Helping people to cross major barriers
- Providing separated spaces for people walking and bicycling, away from car traffic
- Connecting people from lower-income neighborhoods or disadvantaged communities to the transportation network
- Improving safety
- Creating placemaking opportunities

ANALYZING CONDITIONS IN SPRINGVILLE

The project team used data to map out critical locations in Springville that related to the prioritization criteria, and that were important to connect to a walking and bicycling network. These included:

- Schools, child care centers, health care facilities, trailheads, parks, and shopping districts
- Existing trails or bicycle facilities
- Corridors that act as barriers, such as I-15, railroads, streams and rivers, and busy roads
- Neighborhoods with higher concentrations of people living below the poverty line, households without cars, or people representing minority communities
- “Hot spot” areas where crash data indicated that bicycle and pedestrian crashes were more common

These locations then became high-priority areas in Springville where bicycle and pedestrian investments were critical in order to help people walk and bike safely and comfortably. The high-priority areas acted as a geographic representation of the goals identified by the stakeholders.

SCORING PROPOSED PROJECTS

In order to determine which proposed projects best met the plan goals, the bicycling and walking projects proposed in this Plan (which includes trail, bikeway, and intersection improvements) were compared to the high-priority areas described previously. This process allowed for the evaluation and scoring of each proposed project based on the number of high-priority areas each project served. Projects that connected multiple high-priority areas (for instance, a route that would help cyclists access schools and shopping while also providing a connection over a barrier) scored higher than a project that only addressed one high-priority need (for instance, a project that connected people to a shopping area but little else).

PRIORITIZED RESULTS & CONSIDERATIONS

All of the trail, bikeway, and spot improvements proposed in this plan received individual scores based on the prioritization criteria. **Maps 6.1** and **6.2** illustrate the top 50 projects that resulted from this process. Planning level costs (typically using per-mile figures) were also generated for the top 50 projects (see **Appendix G**) in an effort to further implementation efforts.

The prioritization process outlined in this section does not account for feasibility. Each project will need to be evaluated based on constructability and the need to coordinate with other agencies such as UDOT or Union Pacific Railroad. The top 50 projects identified in this plan should be considered for future feasibility studies before seeking funding for design and construction.

COST ESTIMATES

High-level planning costs were estimated for the top 50 prioritized projects. The South Utah County Trail Plan outlines several Planning-Level Unit Cost Estimates (Table 5, page 66) that were used as the primary source for estimating Springville's top projects. For project types not included in the South Utah County Trail Plan, other local recent sources were used (the Cottonwood Heights Traffic Calming Study, the Mid Valley ATP, the Farmington Link Study, and the Salt Lake City Livable Streets Program).

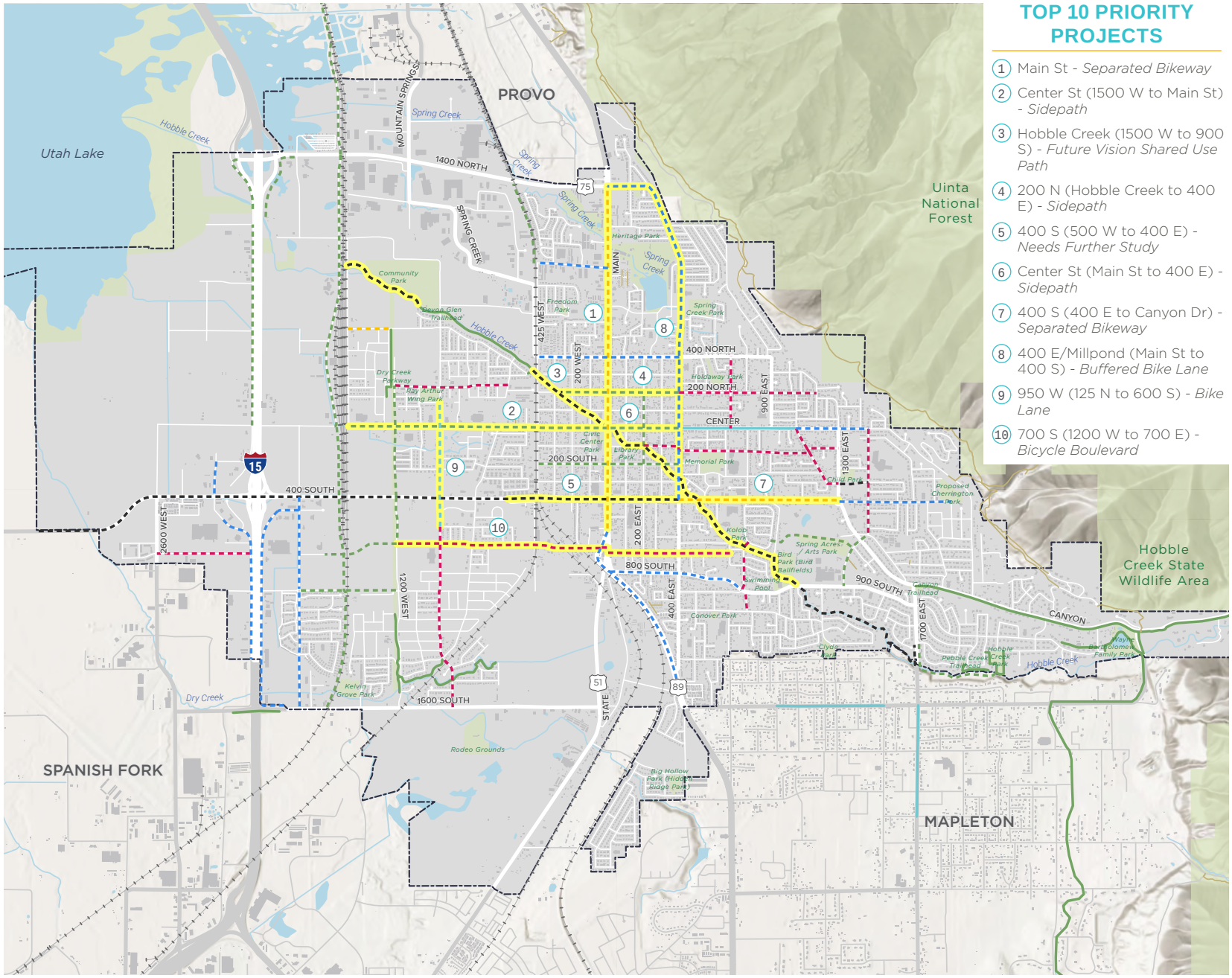
Table 6.1 outlines the unit costs and their respective sources. These estimates include construction costs only and do not include planning, engineering, right-of-way acquisition, or survey costs. Construction costs will vary based on the ultimate project scope and economic conditions at the time of construction.

Table 6.1 High-Level Planning Cost Estimates for Active Transportation Facilities

HIGH-LEVEL PLANNING COST ESTIMATES			
PROJECT TYPE	**UNIT**	**COST/ UNIT**	**SOURCE**
TRAFFIC CALMING MEASURES			
Chicane	Pair	$13,500	Cottonwood Heights Traffic Calming Study
Bulbout	EA	$30,000	Salt Lake City Livable Streets Program
Traffic Diverter	EA	$20,000	Salt Lake City Livable Streets Program
INTERSECTION TREATMENTS			
Marked Crosswalk	EA	$8,000	South Utah County Trail Plan
Rectangular Rapid Flashing Beacons (RRFBs)	EA	$55,000	South Utah County Trail Plan
Curb Extensions	EA	$10,000	South Utah County Trail Plan
Mid-block Crossing	EA	$15,000	Salt Lake City Livable Streets Program
Grade-separated bike/ped bridge	SF	$300	Farmington Link Study
ACTIVE TRANSPORTATION INFRASTRUCTURE			
Sidewalks	Mile	$230,000	South Utah County Trail Plan
Striped Bike Lanes	Mile	$56,000	South Utah County Trail Plan
Stripe-Buffered Bike Lanes	Mile	$65,000	South Utah County Trail Plan
Curb-Separated Bike Lanes	Mile	$230,000	South Utah County Trail Plan
Shared Lane Markings (Sharrows)	Mile	$19,000	South Utah County Trail Plan
Shared Use Paths (Trails)	Mile	$910,000	South Utah County Trail Plan
Neighborhood Byway (Bike Boulevard)	Mile	$146,000	South Utah County Trail Plan
Cycle Track: Raised and Curb Separated	Mile	$364,000	Mid Valley Active Transportation Plan

TOP 50 PRIORITY PROJECTS

Springville Active Transportation Plan



TOP-PRIORITY PROPOSED FACILITIES

- Top-10 Priority Project
- Bike Lane
- Buffered Bike Lane
- Separated Bikeway
- Signed Route with Sharrows
- Bicycle Boulevard
- Shared Use Path
- Future Vision; Needs Further Study

EXISTING FACILITIES TO REMAIN

- Bike Lane
- Shared Use Path

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limit

TOP 10 PRIORITY PROJECTS

1. Main St - *Separated Bikeway*
2. Center St (1500 W to Main St) - *Sidepath*
3. Hobble Creek (1500 W to 900 S) - *Future Vision Shared Use Path*
4. 200 N (Hobble Creek to 400 E) - *Sidepath*
5. 400 S (500 W to 400 E) - *Needs Further Study*
6. Center St (Main St to 400 E) - *Sidepath*
7. 400 S (400 E to Canyon Dr) - *Separated Bikeway*
8. 400 E/Millpond (Main St to 400 S) - *Buffered Bike Lane*
9. 950 W (125 N to 600 S) - *Bike Lane*
10. 700 S (1200 W to 700 E) - *Bicycle Boulevard*

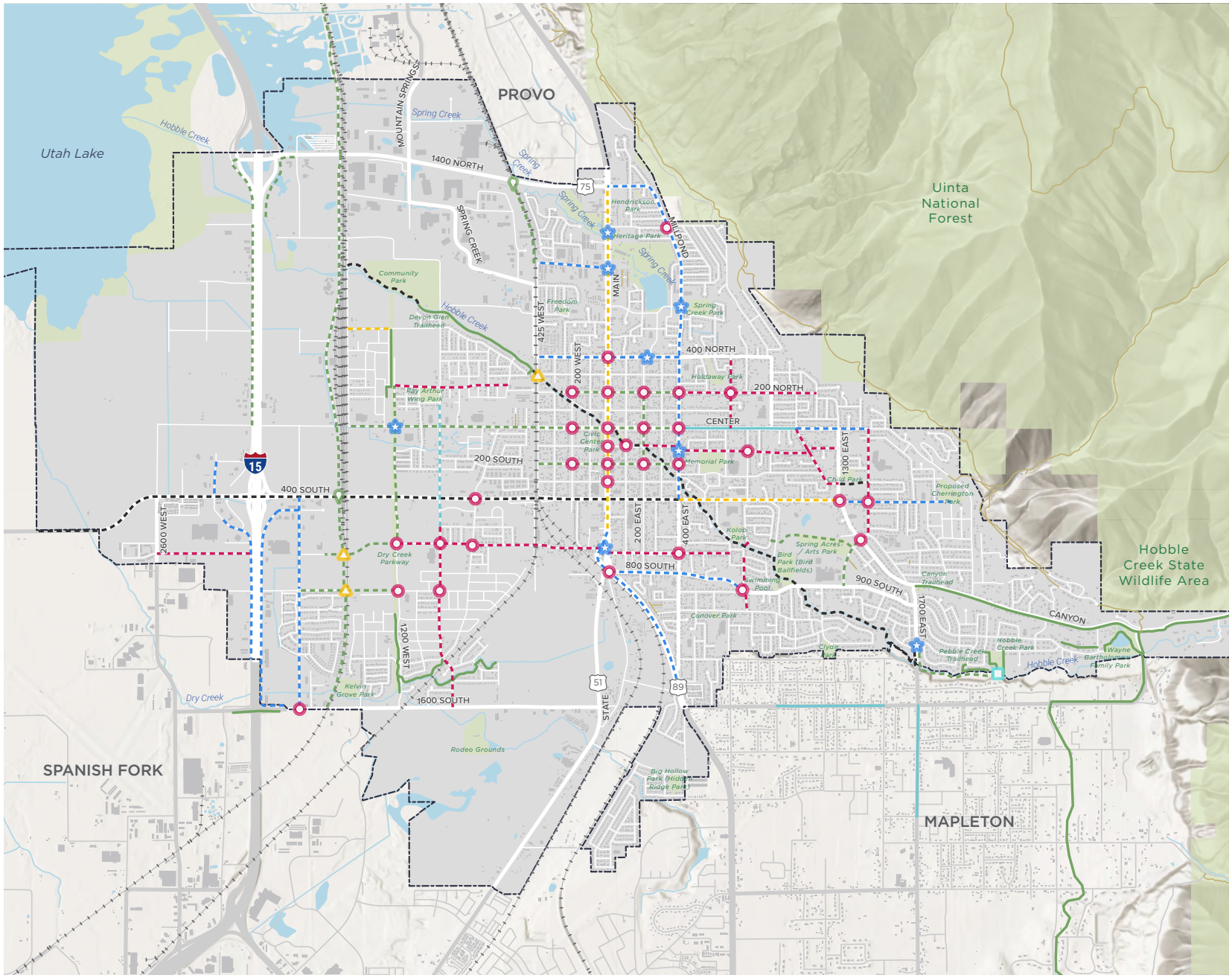
Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2022

0 0.5 1 Miles

N

SPOT IMPROVEMENTS ASSOCIATED WITH TOP 50 PROJECTS

Springville Active Transportation Plan



TOP PRIORITY SPOT IMPROVEMENTS

- Enhanced Intersection
- Mid-block Crossing
- Grade-Separated Crossing
- Railroad Crossing
- Trail Access

TOP-PRIORITY PROPOSED FACILITIES

- Bike Lane
- Buffered Bike Lane
- Separated Bikeway
- Signed Route with Sharrows
- Bicycle Boulevard
- Shared Use Path
- Future Vision; Needs Further Study

EXISTING FACILITIES TO REMAIN

- Bike Lane
- Shared Use Path

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limit

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2022

0 0.5 1 Miles

N

Table 6.2 Per Mile Annual Maintenance Cost Estimate Ranges. (Reproduced from Table 8.4, Salt Lake City Pedestrian & Bicycle Master Plan, Alta Planning + Design, 2015)

BIKEWAY TYPE	COST/MILE			COST AT BUILDOUT
	LOW	*HIGH*	*ASSUMED AVERAGE*	
Multi-Use Path	$3,000	$85,000	$5,000	$141,500
Protected Bike Lane	$1,200	$25,000	$2,000	$16,000
Buffered Bike Lane	$5,000	$12,000	$7,000	$120,400
Neighborhood ByWay	$2,000	$5,000	$3,000	$75,300
Conventional Bike Lane	$2,000	$5,000	$3,000	$8,400
Shared Lane Markings	$1,000	$2,500	$1,500	
Signed Shared Roadway	$ -	$500	$250	
				Total $361,600

FUNDING OPPORTUNITIES

Many funding sources are potentially available at the federal, state, regional, and local levels for Springville to implement the projects in this plan. The majority of non-local public funds for bicycle and pedestrian projects are derived through a core group of federal and state programs.

Table 6.3 provides a list of funding sources that may be applicable to projects identified in this plan. Most of these sources are competitive and require applications. For multi-agency projects, applications may be more successful if prepared jointly with other local and regional agencies.

Springville should also take advantage of private contributions, if appropriate, in developing the proposed system. This could include a variety of resources, such as right-of-way donations. Additionally, Springville should develop a dedicated local funding source for active transportation improvements through a general fund allocation, which will be sustainable funding that can be used to leverage other sources as well as develop projects. In addition to these funds, active transportation projects can be funded through a variety of measures at the local level: bonds financing, special improvement districts, or specified local sales taxes, such as the recently adopted Parks, Arts, and Recreation Tax.

Table 6.3 Active Transportation Funding Sources

NAME	DESCRIPTION	MORE INFORMATION
FEDERAL & STATE FUNDING SOURCES		
State Class B and C Program fund	Class B and C funds can be used for maintenance and construction projects, including active transportation; however, thirty percent of those funds must be used for construction or maintenance projects that exceed $40,000. The remainder of these funds can be used to match federal funds or pay the principal, interest, premiums, and reserves for issued bonds.	Learn more: https://www.udot.utah.gov/connect/business/public-entities/local-government-program-assistance View regulations: https://drive.google.com/file/d/10KwUcoo9En7H8yYulOWzZxi3QnFZ6g1K/view
Safe Routes to School (SRTS)	UDOT administers Safe Routes to School (SRTS) funding. This is a $1.2 Million annual fund to pay for active transportation safety improvements within two miles of schools across the state. Cities apply for this funding which is a reimbursement fund with no matching dollars required. This money can be used for improvements such as new trails or sidewalks, signals, crosswalks, etc.	Learn more: https://site.utah.gov/connect/business/public-entities/safe-routes-to-school-srts-program/
Active Transportation Investment Fund (ATIF)	The TIF fund was created in the 2005 Special Session by House Bill 108 and contains revenue from legislative appropriations, sales tax and vehicle registration fees. In 2018, the TIF was revised to establish a separate fund for Active Transportation projects. These funds are awarded through the State Transportation Commission and administered through UDOT. Projects must be paved, part of the UDOT Active Transportation Plan, provide traffic congestion mitigation on a state highway system, and include 40% non-UDOT managed funding match to be eligible for funding.	Learn more: https://www.udot.utah.gov/connect/about-us/commission/project-prioritization-process/
Transit Transportation Investment Fund (TTIF)	The Transit Transportation Investment Fund (TTIF) was created under Senate Bill 136. This new fund, beginning July 1, 2019, allocates state funding from the fuel tax specifically for public transit capital projects. However, Senate Bill 72 opened this fund up to non-motorized projects as well. These dollars can also be used for active transportation projects around transit facilities, but the new infrastructure provides access to transit stops. This UDOT fund has not been distributed for the first time yet, and UDOT has stated that cities will need to apply for their projects to get access to this fund. It also requires 40% matching funds from local governments. Cities can use federal (but not state) dollars for the match. More information on this fund will be developing in the coming years.	Learn more: https://www.udot.utah.gov/connect/about-us/commission/project-prioritization-process/
Safe Sidewalk Program	The Safe Sidewalks Program provides a legislative funding source for construction of new sidewalks adjacent to state routes where sidewalks do not currently exist and where major construction or reconstruction of the route, at that location, is not planned for ten or more years. For a proposed sidewalk location to be considered for the program, it must be: located adjacent to a state highway, within an urban area, have significant pedestrian traffic, and include a 25% local government match. This program is administered by UDOT.	Learn more: https://www.udot.utah.gov/connect/business/public-entities/local-government-program-assistance/ View regulations: https://docs.google.com/document/d/1sfOQu5qictzKDAj0yDvSO48JFuYrZZbuYsyW4bbardY/edit

NAME	DESCRIPTION	MORE INFORMATION
Highway Safety Improvement Program (HSIP)	HSIP funds are available for safety projects aimed at reducing traffic fatalities and serious injuries. Bike lanes, roadway shoulders, crosswalks, intersection improvements, underpasses, and signs are examples of eligible projects. These funds are administered through the UDOT Highway and Safety Division.	Learn more: https://www.udot.utah.gov/connect/about-us/operations/traffic-safety/
RAISE Discretionary Grants	RAISE discretionary grants, which were originally created under the American Recovery and Reinvestment Act as TIGER grants, can be used for a wide variety of projects. Recent examples of funded projects include dedicated bus lanes in Baltimore, highway and bridge repair in New Mexico, dock replacements in Alaska, and a rail-to-trail project in Arkansas. Overall, USDOT has awarded $9.9 billion to more than 700 projects. RAISE can provide capital funding directly to any public entity, including municipalities.	Learn more: https://www.transportation.gov/RAISEgrants
Federal Transit Administration Grants	The FTA has several grant programs available to local and state governments to enhance active transportation connections to public transportation facilities.	Learn more: https://www.transit.dot.gov/funding/grants/grant-programs
Federal Lands Access Program	"This fund is intended to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The 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. The next call for projects is anticipated for in 2025."	Learn more: https://highways.dot.gov/federal-lands/programs-access
STATE-LEVEL FUNDING SOURCES (NON-UDOT)		
Recreational Trails Program	Administered by the Utah Division of State Parks and Recreation, the Recreational Trails Program required that motor fuel tax revenues generated from motor fuel sales for off-highway recreational purposes be transferred from the Highway Trust Fund to the Trails Trust Fund for recreational trail and facility improvements. This program provides grants for non-motorized and motorized trails, including the construction and maintenance of trails and facilities, staging areas, trailheads, restroom facilities, and trail signing.	Learn more: https://stateparks.utah.gov/resources/grants/recreational-trails-program/
Land and Water Conservation Fund	Administered by the Utah Division of State Parks and Recreation, the Land and Water Conservation Fund Act provides federal grants for the acquisition and/or development of public outdoor recreation areas. Any site/facility purchased, developed, or improved with funding from this grant is protected in perpetuity as a public outdoor recreation area.	Learn more: http://stateparks.utah.gov/resources/grants/land-and-water-conservation-fund/

NAME	DESCRIPTION	MORE INFORMATION
Utah Outdoor Recreation Grant	Administered through the Office of Outdoor Recreation, the Utah Outdoor Recreation Grant project helps communities build trails and other recreation infrastructure by awarding matching grants. The grants help enhance recreational opportunities and amenities in Utah's communities.	Learn more: https://business.utah.gov/outdoor/uorg/
Community Development Block Grant (CDBG)	The Community Development Block Grant (CDBG) Program provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. The State of Utah administers the funds for cities with fewer than 50,000 residents.	Learn more: https://jobs.utah.gov/housing/community/cdbg/index.html
MPO-LEVEL FUNDING SOURCES		
Mountainland Transportation Improvement Program (TIP)	MAG awards 80 million dollars biennially for regional transportation projects and programs in urban Utah County. The funds come from a combination of federal, state, and county sources. Funding is programmed by the MPO to eligible applicants including member jurisdictions, UDOT, UTA, state agencies, and private organizations. The MPO selects projects through its committees based off congestion relief strategies, mode choice, air quality improvement, and safety. Projects can support transportation by any mode but must be regional in nature.	Learn more: https://mountainland.org/rp-tip/
Congestion Mitigation and Air Quality (CMAQ) Improvement Program	The CMAQ program aims to reduce congestion or improve air quality in nonattainment or maintenance areas by shifting travel demand to non-automobile modes. This fund is administered through the MAG TIP.	Learn more: https://www.fhwa.dot.gov/environment/air_quality/cmaq/
Surface Transportation Block Grant Program	The Surface Transportation Block Grant program (STBG) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. This program includes a set-aside for transportation alternatives, including pedestrian and bicycle facilities, recreational trails, and safe routes to school projects. This program is administered through the MAG TIP.	Learn more: https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm

NAME	DESCRIPTION
CITY FUNDING SOURCES	
Bond Financing	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	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 approved 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	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	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	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	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 Springville should provide bikeways in the City. Springville should also coordinate with UDOT to find opportunities for bike facilities on state road construction projects.

NAME	DESCRIPTION	MORE INFORMATION
	PRIVATE FUNDING SOURCES	
PeopleForBikes Community Grant Program	The PeopleForBikes Community Grant Program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. PeopleForBikes accepts requests for funding up to $10,000.	*Learn more: https://www.peopleforbikes.org/grant-guidelines*
Community Fundraising	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.	
Private Developers	Developers can construct the local streets with bike lanes within subdivisions. They may often dedicate right-of-way to trails and parks. Areas with planned or anticipated new growth may include new active transportation facilities provided by the developers. Cities can encourage developers to include active transportation amenities during development review. From small site plans to larger master-planned communities, as city staff and planning commissions review new developments, they can require developers to show how the proposed development will accommodate or enhance active transportation connections.	

APPENDIX A

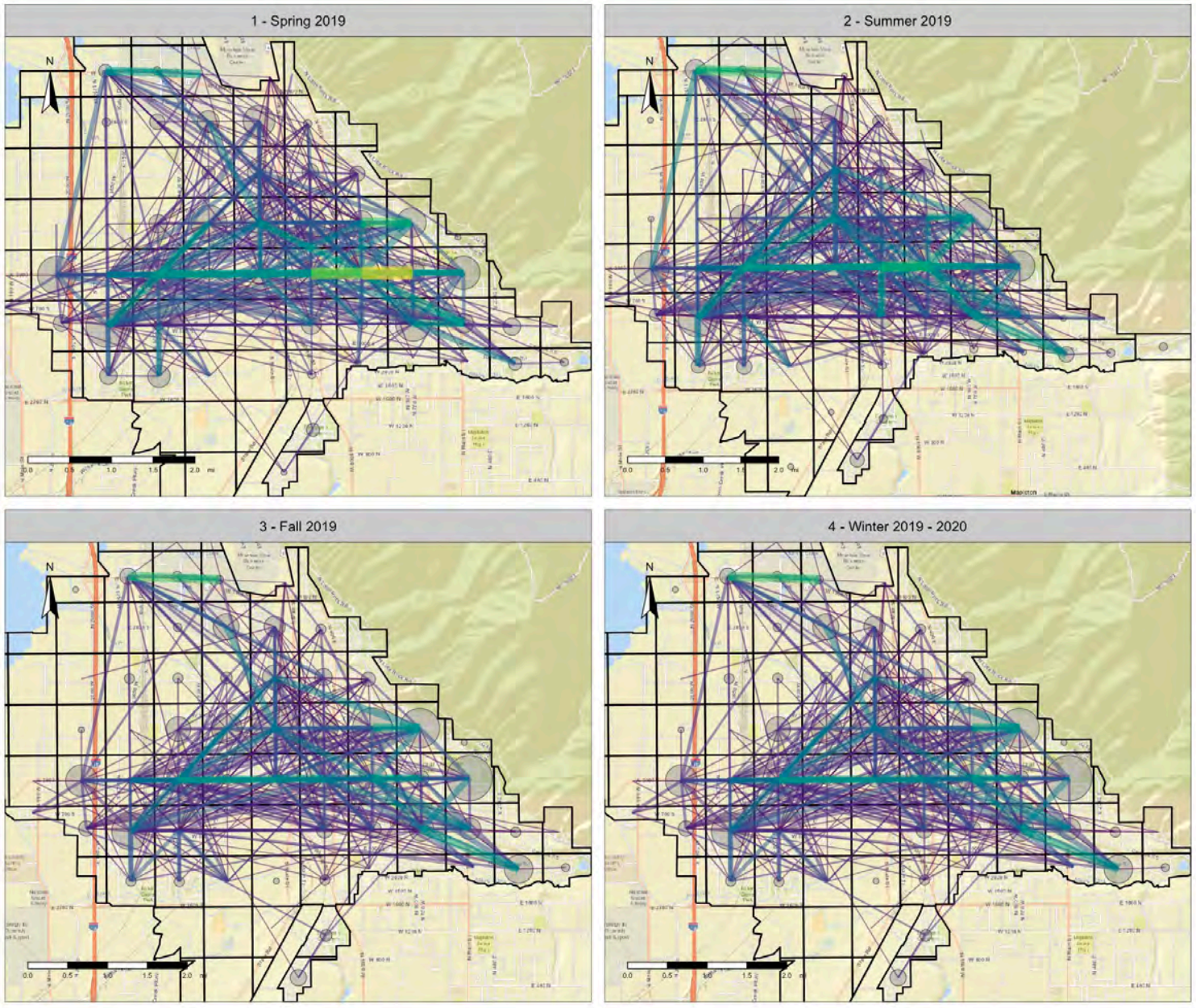
ORIGIN/DESTINATION ANALYSIS

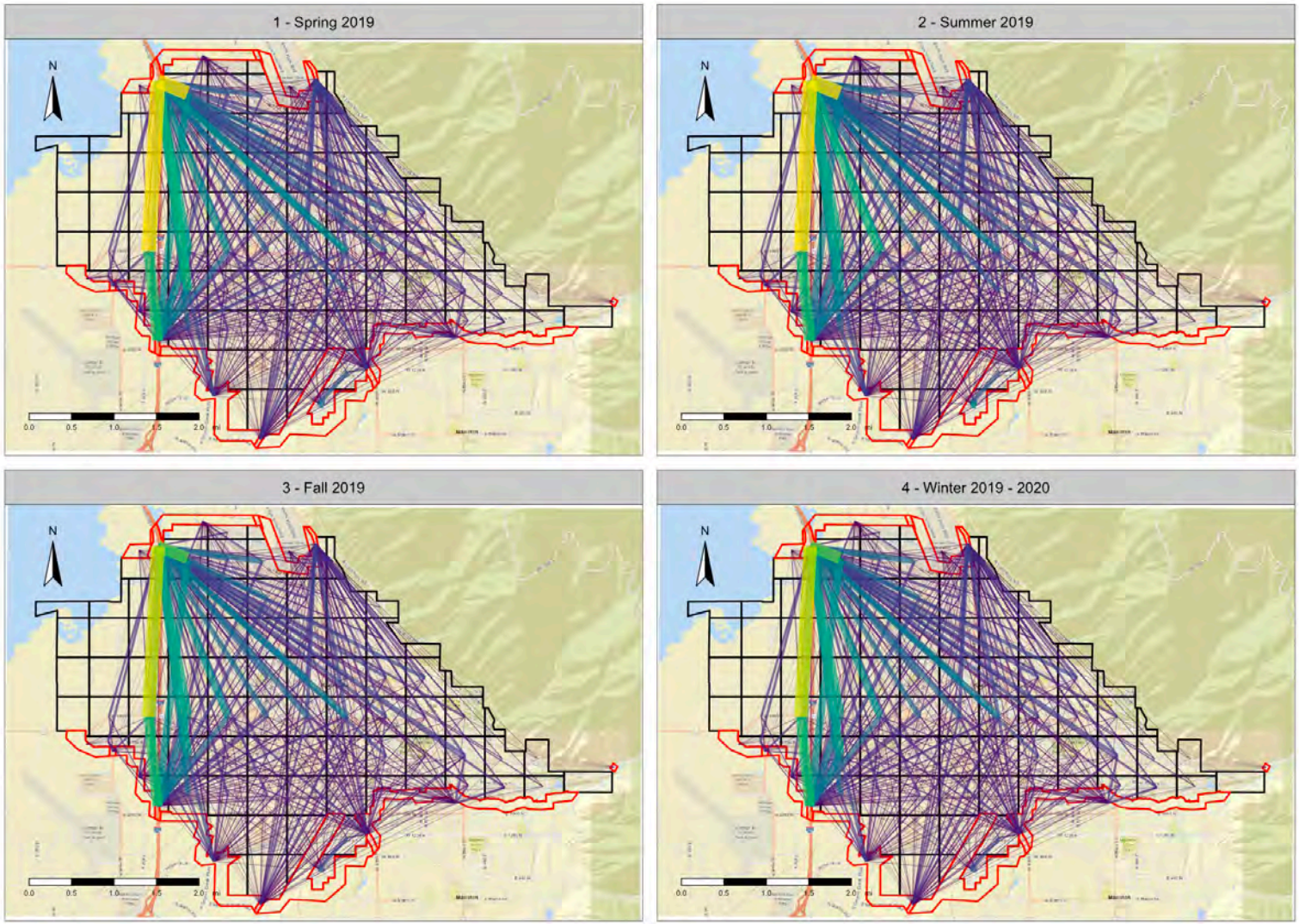
CHAPTER 2

ORIGIN/DESTINATION ANALYSIS

The origin/destination analysis tells the story of where people's trips are beginning and ending within Springville. Using third party data that anonymously pings cell phones using GPS, **Map Series A.1 - A.6** illustrate biking, walking, and driving trips that a) begin **and** end in Springville and b) either begin **or** end in Springville.

MAP A.1


1 - Spring 2019
2 - Summer 2019
3 - Fall 2019
4 - Winter 2019 - 2020
N
Springville Grid
Origin-Destination
2019
Within Zone Traffic
20
40
60
80
Between Zones
All Vehicles Streetlight Volume
All Day
All Days
0 to 50
50 to 100
100 to 150
150 to 200
200 to 250
250 to 300
300 to 350
350 to 400
This map shows OD trips
occuring entirely within Springville



Springville Grid
Origin-Destination
2019

Between Zones
All Vehicles Streetlight Volume
All Day
All Days

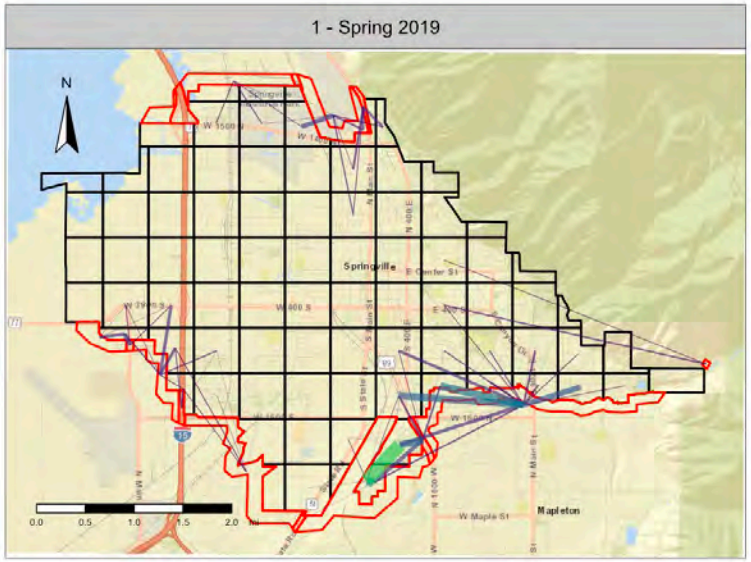
- 0 to 200
- 200 to 400
- 400 to 600
- 600 to 800
- 800 to 1,000
- 1,000 to 1,200
- 1,200 to 1,400
- 1,400 to 1,600
- 1,600 to 1,800
- 1,800 to 2,000
- 2,000 to 2,200
- 2,200 to 2,400
- 2,400 to 2,600
- 2,600 to 2,800
- 2,800 to 3,000

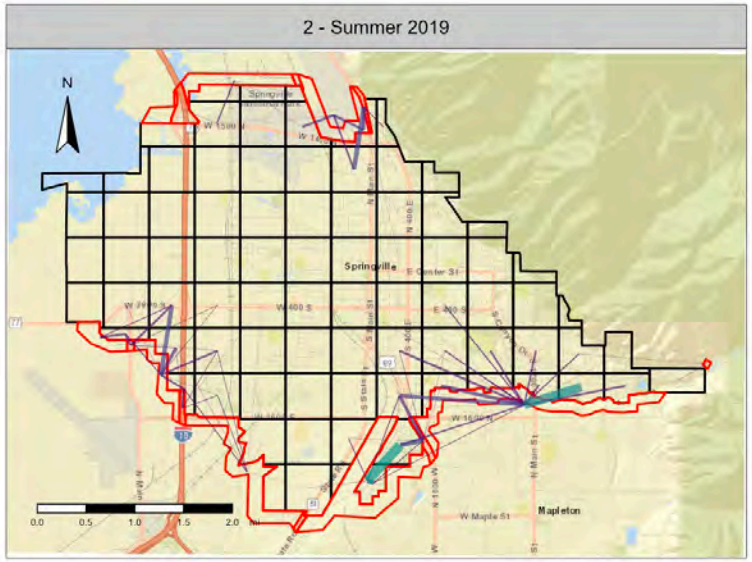
Zone Legend

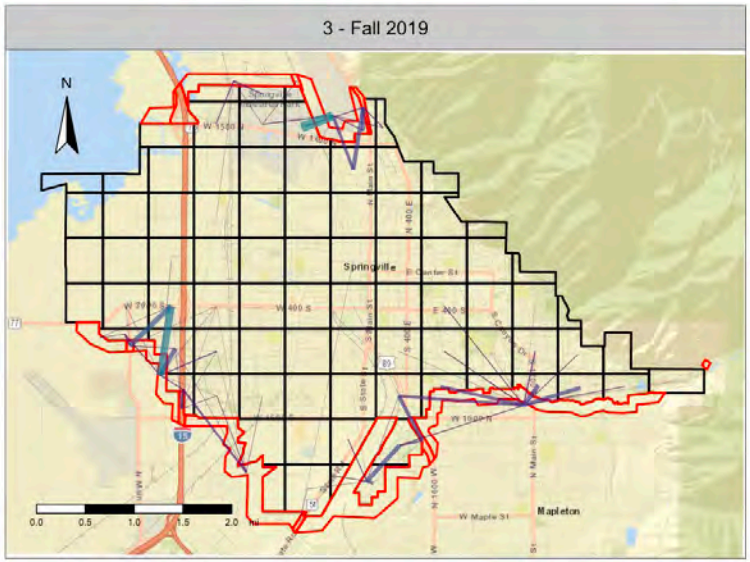
- Pass Thru Zone Outside Springville
- Within Springville Origin/Destiantion Zone

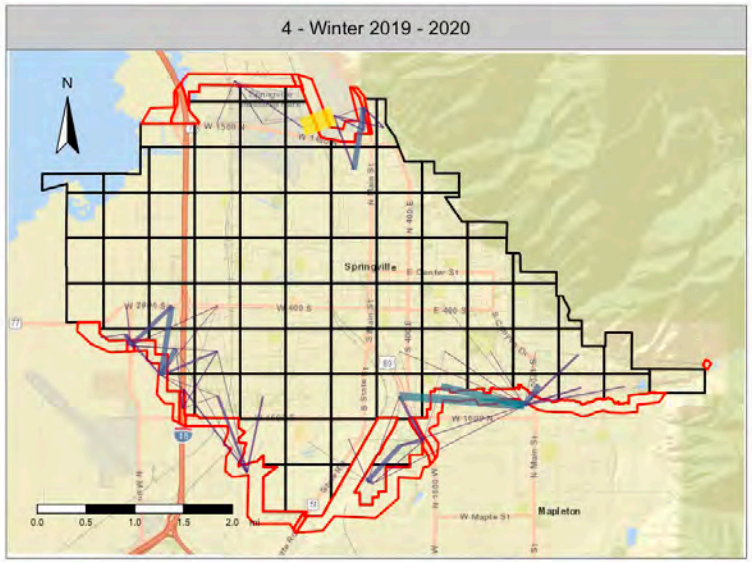
All interaction shown on this map has one link outside Springville and one in. Therefore it shows commuter traffic into and out of the city limits.

MAP A.3









Springville Grid
Origin-Destination
2019

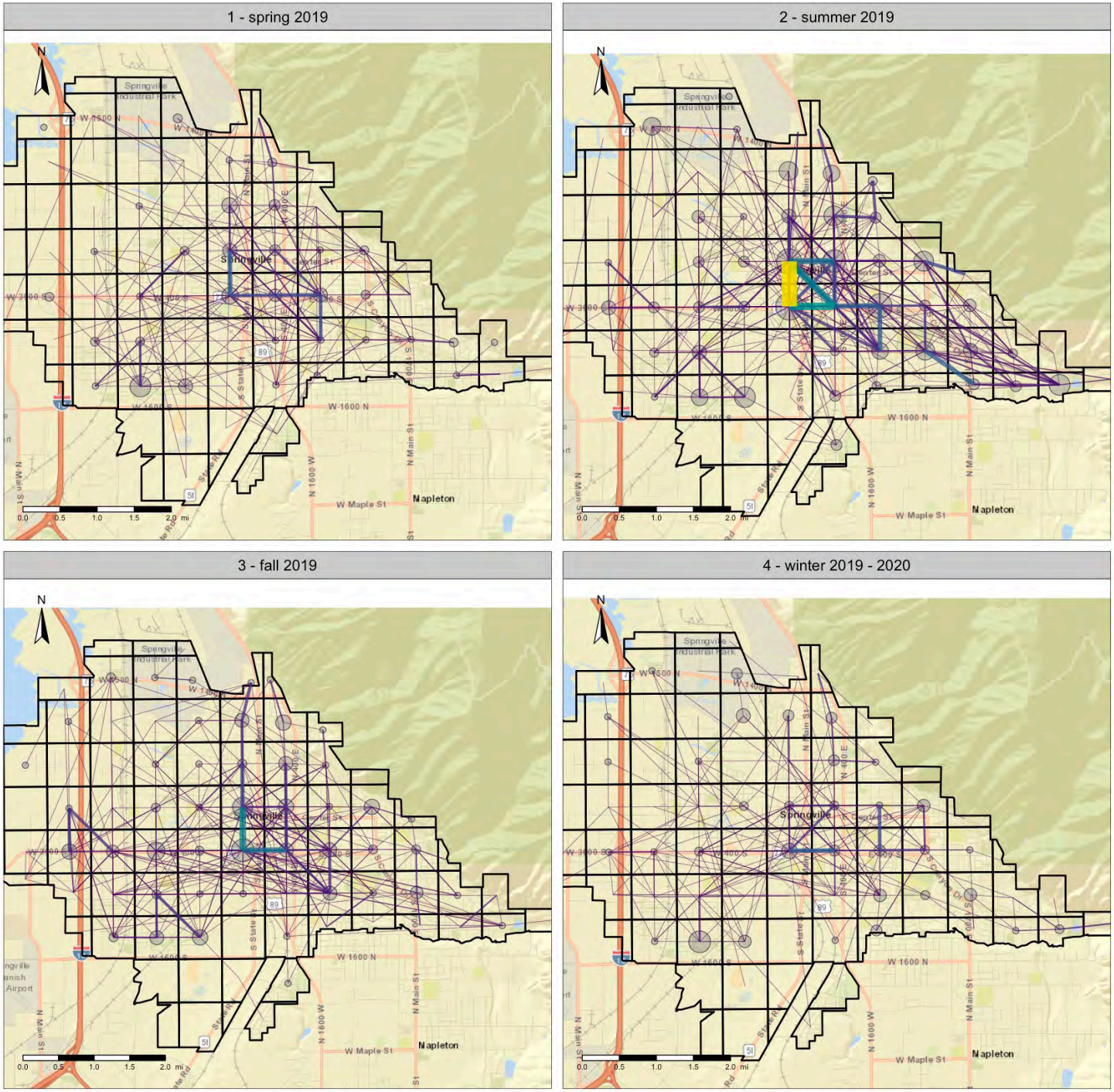
Between Zones
Pedestrian Streetlight Index
All Day
All Days

- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 140
- 141 to 160
- 161 to 180
- 181 to 200
- 201 to 220
- 221 to 240
- 241 to 260
- 261 to 280
- 281 to 300
- 301 to 320

Zone Legend

- Pass Thru Zone Outside Springville
- Within Springville Origin/Destiantion Zone

All interaction shown on this map has one link outside Springville and one in. Therefore it shows commuter traffic into and out of the city limits.



Springville Grid
Origin-Destination
2019

Within Zone Traffic

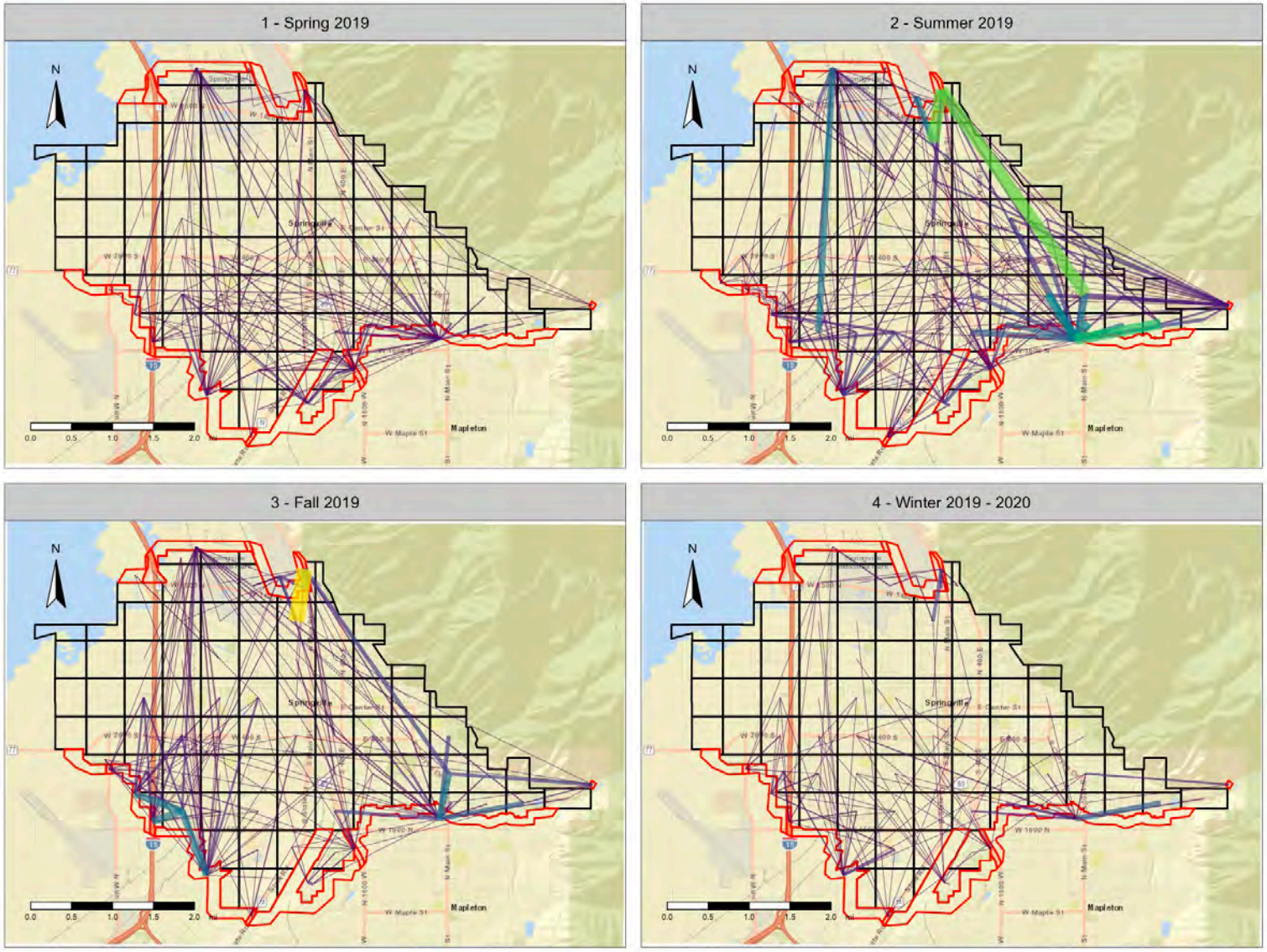
5 10 15 20

Between Zones
Bike Streetlight Index
All Day
All Days

- 1 to 2
- 3 to 4
- 5 to 6
- 7 to 8
- 9 to 10
- 11 to 12
- 13 to 14
- 15 to 16
- 17 to 18
- 19 to 20
- 21 to 22
- 23 to 24
- 25 to 26
- 27 to 28
- 29 to 30

Spring: March. April, May
Summer: June, July, Aug
Fall: Sept, Oct, Nov
Winter: Dec, Jan, Feb

MAP A.5



Springville Grid
Origin-Destination
2019

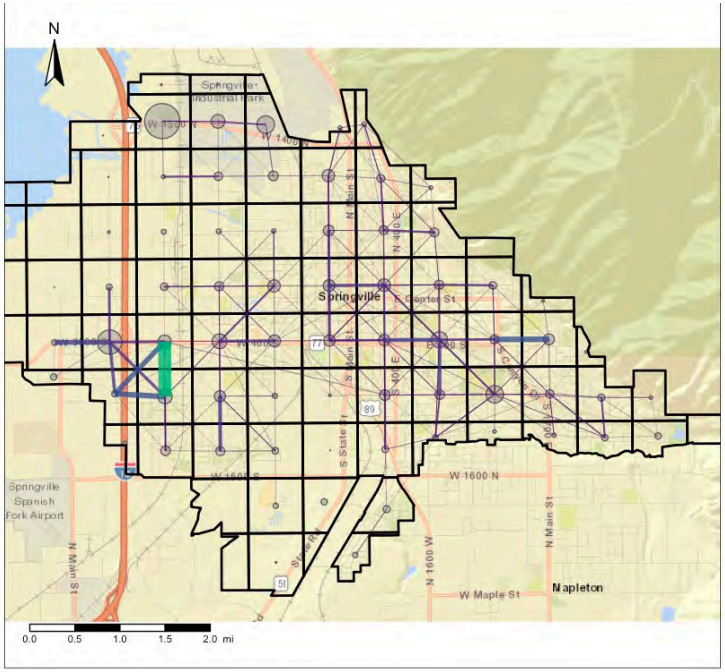
Between Zones
Bike Streetlight Index
All Day
All Days

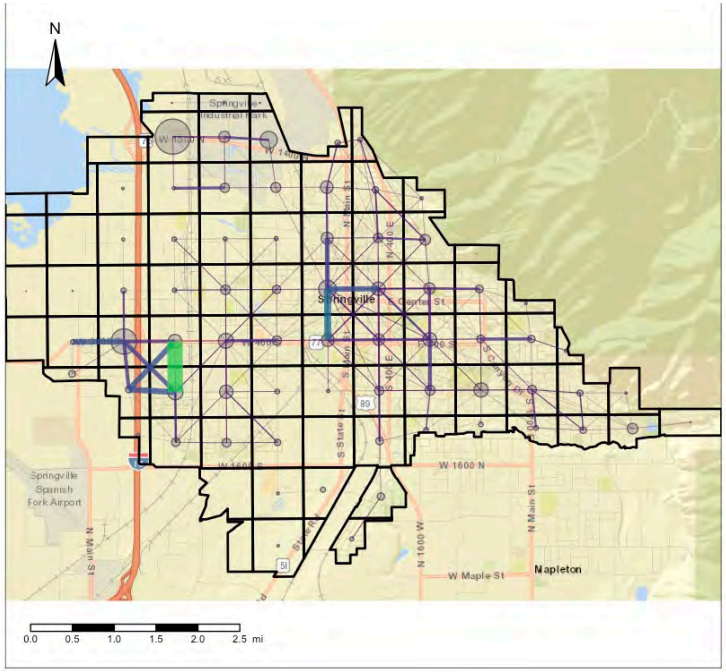
- 1 to 2
- 3 to 4
- 5 to 6
- 7 to 8
- 9 to 10
- 11 to 12
- 13 to 14
- 15 to 16
- 17 to 18
- 19 to 20
- 21 to 22

Zone Legend

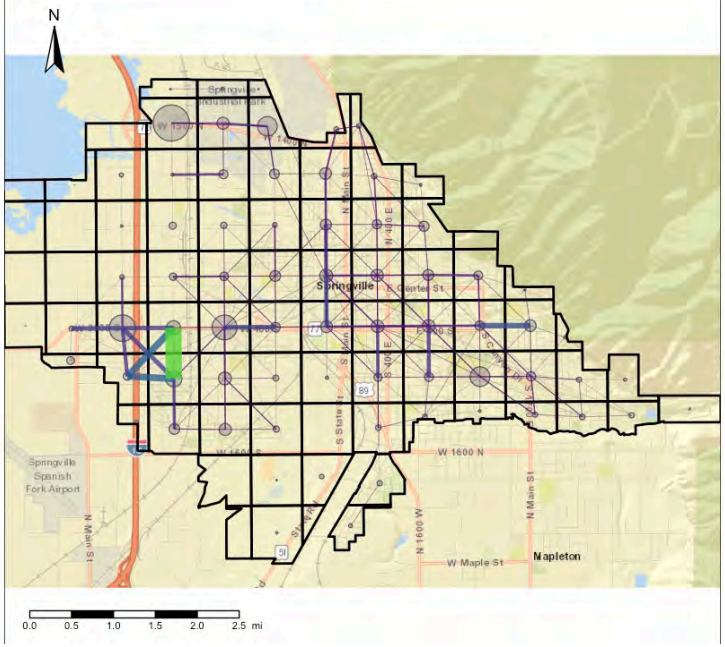
- Pass Thru Zone Outside Springville
- Within Springville Origin/Destiantion Zone

All interaction shown on this map has one link outside Springville and one in. Therefore it shows commuter traffic into and out of the city limits.

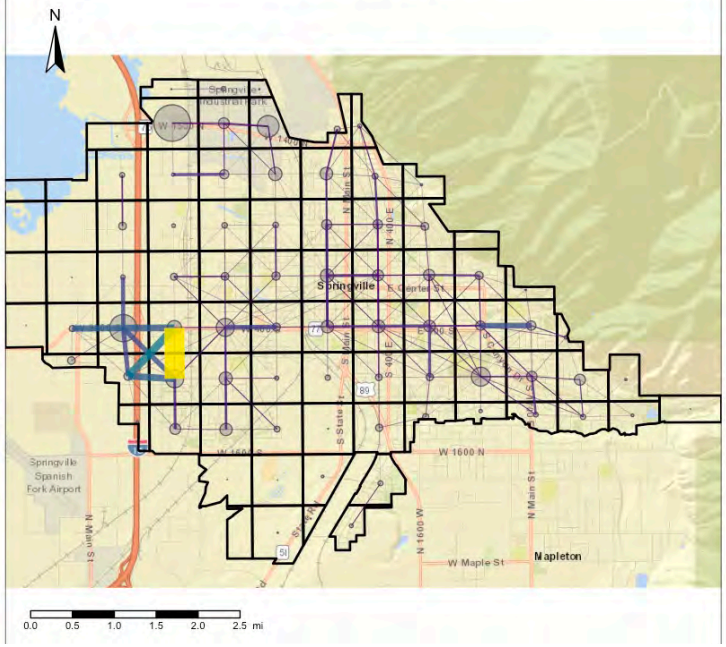




3 - Fall 2019



4 - Winter 2019 - 2020



Springville Grid
Origin-Destination
2019

Within Zone Traffic

2,000 4,000 6,000 8,000 10,000

Between Zones
Pedestrian Streetlight Index
All Day
All Days

- 1 to 100
- 101 to 200
- 201 to 300
- 301 to 400
- 401 to 500
- 501 to 600
- 601 to 700
- 701 to 800
- 801 to 900
- 901 to 1,000
- 1,001 to 1,100
- 1,101 to 1,200
- 1,201 to 1,300
- 1,301 to 1,400
- 1,401 to 1,500
- 1,501 to 1,600
- 1,601 to 1,700
- 1,701 to 1,800
- 1,801 to 1,900
- 1,901 to 2,000
- 2,001 to 2,100

Spring: March. April, May
Summer: June, July, August
Fall: Sept, Oct, Nov
Winter: Dec, Jan, Feb

APPENDIX B

LEVEL OF TRAFFIC STRESS (LTS)

CHAPTER 2

LEVEL OF TRAFFIC STRESS

ANALYSIS

EXISTING ROADWAY NETWORK SUITABILITY

Active transportation connections that are "low-stress" are an important factor in encouraging people of all ages and abilities to walk and ride a bicycle throughout Springville. Connected networks of low-stress facilities, like shared use paths, separated bike lanes, and bicycle boulevards appeal to a diverse cross section of the public, especially on or as alternatives to high volume and/or high-speed streets. High stress streets can also act as barriers to walking and bicycling, with easy crossings only possible at intersections with traffic signals or other crossing improvements. Bicycle travel on comfortable streets can make perceived travel distances feel less than they actually are, while travel on higher stress streets with more traffic and higher speeds can make perceived travel distances feel longer. In short, low-stress active transportation facilities are critical in supporting and expanding biking and walking trips in most communities. The figure below displays the effect of street level of comfort on perceived trip distance.

Map B.1 shows the Bicycle Level of Traffic Stress (LTS) for Springville. Much of the area is characterized by local, residential streets, which tend to be inherently low-stress due to slower speeds and generally low traffic volumes. Little intervention is needed on these roads to improve bicycle conditions however intersection improvements may be required at major streets to provide broader connectivity across collector or arterial streets. Highest stress locations are along 400 South, 1600 South, and Main Street.

Map B.2 shows the Pedestrian LTS for Springville. Like the Bicycle LTS, much of the area is characterized by local, residential streets which tend to also be inherently comfortable for pedestrians. Little intervention is needed on these roads to improve pedestrian conditions. Highest stress locations are along 400 South, 1600 South, and Main Street.

The primary takeaway from an LTS analysis is that roadways that are arterial in nature (wide streets with high speeds) are a barrier in the low-stress walking and biking network. On both LTS maps, signalized intersections are marked. Intersections such as these that are controlled for bicycle and pedestrian crossing allow low-stress networks to continue across high-stress corridors. However, where controlled crossings are not provided, high-stress corridors serve as a barrier, creating several islands of low-stress connectivity.

METHODOLOGY AND CRITERIA

The Level of Traffic Stress (LTS) analysis illustrated in **Maps B.2** and **B.2** was adapted from the 2012 Mineta Transportation Institute (MTI) Report 11-19: Low-Stress Bicycling and Network Connectivity. LTS is specifically designed to objectively assess how comfortable roadway and sidewalk conditions are. The LTS analysis uses roadway network data (i.e., posted speed limit, street width, number of travel lanes, intersection condition, presence and character of bike lanes, presence of bike lane buffers, and presence of sidewalks) as a proxy for bicyclist and pedestrian comfort level.

The combination of these criteria creates four levels of traffic stress for the existing roadway network. The lower the number, the higher the level of comfort for people on bicycles.

- LTS 1: Low-stress roadways suitable for all ages and abilities; also includes paved shared use paths
- LTS 2: Roadways that are comfortable enough that the mainstream adult population would ride a bicycle on them
- LTS 3: Roadways that would probably only be comfortable ridden by an experienced, confident bicyclist
- LTS 4: Roadways ridden only by strong or fearless bicyclists

The process for defining LTS for mixed traffic streets, or streets where designated bike facilities do not exist, consists of assigning initial values to each roadway segment based upon the combination of speed limit and roadway width (defined by number of travel lanes), as shown in **Table B.1**.

Where bicycle and pedestrian facilities exist, the LTS value is determined by street width, bike lane width, and speed limit. **Table B.2** shows criteria for bike lanes alongside on-street parking, and **Table B.3** shows criteria for a bike lane not alongside on-street parking. Off-street facilities such as shared-use paths are always scored as LTS 1.

BICYCLE LEVEL OF TRAFFIC STRESS (LTS)

Springville Active Transportation Plan

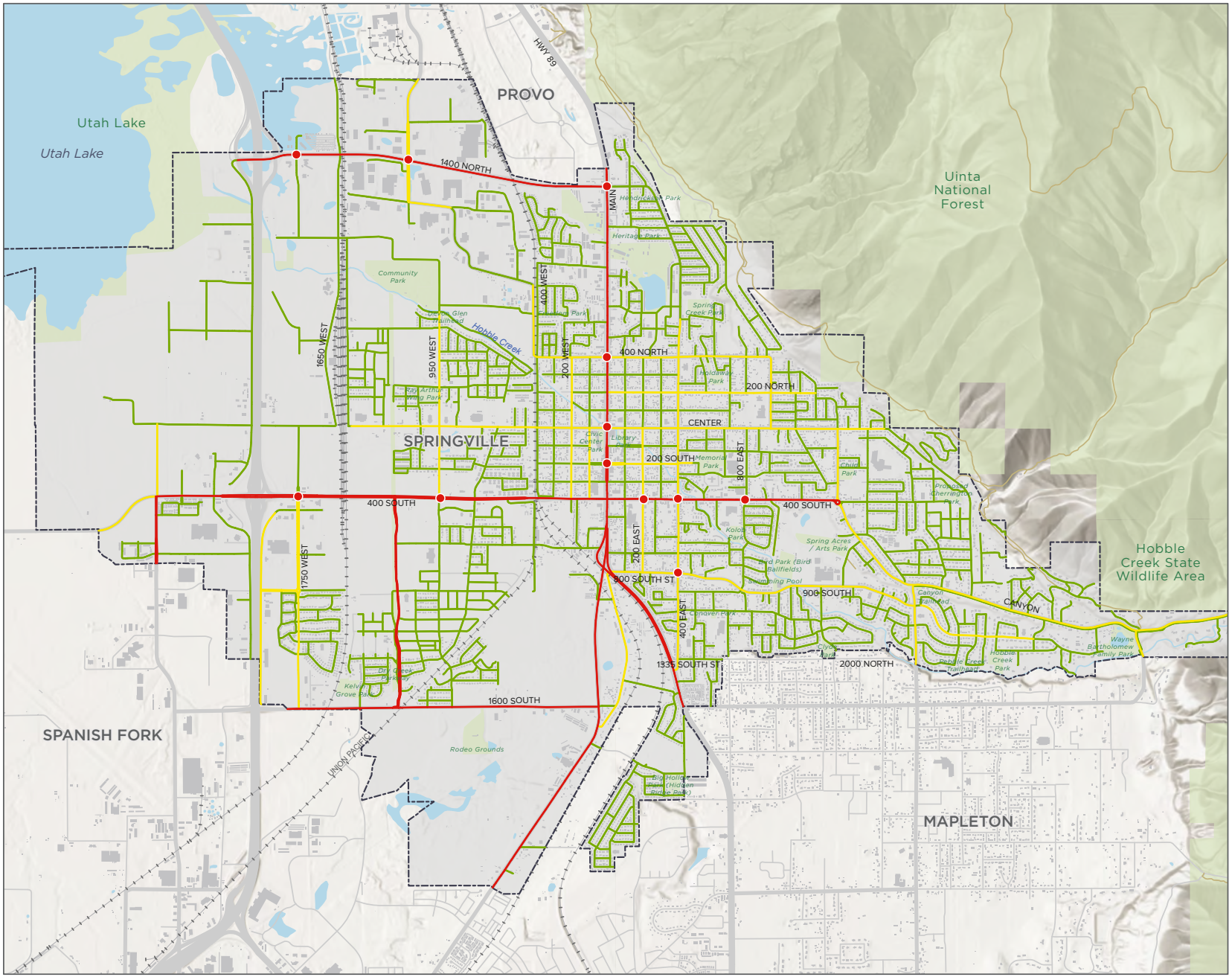
BICYCLE LTS

- LTS 1 (Low Stress)
- LTS 2
- LTS 3
- LTS 4 (High Stress)
- Signalized Intersection

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Note: LTS analysis is dependent on data availability and accuracy and is intented to paint a broad picture of roadway user comfort. Specific corridor scores may need to be adjusted.



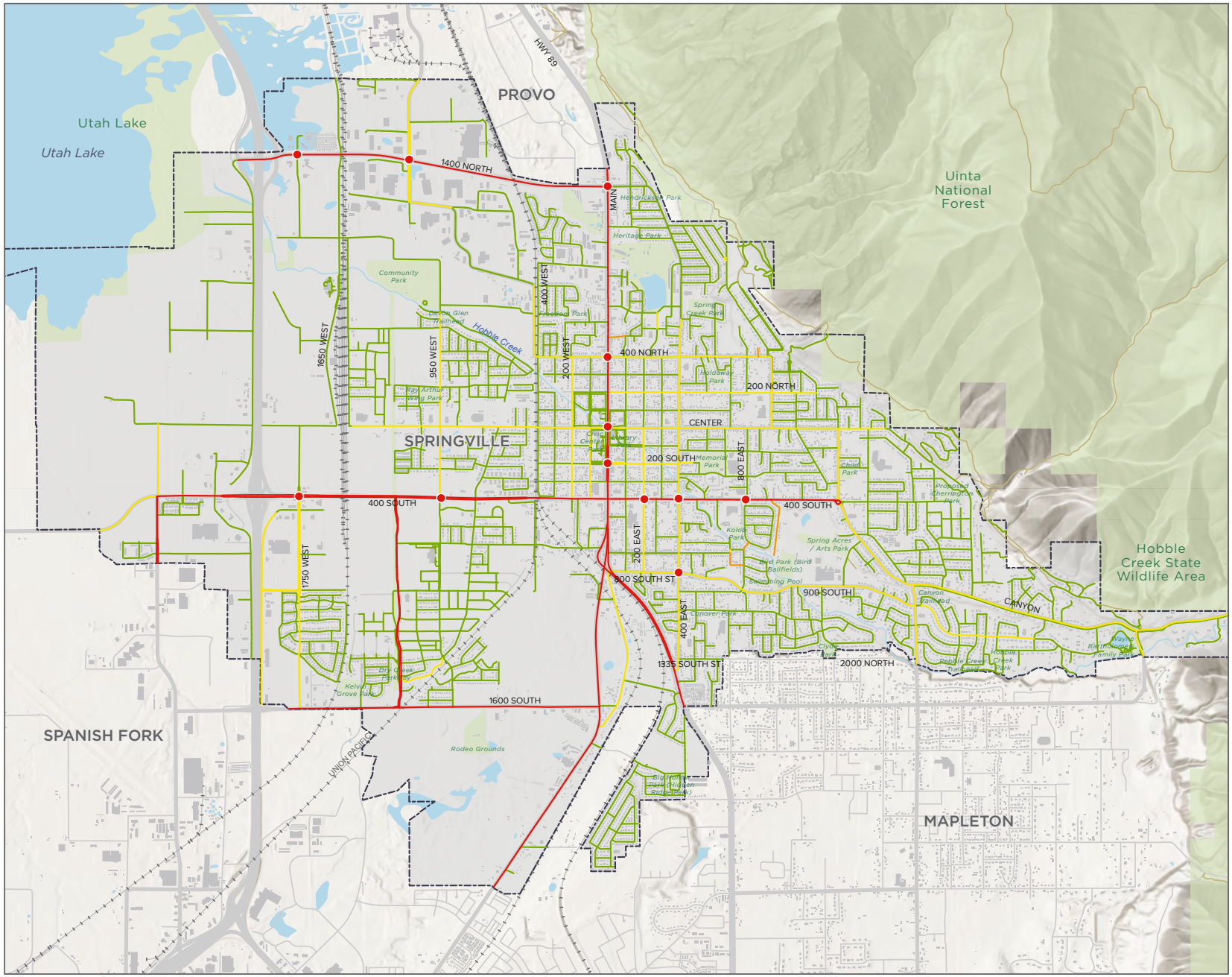
Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

PEDESTRIAN LEVEL OF TRAFFIC STRESS (LTS)

Springville Active Transportation Plan



PEDESTRIAN LTS

- LTS 1 (Low Stress)
- LTS 2
- LTS 3
- LTS 4 (High Stress)
- Signalized Intersection

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Note: LTS analysis is dependent on data availability and accuracy and is intented to paint a broad picture of roadway user comfort. Specific corridor scores may need to be adjusted.

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.5 1 Miles

N

Figure B.1 Perceived trip distance base on LTS

Table B.1: Initial LTS Classification (Speed Limit and Lane Configuration); Mixed traffic

Lane Configuration

Speed Limit	2 lanes without centerline	2 - 3 lanes with centerline	4 - 5 lanes	6+ lanes
≤ 25 mph	1	2	3	4
30 mph	2	3	4	4
≥ 30 mph	4	4	4	4

LEVEL OF TRAFFIC STRESS

INCREASING LEVEL OF COMFORT, SAFETY, AND INTEREST IN BICYCLING FOR TRANSPORTATION

LTS 4

Suitable for some experienced and skilled cyclists

- High traffic speeds and/or volumes
- 2-5+ lanes wide
- Complex intersections
- Narrow or no bike lane
- Difficult to cross

LTS 3

Suitable for most observant adult cyclists

- Moderate traffic speeds and volumes
- Up to 5 lanes wide
- Intersections perceived to be safe by most adults
- Typically low-speed arterials with bike lanes or moderate-speed 2-lane roadways with bike lanes

LTS 2

Suitable for teen and adult cyclists with adequate bike handling skills

- Moderate to low traffic speeds and volumes
- Up to 3 lanes wide
- Intersections perceived to be safe by most teenagers and adults
- Typically collector-level streets with bike lanes or a central business district

LTS 1

Suitable for all cyclists, including children

- Low traffic speeds and volumes
- Up to 2 lanes wide
- Intersections are easy to cross by adults and children
- Typically residential local streets and physically separated bikeways

Table B.2: Criteria for bike lanes alongside on-street parking

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width (through lanes per direction)	1	(no effect)	2 or more	(no effect)
Sum of bike lane and parking lane width (includes marked buffer and paved gutter)	15 ft. or more	14 or 14.5 ft.*	13.5 ft. or less	(no effect)
Speed limit or prevailing speed	25 mph or less	30 mph	35 mph	40 mph or more
Bike lane blockage (typically applies in commercial areas)	rare	(no effect)	frequent	(no effect)

Note: (no effect) = factor does not trigger an increase to this level of traffic stress.

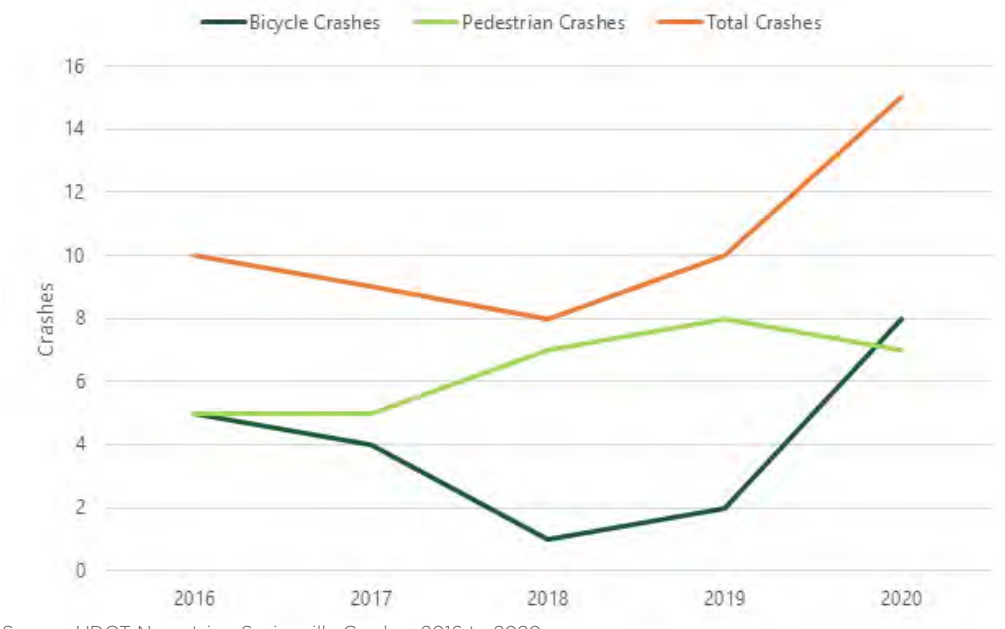
* *If speed limit < 25 mph or Class = residential, then any width is acceptable for LTS 2.*

Table B.3: Criteria for bike lanes not alongside on-street parking

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width (through lanes per direction)	1	2, if directions are separated by a raised median	more than 2, or 2 without a separating median	(no effect)
Bike lane width (includes marked buffer and paved gutter)	6 ft. or more	5.5 ft. or less	(no effect)	(no effect)
Speed limit or prevailing speed	30 mph or less	(no effect)	35 mph	40 mph or more
Bike lane blockage (may apply in commercial areas)	rare	(no effect)	frequent	(no effect)

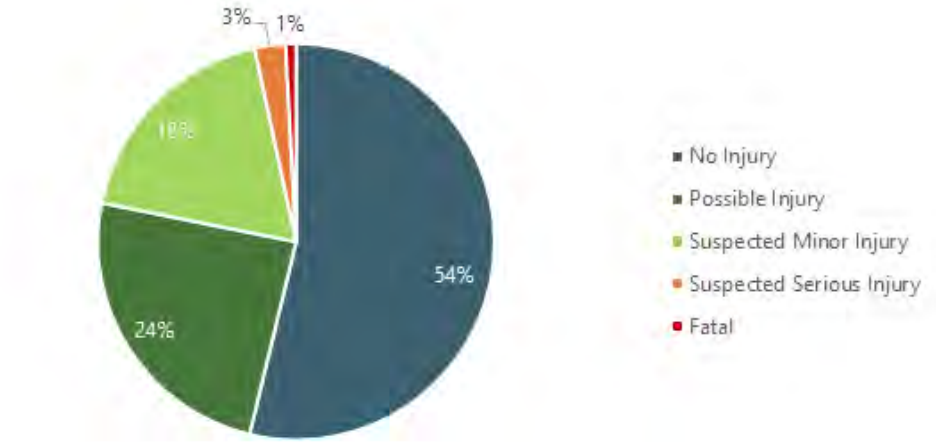
Note: (no effect) = factor does not trigger an increase to this level of traffic stress.

Figure B.2 Reported crashes, annually



Source: UDOT Numetrics. Springville Crashes 2016 to 2020.

Figure 2.3 Reported crashes, annually



Source: UDOT Numetrics.

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APPENDIX C

SAFETY ANALYSIS

CHAPTER 2

SAFETY ANALYSIS

CRASH HOT SPOTS

Crash hot spots are smaller sections of roadways where a statistically significant number of crashes occur. The "Find Hot Spot" GIS tool was used to identify hot spots throughout Springville. This tool identifies statistically significant spatial clusters with a corresponding level of confidence. A higher confidence interval indicates that crash clusters are less likely to be random, and are more likely a result of a system issue.

Sections with three or more crashes are identified as "hot spots," or areas where active transportation crashes occur more often than other locations in the city. Identifying these hot spots can reveal location-specific issues that may inform eventual countermeasures. **Map C.1** shows the bicyclist and pedestrian crash hot spots throughout Springville. Statistical analysis of bicyclist and pedestrian crashes from 2016 to 2020 revealed the following intersections as hot spots:

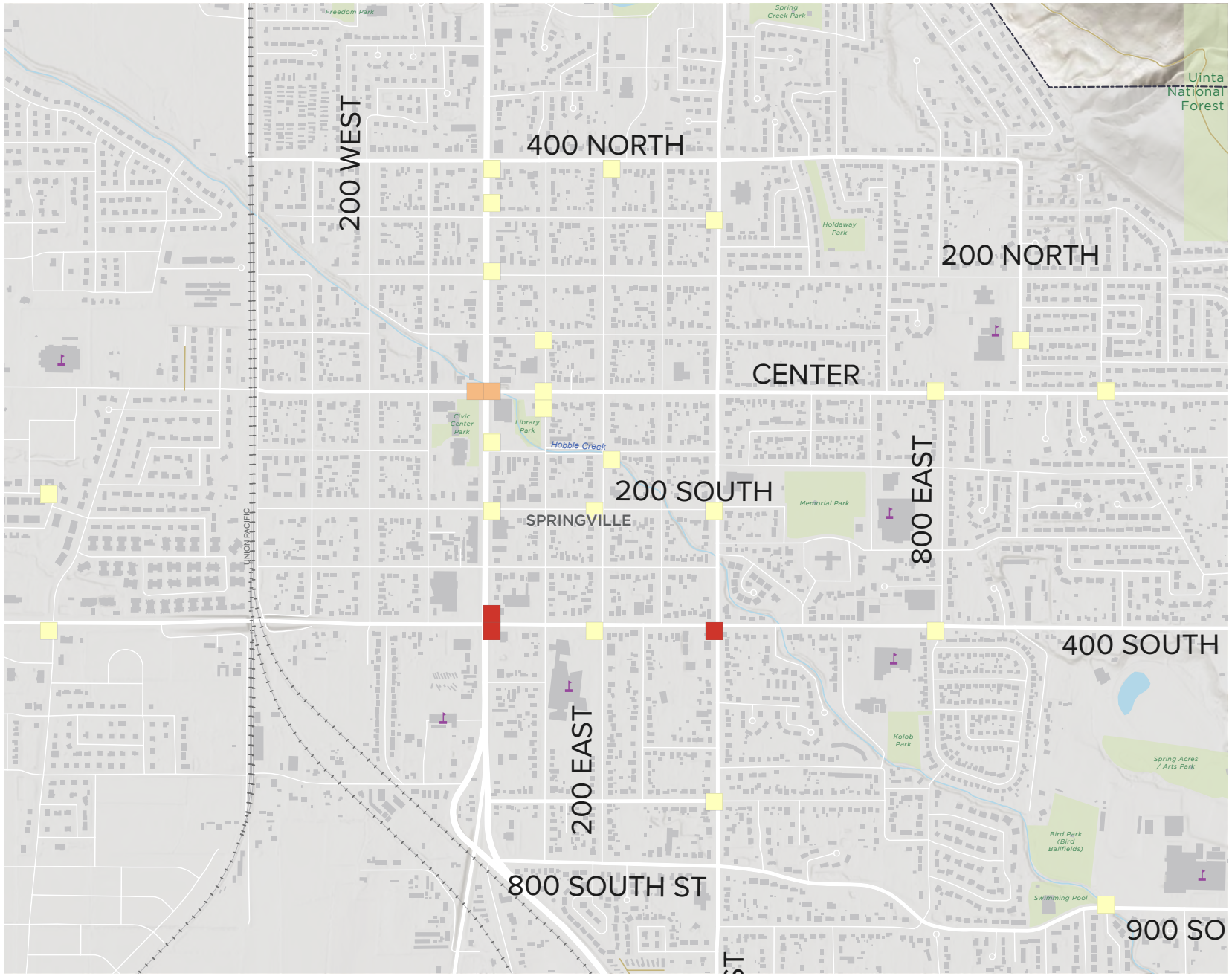
Main Street & 400 South. The intersection of Springville's two largest arterials, Main Street & 400 South, was the site of five crashes: one pedestrian crash and four cyclist crashes. Although the intersection is lit, three of the five crashes took place outside of daylight hours, indicating that more light might need to be provided at this location. This intersection is large, with crossing distances varying from 80' (east leg) to 110' (north and south legs). Two of the five crashes involved right-turning drivers, two involved left-turning drivers, and one involved a driver passing through the intersection. High-visibility crosswalks, right-turn-on-red restrictions, and leading pedestrian intervals might help mitigate some of these issues.

The Main Street / 400 South intersection is on a bus route and near two schools, retail, and several community services. The intersection is signalized and marked with standard crosswalks on all legs. Main Street, a UDOT roadway with a posted speed limit of 30 mph at this intersection, provides bike lanes on the north and south legs of the intersection, although cyclists must merge towards the centerline at the intersection due to the introduction of right-turn lanes. A combined bike lane/turn lane with shared lane markings through the right turn lane might raise awareness of cyclists to motorists and provide a more consistent bike lane network to cyclists along Main Street. Cyclists turning left from Main Street must cross two oncoming through lanes. Two-stage turn boxes might raise awareness of turning cyclists to motorists at this intersection. The east and west legs are not marked with any dedicated bicycle infrastructure. 400 South has a posted speed limit of 35 mph at this intersection and is a UDOT roadway west of Main Street and a local roadway east of Main Street. All corners of the intersection have sidewalks with park strips except for the northeast corner and the sidewalk along

Main Street & 400 S

BICYCLE & PEDESTRIAN CRASH HOT SPOTS

Springville Active Transportation Plan



BICYCLE & PEDESTRIAN CRASHES

Hot Spot Significance

- Hot Spot with 99% Confidence
- Hot Spot with 95% Confidence
- Hot Spot with 90% Confidence
- Not Significant

BASEMAP FEATURES

- Natural Surface Trail
- Railroad
- Waterway
- Water Body
- Parks & Open Space
- Springville City Limits

Source: City of Springville; Utah County; Utah AGRC; UDOT
Date: May 2021

0 0.2 0.4 Miles

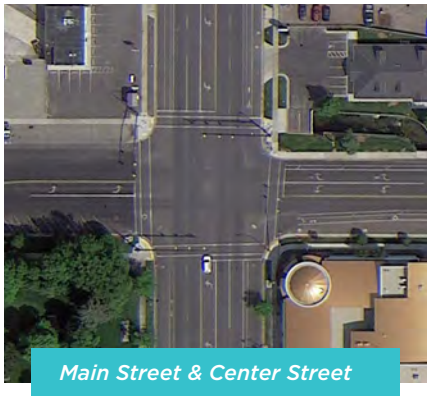
N

the eastbound right-turn lane. It should be noted that while the northeast corner has sidewalks, the gas station access curb-cuts are wide and cause the sidewalks to visually disappear. Improving the visibility of these sidewalks with paint or slimming down vehicular accesses can help improve awareness of pedestrians to motorists.

400 East & 400 South. The intersection of 400 East / 400 South was the site of four pedestrian crashes from 2016 through 2020. This intersection is located on a bus route and near two elementary schools, a church, and a park. Of the four pedestrian crashes, two involved left-turning drivers, one involved a right-turning driver, and one involved a turning driver for which direction was not indicated. The intersection is comprised of local roadways and is signalized and marked with standard crosswalks on all legs. At this intersection, 400 East has a posted speed limit of 30 mph and 400 South has a posted speed limit of 35 mph. There is no bicycle infrastructure on any leg of the intersection. There is a sidewalk with a park strip on the northwest corner of the intersection while the sidewalks on all other corners are directly adjacent to the roadway. High-visibility crosswalks, curb bulb-outs (particularly on the northwest and southwest corners where de-facto channelized right-turn easements and parking provide space for bulb-outs), and leading pedestrian intervals can help improve pedestrian safety at this intersection.

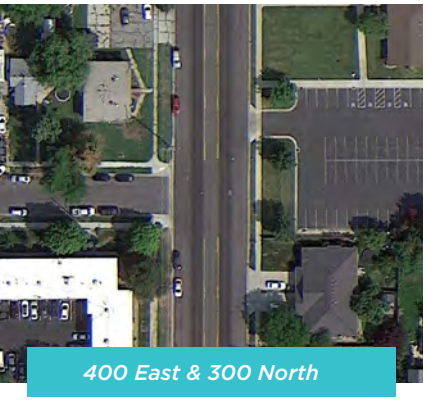
Main Street & Center Street. The Main Street / Center Street intersection was the site of four crashes: two bicyclist crashes and two pedestrian crashes from 2016 through 2020. This intersection is in downtown Springville near retail, parks, and community services. Two of the crashes involved drivers passing straight through the intersection, one crash involved a right-turning driver, and one involved a left-turning driver. All crashes were recorded as involving drivers traveling west. Three of the four crashes took place in the early afternoon while the other crash took place in the late morning, indicating that there might be a light-blinding issue that could use further investigation. The intersection is signalized and marked with standard crosswalks on all legs. High-visibility crosswalks and leading pedestrian intervals might help improve pedestrian safety at this intersection. Although Main Street is two lanes wider than Center Street, their cross-sections are the same (approximately 100' curb-to-curb), resulting in long pedestrian crossings on all legs of the intersection. Curb bulb-outs would shorten the crossing distance for pedestrians reducing their exposure to motorists. Main Street is a UDOT roadway with a posted speed limit of 30 mph and provides a buffered bike lane the north leg of the intersection and a standard bike lane with on the south leg of the intersection. Center Street is a local roadway with a posted speed limit of 30 mph and provides a buffered bike lane on the east leg

400 East & 400 South



Main Street & Center Street

950 West & 400 South



400 East & 300 North

100 East & Center Street

of the intersection, and no bicycle infrastructure on the west leg of the intersection. With travel lanes 20'-35' wide, the west side of the intersection has ample space to provide a bike lane with buffer. Reducing the travel lane width will also discourage unsafe vehicular speeds. All legs of the intersection have sidewalks with park strips.

950 West & 400 South. The intersection of 950 West / 400 South was the site of three bicyclist crashes from 2016 through 2020. This intersection is near retail, a grocery store, two senior living homes, and an elementary school. Two of the crashes involved westbound-to-northbound right-turning drivers, and the other involved a southbound-to-eastbound left-turning driver. The intersection is signalized and marked with standard crosswalks on all legs. 400 South is a UDOT roadway and has a posted speed limit of 45 mph at this intersection with a shared emergency/ bike shoulder. 950 South is a local roadway with a posted speed limit of 30 mph and provides no bicycle infrastructure. All corners have a sidewalk with a park strip except for the northwest corner along Jaker's Jack-O-Lanterns farm which provides a pedestrian ramp but no sidewalks.

SERIOUS INJURY LOCATIONS

Of the 52 active transportation crashes from 2016 to 2020, three of these crashes resulted in suspected serious injuries at the following locations:

400 East & 300 North. A southbound driver passing through the intersection of 400 East / 300 North collided with a pedestrian on a May afternoon in 2017. 400 East is free-flow at this intersection and has no bicycle infrastructure while 300 North is stop-controlled and also has no bicycle infrastructure. Both roadways are locally owned. Sidewalks with park strips are present on all legs of the intersection, although there are no marked crosswalks connecting these sidewalks. Providing high-visibility crosswalks and pedestrian crossing signage can improve awareness of pedestrians to drivers.

100 East & Center Street. On Halloween (October 31st) 2016 around 9:30pm, a westbound driver passing through the intersection collided with a pedestrian at the intersection of 100 East / Center Street. Even though there is a streetlight on the southeast corner of the intersection, the crash was noted as having taken place in unlit conditions, indicating that further lighting improvements might need to be investigated. Center Street is free-flow and provides a buffered bike lane while 100 East is stop-controlled and has no bicycle infrastructure. Both roadways are locally owned. All legs of the intersection provide a sidewalk, all of which have park strips except for the sidewalk

on the eastern side of the south leg. There are no marked crosswalks at this intersection. Providing high-visibility crosswalks and pedestrian crossing signage can improve awareness of pedestrians to drivers. Curb bulb-outs can shorten pedestrian crossing distances, particularly across Center Street, reducing pedestrian exposure to motorists.

800 East & Center Street. An eastbound pickup truck driver passing through the intersection of 800 East / Center Street hit a pedestrian during the dusk hours of a November day in 2017. Center Street is free-flow at this location and provides a bike lane while 800 East is stop-controlled and provides no bicycle infrastructure. Both streets are locally owned. There are sidewalks on all legs of the intersection, all of which have park strips except for the sidewalks on the south side of Center Street. There are no marked crosswalks at this intersection. Providing high-visibility crosswalks and pedestrian crossing signage can improve awareness of pedestrians to drivers. Curb bulb-outs can shorten pedestrian crossing distances, particularly across Center Street, reducing pedestrian exposure to motorists.

INFRASTRUCTURE-SPECIFIC ISSUES

A field visit to Springville revealed a few, consistent infrastructure issues that compromise pedestrian and bicyclist safety. The most prevalent issues are wide roads and sight-distance issues.

Wide Roadways. Several roadways in Springville are very wide when considering their current use. The City was originally planned for larger plats supported by fewer, larger roadways. However, the existing blocks are smaller than what was originally envisioned, but the original, large roadways remain. A prime example of an oversized roadway in Springville is 200 West – an 85-foot-wide neighborhood roadway with a posted speed limit of 25 mph. Although 200 West is not striped, it is wide enough to accommodate seven 12-foot travel lanes. The road is too wide for its intended use, as evidenced by residents parking perpendicular to their residences instead of parallel parking as is typical in most suburban neighborhoods.

Wide roadways induce vehicular speeding, leading to an unsafe environment for all road users, and particularly for cyclists or pedestrians. The rightsizing of roadways through treatments such as intersection bulb-outs, striping, and other improvements can discourage speeding and improve conditions for all roadway users.

800 East & Center Street

Wide Roadways

Sight-Distance at Railway Crossings

Sight-Distance at Railway Crossings. Sight-distance, or the distance of unimpeded vision on a roadway, is crucial to roadway design and safety, as it provides ample space for drivers to slow down to avoid collisions, and space for cyclists or pedestrians to evaluate traffic hazards. While there are likely a handful of sight-distance issues throughout any city, the Union Pacific railroad crossing at 400 West and Center Street in Springville poses a particular issue.

Although the intersection has a high-visibility crosswalk on the east leg and concrete buffers on the southwest corner to protect pedestrians and cyclists crossing the tracks, it is still difficult for eastbound drivers to see over the railway into the intersection. Furthermore, the protected pedestrian/cyclist crossing over the tracks along Center Street from east to west is not straight, leading cyclists to cross the tracks at an angle with the potential to trap their wheels in the tracks. This intersection is one of the few railway crossings in Springville, and is a barrier to connectivity among neighborhoods, schools, and downtown Springville.

SUMMARY

Bicyclist and pedestrian crashes in Springville have increased during the period of 2016 to 2020, with 2020 recording the most crashes in that five-year period. As a community of active residents of all ages, it is important that Springville has a plan to prioritize and fund future active transportation projects. Common safety issues include but are not limited to a lack of bicycle infrastructure, wide roadways with long intersection crossings, and dimly lit roadway sections. Addressing hot spots and improving infrastructure at intersections near community assets (schools, parks, transit, etc.) can be a first approach to improve active transportation safety throughout the city.

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APPENDIX D

TRANSIT SERVICE SUMMARY

CHAPTER X

TRANSIT SERVICE SUMMARY

EXISTING TRANSIT

UTA operates two bus routes, 821 and 822, in Springville, serving 30 stops throughout the city. All buses operating in Springville provide bike racks to facilitate multimodal travel. As shown in **Map 2.6**, both routes operate along the Main Street/400 North/400 East/400 South corridor. Transit service in Springville is summarized in **Table 2.4**.

A trip from 400 South & Main in Springville to Provo Central Station on Route 821 is scheduled to take 19 minutes, and a trip from Provo Central Station to 400 South & Main in Springville is scheduled to take 18 minutes. A trip on Route 822 from 400 South & Main in Springville to the UVU Station is scheduled to take 38 minutes, and a trip from the UVU Station to 400 South & Main in Springville is scheduled to take 30 minutes.

BUS STOPS

Route 821 and Route 822 serve the same 30 bus stops within Springville. The northernmost Springville bus stop is at 1400 North/Main Street and the southernmost Springville bus stop is at SR-51/Evergreen Road. Stops are spaced most densely between 400 North/Main Street and 400 South/ Main Street. The stop at 400 South & Main Street handles the most average daily passengers of all the Springville stops, with a combined 32 boarding and alighting passengers. Other frequently used stops are the stops at 400 South/400 East, 200 South/400 East, and 1400 North/Main Street.

Table 2.4 Springville UTA Route Details

ROUTE	FROM	TO	WEEKDAY		SATURDAY		SUNDAY	
			OPERATING HOURS	PEAK HEADWAY	OPERATING HOURS	PEAK HEADWAY	OPERATING HOURS	PEAK HEADWAY
821	Provo Central Station	Payson Park & Ride	6:30am to 10:00pm	30 minutes	7:30am to 9:00pm	Hourly	No Service	No Service
822	Utah Valley University	Payson Park & Ride	6:00am to 9:15am; 2:45pm to 5:45pm	Hourly	No Service	No Service	No Service	No Service

FUTURE TRANSIT SERVICE

As the population in southern Utah County grows, the need for transportation options becomes more obvious as roadways grow more congested. To prepare for future transportation options, the cities of Springville and Spanish Fork, along with UTA, the Utah Department of Transportation (UDOT), the Mountainland Association of Governments (MAG), and the Union Pacific Railroad are collaborating to build new railroad tracks to connect the Sharp and Tintic Railways. This connection will re-route Union Pacific freight trains from the Tintic Railroad Line to the Sharp Railroad Line, bypassing and closing the current route through Springville residential areas and increasing safety by eliminating train traffic from six at-grade crossings. UTA owns the Tintic Railroad corridor from Springville south into Payson and will allow for future FrontRunner service south towards Payson. Connecting these railways will improve local access and safety while enabling future transit options for southern Utah County.

The cities of Provo, Springville, Mapleton, Spanish Fork, Salem, Payson, and Santaquin are partnering with MAG, UTA, and UDOT to develop the South Valley Transit Study to evaluate high-capacity transit service between Provo and Santaquin, which will include service in Springville. The study aims to identify a locally preferred alternative for proposed transit routing as well as the preferred transit type: express bus service, bus rapid transit (BRT), rail, or some other form of fixed guideway transit. Alignments being evaluated include the I-15 corridor, the Tintic Rail Line, and the Main Street/State Street corridor. The I-15 Corridor and the Main Street/State Street corridor are being evaluated for light rail, BRT, and express bus options, while the Tintic Rail Line corridor is being evaluated for commuter rail, light rail, and BRT service. Alternatives were evaluated based on speed, reliability, connections, ridership potential, system impacts, community compatibility, economic development potential, capital cost, constructability, and environmental impacts. The alternatives that ranked the highest include commuter rail along the Tintic Rail Line corridor and BRT service along the Tintic Rail Line corridor.

The Locally Preferred Alternative (LPA) extends commuter rail from Provo to Payson and provides express bus service from Payson to Santaquin. The LPA:

- Creates a north-south high-capacity transit (HCT) spine in south Utah County with connections to key rapidly developing areas
- Supports south Utah County community transit-oriented development (TOD) opportunities
- Provides a reliable regional transit commuter option to residents
- Maximizes ridership and return on investment

SUMMARY

The current UTA service in Springville provides connections from Springville to Provo and Payson twice per hour on weekdays and Saturdays, and three times per hour during weekday morning and evening peaks. Planning efforts are underway to bring a high-capacity transit service to Springville and the rest of southern Utah County. The Sharp-Tintic railway connection will be an important piece in opening up transit options for the area. Commuter rail, light rail, BRT, and express bus services are being considered as future transit options. Improved transit service and active transportation infrastructure will both serve to incentivize mode shift and make traveling without a car more convenient and comfortable for Springville residents.

APPENDIX E

SURVEY 1 DEMOGRAPHICS

CHAPTER 3

SURVEY I DEMOGRAPHICS

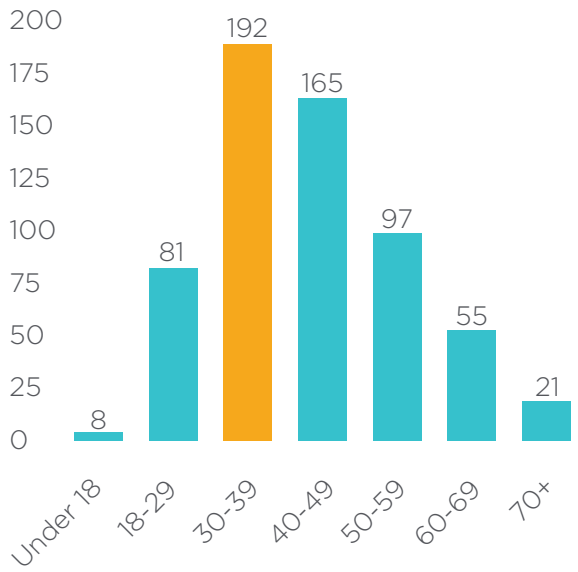
RELATION TO SPRINGVILLE

96% Live in

19% Work in

6% Visit Often

AGE OF RESPONDENTS



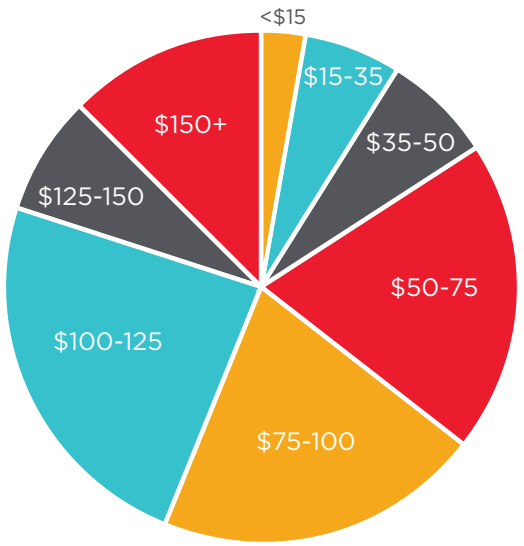
GENDER

60% Female

38% Male

2% Prefer not to share

HOUSEHOLD INCOME (IN THOUSANDS)



RACE/ETHNICITY

5% Hispanic/Latino

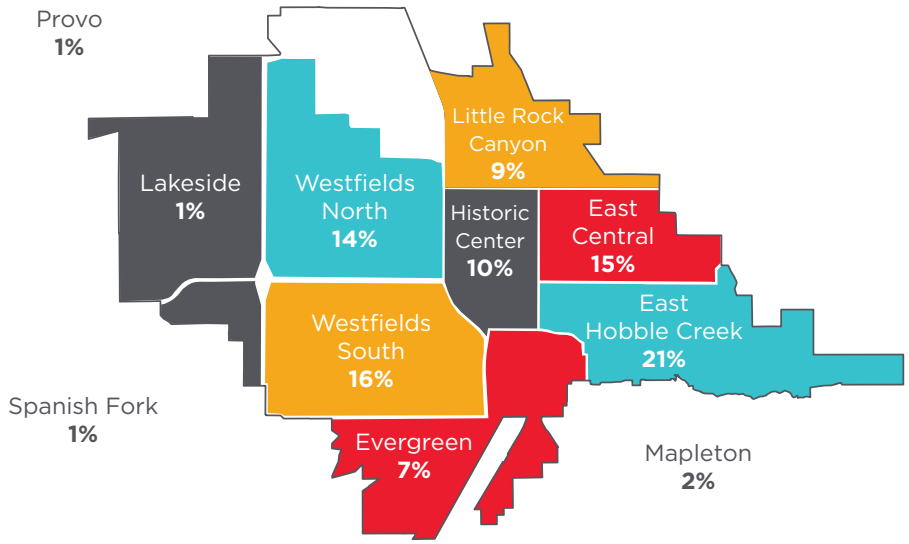
1% African American/ Black

3% Asian/Pacific Islander

91% White

1% Other Identity

HOME NEIGHBORHOOD/COMMUNITY



APPENDIX F

SPOT IMPROVEMENT TYPE GLOSSARY

CHAPTER 4

SPOT IMPROVEMENT TYPE GLOSSARY

As seen in **Map 4.2**, five broad types of spot improvements are recommended throughout Springville to enhance the active transportation network.

ENHANCED INTERSECTIONS

Intersection improvements vary by intersection, depending on information like traffic volumes, speeds, number of travel lanes, etc. The following elements are considered in enhanced intersections.

SIDEWALK BULBOUTS OR CURB EXTENSIONS

Curb extensions minimize pedestrian exposure during crossing by shortening the crossing distance and giving pedestrians a better chance to see and be seen before beginning to cross. Curb extensions are appropriate at any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.

The width of curb extensions should be between 6'-8' when located next to a parallel parking lane or 15' when next to an angled parking lane. Curb extension length can be adjusted to accommodate bus stops or street furniture.

MINI ROUNDABOUTS

A roundabout is a type of intersection treatment that may be used in place of signalized intersections to help improve walkability conditions by calming traffic. Small or mini-roundabouts may be placed at physically-constrained locations, or on small streets with low speeds. Pedestrian crosswalks located on the perimeter of the roundabout paired with directional curb ramps allow pedestrians to cross safely through the roundabout intersection. In physically constrained contexts, roundabouts should be designed to be mountable or traversable by larger vehicles. The size and layout of a roundabout is influenced by the design speed and the largest vehicle expected at the intersection.

ADDED/UPDATED SIGNALIZATION

RRFB or PHB

Rectangular Rapid Flashing Beacons (RRFBs) or Pedestrian Hybrid Beacons (PHBs) bring more attention to crossing pedestrians and are shown to increase yielding to pedestrians.

Toucan Crossing

Toucan crossings accomplish two things: 1) they prioritize bicyclists by giving them a dedicated bike signal to cross through an intersection, and 2) they divert traffic from the bike route by forcing right turns only. Examples can be found in Provo and Salt Lake City.

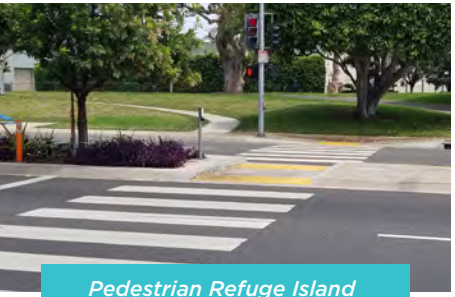
Sidewalk Bulbouts

Mini Roundabout

RRFB/PHB

Toucan Crossing

Mid-Block Crossing



Pedestrian Refuge Island

Bicycle/Pedestrian Bridge

Bicycle/Pedestrian Underpass

MID-BLOCK CROSSINGS:

Mid-block crossings should be considered along long blocks (longer than 600 ft.) where destinations, locations with heavy pedestrian traffic, and transit stops (where transit riders must cross the street on one leg of their journey) are present.

An effective pedestrian crossing at a mid-block location consists of a marked crosswalk, appropriate pavement markings, warning signage, and other markings to slow or stop traffic such as curb extensions, median refuges, beacons, hybrid beacons, and signals.

PEDESTRIAN REFUGE ISLAND

Pedestrian refuge Islands make crossing streets with three or more lanes safer and more comfortable for pedestrians, allowing them to focus on one direction of traffic at a time. While these are often used in conjunction with a mid-block crossing, they can also be implemented at regular intersections where median space is available.

GRADE-SEPARATED CROSSINGS:

Grade-separated crossings provide under or overpasses to eliminate roadway conflicts.

BICYCLE/PEDESTRIAN BRIDGE

Bicycle/pedestrian bridges allow people to cross barriers such as railroads, highways, rivers, etc. where at-grade crossings may not be feasible.

BICYCLE/PEDESTRIAN UNDERPASS

Bicycle/pedestrian underpasses are another form of grade-separated crossings that eliminate crossing conflicts at major streets or railroads.

RAILROAD CROSSINGS:

Railroad crossings are either under or overpasses, as detailed above, built to eliminate railroad track conflicts where bike/pedestrians crossings are needed.

TRAIL ACCESS:

Added trail accesses create or provide improved connections to trails. Parks, schools, and other public spaces are great locations to add new trail accesses to make trails more accessible to all. Additionally, neighborhood accesses via cul-de-sacs or utility easements provide great connections for active modes.

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APPENDIX G

PRIORITIZED PROJECTS

CHAPTER 6

PILOT PROJECTS

The four pilot porjects are shown in the table below. This list includes opportunities for near term successes and for setting long term policy objectives such as the Hobble Creek Trail.

Springville ATP Pilot Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Responsibility	Miles	Cost	Feasibility	Notes
45	1	CENTER ST	65	Trail	Shared Use Path or Sidepath	Springville	1.86	$1,562,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone
45	1	Hobble Creek	58	Trail	Future Vision Shared Use Path	Springville	3.99	$3,347,000	Low	Low feasibility with existing land use and ownership; future vision for continuous trail along Hobble Creek; use adjacent streets as interim connections; Coordinate with UP for potential at-grade trail crossing; feasibility of crossing and trail TBD, needs further study; east/north side of creek; Convert 100 S west bound travel lane to shared use path; eliminate west bound vehicular travel on 100 S between 100 E and 200 E; east/north side of creek; Convert 100 S west bound travel lane to shared use path; eliminate west bound vehicular travel on 100 S between 100 E and 200 E
39	6	CENTER ST	26	Trail	Shared Use Path or Sidepath	Springville	0.50	$420,000	High	Connect to Downtown "Green Streets"; follow guidance in conceptual plan.
38	7	700 S	332	Bikeway	Bicycle Boulevard	Springville	2.36	$576,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP

CHAPTER 6

TOP 50 PRIORITIZED PROJECTS

The top 50 priority projects are shown in the table below and Chapter 6 in **Maps 6.1** and **6.2**. Specifics regarding how cost estimates were determined are also included in Chapter 6.

The top ten projects (ranked 1-7s due to several projects receiving the same score) are highlighted in yellow in the table.

Springville ATP Prioritized Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Miles	Cost	Feasibility	Notes
45	1	MAIN ST	1	Bikeway	Separated Bikeway	2.43	$1,774,000	Medium	Coordinate with UDOT to utilize breakdown / on-street parking lane to relocate curb and gutter to implement raised, one-directional bike lanes; curb - 8' plant strip - 7' bike lane - 3' landscape buffer - 6' sidewalk; reduce landscape buffers where parking is needed
45	1	CENTER ST	65	Trail	Shared Use Path or Sidepath	1.86	$1,562,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone
45	1	Hobble Creek	58	Trail	Future Vision Shared Use Path	3.99	$3,347,000	Low	Low feasibility with existing land use and ownership; future vision for continuous trail along Hobble Creek; use adjacent streets as interim connections; Coordinate with UP for potential at-grade trail crossing; feasibility of crossing and trail TBD, needs further study; east/north side of creek; Convert 100 S west bound travel lane to shared use path; eliminate west bound vehicular travel on 100 S between 100 E and 200 E; east/north side of creek; Convert 100 S west bound travel lane to shared use path; eliminate west bound vehicular travel on 100 S between 100 E and 200 E
41	4	200 N	16	Trail	Shared Use Path or Sidepath	0.83	$697,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone
40	5	400 S	94	Bikeway	TBD, Further Study Needed	1.21	$884,000	Low	Important connection with low feasibility for bikeway improvements; coordinate with UDOT when future plans for road reconstruction arise; would require road diet or impacts to adjacent properties to implement appropriate facitility type (separated or buffered)
39	6	CENTER ST	26	Trail	Shared Use Path or Sidepath	0.50	$420,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone
38	7	400 S	183	Bikeway	Separated Bikeway	1.14	$836,000	Medium	Exact treatment TBD upon further study; long term vision move curbs out to provide curb separated bike lane adjacent to sidewalk with 3-5' buffer for signage, lighting, and trash receptacles
38	7	400 E	280	Bikeway	Buffered Bike Lane	2.57	$336,000	High	Would require removing one side of on-street parking between 200 N & 400 S; On-street parking as is allows for 4-5' standard bike lanes adjacent to parking (not advised for a street with speeds and volumes as high as 400 E); consider removing median lane if possible (traffic study needed); Consolidate on-street parking where possible to accommodate wider buffers; MAG TransPlan50 identifies this corridor for future sidepath

Springville ATP Prioritized Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Miles	Cost	Feasibility	Notes
38	7	950 W	1292	Bikeway	Bike Lane	0.88	$100,000	High	Incoporate sidewalk connections with full build out of the corridor; implement interim solutions to improve pedestrian safety such as protected shoulders
38	7	700 S	332	Bikeway	Bicycle Boulevard	2.36	$576,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
37	11	Spring Acres Park	48	Trail	Shared Use Path	0.76	$635,000	High	Formalize existing cut-through walking paths as 10' shared use paths; alignment through school grounds and park TBD; cross Canyon Rd to connect to Houtz Ave Bicycle Boulevard
37	11	Hobble Creek	60	Trail	Future Vision Shared Use Path	1.23	$1,036,000	Low	Low feasibility with existing land use and ownership; future vision for continuous trail along Hobble Creek; use adjacent streets as interim connections
36	13	700 E	3240	Bikeway	Bicycle Boulevard	0.51	$125,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
35	14	200 S	3	Trail	Shared Use Path or Sidepath	1.00	$842,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone
35	14	950 W	538	Bikeway	Bicycle Boulevard	1.31	$321,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
34	16	1200 W	9	Trail	Shared Use Path or Sidepath	0.32	$266,000	High	
34	16	1200 W	14	Trail	Shared Use Path or Sidepath	0.79	$666,000	High	
25	74	Main St / 100 S Intersection	69	Spot Improvement	Enhanced Intersection	0.00	$0	$0	Curb bulbouts, ped island, eliminate left-turns
34	16	HWY 89	45	Bikeway	Buffered Bike Lane	1.35	$178,000	Medium	
34	16	1750 W	661	Bikeway	Buffered Bike Lane	1.47	$192,000	High	
34	16	800 S	909	Bikeway	Buffered Bike Lane	0.96	$126,000	High	Important continuous east west connection; Strategically reconfigure on-street parking to limit to one side; alternate sides where needed and/or to create chicane effect to calm traffic; May be upgraded to protected bike lanes where driveways are limited (e.g. near high school)
34	16	500 S	2757	Bikeway	Buffered Bike Lane	0.15	$20,000	High	Prohibit on-street parking; consider upgrading to separated two-way sidepath or one-way cycle tracks during redevelopment of adjacent land

Springville ATP Prioritized Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Miles	Cost	Feasibility	Notes
33	22	1470 E	81	Bikeway	Bicycle Boulevard	0.76	$185,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
33	22	CANYON AVE	142	Bikeway	Bicycle Boulevard	0.53	$22,000	High	Avoid steep slopes of Center Street to connect to Junior High when 300 S connection is established; see Springivlle ATP for bicycle boulevard design guidance
33	22	250 N	175	Bikeway	Bicycle Boulevard	0.81	$198,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
33	22	550 N	356	Bikeway	Separated Bikeway	0.29	$214,000	Medium	Potential future bridge over I-15 and railroad; alignment TBD; intent to provide higher comfort connection; coordinate with future development and road construction
33	22	300 S	747	Bikeway	TBD, Further Study Needed	0.20	$171,000	High	Create Shared Use Path connection or continue bike boulevard if future street connection is made; coordinate with future development
33	22	800 E	1469	Bikeway	Bicycle Boulevard	0.43	$18,000	High	Make connection to 900 S intersection of 800 E, provide public access from 900 S
33	22	100 S	3239	Bikeway	Bicycle Boulevard	1.47	$359,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
32	29	1650 W	15	Trail	Shared Use Path or Sidepath	1.96	$2,542,000	High	Sidepath; side of road TBD, likely west side; coordinate with adjacent property owners where impacts may occur; seems to be room through 1400 N underpass; widen bridge or provide bike/ped bridge over Hobble Creek
32	29	FRONTAGE RD	20	Trail	Shared Use Path or Sidepath	1.85	$1,556,000	High	Should not follow Lakeside Landing local commercial design; include two-way sidepath on east side of frontage road and bicycle boulevard on street
31	31	400 S	5	Trail	Future Vision Sidepath	3.44	$2,890,000	Medium	Needs further study and coordination with UDOT; considerations for utilizing shoulders for deceleration/right turn lanes
31	31	425 W	28	Trail	Shared Use Path or Sidepath	0.59	$496,000	High	
31	31	I-15	39	Trail	Shared Use Path or Sidepath	0.56	$467,000	Medium	Complete connection of Hobble Creek Trail to 1400 N intersection
31	31	700 S	41	Trail	Shared Use Path or Sidepath	0.53	$1,345,000	High	High comfort connection to future FrontRunner station; sidepath or separated bikeway; provide bike/ped only bridge connection over railroad to provide access to platform from both sides
31	31	Hobble Creek	42	Trail	Shared Use Path	-	$628,000	High	Coordinate with Mapleton to build path on south side of Hobble Creek with a bridge connection to Hobble Creek Park

Springville ATP Prioritized Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Miles	Cost	Feasibility	Notes
33	22	100 S	3239	Bikeway	Bicycle Boulevard	1.47	$359,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
32	29	1650 W	15	Trail	Shared Use Path or Sidepath	1.96	$2,542,000	High	Sidepath; side of road TBD, likely west side; coordinate with adjacent property owners where impacts may occur; seems to be room through 1400 N underpass; widen bridge or provide bike/ped bridge over Hobble Creek
32	29	FRONTAGE RD	20	Trail	Shared Use Path or Sidepath	1.85	$1,556,000	High	Should not follow Lakeside Landing local commercial design; include two-way sidepath on east side of frontage road and bicycle boulevard on street
31	31	400 S	5	Trail	Future Vision Sidepath	3.44	$2,890,000	Medium	Needs further study and coordination with UDOT; considerations for utilizing shoulders for deceleration/right turn lanes
31	31	425 W	28	Trail	Shared Use Path or Sidepath	0.59	$496,000	High	
31	31	I-15	39	Trail	Shared Use Path or Sidepath	0.56	$467,000	Medium	Complete connection of Hobble Creek Trail to 1400 N intersection
31	31	700 S	41	Trail	Shared Use Path or Sidepath	0.53	$1,345,000	High	High comfort connection to future FrontRunner station; sidepath or separated bikeway; provide bike/ped only bridge connection over railroad to provide access to platform from both sides
31	31	Hobble Creek	42	Trail	Shared Use Path	-	$628,000	High	Coordinate with Mapleton to build path on south side of Hobble Creek with a bridge connection to Hobble Creek Park
31	31	1350 E	61	Trail	Sidepath	0.28	$297,000	High	West side of roadway; move curb and gutter east to accommodate sidepath and buffer
31	31	Railroad at Center ST	13	Spot Improvement	Bike/ped bridge	5400.00	$1,620,000	Medium	Grade separated, bike/ped only crossing
31	31	2000 W	156	Bikeway	Buffered Bike Lane	1.35	$176,000	High	11' travel lanes, 5' bike lanes, 2' painted buffers; incoporate adjacent sidepath through redevelopment process south of 400 S to expand high comfort network
31	31	1950 W	232	Bikeway	Buffered Bike Lane	1.60	$208,000	High	Prohibit on-street parking; consider upgrading to separated two-way sidepath or one-way cycle tracks during redevelopment of adjacent land
31	31	900 N	544	Bikeway	Buffered Bike Lane	0.50	$66,000	High	Prohibit on-street parking; assumes 12' travel lanes and 7-8' buffered bike lanes
31	31	700 S	1010	Bikeway	Bicycle Boulevard	0.67	$163,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
30	42	200 E	6	Trail	Shared Use Path or Sidepath	0.51	$428,000	High	Part of the Downtown "Green Streets"; reconfigure wide street to prioritize pedestrian and bicycle travel; consider large center median programmed as linear park or narrowing street to program pedestrian zone

Springville ATP Prioritized Projects

Weighted Score	Rank	Description	Map ID	Project Type	Facility Type	Miles	Cost	Feasibility	Notes
30	42	Devon Glen Dr Crossing at 1200 W	60	Spot Improvement	mid-block crossing; TBD	0.00	$15,000	High	Treatment TBD depending on engineering analysis
30	42	400 N	238	Bikeway	Buffered Bike Lane	1.01	$66,000	High	
29	45	KUHNI RD	4	Trail	Shared Use Path or Sidepath	1.45	$2,116,000	Medium	Sidepath; side of road TBD, likely west side; coordinate with adjacent property owners where impacts may occur; seems to be room through 1400 N underpass; widen bridge or provide bike/ped bridge over Hobble Creek
29	45	Sharp Railroad	51	Trail	Rail-with-Trail	2.02	$1,693,000	Medium	Exact alignment TBD; outside of rail right-of-way; widen existing Camelot Village walking path to 10' witih public access
29	45	900 S	53	Trail	Shared Use Path	0.69	$579,000	High	Bike/ped only connection with bike/ped only bridge or at-grade crossing over railroad to increase density of east west crossing points; exact alignment TBD upon further feasibility study
28	51	Railroad Crossing (Hobble Creek)	10	Spot Improvement	Grade separated bike/ped bridge	3800.00	$1,140,000	Medium	Provide grade separate crossing of railroad, 1500 W, and 1650 W; opportunity for architectural landmark bridge that provides views of the mountains and Utah Lake
29	45	400 S	408	Bikeway	Buffered Bike Lane	0.79	$289,000	High	Uphill: buffered bike lane; Downhill: High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
29	45	200 N	587	Bikeway	Bicycle Boulevard	0.98	$239,000	High	High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP
29	45	CENTER ST	1119	Bikeway	Buffered Bike Lane	0.51	$187,000	High	Uphill: buffered bike lane; Downhill: High comfort bike boulevard with aggressive traffic calming measures (e.g., traffic circles or diverters at intersections, pinch points, bulbouts, etc.); see bike boulevard guidance in Springville ATP

RELATED PROJECTS

The following spot improvement projects are related to the top 50 prioritized projects included in the table above. While these spot improvement projects are not listed in order of priority, the spot improvements associated with the top ten projects are at the top of the table, followed by the spot improvements associated with the rest of the top 50 projects.

Springville ATP Related Projects

Map ID	Description	Facility Type	Related Project	Cost	Notes
2	200 E / Center Street Intersection	Curb Extensions	200 E & Center St Bikeways and sidewalks	$40,000	Curb bulbouts to edge of bike lane (remove parking) to shorten crossing distance and make pedestrians more visible to motorists; Exact design TBD
3	200 W / Center St Intersection	Curb extenstions	200 W & Center St bikeways and sidewalks	$40,000	Design TBD depending on bikeway design and road configuration; seek to create short pedestrian crossings
4	Main St / 400 N Intersection	Enhanced Intersection	Pedestrian safety and access	$40,000	Curb bulbouts at all four corners to improve pedestrian safety and access accross Main St
6	400 E Crossing at 700 S	TBD	700 S bikeway	$55,000	Increase visibilty of east/west bicyclists and pedestrians crossing 400 E; potential warrant for RRFB or hybrid beacon
14	Canyon Dr Roundabout	Separated bicycle crossings	400 S and Canyon Dr bikeways	$41,000	Provide ramps for cyclists up to/down from sidewalk level to transition between raise bike lanes to the west and buffered bike lanes to the east. Widen sidewalks through roundabout to accommodate bicyclists
22	Main Street	Mid-block crossing; TBD	700 S Bike Boulevard	$15,000	Utilize median for refuge island; Exact location TBD; coordinate with UDOT
31	400 E Crossing	Mid-block Crossing; TBD	700 N Bike Boulevard	$15,000	Treatment TBD; consider connection directly through to Spring Creek Park
32	Main St Crossing	Mid-block Crossing: TBD	900 N bikeway; Spring Creek Trail	$15,000	Treatment TBD based on engineering analysis and UDOT coordination
33	Main St Crossing	Mid-block Crossing; TBD	Spring Creek Trail	$15,000	Treatment TBD based on engineering analysis and UDOT coordination
38	400 E Crossing at 100 S	TBD	100 S bike boulevard	$8,000-$55,000	Provide safe crossing for east/west travling bicyclists; further engineering anlaysis needed to determine appropriate treatment

Springville ATP Related Projects

Map ID	Description	Facility Type	Related Project	Cost	Notes
39	400 E Crossing at 200 S	TBD	200 S bikeway	$55,000	Conduct study of existing crosswalk and yield rates to determine if improvements are warranted; consider RRFB or other beacon to increase visibility
40	400 E / Center St Intersection	Curb Extensions	400 E / Center St Bikeways	$40,000	Improve pedestrian safety and overall intersection safety with curb bulbouts on all four corners, especially NW and SW corners; bring curb extensions to edge of bike lanes (remove parking); curb extension length TBD in design phase
41	Main St Crossing at 200 N	TBD	200 N facility	$8,000-$55,000	Take measures to improve pedestrian and bicyclist safety crossing Main St; May include toucan crossing, beacons, curb bulbouts, etc.
45	Center St / Main St Intersection	Enhanced Intersection	Center St / Main St facilities	$55,000	Consider protected intersection; coordinate with UDOT
46	Main St / 200 S Intersection	Enhanced Intersection	Main St & 200 S facilities	$40,000	Consider curb bulbouts to shorten crossing distances
48	400 E / 200 N Intersection	Enhanced Intersection	200 N & 400 E bikeways	$55,000	Provide safer crossing of 400 E for east/west travling bicyclists/pedestrians; consider curb bulbouts, stop controlled intersection, etc.
49	100 E Crossing at Hobble Creek	TBD	Hobble Creek Trail	$8,000-$55,000	Engineering analysis needed to determine appropriate treatment
52	Millpond Dr Crossing at 1150 N	TBD	1150 N bike boulevard	$8,000-$55,000	Engineering analysis needed to determine appropriate treatment; consider protected corner
54	700 S / 750 W Intersection	Mini Rounabout	700 S / 750 W bike boulevards	$30,000	Discourage vehicular left turns in front of rounabout through proper geometric design; include curb bulbouts
55	700 S / 950 W Intersection	Mini Roundabout	700 S & 950 W bike boulevards	$30,000	Discourage vehicular left turns in front of rounabout through proper geometric design; include curb bulbouts
56	1200 W Crossing at 700 S	TBD	700 S bike boulevard	$8,000-$55,000	Provide safe crossing to future sidepath on west side of 1200 W
59	Center St Crossing at 1200 W	Mid-block crossing; TBD	1200 W shared use path	$15,000	Treatement TBD depending on engineering anlaysis
69	Main St / 100 S Intersection	Enhanced Intersection	Main St	$45,000	Curb bulbouts, ped island, eliminate left-turns
70	Main St / 300 S Intersection	Enhanced Intersection	Main St	$30,000	Curb Bulbouts
1	400 S Crossing at 750 W	TBD	750 W bike boulevard	$250,000	Potential future signal to be incoporated; provide save crossing and signal timing to prioritize bicycle and pedestrian crossing of 400 S; coordinate with UDOT

Springville ATP Related Projects

Map ID	Description	Facility Type	Related Project	Cost	Notes
5	900 S & 800 E	tment, tying into portion of 800 E	800 E bike boulevard	$28,000	Improve existing ped access on SE corner to allow bicyclists to travel north/south along 800 E bike boulevard
17	1600 S Crossing	Intersection improvement; TBD	1600 S & 1750 W bikeways	$65,000	Provide access to/from both sides of 1600 S
20	200 W at 200 N	TBD	Hobble Creek Trail / 200 N bikeway	$8,000-$55,000	Engineering analysis needed to determine appropriate treatment; create safe crossing for people accessing Hobble Creek Trail and facilities along 200 N
25	Sharp Line Railroad Crossing	Bike/ped bridge	700 S Trail Connection	$1,200,000	Future Front Runner Station area; provide grade-separated crossing over railroad for easy access to/from FR station from West side
26	400 S / Rail Trail Access	Trail connection / ramps	Sharp Line Rail-with-Trail & 400 S	$128,000	Treatment TBD; provide connection to/from 400 S and future Sharp Line Rail-with-Trail
27	800 S / Main St Intersection	Improved Intersection, TBD	Multiple projects	$113,000	
35	Railroad Crossing at 900 S	Railroad crossing; TBD	900 S bikeway	$720,000	Discourage vehicular left turns in front of rounabout through proper geometric design; include curb bulbouts
36	1700 E Crossing at Hobble Creek	Mid-block Crossing; TBD	Hobble Creek Trail	$15,000	Discourage vehicular left turns in front of rounabout through proper geometric design; include curb bulbouts
37	400 S Crossing at 1470 E	TBD	1470 E bike boulevard	$55,000	Provide safe crossing to future sidepath on west side of 1200 W
42	200 N / 200 E Intersection	Curb extensions	Pedestrian safety	$60,000	Coordinate with Union Pacific to incoporate safe at-grade crossing of 400 W and railroad for more direct Hobble Creek route
43	200 W / 200 S Intersection	Enhanced Intersection	200 S / 200 W facilities	$8,000-$55,000	Treatement TBD depending on engineering anlaysis
44	200 E / 200 S Intersection	Enhanced Intersection	200 S / 200 E facilities	$8,000-$55,000	Treatment TBD depending on engineering analysis
47	400 N Crossing at 200 E	Enhanced Crossing; TBD	200 E / 235 E bikeways	$8,000-$55,000	Provide connections between grade separated 1400 N sidepaths and intersecting rail trail
50	800 E / 100 S Intersection	Mini roundabout and bulbouts	800 E and 100 S bikeways	$90,000	Discourage vehicular left turns in front of rounabout through proper geometric design; include curb bulbouts
51	200 N Crossing at 700 E	TBD	700 E bike boulevard	$55,000	Exact location TBD
57	400 W / Railroad Crossing at 300 N	TBD	Hobble Creek Trail	$375,000	Provide safe crossing to/from sidepath on west side of 1200 W

Springville ATP Related Projects

Map ID	Description	Facility Type	Related Project	Cost	Notes
61	1400 N / Rail Trail access	Pathway connection; TBD	1400 N / Rail Trail	$159,000	Provide safe crossing to/from sidepath on west side of 1200 W
62	900 S / 950 W Intersection	Mini roundabout	900 S / 950 W bike boulevards	$30,000	Provide safe crossing to/from sidepath on west side of 1200 W
64	Hobble Creek Bridge	bike/ped bridge	Hobble Creek Trail	$210,000	Provide safe crossing to/from sidepath on west side of 1200 W
66	1200 W Crossing at 900 S	TBD	900 S bike boulevard	$8,000-$55,000	Provide safe crossing to/from sidepath on west side of 1200 W
67	Canyon Rd / Houtz Ave Intersection	Bulbouts and Flashing Lights	Spring Acres Park	$115,000	Provide safe crossing to/from sidepath on west side of 1200 W

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APPENDIX H

ACTIVE TRANSPORTATION STUDIES

REFERENCE REPORTS

These reports review the effects of improved and increased facilities on active transportation trips and economic impacts

Reference Studies

Freemark, Y., Su, Y., Oliver, W., Fiol, O., (2022) *Making the Case for Improved Bicycling Infrastructure.* Urban Institute. https://www.urban.org/sites/default/files/publication/105402/making-the-case-for-improved-bicycling-infrastructure.pdf

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rails-to-trails conservancy. (2019). *Active Transportation Transforms America The Case for Increased Public Investment in Walking and Biking Connectivity.* https://www.railstotrails.org/resource-library/resources/active-transportation-transforms-america/

Fields, B., Cradock, A., Barrett, J., Melley, S., (2013) *Active Transportation Measurement: Minneapolis Case Study.* United States Department of Transportation Research and Innovative Technology Administration. https://rosap.ntl.bts.gov/view/dot/26051

Utah Transit Authority. (2017). *Economic Impacts of Active Transportation: Utah Active Transportation Benefits Study.* https://www.bikeutah.org/atbenefitsstudy