UTAH COLLABORATIVE ACTIVE TRANSPORTATION STUDY

OCTOBER 2013

UDOT udot.utah.gov

UTA

MOUNTAINLAND ASSOCIATION OF GOVERNMENTS
Serving Summit, Utah and Wasatch Cities & Counties
586 E 800 N Orem, UT 84097 - ph: 801.229.3800 - fax: 801.229.3801 - http://www.mountainland.org

WASATCH FRONT REGIONAL COUNCIL

SALT LAKE COUNTY PUBLIC WORKS

UCATS OVERVIEW

WHY IS UCATS NEEDED?

The Utah Collaborative Active Transportation Study (UCATS) is a response to Utahans along the Wasatch Front calling for more and better transportation options that include active transportation (walking and biking).

WHAT IS UCATS?

The goal of UCATS is to develop a regional alternative transportation resource master plan for infrastructure that enhances and coordinates pedestrian and bicycle connectivity. The study lays the groundwork for an urban network of bicycle routes (UCATS Regional Bicycle Network) throughout the Wasatch Front and makes recommendations for pedestrian connections to transit within one mile of UTA's TRAX and FrontRunner stations. UCATS is managed by the Utah Department of Transportation (UDOT) and the Utah Transit Authority (UTA), in partnership with the Wasatch Front Regional Council (WFRC), Mountainland Association of Governments (MAG), and Salt Lake County.

HOW WILL UCATS HELP?

UCATS is designed to provide active transportation options for people who live and work along the Wasatch Front. The plans generated under UCATS will help to link people who walk and bike to the goods, services and recreational opportunities they need and desire. The project identifies bicycle and pedestrian infrastructure that is usable and accessible to a wide range of people with varying interests and abilities. The study proposes plans for a Regional Bicycle Network that is positioned to grow into a complete active transportation system through the addition of infrastructure planned by local municipalities. UCATS is focused on increasing transit ridership with plans that improve bicycle and pedestrian access to UTA's TRAX and FrontRunner stations.

WHAT IS THE RESULT OF UCATS?

In order to facilitate the eventual construction of the UCATS Regional Bicycle Network and transit connections, UCATS pinpoints 25 project areas on the regional network. Potential bicycle and pedestrian infrastructure and treatments have been identified and evaluated within the 25 project areas. This evaluation has helped to determine construction and environmental challenges, as well as economic and quality of life advantages associated with implementation. Coordination opportunities with upcoming projects and possible funding sources for each project area have also been identified.

ACKNOWLEDGEMENTS

UCATS has been made possible through the support and guidance of the project partners. The project team would like to thank:

- Angelo Papastamos, Utah Department of Transportation
- Evelyn Tuddenham, Utah Department of Transportation
- Johanna Jamison, Utah Transit Authority
- Jennifer McGrath, Utah Transit Authority
- Jory Johner, Wasatch Front Regional Council
- Jim Price, Mountainland Association of Governments
- George Deneris, Salt Lake County
- Spencer Sanders, Salt Lake County
- Jaime White, Parsons Brinkerhoff
- Active Transportation Committee
- Project Stakeholder Committee

INTRODUCTION

WHAT IS UCATS?

The goal of the Utah Collaborative Active Transportation Study (UCATS) is to develop plans for infrastructure that will improve mobility for bicycles and enhance pedestrian and bicycle connectivity to major transit lines. The study lays the groundwork for an urban network of bicycle routes throughout the Wasatch Front and recommends walking routes within one mile from the Utah Transit Authority (UTA) TRAX and FrontRunner stations.

By mapping and analyzing current and proposed bicycle infrastructure in the metropolitan Wasatch Front -- from Provo to Ogden – a UCATS Regional Bicycle Network has been identified that links unfinished networks, fills in gaps, overcomes barriers and emphasizes connections to transit. Twenty-five project areas have been singled out and each of those areas has been evaluated to determine the construction and environmental challenges associated with building active transportation infrastructure in those locations. To further promote the eventual build-out of the UCATS Regional Bicycle Network and transit connections, the economic and quality of life advantages have been researched and potential funding sources for the proposed infrastructure have been determined.

WHY IS UCATS NEEDED?

The UCATS project came about in response to requests from state and local agencies, local officials, walking and biking advocates and other stakeholders for more active transportation options and better facilities. UCATS answers those requests by identifying ways to strengthen bicycle and pedestrian infrastructure and devising plans for a bicycle network that is positioned to grow into a complete system. In order to determine and address needs, UCATS has captured a much needed inventory of proposed and existing bicycle facilities within the metropolitan Wasatch Front and addressed gaps in the current bicycle network. The study identifies bicycle and pedestrian projects for construction that are accessible and appealing to a variety of people. In order to increase the value of transit for all users, UCATS focuses on increasing ridership through better bicycle and pedestrian access to UTA's TRAX and FrontRunner stations.

WHO IS INVOLVED WITH UCATS?

The UCATS project is co-managed by the Utah Department of Transportation (UDOT) and the Utah Transit Authority (UTA) in partnership with the Wasatch Front Regional Council (WFRC), the Mountainland Association of Governments (MAG), and Salt Lake County. The project provides opportunities for state agencies, local municipalities, advocacy groups and individual stakeholders to work cooperatively to research and recommend active transportation infrastructure improvements.

This collaboration fosters opportunities for successful implementation of the plans UCATS produces because key agencies are involved in all stages of the process. For example, plans from WFRC, MAG, Salt Lake County and other municipalities were distilled to create the preliminary version of the UCATS Regional Bicycle Network. Staff from each of the three UDOT Regions on the Wasatch Front reviewed the proposed routes and infrastructure and made recommendations. Bike plans for each of

those UDOT Regions have been developed in conjunction with UCATS and are based on the final version of the UCATS Regional Bicycle Network.

WHAT ARE THE BOUNDARIES OF THE UCATS STUDY AREA?

For bicycles, UCATS is focused on the urban areas of the Wasatch Front in Box Elder, Weber, Davis, Salt Lake, and Utah Counties. For pedestrian facilities, UCATS is focused within a one-mile radius of UTA's TRAX and FrontRunner stations in those counties.

Additional active transportation (biking and/or walking) studies, conducted by various state and local agencies, are planned or underway at all times throughout Utah. A collaborative approach that encourages coordination of these studies and the information they generate is nurturing the creation of a complete active transportation system across the state.

GOALS

UCATS MISSION STATEMENT

The Utah Collaborative Active Transportation Study (UCATS) lays the groundwork for a network of bicycle routes throughout the urbanized Wasatch Front for cyclists of all ages and abilities. It proposes facilities that will enhance pedestrian and bicycle connectivity to major transit lines, and demonstrates the economic and quality of life benefits of walkable and bikeable communities through a cooperative research and planning process aimed at improving active transportation options.

UCATS GOALS

- The UCATS process encourages state and local agencies and other stakeholders to work collaboratively to establish needs, priorities and an organized approach that will lead to the development of a system of pedestrian and bicycle infrastructure that connects to active transportation destinations and to mass transit.
    - Determines gaps and opportunities in the current bicycle and pedestrian network
    - Determines and prioritizes appropriate infrastructure projects based on a set of criteria including:
        - Connections to transit
        - Connections to recreation and green space
        - Connections to commercial centers
        - Environmental concerns
        - Constructability
    - Evaluates costs and funding mechanisms for proposed infrastructure projects
    - Creates a system for tracking the development of individual proposed infrastructure projects
- UCATS improves connections to transit:
    - Emphasizes connections to transit by prioritizing bicycle and pedestrian projects
    - Plans for short- and long-term bicycle parking at transit hubs
    - Plans for bicycle and pedestrian infrastructure at transit-oriented development sites

- UCATS develops plans for infrastructure that will improve quality of life by encouraging walking and biking, resulting in fewer vehicles miles traveled, reduced emissions, improved air quality and overall health benefits
- UCATS develops plans for bicycle and pedestrian infrastructure that will boost economic development by creating environments that attract and retain business and increase recreational opportunities.
    - Evaluates existing and proposed infrastructure to establish the benefits provided for businesses
    - Promotes the economic benefits of walking and bicycling to policy makers, chambers of commerce and economic development agencies
- UCATS improves safety with dedicated, well-maintained facilities that meet the specific needs of bicyclists and pedestrians
    - Considers all levels of experience and users when planning, locating, and designing bicycle and pedestrian connections
    - Plans proposed infrastructure with an emphasis on bicycle and pedestrian safety
    - Utilizes innovative designs, where appropriate, to improve safety
    - Considers facilities that are separated from vehicular traffic where possible
    - Plans on-street bicycle and at-grade pedestrian facilities with adequate buffers from automobile and transit traffic

PROCESS

The UCATS process has required extensive collaboration and comprehensive data. The existing bike lanes and trails have been pinpointed and mapped. UTA station area walkability and the key locations for potential bicycling and pedestrian activity have been identified. Public opinion has been sought at every stage of the process through targeted outreach and a continual, interactive online presence (www.ucatsplan.com). All of this work has led to the identification of plans for a UCATS Regional Bicycle Network and connections to transit, along with infrastructure recommendations designed to move the plans forward.

IDENTIFIYING WHAT IS ON THE GROUND

A first step in any planning process is to ascertain what is already on the ground. UCATS focuses on different areas for bicycles and pedestrians. For bicycle facilities, the study comprises the urban areas of the Wasatch Front within Box Elder, Weber, Davis, Salt Lake, and Utah Counties. For pedestrian facilities, the study centers on the areas within one mile of UTA's TRAX and FrontRunner stations.

Creating a map of all existing bicycle facilities within the Wasatch Front is a large undertaking because most available maps were limited to individual cities. However, local cities, counties, and planning organizations have worked collaboratively to help the UCATS team consolidate existing bicycle infrastructure into a single map. More explanation of the mapping process can be found here. Click here to see the Wasatch Front's existing facilities map.

FACILITY TYPES

There are many ways to say the same thing when it comes to labeling bicycle infrastructure. UCATS uses descriptive categories for bike facilities rather than the traditional "class" designations. This approach is consistent with the guidelines of major transportation policy organizations and is accepted by public agencies, including Salt Lake County, which used these categories in its 2013 Bicycle Best Practices Study. The facility categories include: shared lane, marked shared lane, paved shoulder, bike lane and shared use path.

A shared lane is a wide outside lane that is identified by signs and shared by motorists and bicyclists. A marked shared lane is a lane shared by both motorists and bicyclists that is identified by signs and pavement markings. A paved shoulder is a signed roadway with a shoulder wide enough to accommodate bicyclists. A bike lane is a signed roadway with a painted bike lane and a shared use path is a paved, off-street linear corridor, like a trail, that is generally shared by bicyclists and pedestrians.

The image above shows the walk accessibility of the TRAX station on 3300 South. Notice how I-15 acts as a barrier for land on the west, and how areas with dense street networks on the east are more accessible.

ACCESS TO TRANSIT

WALKABILITY INDEX

The average Walkability Index of TRAX and FrontRunner stations are 46% and 34%, respectively.

A key objective of the UCATS project is to improve active transportation connections to transit, so existing walking access to transit had to be identified. To do this, the project team has analyzed the distance a person living within one mile of a rail station (TRAX or FrontRunner) would need to walk to access that station using existing streets and trails, as compared to a one-mile straight line buffer from the rail station (in other words, as the crow flies). A one-mile distance is used as it is assumed to be the farthest distance someone will walk to access rail transit stations. Comparing the actual walk distance to the "as-the-crow-flies distance" creates a "Walkability Index" that is used to identify areas where it may be difficult for pedestrians to access transit.

On average, the Walkability Index of TRAX and FrontRunner stations is 46 percent and 34 percent, respectively. This means that, on average, 46 percent of the land within a one-mile "as the crow flies" buffer of TRAX stations and 34 percent of the land within that buffer of a FrontRunner station is within a one-mile walking distance of a rail station. TRAX stations tend to be more accessible for pedestrians because they are usually situated near established urban or suburban areas. Many Frontrunner stations are in less developed areas and have been built to accommodate park-and-ride users or bus transit. To see the Walkability Index for all rail stations or learn more about the process used to determine the Walkability Index, click here.

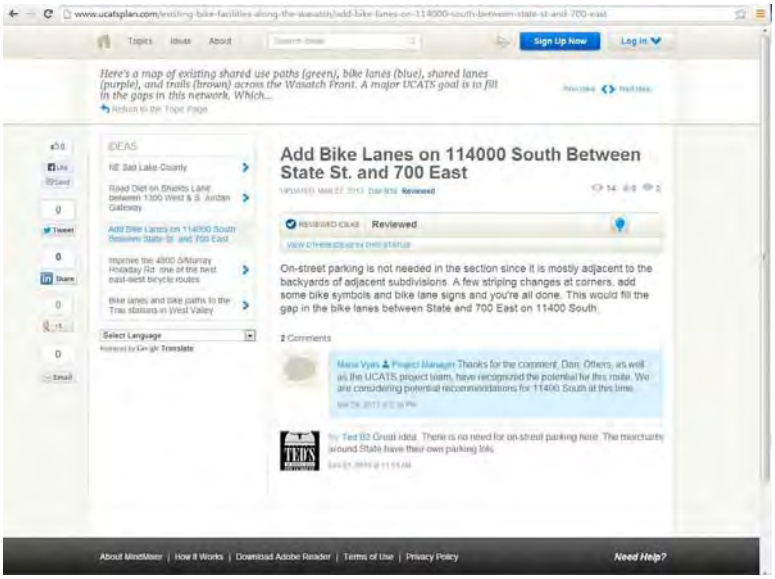
WHERE ARE PEOPLE WALKING AND BICYCLING?

It's difficult to determine the number of people walking and bicycling throughout the entire Wasatch Front, but a bit easier to determine where one *should expect* to see people walk and bike. A "Latent Demand Index" has been created to estimate pedestrian and bicycling demand (not necessarily usage) in a given area based on land use, demographic, and built environment factors. Latent demand refers to the likelihood that people would walk or bike in a certain location if active transportation (walking and biking) infrastructure existed. This Index is based on research done for the US Environmental Protection Agency (EPA). In short, population and employment densities, proximity to destinations, demographic information, and the accessibility of the street network make up the supporting data in the Index.

The Latent Demand Index has been used to analyze all street segments within the UCATS study area (approximately 101,541 street segments). A higher index score indicates a higher likelihood of pedestrian and bicycling activity. Some key areas of high activity include the downtown areas of Salt Lake City, Provo, and Ogden. Vital streets that serve as a link to a variety of uses and destinations, and also have high employment densities, score particularly well. Those areas include State Street in Salt Lake and Utah Counties; Main Street, South Temple, 700 East, 300 East, 1100 East, 200 South, 400 South, and 2100 South in Salt Lake City; University Avenue, 300 North and 700 East in Provo; and Washington and Harrison Boulevards in Weber County. For detailed maps of the Latent Demand

Index by county, click here. Click here to read more on the reasons Utahans walk or bike, and how often.

PUBLIC OUTREACH



Previous active transportation planning efforts by project partners (such as UDOT's 2008 Priority Routes Study) included significant outreach on a regional scale. Feedback from those efforts was has been reviewed by the UCATS project team to get a more in-depth understanding of the issues. A project website (www.ucatsplan.com) has generated additional feedback from the public and the walking and bicycling community, using a format designed to maximize dialogue and online engagement. Throughout the course of the UCATS process, website visitors have been surveyed on a range of topics, including:

- Favorite types of walking or bicycling facilities
- Places they liked to walk or bike
- Places they felt needed improved walking or bicycling infrastructure
- Concerns about safety for walking or biking
- Feedback on the proposed Regional Bicycle Network and Top 25 project areas

Feedback received through the website has guided development of the proposed UCATS Regional Bicycle Network and the identification of the Top 25 project areas. Website visitors have provided detailed information on the walking and bicycling issues they experience in their daily lives. The project team has summarized this information and it is available for download by clicking here.

The UCATS team has worked closely with the WFRC's Active Transportation Committee, which acts as the project's stakeholder committee. This group has been supplemented with advocates, and agency and local municipality representatives who have provided input throughout the UCATS process. The team would like to thank these individuals for their participation:

- The Active Transportation Committee:
    - Mayor Ralph Becker, Salt Lake City

- Mayor Mike Caldwell, Ogden City Committee Vice-Chair
- Commissioner Louenda Downs, Davis County, Committee Chair
- Commissioner Larry Ellertson, Utah County
- Mayor Heather Jackson, Eagle Mountain City
- Councilmember Tina Kelley, Morgan County
- Mayor Brent Marshall, City of Grantsville
- Mayor Ben McAdams, Salt Lake County
- Cory Pope, UDOT
- Matt Sibul, UTA
- Mayor Todd Stevenson, Fruit Heights City
- Commissioner Jan Zogmaister, Weber County
- Scott Lyttle, Bike Utah
- Justin Anderson, Ogden City
- George Deneris, Salt Lake County
- Andrew Gruber, Wasatch Front Regional Council
- Ned Hacker, Wasatch Front Regional Council
- Scott Hess, Davis County
- Robin Hutcheson, Salt Lake City
- Jory Johner, Wasatch Front Regional Council
- Max Johnson, Salt Lake County
- Jim Price, Mountainland Association of Governments
- Greg Scott, Wasatch Front Regional Council
- Robert Scott, Weber County
- Evelyn Tuddenham, UDOT
- Josh Jones, City of Ogden

- UCATS Stakeholder Committee:

- Roger Borgenicht, Utahans for Better Transportation
- Deborah Burney-Sigman, Breathe Utah
- Fred Doehring, UDOT
- Jesse Glidden, UDOT
- Paul Goodrich, Orem City
- Craig Hancock, UDOT
- Mike Hathorne, Suburban Land Reserve
- Dave Iltis, Cycling Utah
- Vincent Liu, UDOT
- AJ Martine, Salt Lake County Mayors Bicycle Advisory Committee
- Chad Mullins, Bike Utah
- Marjorie Rasmussen, UDOT
- George Shaw, South Jordan City
- Lisa Wilson, UDOT
- Brad Woods, Bike Utah

Materials and minutes from the ATC and UCATS stakeholder meetings can be found by clicking here.

DECISION-MAKING CRITERIA

As established in the UCATS mission statement, the primary purpose of UCATS is to:

- Lay the groundwork for a network of bicycle routes throughout the urbanized Wasatch Front for cyclists of all ages and abilities;
- Propose facilities that will enhance pedestrian and bicycle connectivity to major transit lines; and
- Demonstrate the economic and quality of life benefits of walkable and bikeable communities.

Potential UCATS project areas are ranked using two tiers of criteria. The criteria are organized according to how each one pertains to the overall UCATS goals. Tier One is defined by two primary questions:

- Will bicycle infrastructure in this area help to establish the backbone of an urban bike network by connecting major routes, filling gaps in existing routes, addressing critical spacing and the continuity of cross-valley routes, overcoming major barriers, or providing off-street trail opportunities?
- Will infrastructure in the area enhance bicycle and pedestrian access to transit?

If a potential project area does not meet either of these criteria, it is not considered viable. If a potential infrastructure project area meets one or both of these criteria, it is evaluated based on the Tier Two criteria to determine how it would rate against other potential project areas. Tier Two criteria are identified by asking the following questions:

- Does it score in the top 20 percent on the latent demand model?
- Is it on an existing municipal plan?
- Can it demonstrate an economic benefit by connecting two or more development centers or connecting a development center to a transit station?
- Will it help cyclists overcome barriers such as I-15, the Jordan River, Bangerter Highway, golf courses, or a number of other barriers? Do public comments indicate that improvements are needed on the facility?

TIER ONE

Does a project establish the backbone of an urban bike network?

Does a project enhance active transportation access to transit?

TIER TWO

Does it score well on the latent demand model?

Is it on an existing municipal plan?

Can it demonstrate an economic benefit?

Does it overcome a barrier?

UCATS REGIONAL BICYCLE NETWORK AND TOP 25

The most important outcome of the UCATS process is the development of a regional network of bicycle facilities and proposed projects that enhance active transportation access to transit. The UCATS Regional Bicycle Network is comprised of bicycle facilities that fill in gaps in existing bicycle networks, paths and routes, particularly those routes that connect to TRAX and FrontRunner transit stations. Many of the regional network facilities are proposed on streets with less traffic and slower speeds than parallel streets. These facilities appeal to people who may be less comfortable biking on high-speed, multi-lane streets. All infrastructure proposed as part of the UCATS Regional Bicycle Network meets one or both of the Tier One criteria by contributing to a regional network of bicycle facilities, and/or enhancing access to transit.

Some routes and infrastructure proposed as part of the Regional Bicycle Network project areas also meet the Tier Two criteria for UCATS projects by helping cyclists cross major barriers, linking locally planned facilities, connecting people to economic centers, and/or scoring high on the latent demand model. Routes and infrastructure that met the Tier One and Tier Two criteria became higher-priority project areas, known as the Top 25. These areas have been analyzed in greater detail and reviewed by UCATS stakeholders.

The UCATS Regional Bicycle Network and Top 25 project areas are available for viewing online. Click here to see an illustrated map demonstrating all the proposed UCATS projects, including details on the Top 25 project areas (the map works best when viewed in Google Chrome or Mozilla Firefox). An illustration of the Regional Bicycle Network and Top 25 project areas is also provided below.


UCATS
WHAT ARE THE UCATS PROJECT AREAS?
1 23rd Street and Grant Ave Cycle Tracks; Ogden
2 Roy/Ogden Feasibility Study; Roy/Ogden
3 SR-108 Bike Lanes and Station Improvements; Roy, Clinton, West Point, Syracuse, UTA, & UDOT
4 Layton/Syracuse Feasibility Study; Layton/Syracuse
5 Fort Lane/Main Street Bike Lanes; Layton, Kaysville, Farmington, & UDOT
6 Bountiful/West Bountiful Feasibility Study; Bountiful/West Bountiful
7 US-89/Main Street Intersection Improvements; North Salt Lake & UDOT
8 Salt Lake Central Station Improvements; Salt Lake City & UTA
9 700/800/900 East Bike Lanes; Salt Lake City, Salt Lake County, Murray, Cottonwood Heights, Midvale, Sandy, & UDOT
10 3900/4100 South Bike Lanes & Station Improvements; Salt Lake County, West Valley City, & UTA
11 4800 South Bike Lanes & Intersection Improvements; Murray & Holladay
12 2700 West Bike Lanes & Station Improvements; Salt Lake City, West Valley City, Taylorsville, West Jordan, South Jordan, Riverton, Bluffdale, & UTA
13 Main Street/Box Elder Bike Lanes & Station Improvements; Salt Lake City, South Salt Lake, Salt Lake County, Murray, UDOT & UTA
BOX ELDER COUNTY
WEBER COUNTY
DAVIS COUNTY
SALT LAKE COUNTY
UTAH COUNTY
Utah Lake
N
LEGEND:
Top 25 Project Areas
Regional Network
14 Winchester Street Bike Lanes; Murray
15 Porter Rockwell Trail Feasibility Study; Murray, Midvale, & UTA
16 Sego Lily Drive Bike Lanes; Sandy, South Jordan, & UDOT
17 11400 South Bike Lanes; Sandy, South Jordan, & UDOT
18 Historic Utah Southern Rail Trail Feasibility Study; Lehi, American Fork, & Pleasant Grove
19 200 South American Fork Cycle Tracks; American Fork
20 State Street Bike Lanes; Pleasant Grove, Lindon, Orem, & UDOT
21 Orem Central Station Pedestrian Bridge; Orem & UTA
22 900 East Buffered Bike Lanes; Provo
23 500/300 West Bike Lanes; Provo
24 Provo Central Station Improvements; Provo & UTA
25 US-89 Buffered Bike Lanes; Provo, Springville, & UDOT

MAKING THE CASE FOR INVESTMENT

Walking and bicycling are effective ways for people to improve their health and wellbeing. But the benefits of active transportation go beyond the health of the individual. A growing body of research shows that active transportation can also benefit the environment and improve the transportation network. The addition of active transportation infrastructure can even boost economic viability in the places where it is located.

A short summary of UCATS research regarding the benefits of active transportation infrastructure is provided below. Click here to see a detailed discussion with identified sources.

Air Quality

- Research indicates that transportation accounts for roughly 28 percent of the United States' total greenhouse gas (GHG) emissions (including carbon dioxide, methane, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrous oxide). Of commuting modes, automobiles have the largest impact on air quality. Bicycling and walking have a negligible GHG impact (outside of the production needed in the manufacturing of the bicycle).

DID YOU KNOW?

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

- The Rails To Trails Conservancy estimates that bicycling and pedestrian travel can offset between 3 percent and 8 percent of GHG emissions in the United States caused by surface transportation.
- Many state applications for Congestion Mitigation and Air Quality Improvement Program (CMAQ), a federal funding program, ask applicants to estimate the congestion and GHG reduction potential of their bicycle and pedestrian projects. A federal review of CMAQ bicycle and pedestrian projects found CO_2 reductions of up to 38.4 kg emissions reductions each day.

Reduced VMT

- Many trips regularly done by car can be done by bicycle. The national average trip length is 2.25 miles for a one-way bicycling trip. Half of all trips taken in the United States are three miles or less, with 40 percent under two miles. However, 90 percent of trips fewer than three miles are taken by car.
- A study in King County, Seattle, WA found that a 5 percent increase in walkability of a community reduced vehicle miles traveled per capita by 6.5 percent and increased time spent in physically active travel by 32.1 percent.

*Congestion **Reduction***

- A study by the Arizona Department of Transportation found significantly less congestion on roads in older, higher density areas than in new, lower density suburban areas (volume-to-capacity ratios of 0.8 to 0.9 compared to 1.6 to 2.0, respectively). Researchers determined this connection was due to more mixed land uses (particularly more retail in residential areas), more transit and non-motorized travel, and a more connected street grid, which provides more route options and enables more walking and cycling.

MAKING THE CASE

After bike racks were installed on Caltrain (the San Francisco-San Jose commuter rail system), a 4% ridership increase was attributed to bicyclists.

Transit Benefits

- Bike/transit integration supports both transit and bicycle transportation and has proven successful in attracting new transit riders. For example, 30 percent of users of Vancouver's bike lockers at a transit station had not previously used public transit to commute.

- A study on bike access and how bicycle amenities effect mode share at California's BART stations found the Berkeley station increased its bicycle mode share from 7.4 percent to 11.7 percent and the Fruitvale station increased its bike mode share from 4.3 percent to 9.9 percent during the period from 1998-2008.

- After bike racks were installed on Caltrain (the San Francisco-San Jose commuter rail system), a 4 percent ridership increase was attributed to bicyclists.

- Denver's Regional Transportation District (RTD) found that approximately 50 percent of the bike-on-bus riders would not make the trip on transit if it were not for bike racks.

*Mode Share **Shift***

- Each additional mile of bicycle lane per square mile is correlated with an approximate one-percent increase in the share of bike-to-work trips.

- Cities with higher levels of bicycle infrastructure (lanes and paths) also saw higher levels of bicycle commuting.

- The construction of a bicycle and pedestrian bridge in Charleston, South Carolina led to more cycling throughout the City. A survey conducted on trail use showed that 67 percent of users claimed their physical activity had increased since the path opened.

Health Benefits

- Communities with higher rates of bicycling and walking have lower obesity rates than communities with lower levels of active transportation.

- Researchers from Harvard University found that bicycling for as little as five minutes each day can prevent weight gain for middle aged women.
- The National Institutes of Health have shown that people are more likely to consistently ride a bicycle or walk than to maintain a gym-based exercise program.
- Commuters using active transportation modes are happier with their commutes.
- People who use active transportation to commute report fewer days of work missed due to illness than those with non-active commutes.
- A study by the National Institute of Health determined that physically active employees incurred approximately $250 less in health care costs annually compared to sedentary employees.
- An analysis of health savings generated by Portland, Oregon's bicycle infrastructure shows that completion of their 2030 Plan would help the City save $800 Million in fuel costs, health care, and the value of reduced mortality.

MAKING THE CASE

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

MAKING THE CASE

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

- Click here for an assessment of potential health benefits or impacts associated with the UCATS Top 25 project areas.

*Transportation **Safety***

- There is safety in numbers. The walking/bicycling crash risk decreases as walking/bicycling rates increase.
- The National Institute of Health found that for every doubling of the number of cyclists, the number of fatalities increases by 25 percent, thus reducing the overall risk of cycling by 37 percent.
- In New York City, the increase in bike lanes reduced the risk of fatalities in pedestrian-involved crashes by 40 percent (controlling for other factors). The installation of bike lanes usually involves a narrowing of the motor vehicle portion of the roadway, which indicates to drivers that they need to watch for other road users. These changes have a traffic calming effect, lowering speeds and increasing driver attention.
- The presence of bike lanes have been shown to reduce the overall crash rate by 18 percent compared to streets without any bicycle facility.

Economic Benefits

- The combined potential value of bicycling in Wisconsin totals nearly $2 billion yearly.
- It's been estimated that the entire bikeway network of Portland, Oregon was built for less than the cost of constructing one mile of urban freeway.
- Compared to the average US city, people in Portland, Oregon save $2.6 billion a year thanks to reduced vehicular miles.
- There is a 12.5 percent increase in productivity of employees who exercise as compared to those who do not exercise.
- The Southern Environmental Law Center cites examples of positive effects of pedestrian improvements on retail sales and employment from Mountain Brook, a residential community south of Birmingham, Alabama. As a result of pedestrian-friendly investments, retail sales in the village increased by approximately 25 percent in the past two years.
- A survey of residents along bicycle boulevards indicated that the majority of respondents felt that bicycle boulevards have had a positive impact on home values, quality of life and sense of community, along with reducing noise, improving air quality, and providing convenience for bicyclists. Additionally, 42 percent of respondents said living on a bicycle boulevard makes them more likely to bike.
- Installation of bike lanes and bike racks can have a positive influence on the local economy. Fort Worth, Texas spent $12,000 to purchase 80 bike racks and $160,000 on local road diets in one district in town. As a result, local restaurants experienced a 200 percent increase in business.
- In a year of riding transit and using car share programs, a Bay Area bike commuter could save between $6,677 and $6,957 per year over owning a car.
- Click here for an assessment of how infrastructure investments at three UCATS project sites (Ogden Central Station, 3900 South in Salt Lake County, and Provo Central Station) could potentially add economic value to communities.

IMPACTS ON HOME VALUES

- The walkability of an area can directly impact home values. Homes with above average levels of walkability are worth $4,000 to $34,000 more than homes with average levels of walkability in the areas studied. Typically, a one point increase in Walk Score was associated with between a $500 and $3,000 increase in home value.
- The Urban Land Institute compared four new pedestrian communities to determine the effect of walkability on home prices. They determined that homebuyers were willing to pay $20,000 more for homes in walkable areas compared to similar homes in surrounding areas.

MAKING THE CASE

The combined potential value of bicycling in Wisconsin totals nearly $2 billion.

- For developers, walkability translates into direct economic benefits. In Washington, buildings in neighborhoods with good walkability command an average of $8.88/sq. ft. per year more in office rents and $6.92/sq. ft. per year higher in retail rents, and generate 80 percent more in retail sales as compared to places with fair walkability, holding household income levels constant. Housing prices and property values are also increased in areas with higher walkability – a place with good walkability, on average, commands $301.76 per month more in residential rent and has for-sale residential property values of $81.54/sq. ft. more relative to places with fair walkability, holding household income levels constant.
- On a 100-point scale, a 10 point increase in walkability increases property values by 1-9 percent, depending on property type.
- Adjacency to trails can also have a positive effect on property values. For instance, according to the Rails to Trails Conservancy, lots adjacent to Wisconsin's Mountain Bay Trail sold for 9 percent more than similar properties not adjacent to the trail.
- In Apex, North Carolina, houses adjacent to a regional greenway sold for $5,000 more than houses in the same subdivision that were not on the greenway.
- In Virginia, the influence of a trail on local and nonlocal spending was estimated to be $2.5 million and total output was estimated to be $1.59 million, supporting 27.4 full-time job equivalents annually.
- In Ohio, analysis on the impact of a trail on property values suggests that each one-foot increase in distance from an existing trail decreases the sale price of a sample property by $7.05. In other words, being closer a trail facility adds value to the single family residential properties.

MAKING THE CASE

Bicycle projects create 11.4 jobs for every $1 million invested, while road-only projects create 7.75 jobs per $1 million.

JOB CREATION

- A national study of employment impacts following the installation of bicycle and pedestrian infrastructure estimated that each $1 million in bicycle-related projects creates 11.4 jobs from direct, indirect and induced construction spending. Likewise, pedestrian-only projects create about 10 jobs and multi-use path projects create 9.6 jobs per $1 million of project cost. Projects that combine pedestrian and bicycle facilities with other road improvements create 7.8 jobs per $1 million. In contrast, road-only projects generated 7.75 jobs per $1 million. Spillover (indirect) employment adds an additional 3 jobs per $1 million.
- In Colorado, the bicycling industry has created 513 manufacturing jobs and 700 full-time equivalent retail jobs.
- Bicycling has also shown to be integral in the tourism industry. Half of all summer visitors to Colorado's ski resorts spent time bicycling and most (70 percent of out of state visitors and 40 percent of local Coloradoans) said they would have chosen an alternative vacation destination if bicycling was not available.

- Similar results have been shown in Wisconsin, where the bicycling industry (consisting of manufacturing, distribution, retail, and other services) contributes $556 million and 3,418 jobs to the Wisconsin economy.
- Portland's bicycle industry has also contributed significantly to the local economy. In 2008, revenues in the bicycle-related economic sector were found to be nearly $90 million.
- In North Carolina, the annual economic impact of bicycling tourism is estimated at $60 million, with 1,400 jobs created and supported per year.

TOURISM

- Research by the Maine Department of Transportation indicates the economic benefits of statewide bicycle tourism reached $36.3 million in direct spending by over 2 million bicycle tourists annually. Additionally, spending by tourists has a multiplier effect. Taking that into account, the total economic impact of the bicycle tourism market is estimated to be $66.8 million dollars. This is calculated to include earnings of over $18.0 million, in wages and salaries, and 1,200 full-time equivalent jobs.
- Over 42,000 Ontarians' jobs were a result of the Trans Canada Trail in Ontario, Canada. The trail was estimated to generate $2.4 billion dollars in value added income in the province.
- A study of bicycling tourism in Moab, Utah estimated the annual economic impact of bicycling to be $1.33 Million. Average consumer spending per person was estimated to be $585.

IMPLEMENTATION OPPORTUNITIES

The challenge of many planning studies lies in implementation: How can we make the project vision become a reality and see the infrastructure identified under the study through to construction? Further complicating the issue is the need for funding and coordination of projects identified under the study. The pool of money available for building bicycle and pedestrian facilities is somewhat limited, with many potential projects competing for the available funds. Agencies that are responsible for building new transportation facilities are more inclined to include planned active transportation elements in their projects if they receive information early in the project's development. This gives them time to incorporate active transportation in the project's scope and budget and design. Active transportation planners in Utah need to be resourceful and collaborative to successfully build a transportation system that effectively includes bicycling and walking.

As part of the UCATS process, each of the UCATS Top 25 project areas has been reviewed to determine whether planned state or local improvement projects might be modified to include UCATS project elements. This effort required coordination with UDOT as well as many local city and county engineers. Project team members have also coordinated with UDOT maintenance staff to learn what is required to maintain the proposed facilities.

Funding for UCATS projects could come from a wide range of sources. MAP-21, the federal transportation bill passed in 2012, reduced some funding programs for active transportation projects but added other new programs. The UCATS funding source matrix identifies programs, such as MAP-21's Transportation Alternatives Program, that can be used to pay for projects, as well as the requirements and qualifications for the programs. Click here to see the matrix)

To provide background information to UCATS stakeholders, project cut sheets on each of the Top 25 project areas have been produced. The cut sheets contain insights on upcoming local government and UDOT construction projects that could potentially incorporate UCATS elements, along with details on the status, and contacts for the projects. Coordination of this sort will increase resources and offer better prospects for implementation. Details can be found in the "Implementation Opportunities" section of each Top 25 cut sheet. Click here to see the cut sheets for each UCATS Top 25 project area.

Each of the UCATS Top 25 cut sheets also includes an assessment of the degree of environmental clearance that may be needed prior to design and construction in the project areas. Transportation projects that are built using federal dollars must comply with the National Environmental Policy Act, which means that certain types of projects must complete an environmental study prior to construction. The UCATS project team has used UDOT's UPlan Planning and Environmental Linkage (PEL) tool to evaluate the degree of environmental documentation that may be required in each project area, along with the types of environmental impacts that would likely need to be addressed in an environmental document. This information is contained in the "Environmental Clearance" section of each Top 25 sheet.

SUMMARY

Many people rely on walking and biking to get to school, work, transit, shopping and other places they need to or want to access. Many more would walk and bike if adequate opportunities were available. As Utah continues to grow, it becomes more important to provide walking and biking facilities that are safe, comfortable and accessible for a wide range of people. The UCATS project is a partnership among local government and transportation agencies across the Wasatch Front that agree with the idea that active transportation is important to healthy and vibrant communities. UCATS has developed a Regional Bicycle Network with links to transit and identified 25 project areas where adding bicycle and/or pedestrian treatments will kick-start the implementation of the plans developed under the project. These plans will act as a foundation for creating a network of connections that will eventually grow into a complete active transportation system for the Wasatch Front.

LIST OF APPENDICES: UTAH COLLABORATIVE ACTIVE TRANSPORTATION STUDY

---

1. **Research Toolbox Technical Memorandum**
2. **Utah Household Travel Survey Analysis**
3. **MindMixer Comment Summary (from www.ucatsplan.com)**
4. **Wasatch Front Regional Council Active Transportation Committee and UCATS Stakeholder Committee**
    a. **September 5 2012 Presentation**
    b. **September 5 2012 Meeting Minutes**
    c. **October 10 2012 Presentation**
    d. **October 10 2012 Meeting Minutes**
    e. **January 9 2013 Presentation**
    f. **January 9 2013 Meeting Minutes**
    g. **March 13 2013 Presentation**
    h. **March 13 2013 Meeting Minutes**
    i. **April 10 2013 Presentation**
    j. **April 10 2013 Meeting Minutes**
    k. **June 12 2013 Presentation**
5. **Benefits Research Technical Memorandum**
6. **Health Impact Analysis Results Technical Memorandum**
7. **Return on Investment Technical Memorandum and Matrix**
8. **Funding Matrix**
9. **Top 25 Project Areas Information Sheets**

APPENDIX 1: UCATS RESEARCH TOOLBOX TECHNICAL MEMORANDUM

FEHR PEERS

TECHNICAL MEMORANDUM

To:	UCATS Core Project Team
Date:	September 2013
From:	Fehr & Peers
Subject:	**UCATS Research Toolbox**

The purpose of this technical memorandum is to outline information gathered in UCATS Task 4: Develop a Research Toolbox. As part of this effort, the UCATS project team established the current state of bicycle and pedestrian facilities within the study area, outlined local perspectives and attitudes towards bicycling and walking, and gained understanding of the economic impacts of bicycling and walking infrastructure through an extensive literature review.

For the purpose of UCATS, the study area was defined separately for bicycle and pedestrian analysis. For bicycle facilities, the study area consisted of the urban areas of the Wasatch Front within Weber, Davis, Salt Lake, and Utah Counties. For pedestrian facilities, the study area focused on one-mile catchment radii around fixed-rail transit stations along the Wasatch Front (TRAX and FrontRunner rail lines).

This memorandum is organized into five main sections, centering on components of the Research Toolbox:

1. Development of the GIS-based "No Boundaries" bicycle facilities map;
2. Data gathering and analysis for pedestrian and bicycle access at fixed-rail transit stations;
3. Development of latent demand models predicting bicycle and pedestrian activity;
4. Demographic analysis from the Utah Household Travel Survey of local bicycling and walking behaviors, and
5. Literature review of economic impacts and benefits of bicycling and walking investments.

1. No Boundaries Map

Methodology

Many local, regional, and state agencies had previously developed maps indicating existing and planned bicycle infrastructure along the Wasatch Front. However, these maps often provided conflicting and contradictory information, and sometimes did not cross jurisdictional boundaries. The purpose of developing the No Boundaries Map was to show and analyze continuity of existing bicycle facilities across jurisdictional boundaries, which would assist the UCATS project team in analyzing gaps and needs.

Fehr & Peers developed a GIS shapefile that includes existing and proposed bicycle facilities for Weber, Davis, Salt Lake, and Utah Counties. Development of a consolidated bike facility GIS shapefile started with GIS layers from several different sources, including WFRC, MAG, Salt Lake County, UDOT,

AGRC, and Salt Lake City. Salt Lake County provided additional information for proposed facilities in the unincorporated areas within their jurisdiction, and supplemental information was gathered for existing paths in Herriman City and Daybreak.

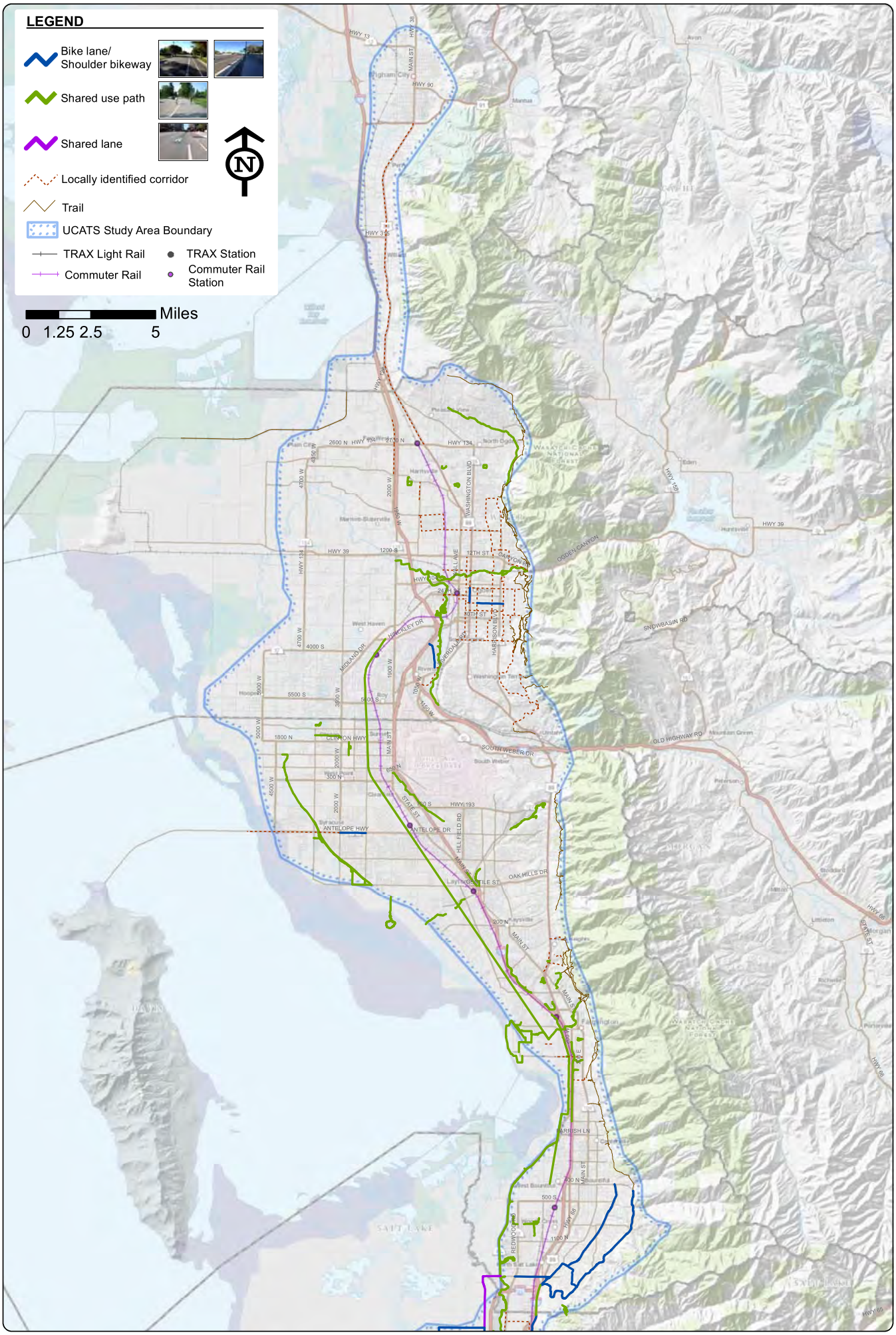
The GIS files provided a good starting point but required some "clean up" to be useful for the UCATS study. For instance, individual files had inconsistent spatial references, which prevented various data sources from aligning in the same geographic projection. Fehr & Peers aligned all features in a consolidated file with a geographic coordinate reference system based on North American Datum of 1983 (NAD 83) and a projection using Universal Transverse Mercator Zone 12 North (UTM Zone 12N).

Following the development of a consolidated GIS shape file for the study area, the project team conducted field reviews of all major bike facilities identified as "existing" in the source files. The most efficient way to verify the bike routes in the GIS files was to use aerial imagery provided by Google Earth/Maps or Bing Maps. Often, these aerial resources showed bike markings and bike lanes. Bike route signs were verified using the "street view" function. Project team members also made field visits when facilities were not visible on the aerial imagery, or if shared lane markings and signage were not visible, and because bike facilities are continually being installed. If available, analysts also referenced bike route plans or maps developed locally. This exercise resulted in verification of known facilities, addition of new facilities not already mapped, and removal of some facilities which were indicated on maps but which did not exist on the ground. The resulting No Boundaries Map reflects these changes and additions.

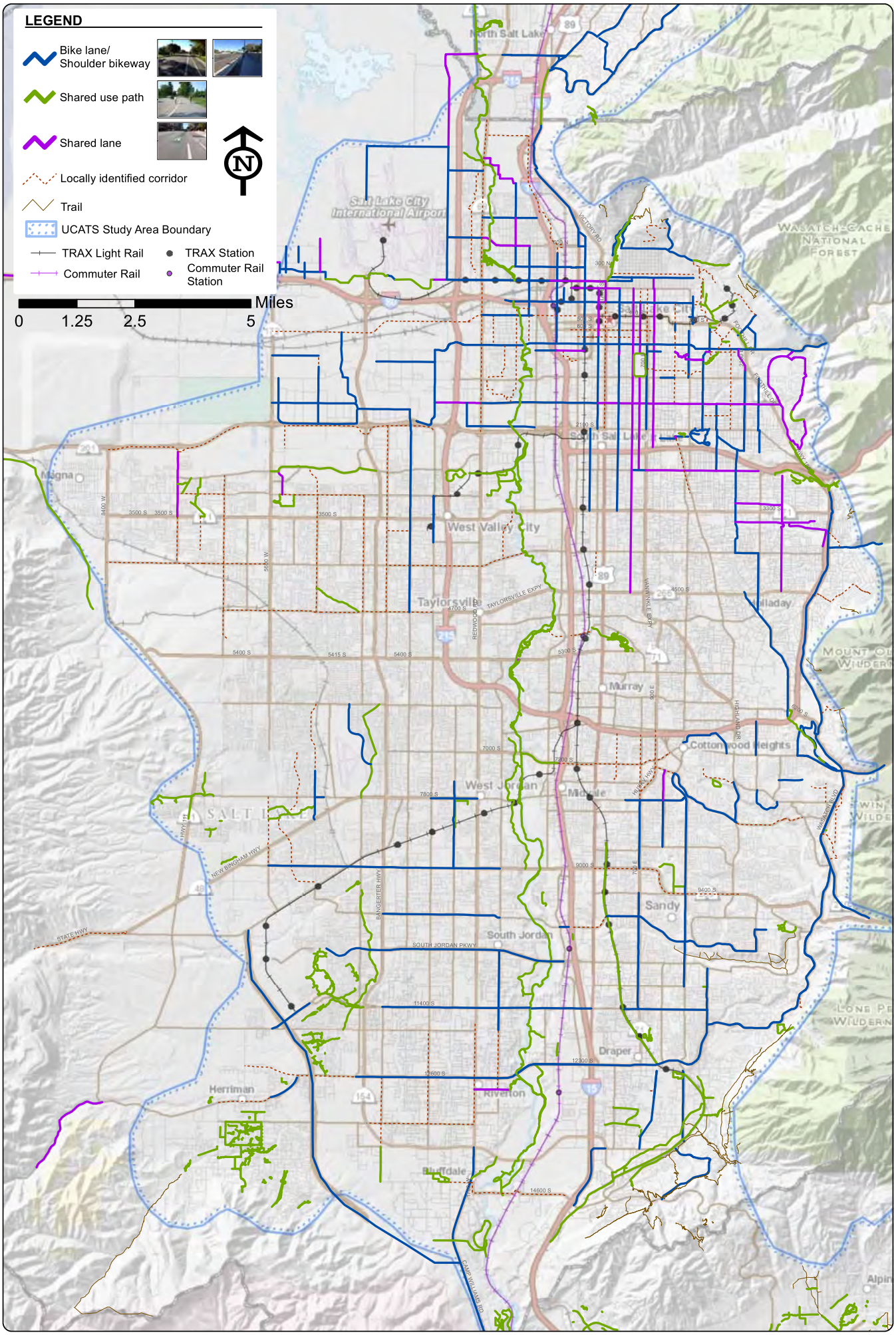
Facility naming conventions

The No Boundaries Map uses descriptive names for bike facilities rather than the traditional "class" designations. This approach is consistent with the recommended practice according to FHWA, AASHTO, NACTO, and many public agencies. The facility type categories are: **bike lane, shared lane**, and **shared use pathway**. While other additional facility type designations were included in the original GIS source files, they are not included as designations in the No Boundaries Map. These additional designations were often too ambiguous to be defined based on the descriptive names. For instance, routes designated as "quiet streets" do not have visible paving or signage treatments, so we noted these corridors as "locally identified routes." Routes defined as "paved shoulders" were treated in a similar fashion.

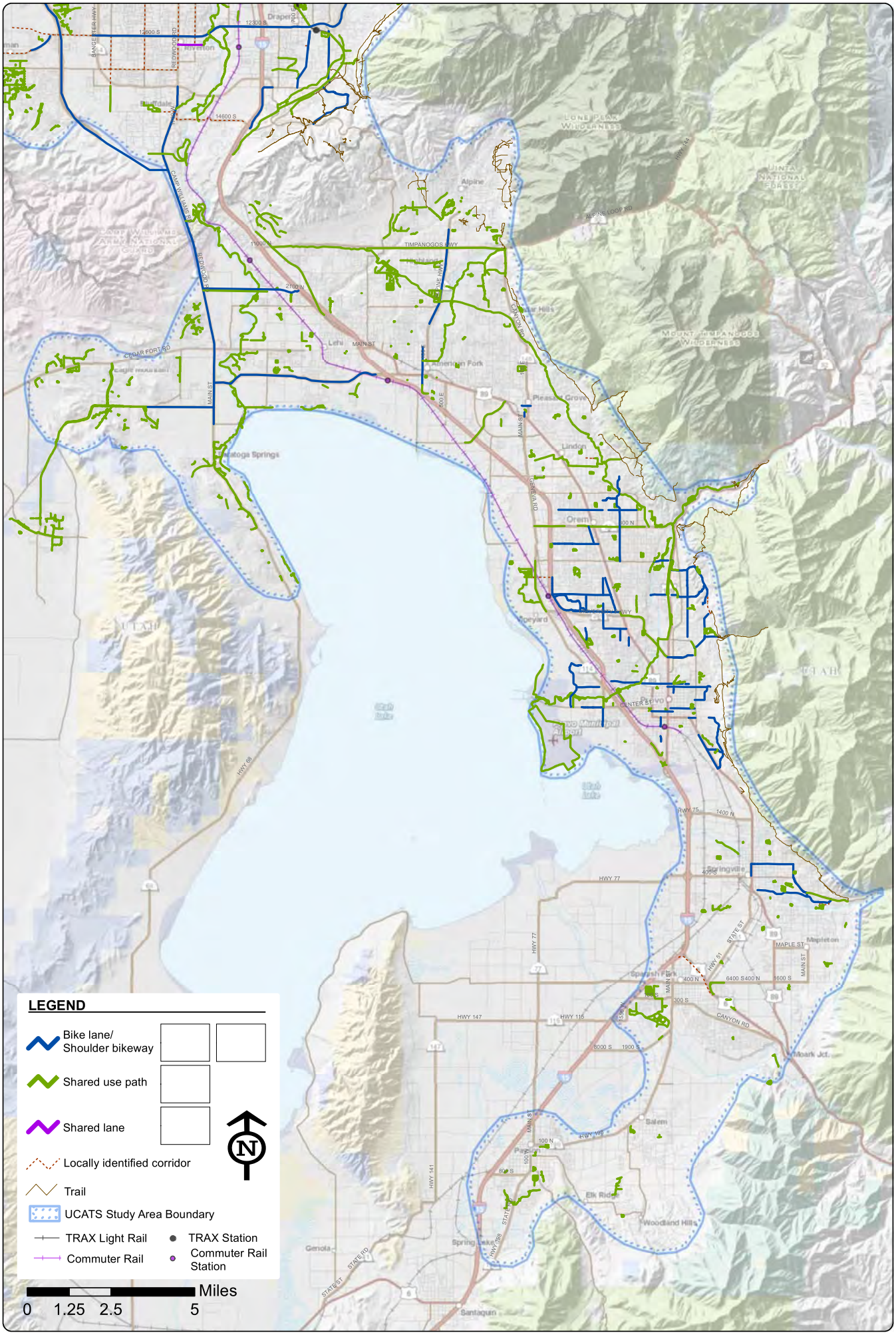
The resulting No Boundaries Maps are shown in the following pages.



DAVIS & WEBER COUNTIES - EXISTING BICYCLE FACILITIES MAP



SALT LAKE COUNTY - EXISTING BICYCLE FACILITIES MAP



UTAH COUNTY - EXISTING BICYCLE FACILITIES MAP

Barrier Mapping

The project team gathered GIS data from multiple sources to better understand barriers to bicycle connectivity in the study area. These GIS layers will help the project team identify gaps in the regional bicycle network that should be addressed to overcome these barriers. Barriers considered included:

- Roadways and freeways (I-15, I-215, I-80, Bangerter Highway, SR-201, Wasatch Boulevard, Beck Street, US-89, Legacy Parkway, I-84, and others)
- Utility corridors (canals, irrigation ditches, railroads and rail yards, fixed-rail transit lines)
- Open space areas (Dimple Dell, Emigration Creek, Red Butte Creek, Jordan River, Little Cottonwood Creek, golf courses, Mueller Park, Kays Creek, Dry Creek)
- Industrial areas and other challenging land uses (airports, mining sites, industrial areas, Hill Air Force Base, the Ogden Defense Depot, waste facilities, agricultural lands, and others)

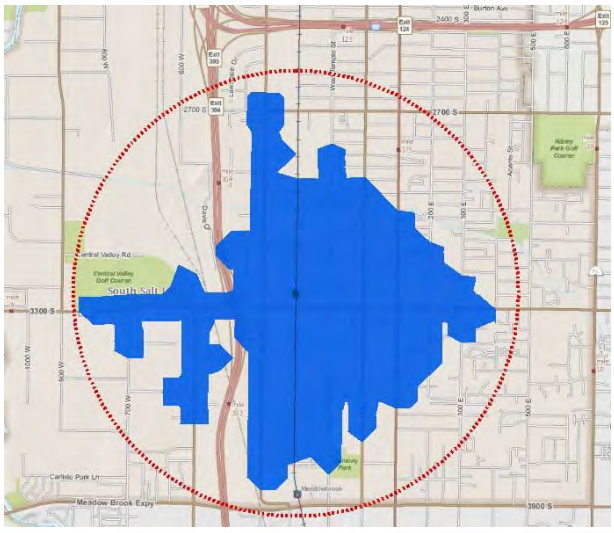
These barriers and difficult-to-circumnavigate areas were mapped and added to the list of factors for consideration when developing potential projects.

2. Access to Transit

The purpose of this task is to evaluate accessibility of TRAX light rail and FrontRunner commuter rail stations for pedestrians. While rail stations are often situated near transit supportive land uses, pathways to homes and business are sometimes indirect or non-existent. Using aerials and ArcGIS Network Analyst, Fehr & Peers mapped the actual area around rail stations that can be reached within a one-mile walk ("walk buffer"), which is assumed to be the farthest distance transit riders will generally walk.

Compared to a one mile buffer using straight line distance, or "as the crow flies," a one mile walk buffer is smaller in geographic area. This is because pathways and streets do not usually radiate from stations like the spokes of a wheel; rather, most streets are grid-based. Walk buffers are very sensitive to the connectedness of streets and density of intersections, which serve to create better access to land uses. Walk buffers are also sensitive to barriers like rivers, freeways, and impermeable neighborhood designs. Transit rail corridors can also create barriers for pedestrian access because stations are sometimes not accessible directly from both sides.

The image on the right shows the walk accessibility of Millcreek TRAX station. Notice how I-15 acts as a barrier for land on the west, and how areas with dense street networks on the east are more accessible.



This analysis categorized rail stations based on the percent of the one mile straight line buffer that is within the one mile walk buffer – this measure is here forth referred to as **"Walkability Index."** On average, the Walkability Index of TRAX and FrontRunner stations is 46% and 34%, respectively. TRAX stations tend to be more accessible for pedestrians because they are usually situated near established urban or suburban areas. Conversely, many Frontrunner stations are in less developed areas and have been built to accommodate park-and-ride users or bus transit.

The TRAX stations that have the lowest Walkability Index are shown in Table 1. Several Red Line stations in South Jordan/West Jordan have minimal existing land use and streets around the stations. Low Walkability Indices for other stations on the Red Line are attributed to one-side station access that increases walking distance for areas on the opposite side of the tracks. In these instances, the rail corridor creates a barrier; at-grade crossings, like at the Sandy Civic Center station, would improve walk accessibility.

Table 1 - Least Walkable TRAX Stations

Station Name	Address	Line	Walkability Index
South Jordan Parkway	10605 S Grandville Ave	Red Line	5.1%
	5651 W Old Bingham Hwy	Red Line	10.8%
Airport	650 N 3700 W	Green Line	12.1%
Bingham Junction	7387 S Bingham Junction Blvd	Red Line	18.7%
River Trail	2340 S 1070 W	Green Line	20.7%
West Jordan City Center	8021 S Redwood Rd	Red Line	29.7%
Historic Gardner	1127 W 7800 South	Red Line	30.7%
Daybreak Parkway	11405 S Grandville Ave	Red Line	31.3%
	1940 W North Temple	Green Line	33.2%
Power	1500 W North Temple	Green Line	34.0%

The most accessible TRAX stations are listed in Table 2. Not surprisingly, these stations are in the urbanized areas with dense street networks, smaller blocks, and good pedestrian accommodations. A complete list of TRAX stations is included in the appendix of this document.

Table 2 - Most Walkable TRAX Stations

Station Name	Address	Line	Walkability Index
Gallivan Plaza	300 S Main St	Red Line	64.2%
900 East	875 E 400 S	Red Line	64.0%
North Temple Bridge/Guadalupe	500 W North Temple	Green Line	63.1%
Trolley	625 E 400 S	Red Line	63.0%
Courthouse	450 S Main St	Red/Blue/Green	62.5%
Arena	301 W South Temple	Blue/Green	62.3%
Temple Square	132 W South Temple	Blue/Green	62.1%
900 South	860 S 200 W	Red/Blue/Green	60.9%
City Center	100 S Main St	Blue/Green	60.5%
Old Greektown	525 W 200 S	Blue	60.1%

The Walkabilty Indices for FrontRunner stations are presented in Table 3. The least accessible stations are usually bounded by significant barriers to pedestrian travel, such as interstate roads or rivers/canals, and have poor street connectivity in the surrounding areas.

Table 3 – Walkability of FrontRunner Stations

Station Name	Address	Line	Walkability Index
Draper	12997 S FrontRunner Blvd	FrontRunner	15.7
Clearfield	1250 S State St	FrontRunner	18.6
American Fork	782 W 200 S	FrontRunner	18.8
Orem Central	1350 W 900 S	FrontRunner	20.0
South Jordan	10351 South Jordan Pkwy	FrontRunner	22.2
Lehi	3101 N Ashton Blvd	FrontRunner	26.8
Roy	4155 S Sandridge Dr	FrontRunner	28.3
Woods Cross	750 S 800 W	FrontRunner	31.5
Farmington	450 N 850 W	FrontRunner	33.8
Pleasant View	2700 N Hwy 89	FrontRunner	34.4
Layton	150 S Main St	FrontRunner	40.4
Ogden Transit Center	2350 S Wall Ave	FrontRunner	49.7
Murray Central	140 W Vine St (5144 S)	FrontRunner	52.3
Salt Lake Central	250 S 600 W	FrontRunner	58.5
Provo Central	690 S University Ave	FrontRunner	58.8

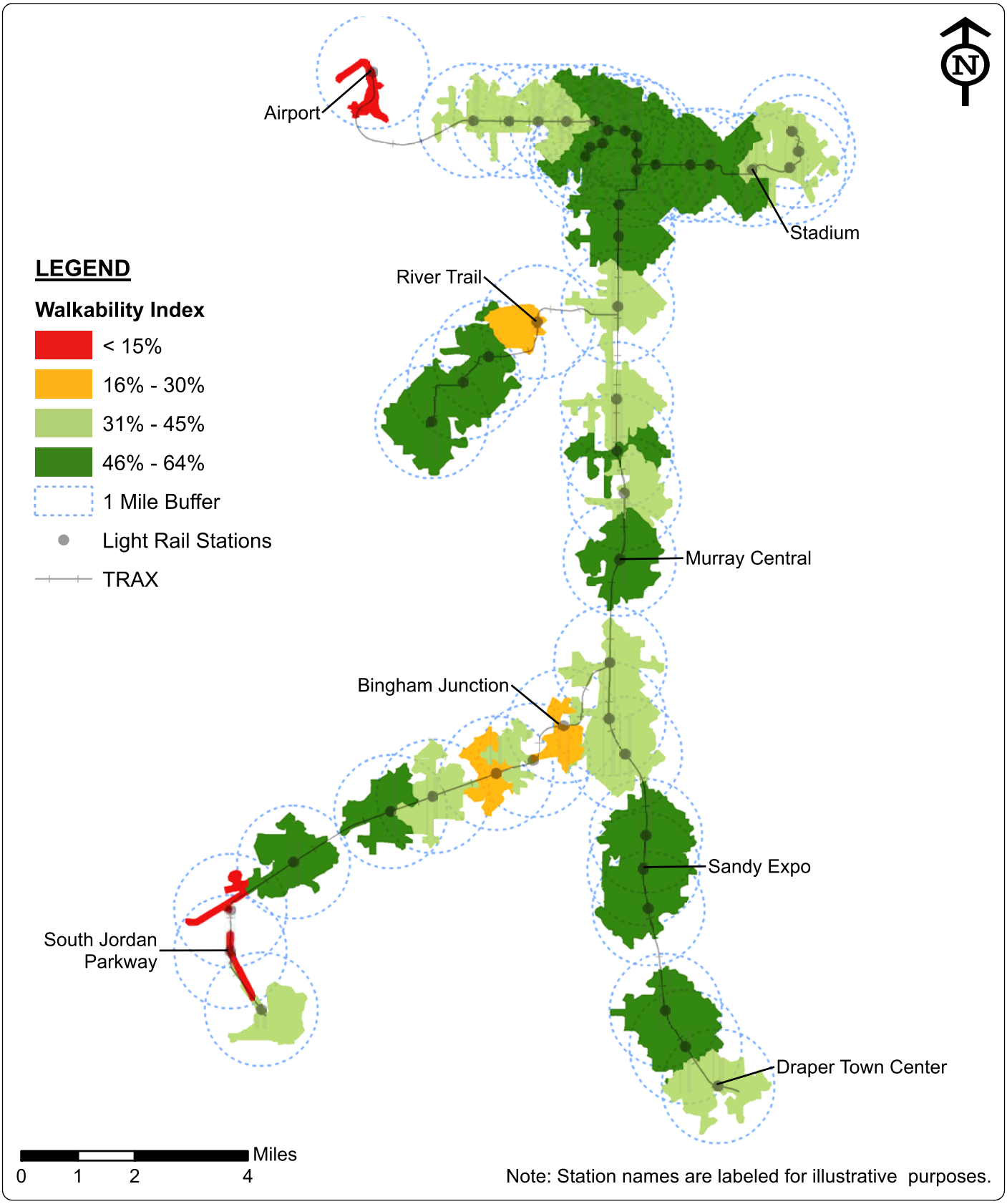
Wasatch Choice for 2040 Catalytic Sites

The Wasatch Choice for 2040 is a regional vision for land use and transportation. Several locations have been identified as "Catalytic Sites" – these locations are intended to demonstrate the benefit of various strategies to catalyze desirable development types and improve mobility and livability. Four Catalytic Sites that are transit-oriented were selected for evaluation in this task: Downtown Sandy City, Provo City Intermodal Hub, Depot District, and South Salt Lake/Millcreek Township.

Fehr & Peers made field visits to each Catalytic Site to assess the transit station accessibility, and identify both good and bad examples of bicycle and pedestrian infrastructure. The results of this exercise is summarized using online "storymaps." The storymaps are viewed using a standard internet browser, and do not require GIS software or technical skills to view the information. The Catalytic Site maps can be viewed by pasting or typing the following into an internet browser.

- Downtown Sandy City:
  http://10.1.0.36/esrimap/UCATS/SANDY_Catalytic_Site/index.html
- Depot District:
  http://10.1.0.36/esrimap/UCATS/Depot_District_Catalytic_Site/index.html
- Provo City Intermodal Hub:
  http://10.1.0.36/esrimap/UCATS/Provo_Catalytic_Site/index.html

- South Salt Lake/Millcreek Township: http://10.1.0.36/esrimap/UCATS/SSL_Millcreek_Catalytic_Site/index.html

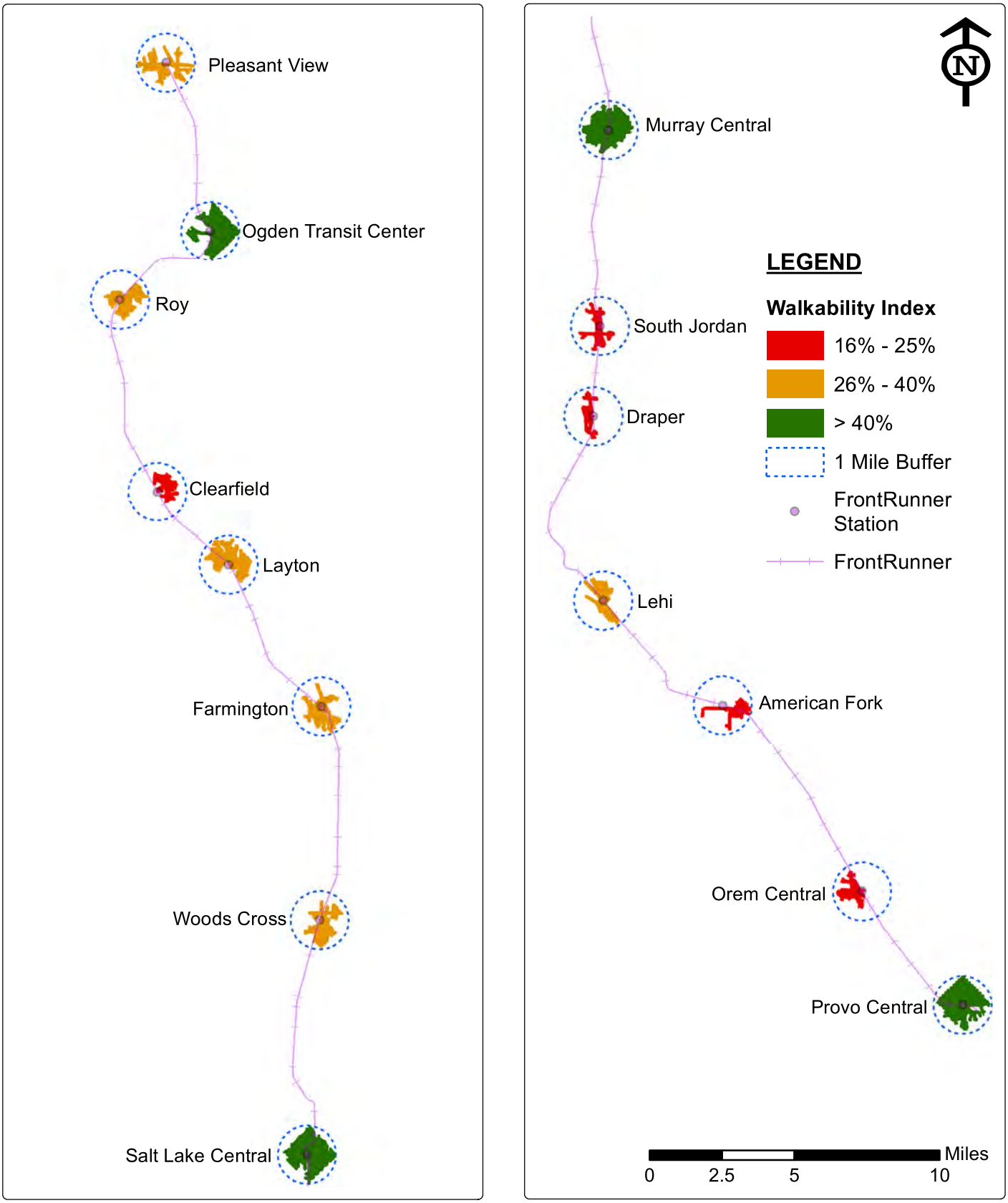


UCATS

Path: P:\12-940 UCATS Planning\GIS\mxd\Task4Memo_StationAccess\Graphic_TRAX_Station_Access_v3.mxd

TRAX STATION ACCESSIBILITY

FIGURE



UCATS

FRONTRUNNER STATION ACCESSIBILITY

Path: P:\12-940 UCATS Planning\GIS\mxd\Task4Memo_StationAccess\Graphic_CRT_Station_Access_v2.mxd

FIGURE

3. Latent Demand Models

Latent demand models estimate pedestrian and bicycling demand (not necessarily usage) in an area based on land use, demographic, and built environment factors. The latent demand methodology applied in UCATS evolved from research Fehr & Peers conducted for the US Environmental Protection Agency (EPA) on the relationship between the built environment and travel patterns. Through this and subsequent studies, several factors have been shown to have significant effects on the number of people walking and bicycling in a given area[1].

The analysis uses a combination of existing GIS data and newly collected information to develop variables highly correlated with walking and bicycling activity. The weighting of each individual variable is based on the results of the EPA research described above, but tailored to this project based on planning and engineering judgment.

Variables

Because pedestrian and bicycle activity are highly dependent on many factors, a number of variables were compiled to forecast pedestrian and bicycle demand. The variables are outlined in the following table. Weighting factors and ranking criteria were then applied to these variables to create a scoring index for each street and trail segment within the study area.

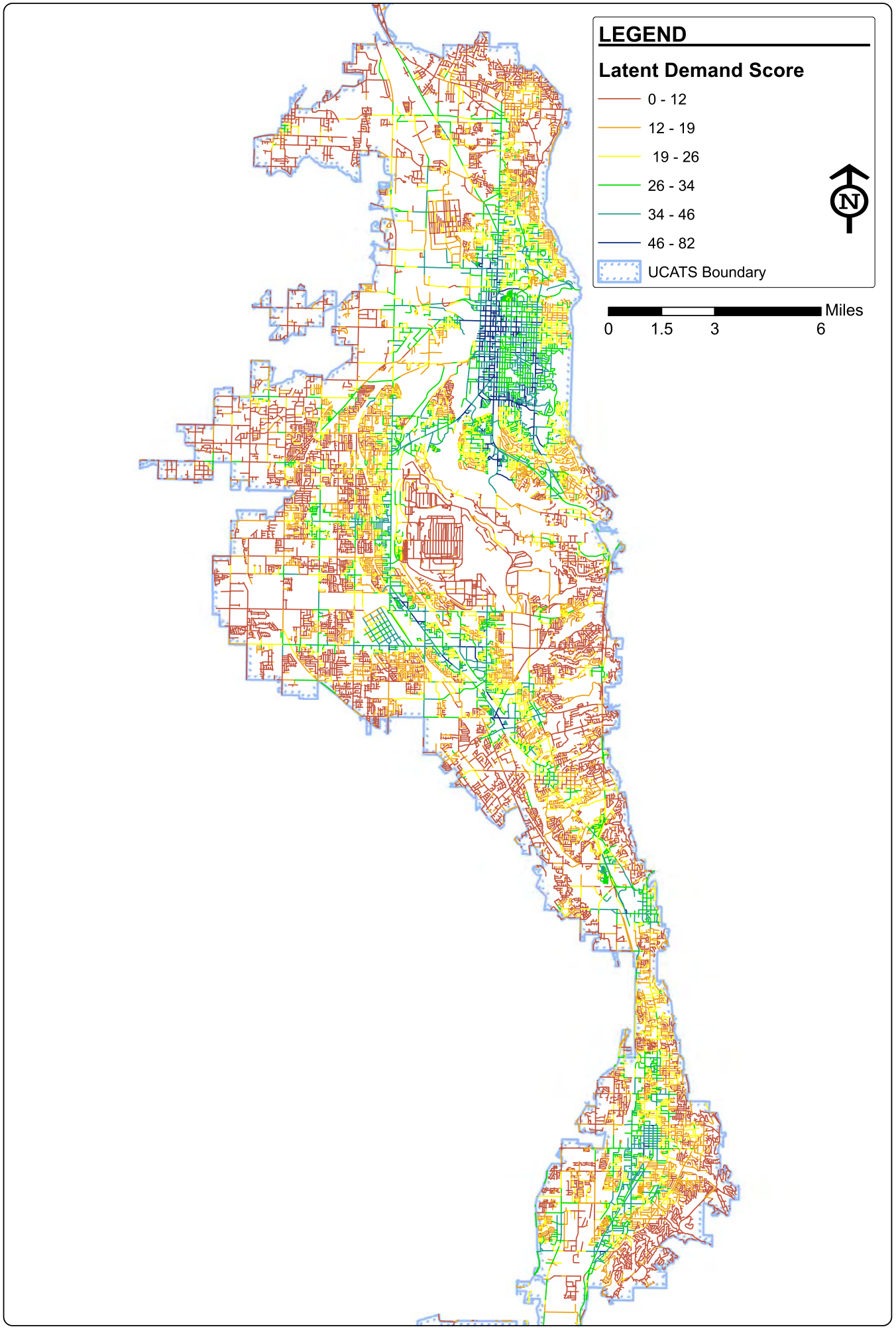
Factor	Type	Date	Source	Variable Used
Built Environment (Density and Diversity of land uses)				
Population Density	Polygon: TAZ	2007	WFRC Regional Model	Score based on average density
Employment Density	Polygon: TAZ	2007	WFRC Regional Model	Score based on average density
Land Use Mix	Polygon: Zoning	2012	UPlan	Index score based on mix of land uses
Proximity Factors (Destinations)				
Schools	Point	2012	AGRC	Score based on distance from school
Parks and Trailheads	Polygon	2012	AGRC	Score based on distance from parks
Colleges	Polygon	2012	AGRC	Score based on distance from college
Commercial Districts	Polygon	2012	Various	Score based on adjacency to commercial district
Bus Stops	Point	2012	UTA	Score based on distance from bus stop

[1] The literature on travel behavior substantiates that 4 "D-factors" independently affect travel behavior: land use Density, Diversity (land use mix); pedestrian Design, and access to regional Destinations. Because these 4 Ds work at a very local level, most travel demand models are too aggregate in scale to capture the effects of the 4 Ds. Two additional "Ds," Distance to Transit and population Demographics are also included based on their demonstrated relationship to walking/biking.

Factor	Type	Date	Source	Variable Used
Rail Stops	Point	2012	UTA	Score based on distance from rail stop
Demographics				
Age	Polygon: Census Tract	2010	Census 2010	Percent of population below 18 and above 65
Income	Polygon: Census Tract	2010	Census 2010	Percent of population below poverty level
Vehicle Ownership	Polygon: Census Tract	2010	Census 2010	Percent of population with zero vehicles
Street Permeability/Accessibility (Design)				
Street Segment Length	Polyline	2012	AGRC	Score based on length of street segment
Bicycle Network	Polyline	2012	Various	Score based on bicycle facilities

Analysis Results

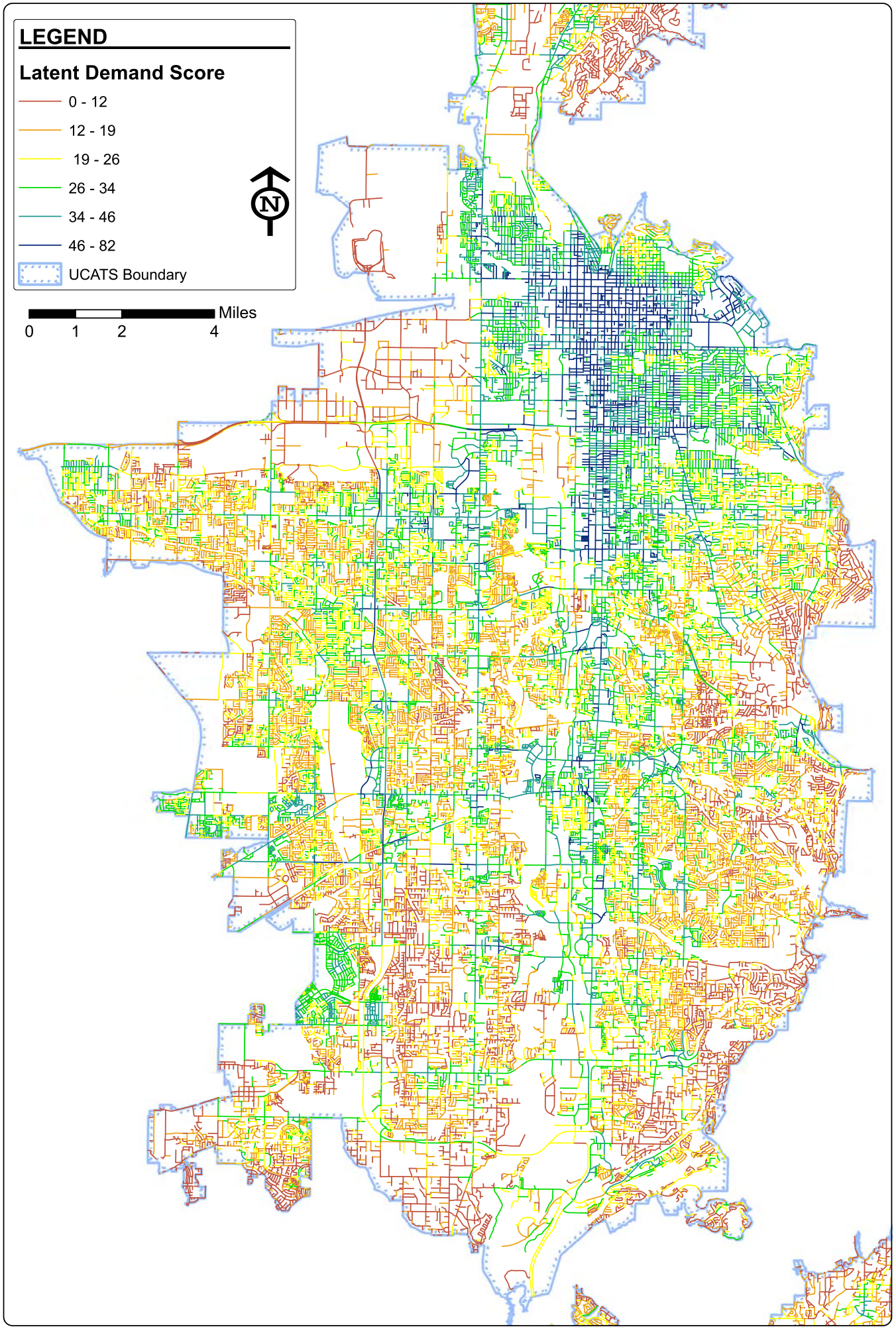
The latent demand model was developed for the urban areas of the Wasatch Front, including Weber, Davis, Salt Lake, and Utah Counties. Walking and bicycling demand scores were calculated for all street segments within the UCATS study area (approximately 101,541 street segments altogether). Results are shown separately for bicyclists and pedestrians in the maps on the following pages. A higher index score indicates a higher likelihood of pedestrian and bicycling activity, based on the analysis of factors identified in the tables. Some key areas of high activity include the downtown areas of Salt Lake City, Provo, and Ogden. Vital streets that serve as a link to a variety of uses and destinations, as well as have high employment densities, score particularly well, including State Street in Salt Lake and Utah Counties; Main Street, South Temple, 700 East, 300 East, 1100 East, 200 South, 400 South, and 2100 South in Salt Lake City; University Avenue, 300 North and 700 East in Provo; and Washington and Harrison Boulevards in Weber County.



UCATS

WEBER/DAVIS COUNTIES - EXISTING BICYCLE LATENT DEMAND

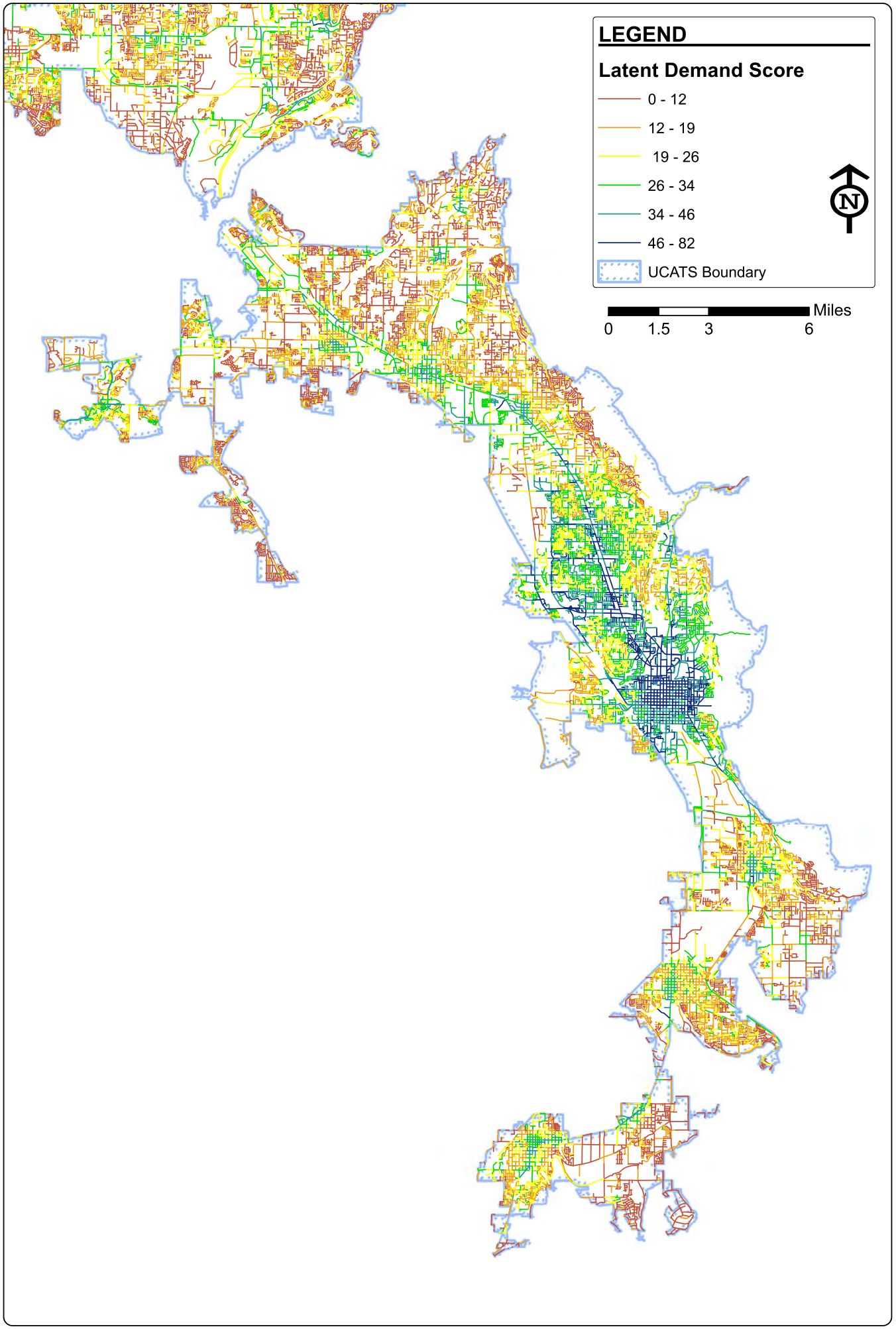
UCATS



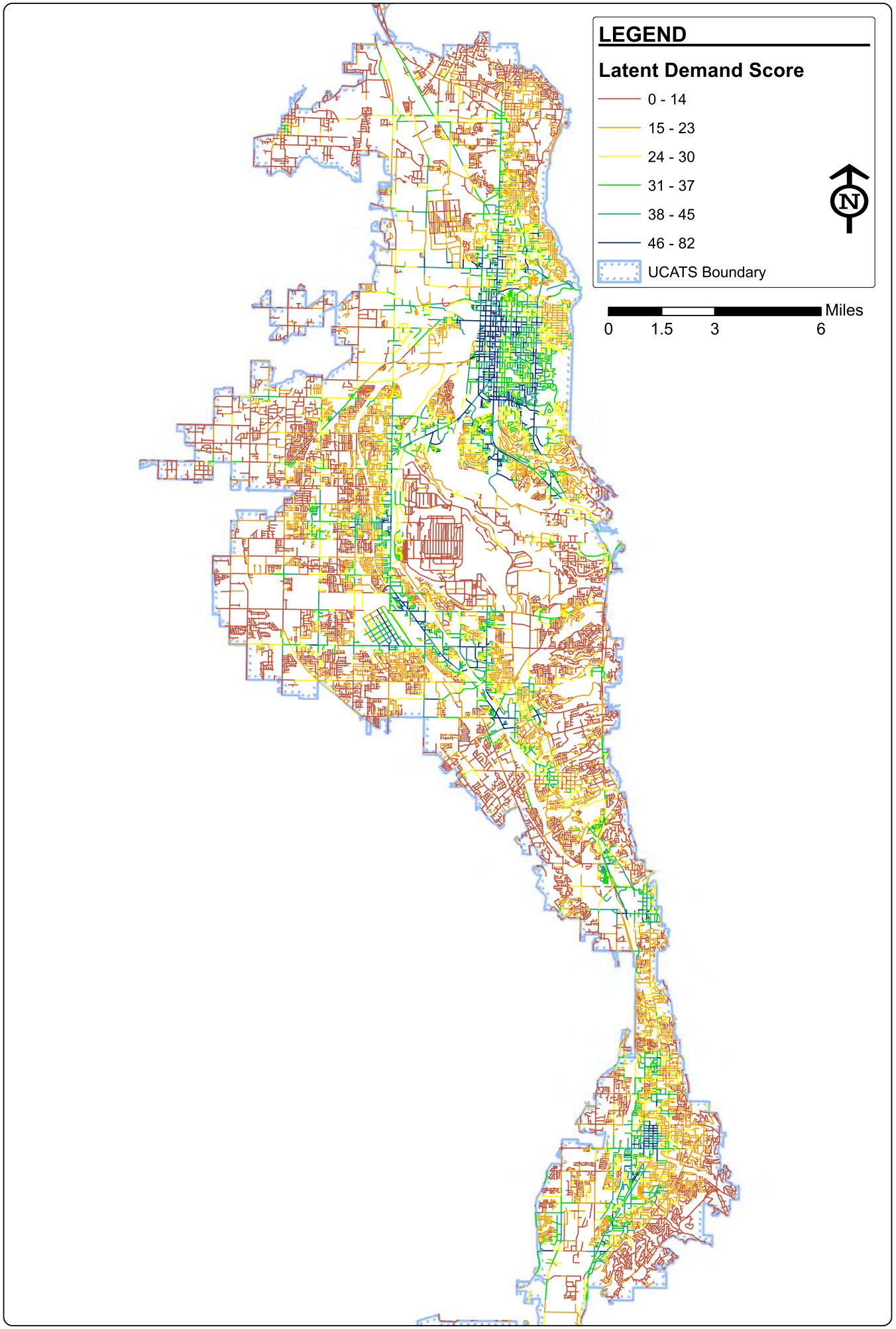
UCATS

SALT LAKE COUNTY - EXISTING BICYCLE LATENT DEMAND

UCATS



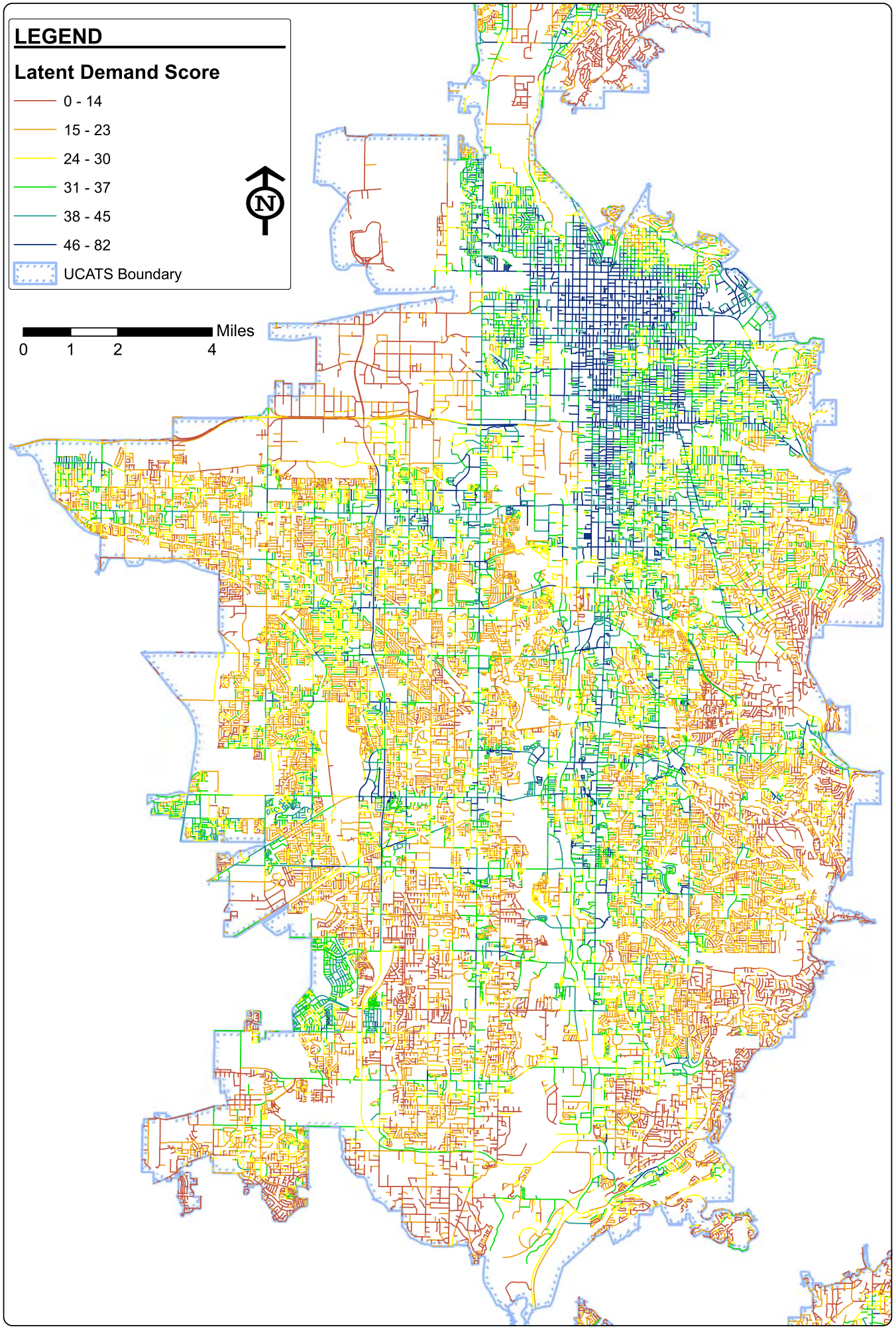
UTAH COUNTY - EXISTING BICYCLE LATENT DEMAND



UCATS

WEBER/DAVIS COUNTIES - EXISTING PEDESTRIAN LATENT DEMAND

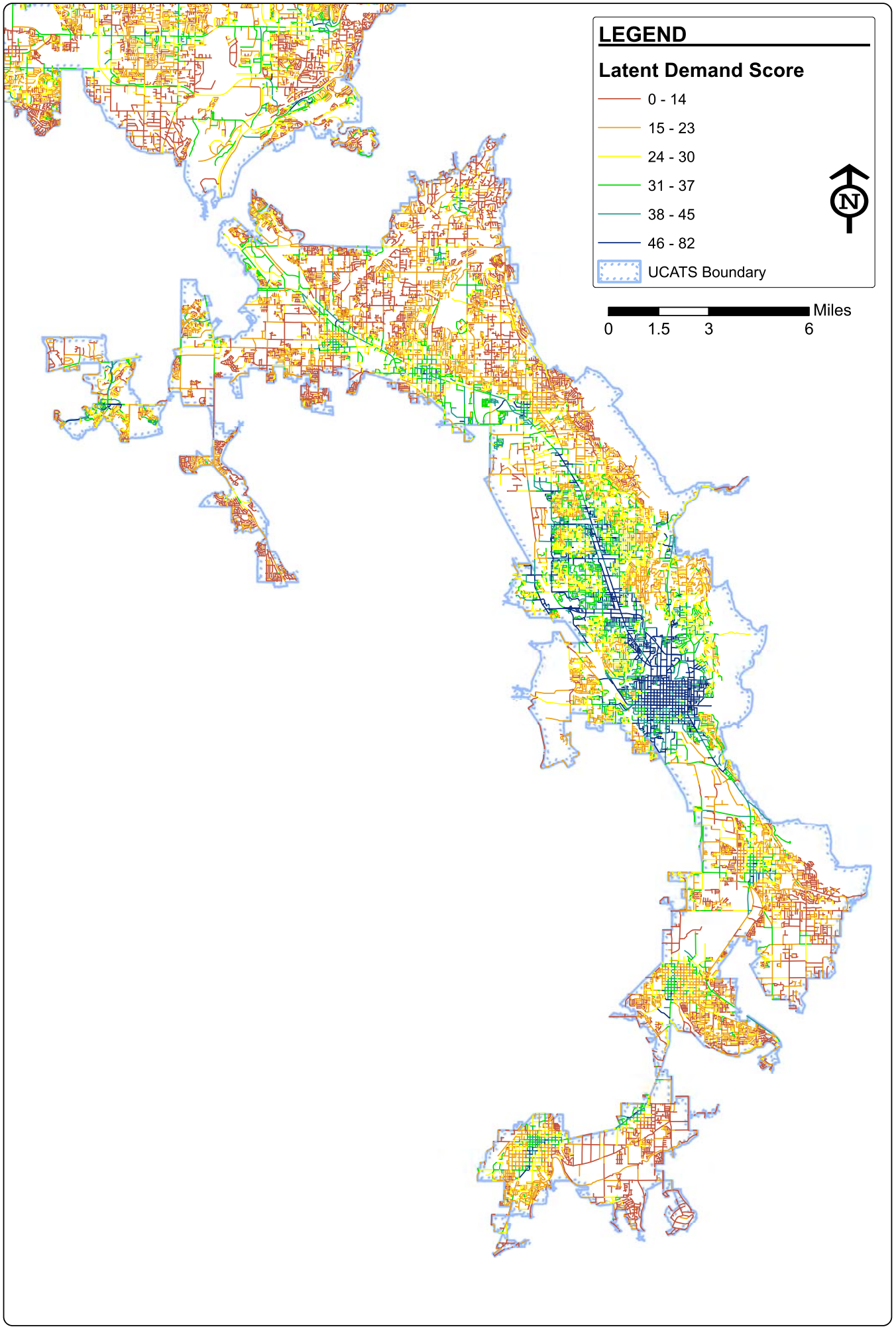
UCATS



UCATS

SALT LAKE COUNTY - EXISTING PEDESTRIAN LATENT DEMAND

UCATS



UTAH COUNTY - EXISTING PEDESTRIAN LATENT DEMAND

4. Utah Household Travel Survey Data

Members of the UCATS project team were also involved in the Utah Household Travel Survey, a statewide effort to document travel patterns and behaviors. Bicycle- and pedestrian-specific information was culled from the Utah Household Travel Survey to apprise the UCATS team of bicycling and walking activity, attitudes, and perceptions within the study area.

The analysis included in this section has been derived from data collected as a part of the Utah Travel Study. These data were collected from a random subset of respondents from the main travel survey and includes 5,096 participants from Cache, Davis, Salt Lake, Utah, Washington, and Weber Counties, as well as 7,923 responses from a separate college/university travel survey. In total, this analysis includes complete responses from a sample of 13,019 individuals.

Methodology

Because the household travel survey only gathered travel data for a single day, the bicycle and pedestrian survey asked respondents to recall and report on both their walking and biking behavior over the past 7-14 days. This provided a broader picture of overall active travel behavior and captured trips which would not have been counted during a single assigned travel day. The last portion of the survey required respondents to identify their attitudes and opinions regarding several walking and biking issues. The following tables show the results of walking and bicycling trip frequency questions.

Aggregate Self-Reported Walking Trips				
		Number walk trips longer than 10 minutes in the last week		
		More than 5 times	**1-4 times**	**None**
County	Davis	20.7%	50.8%	28.5%
	Salt Lake	23.2%	49.4%	27.4%
	Utah	18.7%	54.1%	27.1%
	Weber	16.6%	52.3%	31.1%

Self-Reported Cycling Trips							
		Number of bike trips in the last two weeks					
		6-7 days per week	4-5 days per week	1-3 days per week	1 day in the last two weeks	I bike, but I have not gone for a bike ride in the last two weeks	I never bike
County	Davis	1.0%	1.6%	7.5%	5.9%	27.3%	56.8%
	Salt	1.4%	2.8%	7.7%	5.0%	25.6%	57.5%
	Utah	1.3%	2.6%	6.5%	6.4%	31.5%	51.6%
	Weber	0.7%	2.3%	7.5%	6.0%	24.8%	58.6%

University	2.4%	3.6%	9.2%	7.3%	33.8%	43.7%

The Utah Household Travel Survey also asked respondents to provide feedback regarding their trip purpose, motivations for walking and bicycling, and reasons why they choose not to walk or bike. The following tables show the results of these questions.

Typical Walk Purpose*	
Trip Purpose	**% response**
Utilitarian Trips	**50.4**
Accompany children	24.7
Visit friends/family	16.1
Shopping	12.3
To/from school	6.8
To/from other travel mode	6.0
To/from work	5.8
Personal business	5.6
Other**	5.8
Non-Utilitarian Trips	**90.2**
Exercise	78.1
Socialize	21.9
Walk dog	20.1
Recreation event	7.4
* Based on responses from individuals who reported taking at least 1 walking trip per week ** Most commonly reported "other" purpose was church/religious	

Reasons for Not Walking		
	% of sample	**% of non-walkers**
Time related (Busy, takes too long)	18.0	63.2
Personal Reasons	9.3	32.9
Health reasons		22.6
Need vehicle		17.0
Weather	2.7	9.4
Lack of infrastructure (No sidewalks/trails)	0.6	2.3

Motivation for Walking*	
	% response
Social/Personal Enrichment	**49.2**
Enjoy outside	41.8

Health/Exercise	41.1
Conversation with friends/family	24.5
Resources	**20.5**
Save money	16.9
Improve environment	11.8
Temporal	**17.7**
Convenience	13.8
Avoid traffic	6.2
Faster than other modes	6.1
Other**	**3.7**

* Based on responses from individuals who reported taking at least 1 walking trip per week
** Most commonly reported "other" motivations included: "don't own a car" and "to get to a park/recreation site"

Typical Cycling Purpose*	
Trip Purpose	**% response**
Utilitarian Trips	**49.1** (public) **34.1** (students)
Accompany children	27.9
Visit friends/family	12.2
Shopping	7.2
To/from school	5.4
To/from other travel mode	4.3
To/from work	10.0
Personal business	5.6
Other**	4.6
Non-Utilitarian Trips	**89.1** (public) **87.8** (students)
Exercise	87.5
Socialize	14.1
Recreation event	6.4

*Based on responses from individuals who reported taking at least 1 cycling trip in the past 2 weeks
**Most commonly reported "other" purposes included: "recreation/leisure" and "family time"

Reasons for Not Biking	
	% response
Do not own a bike	53.8
Attitude (do not enjoy biking, do not feel safe)	36.2
Temporal (busy, takes too long)	24.6
Poor health	13.9
Other**	10.2

Lack of Infrastructure (too few bike lanes, paths, trails, etc)	7.6
Need vehicle	9.9
Weather	3.1
No showers/changing facilities	2.3

*Based on responses from individuals who reported taking zero biking trips in the past 2 weeks or "never biking"
**Most commonly reported "other" reasons included: "bike is broken/needs repairs", "age", "can't take children", and "topography".

Motivation for biking	
	% response
Enjoy outside	82.3
Health/Exercise	81.1
Save money	34.6
Improve environment	26.0
Convenience	18.2
Avoid traffic	13.6
Faster than other modes	9.3
Other**	5.5

*Based on responses from individuals who reported taking cycling at least occasionally
**Most commonly reported "other" motivations included: "don't own a car", "for fun", "participate in events (group rides/races)", and "spend time with family"

Analysis Summary

As shown in the tables, nearly half of walkers reported being motivated by issues that are non-utilitarian. This suggests that a focus on the health and wellness benefits of walking may be more effective at encouraging non-motorized mode choice than the traditional emphasis on environment and congestion. Alternatively, the low responses for resource and temporal-related issues may in fact prompt opportunities at the regional level to use public relations strategies to raise awareness to these issues in order to get people thinking about the multifaceted benefits of walking rather than simply focusing on health and wellness. Preliminary analysis of the survey shows that while biking behavior is relatively consistent across the state, data from the counties show significant variation in walking frequencies among residents. Both walking and cycling are viewed primarily as recreation or exercise activities with only a small percentage of respondents viewing them as legitimate transportation modes.

The Utah Household Travel Survey also asked respondents to rate value statements about bicycling and walking using a Likert scale (from strongly disagree to strongly agree). The results of these questions are shown in the table below.

Attitudes Regarding the Built Environment and Walking/Cycling*					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
The ability to walk and bike to places in my neighborhood is important to me	3.5	6.5	27.3	39.7	23.0
Overall, there are enough sidewalks in my region to meet my travel needs	5.4	14.5	20.5	45.4	14.2
Overall, there are enough bike paths in my region to meet my travel needs	8.1	19.8	34.5	29.6	8.1
I support using transportation funds to help pay for projects such as sidewalks and bike paths	3.2	4.2	26.1	46.3	20.3
I would bike on streets also designed for bicycles even if they are slightly out of my way	8.3	18.5	39.5	26.9	6.8
Having to share the road with motor vehicles is the main reason I don't bike more often	10.2	23.3	34.7	21.3	10.5
I would like to walk and/or bike more often, but I have trouble fitting it into my current lifestyle	5.9	16.3	27.6	39.3	10.8
*Percent of sample responding					

As indicated in the table, a majority of respondents agreed that being able to walk and bike to destinations in their neighborhood is important to them. While respondents tended to agree that infrastructure for walking and cycling was adequate in their area, they also acknowledged that sharing the road with vehicles inhibits them from biking more frequently and that they would in fact travel out of their way to reach a street specifically designed for bicycles. Lastly, a large majority of respondents agreed with using transportation funds to help pay for active transportation projects (i.e. sidewalks and bike paths) suggesting that people recognize them as a critical part of the overall network of transportation facilities, even if they are currently using them primarily for recreational purposes.

5. Literature Review of Economic Benefits of Cycling and Walking

Data Collection

The UCATS project team completed a comprehensive literature search of articles and studies of the economic impacts and economic development benefits of active transportation and transit-related facilities. The preliminary literature search using Lexus and similar bibliographic websites produced a list of approximately 100 articles and studies which was then reviewed for relevancy and academic rigor. Following this review, the list was reduced to approximately 48 articles and studies that were read and classified according to topic, presence of original analysis and type. Several categories of focus and type were identified and catalogued, as shown in the table below.

Economic Study Topic and Type	
Topic	**Type**
Regional Economic Impacts	Survey-based Input/output model-based Sales/lease rate original data-based
Employment Impacts	Survey-based Input/output model-based BLS data based
Property-value Impacts	Self-report data-based Interview-based Sales data based
Tourism Impacts	Survey-based Visitation data-based
Transportation Cost Impacts	Survey-based Regional economic data-based Construction budget-based

Methodology

Some studies fell into more than one category. When possible, studies based on independent, verifiable data sources were given preferences over studies using self-reported or survey-based data. The dates of the studies range from 1994 to as late as May, 2012.

In general, the articles and studies indicate that the provision of walking and bike trails, biking facilities (such as secure parking and clearly marked or separated lanes in traffic), and a safe, welcoming pedestrian experience has gained increasing attention over the last two decades among the public and local and state governments in North America. There are many facets of trails and pedestrian improvements that provide benefits both in terms of the economic welfare of citizens and the economic viability of the places in which we live.

Research Analysis

The articles address a number of avenues to increase pedestrian mobility and impact economic success, measured as:

- Impacts to quality of life and regional competitive advantage
- Direct economic impacts of developing pedestrian improvements
- Indirect impacts to property value

- Transportation savings to citizens
- Induced spending at retail establishments, and
- Trail-related tourism.

The studies indicate that bicycle and pedestrian improvements are more than just an amenity or convenience, but an important component of a community's economic life and social well-being. Such improvements should be considered part of an overall regional transportation-land use strategy that enhances accessibility for all citizens to pursue daily activities (i.e. commuting, trips to school, shopping, recreation, etc.) and encourages more efficient, affordable options for local trips (i.e. walking, cycling, other non-motorized mobility and shorter travel distances).

Strategies developed at the local level need to coordinate with neighboring and regional plans for trails and transit. Providing synergistic interaction between a variety of transportation mode networks (ie. transit, bikeways, pedestrian way, etc.) serves multiple roles in increasing the "porousness" of access to businesses, work and home. These broader aspects need to be considered alongside wealth creation and income, when considering economic development implications of non-motorized mobility.

Appendix

Walk Access for All TRAX Stations			
Station Name	**Address**	**Line**	**Walkability Index**
South Jordan Parkway	10605 S Grandville Ave	Red Line	5.1%
	5651 W Old Bingham Hwy	Red Line	10.8%
Airport	650 N 3700 W	Green Line	12.1%
Bingham Junction	7387 S Bingham Junction Blvd	Red Line	18.7%
River Trail	2340 S 1070 W	Green Line	20.7%
West Jordan City Center	8021 S Redwood Rd	Red Line	29.7%
Historic Gardner	1127 W 7800 South	Red Line	30.7%
Daybreak Parkway	11405 S Grandville Ave	Red Line	31.3%
	1940 W North Temple	Green Line	33.2%
Power	1500 W North Temple	Green Line	34.0%
University Medical Center	10 N Medical Dr	Red Line	34.4%
Murray North	72 W Fireclay Ave (4400 S)	Red/Blue Line	36.8%
University South Campus	1790 E South Campus Dr	Red Line	39.3%
	8351 S 2700 W	Red Line	39.5%
Fashion Place West	222 W Winchester St (6400 S)	Red/Blue Line	39.7%
Central Pointe	221 W 2100 S	Red/Blue/Green Line	40.8%
Midvale Fort Union	180 W 7250 S	Blue Line	41.5%
Fort Douglas	200 S Wasatch Dr	Red Line	42.3%
Millcreek	210 W 3300 S	Red/Blue Line	42.7%
Midvale Center	95 W 7720 S	Blue Line	44.5%
Draper Town Center	1131 E Pioneer Rd	Blue Line	44.6%
Fairpark	1150 W North Temple	Green Line	44.9%
	4773 W Old Bingham Hwy	Red Line	45.2%
Meadowbrook	188 W 3900 S	Red/Blue Line	46.4%
Jordan Valley	3400 W 8600 S	Red Line	46.5%
Sandy Civic Center	115 E Sego Lily Dr (9800 S)	Blue Line	47.3%
Kimballs Lane	11796 S 700 E	Blue Line	50.1%
Library	225 E 400 S	Red Line	51.2%
Decker Lake	3070 South 2200 West	Green Line	51.9%
Redwood Junction	1740 W Research Way	Green Line	52.1%
Murray Central	140 W Vine St (5144 S)	Red/Blue/ FrontRunner Line	52.3%
Cresent View	361 E 11400 S	Blue Line	53.4%

West Valley Central	2750 West 3590 South	Green Line	53.5%
Jackson/Euclid	820 W North Temple	Green Line	56.4%
Stadium	1349 E 500 S	Red Line	56.7%
Ball Park	180 W 1300 S	Red/Blue/Green Line	57.0%
Sandy Expo	115 E 9400 S	Blue Line	57.9%
Planetarium	125 S 400 W	Blue Line	58.2%
Historic Sandy	165 E 9000 S	Blue Line	58.2%
Salt Lake Central	250 S 600 W	Blue/FrontRunner Line	59.0%
Old Greektown	525 W 200 S	Blue Line	60.1%
City Center	100 S Main St	Blue/Green Line	60.5%
900 South	860 S 200 W	Red/Blue/Green Line	60.9%
Temple Square	132 W South Temple	Blue/Green Line	62.1%
Arena	301 W South Temple	Blue/Green Line	62.3%
Courthouse	450 S Main St	Red/Blue/Green Line	62.5%
Trolley	625 E 400 S	Red Line	63.0%
North Temple Bridge/Guadalupe	500 W North Temple	Green Line	63.1%
900 East	875 E 400 S	Red	64.0%
Gallivan Plaza	300 S Main St	Red	64.2%

APPENDIX 2: UTAH HOUSEHOLD TRAVEL SURVEY ANALYSIS

ACTIVE PLANNING

TECHNICAL MEMORANDUM

To: Fehr & Peers

Date: September 2012

From: Active Planning (Shaunna K Burbidge)

Subject: Utah Household Travel Survey Analysis

1. Introduction

Understanding bicycle and pedestrian travel behavior has become more critical in recent years as increased emphasis has been placed on alternative modes of transportation. This emphasis has come about for a variety of reasons ranging from the reduction of fossil fuel consumption to reduced emissions for improved air quality and improving public health through an increase in physical activity. With these goals in mind it is important to not only understand when and where active (non-motorized) trips are being made, but to also recognize the attitudes concerning active modes.

The analysis included in this memo has been derived from data collected as a part of the Utah Travel Study. These data were collected from a random subset of respondents from the main travel survey and includes participants from Cache, Davis, Salt Lake, Utah, Washington and Weber Counties (n=5,096), as well as responses from the separate college/university travel survey (n=7,923). In total, this analysis includes complete responses from a sample of 13,019 individuals.

1.1 Sample Characteristics

Demographic characteristics for this sub-sample, as shown in Table 1 below, varied by county within this sub-sample. For all counties just under half of the respondents were male which is consistent with the literature showing that women are typically more likely than men to participate in data collection exercises such as these. For the university student sample it was almost an even split. The unemployment rate among participants was lower than the state as a whole[1], and varied geographically with Davis and Utah Counties reported the fewest unemployed participants (2.5%) and Salt Lake reporting the most (5.2%). Educational

[1] Utah's statewide unemployment rate currently stands at 6.0% as reported by the Utah Department of Workforce Services (http://jobs.utah.gov/wi/pubs/une/)

attainment also varied geographically. As would be expected (due to the presence of multiple university campuses) a larger portion of respondents from Cache, Salt Lake, and Utah Counties are college graduates. Employment and educational status was not reported by the university student sample.

Table 1 – Key Sample Demographic Variables							
	Cache	Davis	Salt Lake	Utah	Washington	Weber	University Students
Gender (% males)	48.9	49.6	49.0	47.7	47.0	49.4	50.7
% Unemployed	3.9	2.5	5.2	2.5	4.8	3.8	-
% College Graduate (Bachelors or higher)	53.4	48.5	54.4	53.1	41.8	40.1	-
% Driver's License	96.8	97.3	95.6	97.8	96.6	96.0	96.2
% Disability (that limits mobility)	1.9	3.2	3.0	1.9	3.8	2.0	-
# Vehicles	2.11	2.50	2.14	2.20	2.23	2.32	2.05
HH size	3.20	3.69	3.04	3.51	2.89	3.19	-
# Children	1.05	1.35	0.84	1.26	0.77	0.92	-
# Adult bikes	1.42	1.73	1.52	1.56	1.47	1.53	1.39
# children's bikes (If HH has children)	1.65	1.89	1.54	1.65	1.94	1.64	1.35
n=	532	629	1,811	1,100	625	399	7,923

Over 95% of respondents from all counties have a current, valid driver's license, and only a very small percentage of respondents from each county (<4%) reported having a disability that limits their mobility (which could significantly impact their ability to travel using an active mode). Household size varies significantly across county lines with Davis and Utah County respondents reporting the largest households (>3.5 people) versus Washington County reporting the smallest households (<3 people). This same trend continued when looking at the number of children per household. With regard to vehicle and bicycle ownership, the response rates nearly mirrored the profile of household size and number of children. Respondents from counties with larger households reported having more vehicles and more bikes with two exceptions. Salt Lake and Washington County respondents reported having a larger than expected number of bicycles (both for children and adults). This is likely due to the more dominant "bike culture" that has developed in Salt Lake County and renewed investment in infrastructure supporting cycling, and due to the warmer year round weather in Washington County which would allow residents the opportunity to bike for a larger percentage of the year.

2. Self-Reported Walking Behavior

Because the household travel survey only gathered travel data for a single day, the bicycle and pedestrian survey asked respondents to recall and report on both their walking and biking behavior over the past 7-14 days. This was done in an attempt to gain a broader picture of overall active travel behavior and to capture trips which would not have been counted during a single assigned travel day.

The percentage of the sample who participated in zero walking trips in the past week was relatively consistent across geographies (≈ 27%) with Weber and Washington Counties reporting slightly higher rates of non-walkers (See Table 2). The percentage of individuals who reported that they participated in more than one walking trip per day also remained consistent (≈ 3-4%). There was a larger degree of fluctuation in behavior for respondents reporting walking 5 or more times per week with Cache, Salt Lake and Utah Counties showing the highest walking frequencies. The percentage of individuals reporting 4 or fewer walking trips per week was consistent across all geographies. A chi-square test of association revealed that the variation in walking behavior between counties is significant and does not occur by random chance.

Table 2 – Self-Reported Walking Trips

	Number walk trips longer than 10 minutes in the last week (percent of individuals reporting)							
	More than once per day	Once per day	5-6 times	3-4 times	1-3 times	Once	I have not gone for a walk of more than 10 minutes in the last week	Total Sampled (n)
Cache	4.3	9.2	10.2	14.3	23.7	11.1	27.3	532
Davis	3.7	5.4	11.6	14.9	23.7	12.2	28.5	629
Salt Lake	4.9	7.5	10.8	15.4	23.0	11.0	27.4	1,811
Utah	4.4	5.9	8.4	15.9	26.6	11.6	27.1	1,100
Washington	3.2	9.0	9.3	15.3	19.5	9.5	33.8	625
Weber	2.0	6.3	8.3	15.5	26.8	10.0	31.1	399
	Chi-Square =50.405 (p=0.011)							n=5,096

Note: College students were not asked about their walking behavior so no results appear in this section for that sub-sample.

Table 3 – Aggregate Self-Reported Walking Trips				
	Number walk trips longer than 10 minutes in the last week (percent of individuals reporting)			Total Sampled (n)
	More than 5 times	1-4 times	None	
Cache	23.7	49.1	27.3	532
Davis	20.7	50.8	28.5	629
Salt Lake	23.2	49.4	27.4	1,811
Utah	18.7	54.1	27.1	1,100
Washington	21.5	44.3	33.8	625
Weber	16.6	52.3	31.1	399
				n=5,096

One drawback of the survey that can be seen in Table 2 was the inclusion of options to report both a single walking trip ("once") as well as "1-3 times". This required respondents who took only one trip to choose a single category for response when both technically applied to their condition. Because rates for both response categories was similar across counties this do not pose a significant problem for this analysis, however it should be taken into consideration when viewing the results above.

By aggregating the behavioral responses into three categories: more than 5 walking trips per week, 1-4 walking trips, and no walking trips; the data (Table 3) show that residents of Salt Lake County and Cache County are the most likely to take walking trips which would be expected due to more compact development. Although Davis County is undoubtedly the most residential, they reported the third highest walking frequencies followed by Utah, Washington, and Weber Counties.

2.1 Walking Trip Purpose

After identifying the number of trips respondents are making via walking, the next step is to identify the trip types. Table 4 identifies the trip purposes reported by individuals who responded that they had made at least 1 walking trip in the past week.

Table 4 – Typical Walk Purpose	
Trip Purpose	**% response**
Utilitarian Trips	*50.4*
Accompany children	24.7
Visit friends/family	16.1

Shopping	12.3
To/from school	6.8
To/from other travel mode	6.0
To/from work	5.8
Personal business	5.6
Other*	5.8
Non-Utilitarian Trips	*90.2*
Exercise	78.1
Socialize	21.9
Walk dog	20.1
Recreation event	7.4
Note: These percentages are based on responses from individuals who reported taking at least 1 walking trip per week. *Most commonly reported "other" purpose was church/religious.	

Non-utilitarian trip purposes dominated for walking with over 90% of respondents citing a non-utilitarian purpose as their typical walking trip purpose. The most common trip purpose for walking was exercise, followed by accompanying children, socializing, and walking the dog (> 20%). Traveling to and from school, work, accessing another travel mode (i.e. transit), and conducting personal business were the lowest reported trip purposes (<10%). This data shows that although typical active transportation planning measures are aimed at promoting walking to school or connecting individuals to transit, most individuals use walking as more of a recreational activity rather than as a utilitarian travel mode.

2.2 Reasons for Not Walking

Within that context, examining respondents' reasons for not making any walking trips over the past seven days can provide additional insight into walking as a travel mode (shown in Table 5). The most commonly reported reasons for not walking were time related with 63% of non-walkers reporting that they too busy to do so (44.2%) or that walking takes too long (19%). Almost one third of non-walkers stated personal reasons for not walking (i.e. do not like walking, feel unsafe, etc). 20% of the non-walkers blamed their health, and one in six individuals reported that they "need a vehicle" (17%). It is interesting that most respondents did not blame poor weather or a deficiency of sidewalks and trails for their lack of walking.

Table 5 – Reasons for Not Walking

Reason Given	**% of sample**	**% of non-walkers**
Time related (Busy, takes too long)	18.0	63.2
Personal Reasons (Do not like walking, feel unsafe, other)	9.3	32.9
Health reasons	6.5	22.6
Need vehicle	4.8	17.0
Weather	2.7	9.4
Lack of infrastructure (No	0.6	2.3

sidewalks/trails)		

2.3 Reasons for Walking

Based on the data above one may begin to wonder what exactly promotes or encourages walking behavior for individuals in Utah. A final question posed to participants sought to determine their underlying motivation for walking. For those who reported making at least one walking trip in the past week enjoying the outdoors (41.8%) followed by health and exercise (41.1%) were the most motivating factors (Table 6). The least motivating factors for respondents in this sample included improving the environment (11.8%), avoiding traffic (6.2%), and walking being faster than other modes (6.1%). Aggregating these responses into more general categories reveals that over half of respondents cited social or personal enrichment reasons for participating in walking trips while approximately 1 in 5 people identified resource related issues as motivating factors for walking. Only 18% of walkers cited time savings or temporal issues as motivating factors for walking.

Table 6 – Reasons for Walking

Reason Given	**% Response**
Social/Personal Enrichment	*49.2*
Enjoy outside	41.8
Health/Exercise	41.1
Conversation with friends/family	24.5
Resources	*20.5*
Save money	16.9
Improve environment	11.8
Temporal	*17.7*
Convenience	13.8
Avoid traffic	6.2
Faster than other modes	6.1
*Other**	*3.7*

Note: These percentages are based on responses from individuals who reported taking at least 1 walking trip per week.
*Most commonly reported "other" motivations included: "don't own a car" and "to get to a park/recreation site".

Breaking motivation down by region reveals even clearer patterns. For example as Table 7 below shows, nearly half of all respondents regardless of location were motivated by personal enrichment, and residents in Cache and Utah Counties are especially motivated by things such as health/exercise, enjoying being outside, or having conversations with others. While resources were motivating factors for a small group of respondents, residents of Davis and Washington Counties were highly unlikely to walk because it is good for the environment or to save money. This could simply be a byproduct of local perceptions

regarding resource issues, or even the impact of local demographics and the need to drive for utilitarian purposes. Residents of Washington and Weber Counties are likewise unmotivated by time savings which again may be due to a perception by local residents that walking does not prove to be a convenient, faster mode that would allow walkers to avoid traffic. Respondents in the two regions with residential college campuses (Utah State and BYU) had the highest response for temporal benefit.

Table 7 – Reasons for Walking by Geography*			
	Social	Resources	Temporal
Cache	56.1	27.9	23.3
Davis	50.9	15.8	16.4
Salt Lake	48.4	23.4	18.2
Utah	54.7	21.6	20.8
Washington	40.1	9.9	9.4
Weber	38.9	16.0	13.5
*Percent of respondents who identified walking for this purpose.			

The findings from Table 7 do offer implications for advocacy at the regional level. For example nearly half of walkers reported being motivated by issues that are completely non-utilitarian. This suggests that a focus on the health and wellness benefits of walking may be more effective at encouraging non-motorized mode choice than the traditional emphasis on environment and congestion. Alternatively, the low responses for resource and temporal related issues may in fact prompt opportunities at the regional level to use public relations strategies to raise awareness to these issues, in order to get people thinking about the multifaceted benefits of walking rather than simply focusing on health and wellness.

2.4 Spatial Distribution of Walking Trips

Figures 1-5 show the spatial distribution of walking trips the week prior to the survey's administration throughout the state by Traffic Analysis Zone (TAZ). The darker the shade of green, the higher the average frequency of walk trips (for all purposes) by residents of that zone. This does not necessarily mean that the walking trips originated in or were complete in that zone, simply that the respondent's home is located within that zone.

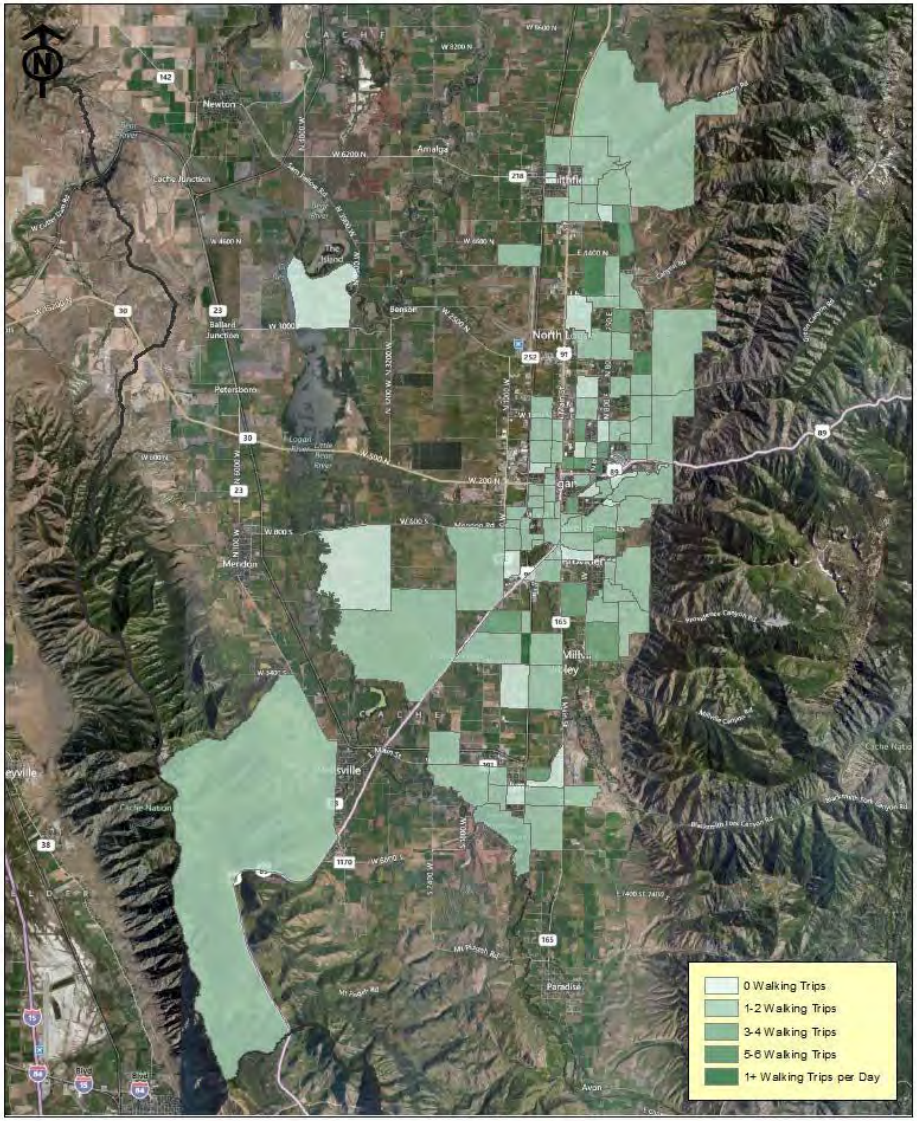


Figure 1. Walking Trips in the Past Week - Cache County

Figure 2. Walking Trips in the Past Week - Weber and Davis Counties

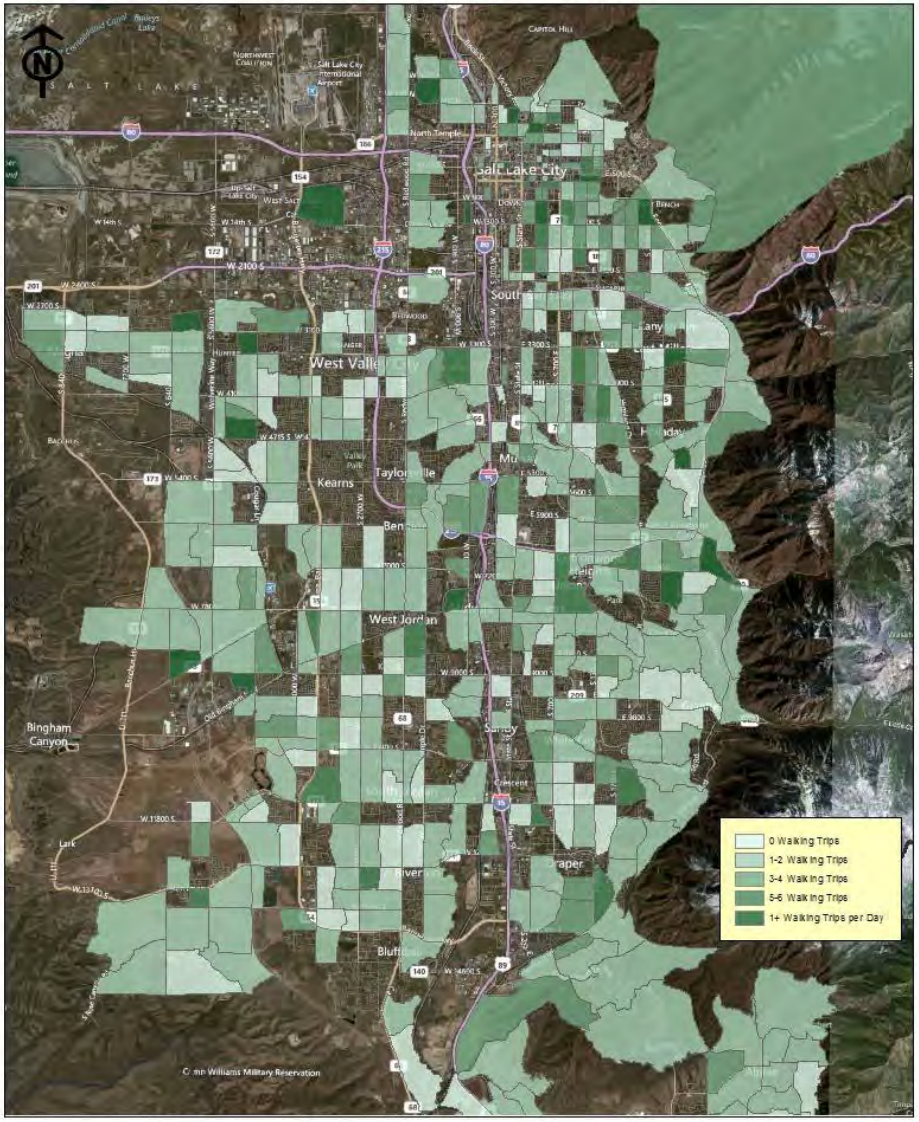


Figure 3. Walking Trips in the Past Week - Salt Lake County

Figure 4. Walking Trips in the Past Week - Utah County

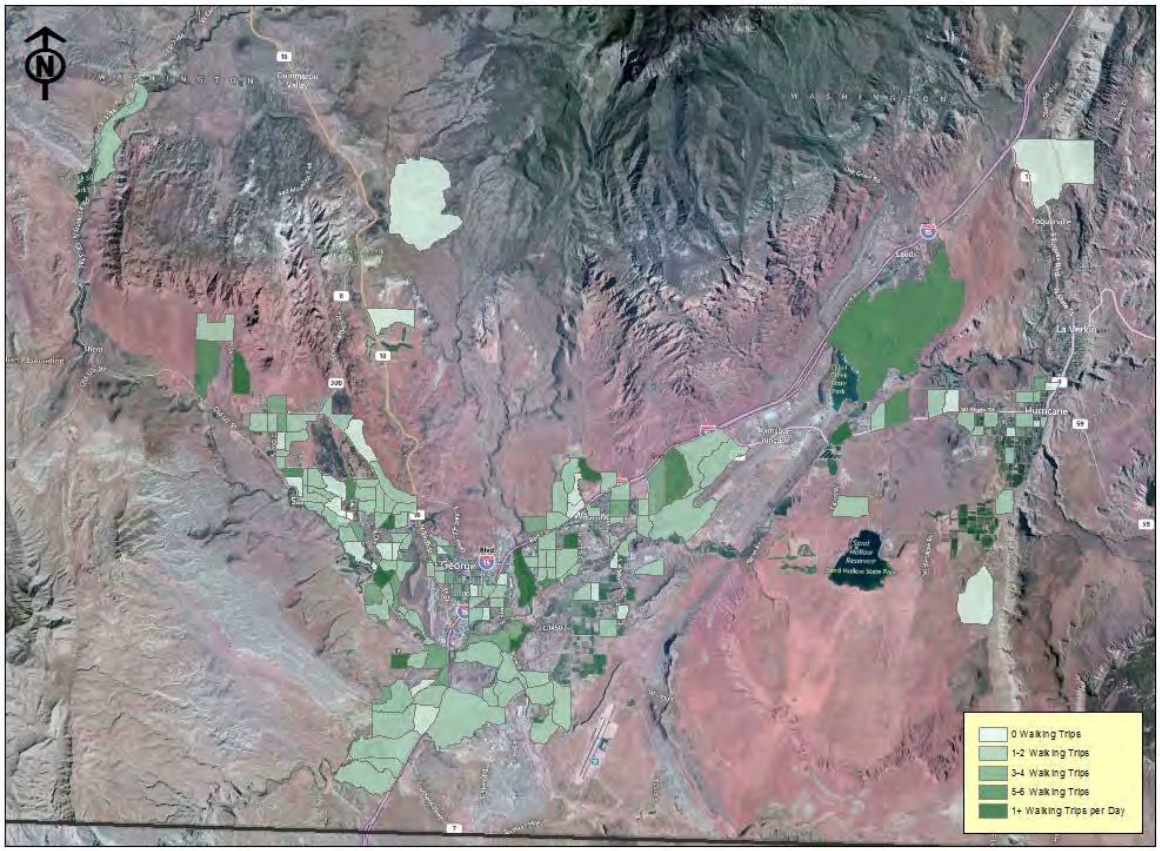


Figure 5. Walking Trips in the Past Week - Washington County

2.5 Spatial Distribution of Utilitarian Walking

In order to better identify where walking for transportation is most prevalent, utilitarian walk trip purposes were calculated spatially. Figures 6-10 show the percentage of walking trips in each TAZ that were utilitarian in nature (for transportation purposes) rather than recreational. Again the darker the shade of green, the higher the percentage of trips. These figures show that specific areas or clusters have higher rates of utilitarian walking. These are most often correlated to proximity to some type of pedestrian infrastructure. We leave it to each individual MPO and jurisdiction to further examine the relationships between land-use and travel behavior.

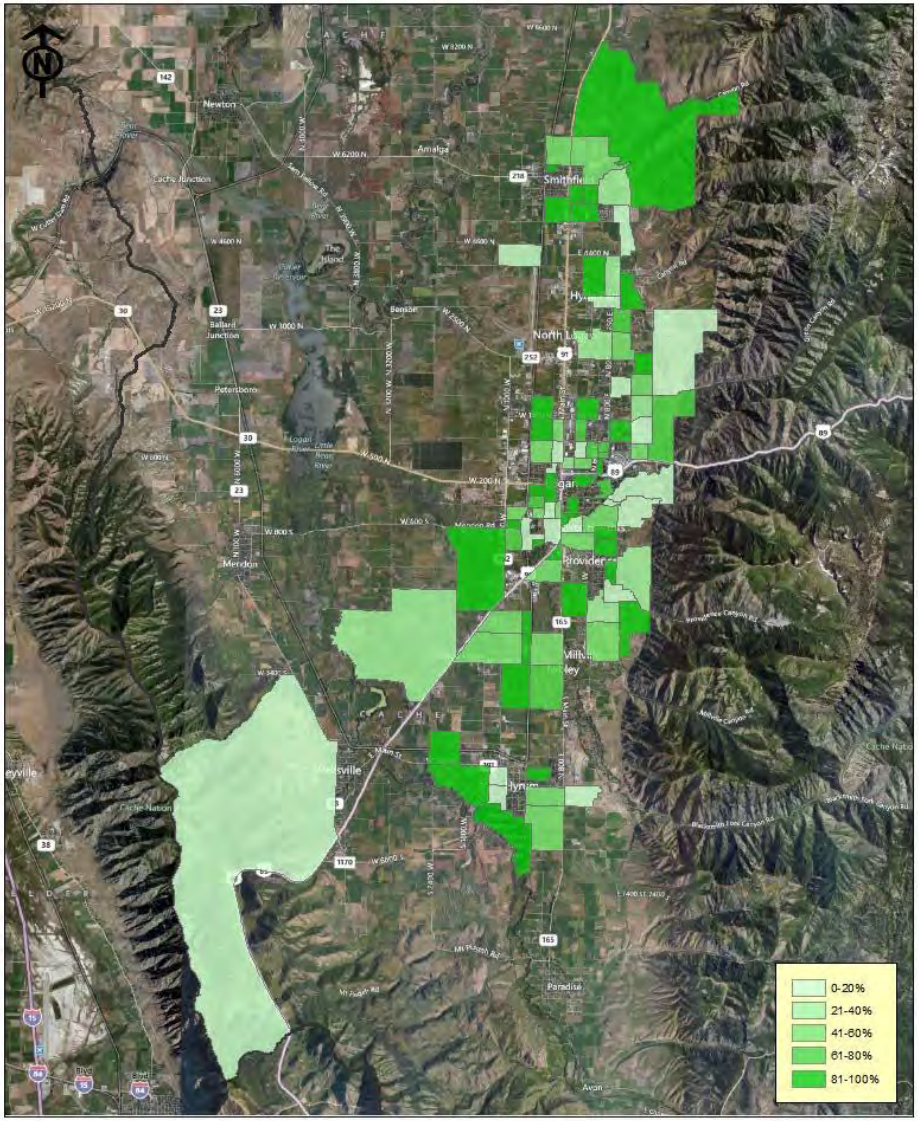


Figure 6. Percent Utilitarian Walking Trips - Cache County

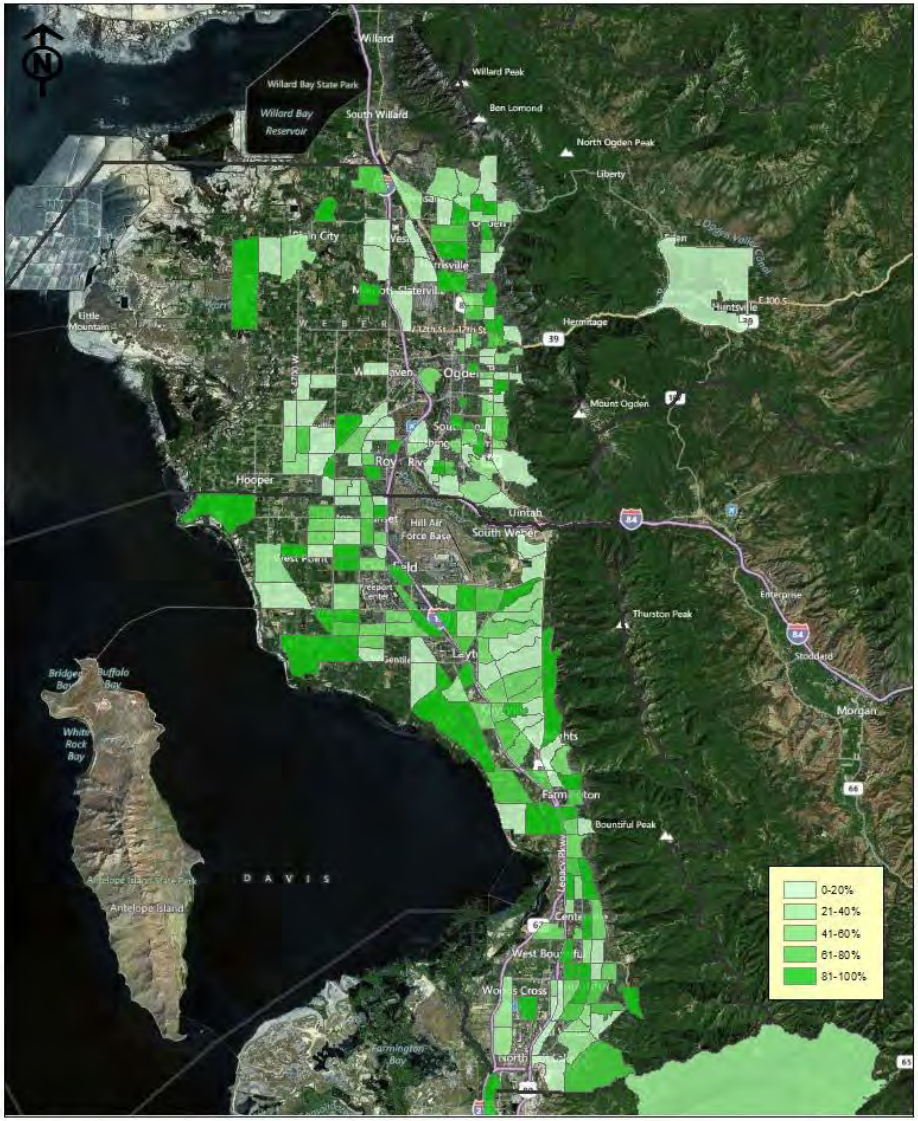


Figure 7. Percent Utilitarian Walking Trips - Weber and Davis Counties

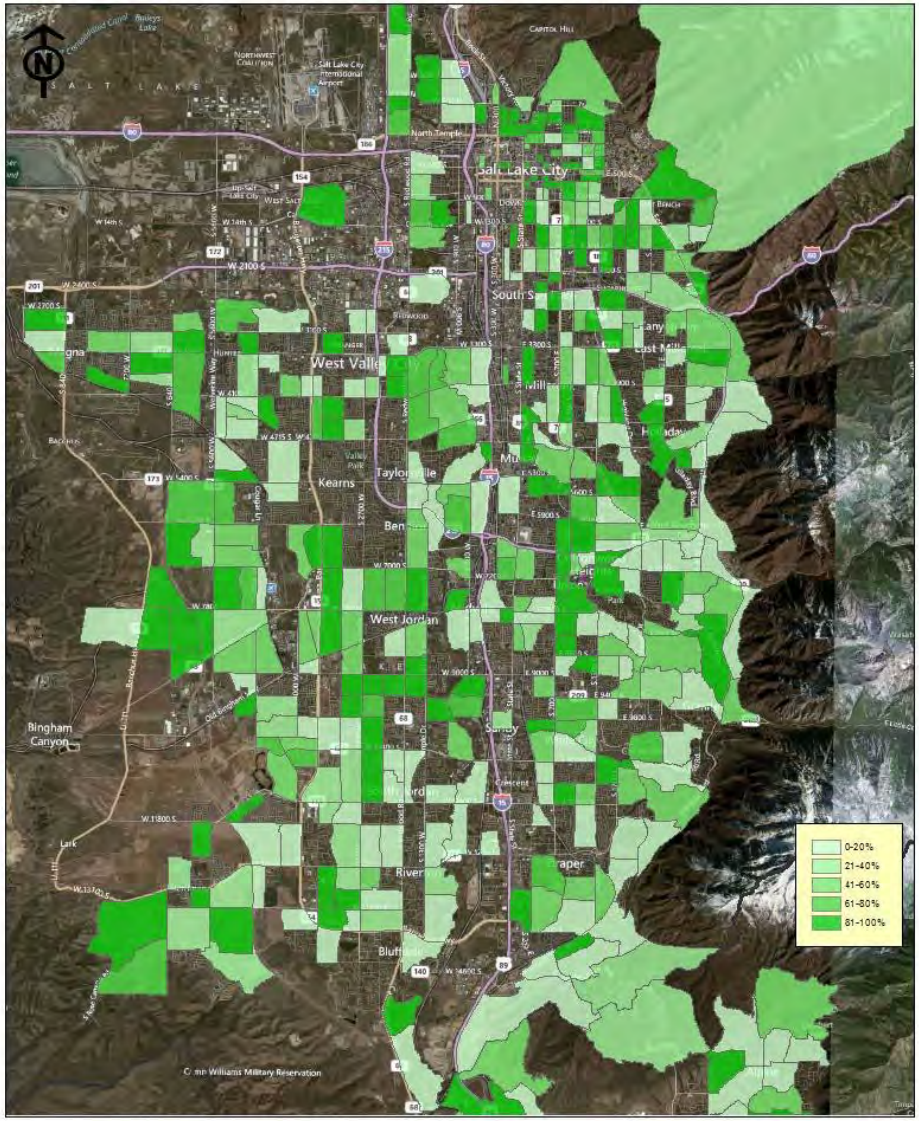


Figure 8. Percent Utilitarian Walking Trips - Salt Lake County

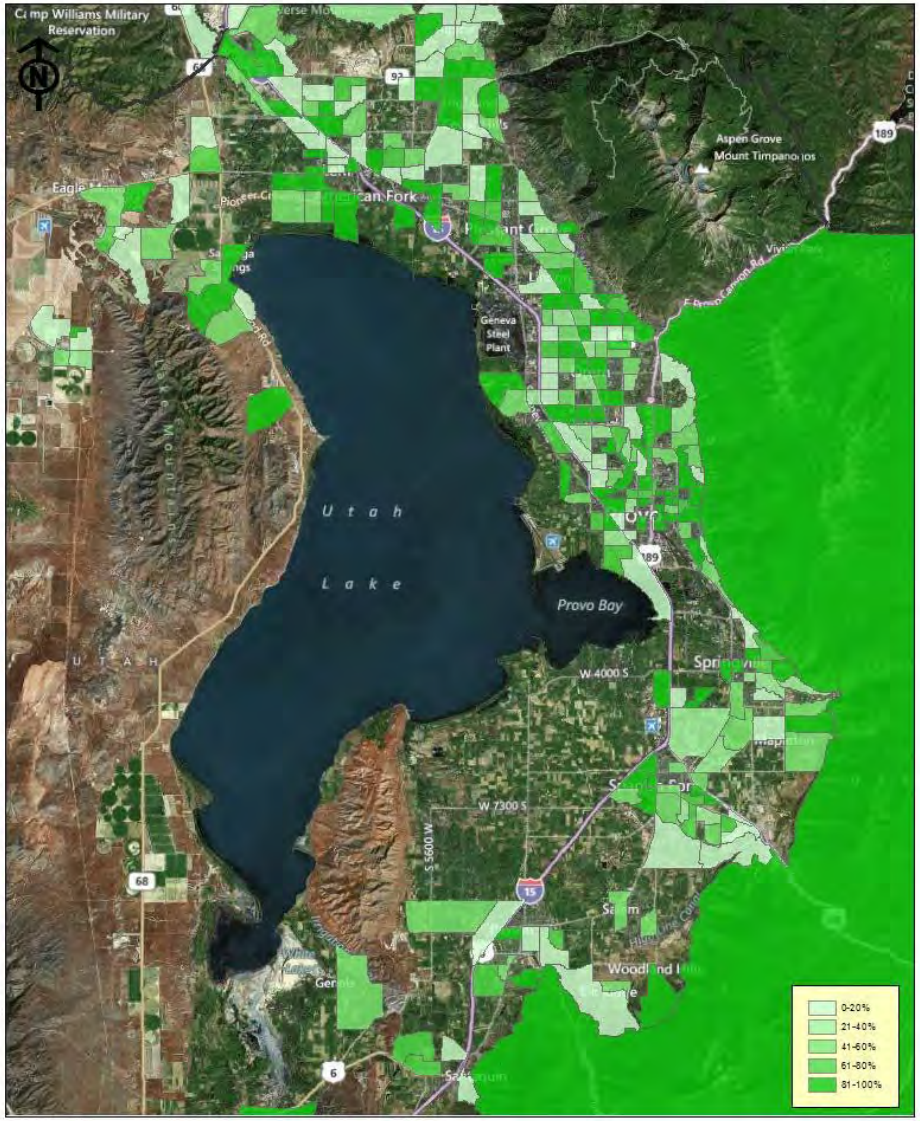


Figure 9. Percent Utilitarian Walking Trips - Utah County

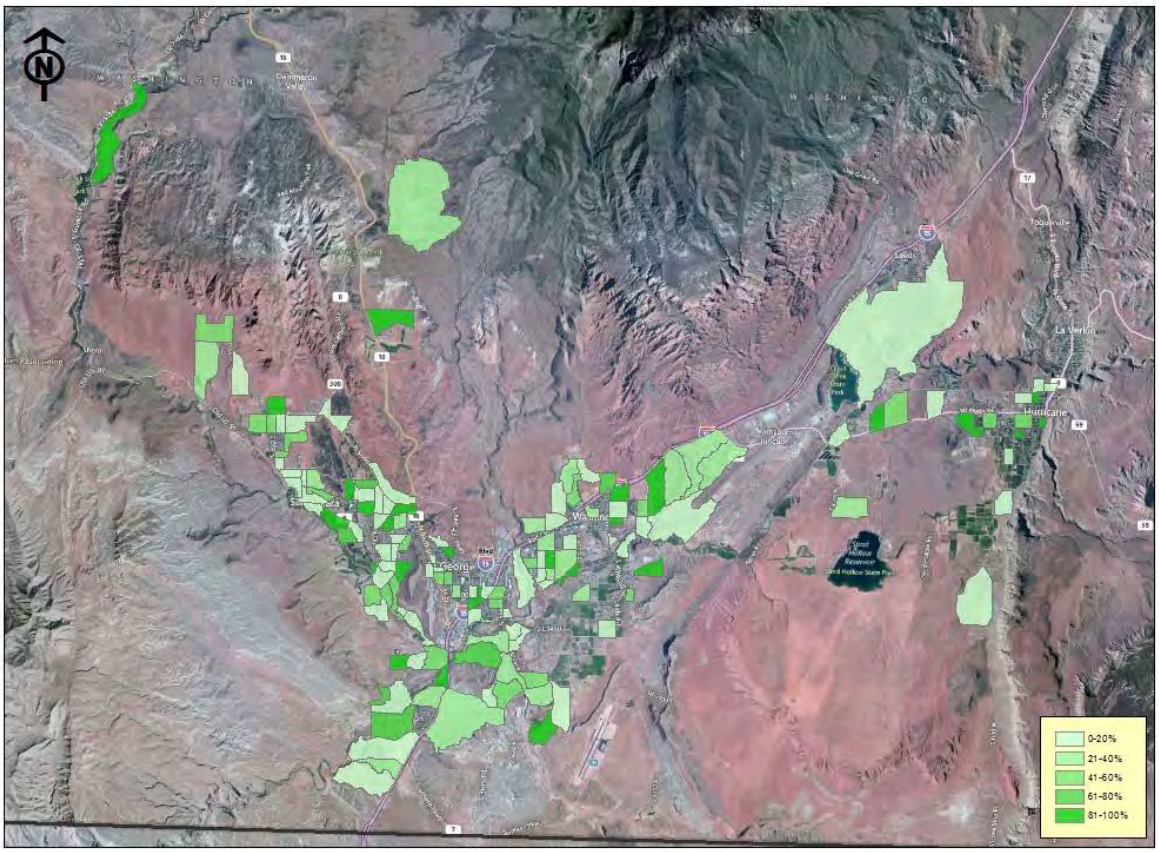


Figure 10. Percent Utilitarian Walking Trips - Washington County

3. Self-Reported Cycling Behavior

The second type of active travel behavior that this survey examined was bicycle or cycling trips. Table 8 below shows the self-reported frequency of cycling trips over the past 14 days.

Table 8 – Self-Reported Bike Trips

	Number of bike trips in the last two weeks (percent of individuals reporting)						
	6-7 days per week	4-5 days per week	1-3 days per week	1 day in the last two weeks	I bike, but I have not gone for a bike ride in the last two weeks	I never bike	Total Sampled (n)
Cache	1.0	3.0	8.3	5.5	30.6	51.7	532
Davis	1.0	1.6	7.5	5.9	27.3	56.8	629
Salt Lake	1.4	2.8	7.7	5.0	25.6	57.5	1,811
Utah	1.3	2.6	6.5	6.4	31.5	51.6	1,100

Washington	0.8	2.6	8.2	6.2	23.5	58.7	625
Weber	0.7	2.3	7.5	6.0	24.8	58.6	399
University Students	2.4	3.6	9.2	7.3	33.8	43.7	7,923
	Chi-square =34.33 (p=0.099)						n= 13,019

During the survey design it was anticipated that respondents would take cycling trips less frequently than walking trips and therefore a larger time frame was included for measurement. This does require respondents to remember their behavior over a larger timeframe, but it was determined that the nature of a cycling trip as a unique event would improve a respondent's recall capacity. Similar to walking behavior, high frequency cycling behavior was consistently reported across all Counties (≈ 1%) with a notable increase among university students (2.4%). Unlike walking behavior, cycling behavior remained consistent across all frequencies as shown in Table 8 above.

By comparison, the university students reported marginally higher rates of cycling for all frequencies, and a significantly lower rate of individuals reported that they "never bike". Nearly 60% of university students reported biking at least occasionally (>1 day in the past 2 weeks) compared to approximately 45% among each county.

Table 9 – Aggregate Self-Reported Bike Trips (for those who bike)

	Number of bike trips in the last 2 weeks (by individuals who bike)			**Respondents that bike (n)**
	4+	1-3	None	
Cache	8.1%	28.4%	63.4%	257
Davis	5.9%	30.9%	63.2%	272
Salt Lake	9.8%	30.0%	60.1%	770
Utah	8.1%	26.7%	65.2%	532
Washington	8.1%	34.9%	56.9%	258
Weber	7.2%	32.7%	60.0%	165
University Students	10.7%	29.3%	60.0%	4,458
				n=6,712

By aggregating cycling behavior by geography there remains very little variation in biking behavior with the exception of university students. Over half of respondents from the public who reported at least occasionally biking reported no biking trips in the past two weeks. Nearly one third of respondents participated in 1-3 cycling trips, and less than 10% participated in more than four trips. Of note were respondents from Davis County who were the least likely to take 4+ cycling trips, and respondents from Washington County who were the most likely to participate in one or more cycling trips. While similar numbers of

university students reported no cycling trips, those who did participate in cycling trips were more likely to bike frequently with 4+ trips over two weeks.

3.1 Cycling Trip Purpose

The main purpose of cycling trips was even more pronounced as non-utilitarian than for walking trips, with nearly 90% of individuals reporting taking trips for exercise (See Table 10). Accompanying children (27.9%), socializing (14.1%), and visiting with friends and family (12.2%) were also frequently reported trip purposes. Cycling was more frequently used than walking as a transportation mode to/from work (10%), however other trip purposes which would classify cycling as a transportation mode were not highly reported (<10%). One startling difference was between university students and the general public sample with only 1/3 of university students identifying utilitarian purposes as their typical cycling trips.

Table 10 – Typical Cycling Purpose*

Trip Purpose	**% Response**
Utilitarian Trips	*49.1 (public)* *34.1 (students)*
Accompany children	27.9
Visit friends/family	12.2
Shopping	7.2
To/from school	5.4
To/from other travel mode	4.3
To/from work	10.0
Personal business	5.6
Other**	4.6
Non-Utilitarian Trips	*89.1 (public)* *87.8 (students)*
Exercise	87.5
Socialize	14.1
Recreation event	6.4

*Based on responses from individuals who reported taking at least 1 cycling trip in the past 2 weeks.
**Most commonly reported "other" purposes included: "recreation/leisure" and "family time".

3.2 Reasons for Not Biking

For individuals who reported taking zero biking trips in the past two weeks or "never biking", the main reasons included not owning a bike (53.8%), not enjoying biking (21%), being busy, or feeling unsafe riding in traffic (15.2%).

Table 11 – Reasons for Not Biking*

Reason Given	% Response
Do not own a bike	53.8
Attitudes (do not enjoy biking, do not feel safe)	36.2
Temporal (busy, takes too long)	24.6
Poor health	13.9
Other**	10.2
Lack of Infrastructure (too few bike lanes, paths, trails, etc)	7.6
Need vehicle	9.9
Weather	3.1
No showers/changing facilities	2.3
*Based on responses from individuals who reported taking zero biking trips in the past 2 weeks or "never biking". **Most commonly reported "other" reasons included: "bike is broken/needs repairs", "age", "can't take children", and "topography".	

Similar to walking, common planning rhetoric regarding infrastructure conditions or availability were not widely reported as reasons for not biking (results shown in Table 11). This data has implications for existing travel demand models that currently assume that biking is a viable option for all system users. This assumption has proven to be naïve considering the data shows over half of adults sampled do not own a bicycle which would limit the cycling mode choice option to only half of travelers. Assuming cycling is a mode choice option for even half of adults may also be presumptuous considering the trip purpose data presented in the tables above, and data below showing that an additional 1/3 of respondents reported not enjoying biking or not feeling safe.

3.3 Reasons for Biking

For those who reported making at least one cycling trip in the past two weeks, the survey asked the respondent to identify their motivations in general for doing so. Once again enjoying the outdoors (82.2%) and health/exercise (81.1%) were by far the most influential factors.

Table 12 – Reasons for Biking*	
Reason Given	**% Response**
Enjoy outside	82.3
Health/Exercise	81.1
Save money	34.6
Improve environment	26.0
Convenience	18.2
Avoid traffic	13.6
Faster than other modes	9.3
Other**	5.5
*Based on responses from individuals who reported taking	

cycling at least occasionally.
**Most commonly reported "other" motivations included: "don't own a car", "for fun", "participate in events (group rides/races)", and "spend time with family".

These results may have profound policy implications. Planners have traditionally focused on utilitarian infrastructure, such as bike lanes in downtown, and have places priority on routes that serve as transportation routes. However, the results of this survey show that a large majority of individuals are cycling for non-utilitarian purposes. This is not to say that providing infrastructure to support cycling as a transportation mode is inappropriate, however, we may need to rethink the big picture of planning and the types of destinations that the end user desires. Additionally, this information may provide a different angle to pitch active transportation benefits to the public. Rather than focusing promotions on the environmental benefits or the ability to reduce congestion, it may be more useful to focus on the personal benefits of health and wellness and quality of life.

3.4 Spatial Distribution of Cycling

Figures 11-15 show the average number of cycling trips per TAZ for the two weeks prior to the survey's administration throughout the state by Traffic Analysis Zone (TAZ). The darker the shade of blue, the higher the average frequency of cycling trips (for all purposes) by residents of that zone. Again, this does not necessarily mean that the cycling trips originated in or were complete in that zone, simply that the respondent's home is located within that zone.

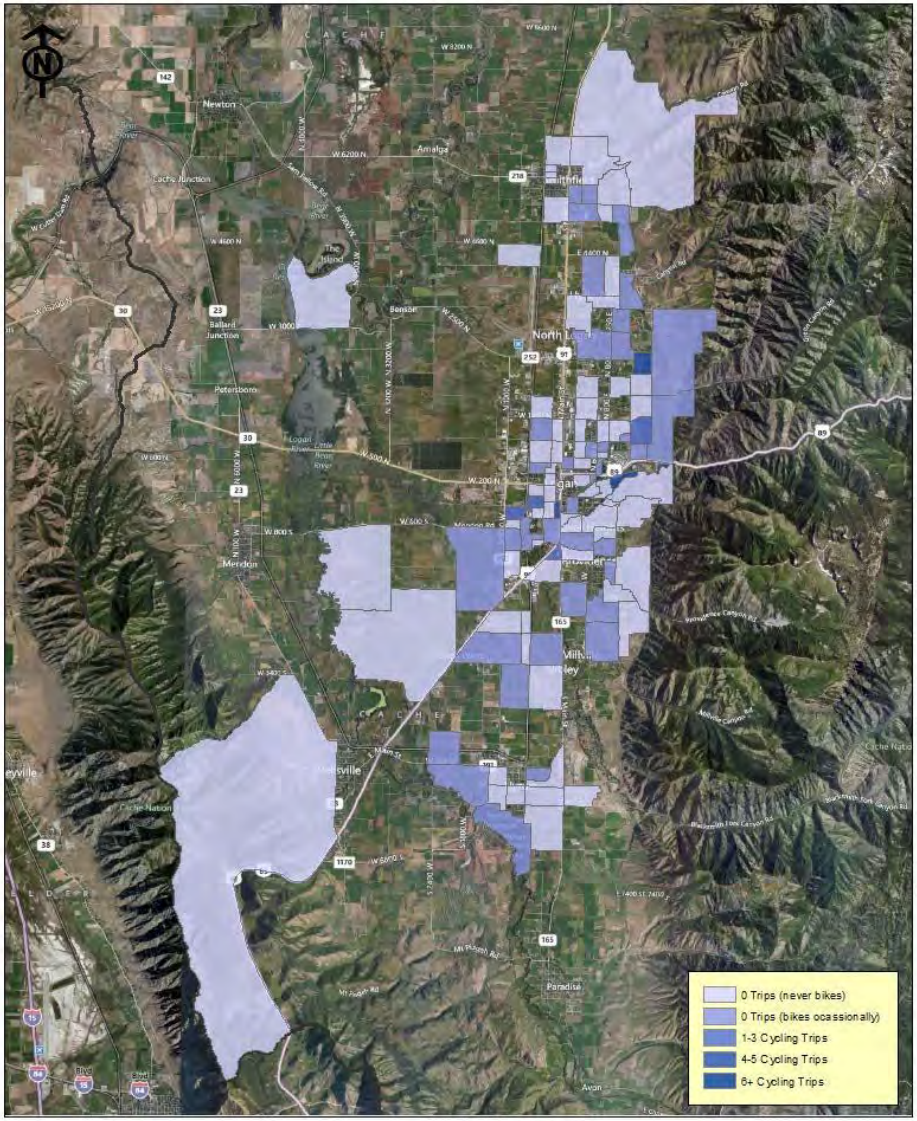


Figure 11. Cycling Trips in the Past 2 Weeks - Cache County

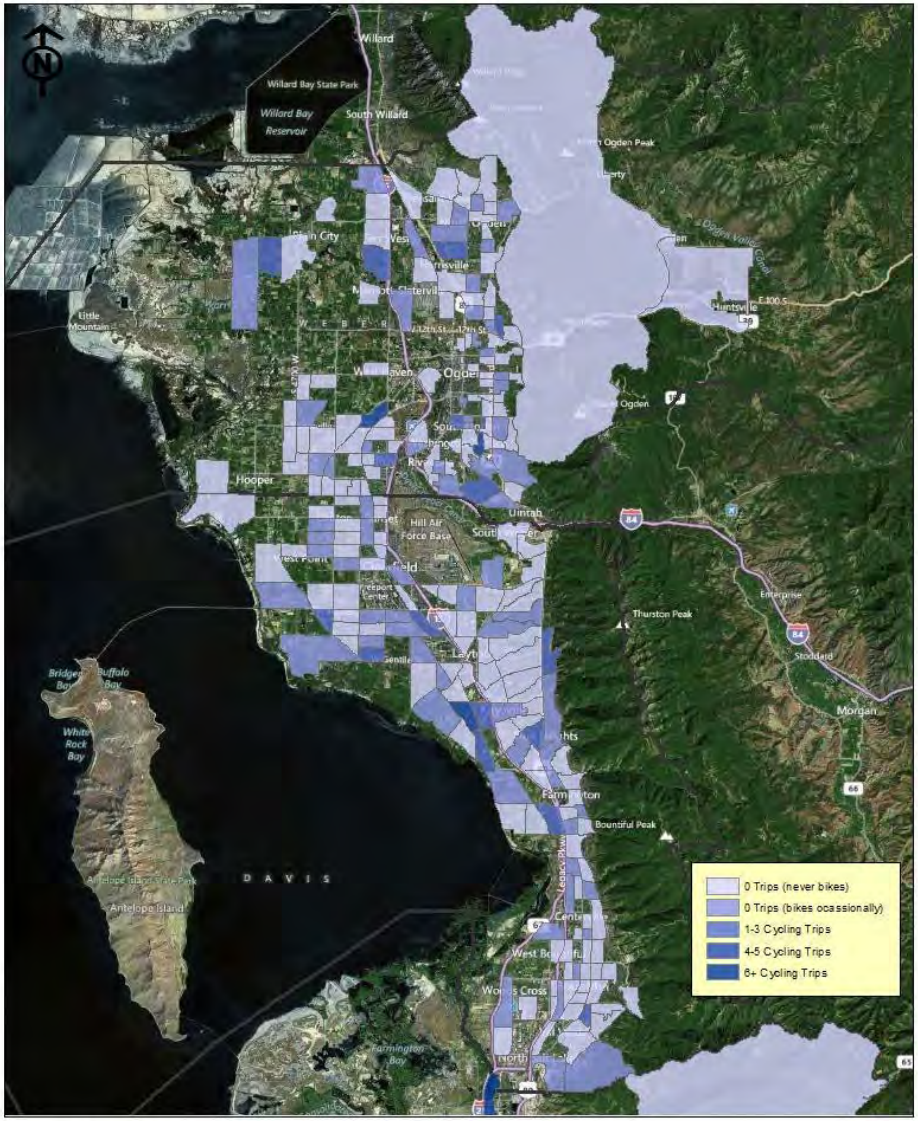


Figure 12. Cycling Trips in the Past 2 Weeks - Weber and Davis Counties

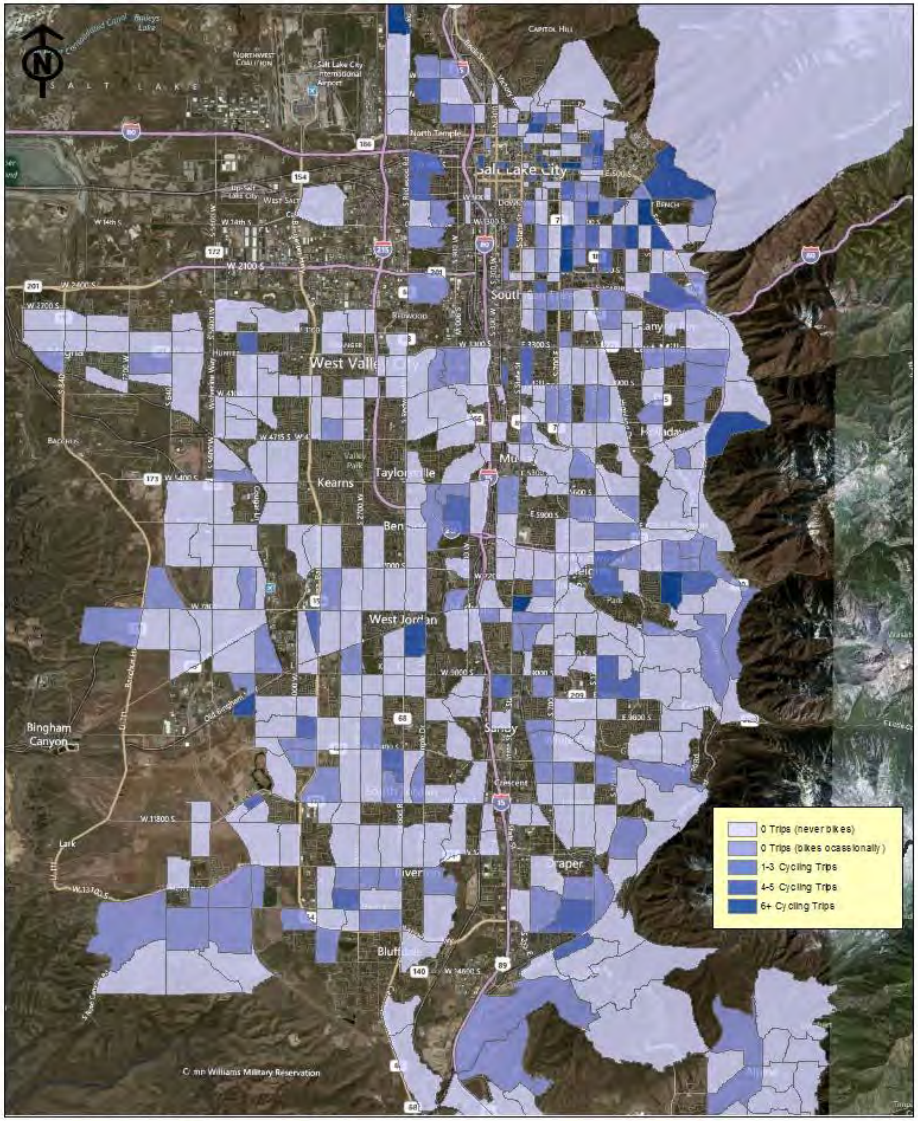


Figure 13. Cycling Trips in the Past 2 Weeks - Salt Lake County

Figure 14. Cycling Trips in the Past 2 Weeks - Utah County

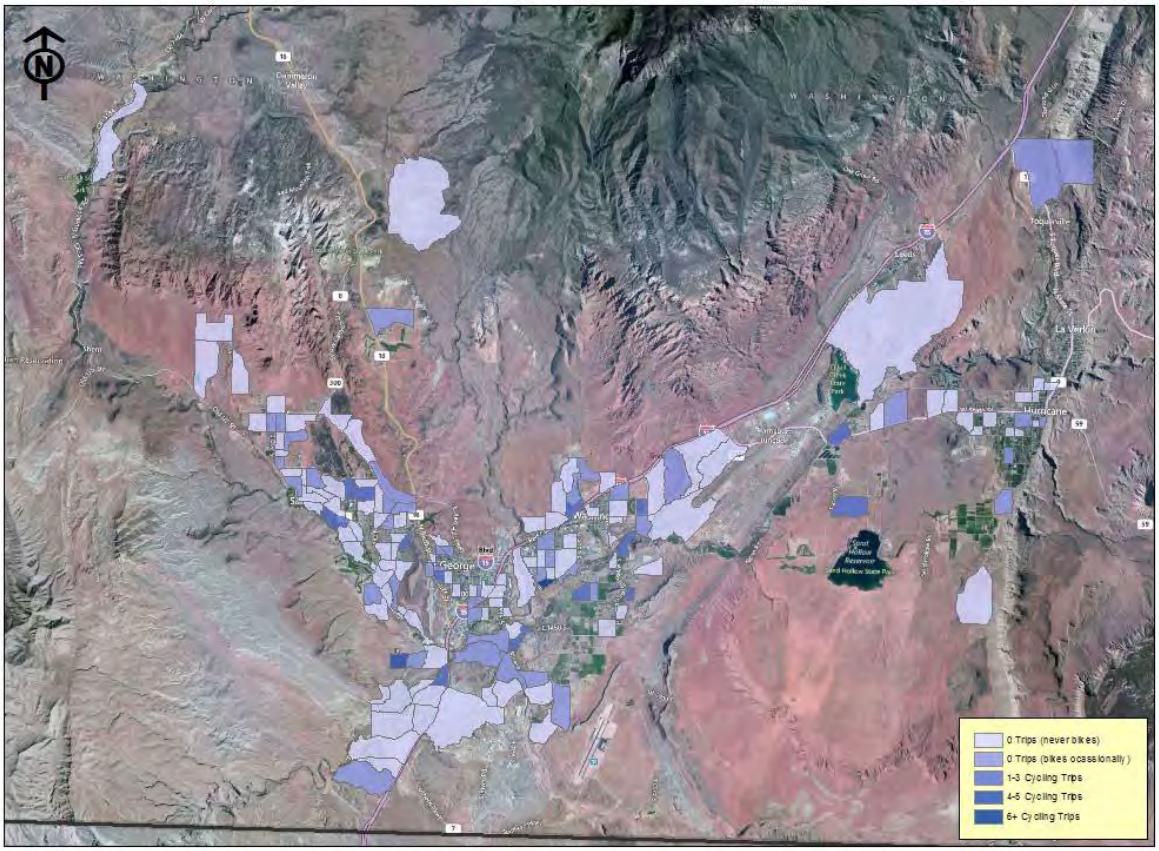


Figure 15. Cycling Trips in the Past 2 Weeks - Washington County

3.5 Spatial Distribution of Utilitarian Cycling

Similar to Section 2.5, in order to better identify where cycling for transportation is most prevalent, utilitarian cycling trip purposes were calculated spatially. Figures 16-20 show the percentage of cycling trips in each TAZ that were utilitarian in nature (for transportation purposes) rather than recreational. Again the darker the shade of blue, the higher the percentage of trips. Similar to walking, these figures show that specific areas or clusters have higher rates of utilitarian cycling. As described previously, we leave it to each individual MPO and jurisdiction to further examine the relationships between land-use and travel behavior.

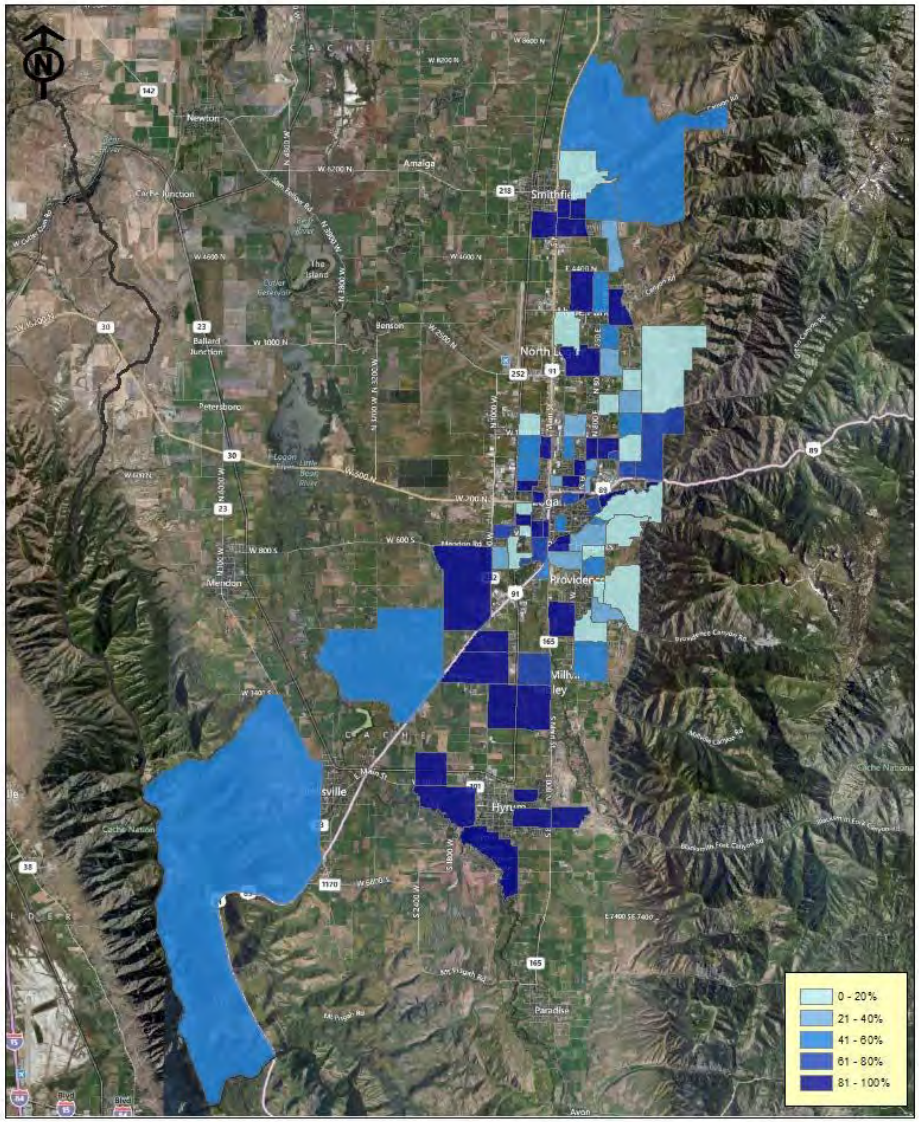


Figure 16. Percent Utilitarian Cycling Trips - Cache County

Figure 17. Percent Utilitarian Cycling Trips - Weber and Davis Counties

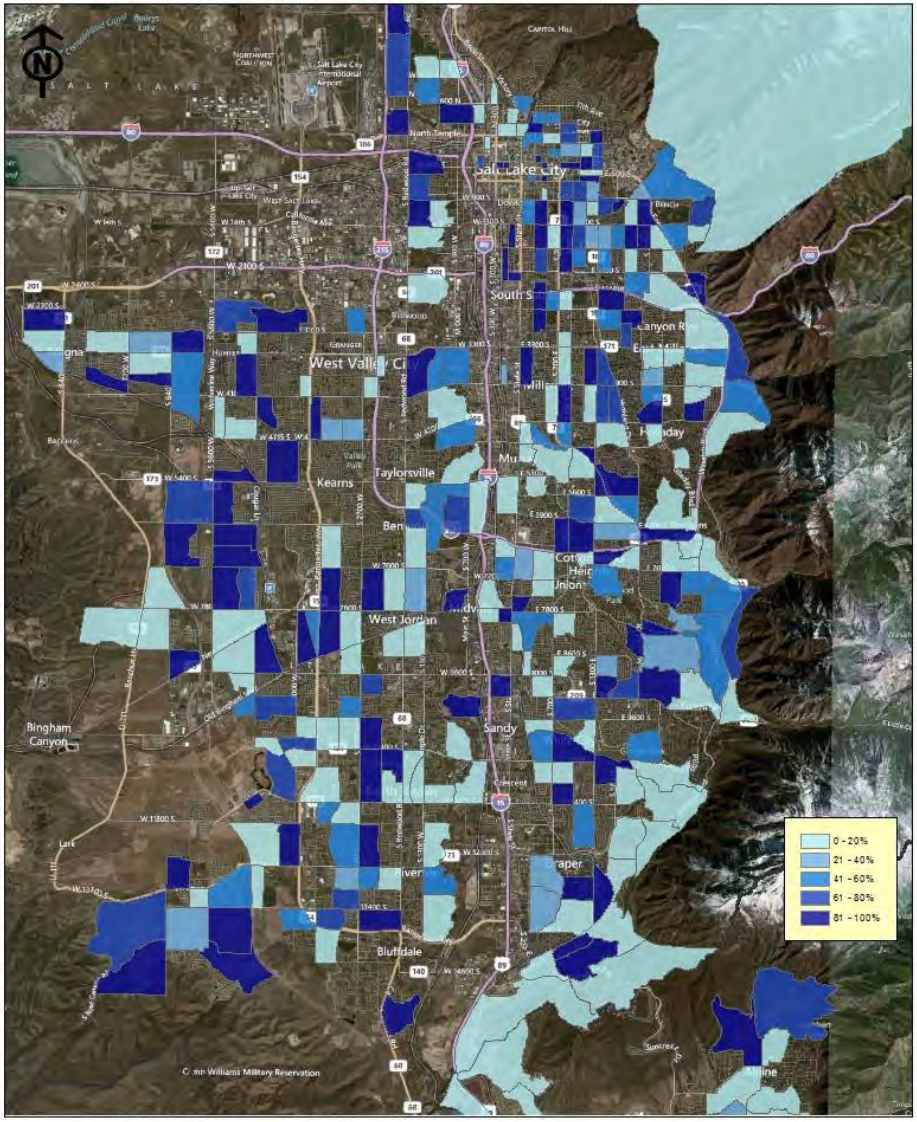


Figure 18. Percent Utilitarian Cycling Trips - Salt Lake County

Figure 19. Percent Utilitarian Cycling Trips - Utah County

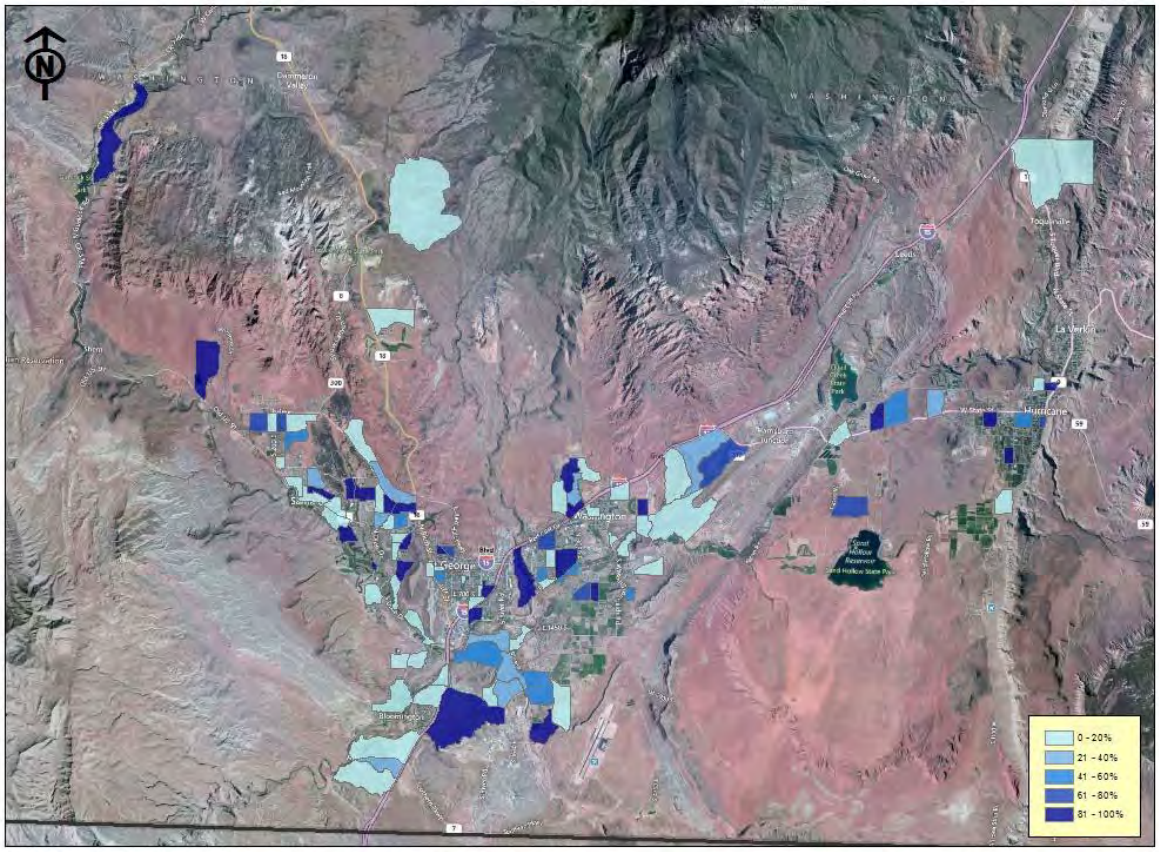


Figure 20. Percent Utilitarian Cycling Trips - Washington County

4. Attitudes toward Walking and Biking

The last portion of the survey required respondents to identify their attitudes and opinions regarding several walking and biking issues. Using a five point Likert scale participants were asked to rate their level agreement with various statements regarding walking and biking. Results are shown in Table 13 below. A majority of respondents agreed that the infrastructure for walking in their area is adequate (59.6%), while 37.7% agreed that infrastructure for biking meets their current needs. Almost two-thirds of respondents stated that the ability to walk and bike to places in their neighborhood is important to them (62.7%), but half stated that they have trouble fitting walking and biking into their current lifestyle (50.1%).

Table 13 – Attitudes Regarding the Built Environment and Walking/Cycling*					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The ability to walk and bike to places in my neighborhood is important to me	3.5	6.5	27.3	39.7	23.0
Overall, there are enough sidewalks in my region to meet my travel needs	5.4	14.5	20.5	45.4	14.2
Overall, there are enough bike paths in my region to meet my travel needs	8.1	19.8	34.5	29.6	8.1
I support using transportation funds to help pay for projects such as sidewalks and bike paths	3.2	4.2	26.1	46.3	20.3
I would bike on streets also designed for bicycles even if they are slightly out of my way	8.3	18.5	39.5	26.9	6.8
Having to share the road with motor vehicles is the main reason I don't bike more often	10.2	23.3	34.7	21.3	10.5
I would like to walk and/or bike more often, but I have trouble fitting it into my current lifestyle	5.9	16.3	27.6	39.3	10.8
*Percent of sample responding					

Over one-third of respondents reported that having to share the road with motor vehicles in the main reason they don't bike more often (31.8%) and 33.7% stated that they would go out of their way to travel on streets designed specifically for bicycles. Perhaps the most compelling data from the attitudinal survey was the fact that 66.6% of respondents agreed with using transportation funds to help pay for projects such as sidewalks and bike paths (20.3% strongly agree). Only 7.4% of respondents disagreed.

By further analyzing the patterns of individual attitudes and opinions, significant spatial variation exists for several variables. Table 14 shows the mean response ranking for the attitudinal statements introduced in Table 13. The rankings are based on a five point Likert scale of agreement where: 1=Strongly Disagree, 3=Neutral, and 5=Strongly agree. Therefore the higher the mean score for each measure, the stronger the agreement.

The mean for each individual county is shown as well as the mean for the sample as a whole (shown in the last column on the far right). County specific rankings/means that significantly differ from the rest of the sample are identified by a shaded box. Blue shading identifies counties that agreed less with the statement that the sample as a whole, while pink shading identifies those counties that agreed more strongly with the statement.

Table 14 – Mean Attitude Scores (by County)*							
	Cache	Davis	Salt Lake	Utah	Wash.	Weber	Entire Sample
The ability to walk and bike to places in my neighborhood is important to me	3.72	3.74	3.72	3.75	3.71	3.64	3.72
Overall, there are enough sidewalks in my region to meet my travel needs	3.30	3.55	3.56	3.48	3.50	3.26	3.48
Overall, there are enough bike paths in my region to meet my travel needs	2.89	3.24	3.03	3.08	3.46	2.97	3.10
I support using transportation funds to help pay for projects such as sidewalks and bike paths	3.72	3.76	3.77	3.78	3.86	3.62	3.76
I would bike on streets also designed for bicycles even if they are slightly out of my way	2.94	3.13	3.03	3.11	3.06	3.01	3.05
Having to share the road with motor vehicles is the main reason I don't bike more often	2.97	2.93	3.07	2.94	2.86	3.06	2.99
I would like to walk and/or bike more often, but I have trouble fitting it into my current lifestyle	3.30	3.41	3.33	3.39	3.21	3.24	3.33
Note: Shaded boxes represent significant outliers (pink=high, blue=low) *Based on 5 point Likert Scale of Agreement: 1=Strongly Disagree, 3=Neutral, 5=Strongly Agree							

Based on this analysis residents of Cache and Weber counties are less likely than those in other areas to believe that there are enough sidewalks or bike lanes in their region to meet their travel needs, while residents of Washington County are more likely to believe that the number of bike lanes is adequate. Likewise, residents of Washington County are more likely than other areas to support the use of transportation funds for bike-ped projects, and residents of Weber County while still being overall supportive of using funds for bike-ped, are less so than the other counties. Respondents from Cache County are less likely than those in other areas to go out of their way to find bike friendly streets while residents of Davis County are more likely to do so. For respondents from Salt Lake and Weber Counties having to share the road with motor vehicles while cycling is a bigger issue than respondents from Washington County. Lastly residents from Davis County are more likely to state that they would like to walk or bike more than they currently do, but they have trouble fitting it into their current lifestyle. For residents of Washington County this is less of an issue.

4.1 Demographic Breakdown of Attitudes

Using a log-linear ordinal regression method various demographics were correlated to the rankings for each attitudinal position presented above. As Table 15 below shows, demographic variables were incredibly significant predictors of the level of agreement the sample expressed regarding each bike-ped statement. The patterns revealed through this correlation analysis are very compelling for future bicycle and pedestrian planning and reveal quite a lot about emerging trends and the desires of different household types.

The ability to walk and bike to places in the neighborhood was significantly correlated to age, gender, education level, number of household vehicles, as well as household size and the number of children within the household. Younger individuals rated this as significantly more important than older individuals, and females deemed neighborhood walkability as more important than males. This is likely due to the household roles and responsibilities that each gender experiences. Typically women are more likely to be responsible for caring for any children in the home. Mothers who stay at home as the primary caretaker are likely to be more tuned in to neighborhood walkability and proximity to parks and open space simply due to their focus and role. Households with more children also rated walkability and bikeability as more important reinforcing this idea. Concomitantly, however, larger households were less likely to agree that walkability and bikeability are important. Highly educated individuals rated walkability and bikeability as more important which follows traditional trends in the literature. Households with a large number of vehicles rated walkability and bikeability as less important, which begs the question, is it less important simply because they have more vehicles allowing them ease of travel, or do they have more vehicles because walking and biking are not important to them?

Table 15 – Log-Linear Ordinal Regression of Demographics on Attitudes (t-scores)

	Age	Gender	Education	# Vehicles	HH Size	# Children	Income
The ability to walk and bike to places in my neighborhood is important to me	-6.549	3.956	9.938	-3.637	-2.734	3.570	1.538
Overall, there are enough sidewalks in my region to meet my travel needs	0.342	-0.981	-0.083	-2.346	1.083	-2.499	-0.441
Overall, there are enough bike paths in my region to meet my travel needs	3.587	-0.592	-4.088	-.315	2.170	-1.026	-2.500
I support using	-2.097	3.354	6.160	-3.067	-6.547	6.320	5.775

transportation funds to help pay for projects such as sidewalks and bike paths							
I would bike on streets also designed for bicycles even if they are slightly out of my way	-9.206	-2.997	5.500	-1.062	-2.947	2.228	3.243
Having to share the road with motor vehicles is the main reason I don't bike more often	-5.632	6.233	2.851	1.566	-3.363	1.132	1.659
I would like to walk and/or bike more often, but I have trouble fitting it into my current lifestyle	-8.509	0.726	3.174	2.814	-4.548	6.569	-0.026
Note: Shaded boxes indicate significance at the 0.05 level or better							

Several variables also showed significance when correlated to whether there are enough sidewalks or bike paths in the region. Individuals with a greater number of vehicles or more children in the home were less likely to agree that there are adequate sidewalks, while highly educated and higher income respondents were less likely to see existing bike paths as adequate. Larger households and older individuals were the most likely to agree that there are enough bike paths in the region to meet their needs. All demographic variables were correlated to respondent opinions on the use of funding. Older individuals, those with more household vehicles, and larger household were less likely to support using transportation funds for bike-ped projects, while females, those with higher levels of education, higher income individuals and those with more children were significantly more likely to support using transportation funds. With regard to attitudes about bicycle safety and comfort levels in traffic, age, gender, education, household size, number of children, and income were significantly correlated. Younger respondents, males, and individuals from smaller households were more likely to go out of their way to find bike friendly streets, along with individuals who had more education, higher income households, and those with more children at home. Younger individuals, individuals from smaller households, females, and individuals with more education were also significantly more likely to identify sharing the road with motor vehicles as a major barrier to biking more. Lastly, younger respondents, those with more education, individuals from smaller households, as well as households with more children and more vehicles significantly identified with wanting to walk or bike more, but having trouble fitting it into their current lifestyle.

5. Conclusions

From this preliminary analysis of the survey we see that while biking behavior is relatively consistent across the state, counties show significant variation in walking frequencies among residents. Both walking and cycling are viewed primarily as recreation or exercise activities with only a small percentage of respondents viewing them as legitimate transportation modes. A majority of respondents agreed that being able to walk and bike to destinations in their neighborhood is important to them. While respondents tended to agree that infrastructure for walking and cycling was adequate in their area, they also acknowledged that sharing the road with vehicles inhibits them from biking more frequently and that they would in fact travel out of their way to reach a street specifically designed for bicycles. Lastly, a large majority of respondents agreed with using transportation funds to help pay for active transportation projects (i.e. sidewalks and bike paths) suggesting that people recognize them as a critical part of the overall network of transportation facilities, even if they are currently using them primarily for recreational purposes. A small amount of spatial variation existed between counties with regard to attitudes about walking and biking, and a majority of demographic variables were strongly correlated to walking and biking attitudes, suggesting that the spatial variation may be due to demographic variation and spatial autocorrelation due to clustering of similar household types.

APPENDIX 3: MINDMIXER COMMENT SUMMARY

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Question: Do you walk or bike to transit? Let us know your experiences. Tell us how you walk or bike to transit, which routes you use or avoid, and describe your experience as a cyclist or pedestrian upon arriving at a transit station. Posts will help the UCATS project team understand potential improvements that may be needed at transit stations.				
Walking or Biking to Transit	RAX on TRAX	The idea is to provide dedicated space on TRAX light rail vehicles for bicycles. This is already done in other cities like St. Paul. The idea is already being implemented successfully by UTA on the FrontRunner Commuter Rail line and should be translated to the light rail system.	GJ L	10
Walking or Biking to Transit	More bikes on buses	On many routes, the 2-bike capacity of the front-mounted rack is insufficient. Buses should be able to accommodate 4 or even 5 bikes. I'd be curious to hear others' thoughts on the best way to do this.	Jon L	8
Walking or Biking to Transit	More bikes on trains	TRAX is getting overcrowded with bikes. What if UTA started running bike-only cars on the peak trains? Both bikers and non bikers would cheer!	Jon L	7
Walking or Biking to Transit	A more inviting place to wait for a bus	I walk to 900 South and 218 East to wait for the bus..often in the summer the sprinklers are running, there is grass surrounding the bus sign post and it feels awkward to be standing on the lawn in front of an office. Can we offer small perks to businesses to make the 5-10 minute waits not so impactive on their landscaping (folks standing around on the grass = matted grass) and maybe a bench or small chair for those who need a place to rest while waiting for the bus??	Lani E	4
Walking or Biking to Transit	signage to Trax stations	I bike commute between SLC and Sandy, essentially paralleling the Trax line between one and I don't know how many blocks apart, but there is no signage on roads pointing to the nearest Trax station if I wanted to get on Trax for some or all of the journey, due to weather, fatigue or breakdown.	John H	4
Walking or Biking to Transit	Use Bike Share Programs to Connect Rail and Bus Lines	Have Bike Share stations located at rail and bus stops that connect to a dense network of Bike Share stations that are located throughout downtown SLC. This will encourage new riders on transit because the Bike Share program will eliminate 1st and last mile inconveniences, eliminate millions of cold starts and not require citizens to purchase or maintain a personal bicycle. The Bike Share program would be an extension of our existing transit network and the RFID card that would be used to access the Bikes would also be used to access buses and trains.	Ben B	4
Walking or Biking to Transit	Place to sit on Trax when commuting	It would be wonderful to have a place to sit comfortably and hang a bike while riding on TRAX. Similar to transit systems in places like Portland, OR. It would make communting more inviting and avoiding being bumped when people enter or leave TRAXor being moved each time it starts or stops.	Marcy D	3
Walking or Biking to Transit	Better Connectivity to Key Transit Nodes	Many individuals would like to use transit yet they are hindered by the distance to or the pleasure of getting to transit nodes (bus stop, TRAX station, etc). Critical to getting increased transit ridership is allowing both pedestrians and cyclists to access safely and enjoyably key transit points in the valley, especially TRAX stations outside the downtown area where auto travel is more prevalent.	E C	2

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Walking or Biking to Transit	Mid-Block Access to TRAX Stations on 400 South	I ride TRAX between downtown and the U daily and often stop along 400 South. I see the lack of mid-block access to stations as a big hindrance to creating the kind of transit oriented development that could be occurring adjacent to the Library, Trolley, and 900 East stations. In particular, mid-block access to the Trolley station could greatly improve access to Trolley Square. I envision redeveloping the block between the station and Trolley Square and creating a north-south mid-block pedestrian pathway that would connect Trolley Square and the station. But 400 South is a state highway, and unfortunately UDOT is more concerned about the delay that adding more signalized crossings would create for drivers than it is about allowing improved access to transit. So how do we encourage UDOT to change their priorities?	Mike C	1
Walking or Biking to Transit	Darkness	Just a reminder that Dan Burden reminded a group in Grand Junction, Colorado that for every 13 years of life we lose 50%of our night vision. And I can now attest to that. Lighting needs to be a priority, for more than safety. More bang for the buck so the network will be used more. Just a thought	Cliff D	0
Walking or Biking to Transit	Roy Station Sidewalk	Add a sidewalk parrallel to FrontRunner to enter Roy Station.	Philip S	0
Walking or Biking to Transit	Church Street to FrontRunner	Improve access on and from Layton Church Street to FrontRunner station. Church street provides access from the northeast section of Layton to FrontRunner, but crossing Gentile at Church and Main at Church can be difficult at many times of the day.	Philip S	0
Question: Which street do you like to use the most for walking and bike trips? Tell us which streets you use the most, second suggestions made by others, and provide feedback. Posts will help inform the UCATS project team on which streets are most used for walking and biking.				
Your Favorite Street	900 East	I love biking on 900 when headed southbound because its a faster route than 800 because of slope and signal coordination. However there are no bicycle facilities on this road, even though I see many cyclists use this route. Having a sharrow or reducing vehicle parking to one side of the street might open up enough space to have bicycle lanes. I'm sure this would be appreciated, and might slow some of the vehicle traffic along the 900 East Corridor	Heidi G	5
Your Favorite Street	Best Biking Streets	800 East - good people, nice dogs, big trees, wide street and lots of urban gardens! 800 South - bike lane connecting to 300 East for another bike lane to Library or into downtown for live music!	Rai F	4
Your Favorite Street	2700 S	2700 S offers one of the easiest gradients between the valley bottom and the upper benches on the east side. Between 1300 E and 2000 E there are a lot of uneven manhole covers on the south side of the road, along with parked cars, that require alert riding to stay upright. But the big issue is trying to cross 2300 E on Claybourne Avenue to link 2700 S and Heritage Way and on up past Tanners Park. The recent installation of HAWK signals here is great for pedestrians but impractical for cyclists. I've never seen a pedestrian at this intersection in many years of cycling this route, but it is a major east - west route in Canyon Rim for bike commuters and recreational riders.	John H	3

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Your Favorite Street	North Temple	If you haven't had a chance lately, check out the newly reconstructed North Temple, which is pretty much done. UTA is scheduled to start running test trains this week, and passenger service to the airport begins Sunday, April 14, 2013! The "complete street" features extra wide sidewalks, bike lanes, enhanced street lighting, and landscaped park strips separating the sidewalks and the street. I just hope that the city's new land use policies and the economy will cooperate and produce some redevelopment that will fill the sidewalks with pedestrians!	Mike C	2
Your Favorite Street	Adding Shoulders to Bacchus Highway (U-111)	Bacchus Highway (U-111) is a great road for a scenic and challenging bike ride. However it is also a very dangerous road with high speed limits and much of the highway lacking shoulders. Adding shoulders to certain sections could make it a much safer route for bike travel.	Bennion G	2
Your Favorite Street	300 East	300 East is a great street, especially where the cycle track is. Love that they kept the bike lanes with construction on the Public Safety Building.	Julie B	2
Your Favorite Street	Bike Lane traffic lights	There should be bike lane traffic lights at intersections that allow bikes to get a few seconds head start. In this way, bikes will be in front of cars, more easily visible and not jockeying side by side for position.	Chuck K	2
Your Favorite Street	Improve 14600 S between Draper and Bluffdale	I wouldn't call this a favorite route but it is a highly utilized route; one of the only ways to go east west in the south valley and northern Utah County. Bike and truck traffic are mixing here with severe shoulder drop-offs. The WFRC bike map shows this as having existing on road bike lanes. It does not. This is a big loop for training riders but I have also followed SL commuters heading toward the job centers in Lehi on this road, then heading to the frontage roads. Not a bad commute by distance, but only suitable for road warriors at this time. Help UDOT move this up on the priority list.	Grant C	2
Your Favorite Street	Holladay Blvd from 6200 South to Murray Holladay Road	I enjoy cycling this stretch especially on Sundays, wide shoulders and lower car traffic typically.	Lani E	1
Your Favorite Street	Redwood Road/ South Jordan	I like biking on Redwood Road and 1300 West in South Jordan, good road markings and well lighted.	Gary W	1
Your Favorite Street	400 East, Ramona Avenue	For years I've ridden 400 East when heading north from Sugarhouse. It's a quiet street with low traffic levels, no stop signs, and it has lights at main intersections. Going east from Sugarhouse, Ramona Avenue is another quiet street with low traffic and relatively flat grades up to 1300 East. Then it's relatively flat again.	Archie P	1
Your Favorite Street	Vine Street in Murray	For 'mid-valley cyclists, Vine St. offers an excellent SE-->NW route from Cottonwood all the way through the city of Murray or the other way as well! An excellent commuter route due to wide shoulders, good signalization, and relatively light traffic.	Mark H	1
Your Favorite Street	200 South Bike Lane	I ride in this bike lane all the time.	Alyssa G	1
Your Favorite Street	Stripe 900/or 1100/or 1300 East heading south out of SLC	Please stripe 900 East or 1100 East or 1300 East from SLC (I-80 underpass) to at least 4500 South. There needs to be some stripping heading south out of SLC for bike commuters. Thanks.	Jacob S	1
Your Favorite Street	600 West from 800 South to North Temple	Not the prettiest street, but I love that there's no traffic, there's continuous bike lanes, and only a couple traffic lights. I love zipping along underneath all of the overpasses.	Jon L	0
Your Favorite Street	1900 East	I like 1900 East even though it doesn't have a bike lane. It's a continuous connection between Sugar House and 900 South, and there is usually ample space to accommodate vehicle traffic, parked cars and cyclists. It's a primarily residential street with the exception of two schools, lined with mature trees. Very pleasant for fall riding. If I'm heading to the U I'll take 900 South to Guardsman Way...Guardsman is nice too, until you get to 500 South and then it's not so great...	Nadine V	0

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Your Favorite Street	800 East	i'll use 800 East to get north of Sugar House and avoid the busier streets. i like the park blocks north of 9th/9th area, and the tree-lined sections south of 900s. i definitely prefer this to 700 east or 900 east. it'd be nice to have a HAWK at 1700 south or 2100 south though. 2100 is a nightmare to get across.	Nadine V	0
Your Favorite Street	100 South St.	I like 100 S. better than 200 S. for biking because the uphill climb to the University is more gradual and hence more rideable.	Jeff S	0
Your Favorite Street	400 East, Ramona Avenue, 1900 East	For years I've ridden 400 East when heading north from Sugarhouse. It's a quiet street with low traffic levels, no stop signs, and it has lights at main intersections. Going east from Sugarhouse, Ramona Avenue is another quiet street with low traffic and relatively flat grades up to 1300 East. Then it's relatively flat again.	Archie P	0
Your Favorite Street	400 East	For years I've ridden 400 East when heading north from Sugarhouse. It's a quiet street with low traffic levels, no stop signs, and it has lights at main intersections.	Archie P	0
Your Favorite Street	Fav Street	That would be 300 W from 3300 S to downtown. Wide outside and share-able lane much of the way and 7 lanes through the rest with low traffic count easy enough to control the outside lane without difficulty or need to slow other traffic. (no need for bike lanes on these type of streets, integration works just fine)	Dan F	0
Question: Here's a map of existing shared use paths (green), bike lanes (blue), shared lanes (purple), and trails (brown) across the Wasatch Front. A major UCATS goal is to fill in the gaps in this network. Which routes are the most important to you?				
Existing Bike Facilities Along the Wasatch	Improve the 4800 S/Murray Holladay Rd: one of the best east-west bicycle routes	This is one of the best east-west bicycle routes connecting with TRAX and FrontRunner transit stations and the Jordan Parkway Trail. It is relatively low traffic and goes under I-15, eliminating a dangerous intersection. Should be improved with bike lanes and designated a signed bike route.	Chad M	6
Existing Bike Facilities Along the Wasatch	3900 S needs to be improved as a major east-west bike route	3900 S is the only east-west central valley arterial designated as a primary bike route by UDOT. It is an important connector to TRAX and the Jordan River and the only arterial without a dangerous I-15 interchange. However, there is no bike route signage west of 1300 East and lacks even a shoulder between State Street and Highland Drive. It should be improved to be a primary bike corridor with bike lanes.	Chad M	3
Existing Bike Facilities Along the Wasatch	NE Salt Lake County	There are a lot of routes that could be created with signage. These would be shared lanes with cars. 1) 19th East from 23rd South to 8th South. 2) 5600 East from Highland to Vine, then Vine to the Jordan River Parkway. 3) Extend 20th East until it deadends, but where there is a cut-through to 45th South - and then with a jog it will connect to Holladay Blvd. 4) From 5600 South, just west of 1300 East, there is a series of residential streets that will take you to 6600 South. There is no one best route; just choose one for signage purposes.	Steve G	3
Existing Bike Facilities Along the Wasatch	Bike lanes and bike paths to the Trax stations in West Valley	There are no dedicated bike lanes or paths to either West Valley Central Trax Station or Decker Lake Trax station. Both stations are on or near very busy roads. To get to the West Valley Central station I have to take a sidewalk on 3500 South (riding on that street is risking death) and then wait for a pedestrian light. Any and all streets near the West Valley Central station are high, fast moving traffic areas. I think a lot more people would ride to the train if they didn't feel like they were risking their lives to get there.	Shanna M	3
Existing Bike Facilities Along the Wasatch	Bike Lanes UT 193	Bike lanes on new extension of UT 193 west of Clearfield Main Street.	Philip S	2
Existing Bike Facilities Along the Wasatch	Gentile Shared Lanes	Shared Lanes on Gentile and Gordon, similar to downtown SLC.	Philip S	2

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Existing Bike Facilities Along the Wasatch	Shared Pedestrian and Bike sidewalk on Foothill Drive	More people would use the East Corridor on Foothill if there was a wider and safer sidewalk on both sides of the street. There is room to widen in most places. This would involve private homes, businesses, golf course, etc and right of way to widen may already belong to UDOT. This means signage for shared use, keeping the path open and free of snow in winter and shrubs overgrowing in summer. I have walked it from Sunnyside to I 215 and it is very doable and more people would ride if they felt safer. I ride the sidewalk, but hate the lack of snow and shrub control. Increase bus frequency on this route too.	Suzanne S	2
Existing Bike Facilities Along the Wasatch	Connect Salt Lake and Utah Counties	There are several excellent bike routes which end abruptly near the Salt Lake/Utah county line. Utah's "crown jewel" Jordan River trail is broken here, as are the "Porter Rockwell/Point of the Mountain" trail from Draper, Murdock Canal/Lehi rail trail on the east side of I-15... and the new "Mountain View Corridor" trail coming in from the northwest also feeds into this important transportation "choke point". For me personally, this presents a lost opportunty for communting to work (at Thanksgiving Point) from Sandy/Draper area, as I am not willing to go far out of the way to Redwood Road or take my chances on the "sketchy" point-of-the mountain frontage roads and confusing and crowded I-15 Thanksgiving Point freeway underpass. A pedestrian/bike crossing there would make a big difference. What has been done with a similar "choke point" in northern Salt Lake/southern Davis County is a great model for what could be done at the southern end of Salt Lake valley. Events like the "Front Runner Century" are a testament to the possibilities when an extra effort is made to	Jeff G	2
Existing Bike Facilities Along the Wasatch	Link Parkway East/West	Interesting that it says Parkway is a bike path. It is really a sidewalk. I generally ride on the road on Parkway between 4800 W and Bangerter Highway, a bike lane there would be nice. At the Parkway Blvd/Bangerter Highway intersection there is no way for a cyclist to trigger the light. I've spent a lot of time waiting for a car. I've even seen motorcycles stuck there because they weren't enough of a trigger. It would be nice to see a bike lane on Parkway between Bangerter and Redwood Road	Shanna M	2
Existing Bike Facilities Along the Wasatch	Skyline Drive / Canal Trail	Create phased plans to complete Skyline Drive / Canal Trail in Pleasant View to US 89.	Philip S	1
Existing Bike Facilities Along the Wasatch	Bike Lanes to Station Park	Bike lanes that connect the Rio Grande Trail to Legacy Parkway Trail / FrontRunner. Currently the trail ends around the new apartments near Park Lane and the railroad. Have dedicated bike lanes on the roads between here and the Rio Grande / UTA trail.	Philip S	1
Existing Bike Facilities Along the Wasatch	900 East is one of the most important north south bike corridors from the southern part	Improve shoulders and add bike lanes to 900 East. Make the intersection of 900 East and Van Winkle Expressway more bicycle and pedestrian friendly. Although, this intersection is complicated and is not bicycle and ped friendly, it can be safely navigated by cyclists making like a pedestrian and using the crosswalk signals. However, there are many opportunities for improvement: a paved bike path can be extended west from Murray Holladay Rd. to the intersection at 900 East following the old street R-O-W. Avoiding bicyclist having to merge with traffic on Van Winkle. If a new crossing is not added for bikes and peds across Van Winkle to access the continuation of Murray Holladay Rd (4800 South), then the sidewalk on the south side of Van Winkle between 900 East and 4800 South needs to be improved. The signal and signage at the crossing needs to be improved to alert motorists speeding through the access from east bound Van Winkle to south bound on 900 East.	Chad M	1
Existing Bike Facilities Along the Wasatch	Central Valley East West Corridors	East West bike lanes or trails connecting Holladay to the central corridor.	Clay D	1

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Existing Bike Facilities Along the Wasatch	Build a bike path along SR39 up Ogden Canyon in Weber County.	It is not safe to ride or walk up/down Ogden Canyon. A bike lane would enable residents in Ogden Valley to bike to work.	Helene L	1
Existing Bike Facilities Along the Wasatch	Continue Bike Lane West of 500 E on 2700 S	2700 S is a great bike route east of 500 E. Heading west on 2700 S at 500 E the bike lane ends and 2700 S becomes a four-lane road. There is rarely enough traffic to require four lanes. Most cars travel in the inner-most lane. At signals (5th E, 3rd E, Main, West Temple), one direction gets a green light, with a left arrow, and in the opposite direction the light is red. Then the other direction is given a green light and arrow and in the opposite direction the light is red. But there's seldom anyone turning and traffic flow is disrupted. This could be solved with a center turn lane. Traffic would flow better by not having to wait because of the left turn signals. And the bike lanes west of 500 E could be completed.	Tim M	1
Existing Bike Facilities Along the Wasatch	Get the bike lanes OFF the road.	Another fatality at the FrontRunner line. How many people have to die before we get the hint? I use the sidewalks and trails, get the bikes off the road!	Drew C	0
Existing Bike Facilities Along the Wasatch	Make sidewalks into good bike paths.	Right, make the sidewalk wide and straight so it can be plowed with a small truck. Keep bikes away from cars.	Drew C	0
Existing Bike Facilities Along the Wasatch	Road Diet on Shields Lane between 1300 West & S. Jordan Gateway	This is currently a three lane road with little need for the continuous center turn lane. If the roadway were reduced to two lanes, bike lanes could be accomodated thereby filling the bike lane gap between 1300 West and S Jordan Gateway and providing more convenient access to the 10000 South TRAX station to west side residents and Jordan River Trail users/commuters.	Dan B	0
Existing Bike Facilities Along the Wasatch	Add Bike Lanes on 114000 South Between State St. and 700 East	On-street parking is not needed in the section since it is mostly adjacent to the backyards of adjacent subdivisions. A few striping changes at corners, add some bike symbols and bike lane signs and you're all done. This would fill the gap in the bike lanes between State and 700 East on 11400 South.	Dan B	0
Existing Bike Facilities Along the Wasatch	Pleasant View Dr. Bike Lanes	Bike lanes on Pleasant View Drive from 1325 West to US 89.	Philip S	0
Existing Bike Facilities Along the Wasatch	2600 North Bike Lanes	Bike lanes on 2600 North from I-15 to Plain City.	Philip S	0
Existing Bike Facilities Along the Wasatch	Paint bike lanes on Chipeta Way coming into U of U Research Park	Many comuters to the health sciences campus of the university of utah turn from Sunnyside onto Arapeen and then jog up Chipeta. They dont use Wakara because Chipeta breaks up the climb and they come from the south. This is a 4 lane landscaped divide road. If the dividing line between the two car lanes was shifted left a little you could paint a bike lane and make it safer for us.	Suzanne S	0
Existing Bike Facilities Along the Wasatch	Repaving and constructing roads--build wide shoulders for bikes	Wide shoulders for cyclists would be better than nothing. Plus, keep them swept!	Helene L	0
Existing Bike Facilities Along the Wasatch	To add showers and an overnight camping spot for bicyclists	I would like to see facilities that offer showers, lodging, and food to help improve the visitor experience as well as residents.	Naomi H	0
Existing Bike Facilities Along the Wasatch	A route from Saltair to Lake Point/Tooele	I would like to have a route to Tooele that doesn't require riding on the freeway. From Hwy 201 to the Tooele exit the only option is to ride on I-80. The Tooele exit is the worst part as you have to cross a bridge with narrow shoulders and drainage grates. I already add a couple of extra miles to take Hwy 202 to Hwy 201 in order to avoid a narrow bridge on I-80 between Saltair and the Hwy 201 on ramp. Riding on Hwy 201 isn't great either, but better than crossing a narrow bridge on I-80. A bike path from Saltair to Lake Point would be extremely helpful. Thanks for reading.	Steve H	0
Question: Where would you like to see bicycle or pedestrian improvements made along the Wasatch Front? Click on the map to show us the specific location and tell us your ideas about what improvements should be made.				
Bicycle and Pedestrian Improvements	East West Commuting	We need better bike routes going east/west particularly on west side of valley. Very busy streets and Bangerter, I-215, and canal make it hard to find a route through neighborhoods.	Lyle P	5

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Bicycle and Pedestrian Improvements	bike crossing signal.	The new Hawk signals are OK for pedestrians but not located or designed for cyclists attempting to cross 2300E at this intersection. It would be good to see a cyclist button as per the intersection of Guardsmans Way and Sunnyside Avenue, to activate the crossing lights when going east.	John H	4
Bicycle and Pedestrian Improvements	Improve road crossings for Rail to Trail in Davis County	The offset 1/2 gate arrangement at each street crossing (with most signs directing both bikes and peds to go to nearest road to cross and then get back on trail) is awkward at best. How can citizens encourage spending initial trail improvement dollars on hawk crossings or similiar idea so the crossings are safer and easier? If easy and safe, more people will enjoy the trail experience and return again and again. Images of this at this URL: http://www.bogley.com/forum/showthread.php?55929-Denver-Rio-Grande-Western-Trail-aka-Davis-County-Rail-Trail	Lani E	2
Bicycle and Pedestrian Improvements	Weber Canyon Multi-UseTrail	A short section of multi-use trail through this canyon would provide a safe passageway for cyclists and pedestrians. This would open up the beautiful Mountain Green and Morgan areas to valley cyclists, as well as allowing for a safer bike commute for residents of these areas working in the valley. In my opinion, I-84 in Weber Canyon is just too dangerous for cyclists in all but the least congested hours of the day. The existing shoulders are just too narrow in spots, especially the bridges. The drainage grates, rumble-strips and ever-present road debri add to the danger for cyclists as well.	Devin S	2
Bicycle and Pedestrian Improvements	Define leisure/family-friendly routes with 'route arrows'	In Park City, visitors with kids on bikes can feel confident setting off on a family ride, thanks to their use of the 'route arrows' course markers on the pavement that lead you through the many turns in a big loop through business and neighborhood districts. I'd like to see something like this in Salt Lake neighborhoods to encourage and enable cycling exploration by those who don't typically travel by bike. Check out the stickers at www.routearrows.com	Erin M	2
Bicycle and Pedestrian Improvements	Install directional signage all along the Jordan River Parkway	There are dozens of unmarked forks all along the Jordan River Parkway. It is never obvious which fork is the "through" fork. Occasionally a white arrow is crudely painted on the pavement, but that practice is not consistent. The Jordan River Parkway should have clearly-marked small signs at every such fork indicating which fork to take (both north and south) to continue on the Parkway.	Bruce H	2
Bicycle and Pedestrian Improvements	Dedicated Bike Street	This was done when I lived in Philadelphia to great success. I propose making 800 East a dedicated bicycle street. Residents and deliveries and local traffic would still be allowed, of course, but through traffic would be discouraged. Mid block or end of block barricades would be erected to prevent through auto traffic, but bicycles would be able to pass through. This street is heavily used by bicycles already and dedicating the street would pull bicycle traffic off of auto heavy 7th and 9th east. 8th east is fairly central to several communities that are stressing walkability, 9th and 9th, sugarhouse, etc. I live along 8th east and this would be a great thing.	Nathan F	2
Bicycle and Pedestrian Improvements	Bike lane 900 E and/or 1300 E south of 2100 S	These are both heavy bike commuting roads between Salt Lake City and Sandy/Draper. There is plenty of room on 900 E south of 4500 S for a protected bike lane. I propose this lane be continued past 7800 S where 900 E becomes 700 E all the way to 9400 S.	Matt L	2
Bicycle and Pedestrian Improvements	Look here if you want to fix stuff	Great commercial attractions adjacent neighborhoods. Crossing the 7-lane street is treacherous. Seems like the recent "improvement" was a lost opportunity to add better sidewalks and ped crossings. REI is accessible thanks to the signal, but farther west there are no safe crossing opportunities near the Post Office or restaurants on the north. Incomplete and narrow sidewalks.	Kyle C	1

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Bicycle and Pedestrian Improvements	Promote our Trail System!	I live a half a block from the Jordan River Parkway Trail, and several of my neighbors aren't even aware that the trail (and sometimes even the river) exist, despite having lived in the neighborhood for a few years! I think more needs to be done to advertise our trail system, including a comprehensive wayfinding system that would include sufficient signage for newcomers to navigate the trails. Fortunately, the Jordan River Commission has completed a great map, which you can find at the link below.	Mike C	1
Bicycle and Pedestrian Improvements	Better connectivity	Getting between here and 1300 South or 300 East is kind of risky, especially when going toward the NE.	Julie B	1
Bicycle and Pedestrian Improvements	Layton Roads and Rail Crossings	Many of Layton's major roads are single lane roads managed by the city with not much room for bike lanes. Better shared road signage. Also, improve rail crossings through Layton for bikes and pedstrians.	Philip S	1
Bicycle and Pedestrian Improvements	Clarify the 200 South bike lane	the 200 South bike lane just east of State Street is confusing - the road is really wide and it isn't clear where cyclists are supposed to ride vs where the bus will be heading into the bus stop. Use pavement markings to identify an appropriate location for cyclists to ride in between the bus stop and the traffic lane	Maria V	0
Bicycle and Pedestrian Improvements	Safety Improvements at the Intersection of 2300 East/Parley's Way-2100 South	The skewed angles of this intersection create really long crosswalks. 1. Re-align the crosswalks to be shorter. 2. Install pedestrian refuge islands. 3. Re-align the roadway striping to be straighter and calm traffic. 4. Put Parley's Way on a road diet. It doesn't need to be as wide as it is.	John B	0
Bicycle and Pedestrian Improvements	Pedestrian Signal at Texas Street and Parley's Way	1. Add a "HAWK" signal at this intersection for people to get safely across Parley's Way. 2. Add a raised median along here (there IS PLENTY of room) that could accommodate a ped refuge in the middle of the street. 3. Put Parley's Way on a road diet in this area. It is way wider than it needs to be.	John B	0
Bicycle and Pedestrian Improvements	No bikes and car mix.	Putting bike lanes on roads is very dangerous. Move bike lanes off roads.	Drew C	0
Bicycle and Pedestrian Improvements	Bike trails not bike lanes.	Almost weekly we hear of a bike/car accident or fatality. Why do bike riders want to ride on the road with the certain risk from cars?? Wouldn't bike trails be a better option. What am I missing? Utah law requires a bike to stay at least three feet from all cars. How is that possible with a bike lane?	Drew C	0
Bicycle and Pedestrian Improvements	Biking Lanes	This section of Redwood Road has no biking lanes on the pavement	Gary W	0

UCATS Public Comments
MindMixer website: www.ucatsplan.com

Topic Name	Idea Title	Idea Summary	Author	Seconds
Bicycle and Pedestrian Improvements	One way streets and bike lanes	There are enough roads in our city to make some one way roads that could have a bike lane (and still be convienient). There would be plenty of room for cars and bikes and that way,, anyone on those particular roads would know, if you're on a bike, there will be cars, and if you're in a car, you will know there will be bikes. And they could have more lights.	Vikkie S	0
Bicycle and Pedestrian Improvements	Improve 14600 S	This is a key regional link, but is dangerous with uses and severe shoulder drop offs. Needs some real help. This is a state route.	Grant C	0
Bicycle and Pedestrian Improvements	Shoulders and sidewalks on US 89	Full shoulders on US 89 in Pleasant View from 2700 North to county line. East side sidewalks from 2700 North to Pleasant View Drive.	Philip S	0
Bicycle and Pedestrian Improvements	Signal Crossing on 200 N Kaysville	Something needs to be added to 200 North in Kaysville around Flint and the Rio Grande Trail. I don't know what would be the best, but I will put it out to the forum here. A HAWK traffic signal at the trail crossing, a mid road refuge island, a roundabout with refuge islands, or traffic signal at Flint.	Philip S	0
Bicycle and Pedestrian Improvements	Bike Signal Recognition	The interesting traffic signal at Flint and Gentile, does not recognize bikes to make left turns. We have to wait for a car to come up. Fix interesection to be another configuration or add sensors to recognize bikes.	Philip S	0
Bicycle and Pedestrian Improvements	west side bike lane	I would like a safe way to travel East or West across the valley. I commute from the downtown area to West Jordan. Trying to get either way across I-215 and then cross Bangerter Highway is a challenge. I would like some kind of bike lane across these two roads at some of the intersections. The two safest I have found are at 9800 south or Parkway Boulevard (2670 south) other than these two locations it can be more than scary crossing these roads. There are no good options I can find in between these areas. The second problem is if an intersection is fixed what road do you travel on? 4500, 5400, 6200, 7000, 7800, 9000 south all have no shoulder for most of the East West travel. 9000 south does have a bike lane part of the way but is highly traveled and has no shoulder area in quite a few areas.	Paul F	0
Bicycle and Pedestrian Improvements	Pedestrian/Bike Only Streets	Many cities have certain streets that do not allow vehicles (e.g., 15th St. in Denver, Church St. in Burlington, almost every city in Europe). This would encourage walking and biking because you can't park right in front of your destination. Walking and biking need to be made into the easiest, short-distance options.	Phil S	0

APPENDIX 4: WASATCH FRONT REGIONAL COUNCIL ACTIVE TRANSPORTATION COMMITTEE AND UCATS STAKEHOLDER COMMITTEE PRESENTATIONS AND MEETING MINUTES

Utah Collaborative Active Transportation Study

UCATS

UCATS

- What is UCATS?
  - Regional active transportation study
    - Improve business environment and quality of life through mobility enhancements
    - Close gaps in active transportation infrastructure
    - Connect transit riders to stations
    - Plan facilities appealing to non-traditional riders

UCATS

- Key Elements
  - Collaboration—multiple agency input with advocacy review
  - Research toolbox – best practices; economic, health and environmental benefits; demand for active transportation facilities
  - Gaps analysis – Salt Lake, Davis, Weber, Utah Counties
  - Action Plan for improvements and funding

UCATS

- Roles and Responsibilities
  - Core Project Team
    - Partnering agency and consultant representatives
  - Active Transportation Committee
    - Agency and local government representatives
  - Advisory Group
    - Representatives from groups with specific advisory interests

UCATS

- Timeline
  - August 2012: Goals, objectives, website rollout
  - October 2012: Opportunities and constraints
  - December 2012: Project selection criteria
  - March 2013: Review proposed projects and strategies
  - May 2013: Review final products

UCATS

- Questions?
  - Evelyn Tuddenham, etuddenham@utah.gov
  - Maria Vyas, m.vyas@fehrandpeers.com

Meeting Minutes/Summary
Active Transportation Committee
Meeting of September 5, 2012

A meeting of the Active Transportation Committee was held on Wednesday, September 5, 2012 in the offices of the Wasatch Front Regional Council, 295 North Jimmy Doolittle Road, Salt Lake City, Utah.

Welcome and Introductions

Commissioner Louenda Downs, ATC Chairman, called the meeting to order at 10:35 a.m. Commissioner Downs welcomed committee members and guests and introductions were made.

ATC Members and Staff Present:

Justin Anderson	City of Ogden
Peter Corroon	Mayor, Salt Lake County
Louenda Downs	Commissioner, Davis County
Larry Ellertson	Commissioner, Utah County
Andrew Gruber	WFRC
Ned Hacker	WFRC
Scott Hess	Davis County
Jory Johner	WFRC
Tina Kelley	Councilmember, Morgan County
Greg Scott	WFRC
Robert Scott	Weber County Planning
Matt Sibul	UTA
Darci Taylor	UTA
Evenlyn Tuddenham	UDOT

ATC Stakeholders and Others Present:

Trever Ball	Utah Department of Health
Mark Benigni	Weber Pathways
Dan Bergenthal	Salt Lake City
Roger Borgenicht	Future Moves
Zac Covington	Bear River Association of Governments
Evan Curtis	Governor's Office of Planning & Budget
Rachel Cusimano	ASSIST
LaNiece Davenport	WFRC
George Deneris	Salt Lake County
Fred Doehring	UDOT
Jesse O. Glidden	UDOT – Region 1
Paul Goodrich	City of Orem
Shane Greenwood	South Jordan City
Craig Hancock	UDOT
Tim Harpst	Horrocks Engineers
Mike Hathorne	SLR / PRI
Lain Hueton	Ogden City
Dave Iltis	Cycling Utah / MBAC
Josh Jones	Ogden City
Mike Kendell	SLC
Scott Lyttle	Bike Utah

Elliott Mott	Wasatch Mountains Club
Chad Mullins	SL County Bicycle Advisory Committee
Angelo Papastamos	UDOT
Helen Peters	JUB
Kris Peterson	UDOT – Region 1
Jim Price	MAG
Andrea Pullos	Salt Lake County
Marjorie Rasmussen	UDOT
Andrew Riggle	Disability Law Center
Melissa Schnulle	ASSIST
Shawn Seager	MAG
Deborah Burney Sigman	Breathe Utah
Gary Uresk	Woods Cross City
Maria Vyas	Fehr and Peers
Jaime White	UTA
Lisa Wilson	UDOT
Ben Wuthrich	WFRC

Members excused: Mayor Ralph Becker, Mayor Mike Caldwell, Mayor Brent Marshall, Cory Pope, Mayor Todd Stevenson, and Commissioner Jan Zogmaister.

Public Comment:

No public comments

Information: Utah Collaborative Active Transportation Study (UCATS):

Maria Vyas, Fehr and Peers, said that as part of UCATS there is a Stakeholder Committee and a Core Project Team. She also noted that there is an Advisory Committee which will be a technical group providing detailed review of potential projects and recommendations for future infrastructure improvements. The Advisory Committee is expected to convene in the next couple of months. The Stakeholder Committee includes the Active Transportation Committee members as well as other identified interested persons and will meet in conjunction with the Active Transportation Committee. Ms. Vyas stated that the UCATS Core Project Team will be looking to the Stakeholder Committee for guidance and feedback over the next nine months to a year to help shape the direction of the Study. She also said that a collaborative dialogue is important and that they will be asking for insight and feedback throughout the process.

Darci Taylor, UTA, briefly discussed the goals UTA has in regard to the UCAT Study:

- Project Prioritization
- Identify projects to allow bicycle connections to transit

Eveylyn Tuddenham, UDOT, discussed UDOT goals as they relate to the Study:

- Identify the beginnings of an urban bike plan for all UDOT regions
- Identify connections to transit

Jory Johner answered questions about the boundaries of the Study stating that it's the Wasatch Front Regional Council urban boundaries and includes Brigham City, Weber County, Davis County, Salt Lake County and Utah County (Mountainland Associations of Governments urban boundary).

Ms. Tuddenham said that this Study does not include the Canyons. Andrea Pullos from Salt Lake County said that the Mountain Transportation Study as well as the Millcreek Canyon Study is looking at alternate transportation through the Canyons. Ms. Vyas also said that UCATS will be coordinating with Salt Lake County as they move forward in their planning effort.

Maria Vyas gave an overview of the UCATS public engagement strategy. She said that the Stakeholder, Advisory and Active Transportation Committees have already been involved in some public outreach prior to the beginning of UCATS. She noted that they will be doing a limited number of presentations to agencies and other groups to provide updates on their progress. Ms. Vyas said that the way they intend to reach the public as a larger audience is through a public engagement website – MindMixer. She briefly discussed and demonstrated the website. She said that this website is designed specifically for public engagement and uses a process of drawing out people and getting ideas in a constructive manner. The website will be open for about nine or ten months and will go live in the next few weeks.

Ms. Vyas also asked those in attendance for suggestions and if they have access to lists of people and organizanizations they may be able to use in their outreach/public involvement process. George Deneris, Salt Lake County; Chad Mullins, Salt Lake County Advisory Committee; Trever Ball, Utah Department of Health; Rob Scott, Weber County Planning; Shawn Seager, MAG; Scott Lyttle, Bike Utah; Josh Jones, Ogden City; and Commissioner Larry Ellertson, Utah County indicated they have a source list. Ms. Vyas said she would contact them individually to begin the discussion.

Ms. Vyas reported that at the next UCATS Stakeholder meeting on October 10, the Study Team would present the following:

- Survey data – attitudes and perceptions (information obtained through the Utah Household Travel Survey that was just completed).
- "No boundaries" map development – which is an assessment of everything within our study area that exists (what kind of bicycle-pedestrian facilities exist, what facilities are planned, etc.).
- Latent demand – "heat maps" – where do we think people are likely to walk and bike given a range of demographic land use.
- Economic analysis – quantifying economic benefits of bicycle – pedestrian investment.

Information: Complete Streets Report:

Scott Hess, Davis County and Complete Streets group leader for the collaboration and outreach process, distributed the "Draft-Complete Streets Vision, Mission and Principles" sheet for discussion. He discussed the background of the document noting the Wasatch Choice for 2040 influence with a regional focus.

Mr. Hess reviewed and discussed the Vision Statement, Mission Statement, and the Principles (copy is attached). Mr. Hess said the eight Principles listed are an integration of the Wasatch Choice for 2040 Principles. They are a toolbox approach and the framework for developing a Complete Streets Network. Following the discussion of the Principles, Mr. Hess said that the document would eventually be presented to the Regional Growth Committee with the recommendation of the Active Transportation Committee.

Mr. Hess said that the next steps for the Active Transportation Committee would be to review the Complete Streets Vision, Mission and Principles and respond with any comments to him at shess@daviscountyutah.gov, or Greg Scott and Jory Johner at WFRC.

Information: MAP-21

Andrew Gruber, WFRC, reported that as most everyone knows, Congress recently adopted and the President signed a new federal surface transportation authorization bill – MAP-21 – Moving Ahead for Progress in the 21st Century. He said that there is one particular program change in which the Active Transportation Committee will have a role as we go forward. The Transportation Alternatives Program replaces three programs: 1) Transportation Enhancements, 2) Safe Routes to School, and 3) Recreational Trails. Mr. Gruber discussed the changes noting that the funding for the new program is about one-third less than the funding that existed previously.

Mr. Gruber also said that the transportation planning agencies have been working collaboratively to make sure that changes in the new MAP-21 are implemented including this program – Transportation Alternatives Program. He said that one of the principles transportation planning agencies are trying to avoid is any disruption of projects that were already identified to be funded. Mr. Gruber said that a basic rule of thumb is that projects or programs that would have been eligible under the old Transportation Enhancements Program will be eligible in the new Transportation Alternatives Program with some minor modifications.

Mr. Gruber then asked Mr. Ben Wuthrich to discuss the eligible projects for the Transportation Alternatives funding. Mr. Wuthrich identified the following project types:

1) On-road and off-road trail facilities for non-motorized forms of transportation.
2) Infrastructure related projects that would provide safe routes for non-drivers to access their daily needs.
3) Conversion of abandoned railroad corridors for non-motorized forms of transportation.
4) Construction of turnouts, overlooks, and viewing areas.
5) Community improvement activities which would include inventory or control or removal of outdoor advertising, historical preservation of transportation facilities.
6) Vegetation management – improve the roadway safety, prevent invasive species from the road, erosion, control, etc.
7) Archaeological activities relating to transportation projects.
8) Any environmental mitigation activity.
9) Reduce vehicle-caused wildlife mortality or maintain habitat connectivity.

Mr. Gruber noted that the above list of eligible projects comes directly from MAP-21. He stated this is what the Federal Legislation says are eligible projects for this source of funds.

Mr. Wuthrich also said that there is an effort from the State and each of the MPOs to maintain a program for the Recreational Trails and the Safe Routes to School and the details as to how things will be worked out will be forthcoming.

Mr. Wuthrich then discussed the Transportation Alternatives Program timeline as follows:

- ***September/October*** – Introduce the Program and send out a letter requesting potential sponsors to submit Letters of Intent for projects they would like to have considered for funding. Those Letters of Intent will be provided to the WFRC staff for a preliminary evaluation.
- ***October*** – Develop evaluation criteria
- ***November*** – Letters of Intent will be due. A Project Evaluation Concept Report form will be provided to the project sponsor for completion and will be due sometime in January.
- ***January*** – Concept Reports are due and the evaluation process will begin.

Other Business

- Mr. Trever Ball, Utah Department of Health, brought copies of Utah Bicycle Master Plan Guide and asked that they be distributed to those who have an influence on planning in communities such as city administrators, planners, or others.

- Dan Bergenthal, Salt Lake City, distributed a sheet with information about the National Bicycle/Pedestrian Documentation Project – they are in need of volunteers to help with this effort.

The next meeting of the Active Transportation Committee will be held on **Wednesday, October 10, 2012 at 8:30-10:00 a.m.**

The meeting adjourned at 12:10 p.m.

Utah Collaborative Active Transportation Study

UCATS

- UCATS Agenda
  - New faces: stakeholder introductions
  - UCATS goals
  - Public engagement
  - Progress and next steps

UCATS

- Introductions
  - Who are you?
  - Who do you represent?
  - What is your interest in UCATS?

UCATS

- Committee Structure
  - Active Transportation Committee
  - Stakeholder Committee
  - Advisory Committee
- Roles and Responsibilities
  - Guide development of UCATS
  - Collaborative dialogue
  - Insights and feedback

UCATS

- Goals

- Public Engagement Strategy
  - Stakeholder, Advisory, and AT Committees
  - Agency presentations
  - MindMixer – examples:
    - ideas.la2b.org
    - cbperimetertrail.com
    - publicsquare.cnu.org
  - MindMixer: getting the word out!

UCATS

Welcome to the kick-off of the Mobility Element! See How It Works.

Connect SIGN IN JOIN

LA/2B The road ahead.

Welcome to the kick-off of the Mobility Element! We're just getting started and now is the time to share with us your practical, creative and insightful ideas that will keep Los Angeles moving in the 21st Century.

LATEST IDEAS

- Olympic Blvd & Alameda St
- Northeast LA to Downtown LA by Bike
- Growing size of CicLAvia will compel LA to make changes
- Bike Lanes on Admiralty Way in Marina Del Rey

Search Ideas

SHARE

SIGN UP NOW!
Share your ideas!

Mayor Villaraigosa's Welcome Message

Watch the one minute ideas.LA2B.org introduction video to learn how the City of Los Angeles will use your ideas to help draft the Mobility Element.

WATCH THE VIDEO

FEATURED SURVEY

Transportation Prioritization Within Street Networks

During the past 8 months of our online town hall, we have heard support for creating separate networks of streets that prioritize a particular mode of...

Complete Survey

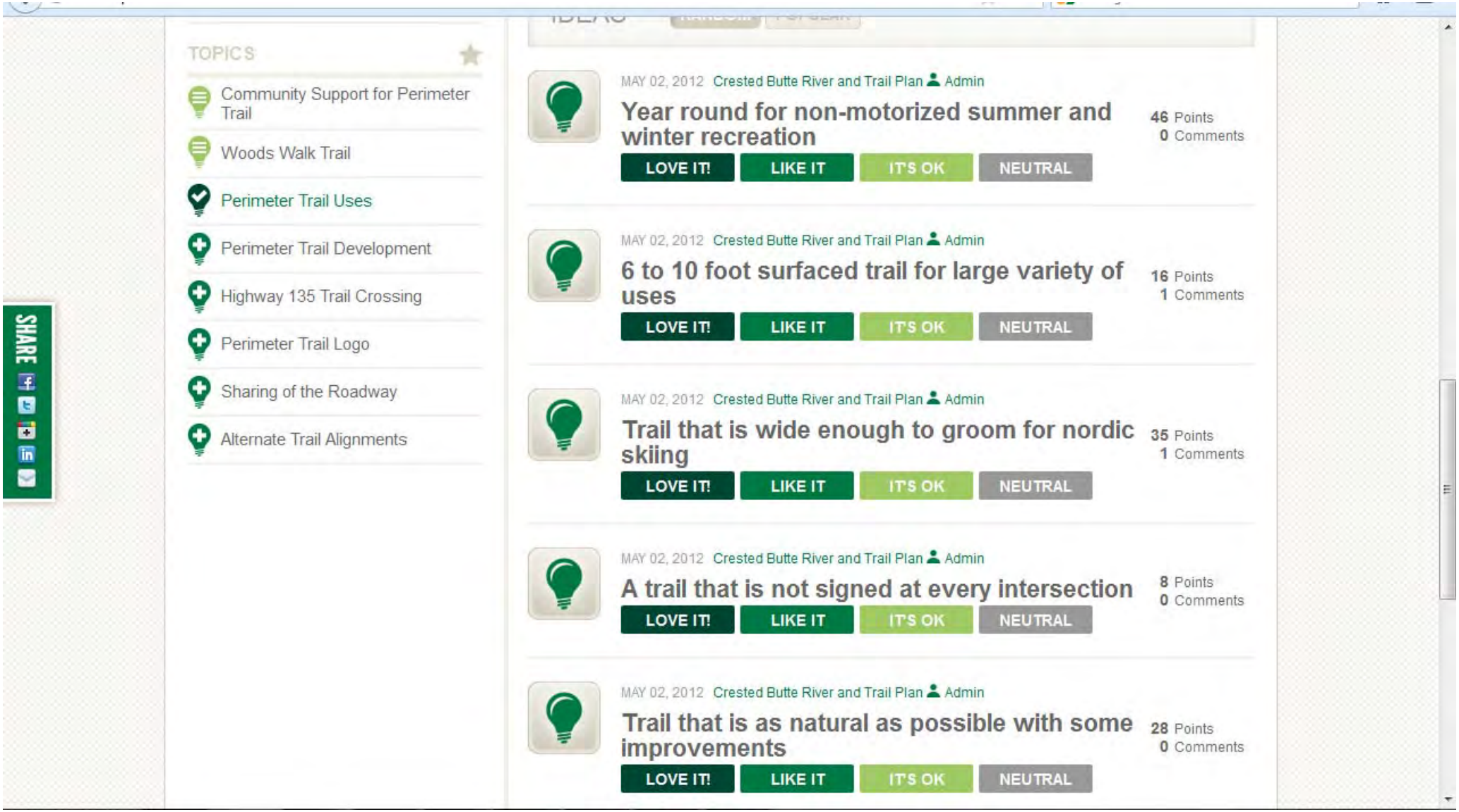
21 Days Remaining
77 Surveys Taken

FEATURED PRIORITIZE

What are your top Mobility

ideas.la2b.org

UCATS


TOPICS
Community Support for Perimeter Trail
Woods Walk Trail
Perimeter Trail Uses
Perimeter Trail Development
Highway 135 Trail Crossing
Perimeter Trail Logo
Sharing of the Roadway
Alternate Trail Alignments
SHARE
MAY 02, 2012 Crested Butte River and Trail Plan Admin
Year round for non-motorized summer and winter recreation
46 Points
0 Comments
LOVE IT! LIKE IT IT'S OK NEUTRAL
MAY 02, 2012 Crested Butte River and Trail Plan Admin
6 to 10 foot surfaced trail for large variety of uses
16 Points
1 Comments
LOVE IT! LIKE IT IT'S OK NEUTRAL
MAY 02, 2012 Crested Butte River and Trail Plan Admin
Trail that is wide enough to groom for nordic skiing
35 Points
1 Comments
LOVE IT! LIKE IT IT'S OK NEUTRAL
MAY 02, 2012 Crested Butte River and Trail Plan Admin
A trail that is not signed at every intersection
8 Points
0 Comments
LOVE IT! LIKE IT IT'S OK NEUTRAL
MAY 02, 2012 Crested Butte River and Trail Plan Admin
Trail that is as natural as possible with some improvements
28 Points
0 Comments
LOVE IT! LIKE IT IT'S OK NEUTRAL

- Next meeting
  - Survey data – attitudes and perceptions
  - “No boundaries” map development
  - Latent demand – “heat maps”
  - Economic analysis

DRAFT

Meeting Minutes/Summary
Active Transportation Committee
Meeting of October 10, 2012

A meeting of the Active Transportation Committee was held on Wednesday, October 10, 2012 in the offices of the Wasatch Front Regional Council, 295 North Jimmy Doolittle Road, Salt Lake City, Utah.

Welcome and Introductions

Commissioner Louenda Downs, ATC Chairman, called the meeting to order at 8:35 a.m. Commissioner Downs welcomed committee members and guests and introductions were made.

Commissioner Downs explained that the Active Transportation Committee was formed to provide a place to coordinate efforts and provide a forum for discussion of issues relating to bicycle and pedestrian facilities and other alternative transportation modes across the Wasatch Front. She said that there has been a lot of interest and noted that the Committee will facilitate and coordinate among diverse stakeholders in identifying needs and recommending policies for active transportation.

ATC Members and Staff Present:

Ralph Becker	Mayor, Salt Lake City
Louenda Downs	Commissioner, Davis County
Larry Ellertson	Commissioner, Utah County
Andrew Gruber	WFRC
Ned Hacker	WFRC
Scott Hess	Davis County
Robin Hutcheson	Salt Lake City
Jory Johner	WFRC
Max Johnson	Salt Lake County Planning
Tina Kelley	Councilmember, Morgan County
Jim Price	MAG
Greg Scott	WFRC
Robert Scott	Weber County Planning
Matt Sibul	UTA
Todd Stevenson	Mayor, City of Fruit Heights
Darci Taylor	UTA
Evenlyn Tuddenham	UDOT

ATC Stakeholders and Others Present:

Mark Benigni	Weber Pathways
Wayne Bennion	WFRC
Dan Bergenthal	Salt Lake City
Shaunna Burbidge	Active Planning
Steve Call	FHWA
Rick Cobia	Div. of Services for People with Disabilities
Kyle Cook	Fehr and Peers
Grant Crowell	City of Bluffdale
Evan Curtis	Governor's Office of Planning & Budget
Riley Cutler	GOED
George Deneris	Salt Lake County

Fred Doehring	UDOT
Janet Frick	SL County Aging Services
Jesse O. Glidden	UDOT – Region 1
Paul Goodrich	City of Orem
Shane Greenwood	South Jordan City
Dave Iltis	Cycling Utah / MBAC
Andrew Jackson	MAG
Linda Johnson	League of Women Voters-Salt Lake
Brandon Klenk	UDOT
Scott Lyttle	Bike Utah
Elliott Mott	Wasatch Mountains Club
Chad Mullins	SL County Bicycle Advisory Committee
Jon Osier	Kennecott
Helen Peters	JUB
Christine Richman	GSBS Consulting
Spencer Sanders	Division
Shawn Seager	MAG
Deborah Burney Sigman	Breathe Utah
Brent Turley	Transportation Group
Maria Vyas	Fehr and Peers
Lisa Wilson	UDOT
Brad Woods	Bike Utah
Ben Wuthrich	WFRC
Amy Zaref	Citizen

Members excused: Mayor Brent Marshall, Cory Pope and Commissioner Jan Zogmaister.

Approval of Meeting Minutes/Summary

Commissioner Larry Ellertson moved that the minutes of the September 5, 2012 be approved. The motion was seconded by **Councilmember Tina Kelley** and the meeting minutes were unanimously approved.

Public Comment:

Mr. Elliott Mott, representing the Wasatch Mountain Club, commented that their group is excited with the organization of the Active Transportation Committee. They feel that proper prior planning is imperative as communities expand and grow. He encouraged the ATC to work collaboratively with other jurisdictions in planning that will make communities desirable and livable and places people want to live. Mr. Mott asked the committee to put safety of active transportation users first and foremost and to recognize the powerful impact they will have to make a difference in the future of active transportation.

Information: Active Transportation Committee Mission and Structure

Andrew Gruber reviewed the Active Transportation Committee Mission and Structure organizational chart that was distributed to members. He said initially the Active Transportation Committee was created as a subcommittee of WFRC's Regional Growth Committee. However, with the new Transportation Alternatives Program that was created by federal transportation legislation – MAP-21, the responsibilities translate to the role of WFRC's Trans Com Committee as well. He said that the Active Transportation Committee has a role to advise and collaborate

not just with the Regional Growth Committee on the long-term but also Trans Com on the short to medium-term.

Information: Transportation Alternatives Program – Criteria and Funding

Ben Wuthrich, WFRC, discussed the Transportation Alternatives Program (TAP). The TAP is a new funding category within the MAP-21 reauthorization that went into effect October 1, 2012. The Transportation Alternatives Program combines the 1) Transportation Enhancement Program, 2) Safe Routes to School Program, and 3) Recreational Trails Program into one program. Mr. Wuthrich said the overall funding amounts were reduced, however, of the remaining funds, 50% will be distributed by population and the other 50% will be the direction of the State for programming. He also noted that UDOT plans to continue the Safe Routes to School Program and the Recreational Trails Program. The WFRC will be responsible for programming a share of the funds in our region.

Mr. Wuthrich reviewed the following types of projects that would be eligible for Transportation Alternative funding:

1. On-road and off-road trail facilities for non-motorized forms of transportation which would include sidewalks.
2. Infrastructure related projects
3. Conversion of abandoned railroad corridors
4. Construction of turnouts, overlooks, and viewing areas
5. Community improvement activities—which would include inventory control or removal of outdoor advertising, historic preservation, and trail facilities.
6. Vegetation management
7. Archaeological activities relating to transportation projects
8. Any environmental mitigation activity
9. Reduce vehicle-caused wildlife mortality

Mr. Gruber noted that the list of eligible activities comes from MAP-21 and sets the broadest possible reach of what can be funded from the Program. However, each grantee region has the ability to focus the resources as they wish.

Mr. Wuthrich reviewed the time line the WFRC proposes to use to program its share of the TAP funds. This timeline will be the same as the other programs the WFRC is responsible for. He said a Request for Letters of Intent for the Surface Transportation Program (STP), Congestion Mitigation and Air Quality Program (CMAQ, and Transportation Alternatives Program (TAP) was emailed on October 8 to all Mayors, Commissioners, and Technical Committee members. A copy of the letter was also available upon request at the meeting. The Letters of Intent will be due to Mr. Wuthrich in the WFRC office on November 15, 2012.

Mr. Wuthrich said that the TAP funds for programming would be for Fiscal Years 2013 and 2014. The estimated available funds for the Salt Lake–West Valley Urbanized Area is $900,000. The estimated available funds for the Ogden–Layton Urbanized Area is $700,000. The funding availability begins October 1, 2013.

Mr. Wuthrich then asked the Committee for their comments and input on what types of projects they would like the funds to be focused on. He said there are three areas to consider: 1) larger bicycle or pedestrian type projects; 2) smaller bicycle or pedestrian project; and 3) smaller studies or smaller type projects where the funds would be distributed throughout the area. .

Commissioner Downs then opened the meeting to discuss the three categories of projects Mr. Wuthrich mentioned in his presentation. Following the discussion Commissioner Downs summarized by saying that emphasis be given to larger projects that connect and help us be regional as well as consideration for innovative smaller projects or planning that have value and match.

Mr. Wuthrich emphasized that staff would draft criteria to evaluate the projects and distribute a copy of the criteria in order to give everyone an opportunity to review and return their comments to WFRC staff prior to taking this information to the Technical Advisory Committees later in the month.

Information: Utah Collaborative Active Transportation Study (UCATS) Report

Maria Vyas, Fehr and Peers, briefly reviewed the schedule for the UCAT Study for the next three meetings noting that in January 2013 they would address Latent Demand, Selection Criteria and Pedestrian Barriers; in March 2013 they would discuss Proposed Projects and Prioritization; and in May 2013 they will provide a final brochure and final report. She then introduced Christine Richman to present information on the economic impacts and benefits of bicycle/pedestrian infrastructure.

Economic research preliminary results:

Christine Richman, GSBS Richman Consulting, discussed the following:

- Bike-onomics – identify metrics to measure economic development resulting from investments in bicycle/pedestrian infrastructure.
- Reviewed over 60 studies with a focus on studies based on independent data.
- An in-depth synopsis of the 25 most helpful and on target studies will be provided in the final report.

The studies breakdown into the following areas:

- Regional economic impact
  - Survey-based
  - IMPLAN model
- Area economic impact
  - Retail sales
  - Lease rates and rents
- Employment
- Property values
- Tourism
- Transportation-system related impacts

Ms. Richman also discussed the possible measures they will be looking at during the prioritization process that will include the number of jobs accessible by transit or active modes in 30 minutes or less which is a measure of modal accessibility, retail jobs accessible to households by walking within 20 minutes which is a pedestrian experience measure, and walk scores and overall connectivity.

Following Ms. Richman's presentation Ms. Vyas said that the above information is what they are thinking about using as measures to evaluate potential projects being proposed. She asked is there are measure that hit economic metrics that they may be missing. Some of the comments included:

- It would be interesting to see what the economic impact to the individual is and how this makes a person's life better.
- Do socioeconomic demographics come into play? What about neighborhoods that have less private automobile ownership – is there a correlation between economic benefit or need?
- Would it be possible for neighborhoods built in the 1980's and 1990's be included in the study.

Ms. Vyas said they could/would certainly look into these suggestions.

Utah Household Travel Survey results on walking and biking:

Shaunna Burbidge, Active Planning, reported on the walking and biking culture and the results of the recently completed Statewide Household Travel Survey. Her report included the following:

- Bicycle and Pedestrian Behavior was an "add-on" to the Utah Statewide Household Travel Survey.
- Active Transportation Data came from a representative sample of 3,939 households in Weber, Davis, Salt Lake and Utah Counties.
- All self-reported data collected in the Summer of 2012.
- Cycling data was also collected from 4,458 university students.

Ms. Burbidge discussed the data for walking trips for each of the counties and also the barriers and motivations for walking. The data was broken into Utilitarian trips that included accompanying children, shopping, to/from school and others and Non-Utilitarian trips for exercise, socializing, and recreational events. She also displayed and discussed maps by County that showed the concentration of these walking trips.

Ms. Burbidge also discussed the data, results and maps for cycling trips in the past 14 days for each of the counties, similar to the data collected for walking trips. She discussed the maps for cycling and noted that the transportation cycling trips are destination based. She pointed out how they cluster and that we need to be thinking about why these locations/areas are attractive to those who choose to cycle for transportation.

Ms. Vyas said that the data, results and maps in today's UCAT Study presentation may be viewed on the UCATS website at www.ucatsplan.com

Update on no boundaries map and latent demand models:

Kyle Cook, Fehr and Peers, reported that the UCATS study focuses on coordination and "no boundaries" within the study area. The study area is the urban area from Payson to Brigham City. He said they began the process by gathering information from partners and sources which include: WFRC, MAG, Salt Lake County, AGRC, UDOT, and Salt Lake City. Mr. Cook said the goal is to have a single GIS file for the study area that will have consistent GIS attributes.

Mr. Cook said that they spent quite a lot of time looking at aerials and in the field verifying existing facilities. The existing bike facility categories include:

- Shared lane (with pavement markings / signs / green paint)
- Shoulder bikeway (signed)
- Bike lane
- Cycle track
- Shared use path

Ms. Vyas said that they have verified the no boundaries map for Salt Lake County and are working on verifying Davis, Weber and Utah Counties and that everyone will have access and time to view the map on the MindMixer website. She will send an email and a link as soon as it is available.

Other Business

Commissioner Downs said that a report on the Boulder, Colorado and Minneapolis, Minnesota trips in which ATC members and others participated regarding active transportation efforts in these cities would be reported on and discussed at the November meeting.

The next meeting of the Active Transportation Committee is scheduled for **Wednesday, November 14, 2012 at 8:30-10:00 a.m. There is a possible change to this date and time due to conflicts. ATC members and others will be notified well in advance of any change.**

The meeting adjourned at 10:30 a.m.

Utah Collaborative Active Transportation Study

UCATS

- UCATS Agenda
  - Progress report: Bicycle "No Boundaries" Map
  - Utah Household Travel Survey results
  - Bike-onomics: research results
  - Other business

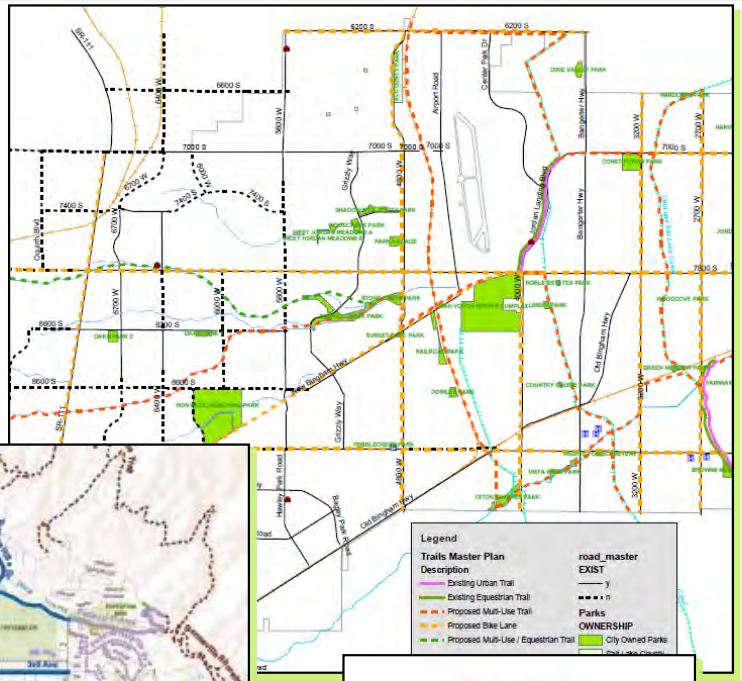
Review: UCATS Schedule

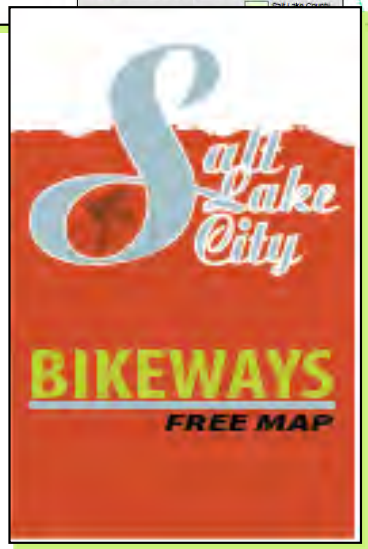
UCATS

- "No boundaries" within study area
- Urban area from Payson to Brigham City

Consolidated bike map

- Single GIS file for study area
- Sources:
  - WFRC
  - MAG
  - Salt Lake County
  - AGRC
  - UDOT
  - Salt Lake City





Consolidated bike map

- Aerial and field verification of **existing** facilities

Consolidated bike map

Existing bike facility categories:

- Shared lane (w/ pavement markings/ signs/ green paint)
- Shoulder bikeway (signed)
- Bike lane
- Cycle track
- Shared use path

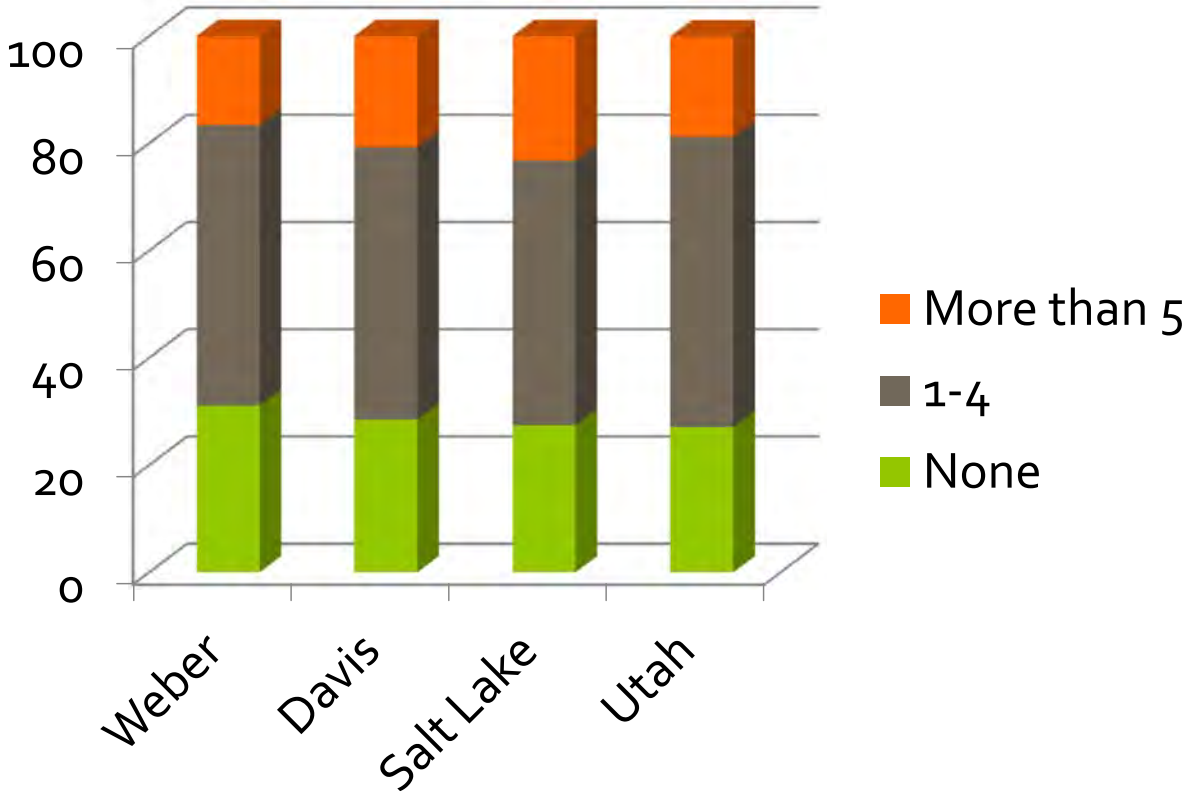
- Temporarily retained:
  - "Quiet Streets", "Paved Shoulders"

UCATS

- UCATS Agenda
  - Progress report: Bicycle "No Boundaries" Map
  - Utah Household Travel Survey results
  - Bike-onomics: research results
  - Other business

- Utah Household Travel Survey results
  - Bicycle and Pedestrian Behavior Add-On
  - Representative Sample of 3,939 Households
    - Weber = 399
    - Davis = 629
    - Salt Lake = 1,811
    - Utah = 1,100
  - Self-Reported Data (collected Summer 2012)
  - Cycling Data also collected from 4,458 University Students

Walking Trips in the Past 7 days



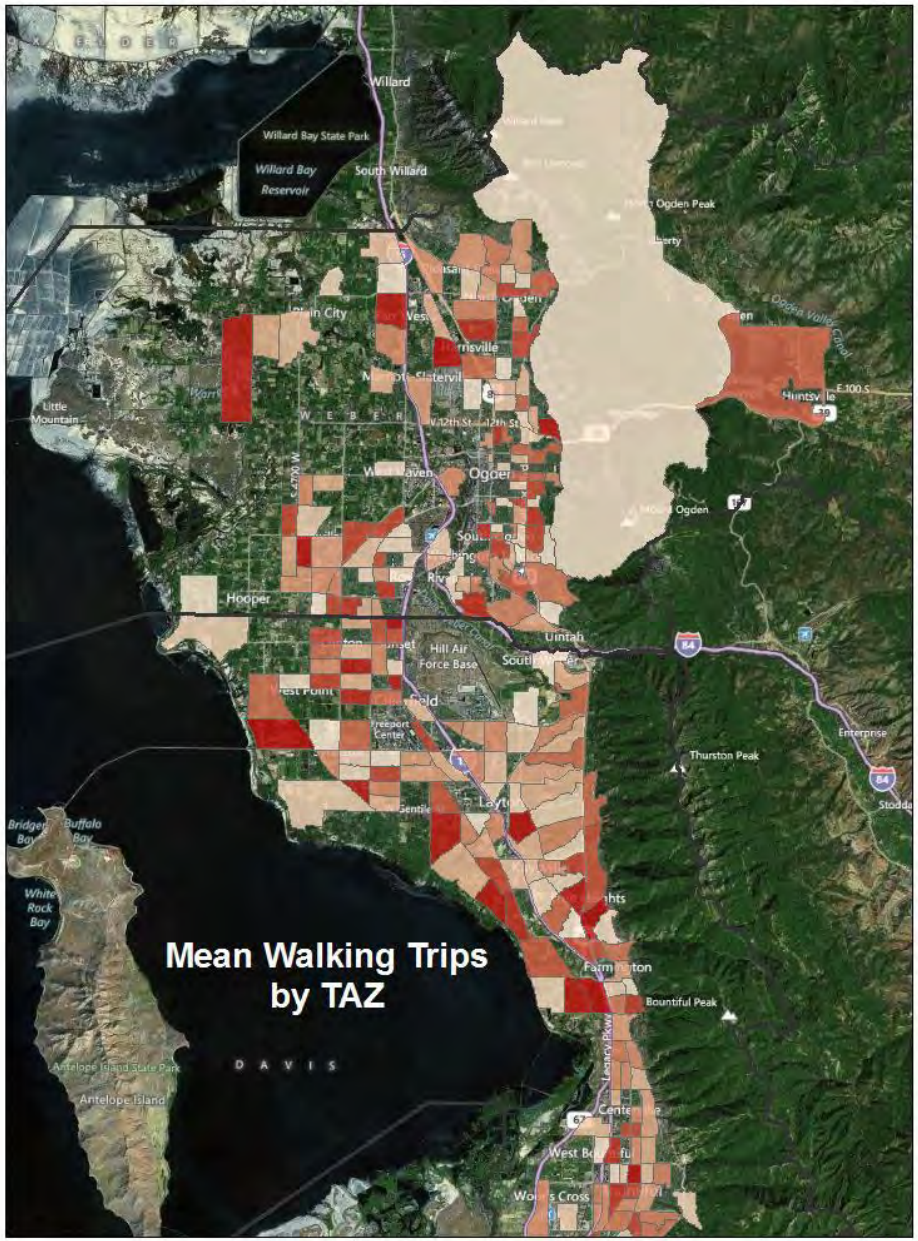
Trip Purpose	% response
Utilitarian Trips	**50.4**
Accompany children	24.7
Visit friends/family	16.1
Shopping	12.3
To/from school	6.8
To/from other travel mode	6.0
To/from work	5.8
Personal business	5.6
Other	5.8
Non-Utilitarian Trips	**90.2**
Exercise	78.1
Socialize	21.9
Walk dog	20.1
Recreation event	7.4

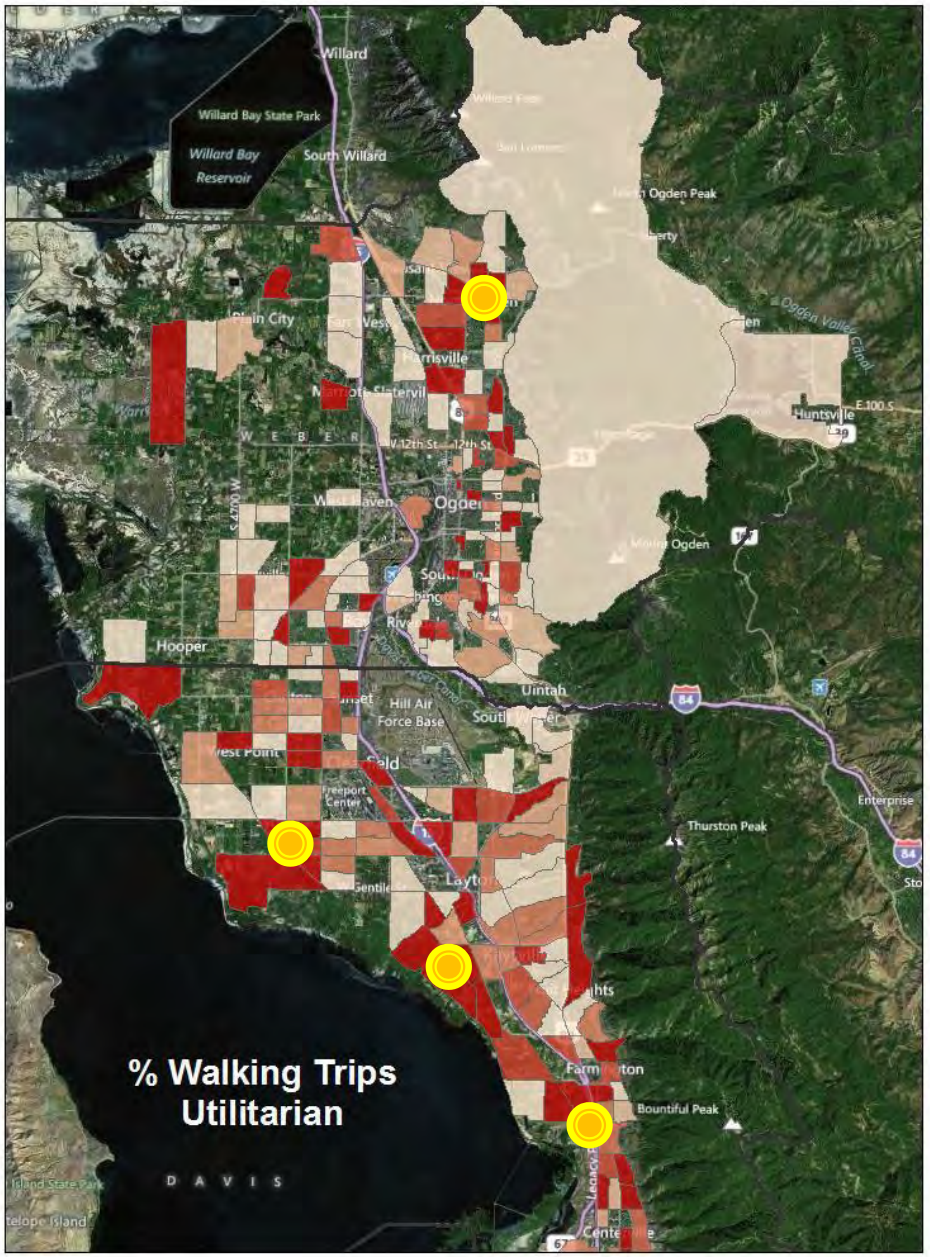
Barriers and Motivations for Walking

Barrier	% of sample	% of non-walkers
Time related (Busy, takes too long)	18.0	63.2
Personal Reasons (Do not like walking, feel unsafe, other)	9.3	32.9
Health reasons	6.5	22.6
Need vehicle	4.8	17.0
Weather	2.7	9.4
Lack of infrastructure (No sidewalks/trails)	0.6	2.3

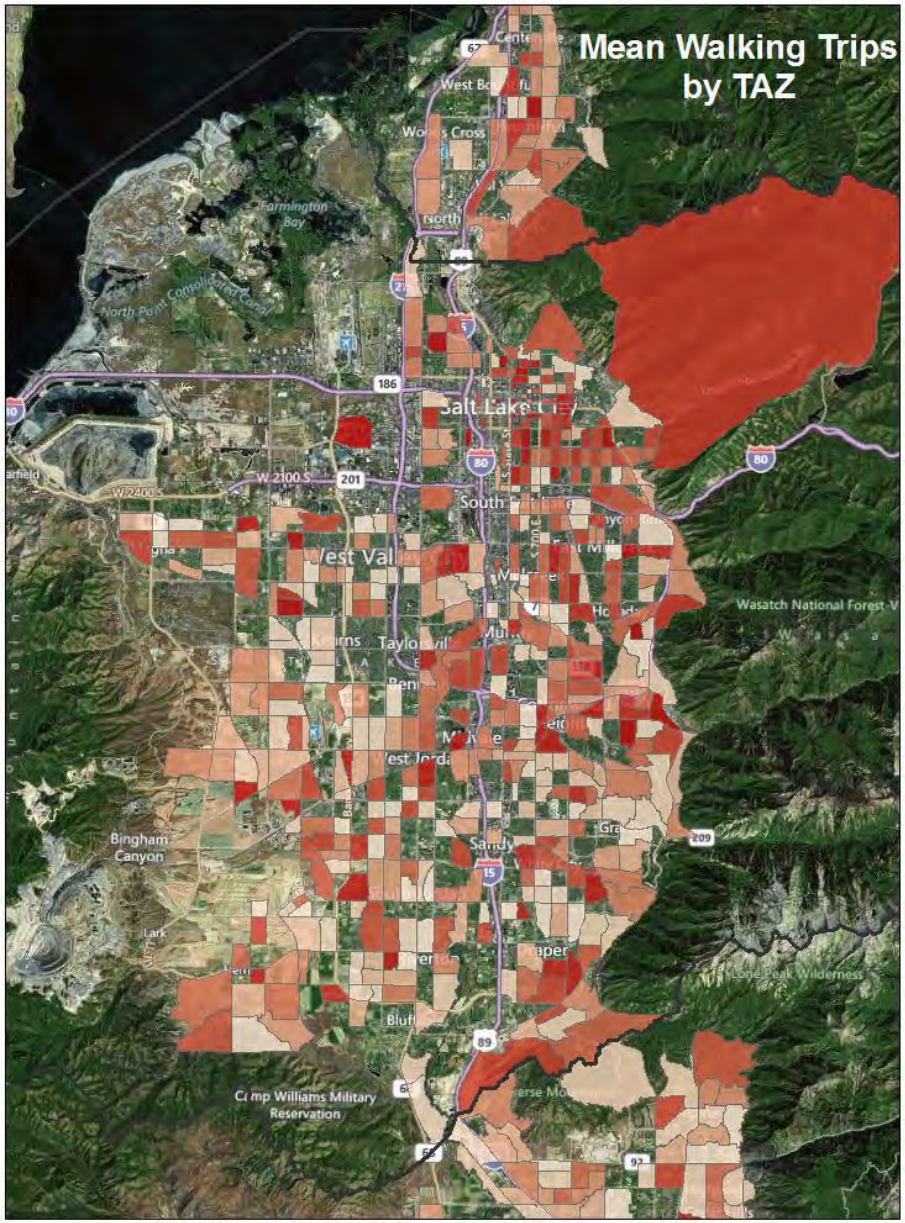
Motivation	% response
Social/Personal Enrichment	**49.2**
Enjoy outside	41.8
Health/Exercise	41.1
Conversation with friends/family	24.5
Resources	**20.5**
Save money	16.9
Improve environment	11.8
Temporal	**17.7**
Convenience	13.8
Avoid traffic	6.2
Faster than other modes	6.1
Other**	**3.7**

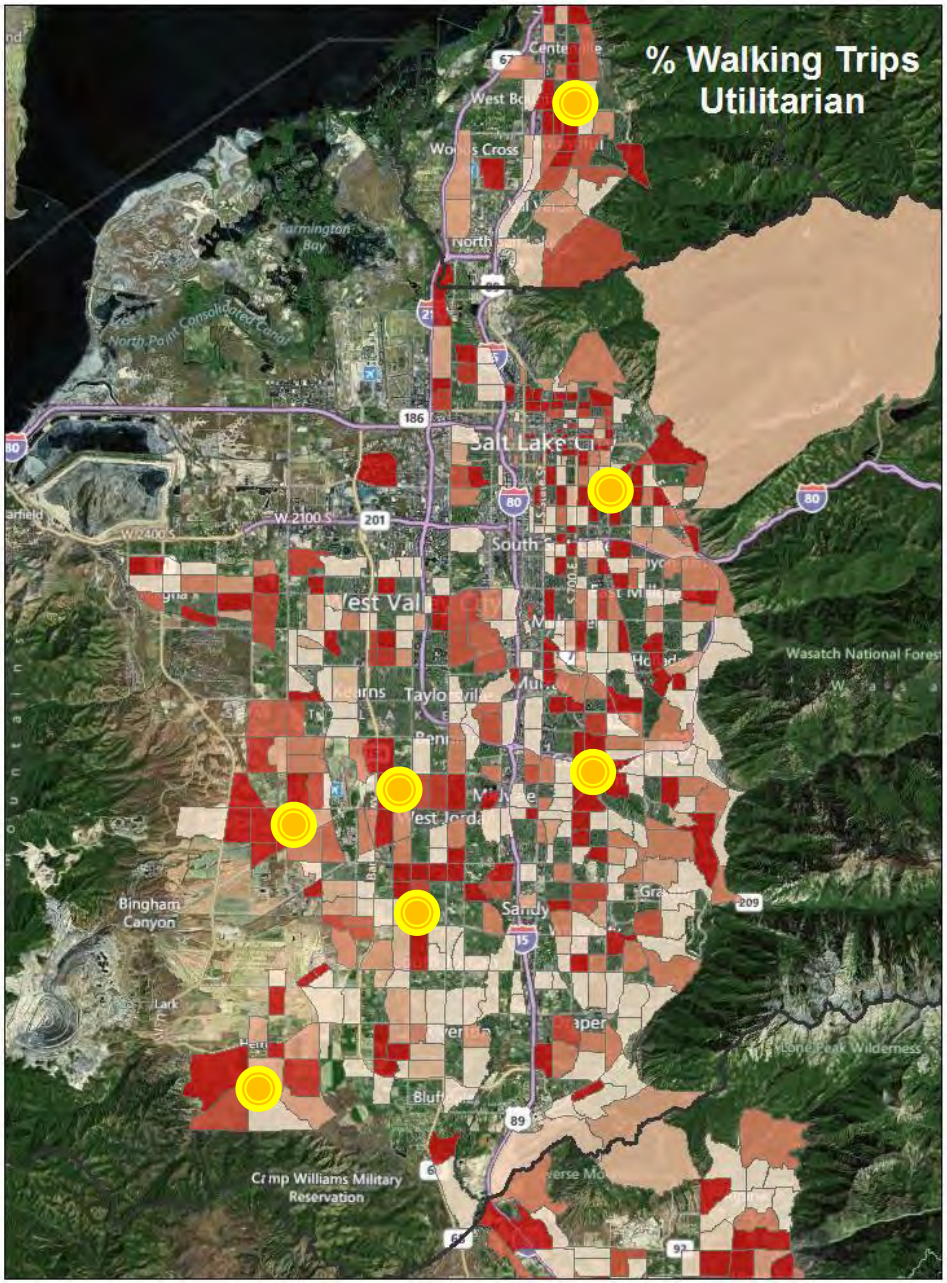
Weber and Davis Counties



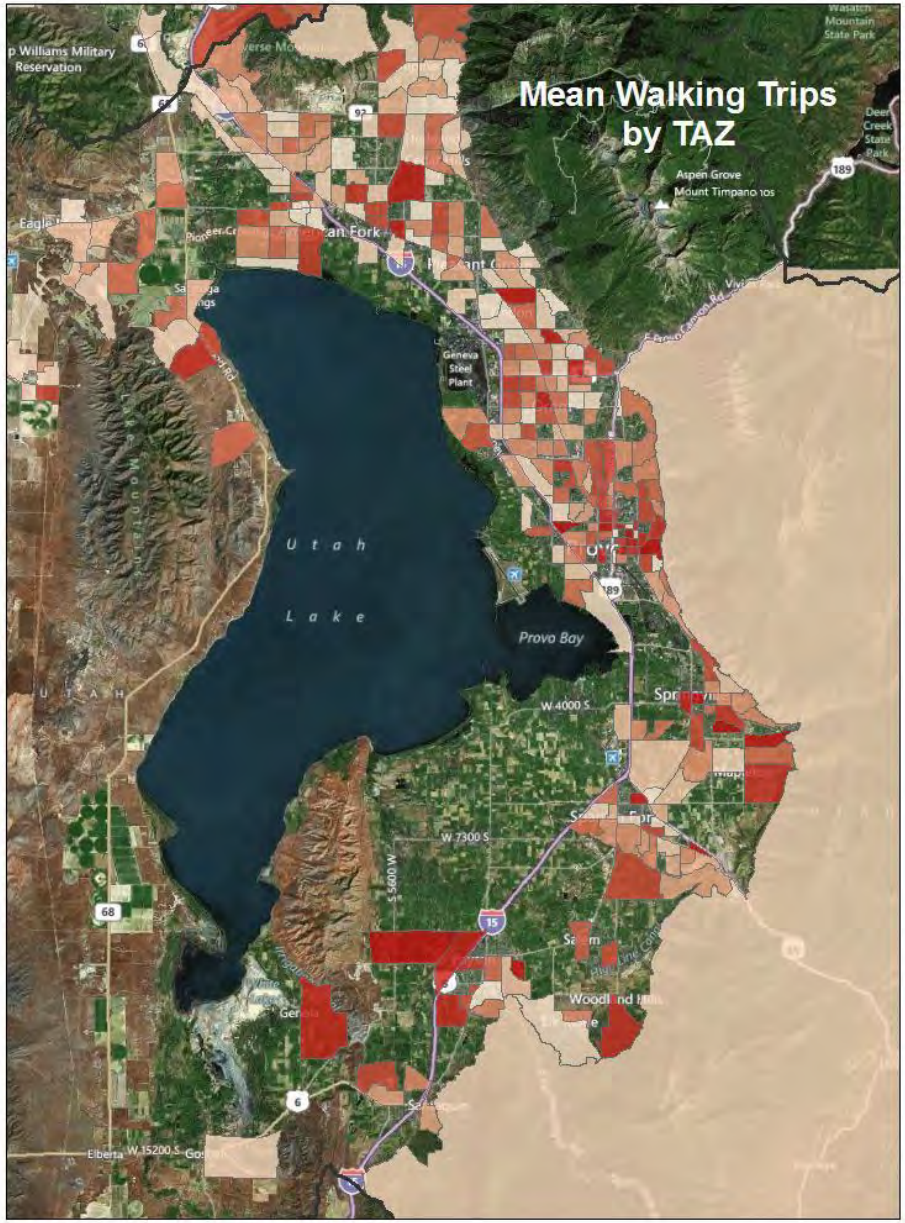


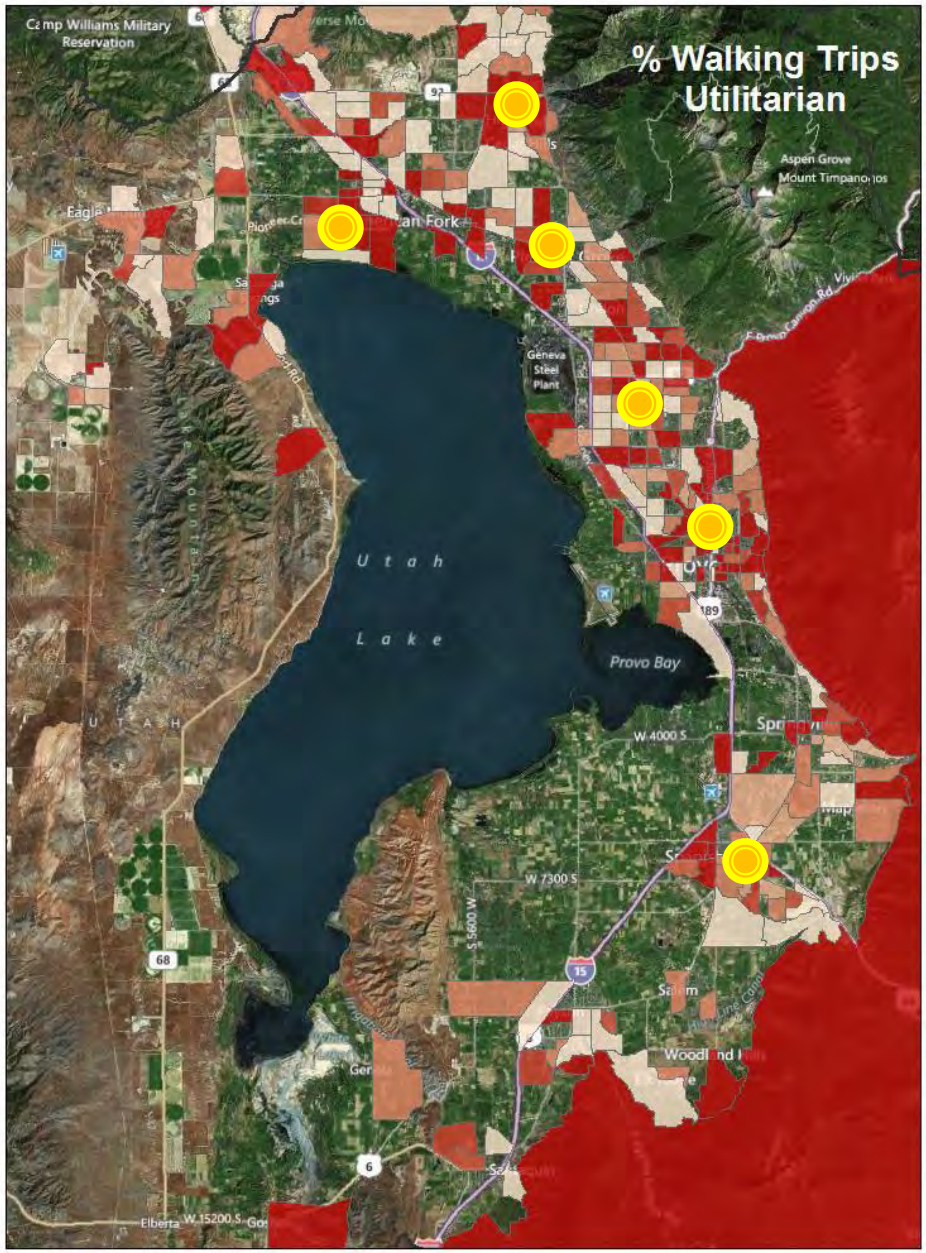
Salt Lake County



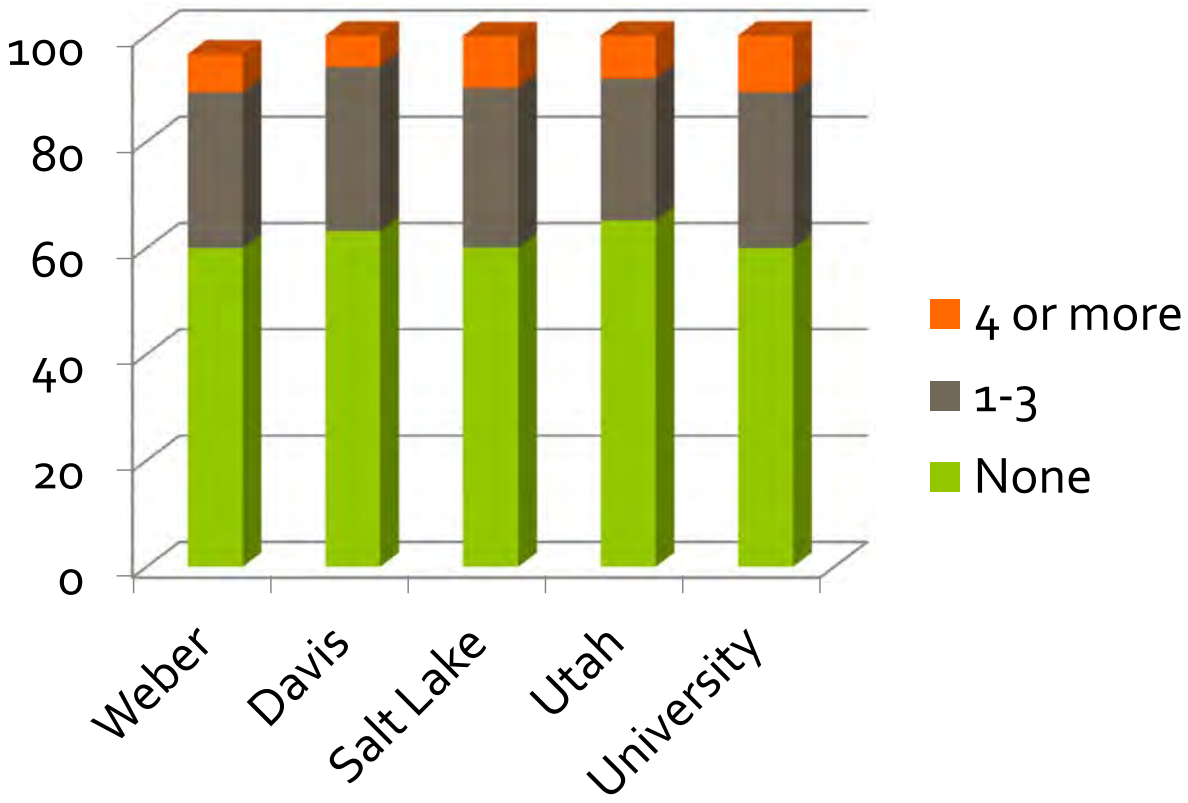


Utah County


Mean Walking Trips by TAZ
Utah Lake
Provo Bay
Aspen Grove
Mount Timpanogos
Geneva Steel Plant
W 4000 S
W 7300 S
S 5600 W
W 15200 S


% Walking Trips Utilitarian
Utah Lake
Provo Bay
Aspen Grove
Mount Timpanogos
Geneva Steel Plant
W 4000 S
W 7300 S
S 5600 W
W 15200 S

Cycling Trips in the Past 14 days



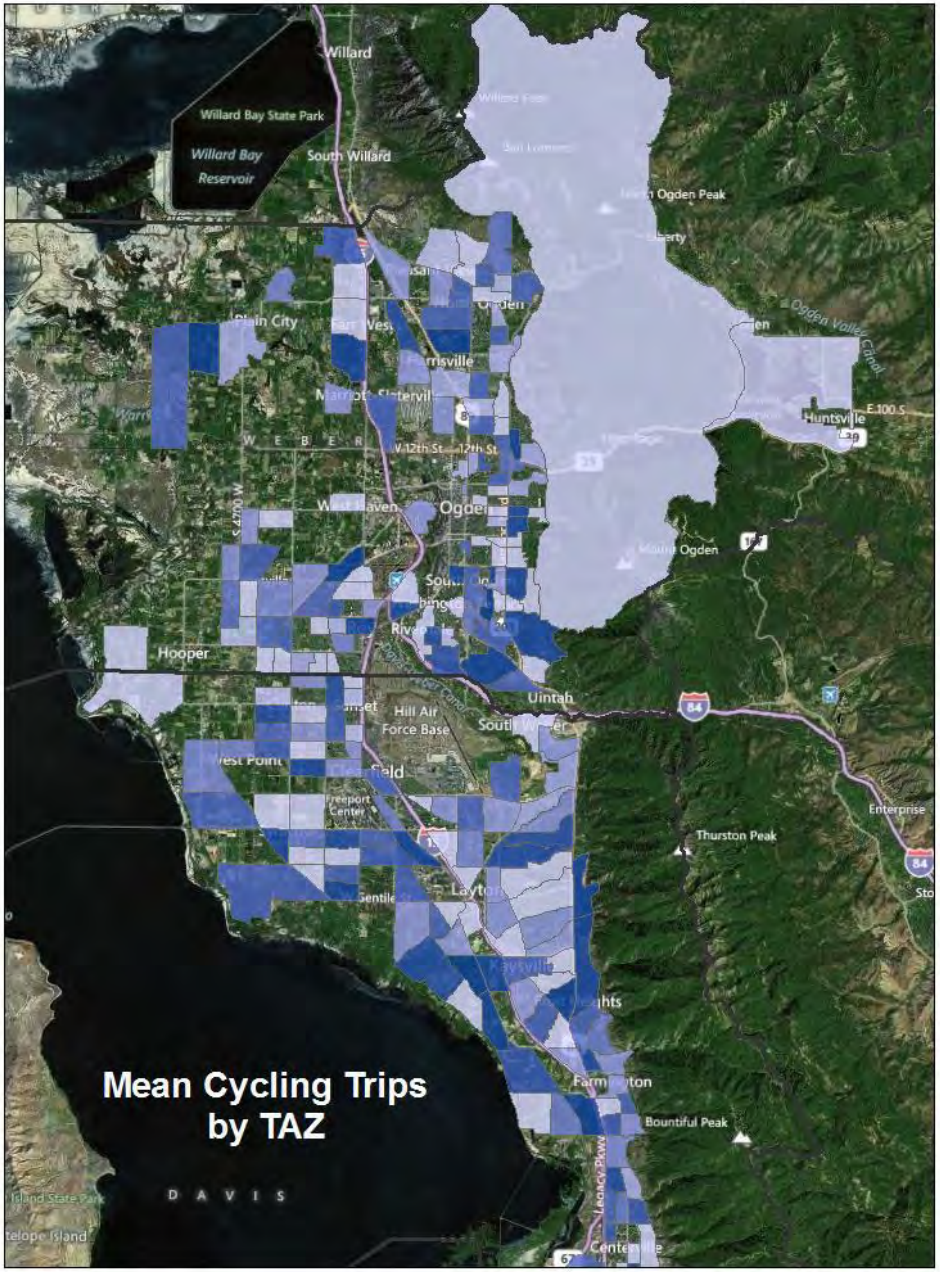
Trip Purpose	% response
Utilitarian Trips	**49.1** (public) **34.1** (students)
Accompany children	27.9
Visit friends/family	12.2
Shopping	7.2
To/from school	5.4
To/from other travel mode	4.3
To/from work	10.0
Personal business	5.6
Other	4.6
Non-Utilitarian Trips	**89.1** (public) **87.8** (students)
Exercise	87.5
Socialize	14.1
Recreation event	6.4

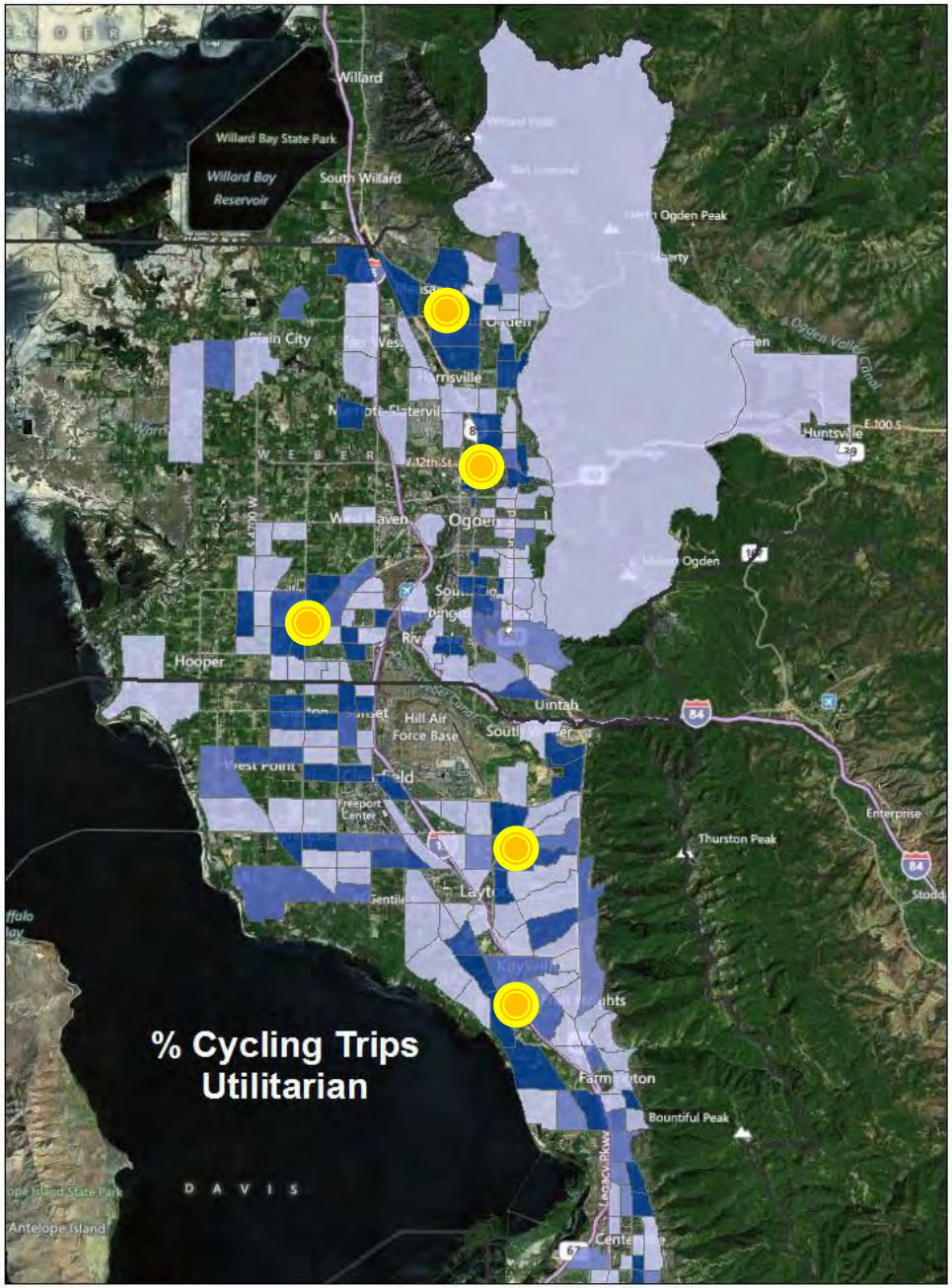
Barriers and Motivations for Cycling

Barrier	% response
Do not own a bike	53.8
Attitudes (do not enjoy biking, do not feel safe)	36.2
Temporal (busy, takes too long)	24.6
Poor health	13.9
Other Reasons	10.2
Lack of Infrastructure (too few bike lanes, paths, trails, etc)	7.6
Need vehicle	9.9
Weather	3.1
No showers/changing facilities	2.3

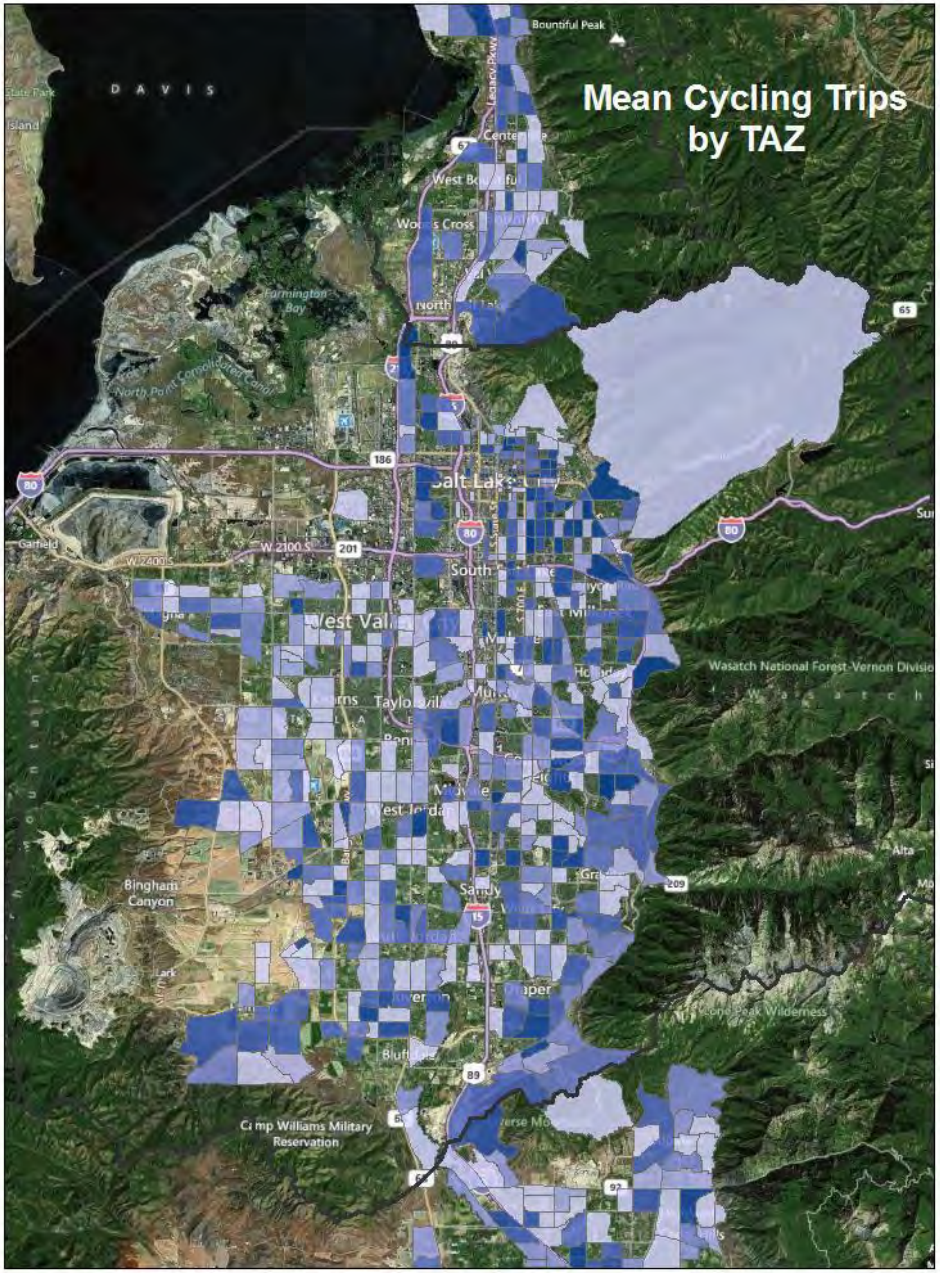
Motivation	% response
Enjoy outside	82.3
Health/Exercise	81.1
Save money	34.6
Improve environment	26.0
Convenience	18.2
Avoid traffic	13.6
Faster than other modes	9.3
Other	5.5

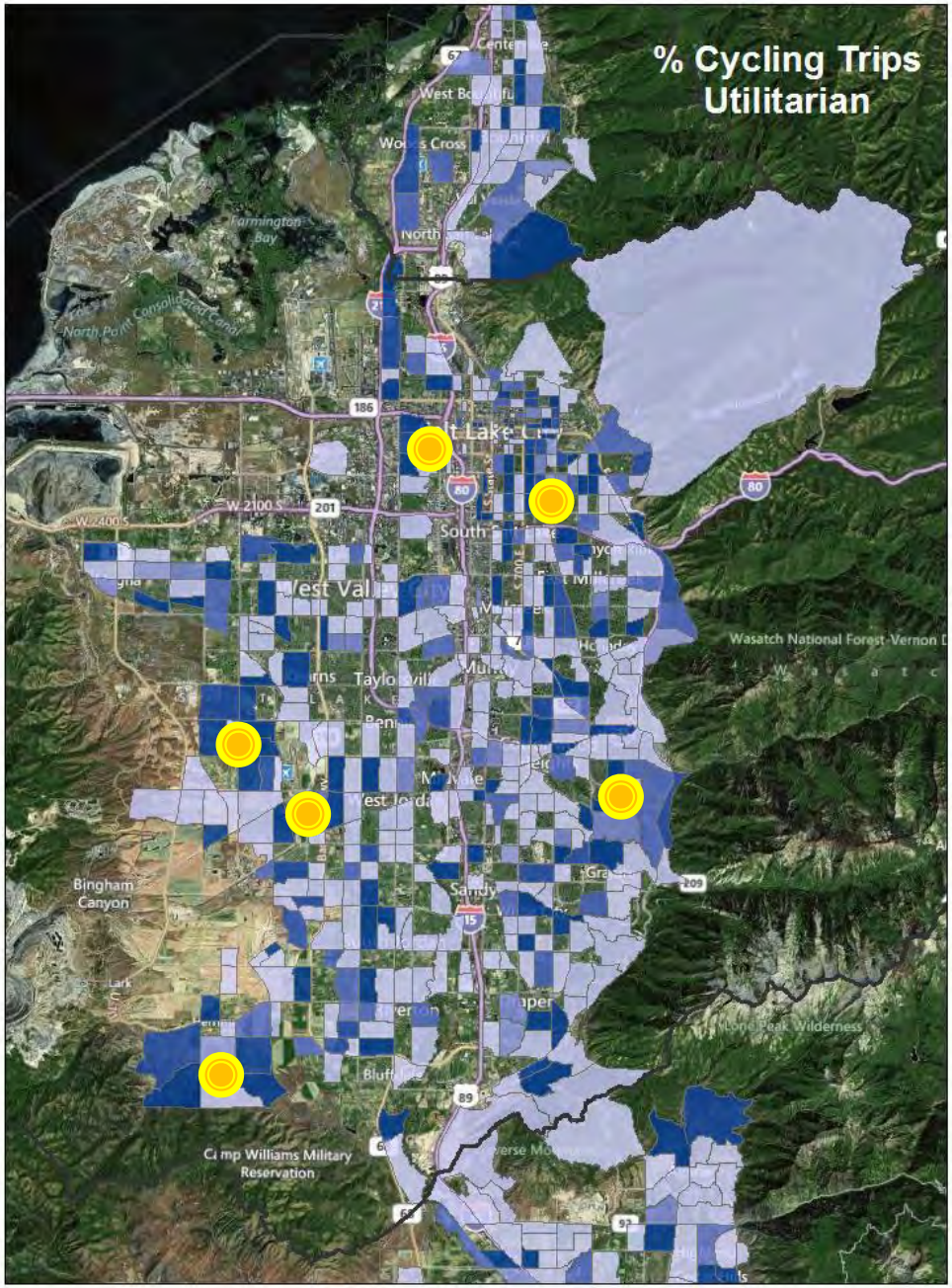
Weber and Davis Counties



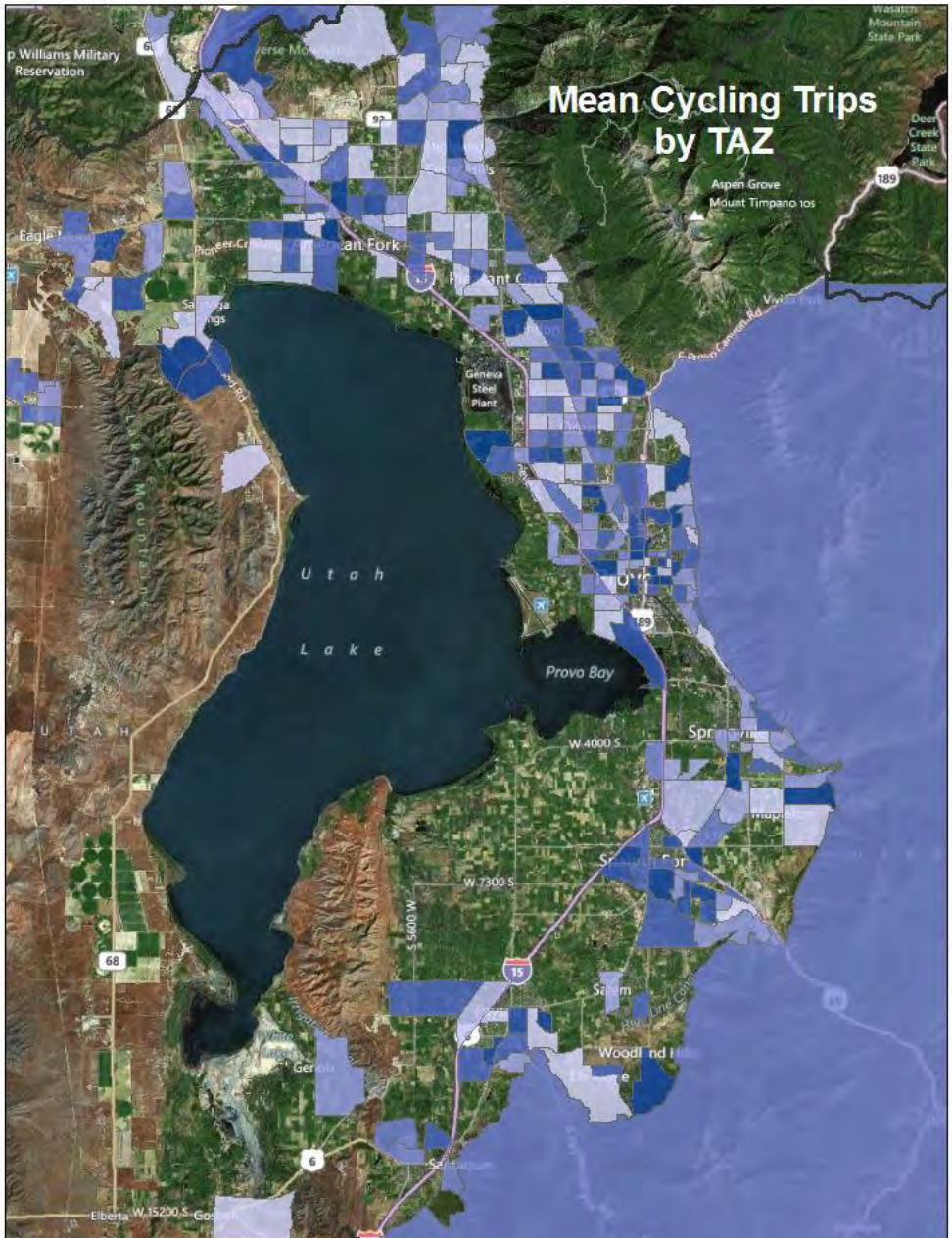


Salt Lake County





Utah County


Mean Cycling Trips by TAZ
Camp Williams Military Reservation
Wasatch Mountain State Park
Deer Creek State Park
Aspen Grove
Mount Timpanogos
Eagle
Pioneer Crossing
American Fork
Pleasant Grove
Geneva Steel Plant
Utah Lake
Provo Bay
W 4000 S
W 7300 S
S 5600 W
Spanish Fork
Salem
Woodland Hills
Elberta
W 15200 S
68
15
189
6


% Cycling Trips Utilitarian
Camp Williams Military Reservation
Aspen Grove
Mount Timpanogos
Eagle
American Fork
Pleasant Grove
Geneva Steel Plant
Utah Lake
Provo Bay
W 4000 S
W 7300 S
S 5600 W
Spanish Fork
Salem
Woodland Hills
Elberta
W 15200 S
68
15
189
6

UCATS

- UCATS Agenda
  - Progress report: Bicycle "No Boundaries" Map
  - Utah Household Travel Survey results
  - Bike-onomics: research results
  - Other business

Purpose

- Identify metrics to measure economic development resulting from investments in bicycle/pedestrian infrastructure –
  Bike-onomics!
- Create a set of tools to evaluate economic development opportunities relating to proposed projects
- One element of project prioritization

Research

- Reviewed over 60 reports
  - Focus on studies based on independent data
  - Preference given to verifiable results
  - Identify transferable methods/measures
- In-depth synopsis of 25 will be provided in final report

Categories

- Regional economic impact
  - Survey-based
  - IMPLAN model
- Area economic impact
  - Retail sales
  - Lease rates and rents
- Employment
- Property values
- Tourism
- Transportation-system related impacts

Categories

- Elements Addressed

Measure	Number of Studies	Percent of Total
All Studies in Bibliography (to date)	63	100
Bike Sales/Manufacturing Impacts	7	11.1
Property Value Impacts	26	41.2
Retail Sales Impacts	22	34.9
Regional Economic Impacts	15	23.8

Context Matters

- Neighborhood on top illustrates factors that increase benefits of connectivity
- Neighborhood on bottom doesn't allow safe and easy bike/ped connections

Prioritization of Impacts

- Regional impacts
  - Shift in household spending from fuel/auto-based to other household needs
  - Reduced costs of expansion/maintenance of auto-focused infrastructure
  - Decreased congestion-related costs
  - Bicycle business segment economic impact
- Competitive positioning
  - "Walkability" as a marketable benefit for tenants/purchasers
  - Ability to attract/retain Gen Y employees

Prioritization of Impacts

- Area specific impacts
  - Property values
  - Taxable sales
- Individual impacts
  - Lower transportation costs (in some cases 8 – 10 percent)
  - Improved health outcomes

Possible measures

- Jobs accessible by transit or active mode in 30 minutes or less as a measure of modal accessibility to households
- Retail jobs accessible to households by walking within 20 minutes as a measure of the pedestrian experience
- Walk/IMI scores
- Overall connectivity (road/trail/sidewalk/bike lane intersections)

Possible measures

- Current active transportation mode share
- Presence of transit stops
- Presence of multiple walkable centers
- Regionally vs locally focused centers

UCATS

- UCATS Agenda
  - Progress report: Bicycle "No Boundaries" Map
  - Utah Household Travel Survey results
  - Bike-onomics: literature review results
  - Other business

- Other business
  - Latent demand update
  - Pedestrian networks
  - MindMixer website: www.ucatsplan.com
    - Comments on maps
    - Distribute to your networks!
  - Next meeting for UCATS: January 9 2013

Meeting Minutes/Summary
Active Transportation Committee
Meeting of January 9, 2013

A meeting of the Active Transportation Committee was held on Wednesday, January 9, 2013 in the offices of the Wasatch Front Regional Council, 295 North Jimmy Doolittle Road, Salt Lake City, Utah.

Welcome and Introductions

Commissioner Louenda Downs, ATC Chair, called the meeting to order at 8:30 a.m. Commissioner Downs welcomed committee members and guests and introductions were made.

ATC Members and Staff Present:

Justin Anderson	Ogden City
Ralph Becker	Mayor, Salt Lake City
Mike Caldwell	Mayor, Ogden City
George Deneris	Salt Lake County
Louenda Downs	Commissioner, Davis County
Larry Ellertson	Commissioner, Utah County
Andrew Gruber	WFRC
Ned Hacker	WFRC
Scott Hess	Davis County
Robin Hutcheson	Salt Lake City
Max Johnson	Salt Lake County
Jory Johner	WFRC
Tina Kelley	Councilmember, Morgan County
Jim Price	MAG
Greg Scott	WFRC
Robert Scott	Weber County Planning
Matt Sibul	UTA
Evenlyn Tuddenham	UDOT
Jan Zogmaister	Commissioner, Weber County

ATC Stakeholders and Others Present:

Mark Benigni	Weber Pathways
Dan Bergenthal	Salt Lake City
Julie Bjornstad	Fehr & Peers
Ben Bolte	Salt Lake City Bike Share
Roger Borgenicht	Future Moves Coalition
Tim Boschert	UDOT
Deborah Burney-Sigman	Breathe Utah
Steve Call	FHWA
Kristen Clifford	South Salt Lake City
Rick Cobia	DSPD
Grant Crowell	City of Bluffdale
Rachel Cusimano	Assist, Inc.
Riley Cutler	GOED
LaNiece Davenport	WFRC
Fred Doehring	UDOT
Reid Ewing	University of Utah

Jesse O. Glidden	UDOT Region 1
Paul Goodrich	Orem City
Todd Hadden	UDOT Traffic Statistics
Max Hanna	UTA
Laura Hanson	Jordan River Commission
Tim Harpst	SLC Bike Share
Mike Hathorne	Suburban Land Reserve
Dana Holmes	Stanley Consultants
Johanna Jamison	UTA
Dave Iltis	Cycling Utah / MBAC
Hal Johnson	UTA
Linda Johnson	League of Women Voters-Salt Lake
Pam Jorgensen	WFRC
Jon Larsen	WFRC
Vincent Liu	UDOT Region 2
Scott Lyttle	Bike Utah
Andrea Moser	Bio-West
Elliott Mott	Wasatch Mountain Club
Chad Mullins	SL County Bicycle Advisory Committee
Jon Nepstad	Fehr & Peers
Andrea Olson	InterPlan
Angelo Papastamos	UDOT
Helen Peters	JUB
Ron Phillips	Phillips Associates
Marjorie Rasmussen	UDOT Region 2
Julia Reynolds	WFRC
Phil Sarnoff	Salt Lake City Bike Share
Melissa Schnulle	Assist, Inc.
Shawn Seager	MAG
Jacob Splan	UTA
Justin Turner	UTA
Maria Vyas	Fehr & Peers
Jaime White	UTA
Gary Williams	Ogden City
Brad Woods	Bike Utah

Members excused: Mayor Brent Marshall

Approval of Meeting Minutes/Summary

Councilmember Tina Kelley moved that the minutes of the November 14, 2012 meeting be approved. The motion was seconded by **Mayor Mike Caldwell** and the meeting minutes were unanimously approved.

Commissioner Downs thanked Mayor Peter Corroon and Darci Taylor outgoing members of the Active Transportation Committee, for their service and support. She also welcomed Mayor Ben McAdams, Salt Lake County, and Mayor Mike Caldwell, Ogden City, and expressed appreciation for their willingness to serve on the ATC.

Public Comment

Elliott Mott, Wasatch Mountain Club, comments included concerns for bicyclists regarding utility drains when a road has been resurfaced. He is suggesting that those grates be brought up to the level of the surface. He also said that drainage grates are particularly egregious and suggested that they be retrofitted so that they are bicycle friendly. Mr. Mott then suggested that a bike friendly way to get between Salt Lake and Utah County be considered. Lastly, he suggested that UTA run trains on Sunday. He noted that the Wasatch Mountain Club many times ride one way and would like to pick up the train either getting to their riding location or returning home.

Scott Lyttle, Bike Utah, shared a letter that Bike Utah sent to the Governor's office in regard to the UDOT Executive Director candidate search encouraging them to consider a bicycle and pedestrian friendly candidate.

Action: Resolution of the Wasatch Front Regional Council Creating the Active Transportation Committee – Commissioner Downs reviewed the Resolution and said that it is codification of what the Committee has already been doing and also the direction of the Active Transportation Committee.

Andrew Gruber commented that the reason for the Resolution is that the Active Transportation Committee was created in a somewhat informal manner – initially as a subcommittee of the Regional Growth Committee. Due to the interest and the many issues that need to be addressed by this committee, it has become apparent that the Active Transportation Committee should have formal recognition as a standing committee of the Wasatch Front Regional Council. The Resolution would accomplish that.

The purposes of the Active Transportation Committee include:

- Advising the Regional Growth Committee on long-range planning and growth issues related to active transportation.
- Advising Trans Com on short-range programming issues related to active transportation.
- Serving as a forum for regional collaboration between local governments, agencies and other stakeholders on active transportation issues.

Mr. Gruber also said in answer to questions regarding the addition of Brigham City and parts of Box Elder County to the WFRC MPO urbanized area, that Box Elder County will be represented in some appropriate way through the Wasatch Front Regional Council when that occurs. He said that WFRC is currently in conversations with the officials in Box Elder County.

Matt Sibul moved to approve the Resolution of the Wasatch Front Regional Council creating the Active Transportation Committee as presented. Councilmember Tina Kelley seconded the motion. The motion passed unanimously.

Information: Salt Lake City Bike Share – Ben Bolte, SLC Bike Share, provided information on the Salt Lake City Bike Share Program:

The SLC Bike Share bikes are designed for one job, short trips in the City by people wearing regular clothes and carrying ordinary stuff. The bikes are one-size fits all and the only thing you may have to adjust is the seat.

The SLC Bike Share system will be a network of fully automated, solar powered kiosks (station) and bicycles available for short-term checkout. Stations will be near every major downtown destination from City Creek and the Gateway to the Salt Palace and Main Street.

Mr. Bolte reported that Salt Lake City's program has been two-thirds privately funded. Of the $949,000 that has been raised thus far in cash and commitments over the next few years, $344,000 is from the City.

Salt Lake City Bike Share program is scheduled to launch in April 2013. For more information contact: Ben Bolte at ben@downtownslc.org or 801-328-5051.

Information: Eminent Domain for Trails Discussion – Mayor Caldwell started his presentation with a short video of Ogden City's story and what Ogden has accomplished in the last ten years. He made the point that Ogden was built out in 1950 when bicycles weren't part of the conversation. However, with city support of the downtown industry cluster it has seen almost $1.3 billion in private investment in the last decade. This development alone has increased the importance of trails and an alternative transportation component to the city. Mayor Caldwell said he believed it was critical that a group like the Wasatch Front Regional Council get behind the eminent domain issue in support of alternative transportation and trails.

Gary Williams (Ogden City Legal Counsel) explained that a proposed eminent domain bill would amend the existing eminent domain statute and include language that allows eminent domain for trails for very narrow circumstances. Those circumstances are: 1) it can only be used in the boundaries or service area or utility service area of first or second class cities; 2) it has to be part of a regional transportation plan that has been adopted by a metropolitan planning organization; and, 3) to ensure that agricultural interests are taken into consideration a greenbelt exception was included, so communities can't use eminent domain if the land is within a greenbelt.

After considerable discussion Mayor Caldwell welcomed further comments regarding a proposed eminent domain bill, and was thanked by Commissioner Downs for allowing him to make a presentation and lead the dialogue.

Information: Utah Collaborative Active Transportation Study (UCATS) – Maria Vyas, Fehr and Peers, gave a brief overview of UCATS. The purpose of UCATS is to identify bicycle and pedestrian projects – active transportation projects – that either help establish an urban bike network along the Wasatch Front; enhance transportation connections to transit facilities, primarily fixed rail stations; and also demonstrate improvements to the area's quality of life. She reported that in August 2012 the goals and public involvement strategy was discussed. In October 2012 the no boundaries map which is an existing inventory of all bike facilities across the Wasatch Front was presented. Also presented and discussed in October was the demographic analysis and Bike-onomics – why people walk and bike and what the barriers are as to why they do or don't.

Ms. Vyas discussed the Station Area Access analysis. She said that station area access for active transportation is one of the major goals of the project. The station area access analysis included six rail lines across the Wasatch Front – TRAX and Frontrunner – to get an understanding of how accessible these stations are for people who want to walk and bike to them from within a one-mile radius. Station Area Access included: Network analysis; Field review of site conditions; Accessibility of fixed-rail stations.

Ms. Vyas said that the information from the Station Area Access analysis will be used to guide decisions on where to make improvements to enhance active transportation function. Ms. Vyas asked for comments and feedback on whether energies should be focused on areas that have quite poor access and need help just to reach a medium level or focus on areas that are already at a medium level and with a few minor improvements could be doing quite well.

Comments included:

- It may depend where the station is located and what the city has in their vision of the station area.
- A consideration is the magnitude of the trips taken in those areas. Stations with lower ridership and serving few people may not give as much bang for the buck as those that serve many.
- There's some power of a positive example – if we could have a few places around the region that demonstrate the way to do this right, it may have a positive impact on other locations around the region.
- Use the WC2040 catalytic sites as opportunities and examples of projects that enhance the community and the walkability of it.

Julie Bjornstad, Fehr and Peers, discussed the Latent Demand Model and maps. The Latent Demand Model is a tool used to estimate the relative demand of walking and biking in an area. The study area for the project included all of the Wasatch Front between Weber County and Utah County. Latent Demand Model Factors for bike and pedestrian include:

- Population and employment density
- Land use mix
- Proximity to schools, parks, universities (true walking distance)
- Proximity to bus stops and fixed rails stations (true walking distance)
- Demographics – below poverty level, zero vehicles, limited-mobility age cohorts
- Intersection density – to show how accessible a destination is
- Presence of existing bike facilities

Ms. Bjornstad said that the Latent Demand Model is a decision-making tool. While all of the data and information that has been collected through this analysis will assist in identifying and prioritizing projects, the Latent Demand Model is one of the criteria that will be used to inform this process.

Ms. Vyas reported that projects had not yet been selected and asked for comments and feedback. She said that in choosing projects we need to remember that project selection should be related to the goals, which include: 1) laying a foundation for urban bike network; 2) enhancing active transportation connections to fixed rail transit; and, 3) demonstrating quality of life benefit. She then discussed the project selection criteria:

- Tier One Criteria
    - Urban bike network
    - Access to transit
- Tier Two Criteria
    - Latent demand model
    - Bikeonomics
    - "Interested but concerned" cyclists
    - On existing plans or STIP
    - Public support
    - Other criteria …..
    - Does it overcome a barrier

Ms. Vyas also said that for more information and updates on the UCAT Study to visit the website at www.ucatsplan.com

Evelyn Tuddenham, UDOT Project Manager, gave a brief update on UDOT's involvement in the UCATS Study. She noted that UDOT is looking at safety as a critical factor in the evaluation criteria and also using the latent demand model. She stated that UDOT began preparing Bicycle Plans for each UDOT Region starting in 2011. In the urbanized Wasatch Front, UDOT agreed to team with UTA for the UCATS, which will also address pedestrian issues
.
UDOT Personnel in Regions 1, 2 and 3 are:

- Providing data on existing conditions, safety concerns, and the public input they have received.
- Identifying projects on state roads that will make up each Region's Bike Plan.

UDOT Region Goals are to:

- Identify gaps and opportunities to complete a bicycle infrastructure backbone
- Plan maintainable facilities
- Champion projects on State routes
- Create a usable Bike Plan that supports local Bike Plans and infrastructure

Information: Complete Streets – Greg Scott, WFRC, reported that Complete Streets ensures that all users are considered every time an investment in road is made. It does not mandate that all modes are on all roads. He also reminded the group that the Active Transportation Committee is the policy committee for Complete Streets. Complete Streets was initiated in June 2010 and since that time approximately 300 Planners, Engineers, and Policymakers have been involved in directing the next steps and included – visioning, surveys and the survey results. Mr. Scott discussed the handout "Complete Streets – An Element of Wasatch Choice for 2040". His report included the following information:

- Establish a consensus name for "Complete Streets" – elected to stay with the Complete Streets name.
- Develop a Complete Streets Vision, Mission, and Principles. A two page document tied to Regional Growth Principles – has been endorsed by the ATC.
- Visit and present the concepts to planning commissions, city councils, lawmakers, governing boards, developers, etc. – Commissioner Ellertson suggested that this be revised to include "visit city and county planning commissions" in order to be more connective.
- Develop a road design manual incorporating Complete Streets principles which could include a web-based, interactive design and dialogue tool that would drag and drop different street element options for individual street treatments.
- Incorporate Complete Streets into the Regional Transportation Plan (RTP) process – preference for multi-modal projects in the RTP selection process – incorporate Complete Streets in the RTP typical street design discussion
- Permit existing funding sources to be used for a variety of travel modes, including corridor preservation funds.

Mr. Scott referred to the Draft Complete Streets Vision, Mission and Principles which was distributed for Committee member information and noted that the recommendations previously made are now reflected in the document.

Other Business
Commissioner Downs suggested that the ATC meeting be scheduled for two hours (8:00-10:00 a.m. unless otherwise noted) from now on but will try to be finished a little early.

Next meeting
March 13, 2013 – 8:00-10:00 a.m.

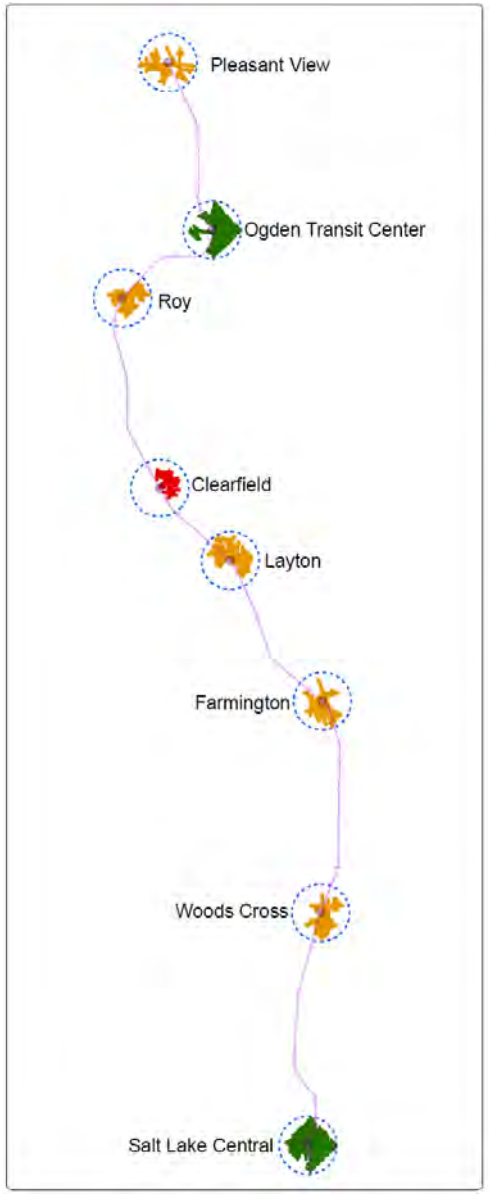
The meeting adjourned at 10:25 a.m.

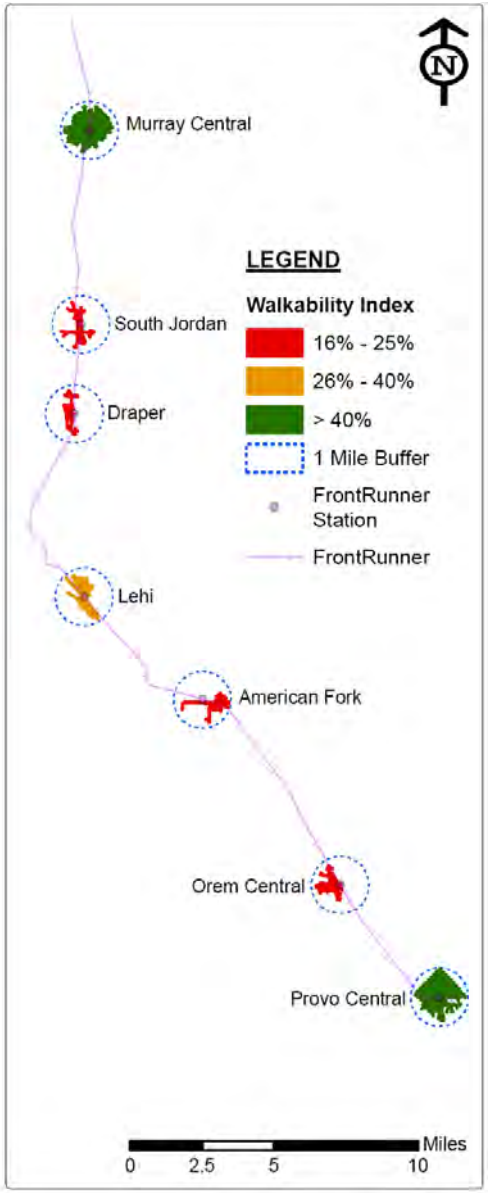
Utah Collaborative Active Transportation Study

- UCATS Agenda
  - Station area bicycle and pedestrian access analysis
  - Latent demand model results
  - Criteria and prioritization process
  - Next Steps

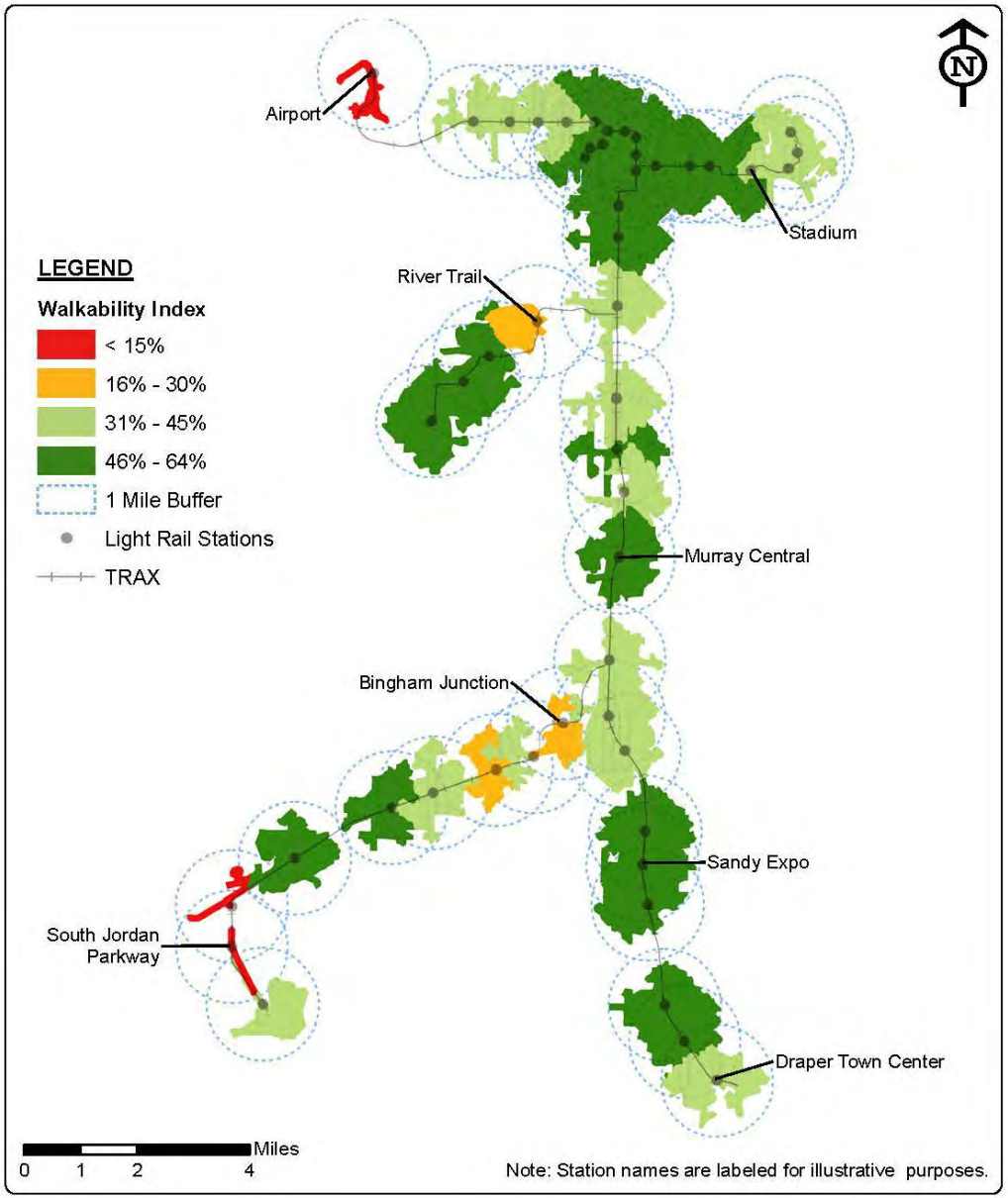
UCATS Schedule/ATC Meetings

- Station area access
  - Network analysis
  - Field review of site conditions
  - Accessibility of fixed-rail stations
- At right: Frontrunner





- TRAX


Airport
Stadium
River Trail
Murray Central
Bingham Junction
Sandy Expo
South Jordan Parkway
Draper Town Center
LEGEND
Walkability Index
< 15%
16% - 30%
31% - 45%
46% - 64%
1 Mile Buffer
Light Rail Stations
TRAX
N
Miles
0 1 2 4
Note: Station names are labeled for illustrative purposes.

UCATS

Survey of Bike and Ped Infrastructure: Sandy Catalytic Site

A story map

Summary of observations taken during field review of bicycle and pedestrian infrastructure in and around TRAX transit stations in Sandy, Utah.

esri

Good Practice | Opportunity

TRAX Stations ▼


1 Rail Crossing at 8800 South


2 Station Access


3 Secondary Station Access


4 Pedestrian Facilities

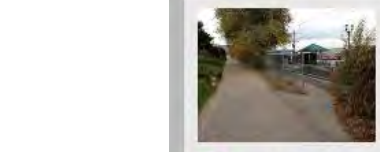

5 Bike Lockers and Racks


6 Signalized Rail/Path Crossing


7 Crosswalk Elements


8 Trail Integration


9 Station Area Design


10 Secondary Station Access

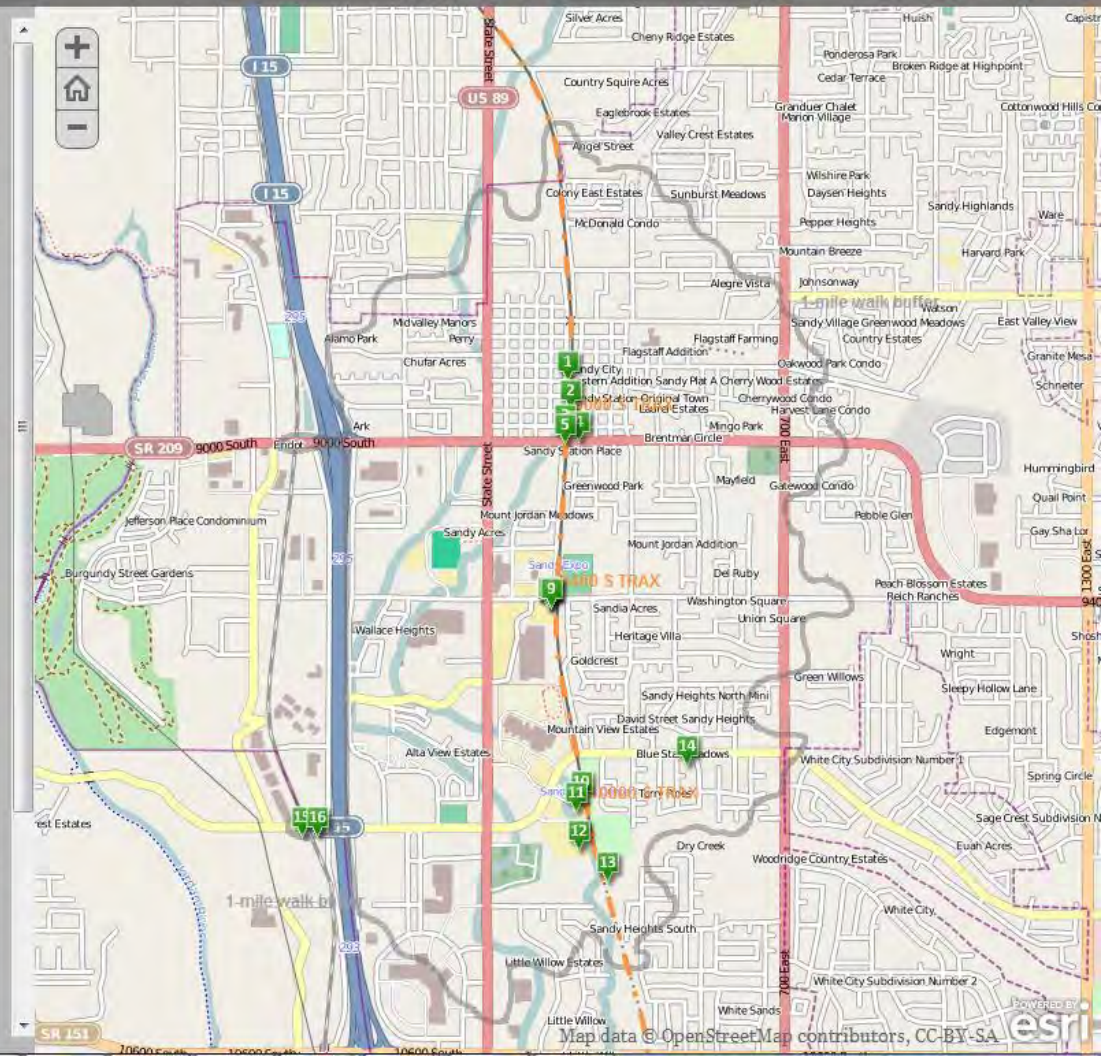

11 Multi-modal Hub


12 Neighborhood Access


Direct Path


Shoulder Bikeway


Pedestrian Rail

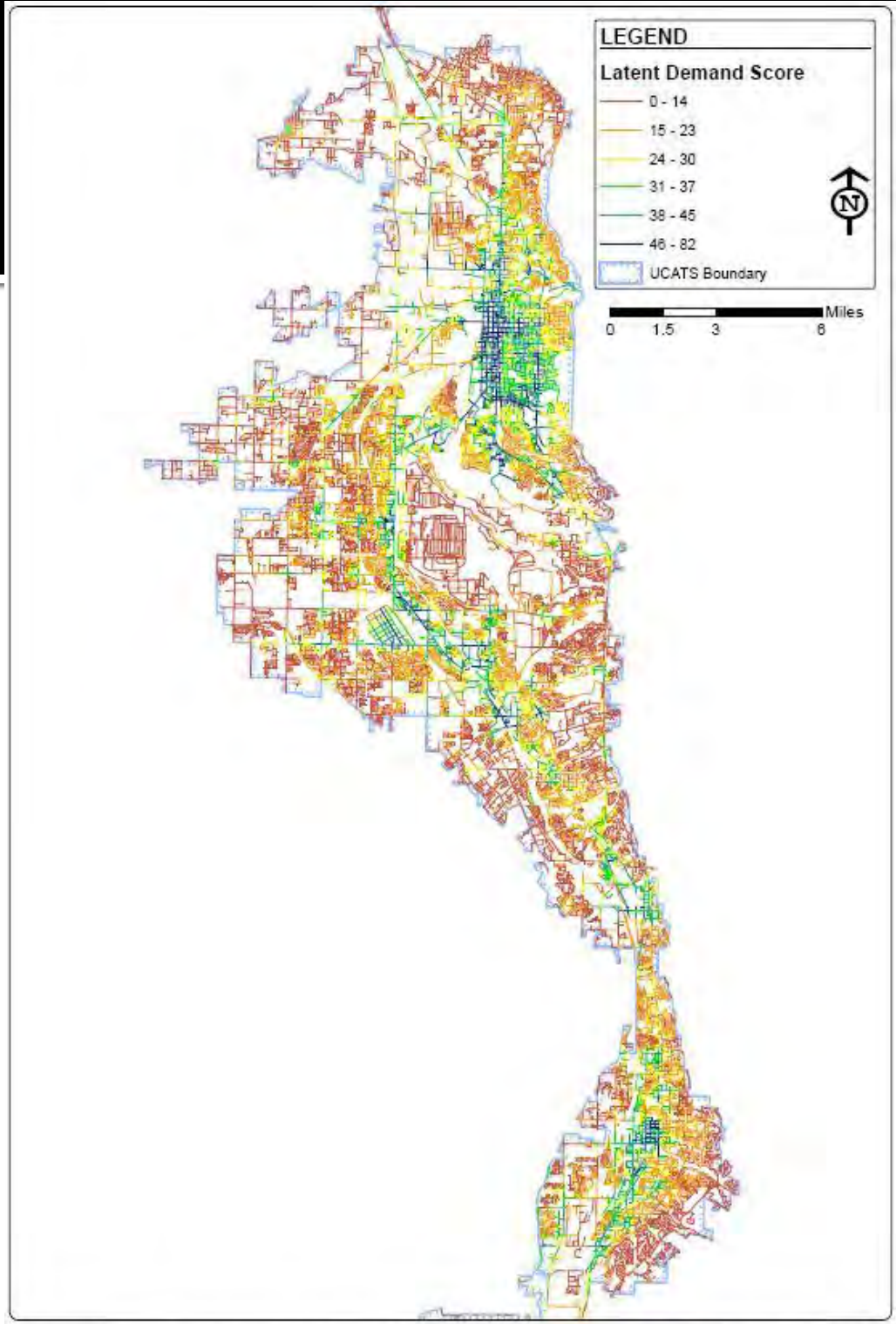


- How will this information be used?
  - It's about planning infrastructure
    - Which stations are least accessible?
    - How do we maximize access?
  - Question: where do we focus our energy?

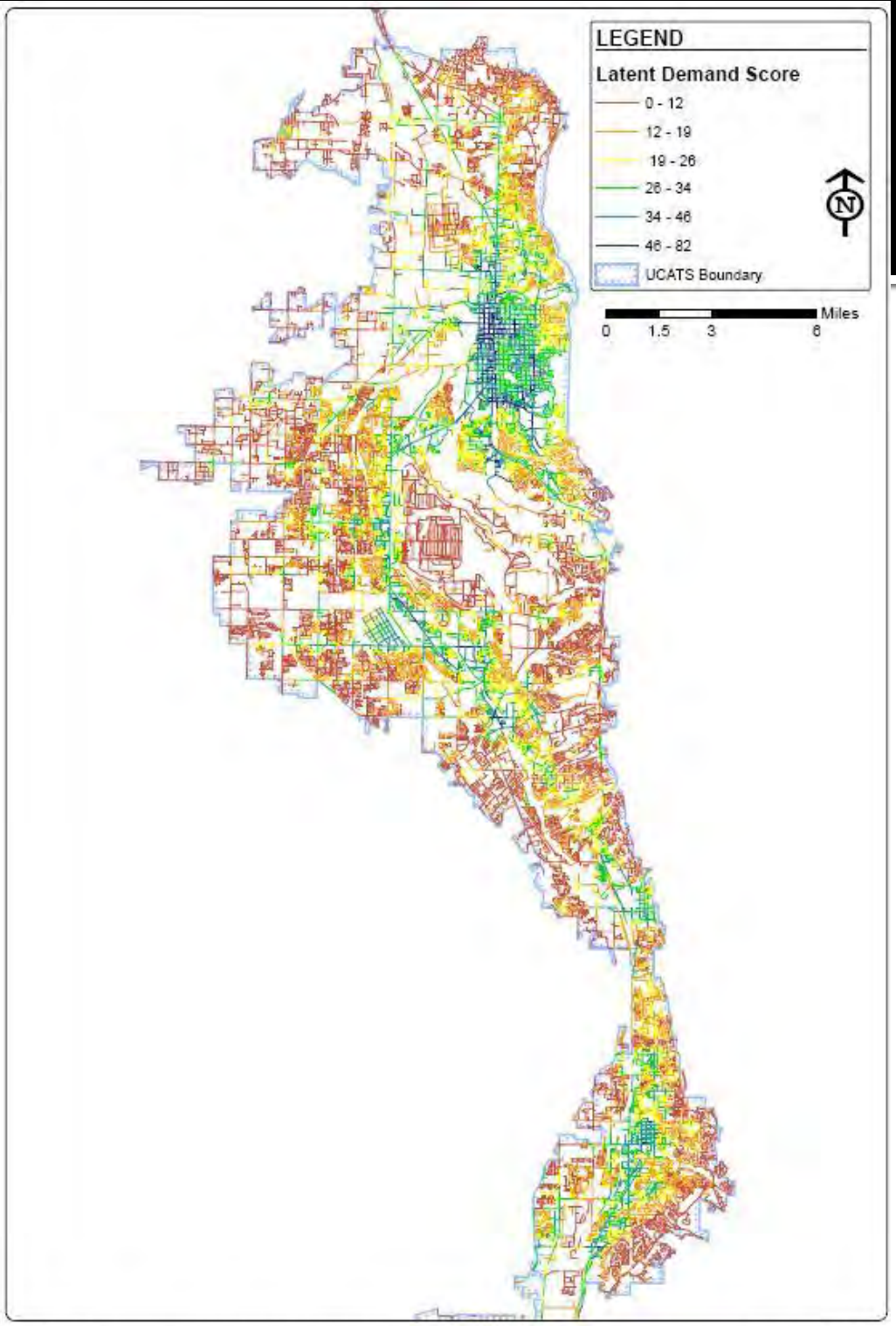
- The latent demand model
  - What is it?

- Latent demand model factors – bike/ped
  - Population and employment density
  - Land use mix
  - Proximity to schools, parks, universities (true walking distance)
  - Proximity to bus stops and fixed rail stations
  - Demographics – below poverty level, zero vehicles, limited-mobility age cohorts
  - Intersection density
  - Presence of existing bike facilities

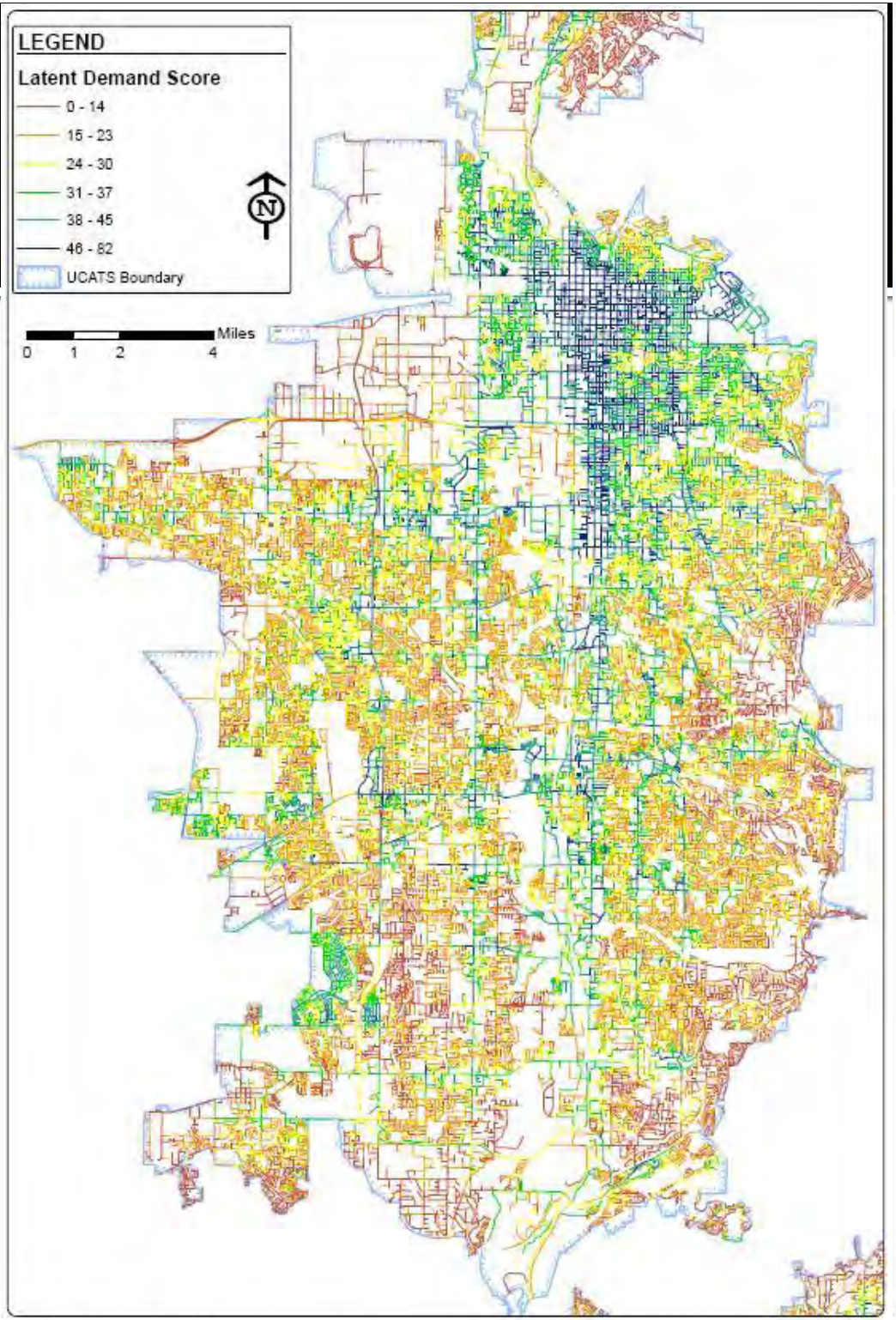
- Results:
  - Hot spots
    - Downtown areas: SLC, Provo, Ogden
    - Regional connectors between uses and destinations with high employment densities
      - State Street (Salt Lake and Utah Counties)
      - Main Street, South Temple, 300 E, 700 E, 1100 E, 200 S, 400 S, 2100 S in Salt Lake City
      - University Avenue, 300 N, 700 E in Provo
      - Washington Blvd, Harrison Blvd in Ogden



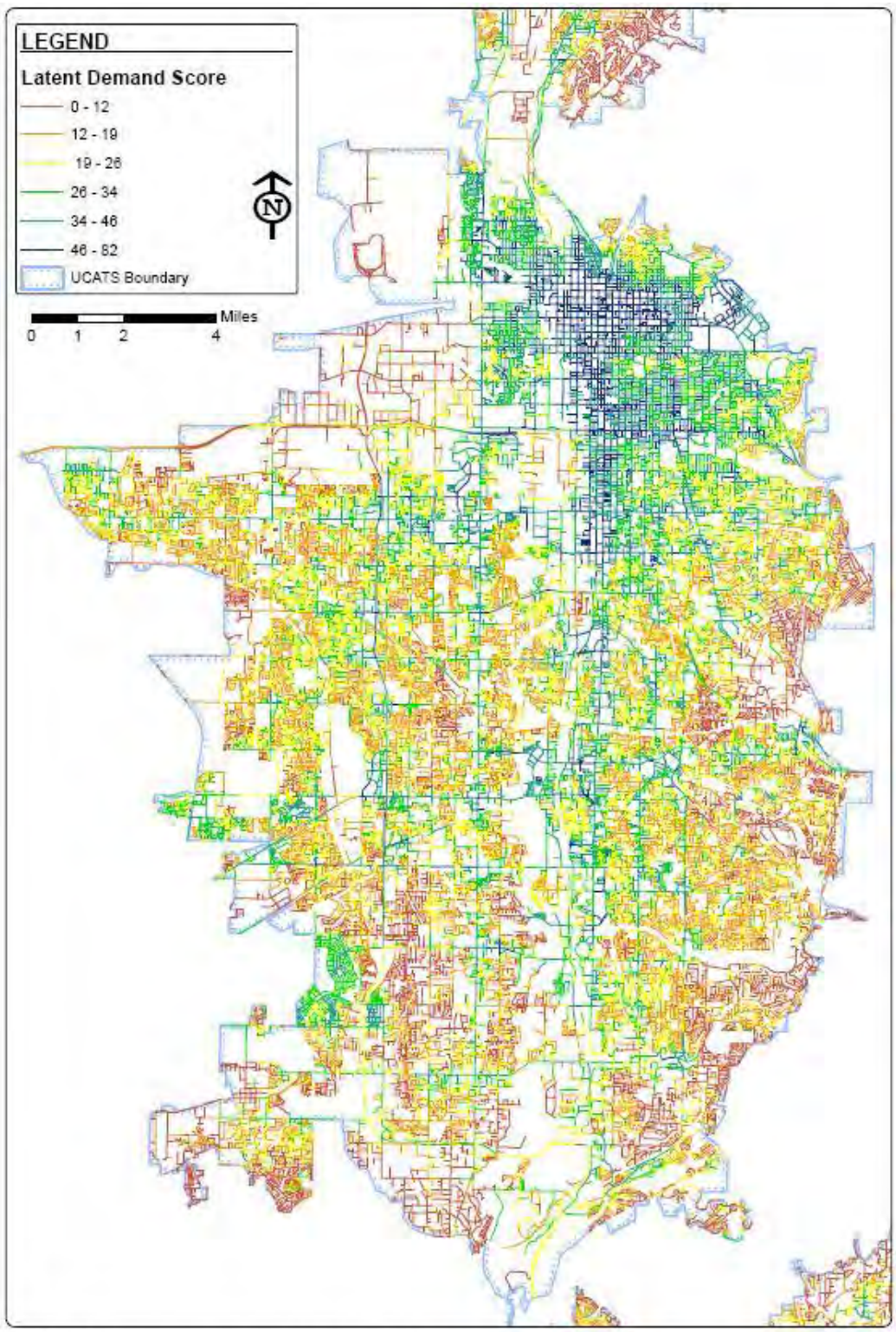
UCATS WEBER/DAVIS COUNTIES - EXISTING PEDESTRIAN LATENT DEMAND UCATS



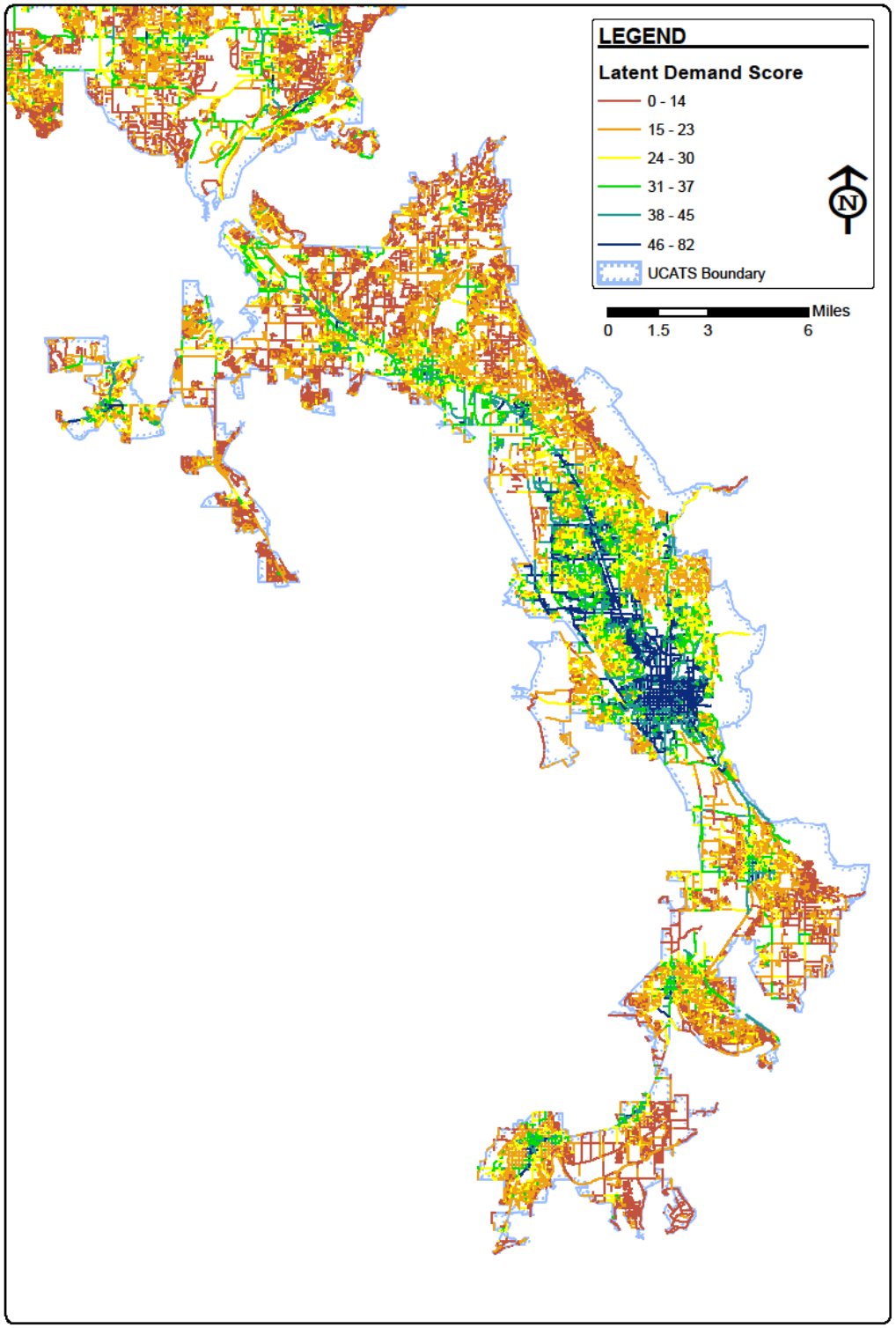
UCATS WEBER/DAVIS COUNTIES - EXISTING BICYCLE LATENT DEMAND UCATS



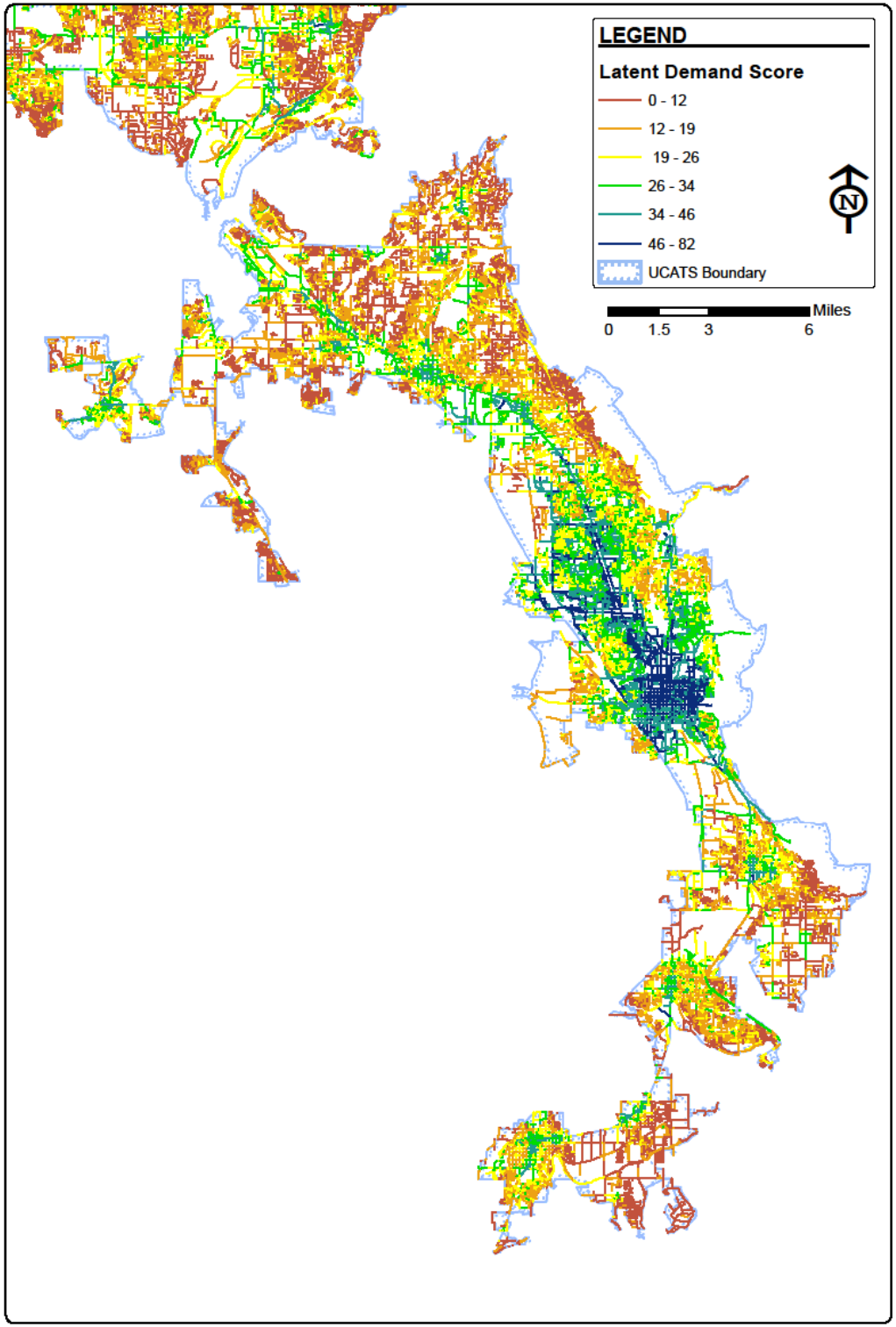
UCATS SALT LAKE COUNTY - EXISTING PEDESTRIAN LATENT DEMAND UCATS



UCATS SALT LAKE COUNTY - EXISTING BICYCLE LATENT DEMAND UCATS



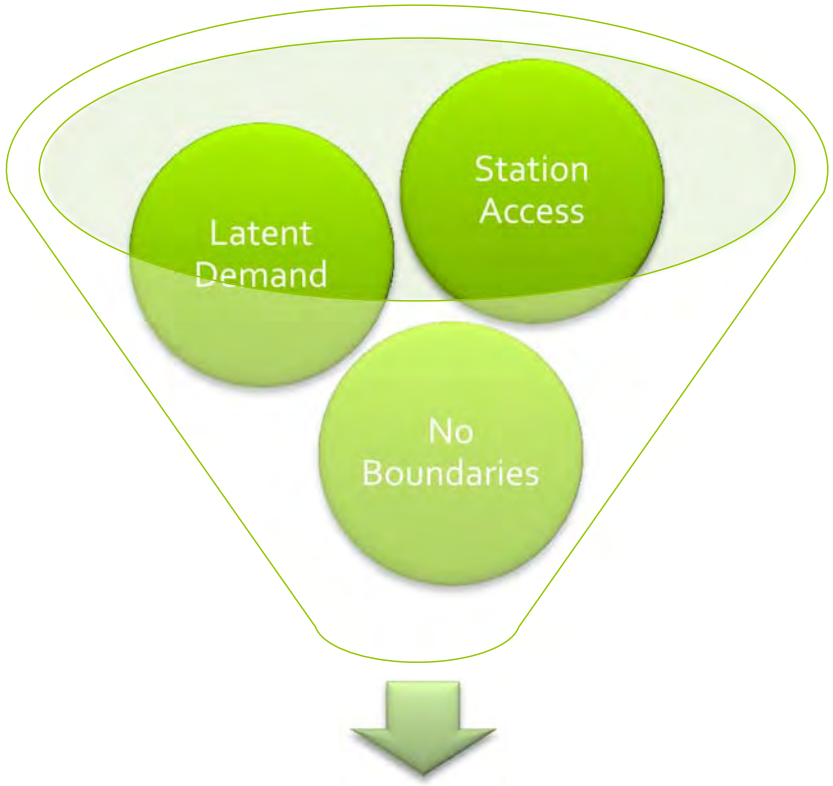
UTAH COUNTY - EXISTING PEDESTRIAN LATENT DEMAND



UTAH COUNTY - EXISTING BICYCLE LATENT DEMAND

- Latent Demand Model: Now What?
  - Tool for decision making
    - Prediction for high activity areas
    - Criteria for project selection

- Process: Pivot Point



Prioritize and Select Projects

- Project Selection Criteria
  - Relates to the goals
    - Lay foundation for urban bike network
    - Enhance active transportation connections to fixed rail transit
    - Demonstrate quality-of-life benefits

Tier One Criteria

- Urban bike network
- Access to Transit

Tier Two Criteria

- Latent demand model?
- Bikeonomics?
- "Interested but Concerned" cyclists?
- On existing plans or STIP?
- Public support?
- Other criteria?…

www.ucatsplan.com

- Get Involved!
- Identify projects
- User preferences
- Next: prioritize potential projects

UDOT's role in UCATS & the UDOT Bike Plans:

- **Bicycle Plans** for each UDOT Region (statewide)
- **In the urbanized Wasatch Front**, UDOT teamed with UTA and UCATS was created
  - Pedestrian issues included
- **Project Management**: Evelyn Tuddenham, UDOT Bike/Ped. Coordinator, UCATS Project Manager, managing the UCATS contract

UDOT Personnel in Regions 1, 2 & 3 are:

- **Providing data** on existing conditions, safety concerns, and the public input they have received
- **Identifying projects** on state roads that will make up each Regions Bike Plan

UDOT REGION GOALS:

- **Identify** Gaps and Opportunities to Complete a Bicycle Infrastructure Backbone
- **Plan** Maintainable Facilities
- **Champion** Projects on State Routes
- **Create** a usable Bike Plan that supports local Bike Plans and infrastructure

UDOT Region Bike Plan meetings include:

- **Project overview** including study area & goals
- **Review of methods** for gap identification
  - Public input (survey, websites)
  - Local plans
  - FHWA standards for urban riders (compared with existing conditions)
  - Crash Analysis
- **Criteria:** AASHTO Phasing Recommendations

CRITERIA-AASHTO Phasing Recommendations

- Bicycle Travel Demand
- Route Connectivity and Directness
- Crash/Conflict Analysis (safety)
- Barriers (Identified Issues)
- Ease of Implementation
- System Integration

- Next Meeting: March 2013
  - Rank and prioritize projects
  - Action Plan
    - Top 25 projects: conceptual cost estimate, environmental review, conceptual design
    - Coordinate with long range plan phases
    - Additional projects beyond top 25
  - Making the case
    - Demonstrating quality of life benefits

Meeting Minutes/Summary
Active Transportation Committee
Meeting of March 13, 2013

A meeting of the Active Transportation Committee was held on Wednesday, March 13, 2013 in the offices of the Wasatch Front Regional Council, 295 North Jimmy Doolittle Road, Salt Lake City, Utah.

Welcome and Introductions

Commissioner Louenda Downs, ATC Chair, called the meeting to order at 8:05 a.m. Commissioner Downs welcomed committee members and guests and introductions were made.

ATC Members and Staff Present:

George Deneris	Salt Lake County
Louenda Downs	Commissioner, Davis County
Andrew Gruber	WFRC
Scott Hess	Davis County
Heather Jackson	MAG/Mayor, Eagle Mountain
Jory Johner	WFRC
Tina Kelley	Councilmember, Morgan County
Ben McAdams	Mayor, Salt Lake County
Cory Pope	UDOT
Jim Price	MAG
Greg Scott	WFRC
Robert Scott	Weber County Planning
Evenlyn Tuddenham	UDOT
Brent Marshall	Mayor, Grantsville

ATC Stakeholders and Others Present:

Trever Ball	Utah Dept. Health/Physical Activity
Mark Benigni	Weber Pathways
Dan Bergenthal	Salt Lake City
Ben Bolte	Salt Lake City Bike Share
Roger Borgenicht	Future Moves Coalition
Deborah Burney-Sigman	Breathe Utah
Michelle Caldwell	WFRC
Kim Clark	VIA Consulting
Rick Cobia	DSPD
Grant Crowell	City of Bluffdale
Riley Cutler	GOED
Marcy DeMillion	NPS - RTCA
Fred Doehring	UDOT
Janet Frick	ALCO Aging Services
Jesse O. Glidden	UDOT Region 1
Heidi Goedhart	University of Utah
Paul Goodrich	Orem City
Shane Greenwood	South Jordan City
Todd Hadden	UDOT Traffic Statistics
Max Hanna	UTA
Tim Harpst	SLC Bike Share

Mike Hathorne	Suburban Land Reserve
Colin Quinn-Hoist	Salt Lake City
Johanna Jamison	UTA
Dave Iltis	Cycling Utah / MBAC
Travis Jensen	ALTA Planning
Hal Johnson	UTA
Pam Jorgensen	WFRC
Mike Kendell	Salt Lake City
Jon Larsen	WFRC
Vincent Liu	UDOT Region 2
Scott Lyttle	Bike Utah
Jennifer McGrath	UTA
Andrea Moser	Bio-West
Elliott Mott	Wasatch Mountain Club
Jon Nepstad	Fehr & Peers
Helen Peters	JUB
Ron Phillips	Phillips Associates
Marjorie Rasmussen	UDOT Region 2
Kelly Robinson	Utah Dept. Health/Heart Disease
Spencer Sanders	Salt Lake County Planning
Roland Stanger	FHWA
Maria Vyas	Fehr & Peers
Jaime White	UTA

Members excused: Matt Sibul

Approval of Meeting Minutes/Summary

Mayor Brent Marshall moved that the minutes of the January 9, 2013 meeting be approved. The motion was seconded by **Councilmember Tina Kelley** and the meeting minutes were unanimously approved.

Public Comment

Elliott Mott, Wasatch Mountain Club, comments included concerns for the non-removal of snow this past winter from Hubble Creek trail on the south to the Beaver River trail on the north. He reminded everyone of the maintenance components on those trails. He said, Active Transportationists are staying away in the summer because of goat head issues and now in the winter because the trail is not plowed. He encouraged everyone to look at and implement the maintenance components. Elliott announced that he would be starting his bicycle ride by going downtown to ride in the St. Patrick's Day parade on Sunday then up to City Creek. He welcomed everyone to ride along.

Scott Lyttle, Bike Utah, announced the Fifth annual Utah Bike Summit to be held on April 26, 2013. Wanting to ensure that everyone was aware of the upcoming Bike Summit, he provided a handout outlining the Summit, and included a registration form.

***Chair Report* - Salt Lake County Bike Ambassador**

George Deneris commented that a new Bicycle Ambassador, Jack Lastlen was hired to oversee the teaching component of an infrastructure which will educate people at the user level for the bicyclists program and all of the logistic issues that are critical whenever there is a piece of infrastructure implemented. There is also a youth ambassador program that will be targeting the 18 and younger crowd. The goal is to educate everyone on how to play nice on the roads. There will also be an education component for the commuter bicyclists and teaching people how to use the cities backbone system and also how to filter, or move in and out of secondary streets. These are just some of the logistics at the ground level that the Ambassador will be working on.

Information: Maintenance of Trails

Even though this body is not responsible for maintenance of trails we certainly can talk about those trails and what is involved:

- Working on a model with the county Public Works for Legacy Trail
- Different entities involved with trails and how they come into agreement

Scott Hess of Davis County commented that their Public Works Department is responsible for the maintenance of the Legacy Highway Trail. Five (5) communities signed an intermodal agreement stating that they would take the snow removal responsibility from UDOT in order to have the most inexpensive program as possible. Davis County Public Works bought one piece of equipment to help them maintain the trail and is proving to be less expensive each year.

Commissioner Downs discussed the Chevron Mile Trail and how Layton City has been working on their trails. Some cities have it in their programs to plow their trails and others don't. She stated that ATC is a coordinating council. Where we can help is to try to better coordinate the maintenance of these trails throughout the winter.

Jory Johner, of WFRC, said Layton City is a good example where they have a priority process. They start off in the center of the city and do all the sidewalks, and then they do some of the schools and then the trails. In some areas you only have one or two crews so prioritizing is crucial. He suggested doing some further research through county committees and coordinate with each of the cities to unbderstand each of their different programs and policies.

Information: The Year of the Bike

Commissioner Downs announced that Salt Lake City has declared 2013 as "The Year of the Bike". There was a recent kick-off celebration and a press conference that keeps the momentum for biking and it has increased awareness for the ATC.

Colin Quinn-Hurst stated that there has been a lot of recognition regarding biking as a great addition to the transportation system and that everyone wants to stay focused on this. A group of regional partners to include: UDOT, UTA, WFRC, SLC, SL County, University of Utah and Davis County, came together to declare 2013 The Year of the Bike. The main goals for this program are:

- Community Building/Learning
- Partnerships
- Engaging new people to biking
- Increased public involvement
- Sharing the Road
- Community Affirming

To be involved or add new events to the calendar, contact Colin at colin.quinn-hurst@slcgov.com .

Legislative Update
Andrew Gruber, WFRC discussed the four bills sponsored by Rep. Johnny Anderson from Taylorsville which essentially would make it safer and easier for people on bikes to ride on the streets. These four bills are:

HB #294 defines motorists responsibilities relative to bicyclists, allows a motorist to drive left of the center line provided it can be done safely in order to safely pass a bicyclist - **Passed**

HB #297 allows motorists to use the center turn lane to pass bicyclists using the general purpose lane – **Passed**

HB #299, Sub 2 provides that equipping the operator of a bicycle, rather than the bicycle, with certain lamps and reflective material meets certain nighttime requirements. **Passed**

HB #316 allows a bicyclist to make a left turn against a steady red arrow if the operator determines that the traffic signal has not detected the operators presence by waiting a reasonable period of time – 90 seconds. **Passed**

Andrew commented on another bill that passed which was the Vulnerable Users of Highway Amendments bill:
SB #104, Sub 4: Senator Weiler was representing the The Vulnerable Users of Highway Amendments. This bill is designed to protect bike users who are riding on the streets. The bill would impose penalties to people, who knowingly, intentionally or recklessly distract, impede or harm vulnerable highway users, pedestrians and bicyclists. This bill has one more vote that needs to occur but it looks like it will happen. This is a positive development and gives more recognition to our legislatures that we need to share the road and that bicyclists and motorists can safely and efficiently use our road systems together. - **Passed**

Andrew also commented on the Eminent Domain bill:
SB #201, Sub 1: This bill isn't going to pass this year. This is a bill that Senator Bramble form Orem was sponsoring. This bill would have restored some eminent domain authority to counties of the first and second class for public use trails that meet certain criteria. Eminent domain is a controversial issue politically and while there was a lot of support for this bill, there was actually opposition from some people, including the Farm Bureau who were concerned that this would be the proverbial slippery slope; that we would grant a little bit of eminent domain authority and that would open up eminent domain authority for all recreational purposes.

Andrew concluded that we have a variety of bills to help with the general idea that we want bikes to feel comfortable using our streets but do it in a way that doesn't interfere with traffic and/or safety, which is the priority.

Information – UCATS (Utah Collaboration Active Transportation Study) – UDOT Region Bike Plans
Evelyn Tuddenham, UDOT provided information, through a slide show on the UDOT Region Bike Plans, which involves building or improving the system for pedestrians and bicyclists throughout the state with a primary focus on bicycles. She explained that this program started because they were looking for a way to formulate bike plans for every region in UDOT. When region boundaries were drawn for UDOT it became evident that there were very different needs

in different parts of the state so it made sense for UDOT to formulate different bike plans for each region and to do them in such a way that they would mesh together for one entire plan.

Evelyn went on to explain that these plans need to be region owned and driven because of the different needs in different parts of the state. UDOT collaborated with UTA who had a similar scope of work involving promoting bicycles and building a system that utilized mapping and connections specifically to transit. We brought in partners such as; UTA, WFRC, MAG and Salt Lake County. Some objectives of this bike plan are:

- Identifying projects that support UCATS backbone network
- Provide a data driven gap analysis of existing conditions on all routes for cyclists
- Prioritize projects using an established set of criteria
- Provide data on all projects to support future decision making

The Regional 4 study which will include identifying critical areas, gap analysis standards and compatibility with the other regions will be completed by this summer and a list of the Top 25 UCATS projects will be available for the April 10, 2013 ATC meeting.

Andrew Gruber pointed out that just because there was a Top 25 list of projects; it didn't mean that there was money or time to implement all of these projects right away. Evelyn agreed with Andrew's statement and said that there was a lot of coordination to be done to make sure that everyone is consistent across the board.

Comments included:

- We've never had a great tool to marry the bicyclist techniques with our projects so this along with adding on partners will allow us to tackle each project as appropriate or as funding is available.
- Having the UCAT studies and all of the other efforts available can feed perfectly into our broad planning effort so that active transportation is considered at the same time and integrated into all of the other transportation plans.
- At the end of the day we have a great list of projects which was the intent of the UCAT study but there is not adequate funding for everything. Maybe we can have a subcommittee to look at the viability of each project.

Cory Pope commented that it's important to point out that part of the purpose of need is developed around the needs of the communities as well. If we know what the priority route is, it helps us build that type of community even though it's termed "roadway" project there is much more involvement with active transportation networks as well.

Jory mentioned that UDOT is developing roadway projects - we need to make sure that all the needs are identified and incorporated into the project because we are not just about cars, we need to accommodate many modes of transportation. We want to have a plan and we will fund it with our fiscal highway money instead of needing a special fund.

Information: Complete Street –

Greg Scott presented:

- The Ten (10) Basic Elements of Complete Streets
- Discussed the slogan "Not every mode on every road"
- All users are considered in the public right of way
- Mission Statement and the four (4) mission elements:

1. Education
2. Technical Assistance
3. Regional Actions
4. Funding

Greg referred to the Draft Complete Streets Vision, Mission and Principles which were distributed for Committee member information and noted that the recommendations previously made are now reflected in the document.

Scott Hess of Davis County discussed the need for an outreach and collaboration program that would open up lines of communication (UDOT, UTA, and MPO channels of collaboration aren't always clear and when cities have issues they don't always know who to call). Scott suggested a proposal that would give each county an appointed liaison with ATC and CS. Those liaisons need to understands maps, the pertinent topics, can speak the language to UDOT engineers and UTA and have a broad understanding of CS. They need a working knowledge of the process and must ensure that all lines of communication are being addressed.

Comments included:

- Salt Lake County is adopting a Best Practices program for incorporating principles
- There needs to be an agreement between cities for bicycles using these best practices
- Someone could work back through this and maybe a representative from each county could come from this committee

Information: Active Transportation and Health Summit
Trever Ball of the Utah Department of Health, announced that ATC and several partner agencies will hold a one day Health Summit next fall that will focus on the health aspects of active living. The purpose of the summit will be to engage several different audiences. There will be introductory presentations on how to perform a health impact assessment – lack of physical activity and health costs and how public transportation involves you in being more physically fit. You can contact Trever at trball@utah.gov.

Other Business
Ben Bolte of Greenbike brought a bike helmet that says "Year of the Bike". On April 9th there will be a party to celebrate "Year of the Bike".

Next meeting:
April 10, 2013 8:00am – 10:00am

The meeting adjourned at 10:25 a.m.

Utah Collaborative Active Transportation Study

Building UDOT's Region Bike Plans

- Region 4 prototype
  - Create an opportunistic plan that the Region can follow to build/improve the system
  - Work within UDOT's existing processes
  - Region owned and driven
  - Utilize mapping to develop the plan
  - Apply a comprehensive combination of data and stakeholder input

Combining Efforts for Better Plans

- UDOT Bike Plans for Wasatch Front Regions
  - Questions:
    - How can we build on the current and past efforts
    - How can we create comprehensive plans that address system needs?
    - How can we best integrate those plans between the Regions?
    - How can we create plans that lead to logical next steps?

Combining Efforts for Better Plans

- Combine two Scopes of Work with two Pots of Funding
- Add enthusiastic partners and mix well
  - UDOT
  - UTA
  - WFRC
  - MAG
  - SL County

The Look of Success

- UDOT Bike Plans support UCATS Plans/ UCATS Plans support UDOT Plans
- Plans will be implemented
- Groundwork for future efforts
- Foster ongoing collaboration between UDOT, local government, other agencies, bike advocates

Objectives

- Identify projects on state routes that support the UCATS backbone network
- Provide a data driven analysis of existing conditions on all state routes for cyclists
- Prioritize projects using an established set of criteria
- Provide data on all identified projects to support decision making in the future

Bicycle Gap Analysis

- **Identify Gaps**
  - Existing conditions data
    - Existing conditions study (2009)
    - UDOT data (AADT, truck traffic, speed limit, no parking TEO, safety data)
    - Remote update of shoulder widths
  - Region input and local plans
  - FHWA standards (Similar to Salt Lake County Guide)
  - UCATS backbone network on state routes
- **Prioritize projects**
  - AASHTO planning for bicyclist guidelines
  - Available data
  - Results of analyses

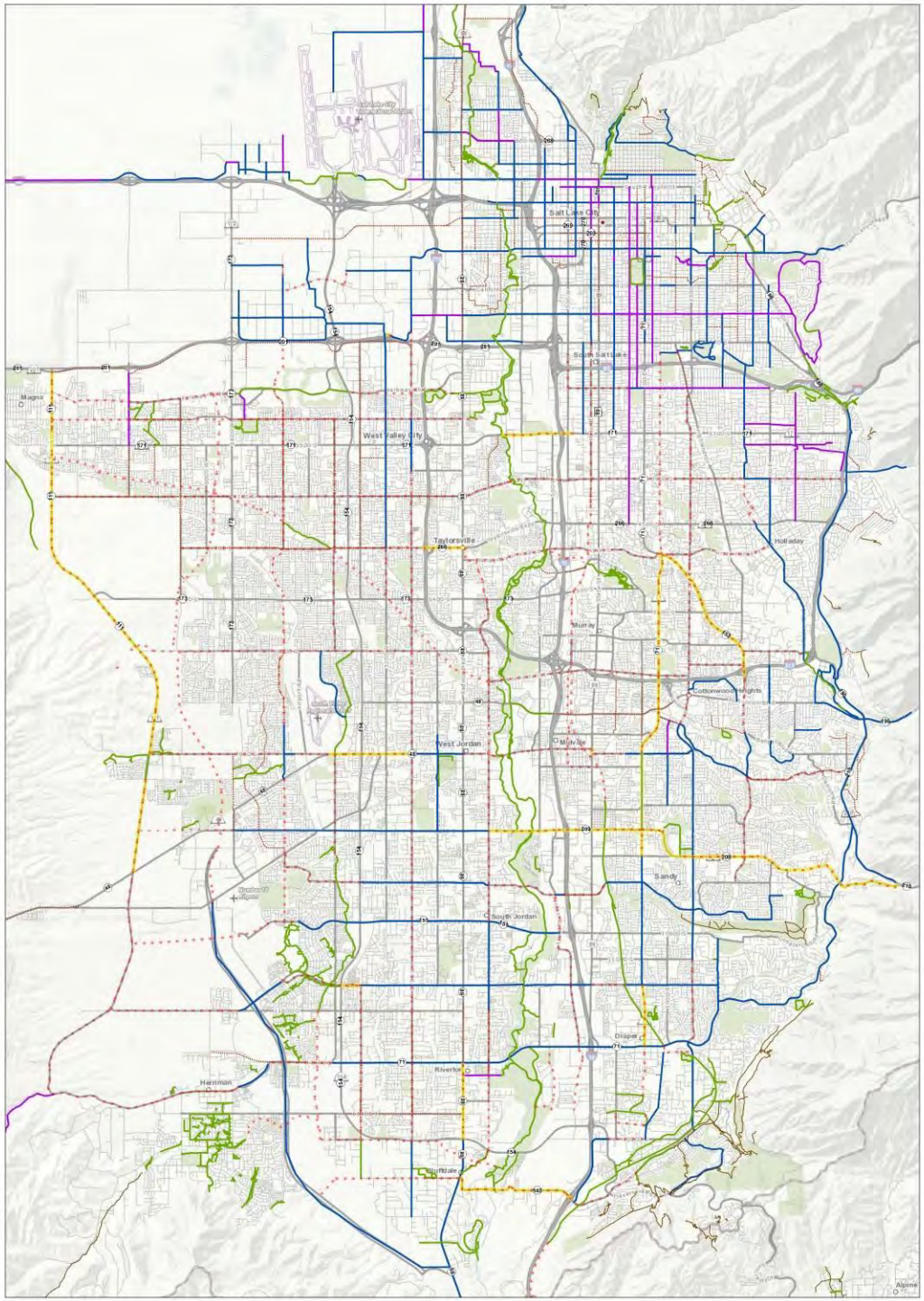
FHWA Standards

- Relationship between:
  - Amount of Traffic (AADT)
  - Vehicle Speeds
  - Truck Traffic Percentage
  - Sight Distance
  - Lane and Shoulder Widths
  - On-street parking/no parking

Identify

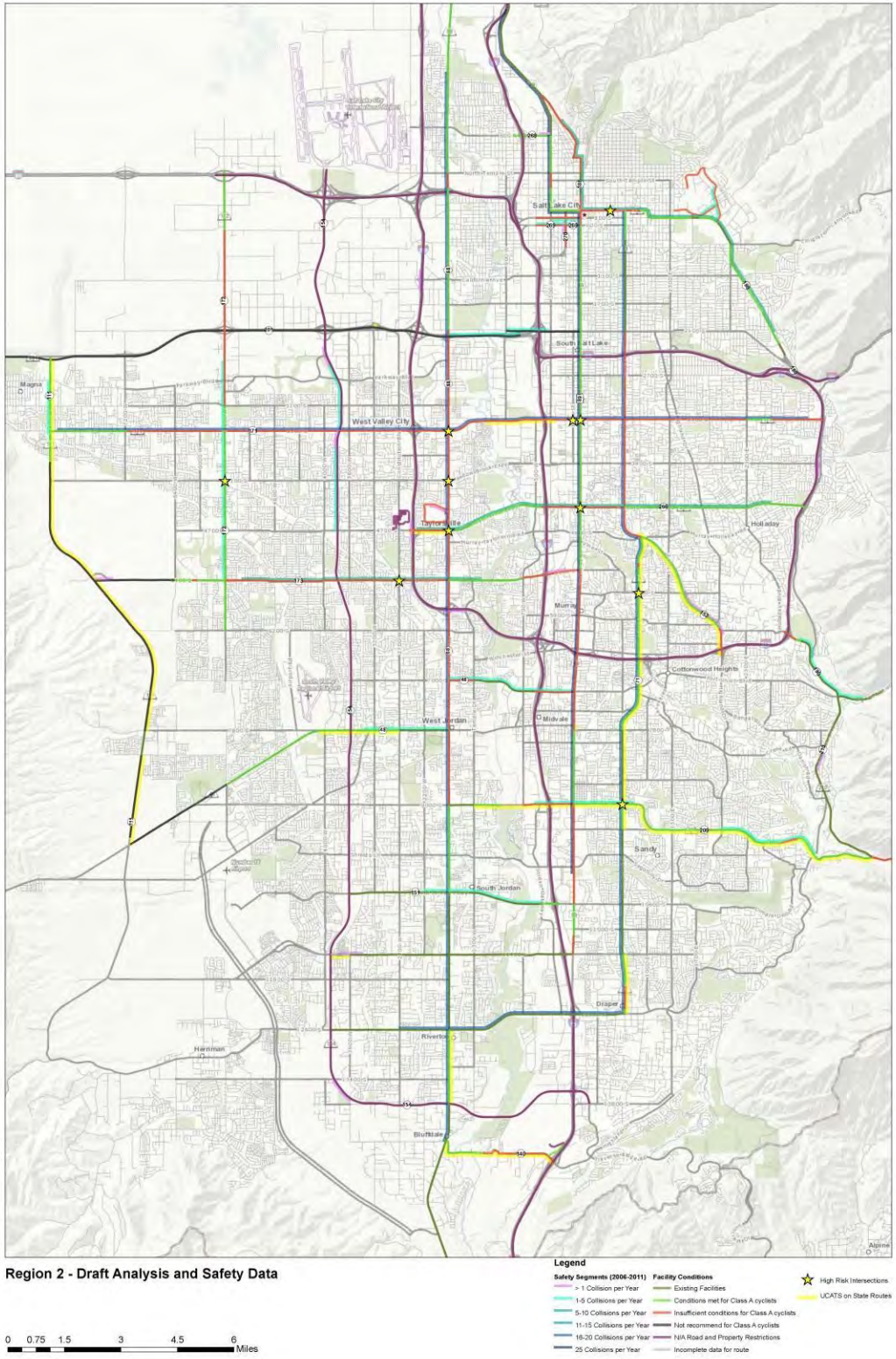
- Other project types identified through input received from:
  - Region recommendations
  - Public input on facility gaps and barriers – through:
    - Household travel survey
    - Mind mixer website www.ucatsplan.com
  - Crash Analysis of UDOT safety data

Current Region Review



- Existing bike facilities
- UCATS backbone network on/off state routes
- MPO/local bike plans
- Identify gaps in the current system
- Identify projects or alternatives to satisfy network

Current Region Review



- Safety analysis
- FHWA analysis on all state routes
- UCATS backbone network on state routes
- Identify projects or alternatives for safety and deficient facilities (FHWA analysis)

AASHTO Phasing Recommendations

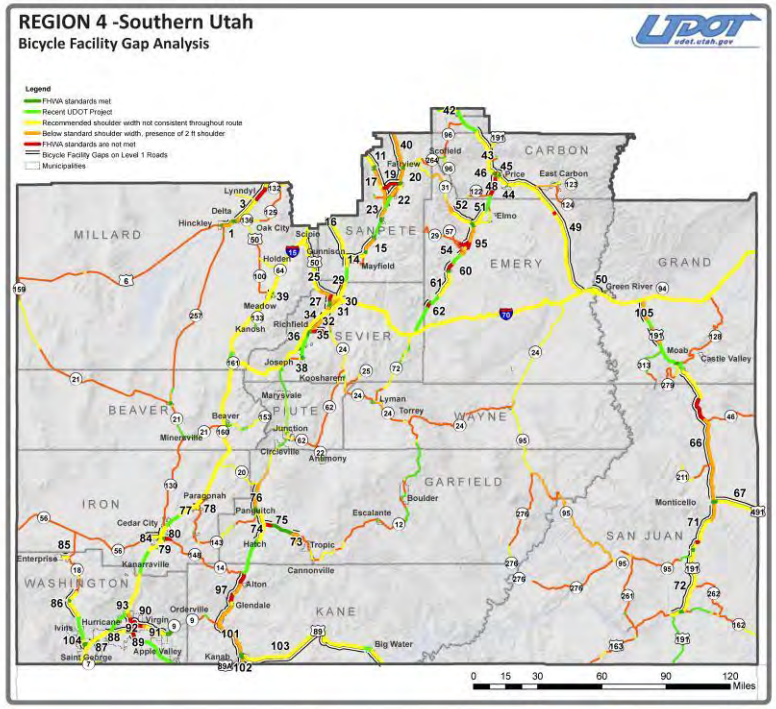
- Bicycle Travel Demand
- Route Connectivity and Directness
- Crash/Conflict Analysis
- Barriers (Identified Issues)
- Ease of Implementation
- System Integration

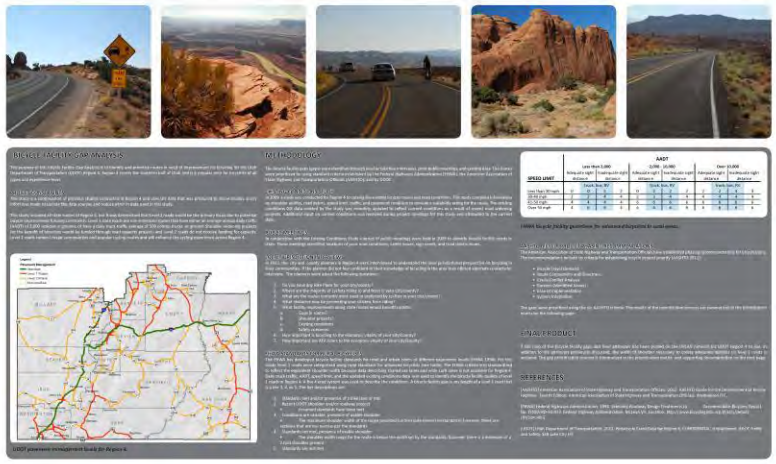
UCATS Prioritization Matrix

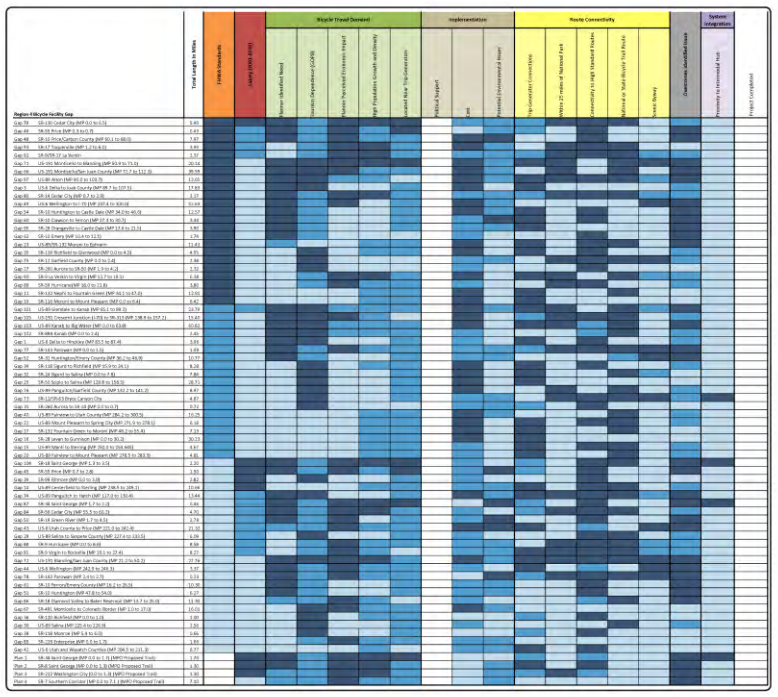
Region 4 Bicycle Facility Gap	Total Length in Miles	FHWA Standards	Safety (2001-2010)	Bicycle Travel Demand					Implementation		Route Connectivity					Overcomes Identified Issue	System Integration
				Planner Identified Need	Tourism Dependence (GOPB)	Planner Perceived Economic Impact	High Population Growth and Density	Located Near Trip Generators	Cost	Potential Environmental Issues	Trip Generator Connections	Within 25 miles of National Park	Connectivity to High Standard Routes	National or State Bicycle Trail Route	Scenic Byway		Proximity to Intermodal Hub
Gap 79 SR-130 Cedar City (MP 0.0 to 6.5)	5.49																
Gap 46 SR-55 Price (MP 0.3 to 0.7)	0.43																
Gap 48 SR-10 Price/Carbon County (MP 60.1 to 68.0)	7.97																
Gap 93 SR-17 Toquerville (MP 1.2 to 6.0)	3.99																
Gap 92 SR-9/SR-17 La Verkin	2.37																
Gap 71 US-191 Monticello to Blanding (MP 50.9 to 71.0)	20.14																
Gap 66 US-191 Monticello/San Juan County (MP 72.7 to 112.3)	39.59																
Gap 97 US-89 Alton (MP 90.0 to 103.7)	13.65																
Gap 3 US-6 Delta to Juab County (MP 89.7 to 107.5)	17.83																
Gap 80 SR-14 Cedar City (MP 0.7 to 2.9)	2.17																

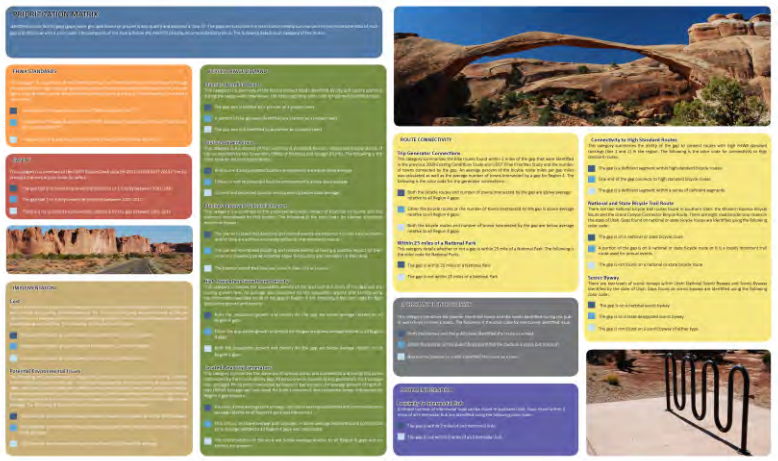
*Example project matrix from Region 4 effort

UCATS Region Bike Plans









UCATS Top 25

- Some UDOT projects, to the degree that they meet UCATS prioritization criteria, may be a part of the Top 25 UCATS projects presented to the ATC next month

Questions?

Meeting Minutes/Summary
Active Transportation Committee
Meeting of April 10, 2013

A meeting of the Active Transportation Committee was held on Wednesday, April 10, 2013 in the offices of the Wasatch Front Regional Council, 295 North Jimmy Doolittle Road, Salt Lake City, Utah.

Welcome and Introductions

Commissioner Louenda Downs, ATC Chair, called the meeting to order at 8:05 a.m. Commissioner Downs welcomed committee members and guests and introductions were made.

ATC Members and Staff Present:

Justin Anderson	Ogden City
Ralph Becker	Mayor, Salt Lake City
George Deneris	Salt Lake County
Louenda Downs	Commissioner, Davis County
Ned Hacker	WFRC
Scott Hess	Davis County
Robin Hutcheson	Salt Lake City
Jory Johner	WFRC
Josh Jones	Ogden City
Tina Kelley	Councilmember, Morgan County
Scott Lyttle	Bike Utah
Ben McAdams	Mayor, Salt Lake County
Cory Pope	UDOT
Jim Price	MAG
Matt Sibul	UTA
Todd Stevenson	Mayor, Fruit Heights City
Evenlyn Tuddenham	UDOT

ATC Stakeholders and Others Present:

Dan Bergenthal	Salt Lake City
Roger Borgenicht	Future Moves Coalition
Michelle Caldwell	WFRC
Steve Call	FHWA
Kim Clark	VIA Consulting
Rick Cobia	DSPD
Kyle Cook	Fehr & Peers
Grant Crowell	City of Bluffdale
Evan Curtis	Governor's Office of Management
Rachel Cusimano	ASSIST
Riley Cutler	GOED
Jesse O. Glidden	UDOT Region 1
Paul Goodrich	Orem City
Todd Hadden	UDOT Traffic Statistics
Tim Harpst	SLC Bike Share
Mike Hathorne	Suburban Land Reserve
Johanna Jamison	UTA

Travis Jensen	ALTA Planning
Hal Johnson	UTA
Laynee Jones	Lochner
Brian Kolbe	Lochner
Ted Knowlton	WFRC
Jon Larsen	WFRC
Vincent Liu	UDOT Region 2
Kelly Lund	FHWA
Jennifer McGrath	UTA
Elliott Mott	Wasatch Mountain Club
Chad Mullins	Bike Utah
Jon Nepstad	Fehr & Peers
Ali Oliver	WFRC
Angelo Papastamos	UTA
Helen Peters	JUB
Ron Phillips	Phillips Associates
Neka Roundy	Davis County
Roland Stanger	FHWA
Maria Vyas	Fehr & Peers
Jaime White	UTA
Renae Widdison	Utahns for Better Transportation
Ben Wuthrich	WFRC

Members excused: Andrew Gruber, WFRC
Mayor Heather Jackson, Eagle Mountain City
Mayor Brent Marshall, Grantsville City
Commissioner Jan Zogmaister, Weber County

Approval of Meeting Minutes/Summary:

Mayor Ben McAdams moved that the minutes of the March 13, 2013 meeting be approved. The motion was seconded by **Matt Sibul** and the meeting minutes were unanimously approved.

Public Comment
Elliott Mott, Wasatch Mountain Club, apologized for saying that a bike path didn't exist when it did on the Mountain View Corridor. He thanked Evelyn Tuddenham for all the effort she put in on this endeavor. Elliott then invited everyone to go on a 39 mile ride.

Commissioner Downs told a story of her drive to the ATC meeting. They were stopped in traffic on the road down the street from the WFRC office because there were two "transportation" ducks waddling across the road. The moral of the story was that in transportation it doesn't matter how fast you get there but that you got there safely.

Chair Report:
Commissioner Downs stated that the Governor has designated a committee to develop an outdoor recreation department. There could be a great opportunity to collaborate with ATC and the new department.

Commissioner Down asked Scott Lyttle, Bike Utah, to join the Active Transportation Committee as a non-voting member. Scott accepted. Commissioner Downs went on to say that this does not preclude anyone else from giving advice or input.

Jim Price, MAG, gave an update on the Murdock Canal Trail. The 17 mile trail creates a connected trail system involving the north end of Utah County. For about 150 years this trail was an open irrigation canal measuring approximately 150 feet wide. The vision was to create six (6) trailheads with 3 miles in between each one. There will be large parking lots, restrooms, water, and pavilions open all year. The trail would be plowed in the winter or whenever the need arose. Jim stated that right now MAG has the funding and permission for the use of the right-of- way to go north to the Salt Lake County line where it would eventually tie into the Draper Trail system on the east side of I-15. At this point in time, there are ten (10) under crossings with the longest one being 240 feet. They were made oversized to make them more comfortable with all kinks removed so you can see straight through them. In between each of the six (6) trailheads there are eleven (11) pavilions so people could rest, get some shade and maybe have a drink of water. The entire trail has comprehensive wayfindings, meaning that once you get on the trail each of the trailheads will have maps or routes to all the different trails so you will always know where you are.

Jim handed out maps for the Utah County trails stating that the Murdock Canal trail is 62% complete. He also handed out a flyer for the Murdock Trail Grand Opening on May 18, 2013.

Comments included:

- One more feather in the cap of what we are trying to move ahead and do. Maybe this group could do a field trip to the Trail.
- Are there any wayfindings as you get to 1200 East and other major roads to keep you connected with the trail? Yes, there are 66 wayfinding signs along that route.
- If the Murdock Trail is going to be plowed then we might want to see how we can get the other cities to follow this example?

Information: UCATS – Step one of the Top 25 Project – Receiving the information.
Marie Vyas, Fehr and Peers Project Manager of UCATS, reported that the locations of the Top 25 projects have been identified and together with the Backbone Network will be the focus for the next two years. She went over the highlighted portions of her last report. Ms. Vyas and Kyle Cook went on to explain each of the 25 projects in detail. This information can be found online at: http://storymap.fehrandpeers.com/esrimp/top25/index.html.

The large scale Backbone System of the regional network involving trails and bicyclists used two levels of criteria:

Primary Level of Criteria:

- Fill in the Gaps of the Backbone Network
- Connect to Transit

Secondary Level of Criteria:

- Overcome Barriers
- Accommodate Areas of High Demand
- Generate Economic Opportunities
- Reflect Local Plans

Comments included:

- We should all be aware that BYU is closing down 7th Street in the next couple of years for the purpose of converting it to a pedestrian walk thru.

- Everyone should make it a priority to integrate everything with the Backbone Network so all we will need is to wrap every city's priority trails and bike paths into this network.
- This is a great list but we need to be realistic about the fact that funding will be limited so we need to prioritize the Top 25.
- A decision needs to be made about how we involve off street alignment in the area of the Utah Southern Rail Trail.
- Safety issues for pedestrians and bicyclists should be part of the consideration with every project.
- When we first started this committee we were looking at needs not dollar signs. We don't always have to be looking at just funding.
- UDOT was very instrumental in helping put a bike lane in on Redwood Road during a road resurfacing.

Jim Price, MAG discussed the importance of partnerships with entities such as UDOT and UTA. Partnering with UDOT is a vital connection in order to ensure that bike lanes are incorporated in all major and minor road maintenance.

Maria ended the presentation by outlining the future project development for the Backbone Network and the Top 25:

- Project Team
- UDOT Regions 1, 2, and 3
- Advocacy Community
- Active Transportation Committee

Information: Transportation Alternatives Program (TAP)

Jory Johner, WFRC, thanked Ben Wuthrich, the Transportation Improvement Program (TIP) manager at WFRC for the last 20 years. Without Ben's work this new TAP program would not have been possible.

Jory made a presentation on the 2013 and 2014 the Transportation Alternative Program (TAP) projects. The ATC was updated in September and October regarding the new MAP- 21 requirements for TAP which replaced the Transportation Enhancement Program. The ATC made recommendations on evaluation criteria for funding and project types. In October letters of intent were received. In November, December and January the program received concept reports from the cities that were reviewed. February and March were spent doing field reviews which included FHWA, UDOT, SL County, and the WFRC staff, and the project sponsors.

As the schedule unfolds the draft program has been presented to the Trans Com Technical Advisory Committee for Ogden - Layton, Salt Lake – West Valley Urban Areas who then reviewed the program and made technical recommendations. The Surface Transportation Program (STP), the Congestion Mitigation Air Quality and the Transportational Alternative Program are all now being taken to the County Councils of Government for review. The next step is to have this draft go to Trans Com for review and then in May the WFRC. The draft TIP will be finished and will go out for public comment in July which allows for another opportunity to provide comments on the entire program. The Trans Com and WFRC will review public comment in August and approve the TIP. The FHWA and the FTA will review and approve the draft next fall. Letters of intent again will be requested sometime next September.

There are a wide variety of projects that are eligible for the TAP program ranging from infrastructure related trails to vegetation management to vehicle caused wildlife mortality. The ATC recommended focus on large bicycle and pedestrian infrastructure projects and small planning studies.

Jory provided a handout of the projects reviewed in the TAP. He briefly discussed the evaluation criteria which were reviewed with the ATC in October. The evaluation criteria were not the only tool used to evaluate projects but also included four days of field reviews, discussions with every project manager and actually going out and looking at the project. Due to funding constraints there was $6M worth of requests in the Ogden-Layton area with only $700,000 for TAP funding for fiscal year 2013 and 2014. In the Salt Lake-West Valley area only $900,000 was available to programs, with almost $12M of projects submitted. Jory provided an overview of each project recommend from the Trans Com TAC in both Urban Areas.

Comments included:

- Is it best to spend all the money designated for each project or hold some back for a little bit of cushion?
- MAP- 21 is just a two year bill and will end in 2014; we are being conservative on each project in case we do run out of money we will at least have some money to work with in case of overruns.

Other Business:
George Deneris re-emphasized what Mayor Becker said about normal transportation solutions not working in the future if we don't take a different approach to this issue. Mr. Deneris went on to say, as an engineer he sees two components for resolution to help us focus in the future. First, you must provide equal levels of service priority solutions, i.e. whenever you have a transportation project either existing or new, giving equal levels of service priority to both active transportation and cars, as well as transit and freight, give us a different environment to operate in as engineers. The second part is to re-educate us because we live in an AASHTO world which is not conducive to active transportation. Engineers, the ones who design the street and highways, have to think about this in a very different way.

Robin Hutcheson, SLC, mentioned that the National Association of City Transportation Officials (NACTO) guidelines is very respectful of the AASHTO guidelines of streets and highways. They have a publication that might serve as a creative guideline of what other cities around the world are doing.

Next meeting:
May 8, 2013 8:30am – 10:00am (note: we are back on the 8:30am schedule)

The meeting adjourned at 10:25 a.m.

Utah Collaborative Active Transportation Study

UCATS Schedule/ATC Meetings

Estimated Economic Benefit

- Immediate Development Area

	Ogden	3900 South	Provo
Retail Benefit	10%	5%	15%
Employment Benefit	40	20	30
Private Investment Benefit	20	10	25

Estimated Economic Benefit

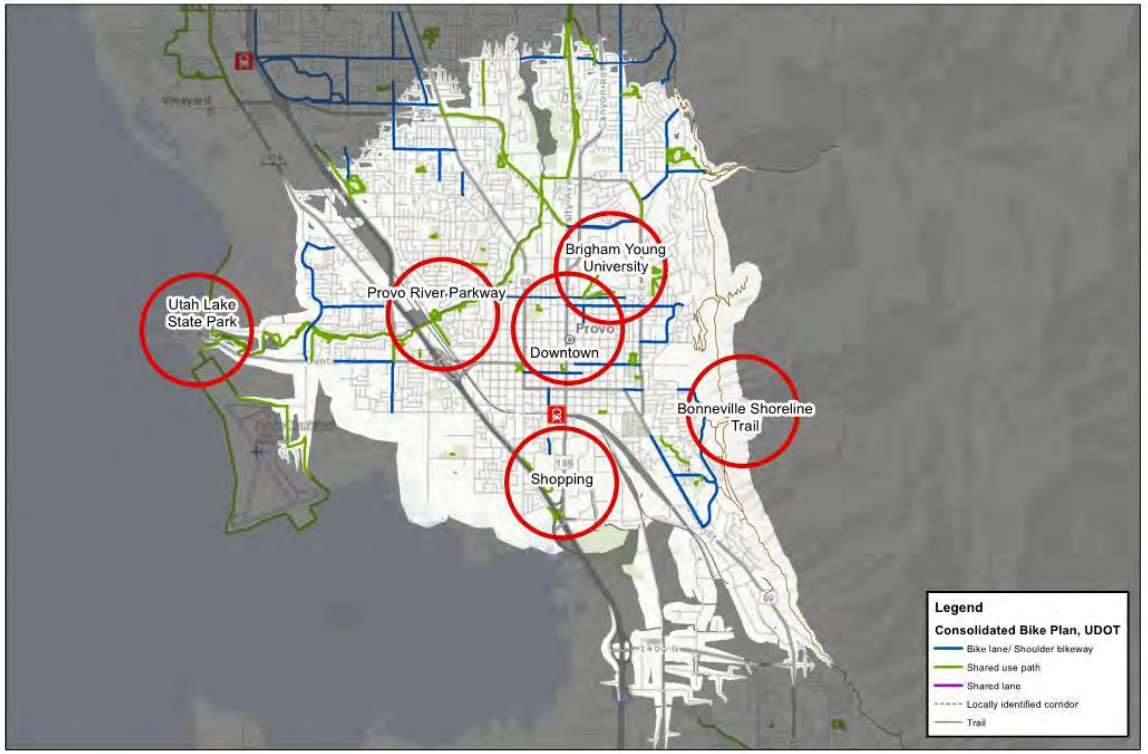
- Basis
  - Overall Opportunity
    - Current land use mix
    - Planned land use mix
  - Retail Benefit
    - Current taxable sales
    - Potential new taxable sales
  - Employment Benefit
    - Current jobs within immediate and adjacent areas (20 minutes)
    - Planned jobs within immediate and adjacent areas (20 minutes)
  - Private Investment Benefit
    - Measure of higher lease/sales rates based on higher performance

Activity Generators

Area Accessible in Salt Lake by 20 Minute Bike Ride
From Meadowbrook Station
(Average Speed of 10 m.p.h.)
Sources: AGRC, UDOT

0 0.25 0.5 1 Miles

GSBS Richman CONSULTING



Area Accessible in Provo by 20 Minute Bike Ride
From the Provo Intermodal Hub
(Average Speed of 10 m.p.h.)
Sources: AGRC, UDOT

0 0.5 1 2 Miles

GSBS Richman CONSULTING

GSBS Richman CONSULTING

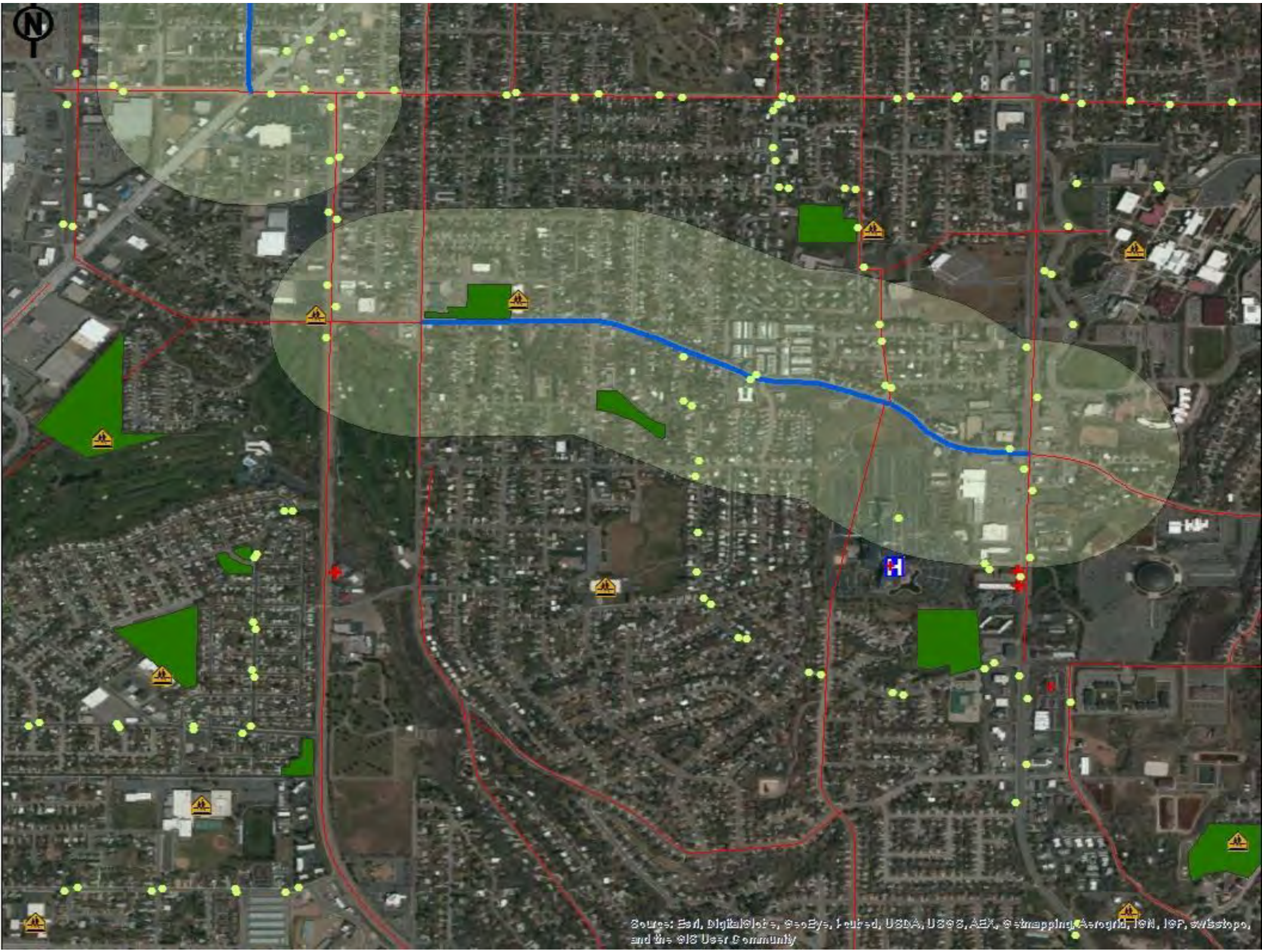
Health Impact Model

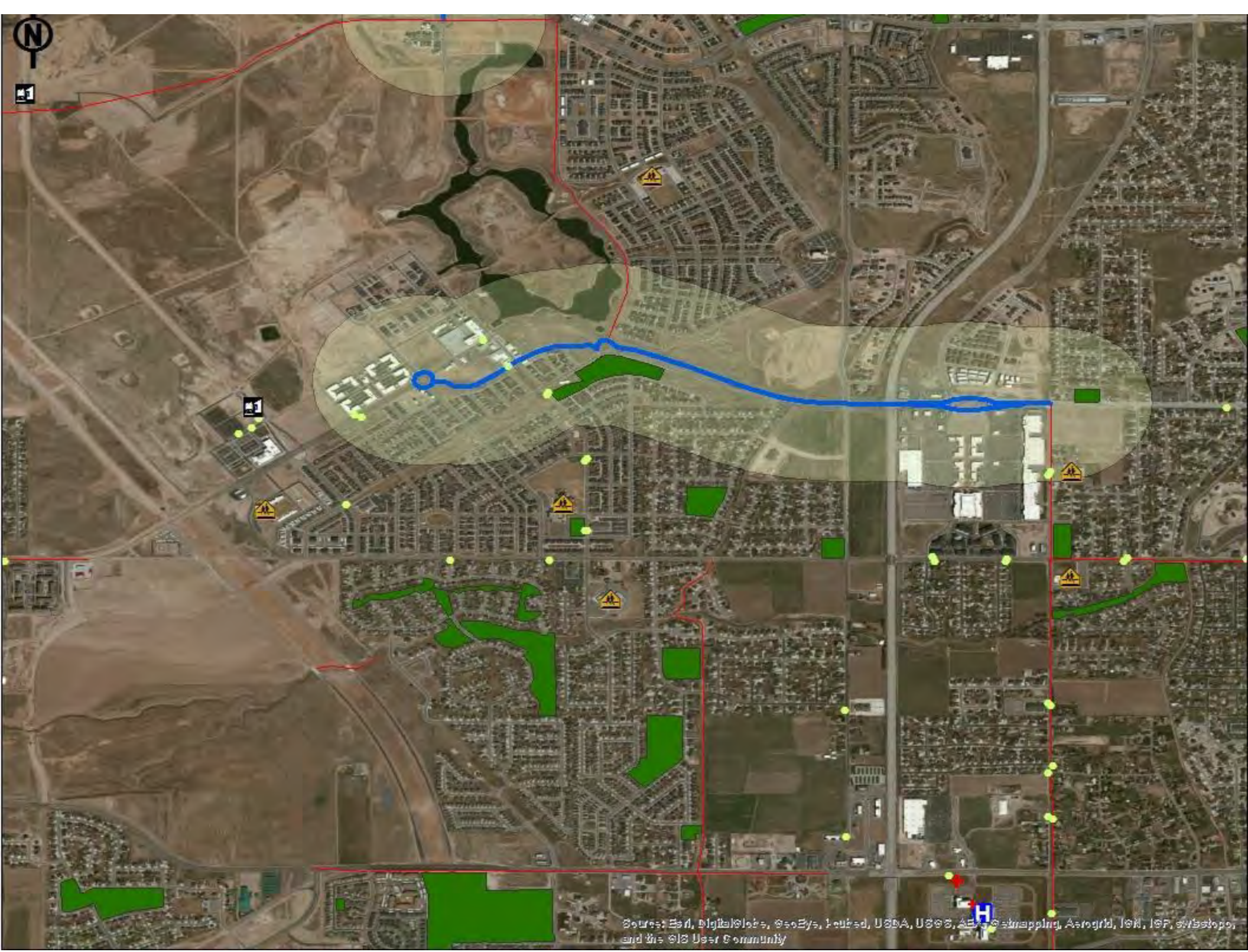
- Factors Evaluated:
  - Current population health
  - Location specifications
  - Proximity to quality destinations
  - Proximity to healthcare facilities
  - Environmental quality
  - Potential for mode reassignment
  - Population density
  - Demographic characteristics
  - Access to transit

Example Outputs

- Project Rankings
  - Moderate-Value (0-10)
  - Intermediate-Value (10-20)
  - High-Value (21+)

- Example High-Value Sites
  - 40th St. Ogden (25.12)
  - 114th South (21.66)

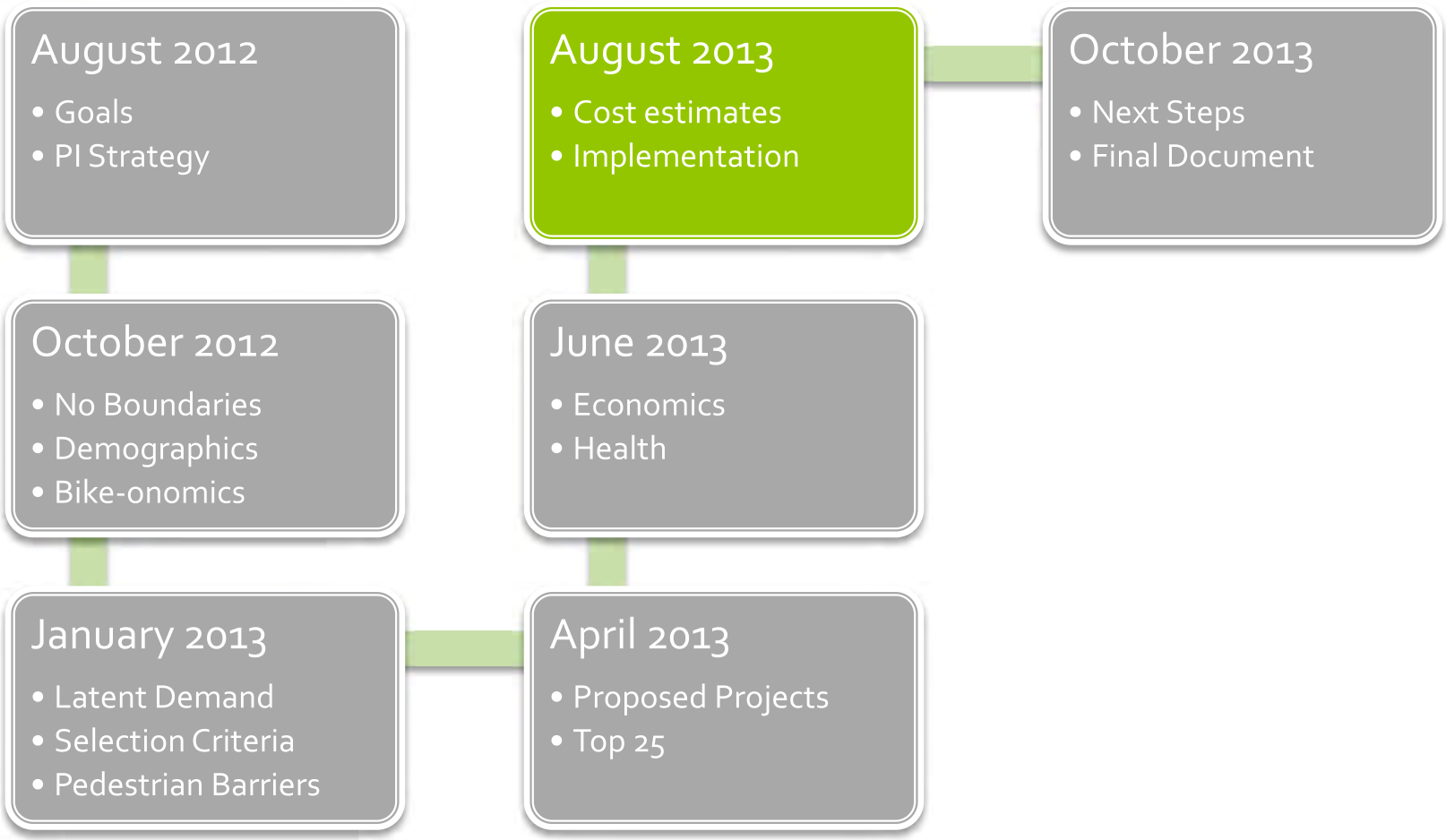

N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community


N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Next Meeting: August
  - Final products
    - Top 25 project details – treatment, cost estimate, environmental review
    - Brochure
  - Implementation
    - Integrate into projects
    - Funding sources
    - Next steps?

Utah Collaborative Active Transportation Study

UCATS Schedule/ATC Meetings



Today: Top 25 Project Area Details

But first, the fine print:

- Project details for the Top 25 project areas should be developed further in next phases of UCATS.
- Cost estimates are planning-level and will be refined in future phases of UCATS.
- Cost estimates include a 25% contingency.
- Cost estimates were based on UDOT unit bid costs, and represent average costs for each item.
- Additional details of project treatments require further refinement.
- Uplan provided a general assessment of the types of environmental issues that may need to be addressed in an environmental document
- Orange = both bicycle and pedestrian; Grey = feasibility study; Green = bicycle only

- Today: Top 25 Project Area Details
  - But first, the fine print:
  - Project details for the **Top 25 project areas** should be developed further in next phases of UCATS.
  - Cost estimates are **planning-level** and will be refined in future phases of UCATS.
  - Cost estimates include a **25% contingency**.
  - Cost estimates were based on UDOT unit bid costs, and represent **average costs** for each item.
  - Additional details of **project treatments require further refinement**.
  - Uplan provided a general assessment of the types of **environmental issues** that may need to be addressed in an environmental document
  - **Orange = both bicycle and pedestrian; Grey = feasibility study; Green = bicycle only**

- First: UDOT Region 1 (Weber and Davis Counties)

UDOT REGION 1: Weber and Davis Counties

- Project Area: Connect Downtown Ogden to Ogden Transit Station

What is it?	Bike lanes, cycle track, pedestrian crossing, station improvements such as on-street markings and wayfinding
From where to where?	23rd Street between Grant and the station, and Grant Avenue from 25th to 36th Streets.
In which jurisdiction?	Ogden
Right-of-way required?	No
Are there potential environmental or other issues?	Non-existent or minimal
Would it impact on-street parking?	Yes
What would it cost?	$195,000
Can it be included in another project?	Pedestrian crossing at 24th Street and Wall Avenue may possibly be incorporated in a future 24th Street UDOT project.

UDOT REGION 1:
Weber and Davis Counties

- Project Area: Roy/Ogden

What is it?	Study to analyze feasibility of connecting bicyclists and pedestrians over major obstacles west of downtown Ogden, such as I-15 and river and rail corridors. Options for analysis could include Hinckley Drive and Midland Drive.
From where to where?	From existing pathways west of SR-126 to the proposed Grant Avenue cycle track.
In which jurisdiction?	Ogden and Roy
What would it cost?	$100,000

UDOT REGION 1: Weber and Davis Counties

- Project Area: SR-37 and SR-108

What is it?	Bike lanes on SR-37 and SR-108. Station improvements at Roy FrontRunner station (pedestrian connections to neighborhoods, on-street bike lanes at the station)
From where to where?	SR-37 (4000 S) from Sandridge Drive to SR-108 (2000 W); SR-108 from SR-37 to 2700 South in Syracuse.
In which jurisdiction?	West Haven, Roy, Clinton, West Point, Syracuse
Right-of-way required?	Yes, on 4000 S. Shoulder on 2000 W could be striped for bike lanes.
Are there potential environmental or other issues?	Potential hazardous waste sites along 2000 W, and also agricultural protection areas. Potential impacts to traffic on 2000 W, and to drainage facilities on 4000 S.
Would it impact on-street parking?	Yes
What would it cost?	$1,500,000
Can it be included in another project?	Yes, potential projects upcoming on both SR-37 and SR-108.

UDOT REGION 1:
Weber and Davis Counties

- Project Area: Layton/Syracuse

What is it?	Study to explore options for east-west bicycle connectivity. Study should evaluate a range of alignments and facility types, and address right-of-way issues, user demand, constructability, connectivity to nearby facilities, and other issues.
From where to where?	Extents to be determined.
In which jurisdiction?	Layton and Syracuse
What would it cost?	$100,000

UDOT REGION 1: Weber and Davis Counties

- Project Area: Davis County

What is it?	Bike lanes on Gentile Street, Fort Lane, Main Street, and Lagoon Frontage Road
From where to where?	From Layton FrontRunner station to Farmington FrontRunner station
In which jurisdiction?	Layton, Kaysville, Farmington
Right-of-way required?	Yes, but in some locations existing pavement can be restriped to accommodate bike lanes.
Are there potential environmental or other issues?	Categorical Exclusion will be needed but impacts are expected to be minimal. Drainage impacts to Farmington Creek are likely, as are some traffic impacts.
Would it impact on-street parking?	Yes
What would it cost?	$2,400,000
Can it be included in another project?	Not likely.

UDOT REGION 1:
Weber and Davis Counties

- Project Area: Bountiful/West Bountiful

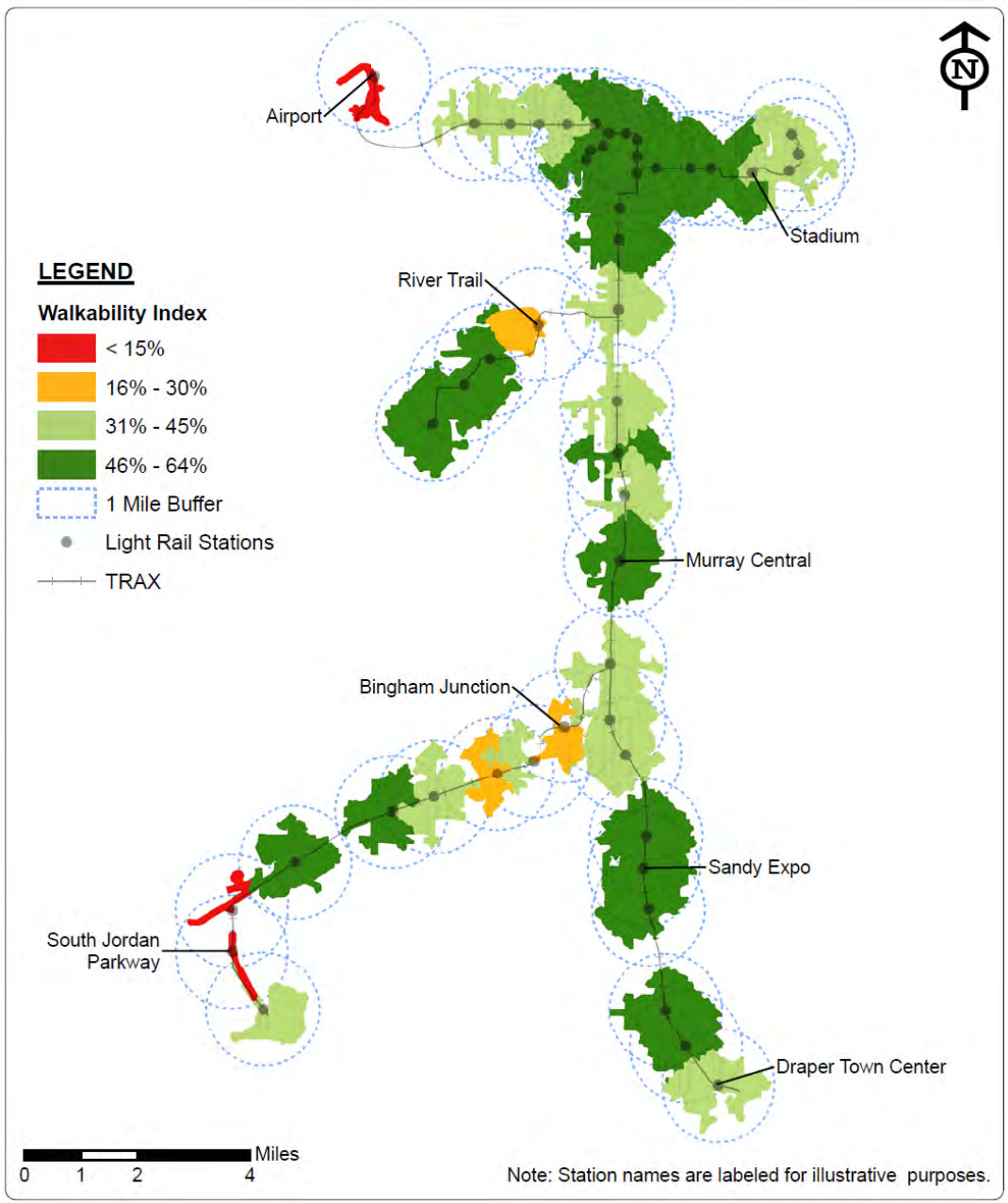
What is it?	Study to explore options for east-west bicycle connectivity. Study should evaluate a range of alignments and facility types, and address right-of-way issues, user demand, constructability, connectivity to nearby facilities, and other issues.
From where to where?	Extents to be determined.
In which jurisdiction?	Bountiful and West Bountiful
What would it cost?	$100,000

UDOT REGION 1: Weber and Davis Counties

- Project Area: US-89/Main Street

What is it?	Enhanced pedestrian crosswalk facilities at the intersection of US-89/Eagle Ridge Road, bike and pedestrian trail on Main Street, and bike lanes on Main Street.
From where to where?	Eagle Ridge Road to Main Street
In which jurisdiction?	North Salt Lake
Right-of-way required?	Yes
Are there potential environmental or other issues?	Categorical Exclusion will be needed but impacts are expected to be minimal. Potential drainage impacts.
Would it impact on-street parking?	Yes
What would it cost?	$240,000
Can it be included in another project?	Possibly; water line reconstruction planned for Main Street in 2014.

- Next: UDOT Region 2 (Salt Lake County)



UDOT REGION 2: Salt Lake County

- Project Area: Salt Lake Central Station

What is it?	Pedestrian crosswalk repair and enhancement, sidewalk and parkstrip construction, green bike lane on 600 West, replace bike racks at station, add shelters for bike racks
From where to where?	300 South between 500 West – 600 West, 600 West between 200 South and 300 South
In which jurisdiction?	Salt Lake City
Right-of-way required?	No. Project is limited to restriping and reconstruction within existing right-of-way.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion but impacts will be minimal.
Would it impact on-street parking?	Yes
What would it cost?	$263,000
Can it be included in another project?	Possibly; project is in a redevelopment area.

UDOT REGION 2: Salt Lake County

- Project Area: 800 East/900 East/700 East

What is it?	Shared lane facility on 800 East in Salt Lake City, bike lanes on 900 East and 700 East from Salt Lake City to Draper
From where to where?	South Temple to 13200 South
In which jurisdiction?	Salt Lake City, Salt Lake County, Murray, Cottonwood Heights, Midvale, Sandy
Right-of-way required?	Potentially, especially in the sections north of Sandy
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion. Potential impacts to drainage facilities.
Would it impact on-street parking?	Yes
What would it cost?	$6,500,000
Can it be included in another project?	No projects are currently planned that could incorporate these elements.

UDOT REGION 2: Salt Lake County

- Project Area: 3900 South/4100 South

What is it?	Bike lanes on 3900 South/4100 South; pedestrian trail improvements , sidewalk improvements, bike racks, and reduction of pedestrian crossing distances near the Meadowbrook TRAX station.
From where to where?	Wasatch Boulevard to SR-111; vicinity of the Meadowbrook TRAX station
In which jurisdiction?	Salt Lake County, West Valley City
Right-of-way required?	Yes, primarily west of 5600 West. Existing pavement may be able to accommodate bike lanes through restriping elsewhere.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion. Potential hazardous waste impacts as well as creek crossings; drainage facilities may also be impacted.
Would it impact on-street parking?	No
What would it cost?	$2,100,000
Can it be included in another project?	Yes, Salt Lake County is already planning bike lanes in the Mill Creek area. Other sections may be feasible further in the future.

UDOT REGION 2: Salt Lake County

- Project Area: 4800 South

What is it?	Bike lanes on 4800 South; pedestrian crosswalk and off-street pathway at Van Winkle/4800 South intersection.
From where to where?	Jordan River Parkway to Holladay Boulevard
In which jurisdiction?	Murray, Holladay
Right-of-way required?	Yes, for the pathway at the intersection. Existing pavement can potentially accommodate the bike lane in the rest of the project area.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion. Historic buildings may be present in the Holladay section.
Would it impact on-street parking?	Yes
What would it cost?	$630,000
Can it be included in another project?	Yes, Holladay City recently received a Transportation Alternatives grant to stripe bike lanes.

UDOT REGION 2: Salt Lake County

- Project Area: 2700 West

What is it?	Bike lanes on 2700 West; pedestrian improvements at the 2700 West Mid-Jordan TRAX station including off-street pathways, sidewalk extensions, high visibility crosswalks, and intersection bulbouts.
From where to where?	2000 South to Bangerter Highway (13800 South)
In which jurisdiction?	Salt Lake City, West Valley City, Taylorsville, West Jordan, South Jordan, Riverton, Bluffdale
Right-of-way required?	Yes, for pathways at the TRAX station. Bike lanes on 2700 West would require widening pavement but not necessarily right-of-way.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion. Drainage facilities along the corridor could potentially be impacted.
Would it impact on-street parking?	Yes
What would it cost?	$2,200,000
Can it be included in another project?	Yes, there is a widening project anticipated in South Jordan City from 10400 South to 11400 South.

UDOT REGION 2: Salt Lake County

- Project Area: Main Street/300 West

What is it?	Bike lanes on Main Street, Box Elder Street, Cottonwood Street, and 300 West; ADA improvements, sidewalk connections, and high-visibility crosswalks at the Murray North TRAX station; sidewalk connections and transit shelters at the Murray Central TRAX Station.
From where to where?	2100 South to Winchester Street (6400 South)
In which jurisdiction?	Salt Lake City, South Salt Lake City, Salt Lake County, Murray
Right-of-way required?	No, project can be accommodated with restriping or with widening pavement (but without requiring right-of-way).
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion; there may be impacts to impaired waters. Drainage facilities along the corridor could potentially be impacted.
Would it impact on-street parking?	Yes
What would it cost?	$897,000
Can it be included in another project?	No

UDOT REGION 2: Salt Lake County

- Project Area: Winchester Street

What is it?	Bike lanes on Winchester Street, high visibility crosswalks and crosswalk flags at the Winchester/Jefferson intersection near Fashion Place West TRAX station.
From where to where?	1300 West to 1300 East
In which jurisdiction?	Murray
Right-of-way required?	Yes
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion but impacts will likely be minimal.
Would it impact on-street parking?	No
What would it cost?	$1,100,000
Can it be included in another project?	No projects are planned at this time that could incorporate these elements.

UDOT REGION 2: Salt Lake County

- Project Area: Porter Rockwell Trail Extension

What is it?	Study to explore options for extending the Porter Rockwell Trail from its current terminus at Pioneer Avenue (about 8500 South) north to the Fashion Place West TRAX station at Winchester Street. Study should address available right-of-way options including the TRAX corridor, easement and property constraints, crossing treatments, public outreach, safety, and other issues as needed.
From where to where?	6400 South to 8500 South
In which jurisdiction?	Murray, Midvale
What would it cost?	$100,000

UDOT REGION 2: Salt Lake County

- Project Area: Sego Lily Drive/10000 South

What is it?	Bike lanes on Sego Lily Drive and 10000 South in two separate sections
From where to where?	4800 West to Bangerter Highway, and 1300 West to the Porter Rockwell Trail/TRAX line
In which jurisdiction?	Sandy, South Jordan
Right-of-way required?	Yes
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion, there may be impacts to impaired waters. Power lines parallel the south side of the street in some areas between 1300 West and the Porter Rockwell Trail.
Would it impact on-street parking?	No
What would it cost?	$3,600,000
Can it be included in another project?	No projects are planned at this time that could incorporate these elements.

UDOT REGION 2: Salt Lake County

- Project Area: 11400 South

What is it?	Bike lanes on 11400 South in two separate sections
From where to where?	Bangerter Highway to 3600 West, and State Street to the Porter Rockwell Trail/TRAX line
In which jurisdiction?	Sandy, South Jordan
Right-of-way required?	Yes
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion. Accommodating cyclists and pedestrians at the continuous flow intersection on Bangerter Highway will be challenging.
Would it impact on-street parking?	No
What would it cost?	$1,800,000
Can it be included in another project?	No projects are planned at this time that could incorporate these elements.

- Finally: UDOT Region 3 (Utah County)

(photo credit: **Jim Price**)

UDOT REGION 3: Utah County

- Project Area: Historic Utah Southern Rail Trail

What is it?	Study to explore the feasibility of using the Historic Utah Southern Rail corridor for a trail. Study elements should include opportunities and constraints, right-of-way availability, roadway crossings, user demand and needs, jurisdictional coordination, public involvement, and conceptual cross-sections among other items.
From where to where?	Lehi Main Street to Pleasant Grove Boulevard
In which jurisdiction?	Lehi, American Fork, Pleasant Grove
What would it cost?	$100,000

UDOT REGION 3: Utah County

- Project Area: 200 South

What is it?	Cycle tracks and wayfinding
From where to where?	Center Street to Spring Creek Ranch Road
In which jurisdiction?	American Fork
Right-of-way required?	No, it appears that excess right-of-way is available that could accommodate widened shoulders.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion; there could be potential archeological, agricultural, and tribal impacts.
Would it impact on-street parking?	Yes
What would it cost?	$1,710,000
Can it be included in another project?	There are utility and repaving projects planned by American Fork City that could potentially be modified to incorporate some project elements.

UDOT REGION 3: Utah County

- Project Area: State Street

What is it?	Bike lanes
From where to where?	Pleasant Grove Boulevard to 800 North in Orem
In which jurisdiction?	Pleasant Grove, Lindon, Orem
Right-of-way required?	No, it appears that shoulders are wide enough to accommodate bike lanes through restriping.
Are there potential environmental or other issues?	Restriping projects may not require a Categorical Exclusion.
Would it impact on-street parking?	Yes
What would it cost?	$250,000
Can it be included in another project?	Potential for inclusion in a UDOT widening project.

UDOT REGION 3: Utah County

- Project Area: Orem Central Station

What is it?	Bicycle and pedestrian bridge over I-15, connecting the Orem Central FrontRunner station to Utah Valley University.
From where to where?	Span over I-15
In which jurisdiction?	Orem
What would it cost?	$12,000,000

UDOT REGION 3: Utah County

- Project Area: 900 East

What is it?	Buffered bike lanes
From where to where?	University Parkway to 900 South
In which jurisdiction?	Provo
Right-of-way required?	Yes
Are there potential environmental or other issues?	Phase 1 analysis on hazardous waste sites may be required.
Would it impact on-street parking?	Yes
What would it cost?	$3,200,000
Can it be included in another project?	This could potentially be integrated with the UTA bus rapid transit project. Discussions are ongoing.

UDOT REGION 3: Utah County

- Project Area: 500 West

What is it?	Bike lanes on 500 West from Bulldog Boulevard to 500 North, bike lanes on 500 North from 500 West to 300 West, bike boulevards on 300 West between 500 North and 400 South, bike boulevards on 400 South from 300 West to 500 West, and bike lanes on 500 West from 400 South to 1560 South
From where to where?	Bulldog Boulevard to 1560 South
In which jurisdiction?	Provo
Right-of-way required?	No, it appears that bike lanes can be accommodated through restriping existing pavement.
Are there potential environmental or other issues?	Environmental clearance requirements would be minimal if project is completed within existing right-of-way.
Would it impact on-street parking?	Yes
What would it cost?	$250,500
Can it be included in another project?	Potentially; UDOT may repave this route in 2014.

UDOT REGION 3: Utah County

- Project Area: Provo Central Station

What is it?	ADA and pedestrian improvements at Freedom Boulevard intersections with 400 South and 500 South; bike lanes on 600 South and Freedom Boulevard.
From where to where?	On 600 South from Freedom Boulevard (200 West) to State Street, and on Freedom Boulevard from 600 South to 900 South.
In which jurisdiction?	Provo
Right-of-way required?	No, it appears that bike lanes can be accommodated within the existing shoulders.
Are there potential environmental or other issues?	Environmental clearance requirements would be minimal if project is completed within existing right-of-way. Environmental issues in the area include sporadic hazardous waste sites and historic buildings.
Would it impact on-street parking?	Yes
What would it cost?	$1,340,000
Can it be included in another project?	No projects are planned at this time that could incorporate project elements.

UDOT REGION 3: Utah County

- Project Area: US-89

What is it?	Buffered bike lanes
From where to where?	1860 South in Provo to Center Street in Springville
In which jurisdiction?	Provo, Springville
Right-of-way required?	No, but pavement will need to be added.
Are there potential environmental or other issues?	Will likely require a Categorical Exclusion, but impacts are expected to be minimal.
Would it impact on-street parking?	Yes
What would it cost?	$2,100,000
Can it be included in another project?	No projects are planned at this time that could incorporate project elements.

UCATS Top 25 Project Summary

County	Location	Municipality	Type	Length (miles)	ROW Needed?	Cost	Cost/mile
Weber	23rd Street and Grant Ave	Ogden	Bike lanes, cycle tracks, station improvements	1.58	No	$ 195,000	$ 123,418
Weber	Roy/Ogden	Roy/Ogden	Feasibility Study			$ 100,000	
Weber/Davis	SR-37 and SR-108	Roy, Clinton, West Point, Syracuse	Bike lanes and station improvements	9.8	Yes	$ 1,500,000	$ 153,061
Davis	Layton/Syracuse	Layton/Syracuse	Feasibility Study			$ 100,000	
Davis	Fort Lane/Main Street	Layton, Kaysville, Farmington	Bike lanes	7.9	Yes	$ 2,400,000	$ 303,797
Davis	Bountiful/West Bountiful	Bountiful/West Bountiful	Feasibility Study			$ 100,000	
Davis	US-89/Main Street	North Salt Lake	Intersection improvements	0.32	Yes	$ 240,000	$ 750,000
Salt Lake	Salt Lake Central Station	Salt Lake City	Station improvements		No	$ 263,000	
Salt Lake	800/900/700 East	Salt Lake City, Salt Lake County, Murray, Cottonwood Heights, Midvale, Sandy	Bike lanes	11.1	Yes	$ 6,500,000	$ 585,586
Salt Lake	3900/4100 South	Salt Lake County, West Valley City	Bike lanes and station improvements	15	Yes	$ 2,100,000	$ 140,000
Salt Lake	4800 South	Murray, Holladay	Bike lanes and intersection improvements	4.5	Yes	$ 630,000	$ 140,000
Salt Lake	2700 West	Salt Lake City, West Valley City, Taylorsville, West Jordan, South Jordan, Riverton, Bluffdale	Bike lanes	14.5	Yes	$ 2,200,000	$ 151,724
Salt Lake	Main Street/Box Elder	Salt Lake City, South Salt Lake, Salt Lake County, Murray	Bike lanes and station improvements	6	No	$ 897,000	$ 149,500
Salt Lake	Winchester Street	Murray	Bike lanes	4	Yes	$ 1,100,000	$ 275,000
Salt Lake	Porter Rockwell Trail	Murray, Midvale	Feasibility Study			$ 100,000	
Salt Lake	Sego Lily Drive	Sandy, South Jordan	Bike lanes	4.2	Yes	$ 3,600,000	$ 857,143
Salt Lake	11400 South	Sandy, South Jordan	Bike lanes and pedestrian bridge	1.8	Yes	$ 1,800,000	$ 1,000,000
Utah	Historic Utah Southern Rail Trail	Lehi, American Fork, Pleasant Grove	Feasibility Study			$ 100,000	
Utah	200 South	American Fork	Bike lanes	2.3	No	$ 1,710,000	$ 743,478
Utah	State Street	Pleasant Grove, Lindon, Orem	Bike lanes	4.6	No	$ 250,000	$ 54,348
Utah	Orem Central Station	Orem	Pedestrian bridge			$ 12,000,000	
Utah	900 East	Provo	Buffered bike lanes	2.4	Yes	$ 3,200,000	$ 1,333,333
Utah	500/300 West	Provo	Bike lanes/boulevards	3	No	$ 250,500	$ 83,500
Utah	Provo Central Station	Provo	Station improvements	1.3	No	$ 1,340,000	$ 1,030,769
Utah	US-89	Provo, Springville	Buffered bike lanes	3.2	No	$ 2,100,000	$ 656,250
			UCATS Top 25 Cost Summary	97.5	miles	*$ 44,775,500*	*$ 459,236*

- Next Meeting: October
  - Final products
  - Next steps

APPENDIX 5: BENEFITS RESEARCH TECHNICAL MEMORANDUM

FEHR PEERS

TECHNICAL MEMORANDUM

To:	UCATS Core Project Team
Date:	September 2013
From:	Fehr & Peers
Subject:	**UCATS Benefits Research**

1. Introduction

The purpose of this technical memorandum is to outline information gathered in UCATS Task 8: Project Implementation Toolbox. As part of this effort, the UCATS project team conducted a literature review of research in order to "make the case" for funding and building bicycle and pedestrian projects.

This memorandum is organized into seven benefit areas of bicycle and pedestrian projects:

1. Air Quality
2. Reduced VMT
3. Congestion Reduction
4. Transit Benefits
5. Mode Share Shift
6. Health Benefits
7. Transportation Safety
8. Economic Benefits
9. International Comparisons

1.1 Air Quality

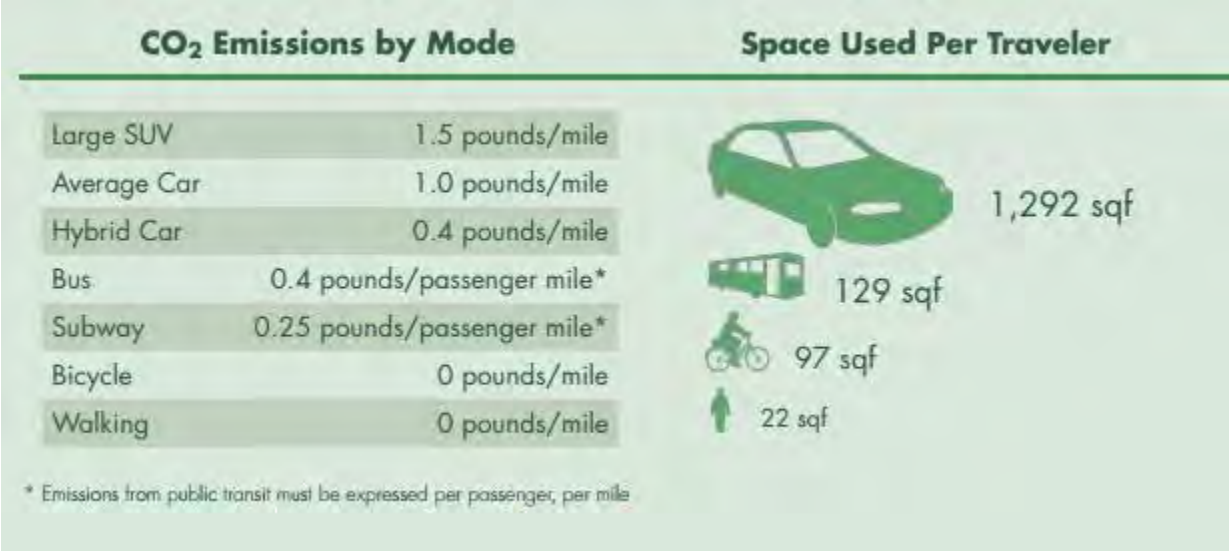
The effects of transportation on air quality can be measured by the amount of CO_2 emissions either generated or saved. Research indicates that transportation accounts for roughly 28% of the United States' total greenhouse gas (GHG) emissions[i]. Of commuting modes, automobiles have the largest impact on air quality, as shown in Figure 1[ii]. Bicycling and walking have a negligible GHG impact (outside of the production needed in the manufacturing of the bicycle) and can be used as an effective way to improve air quality.

The Rails To Trails Conservancy estimates that bicycling and pedestrian travel can offset between 3% and 8% of GHG emissions in the United States caused by surface transportation[iii].

Every 1% increase in miles traveled by active transportation instead of by car reduces the Portland region's greenhouse gas emissions by 0.4%[iv]. Nationally, research indicates that combined pedestrian and bicycle infrastructure and policies applied nationally would result in a cumulative 0.2% to 0.5% reduction (including non-surface transportation emissions) in baseline emissions, but can be achieved at a relatively low implementation cost, and with positive public health benefits[v].

There is also precedent among state Departments of Transportation to measure GHG reductions. Many state applications for Congestion Mitigation and Air Quality Improvement Program (CMAQ,) a federal funding program, ask applicants to estimate the congestion and GHG reduction potential of their bicycle and pedestrian projects. A federal review of CMAQ bicycle and pedestrian projects found CO_2 reductions of up to 38.4 kg emissions reductions each day. They note that these projects are "more effective when designed to enhance access to transit, so that longer trip lengths may be reduced.[vi]"

Figure 1. CO_2 Emissions by Mode



1.2 Reduced VMT

The League of American Bicyclists conducted an analysis on trip length and mode from the National Household Travel Survey. They found that half of all trips taken in the United States are three miles or less, with 40% under two miles. However, 90% of trips fewer than three miles are taken by car[vii]. The national average trip length is 2.25 miles for a one-way bicycling trip and 0.7 miles for a one-way walking trip[viii].

Results of the FHWA's Non-motorized Transportation Pilot Program indicate an estimated 16 million miles were walked or bicycled that would have otherwise been driven in 2010, and an estimated 32 million miles were averted between 2007 and 2010[ix].

A study in King County, Seattle, WA found that a 5% increase in walkability of a community reduced vehicle miles traveled per capita by 6.5% and increased time spent in physically active travel by 32.1%. The walkability of a community was quantified through land use mix, street connectivity, net residential density, and retail floor area ratios within a 1-kilometer street network buffer. Increases in walkability also reduced per capita emissions of nitrous oxides by 5.6% and volatile organic compounds by 5.5%[x].

1.3 Congestion Reduction

Research linking walking and bicycling to a reduction in traffic congestion is limited. However, a study by the Arizona Department of Transportation found significantly less congestion on roads in older, higher density areas than in new, lower density suburban areas. Congestion was determined by volume-to-capacity ratios. High-density, mixed-use sites had good performance measures throughout the day with worst peak flows in the PM peak hour. In low-density developments, heavy traffic congestion was seen at all periods, with failing level conditions in the PM peak period. Researchers determined this connection was due to more mixed land uses (particularly more retail in residential areas), more transit and non-motorized travel, and a more connected street grid, which provides more route options and enables more walking and cycling. This results in less total vehicle travel and less traffic congestion for older neighborhoods[xi].

1.4 Transit Benefits

Bike/transit integration supports both transit and bicycle transportation. Bicycle/transit integration has proven successful in attracting new riders. Transit agencies find that a significant portion of bike locker and rack users consist of new transit riders. For example, 30% of users of Vancouver's bike lockers at a transit station had not previously used public transit to commute[xii].

Robert Cervero evaluated which factors influence transit ridership for work trips for residents living near rail lines in California. The analysis indicated that certain variables had "significant marginal influences" on mode choice: while generally workplace variables such as flex-time schedules were the most influential, connectivity levels at the destination were also significant factors. Lifestyle desires to live in an area close to transit were also an indicator of transit ridership. Streetscape improvements, parking provisions, and other physical design elements of station area housing apparently did not influence whether station area residents took transit for work trips. Housing density around station areas made the biggest difference in adding trips to the transit system. Among Californians living within one-half mile of rail stations, only one urban design variable had significant influence on whether people biked or walked to the station: street lighting density. This had "modest predictive powers[xiii]."

A study for the San Diego region to assessed relationships between transit ridership and the quality of pedestrian environments around bus stops. The study authors defined the station catchment area as a half-mile along the street network from each transit stop. The analysis showed a "significant and expected" relationship between bus ridership and walkability. However, although the walkability variable was deemed statistically significant, it explained only 0.5% of variation in ridership[xiv].

According to the authors, the walkability index (equation provided in the paper) is a combination of the following factors:

- Land use density, measured through net residential density in station area buffer, and average retail FAR in station area buffer
- Land use mix, a factor of the number of different land uses in the station buffer and the proportion of acres of each land use within the station buffer area
- Street network pattern, number of intersections per station area buffer acre

A study analyzed multiple BART stations for bike access and how changes to the on- and off-site bicycle environments between 1998-2008 influenced access-to-transit mode split. The BART stations were characterized by typologies (urban, urban with parking, balanced intermodal, intermodal-auto reliant, or auto-dependent). Several stations in the study experienced significant increases in bicycle mode share access to transit, attributed to infrastructure investments. For instance, Ashby Station in Berkeley increased its bicycle mode share from 7.4% in 1998 to 11.7% in 2008 and significantly expanded its bike access shed through multiple improvements such as:

- Doubling the amount of bike infrastructure surrounding the station
    - Including the opening of the bike boulevard network in Berkeley
- Addition of ramps facilitating bike access to the station
- Including bike-race parking spaces, secure/enclosed lockers, and a self-serve bike station
- Added parking fees for cars ($1/day in 2008, whereas previously there was no charge)

In addition, Fruitvale station increased its bike mode share from 4.3% to 9.9% from 1998-2008 and also increased the bike shed traveled by commuters. Built environment changes included:

- Increase in the mileage of bike paths, lanes, and routes surrounding the station
- Wayfinding guiding cyclists to the station entrance
- Provision of attended bike station, secure parking, repair services, and short-term rentals as well as bike racks and lockers.
- Added parking fees for cars[xv]

After bike racks were installed on Caltrain (the San Fransisco-San Jose commuter rail system), a 4% ridership increase was attributed to bicyclists (Ciccarelli, 1998).

Materials developed by FHWA indicate a relationship between bike-on-bus facilities and increased ridership based on case studies from the early 1990s. According to the document, Phoenix Transit installed bicycle racks on buses for three bus routes during March – August 1991 to assess use of the racks. At the beginning of the study, 153 riders utilized the bike racks during the first month; by the end of May 1991, this figure had jumped to 1109 riders per month using the bike racks and by the end of August 1991, the number had increased again to 1,404 riders per month. However, it is not clear given the data whether these were new riders to the system or rather existing riders choosing to bring their bikes on board. This case study did not indicate whether any geographic data on surrounding facilities was collected during the study[xvi].

In 1999, Denver's Regional Transportation District (RTD) conducted a survey of bicyclists who utilized the bike racks on buses. Survey results showed that approximately 50% of the bike-on-bus riders would not make the trip on transit if it were not for bike racks. (Epperson, 1999)

While many studies have addressed access to transit and walkability or bikeability in various forms, apparently few have sought to directly link specific improvements to transit ridership increases. Of the available research, Cervero's 2012 working paper and Ryan's 2009 analysis for the Journal of Public Transportation may be the best resources for assessing how active transportation improvements could potentially affect ridership. Ryan's analysis may be more appropriate given its focus on bus transit rather than rail transit routes; however, it limits its focus to pedestrian access only and it does not account for bicycle infrastructure improvements.

1.5 Mode Share Shift

Researchers at Portland State University studied the effects of increased bicycle lanes on mode share for 33 large U.S. cities (with the exception of New York City). The results showed that each additional mile of bicycle lane per square mile is correlated with an approximate one-percent increase in the share of bike-to-work trips[xvii].

Another study by Portland State used GPS technology to collect information on bicycling behavior from 166 regular Portland, Oregon riders. It found that a "disproportionate share of the bicycling occurred on streets with bicycle lanes, separate paths, or bicycle boulevards," indicating that bicycle-specific infrastructure investments were attracting new riders. Other conclusions from the study were:

- Well-connected low-traffic streets, bicycle boulevards, and separate paths may be more effective than bicycle lanes on busy streets at getting more women and inexperienced adults bicycling

- Adding bike lanes to more arterials might reduce travel times and distances, particularly for experienced bicyclists

- For many short trips (3 miles or less), the bicycle was time-competitive with the automobile[xviii].

In addition to the initial mode shift from new infrastructure, there is a second wave of mode shift as bicycling encourages more bicycling. The construction a bicycle and pedestrian bridge in Charleston, South Carolina led to more cycling throughout the City. A survey conducted on trail users showed that 67% of users claimed their physical activity had increased since the path opened[xix].

Some surveys indicate that providing bicycle lanes and paths may encourage more people to commute by bicycle. The presence of a striped lane or separated path can increase a cyclist's perception of safety. With growing concerns over traffic congestion and vehicle pollution, public policy makers are increasingly promoting bicycling as an alternative for commuting and other utilitarian trip purposes. States and local spending on bicycle facilities has increased significantly over the past decade. Previous studies have linked higher levels of bicycle commuting to various

demographic and geographic variables. At least one analysis showed that cities with higher levels of bicycle infrastructure (lanes and paths) also saw higher levels of bicycle commuting. This research affirms that finding by analyzing data from 35 large cities across the U.S. This cross-sectional analysis improves on previous research by including a larger sample of cities, not including predominantly 'college towns,' and using consistent data from the Census 2000 Supplemental Survey. While the analysis has limitations, it does support the assertion that new bicycle lanes in large cities will be used by commuters[xx].

Ninety large American cities were analyzed to measure the relationship between bike commuting levels and bike paths and lanes, which have been the main approach to increasing cycling in the USA. Regression analysis confirms that cities with a greater supply of bike paths and lanes have significantly higher bike commute rates—even when controlling for land use, climate, socioeconomic factors, gasoline prices, public transport supply, and cycling safety. Further analysis also revealed that cities with safer cycling, lower auto ownership, more students, less sprawl, and higher gasoline prices had more cycling to work. Factors that were not significant predictors of bike commuting in large cities were annual precipitation, the number of cold and hot days, and public transport supply were not statistically significant predictors of bike commuting in large cities[xxi].

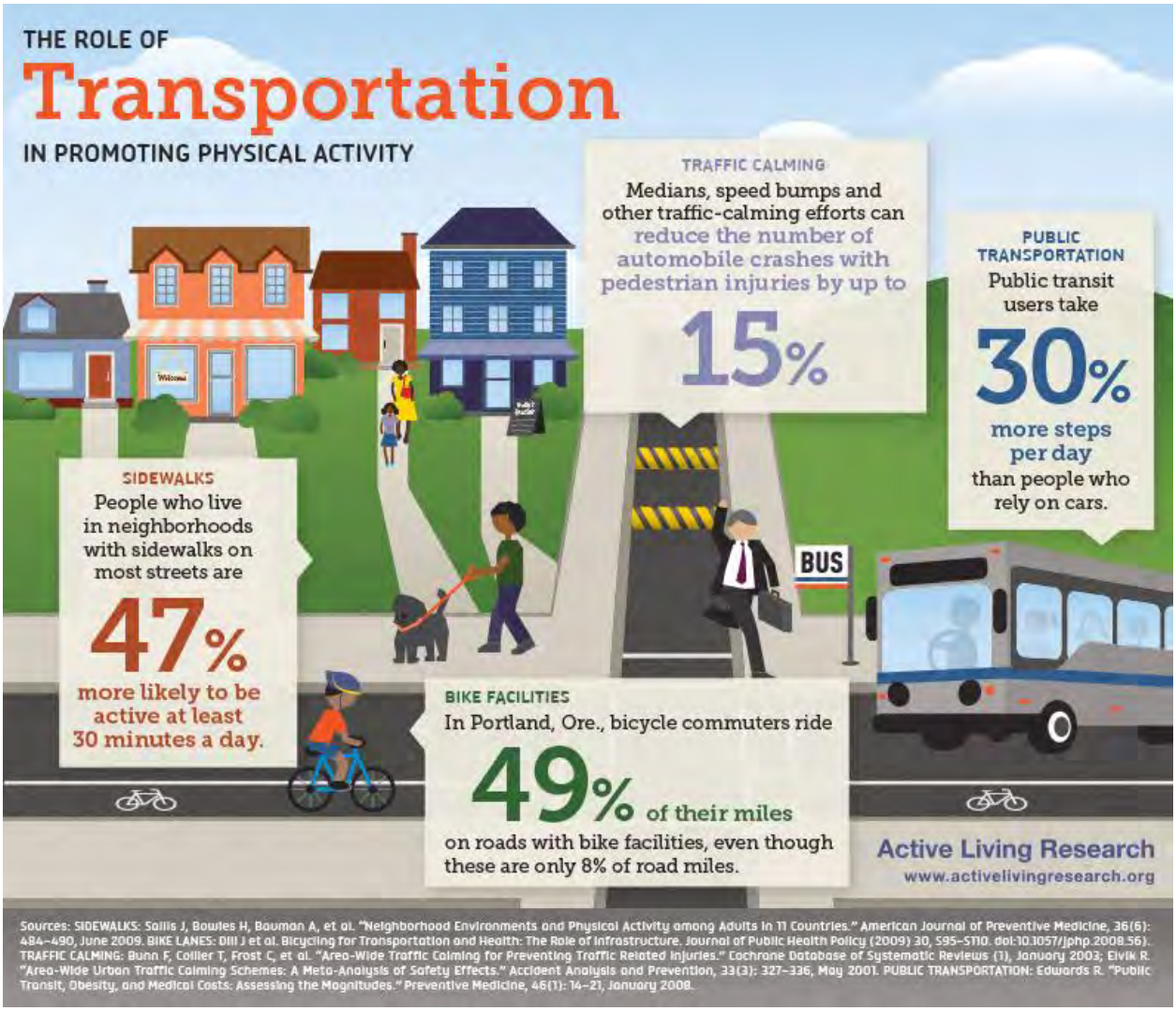
A study published in the Journal of the American Planning Association estimated the relationship between proximity to retail and bicycle facilities and the propensity to walk or bicycle. The result of the study was that distances to retail and bicycle facilities are statistically significant predictors of choosing active modes of transport at close distances. Proximity to off-street trails had no effect on bicycle usage. However, on-street facilities significantly increased the odds of bicycle usage. Neighborhood retail increased a household's likelihood of walking. The authors caution that these relationships are casual and that people may have chosen to live close to these facilities so they could walk or cycle[xxii].

1.6 Health Benefits

The health benefits of active transportation are numerous. The Center for Advancing Health found that communities with higher rates of bicycling and walking had lower obesity rates than communities with lower levels of active transportation[xxiii]. Even a little bit of bicycling can help. Researchers from Harvard University found that bicycling for as little as five minute each day can prevent weight gain for middle aged women[xxiv]. This is good news since studies for the National Institutes of Health have shown that people are more likely to consistently ride a bicycle or walk to walk than maintain a gym-based exercise program[xxv]. In addition, commuters using active transportation modes are also happier with their commutes[xxvi]. Active commutes translate into less days missed due to illness than non-active commutes[xxvii].

Reduced health care costs are another direct benefit of active transportation. An analysis of Portland, Oregon's bicycle infrastructure on health savings shows that completion of their 2030 Plan would help the City save $800 Million due to fuel cost savings, health care savings, and the value of reduced mortality[xxviii]. A study by the National Institute of Health determined that physically active employees incurred approximately $250 less in health care costs annually compared to sedentary employees[xxix].

Figure 2. The Role of Transportation in Promoting Physical Activity



1.7 Transportation Safety

The Salt Lake County Bicycle Best Practices report provides a good overview of the transportation safety of bicycling. According to research presented in that report, the more people bicycling, the lower the crash risk for bicyclers. This finding is based on a study examining crash data and walking/bicycling rates which found that walking/bicycling crash risk decreases as walking/bicycling rates increase. This has been called the "Safety In Numbers" principle[xxx]. This principle was reiterated in a second study by the National Institute of Health that found that for every doubling of the number of cyclists, the number of fatalities only increases by 25%, thus reducing the overall risk of cycling by 37%[xxxi].

This additional safety for bicyclists extends to other modes as well. Bike lanes reduced the risk of fatalities in pedestrian-involved crashes by 40%[xxxii]. Bike lanes have even been shown to reduce the general crash rate by 18% compared to streets with without any bicycle facility[xxxiii].

1.8 Economic Benefits

Numerous studies have shown that bicycle and pedestrian infrastructure have increased economic benefits. These economic benefits often come at minimal price compared to urban freeways. For instance, it's been estimated that the entire bikeway network of Portland, Oregon was built for less than the cost of constructing one mile of urban freeway[xxxiv].

In fact, people who tend to use active transportation have lower transportation costs and have more discretionary spending, which is more likely to stay within the local economy. Compared to the average US city, people in Portland, Oregon save $2.6 Billion a year thanks to reduced vehicular miles[xxxv].

A business case for active transportation was prepared for Better Environmentally Sound Transportation. The authors of the report argue that since automobile expenditures have a lesser effect on local employment and are used on typically imported goods, reducing these expenditures allows spending on other consumer items. They estimate a net increase in benefits if travel mode shifts to more biking and walking (based on research conducted in Bexar County, Texas by Miller et al). The report also addresses the many benefits to employees, both physically and psychologically, and thereby the benefits to employers (annually $513 per employee in business savings according to a cited WHO study). This report also points to studies suggesting that those who exercise work at full efficiency all day, amounting to a 12.5% increase in productivity over those who do not exercise[xxxvi].

In a thorough study prepared for a Wisconsin Representative, estimates of bicycle person days for state residents, non-residents and the nature of their cycling activity were used to derive average number of days each cyclist bicycles per activity. The goal was to estimate the economic value of recreational bicycling in Wisconsin as well as the potential health benefits from increasing bicycle commuting in the state. The findings of the article include: "Incorporating physical activity into the lives of those living in Milwaukee and Madison by replacing 20% of short trips with bicycle trips could result in substantial reductions in morbidity and mortality. Incorporating physical activity into the lives of everyone in the state of Wisconsin could result in substantial reductions in healthcare costs, increased worker productivity, increased life expectancy, and improved quality of life among residents." The most significant finding from the study was that the authors found that the combined potential value of bicycling in Wisconsin totals nearly $2 billion[xxxvii].

Portland State University administered a web-based survey to local businesses and conducted a basic land use inventory to gather empirical information regarding the use of bike corrals and their impact on businesses. Data were collected on all businesses within one half-block of a bike corral. The results of the survey indicated widespread local business support for the corrals with few exceptions. In addition, the businesses in the sample perceived that bicyclists, on average, account for one quarter (24.8%) of their total customer base. More than two-thirds responded that they have seen the demand for bike parking rise over time, along with the rate of bicyclists as customers. Key findings from this study demonstrate that business owners commonly view the bike corrals as exemplars of sustainable transportation, which enhance the street and neighborhood identity, and increase foot and bike traffic. Using these responses as a guide, it can be determined that businesses recognize that the investment in quality short-term bicycle corral facilities has been an asset for both bicyclists and their commercial establishment[xxxviii].

The Southern Environmental Law Center cites examples of positive effects of pedestrian improvements on retail sales and employment from a residential community south of Birmingham, Alabama, Mountain Brook. Built in the 1920s and 1930s around three retail villages, the community had few sidewalks. In the past six years, the City has invested $850,000 to build 15 miles of sidewalks linking town centers, neighborhoods, parks, and schools. Another 20 miles of sidewalks are proposed, and additional projects have been completed to renovate the retail villages and make them more pedestrian-friendly. As a result of these and other investments, retail sales in the villages have increased by approximately 25% in the past two years. The Mountain Brook improvements were coordinated with a $15 million comprehensive bicycle and pedestrian plan for the Birmingham metropolitan area.[xxxix]"

Bicycle boulevards are becoming increasingly popular as a means of encouraging alternate modes of transportation. Residents in Portland, Oregon were surveyed to determine the impact on quality of life, safety, sense of community, and bicycling use. Results of the survey indicated that the majority of respondents felt that bicycle boulevards have had a positive impact on home values, quality of life, sense of community, noise, air quality, and convenience for bicyclists; a negative impact on convenience for drivers; and no impact on safety for children, convenience for pedestrians, and the amount of traffic collisions. Additionally, 42% of respondents said living on a bicycle boulevard makes them more likely to bike, the majority of whom did not self-select to live on a bicycle boulevard. Additional key points include a finding that 39% of the residents that did not "self-select" to move to the bicycle boulevard reported that living on a bicycle boulevard makes them more likely to bike[xl].

Installation of bike lanes and bike racks can have a positive influence on the local economy. Fort Worth, Texas spent $12,000 to purchase 80 bike staples and $160,000 on local road diets in one district in town. As a result, local restaurants experienced a 200% increase in business[xli].

A good brief overview of economic impact of bicycle infrastructure throughout North America is an article entitled *The Economic Benefits of Bicycle Infrastructure Investments*, created for the League of American Bicyclists. It reviews most of the important studies available. Although it is balanced toward advocacy it is a great resource[xlii].

Six cities that experienced new bicycle facility construction during the 1990s were analyzed to determine how these facilities influenced localized bicycle commuting rates and to identify possible contextual factors influencing bicycle commuting rates. From this, it was found that 'build it and they will come' theory is not universally applicable as context factors are an important element in determining the effectiveness of new commuting facilities. Measures of bicycling commuting were developed using Census Journey to Work data from 1990 to 2000 and interviews with planners and bicycle program coordinators were used to ascertain qualitative factors impacting commuter rates and facility usage. In terms of encouraging bicycle commuting rates and distance, Chicago's gridded street system gave a distinct advantage over other cities, while Austin laid out their system.[xliii]

To determine the economic effects of traffic calming on small businesses, surveys were used to build a local foundation of evidence in support of bicycle improvements and the neutral or even positive

impacts these facilities may have on local businesses. Twenty-seven merchants in San Francisco were surveyed about what impact the Valencia Street bicycle lanes had on their businesses. Four and a half years after the bike lanes were built, the vast majority of the interviewees expressed support for the bike lanes. Sixty-six percent of the merchants believe that the bike lanes have had a generally positive impact on their business and/or sales, and the same percentage would support more traffic calming on Valencia Street. Key economic development points addressed in this study include:

1. Economic Revitalization and Property Values –Traffic calming can increase residential and commercial property values, which attracts wealthier residents to the area (gentrification) and can increase retail sales and bring economic revitalization to a commercial corridor.
2. Attractiveness and Safety – Traffic calming creates more attractive environments, reduces auto speed, and increases safety for pedestrians, bicyclists, drivers, and other users of the street, which is good for business.
3. Sales and Attracting Customers – Traffic calming encourages local residents to buy in their own neighborhoods, and also attracts customers from a wider area due to reduced travel time, hassle, and cost. Traffic calming can also help people live less car-dependent lifestyles, which will increase the amount of discretionary income they can spend on things other than transportation.
4. Parking – Most businesses are concerned about the quality and quantity of customer parking and access for delivery trucks. However, too large a supply of subsidized, on-street parking can harm businesses.
5. Impact on Employees – Poor bicycle, pedestrian, and transit conditions can harm businesses by losing worker productivity and time to gridlock, and by impairing employee recruitment. Conversely, improved transportation facilities can provide more convenience for employees.
6. Construction and Costs – Traffic calming projects often require only minimal 'down time' for construction, and most do not require any investment from business owners[xliv].

Also addressed were the costs of automobile ownership and the potential for surplus income if ownership is forgone. Using the Surface Transportation Policy Project's report on average Bay Area household expenditures, it was shown that Bay Area residents spend more on transportation than on any other expenditure category except shelter, amounting to $20 billion on transportation expenditures each year. The average Bay Area resident annually spends between $6000 ($500/month) and $6977 ($581.42/month) to own a car (Surface Transportation PolicyProject, 2000; WestStart, n.d). An adult MUNI Fast Pass costs $40/month, and the average City Car Share bill is $70/month (WestStart, n.d.). In a year of riding MUNI and using City Car Share, the Bay Area resident would save $4,680-$5,657 over owning a car. The Self-Propelled City website reports that the typical cost for a commuter to own and operate a bicycle in the U.S. is $20-$300/year. A Bay Area bike commuter could save between $6,677-$6,957 per year over owning a car. Boarnet and Sarmiento (1996) also found that people partly choose their residential locations based on their desired travel behavior. This can be interpreted to mean that a significant percentage of residents who live in an urban core would be at least receptive, if not supportive, of traffic calming measures. Furthermore, the author claims impacts on employers due to a less walkable environment include loss of productivity due to congestion and competiveness in recruiting skilled employees (due to inability to compete with more desirable communities). Survey results indicated retailers perceived bike lanes having no impact on property values, and potentially some impact on inducing local demand for

their businesses. All retailers aired frustration for a need for more parking. Despite this concern, sixty-five percent of retailers felt the bike lanes had a positive impact on sales. All other points raised in this study produced little concern from the retailers surveyed.

Market Desirability of Walkable/Bikeable Communities

The walkability of an area can directly impact home values. CEOs for Cities studied the link between walkability (as measured by the Walk Score algorithm) and home prices. They found homes with above average levels of walkability are worth $4,000 to $34,000 more than homes with average levels of walkability in the areas studied. After controlling for other influencing factors of home values, this study showed a positive correlation between walkability and housing prices in 13 of the 15 housing markets studied. Typically, a one point increase in Walk Score was associated with between a $500 and $3,000 increase in home values[xlv]. The literature review from this study also points to the market desirability of walkable/bikeable communities. For instance, an analysis of Portland, Oregon homes found pre-war neighborhoods (with grid-street systems) appreciated more than housing in more contemporary neighborhoods (with cul-de-sacs).

The Urban Land Institute compared four new pedestrian communities to determine the effect of walkability on home prices. They determined that homebuyers were willing to pay $20,000 more for homes in walkable areas compared to similar homes in surrounding areas[xlvi].

An economic analysis of a sample of neighborhoods in the Washington, D.C. metropolitan area using walkability measures found that more walkable places perform better economically and that this benefit is increased when a walkable place is near other walkable places. For instance, "walkable neighborhoods in metropolitan Washington that cluster and form walkable districts exhibit higher rents and home values than stand-alone walkable places." Although housing prices are generally higher in areas with high walkability, these residents have lower transportation costs and higher transit access. The policy conclusion is that "lenders, for example, should find cause to integrate walkability into their underwriting standards. Developers and investors should consider walkability when assessing prospects for the region and acquiring property. Local and regional planning agencies should incorporate assessments of walkability into their strategic economic development plans and eliminate barriers to walkable development. Finally, private foundations and government agencies that provide funding to further sustainability practices should consider walkability (especially as it relates to social equity) when allocating funds and incorporate such measures into their accountability standards." For developers, walkability translates into direct economic benefits. In Washington, a place with good walkability, on average, commands $8.88/sq. ft. per year more in office rents and $6.92/sq. ft. per year higher retail rents, and generates 80% more in retail sales as compared to the place with fair walkability, holding household income levels constant. Housing prices and property values are also increased in areas with higher walkability – "a place with good walkability, on average, commands $301.76 per month more in residential rents and has for-sale residential property values of $81.54/sq. ft. more relative to the place with fair walkability, holding household income levels constant." During the recession, these differences in property values were even more pronounced – "on average, before the recession (2000 to 2007), retail and office space in walkable urban places had a 23% premium per square foot valuation. During the recession (2008 to 2010) that premium nearly doubled to 44.3%[xlvii]."

Researchers at Portland State produced a report for the EPA demonstrating the benefits of green streets for active aging and home prices. The objective of this study was to "assess the relationship between green streets and physical activity, social interaction, and neighborhood social capital." Pricing models used in the research showed a positive impact on home prices along green street - each additional green street treatment within 500 feet was associated with a $968 increase in sales price. However, the authors found a relatively small $1.30 increase in price for each additional linear foot away from a green street treatment, which they interpreted as "consistent with the idea that benefits to property values come not from being close to one green street, but rather from larger scale proliferation of green streets in a neighborhood." The study concludes that residents typically had positive impressions of the improvements, though somewhat less positive impressions were recorded among older generations. Green streets were positively associated with walking and with some higher levels of social interaction[xlviii].

The impact of walkability in general on property income, values, and returns has also been the subject of research. One study in particular looks at the economic effects on walkability for office, retail, apartment and industrial properties at a national scale. They measured walkability as the "degree to which an area within walking distance of a property encourages walking for recreational or functional purposes." Using data from the National Council of Real Estate Investment Fiduciaries (NCREIF) and Walk Score, the researchers found that, all else being equal, the benefits of walkability are "capitalized into office, retail and industrial property values with more walkable sites commanding higher property values." On a 100-point scale, a 10 point increase in walkability increases property values by 1 to 9%, depending on property type. The findings conclude: "A 1 unit increase in Walk Score produced a 0.9, 0.9 and 0.1% value premium for office, retail and apartment properties, respectively. All else being equal, an office property with a Walk Score of 80 was worth 54% more per square foot than an office with a 20 Walk Score. For retail and apartment properties, 80 Walk Score properties were worth 54% and 6% more, respectively." All walkable property types generated higher income and therefore have the potential to generate returns as good as or better than less walkable properties, as long as they are priced correctly[xlix].

A second study used Walk Score to estimate the impact of walkability on land sales prices on 5,603 properties in Jefferson County, Alabama. They found there is a premium for walkability and that this impact reverses as neighborhoods become more car-dependent in the suburbs. Their definition of walkability is a measure of how friendly a neighborhood is to walking to commonly demanded consumption amenities, such as work, schools, etc. This paper frames their findings in terms of sustainable development and the positive impacts of mixed-use development. Price of land is the dependent variable of their analysis to reduce the impact of improvements on their analysis, thus maintaining a focus on the impacts of specific location- related elements. They posit that walkability is akin to public facility access. In their conclusions the authors find that the relationship between walkability and land values is strongest in those areas which are closer to the CBD, older communities and around universities. The argue that neighborhoods that are farther away from the such areas are not expected to walkable and thus walkability plays a lesser role in land value. As a matter of policy, pursuing higher density development that encourages auto independence would have benefits in terms of land value, lower carbon footprints, and higher tax revenues[l].

Market Desirability of Trails

Landowners along new trail alignments sometimes express concern that a trail may negatively impact their property values. While this is a common concern, research has shown the presence of a trail generally increases property values of adjacent properties. Adjacency to trails can also have a positive effect on property selling times. For instance, according to the Rails to Trails Conservancy[li], lots adjacent to Wisconsin's Mountain Bay Trail sold for 9% more than similar properties not adjacent to the trail. The same study indicated that in Apex, North Carolina, houses adjacent to a regional greenway sold for $5,000 more than houses in the same subdivision that were not on the greenway.

In another study of four trails in Nebraska[lii], only 6.2% of homeowners stated that their homes sold more slowly due to presence of a trail and only a few residents perceived that a trail had a harmful economic impact. However, sometimes rural property owners perceive trail impacts differently. The Nebraska study found that 27.5% of rural property owners believed that proximity to trails slowed the sale of their property, while only 10.8% believed proximity to trails increased the speed of sale.

The Virginia Department of Conservation studied the impact of the Virginia Creeper Trail (VCT) on the local economy. Local and nonlocal spending was estimated to be $2.5 million and total output was estimated to be $1.59 million, supporting 27.4 full-time jobs equivalents annually. The total value added was $921,362. Consumer surplus, the amount by which an individual's willingness to pay for a good exceeds what the individual must pay for the good, was estimated to be between $23 to $38 per user, leading to an estimated $2.3 million to $3.9 million in economic benefits (consumer surplus) to VCT users[liii].

The Great Allegheny Passage (GAP) is a 132-mile system of biking and hiking trails that connects Cumberland, MD to McKeesport, PA (near Pittsburgh, PA). Economic impact research among proximate businesses in 2008 and then in 2009 showed, on average, business owners indicated that one-quarter of their gross revenue was directly attributed to trail users and two-thirds reported that they experienced at least some increase in gross revenue because of their proximity to the trail[liv].

A study of economic impacts of the Northern Central Rail Trail (NCRT) for the Maryland Department of Natural Resources involved the investigation of seven subject categories: tourism, property values, commercial uses, local resident expenditures, public sector expenditures, qualitative factors, and overall benefits. As expressed in the methodology section of this report, a major contributor toward the conclusions of this study was the use of three surveys to directly assess residents', trail users', and businesses' attitudes toward the resource. Accordingly, the basis of this report summary is the presentation of the survey questions with aggregate responses. In addition, appropriate cross tabulations and extrapolations are presented within the body of the text. Perhaps the most significant economic finding of this study is that while the 1993 budget to provide the Trail to the public was $191,893, the direct economic inputs to the State via tax revenue alone were $303,750. Additionally, PKF estimated the Trail supports 264 jobs statewide. The value of goods purchased because of the NCRT for 1993 is estimated to total in excess of $3,380,000. This study utilized IMPLAN in its multiplier analysis of indirect and induced benefits. Model inputs derived from survey response data from trail users and included hard good such as bikes, bike accessories and running shoes as well as soft goods including such items as groceries, gas and restaurants related to trail activities[lv].

The National Park service conducted a study in an environment when the City of Omaha was rapidly developing recreational trails. Its purpose was to address criticisms that the trails impacted property values and public safety. A survey was developed to address household experiences in a one block radius around targeted trail segments. The focus of the survey was the trails' perceived impact on public safety, property values, and quality of life. The survey found that most nearby residents (81%) perceived an economic benefit of the trails proximity, used the trails regularly, had little concern regarding safety, and generally found an increase to quality of life. The study recorded variation among different neighborhoods studied[lvi].

Analysis on the impact of the Little Miami Scenic Trail on property values suggests that, each foot increase in distance to the trail decreases the sale price of a sample property by $7.05. In other words, being closer to the Little Miami Scenic Trail adds value to the single family residential properties[lvii].

The positive impact of greenways on property values was found to be held true in Austin, Texas, where a study showed adjacency to a greenbelt produced significant property value premiums in two of three neighborhoods. Physical access to a greenbelt had a significant, positive impact in one case, but was insignificant in two others. No negative greenway impacts were found. The economic impact of the Barton Creek Greenbelt can be estimated at $13.64 million. The authors also comment that the multiple environmental, social, health, recreation and other benefits should be considered highly efficient from an economic standpoint[lviii].

Although numerous studies have found a positive connection between property values and proximity to trails, a study on greenways in Indianapolis chronicles the finding that not all trails impact property values equally, and thus underscores the importance of careful evaluation of the effects of public choices (in this case trail development). The study differentiates the Monon trail from others because it is considered the flagship trail of the city. Data for this study was provided by the Metropolitan Indianapolis Board of Realtors and underscores the importance of cultivating cooperative relationships with the local real estate industry in order to explore the impacts of public investment in non-disclosure states (i.e. states with statutes protecting the disclosure of real estate sales information). The study differentiates price effects on all greenways, greenways with trails, conservation corridors, the Monon Trail itself, and other greenways. Conservation corridors without trails demonstrate larger price affects ($5,317) than greenways with trails ($4,384). Homes sold near the Monon trail had even higher sales premiums ($13,059). Contrary, to expectations, the class of other trails had a negative though not statistically significant affect[lix].

The City of Seattle investigated the effects of the Burke-Gilman Trail on property values and crime. The surveys included those of residents near and adjacent to the trail, real estate agents and police officers patrolling these areas. They also included a survey of biweekly newspaper real estate advertisements and real estate magazines. The authors concluded that the trail had no negative impacts on the values of adjacent homes, and has in fact increased the value of home near but not immediately on the trail by an estimated 6.5%. They also found that the sale of homes and condominiums near the trail were sold more easily. There also were no cited problems with crime or trespassing. Finally, the acceptance rate of the trail was high and there was a strong perception that the trail had an overall positive effect on the quality of life adjacent to the trail[lx].

A study from Delaware suggested related findings to the research above. Using GIS and hedonic pricing models to determine what effect bike paths had on residential property values, they found the presence of a bike path had a 4% increase of a median priced home[lxi]. He authors of this study found that there is no information to suggest that a bike path designated as such by only the presence of a shoulder in the road would impact property values in Delaware as "they are for the most part indistinguishable from the road corridor itself and are more a feature of the existing road rather than the neighboring properties." Perhaps the most relevant comment is from the National Parks Service in reference to parks and greenways: "Increases in nearby property values depend upon the ability of developers, planners and greenway proponents to successfully integrate neighborhood development and open space. Designing greenways to minimize potential homeowner park user conflicts can help avoid a decrease in property values of immediately adjacent properties."

Job Creation

A national study of employment impacts from bicycle and pedestrian infrastructure estimated an average employment impact of building and refurbishing transportation infrastructure for cyclists and pedestrians using detailed cost data gathered through survey research in eleven cities. On average the study finds that each $1 million in cycle projects create 11.4 jobs from direct, indirect and induced construction spending. Likewise, pedestrian only projects create about 10 jobs and multi-use projects create 9.6 jobs per $1 million of project cost. Projects that combine pedestrian and cycle facilities with road improvements create 7.8 jobs per $1 million. Road only projects generated 7.75 jobs per $1 million. Spillover (indirect) employment adds an additional 3 jobs per $1 million[lxii].

Specifically in Colorado, where a study was conducted on the economic benefits of bicycling, economic benefits were broken down between the manufacturing, retail, and tourism sectors. In 1998, the bicycling industry created 513 manufacturing jobs and 700 full-time equivalent retail jobs. Bicycling was also shown to be integral in the tourism industry. Half of all summer visitors to Colorado's ski resorts spent time bicycling and most (70% of out of state visitors and 40% of local Coloradoans) said they would have chosen an alternative vacation destination if bicycling was not available[lxiii].

Similar results have been shown in Wisconsin, where a report by the Wisconsin DOT reported the bicycling industry (consisting of manufacturing, distribution, retail, and other services) contributes $556 million and 3,418 jobs to the Wisconsin economy[lxiv].

Portland's bicycle industry has also contributed significantly to the local economy. In 2008, the bicycle-related economic sector was found to be nearly $90 million, with nearly 60% of that revenue coming from retail, rental, and repair, with the remaining contribution coming from manufacturing and distribution, bicycle events, and professional services[lxv].

A study estimating transportation-related regional economic relationships in Texas observed that local spending could be induced by providing better opportunities for alternative modes of transportation. The study estimated that for every million dollars of reduced auto expenditures, Bexar County, Texas loses approximately $307 thousand in regional income and 8.4 jobs. The same million

spent on bus operations will generate nearly $1.2 million in regional income and 62.2 jobs. The difference reflects the fact that auto expenditures tend to leak out of Bexar County more than bus expenditures do[lxvi].

The Institute for Transportation Research and Education (ITRE) at North Carolina State University on behalf of North Carolina Department of Transportation, Division of Bicycle and Pedestrian Transportation surveyed bicyclists riding on the bicycle facilities – paths and wide paved shoulders – and also obtained data from self-administered surveys of tourists at three visitors' centers in the region. The study found that the economic impact of bicycling visitors is significant. A conservative estimate of the annual economic impact is $60 million, with 1,400 jobs created and supported per year. This compared favorably to the estimated $6.7 million of federal, state and local funds used to construct the special bicycle facilities in the area[lxvii].

Tourism

Research by the Maine Department of Transportation indicates the economic benefits of statewide bicycle tourism included $36.3 million in direct spending by over 2 million bicycle tourists. Surveys have shown that the lodging preferences by those on bike tours are Bed & Breakfasts / Inns and campgrounds. However, spending by tourists also have a multiplier effect. Due to this multiplier effect, the total economic impact of the bicycle tourism market is estimated to be $66.8 million dollars. This includes the direct expenditures of $36.3 million and 'spin-off' of $30.5 million. This total impact is calculated to include earnings of over $18.0 million. Earnings are the sum of the wages and salaries attributable to bicycle tourism, equal to 1,200 full-time equivalent jobs[lxviii].

Price Waterhouse Coopers conducted a study to determine the economic impact of the Trans Canada Trail in Ontario. The report measures the direct, indirect, induced and tax revenue impact of trail construction, maintenance and visitor expenditures on the province of Ontario. Over 42,000 Ontarians jobs were a result to the trails recurrent expenditures and $2.4 billion dollars were estimated to be generated in value added income in the province. Of that total, $152.8 million was estimated to be generated by non-local demand, demonstrating the overwhelming impact of local expenditures and reflecting that most usage of the trail is local. Total recurrent tax collections were estimated to add $1.04 billion annually for all levels of government of which $140.7 million would remain with local governments. Finally, the report posits that construction on currently undeveloped portions of the trail would generate $247.5 million in new income and support 3,688 employees a year with a combined tax impact of $92 million. Marketing, promotions and events are recommended to maximize economic impacts. The appendices include a large collection of data regarding user expenditures by a variety of activities including motorized use, horseback riding, cycling, hiking and skiing among others[lxix].

A study of bicycling tourism in Moab, Utah estimated the annual economic impact of bicycling to be $1.33 Million. Average consumer spending per person was estimated to be $585[lxx].

1.9 International Comparisons

Research has been conducted which describes the similarities and differences between American and German travel modes and the lessons that can be learned from German transportation policy. Of particular interest to economic impacts, American households spent on average $2,712 more per year (as of 2003) on transport than Germans and a larger share of disposable income (19% versus 14%). Per capita government spending on transportation is also less in Germany ($460 versus $625). Germany is also much less reliant on subsidy for public transport operating costs (30% versus 70% in the U.S.). Though many differences exist in how federal monies are spent for transportation between the two countries, cycling and pedestrian projects in Germany like the U.S. are generally planned and implemented at the local jurisdictional level. Freiburg, Germany's leader in sustainable transportation policy, currently enjoys a 50% mode split of walking and biking trips to all others, which is phenomenally higher than what is found throughout North America. This mode shift came in spite of fast population growth and employment growth of 11% between 1995 and 2007. The shift in transportation modes can be traced back to 1970, when the city adopted its first cycle plan, demonstrating the incremental nature of changing travel behavior. After the late 1960s and early 70s, there was a gradual move away in public opinion from automobile centered development due too various social and environmental problems caused by the car and oil crisis of 1973. A variety of carrot and stick measures over time have contributed to greater adoption of cycling. Traffic calming, trails and zones of restricted and/or very slow vehicular travel encourage pedestrian use and discourage auto travel particularly in the commercial center and residential neighborhoods. Extensive public participation in the planning process has resulted in even stricter local plans in preserving the pedestrian favoring environment of the city. Traffic calming and a 682 km bicycle trail network contribute to easing cycle travel which increasingly is favored over walking in the city. Bike parking has also been increased both by city development of such facilities and zoning requirements that new development include bicycle parking. Bicycle parking is also increasingly integrated with public transportation facilities[lxxi].

Research from the Brookings Institute examining the key differences and determinants of travel behavior in Germany and the United States has shown that to increase transportation sustainability in the United States requires policies that foster changes in travel behavior. Although car use has grown in both countries, Germany has been far more successful than the United States in creating a more balanced transportation system. Americans travel by car twice as much per year as Germans and use transit only a sixth as much. Differences in car reliance between the United States and Germany are not solely due to income or residential density. Germans in the highest income quartile make a lower share of their trips by car than Americans in the lowest income quartile. And Germans living in low density areas travel by car about as much as Americans living at population densities five times higher. The result is a transportation system in the United States that is less sustainable than in Germany. The per capita carbon footprint of passenger transportation in the United States is about three times larger than in Germany. Although gas prices in the United States are half those in Germany, Americans spend five percent more of their budgets on transportation than Germans. In government outlays as well (federal, state and local), Germany spends less per capita on transportation than the United States[lxxii].

Cycling was not always thriving in the Netherlands, Germany and Denmark. Cycling levels plummeted in all three countries from about 1950 to 1975 (Dutch Bicycling Council, 2006). It was only through a massive reversal in transport and urban planning policies in the mid-1970s that

cycling was revived to its current successful state. In 1950, cycling levels were higher in the UK than they are now in Germany: almost 15% of all trips. Just as in these other countries, cycling in the UK plummeted from 1950 to 1975, but British cycling never recovered. It continued to fall to its current level of 1.3% of trips, only slightly higher than the 0.9% bike share of trips in the USA (U.S. Department of Transportation, 2003; Department for Transport, 2007)." Currently, the Netherlands, Denmark and Germany have made bicycling a safe, convenient and practical way to get around their cities. Separate cycling facilities parallel to heavily-travelled road and at intersections, combined with residential traffic calming, have played an essential role in increasing levels of cycling. Complementing cycling facilities are ample bike parking, full integration with public transport, comprehensive traffic education and training of both cyclists and motorists, and a wide range of promotional events intended to generate enthusiasm and wide public support for cycling. In addition, driving is made expensive and inconvenient in central cities through a host of taxes and restrictions on car ownership, use and parking. Moreover, strict land-use policies foster compact, mixed-use developments that generate shorter and thus more bikeable trips. The Netherlands, Germany, and Denmark also succeed at high levels of cycling since cycling is not viewed as a fitness activity requiring expensive equipment, advanced training, or a high degree of physical fitness. The article goes on to document that bicycle safety is much higher in these countries than in the U.S. which in part explains the low participation of women and children. They go on to outline key policies and innovations that are used in Dutch, Danish and German cities to promote safe and convenient cycling: Extensive systems of separate cycling facilities and marketing of facilities; intersection modifications and priority of traffic signals; traffic calming; bike parking; coordination with public transport (including bike rentals at transit stations and a 'Call a Bike' rental program to arrange on site bike rentals at major intersections); traffic education and training (particularly for children); and traffic laws (a peculiarity of German law that considers children and elderly to be not fully rationally puts almost all liability on the motorist in traffic incidents). Other promotional efforts by cities in these region include: Access to bikes (free or inexpensive bike rentals, tax breaks, park and bike discount rentals); bike trip planning (on websites and with maps); public awareness campaigns (events for children, festivals, competitions, guided tours, etc.); public participation in bike planning (regular surveys, aggressive involvement in development of relevant transportation plans, and bike councils or other civic organizations that act as a platform of information exchange). Indirect policies that encourage cycling include: Automobile speed limitations in cities; road and parking capacity limitations (i.e. limitation of parking spaces, bicycle streets, deliberately narrowed roads); taxation of automobile ownership and use; strict land use policies (including regional coordination, compact development adjacent to already developed areas, mixed uses, and less strict separation of land uses to enable more natural development of mixed use neighborhoods)[lxxiii].

---

i Moving Cooler Steering Committee. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Prepared by Cambridge Systematics, Inc. July 2009.

[ii] Urban Transportation Caucus. *Urban Transportation Report Card*. August 2007. Accessed online June 2013: http://www.transalt.org/files/newsroom/reports/Urban_Transpo_Report_Card.pdf

iii Oregon Metro. *The Case for Active Transportation*. Spring 2009. Accessed online June 2013: http://library.oregonmetro.gov/files//case_for_at.pdf

[iv] Ibid.

[v] Moving Cooler Steering Committee. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Prepared by Cambridge Systematics, Inc. July 2009.

[vi] Advocacy Advance Project. *Climate Change and Bicycling: How bicycling advocates can help craft comprehensive Climate Action Plans*. Accessed online June 2013: http://www.advocacyadvance.org/docs/climate_change_bicycling.pdf
[vii] America Bikes and the League of American Bicyclists. *National Household Travel Survey – Short Trips Analysis.* Accessed online June 2013: http://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis
[viii] Federal Highway Administration. *Report to the US Congress on the Outcomes of the Nonmotorized Transportation Pilot Program SAFETEA-LU Section 1807*. April 2012. Accessed online June 2013: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/2012_report/final_report_april_2012.pdf
[ix] Ibid.
[x] Frank, L. D., J. F. Sallis, T. L. Conway, J. E. Chapman, B. E. Saelens and W. Bachman (2006). "Many Pathways from Land Use to Health: Associations between Neighborhood Walkability and Active Transportation, Body Mass Index, and Air Quality." Journal of the American Planning Association 72(1): 75-87
[xi] Kuzmyak, J. Richard. *Land Use and Traffic Congestion, Report 618*. Arizona Department of Transportation (www.azdot.gov). March 2012. Accessed on-line June 2013: www.azdot.gov/TPD/ATRC/publications/project_reports/PDF/AZ618.pdf.
[xii] Victoria Transport Policy Institute. *Bike/Transit Integration.* Accessed online June 2013: http://www.vtpi.org/tdm/tdm2.htm.
[xiii] Cervero, Robert. Transit Oriented Development's Ridership Bonus: A Product of Self-Selection and Public Policies. *Environment and Planning Journal.* 2007. Access online June 2013: http://www.transitwiki.org/TransitWiki/images/6/6d/Cervero_TOD.pdf
[xiv] Ryan, Sherry and Lawrence Frank. Pedestrian Environments and Transit Ridership. *Journal of Public Transportation Vol 12 No 1, 2009.* Accessed online June 2013: http://reconnectingamerica.org/assets/Uploads/JPT12-1Ryan.pdf
[xv] Cervero, Robert, et al. Bike-and-Ride: Build It and They Will Come. Working paper 2012. Accessed online June 2013: http://its.berkeley.edu/publications/UCB/2012/VWP/UCB-ITS-VWP-2012-5.pdf
[xvi] Federal Highway Administration. Lesson 9: Bicycle and Pedestrian Connections to Transit, FHWA Course on Bicycle and Pedestrian Transportation. Accessed 2013.
[xvii] Dill, Jennifer and Carr, Theresa. "Bicycle Commuting and Facilities in Major U.S. Cities: If you build them they will come – another look." Accessed online June 2013: http://www.des.ucdavis.edu/faculty/handy/ESP178/Dill_bike_facilities.pdf).
[xviii] Dill, Jennifer. "BikeGPS: Understanding and Measuring Bicycling Behavior". Accessed online June 2013: http://www.ibpi.usp.pdx.edu/bikegps.php.
[xix] "Wonder's Way Bike Pedestrian Pathway on the Arthur Ravenel, Jr. Bridge: A Successful Model for Facilitating Active Living in Lowcountry South Carolina" (http://media.charleston.net/2009/pdf/crbpathstudy_032609.pdf).
[xx] *Dill, Jennifer and Theresa Carr. (2003). Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them They Will Come – Another Look Transportation Review Board 2003 Annual Meeting. http://www.des.ucdavis.edu/faculty/handy/ESP178/Dill_bike_facilities.pdf*
[xxi] *Buehler, R., Pucher, J. (2012). Cycling to Work in 90 Large American Cities: New Evidence on the Role of Bike Paths and Lanes. Transportation. Vol. 39, 2, pp. 409-432.*
[xxii] *Krizek, Kevin J, and Pamela Jo Johnson (2006). Proximity to Trails and Retail: Effects on Urban Cycling and Walking. Journal of the American Planning Association, Winter, Vol. 72, No. 1, p. 33-42.*
[xxiii] "Walking and Cycling to Health: A Comparison of Recent Evidence from City, State, and International Studies" (http://www.cfah.org/hbns/archives/viewSupportDoc.cfm?supportingDocID=943).
[xxiv] "Bicycle Riding, Walking, and Weight Gain in Premenopausal Women" (http://archinte.ama-assn.org/cgi/reprint/170/12/1050).
[xxv] "Randomised controlled trials of physical activity promotion in free living populations: a review" (http://www.ncbi.nlm.nih.gov/pubmed/7499985).
[xxvi] "Like commuting? Workers' perceptions of their daily commute" (http://www.statcan.gc.ca/pub/11-008-x/2006004/pdf/9516-eng.pdf).
[xxvii] "Physical activity, absenteeism and productivity: an Evidence Review" (http://www.tfl.gov.uk/assets/downloads/businessandpartners/Physical-activityabsenteeism-and-productivity-evidence-review.pdf).
[xxviii] "Costs and Benefits of Bicycling Investments in Portland, Oregon" (http://journals.humankinetics.com/AfcStyle/DocumentDownload.cfm?DType=DocumentItem&Document=08%5Fgotschi%5FJPAH%5F2010 %5F0079%2Epdf).
[xxix] "Relationship of body mass index and physical activity to health care costs among employees" (http://www.ncbi.nlm.nih.gov/pubmed/15167389).
[xxx] Source: "Safety in numbers: more walkers and bicyclists, safer walking and bicycling" (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1731007/pdf/v009p00205.pdf).
[xxxi] Source: "An expert judgment model applied to estimating the safety effect of a bicycle facility" (http://www.ncbi.nlm.nih.gov/pubmed/10868762
[xxxii] "New York City Pedestrian Safety Study and Action Plan" (http://www.nyc.gov/html/dot/downloads/pdf/nyc_ped_safety_study_action_plan.pdf).

[xxxiii] "Adult Bicyclists in the United States: Characteristics and Riding Experience in 1996" (http://www.enhancements.org/download/trb/1636-001.PDF)
[xxxiv] http://www.politifact.com/oregon/statements/2011/mar/19/samadams/portland-mayor-sam-adams-says-portlands-spent-its-/.
[xxxv] "Portland's Green Dividend" (http://www.ceosforcities.org/files/PGD%20FINAL.pdf).
[xxxvi] *Campbell, Richard and Wittgens, Margaret. (2004). The Business Case for Active Transportation: The Economic Benefits of Walking and Cycling. Prepared for Better Environmentally Sound Transportation.*
[xxxvii] *Gabrow, Maggie, Micah Hahn, Melissa Whited. (2010). Valuing Bicycling's Economic and Health Impacts in Wisconsin. The Nelson Institute for Environmental Studies and the The Center for Sustainability and the Global Environment. University of Wisconsin-Madision. Prepared for Representative Spencer Black.*
[xxxviii] *Meisel, D. (2010). Bike Corrals: Local Business Impacts, Benefits, and Attitudes. Portland State University: School of Urban Studies and Planning.*
[xxxix] *Southern Environmental Law Center and Environmental Law Institute. (1999). Smart Growth in the Southeast: New Approaches for Guiding Development.*
[xl] *VanZerr, Mariah. (2009). Resident Perceptions of Bicycle Boulevards: A Portland, Oregon Case Study. Submitted to the Transportation Research Board for the 89th Annual Meeting.*
[xli] Elly Blue's Bikenomics series: http://grist.org/biking/2011-04-11-the-economic-case-for-on-street-bike-parking/
[xlii] *Flusche, Darren (2009). The Economic Benefits of Bicycle Infrastructure Investments. The League of American Bicyclists: http://www.bikeleague.org/resources/reports/pdfs/economic_benefits_bicycle_infrastructure_report.pdf*
[xliii] *Cleaveland, Fay. (2009). The Impact of Bicycling Facilities on Commute Mode Share in Transportation Research Board 2009 Annual Meeting CD-ROM Transportation Research Board of the National Academies, Washington, D.C.*
[xliv] *Drennan, E. (2003). Economic Effects of Traffic Calming on Small Businesses. Department of Public Administration San Francisco State University.*
[xlv] CEOS for Cities. *Walking the Walk*. August 2009. Accessed online June 2013: http://blog.walkscore.com/wp-content/uploads/2009/08/WalkingTheWalk_CEOsforCities.pdf
[xlvi] Eppli, Mark J. and Charles C. Tu. *Valuing the new Urbanism, The Impact of the New Urbanism of Prices of Single-Family Homes.* Urban Land Institute, 1999.
[xlvii] *Leinberger, Christopher B. and Mariela Alfonzo. (2012). Walk this Way: The Economic Promise of Walkable Places in Metropolitan Washington, D.C. The Metropolitan Policy Program at the Brookings Institute.*
[xlviii] *Dill, Jennifer, Neal, Shandas, Luhr, Adkins, and Lund. (2010). Demonstrating the Benefits of Green Streets for Active Aging: Final Report to the EPA .Center for Transportation Studies Institute on Aging. Portland State University: http://ebookbrowse.com/p*
[xlix] *Pivo, Gary, Jeffrey D. Fisher. (2010). Effects of Walkability on Property Values and Investment Returns. Working Paper. Responsible Property Investing Center, Boston College and University of Arizona and Benecki Center for Real Estate Studies, Indiana University.*
[l] *Rauterkus, Stephanie and Norman G. Miller (2011). Residential Land Values and Walkability. The Journal of Sustainable Real Estate. Volume 3. Issue 1: 23-43.*
[li] Rails to Trails Conservancy. Economic Benefits of Trails and Greenways. Washington, DC.
[lii] Greer, Donald L. Omaha Recreational Trails: Their Effect on Property Values and Public Safety. University of Nebraska at Omaha, June 2000.
[liii] *Bowker, J.M, John C. Bergstrom and Joshua K. Gill. (2004). The Virginia Creeper Trail: An Assessment of User Demographics, Preferences, and Economics. Final Report Prepared for the Virginia Department of Conservation.*
[liv] *Campos, Inc. (2009). The Great Allegheny Passage Economic Impact Study (2007-2008). Prepared for The Progress Fund's Trail Town Program. Laurel Highlands Visitors Bureau and the Allegheny Trail Alliance. August 7, 2009.*
[lv] *Maryland Department of Natural Resources (1994). Analysis of Economic Impacts of the Northern Central Rail-Trail. http://ntl.bts.gov/DOCS/430.html*
[lvi] *Greer, D. L. (2000). Omaha Recreational Trails: Their Effect on Property Values and Public Safety, National Park Service, University of Nebraska at Omaha, June, 2000.*
[lvii] *Karadeniz, D. (2008). The Impact of the Little Miami Scenic Trail on Single Family Property Values, University of Cincinnati Master's Thesis.*
[lviii] *Nicholls, S and John L. Crompton. (2005). The Impact of Greenways on Property Values: Evidence from Austin, Texas. Journal of Leisure Research. Vol. 37, No. 3. pp. 321-341.*
[lix] *Lindsey, Greg, Seth Payton, Joyce Man, and John Ottensmann. (2003). Public Choices and Property Values: Evidence from Greenways in Indianapolis. The Center for Urban Policy and the Environment.*
[lx] *Puncochar, B. & Lagerwey, P. (1987). Evaluation of the Burke-Gilman Trail's Effect on Property Values and Crime. Seattle, WA: City of Seattle Engineering Department, Bicycle Program.*
[lxi] *Racca, David P. and Amardeep Dhanju. (2006). Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas. Prepared for: Delaware Center for Transportation, University of Delaware and the State of Delaware Department of Transportation*

[lxii] *Garrett-Peltier, Heidi (2011). Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts. Political Economy Research Institute. University of Massachusetts, Amherst. http://www.peri.umass.edu/236/hash/64a34bab6a183a2fc06fdc212875a3ad/publication/467/*

[lxiii] "Economic Impact of Bicycling in Colorado" (http://atfiles.org/files/pdf/CObikeEcon.pdf).

[lxiv] . Source: "The Economic Impact of Bicycling in Wisconsin" (http://www.dot.wisconsin.gov/business/econdev/docs/impact-bicycling.pdf).

[lxv] "The Value of the Bicycle-Related Industry in Portland" (http://www.altaplanning.com/App_Content/files/fp_docs/2008%20Portland%20Bicycle-Related%20Economy%20Report.pdf).

[lxvi] *J. Miller, H. Robison and M. Lahr. (1999). Estimating Important Transportation-Related Regional Economic Relationships in Bexar County, Texas. VIA Metropolitan Transit (San Antonio). (http://www.vtpi.org/modeshft.pdf)*

[lxvii] *North Carolina Department of Transportation, Division of Bicycle and Pedestrian Transportation. (2004). Pathways to Prosperity: The Economic Impact of Investments in Bicycle Facilities, A Case Study of the North Carolina Northern Outer Banks.*

[lxviii] *Maine Department of Transportation. (2001). Bicycle Tourism in Maine: Economic Impacts and Marketing Recommendations:http://www.maine.gov/mdot/opt/pdf/biketourismexecsumm.pdf*

[lxix] *Price Waterhouse Coopers. 2004. An Economic Impact Analysis off the Trans Canada Trail in Ontario. http://www.cd.gov.ab.ca/building_communities/sport_recreation/resources_links/trails_economic_impact_analysis/*

[lxx] Estimating the Recreation Demand and Economic Value of Mountain Biking in Moab, Utah: An Application of Count Data Models" (http://www.mendeley.com/research/estimating-recreationdemand-economic-value-mountain-biking-moab-utah-applicationcount-data-models/).

[lxxi] *Buehler, R., Pucher, J. (2011). Sustainable Transport in Germany: Lessons from Germany's Environmental Capital. International Journal of Sustainable Transportation, Vol. 5, pp. 43-70.*

[lxxii] *Buehler, R., Pucher, J., Kunert, U. (2009). Making Transportation Sustainable: Insights from Germany. Washington DC: The Brookings Institution, Metropolitan Policy Program.*

[lxxiii] *Pucher, J., Buehler, R. (2008). Making Cycling Irresistible: Lessons from the Netherlands, Denmark, and Germany. Transport Reviews, Vol. 28, No. 4, 2008, pp. 495-528.*

APPENDIX 6: HEALTH IMPACTS ANALYSIS RESULTS TECHNICAL MEMORANDUM

ACTIVE PLANNING

TECHNICAL MEMORANDUM

To: Fehr & Peers

Date: August 2013

From: Active Planning (Shaunna K Burbidge)

Subject: Health Impact Analysis Results

1. Definition of Task Output

This technical memorandum contains data and analysis results pertaining to Task 4 of Active Planning's contract with Fehr & Peers as defined below:

> **Task 4- <u>Quantify the Health Related Benefits of Active Transportation</u>**
> *Active Planning will use our own existing research and current research in the literature to outline and describe the health benefits related to active transportation in urbanized areas. We will also work directly with the Utah Department of Health and local health departments to include data specific to the Wasatch Front and the project study area. This task will also include a quantification of these benefits based on the existing literature.*

2. Methods

To isolate and evaluate the potential health impacts and benefits associated with each of the "Top 25" prioritized UCATS projects, as identified by Fehr & Peers, Active Planning created a Pro Forma model taking into consideration existing literature regarding appropriate known correlations between a variety of covariates and public health. The following factors were considered in each iteration of the model:

- Facility length
- Proximity to schools
- Proximity to Parks and Open Space
- Total land areas within 1/4 mile of the proposed facility
- Number of residential units located within 1/4 mile of the proposed facility
- Proximity to healthcare facilities including routine care and urgent care facilities, and hospitals
- Current population health surrounding the proposed facility (specific criteria described in section 2.1 below)
- Demographics characteristics of the population residing within 1/4 mile of the proposed facility
- Providing accessibility to transit including bus stops, and light and commuter rails stations

Data was gathered relative to each factor/covariate for each of the 22 corridors identified in the UCATS priority list as well as the 3 priority rail stations. Where multiple values existed for a specific corridor due to length (as many of the projects pass through multiple jurisdictions or multiple measurement sites for the given covariates), values were averaged to create a mean standard.

2.1 Elasticities

Many of the factors considered in the pro-forma had values that were not conducive to analysis in and of themselves without some level of transformation or weighting. Therefore elasticities were created using a variety of statistical methods in order to weight each factor appropriately within the final model. For example, current population health could not be given a proximate value in and of itself, but rather was calculated based on a separate model which included diabetes, obesity, and high blood pressure incidence, physical activity accumulation, and other environmental health exposure risks (air and water quality, etc). This model also rudimentarily took into account potential improvements to each of the sub-covariates based on the potential for transportation mode change. For example, if air quality along a corridor is currently a health hazard, the model projects a slight improvement based upon reducing the number of cars on that corridor due to the improved conditions for bike-ped that would result from the UCATS project's implementation. Because at this stage in the analysis exact facility types for each corridor are note defined, this process of coding benefit was done at a generalized macro scale rather than citing specific changes in VMT or travel behavior. Covariates that were included based upon a similar weighted elasticity are:

- Demographics (specifically weighted based on population age and income)
- Residential population density (standardized by square mile geographic scale and reduced to per 1,000 parcels)
- Accessibility to transit (light rail and commuter rails stations were incrementally weighted above traditional bus stop values: light rail x10, commuter rail x25: all stops were standardized based on a rational denominator of 50)

3. Analysis Results

Based upon the preliminary analysis of the 25 UCATS prioritized projects, sites were scored on a scale from 0-30 and were classified as Moderate-Value, Intermediate-Value, or High-Value relative to their public health value added. The higher the pro-forma score, the higher the impact each corridor/site could potentially have on improving public health. Summary definitions for each category are as follows:

3.1 Moderate-Value (Scores 0-10)

Moderate-value sites can be viewed as such based on two different outcome scenarios. Scenario one includes those sites which already have relatively high levels of physical activity

or positive health in the surrounding populations. These sites will not see a marked improvement in public health due to the infrastructure improvement because residents of the surrounding area are already healthy. Therefore the health return on investment is not as high as it could otherwise be.

The second scenario which would result in a moderate-value ranking includes those sites which are located in relatively rural areas. These sites scored low on the pro-forma model due to a lack of proximity to necessary destinations as defined in Section 2. Additionally, many of these sites had a very low identified environmental health risk score as well.

Table 1 below identifies the moderate-value sites based on the model output, along with the model score (for comparison only). The table also identifies some contributing factors which likely contributed to the site falling within the moderate-value category. Similar tables can be found in the subsequent sections for intermediate- and high-value sites as well.

Table 1 – Moderate-Value Sites		
Project Location	**Pro-Forma Score**	**Contributing Factors**
Highway 89 Provo/Springville	9.01	Low population density Lack of connectivity to transit
Winchester Street Murray	8.90	Positive current health score
Fort Lane, Main Street, Park Lane Kaysville/Farmington	9.64	Positive current health score
3500 West, 4000 South Ogden/Syracuse	8.70	Lack of connectivity to quality destinations/transit

3.2 Intermediate-Value (Scores 10.01-20)

Intermediate-value sites were evaluated as those in which a intermediate difference in public health could be achieved by improving the conditions of the site for cyclists and pedestrians. a majority of the sites considered fell into this category simply due to their middle-of-the-road status and lack of covariate outliers.

Table 2 – Intermediate-Value Sites		
Project Location	**Pro-Forma Score**	**Contributing Factors**
24th St. and Grant Ave. Ogden	19.40	Good proximity to parks Poor existing health
East/West connectivity study Layton/Clearfield/Syracuse	12.59	Intermediate across factors
East/West connectivity study Bountiful/West Bountiful	11.61	Good proximity to schools High access to transit
3900/4100 South Salt Lake City/West Valley City	11.86	High residential densities
Murray Holladay Road	10.72	Intermediate across factors

Table 2 – Intermediate-Value Sites		
Project Location	**Pro-Forma Score**	**Contributing Factors**
Holladay		
900 East Salt Lake City/Sandy	14.26	Good proximity to parks
Main Street/300 West South Salt Lake	11.86	Intermediate across factors
Constitution Blvd/2700 West West Valley City	11.18	Intermediate across factors
Utah Historic RR Trail Lehi	16.27	Good proximity to parks
900 East Provo	13.42	Good proximity to parks and schools
Main Street, Trail American Fork	16.22	Good proximity to parks
500 West Provo	14.95	Good proximity to healthcare facilities
Provo Central Station	14.72	High residential densities
Orem Central Station	11.12	Intermediate across factors

3.3 High-Value (Scores over 20.01)

High-value sites were evaluated as those in which improving conditions for bike-ped in that particular location would yield substantial benefits for public health. In some cases a single covariate had such a strong outlier effect that the site/corridor was classified as high-value even though the remainder of the model held relatively steady. Each of the high-value cases will also be described below Table 3 for clarification.

Table 3 – High-Value Sites		
Project Location	**Pro-Forma Score**	**Contributing Factors**
Salt Lake Central Station	20.29	High access to transit High access to destinations
Sego Lily Drive/9800 South Sandy	22.28	Good proximity to parks Poor existing health
11400 South South Jordan	21.66	Good proximity to parks High access to transit

- *Salt Lake Central Station*
  This location exhibited good proximity to parks and recreation sites (11 within 1 mile), as well as incredibly high residential densities due to the large number of multi-family units in that area. While the surrounding population is in relatively good health and is currently physically active, the major factor contributing to this location's scoring was its accessibility to other high quality destinations. As the major intermodal hub for the entire Wasatch

Front, interventions at this site would likely have a substantial impact on the public health of individuals region wide due to its proximity to the central business district and its provision of transit accessibility to the University of Utah, Research Park, and the major medical facilities adjacent to the university.

- *Project 11: Sego Lily Drive/9800 South*
  This site in Sandy scored well due to its proximity to parks and open space, as well as being surrounded by a relatively unhealthy population who would likely benefit greatly from improved infrastructure. As discussed in Project 10, the demographics of the surrounding residents suggestions that this population would be susceptible to behavioral change which would result in a significant improvement to local health.

- *Project 12: 11400 South*
  For this west Salt Lake County site, the major factors included high residential densities, leading to a higher impact and larger catchment, as well as good accessibility to transit. While the current population is relatively healthy, the proximity to parks and quality destinations suggests that surrounding residents would be highly likely to adopt active modes for more trips if the area were improved to facilitate active travel behaviors.

4. Conclusions

Based on a comprehensive public health and built environment/site characteristic audit, the top 25 UCATS prioritized projects were identified as being either moderate-, intermediate-, or high-value sites based on their ability to positively impact public health given a built environment intervention. High-value sites were further described in order to define the justification for their ranking.

Although many sites were ranked as moderate- or intermediate-value, this should not be taken to imply that there will be no positive health return-on-investment for those locations. This model simply demonstrates that for those sites, the return may not be as high as for other sites evaluated in this analysis. The pro-forma is a comparative model meaning that it ranks each site relative to the other sites included in the analysis. This analysis is to be used solely as a means to identify which of the included sites is likely to provide the highest likelihood of improved public health given a built environment intervention.

APPENDIX 7: RETURN ON INVESTMENT TECHNICAL MEMORANDUM AND MATRIX

MEMORANDUM

TO: Maria Vyas, Project Manager
UCATS

FROM: Christine Richman, Economic Planner

RE: Final Estimated Return on Investment by Identified Project & Methodology

DATE: September 13, 2013

INTRODUCTION

GSBS Richman Consulting was asked to evaluate the potential economic development benefits to local, county and regional jurisdictions from planned public investment in active transportation infrastructure (bicycle and pedestrian) and active connections to transit.

Based on a review of studies and literature published through October 2012 a matrix of measures and project elements were identified as applicable to the Wasatch Front market. An Economic Research Tool box based on these measures and elements was provided to the project team. Other members of the project team identified 25 active transportation projects along the Wasatch Front. GSBS Richman ranked each of these 25 projects as "low", "medium", and "high" economic development opportunities according to the measures and elements identified in the tool box. The specific elements are identified in Methodology below and include existing and planned connectivity, walkability, planned development and overall economic opportunity.

From the 25 ranked projects three identified projects were selected by the project team, one in each of the three geographic regions – north, central and south. Each of the three identified projects were more closely scrutinized and evaluated for potential economic opportunity. A county level evaluation of future economic growth was completed by PB as part of the Wasatch Choice 2040 project. The PB report was used in this analysis to identify regional growth that was then allocated to the three evaluated projects based on current and anticipated future growth patterns.

The northern project focuses on improvements surrounding the Ogden intermodal center including improved connections between Ogden's 25th Street commercial corridor and area neighborhoods. The Ogden project enhances access to the intermodal center itself, and all of the stops along the route, as well as between areas within the immediate vicinity.

The central project focuses on improvements along 3900 South in Salt Lake County including the Meadowbrook TRAX stop. The 3900 South project provides connectivity to all of the regional commercial areas along 3900 South as well as improved access to the light rail stop.

The southern project focuses on improved accessibility around the Provo City intermodal stop. As with the Ogden project, the proposed improvements will enhance connectivity to Provo's traditional commercial core as well as improve access to area neighborhoods.

CRITERIA

The criteria used are summarized into measures focusing on *Competitive Positioning*, *Walkability*, and *Metrics*.

Competitive Positioning, is a measure of the ability of an area to attract the Gen Y and similar demographic that is the most likely to pay a premium to live and work in these areas. This demographic generally seeks areas of intensive land uses with high active transportation and transit access. The competitive positioning measure summarizes other measures including the presence of active transportation facilities, transit, existing jobs of all types and existing retail jobs specifically. The measure is biased towards multiple multi-use centers connected by active transportation or transit facilities. It also differentiates between local and regional centers.

Walkability uses a combined measure of the overall connectivity measured by jobs within a 30 minute walk or a 20 minute bike ride, the number of road/trail/sidewalk/bikelane intersections and publicly available "walk score."

Metrics begins with a comparison of the sales and use tax performance of the area compared to the statewide average performance. This measure then identifies opportunities to improve comparative performance based on available development/redevelopment sites, local area planning and zoning. An estimate of improvement in the specific measures – Retail Sales, Employment and Private Investment are developed.

METHODOLOGY

Competitive Positioning measures were identified through an analysis of the mapping and GIS completed in other phases of the project. Each of the 25 projects on the list were reviewed and each measure quantified in conjunction with project partners.

Walkability measures used publicly available walk scores combined with project specific data developed in other phases of the project. The walkability measure used data from the Utah State Department of Labor to locate employers and number of jobs in a given location. Existing jobs were identified and mapped based on the Utah State data. Potential job estimates were based on the presence of developable land and master planned future development.

Metrics analysis was completed only on the top three projects selected by the Project Team. Sales and use tax and employment data was for 2012 for the areas within a 20 minute walk and a 20 minute bike ride was generated for each of the three areas. The average sales and use tax per household and per acre was calculated and compared to the statewide average sales and use tax per household and per acre. Detailed tables were created to estimate the potential improvement in taxable sales, property values and employment.

Each sales and use tax source was scored for potential growth opportunity. For example, if an area with potential retail development sites currently performed poorly in grocery sales compared to the statewide average, the project would score "High" for potential new development and investment.

When each sales and use tax source was scored, an estimate of the magnitude of the upside potential was generated.

Employment opportunity was identified by evaluating developable parcels and local area plans for future employment-based development. These opportunities were then evaluated within the context of county-wide economic opportunity identified in the PB Report completed as part of the HUD Grant.

When each opportunity was evaluated, an estimate of the magnitude of the upside potential was generated.

Investment Return estimates were generated based on the size of the potential upside potential, type of private investment required to realize the potential.

CONCLUSION

Estimated impact of investments in active transportation was developed for each of the three sites. Impact was measured based on potential increase in retail sales, employment and overall private investment. The increases in retail sales and employment identified in the matrix represent each area's ability to more successfully "compete" within their respective market areas for available retail dollars and office-based development. The increases are over and above each area's "fair share" expectation under current development patterns.

Employment in each of the areas is expected to improve significantly as a result of investment in active transportation facilities. This is a function of limited current employment-based development and the assumption that, existing employment centers will transition to a more intensive type of office-based use and future office development will be at lower parking ratios and higher intensity. For example, for the Ogden project existing employment is very low with significant new office development planned for the area. Office-based development area is expected to increase by more than 200 percent in the immediate vicinity of the identified project. Some of the significant increase in employment-generating development in the area will be attributable to the improved investment environment associated with active transportation investments and increased access to transit.

ECONOMIC DEVELOPMENT OPPORTUNITIES ANALYSIS

Criteria	Ogden	Meadowbrook	Provo
Competitive Positioning	High	Low	High
"Walkability"	High	Low	High
Average Walk Scores (within 1 mile/20 Minutes)	49.7	46.4	58.8
Ability to Attract Gen Y employees	Medium	Low	High
Jobs accessible by transit or active mode in 30 minutes or less as a measure of modal accessibility to households (Using 2008 Base)			
Jobs/Thirty Minute Walk	32,805	33,377	35,288
Retail Jobs accessible to households by walking within 20 minutes as a measure of the pedestrian experience (2011 Projection for Meadowbrook and Ogden and 2010 for Provo, Using 2008 Base)			
Retail Jobs/20 Minute Walk	1,330	4,429	5,637
Retail Jobs/20 Minute Bike	15,555	27,345	9,280
Overall connectivity (road/trail/sidewalk/bike lane intersections)			
Road Intersections within 20 minute walk	223	181	250
Trail Miles within 20 minute walk	2.85	0	0.89
Bike Lane/Shoulder Bikeway Miles within 20 minute walk	0.70	0	1.27
Trail Miles within 20 minute bike	26.0	14.5	17.9
Bike Lane/Shoulder Bikeway Miles within 20 minute bike	2.6	8.6	12.2
AADT (2010) on Major Adjoining Arterials	SR53(24th St): 18,675; SR204(Wall Ave):29,090	3900 S: 23,600; SR89(State Street North of 3900):29,775; SR89(State Street South of 3900 S):37,070	SR189(University Ave): 31,870; SR89(300S East of SR189):26,765; SR89(300S West of SR189):14,065
Current Active Transportation Mode Share (Bike + Walk), 2011 ACS (surrounding census tract(s)): State Average 3.6%	12.3%	NA	12% -18%
Presence of Transit Stops			
Bus	Hub (11 Routes)	2 Routes (39 and 41)	Hub (Routes TBD)
Light Rail	No	Yes	No
Commuter Rail	Yes	Via Light Rail	Yes
Presence of Multiple Walking Centers	Yes - Downtown Ogden/21st St./River trails - Fort Buena Ventura State Park/Ogden Temple/The Junction	No	Downtown/BYU/Provo Conference Center
Regionally vs. Locally Focused Centers	Regional	Local	Regional
From PB Report:			
Economic Outlook for County	Moderate	Strong	Strong
Household Growth Forecast for County	Strong	Moderate	Very Strong
Preferred Development Type	Multifamily Rental	Multifamily Rental	Multifamily Rental
Income Strata Served	Mixed - with bias to lower incomes	Up to 50 percent affordable units	Mixed - with bias to lower incomes
Prospects to Serve Empty Nesters	Near term: Weak; Long term: Strong	Weak unless affordable housing	Near term: Weak; Long term: Strong
Vacancy Rate for Multifamily	6.5	3.8	5
Condominium Market	Increasing supply and decreasing price	Seven year low in volume	Increasing supply and decreasing price
Office	20-25 percent vacancy rate in county	Untested market	19.7 percent vacancy rate
Retail	Weak, Junction struggles for tenants, high vacancy	Untested market; slight improvement throughout county	Retail market stabilizing; benefitted from strong household growth over last decade
Industrial (high-tech/R&D)	Strong, particularly in Business Depot Ogden	Strong, and improving	Stabilized - Novell building sale affected both industrial and office markets.
Institutional	Potential to stabilize area with public institutional investment	Potential to stabilize area with public institutional investment	Potential to stabilize area with public institutional investment
PB Site Specific Analysis:			
Envisioned density	Downtown	.5 to 2.5 FAR; 20 -100 units per acre	Downtown
Regional Economic Strengths	Outpaced national growth, but still flat from 2005-2010. Losses in construction jobs offset by gains in education and health services.	Sustained county-wide growth over past 10 years; Strong growth in past 12 months; Annual projected household growth of 1.75 from 2010 - 2025	Sustained county-wide growth through recession with losses in construction/manufacturing offset by gains in education, health services, and government. Strong employment growth of 4.7 percent in last 12 months.
Household Demographics	Household growth stable at 1.7 percent in County. Downtown has higher proportion of rental housing and similar household size as county. Median income is lower.	Greater proportion of rentals, smaller household size, lower incomes	Very strong household growth of 2.7 percent annually through 2025. Provo has a higher proportion of rentals and smaller average household sizes than county. Stronger opportunity for affordable and moderate market rate rentals in next 5 to 10 years.
Apartment Conditions	Residential opportunity likely to be affordable rentals in next 5 - 10 years. Rental vacancy has decreased to 6.5 percent rent has increased 1.8 percent annually since 2007 - 2011. Ogden rents run nearly 6 percent less than County. Vacancy rates similar to County in Ogden, though only 3 percent for modern units. Very little permit activity in recent years	Low vacancy rates, significant competitive supply in pipeline for next five years with 2,000 units under construction and 4,500 planned in County (Bud Bailey and Fireclay provide direct competition)	Rental market in Provo consists of smaller and lower quality rental units (observation does not include BYU housing). Vacancy is 6.0 percent, higher than 5.0 percent countywide. Permit activity is picking up.
For Sale Market Conditions	Increasing sales volume and declining prices for attached product. Median sales price has fallen 4.2 percent and 3.1 percent respectively for the County and City between 2008 and 2012. Permitting activity remains slightly higher than 1/3rd of pre-recession levels. Ogden generally takes one-third of this market countywide.	Prices of for-sale multifamily gaining, as Meadowbrook outperforms County for last three years. Focus of this development is on north boundary of site (i.e. 3900 S and north). Fireclay continues to struggle, very few for-sale attached units sold in surrounding area	Mixed indicators for attached housing with increasing sales and declining prices. Suggests prices were set too high pre-recession. Increasing sales volume, though the Provo share is declining 2008 - 2012. Median price fell 1 percent over same period. Median price is 34 percent higher than rest of county suggesting high quality stock. Average permitting since recession slight less than half of the average between 2000 and 2007.
Office	**Minimal Opportunity**. County office market is weak, with declining rents since 2007 and 20-25 percent vacancy rates. 500,000 feet of office currently vacant in county. Ogden still functions as a downtown in office market.	**25K – 50K Total SF, 2K – 4K SF per year.** Site consistently trails County in terms of average rents. Inventory is aging and no concentration. Transit and location strong.	**Minimal Opportunity near term for low to mid-rise, then 75-150k SF.** Provo has 20 percent vacancy that needs to absorb first, taking at least 5 years. Provo City Center Temple could boost opportunity as it is seen as a catalyst.
Retail	**Minimal Opportunity.** Slight improvement though with increasing vacancy rate from 2003 to 2009. Some improvement since, though evidence of vacancy at Junction suggests difficulty in this market.	**Minimal.** Existing market space ranges from $9-14 per sf. Opportunities may evolve south of 3900 South. AADT is weak on 3900 S compared to 3300 S and 4500 S.	**50-100k SF, small-scale ground floor.** Visibility along University Ave, however strong competition from SF Towne Center Mall and Big Box. Potential for small scale development near Center Street and University Ave as you near downtown.
Industrial	**100 - 150k SF potential.** The Business Depot captures majority of new industrial demand over last decade and has 500 remaining acres to develop. Downtown, Trackline has potential for redevelopment with industrial.	**60K – 90K Total SF, 5K – 7.5K SF per year**. Strong market and compares with County with rents from $0.29 - $0.45 per sf. Lack of site access and greenfield competition will hinder redevelopment.	**50-75k SF**, potential market for high tech-R&D spin-offs from BYU.
Institutional	IRS Phase IV and V; Ogden Temple Renovation	Salt Lake Meadowbrook Campus	Provo City Center Temple; UTA Phase III Mixed Use Redevelopment Plans at Site
SWOT			
Strengths	•Historic character throughout much of downtown; •Compact, pedestrian friendly existing street grid / layout throughout much of downtown; •Good access to transit with Frontrunner and other services; •Gradually increasing employment in downtown; •Unique river amenity fronting northeast redevelopment site.	•Central location in region relative to outlying greenfield development opportunities; •Strong access to transit with Meadowbrook Station; •Large quantity of underutilized/redevelopable land; •Big Cottonwood Creek along the south side of the site boundary has potential to be strong natural amenity if improved.	•Historic architecture / character in CBD; •Good access to transit with UTA Frontrunner; •Good regional access w/close proximity to I-15; •BYU strong economic driver. •New Provo City Center Temple will likely be strong catalyst for new development in the immediately surrounding area;
Weaknesses	• Small scale of Weber County economy limits size of economic activity and total growth potential; •Weak household demographics in surrounding area; •Weak surrounding land uses and physical conditions in certain parts of site; • Railyard is barrier to continued redevelopment on west side of site boundary; • Few large, vacant parcels.	• Lack of access to I-15 makes site weak relative to nearby competitive areas; • Existing surrounding land uses and physical condition are not complementary for new development; • Lack of pedestrian connectivity to station from south of 3900 represents barrier to new development. • Few vacant parcels	•Removed/isolated from regional growth patterns favoring north end of Utah County; •Weak existing surrounding land uses and physical conditions south end of site; • UTA parking lot isolated from north side by tracks and University Ave viaduct, although this could be mitigated with a pedestrian bridge connecting to the north.
Opportunities	• Tight apartment market suggests opportunity for new units although financial feasibility difficult in light of achievable rents at existing projects; • Vacant land near Temple should attract new development; • Trackline Business Park represents good opportunity to attract less conventional industrial users seeking good proximity to downtown amenities relative to Business Depot Ogden.	• Although the submarket and site have historically trailed the larger area in terms of achievable rents and development activity, commercial and residential conditions are improving and the site has numerous parcels ripe for redevelopment. • With improved connectivity, there is an opportunity to leverage the Meadowbrook Station amenity.	• Large quantity of underutilized/redevelopable land along University Avenue; • This could help spur development on large, underutilized parcels along University Avenue that can serve to connect the CBD with the Frontrunner station; • While many small infill opportunities exist, concentrating effort to revitalize this corridor will have biggest impact.
Conclusions	•Downtown Ogden has successfully attracted employment to the area and needs the same trend with housing; • High-quality affordable units targeting existing downtown employees represents a viable strategy; •Planned development on Ogden River RDA area should capture majority of new residential demand in near term; • Consider ways to link downtown with Weber State University, through transit, satellite campus, etc.	• Affordable and moderately positioned apartments relatively close to the station are likely an opportunity in the next 5 to 10 years. • Some new, smaller-scale retail fronting 3900 could be viable assuming traffic counts are sufficient. Plan space for ground-floor retail but make it flexible so that it could be common space for apartments in near term while retail opportunity evolves.	•Given the activity in the downtown core, the new Temple, and the location of the Frontrunner station, efforts to revitalize/redevelop University Avenue from Center Street to the station will have the biggest long-term impact on the evolution of the Provo Catalytic Site. • Focusing infrastructure investments on this corridor, including improving connectivity to the station area, will help the corridor capture an increasing share of demand for new development.
Metrics			
Retail Return Estimate	10%	5%	15%
Employment Return Estimate	40%	20%	30%
Investment Return Estimate	20%	10%	25%

APPENDIX 8: FUNDING MATRIX

UCATS Funding Matrix

Funding Opportunity	Eligible UCATS Project Types	Qualifications	Lead Agency	Submittal Specifics
Municipal Funds				
Bond Financing	Varies	Varies	Varies	Bonds can be approved by voters to fund a range of projects. A local successful precedent is the 2012 Parks and Trails Bond in Salt Lake County, which authorized $47 million in bond funds to complete the Jordan River Parkway, the Parley's Trail, and acquire land for and construct new parks throughout the County.
Sales Tax	Varies	Varies	Varies	Possible to pass a specified sales tax that could be used to fund active transportation improvements. Precedents include the San Diego region, which approves a half-cent sales tax in 2008 to generate funds for highway, transit, and local road (including bicycle and pedestrian) 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.
Special Assessment or Taxing Districts	Varies	Varies	Local Gov't	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 or Increased Meter Fees	Varies	Varies	Local Gov't	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.

UCATS Funding Matrix

Funding Opportunity	Eligible UCATS Project Types	Qualifications	Lead Agency	Submittal Specifics
State Funds				
ADA Ramps	ADA-related improvements around station areas	For missing ADA ramps on State routes only	UDOT	Find missing ramp in UDOT database from recent survey of ramps. Contact Region Coordinator.
http://www.udot.utah.gov/main/uconowner.gf?n=13652716548952568				
Safe Sidewalks Program	Sidewalks	Sidewalks on State routes only	UDOT	Submit application to Region Safe Sidewalk Program coordinator, requires scope and cost estimate. Local jurisdiction must agree to maintenance, must be built within one year of money allocation.
http://www.udot.utah.gov/main/uconowner.gf?n=10467522336432843				
Community Development Block Grants- State Administered Program	Street improvements	Best if benefits low- or moderate-income populations. Part of a Consolidated Plan.	HUD, State and Local Gov't	Grantee is not a principal city of a metropolitan statistical area a city with less than 50,000, or a county with a population with less than 200,000. Grantees submit applications to State.
http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/stateadmin				
State Legislation	Legislation dependent.	Legislation dependent.	State of Utah	Oregon's "bike bill" was passed by the state Legislature in 1971. It requires including bicycle and pedestrian facilities when any road, street or highway is built or rebuilt. It applies to ODOT, cities and counties. These agencies are also required to spend "reasonable" portions of their state highway funds on active transportation facilities. This amount is interpreted to be at least 1% of the state highway fund received by ODOT, a city or county. This doesn't mean that 1% is what's considered "reasonable", nor that agencies can only spend 1% on active transportation facilites; 1% is a minimum. Also, they are not required to spend a minimum of 1% each year; it can be stockpiled to a reserve fund and used for projects for a period of ten years. The 1% minimum requirement doesn't release agencies from the obligation to provide bikeways and walkways as part of road construction. Rather, cities and counties that spend more than 1% on bicycle and pedestrian facilities must still provide bikeways and walkways as part of all new construction projects. More online at http://www.oregon.gov/ODOT/HWY/BIKEPED/Pages/bike_bill.aspx

Funding Opportunity	Eligible UCATS Project Types	Qualifications	Lead Agency	Submittal Specifics
				The California Streets and Highway Code Section 2106 established the Bicycle Transportation Account, which provides state funds to cities and counties wishing to improve safety and convenience for bicycle commuters. Caltrans typically allots $7.2 million for the BTA; these funds are then allocated to local jurisdictions on a 90/10 match basis. Eligible projects include planning, engineering, construction, and right-of-way acquisition for bicycle facilities; bike parking; bikes-on-transit amenities; traffic signal bike detection; safety improvements; and maintenance of facilities, among other elements. More online at http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm
Federal Funds				
Transportation Alternatives Program	Bicycle and pedestrian improvements	Funds can be used for construction, planning and design of on- and off-road facilities including sidewalks, trails, bicycle facilities, signals, traffic calming, lighting and safety infrastructure, and ADA improvements. Rails-to-trails conversions are also allowed. The Recreational Trails Program is included in Transportation Alternatives, as is the Safe Routes to School program.	WFRC, MAG, UDOT	WFRC and UDOT funds are already allocated for the 2013/2014 fiscal years. MAG has roughly $300,000 in TA funds for FY2014 that has not yet been allocated. MAG funds will be distributed to projects during the next Transportation Improvement Plan project selection process. Most TAP projects will have an 80/20 federal/local match split.
http://www.fhwa.dot.gov/map21/tap.cfm , WFRC form http://www.wfrc.org/new_wfrc/index.php/plans/transportation-improvement-program				
Community Development Block Grants- Entitlement Communities Program	Street improvements	Best if benefits low- or moderate-income populations.	HUD and Local Gov't	Grantee is a principal city of a metropolitan statistical area, a city with a population over 50,000, or a county with a population over 200,000. Part of a Consolidated Plan.
http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/entitlement				
Surface Transportation Program	Bicycle and pedestrian improvements	Generally not used on local minor collectors with exceptions for bicycle/pedestrian walkways.	UDOT	Concept reports due to MPO for consideration of programming funds.
http://www.fhwa.dot.gov/map21/stp.cfm				

UCATS Funding Matrix

Funding Opportunity	Eligible UCATS Project Types	Qualifications	Lead Agency	Submittal Specifics
Congestion Mitigation and Air Quality	Bicycle and pedestrian improvements	Reduce congestion or improve air quality in nonattainment or maintenance areas by shifting travel demand to non-automobile modes.	WFRC, MAG	Projects must be included in the TIP. WFRC and MAG call for projects from local communities each year.
http://www.fhwa.dot.gov/map21/cmaq.cfm				
Land and Water Conservation Fund	Bicycle and pedestrian trails, or acquisition of land for trails	LWCF provides grants to projects that create outdoor recreation facilities, or land acquisition for public outdoor recreation. Projects have to address an outdoor recreation need in the 2009 Utah State Comprehensive Outdoor Recreation Plan. Planning and engineering activities may be eligible in addition to acquisition and construction.	DNR	50/50 match is required, and the grant recipient must be able to fund the project completely while seeking reimbursements for eligible expenses. Program funding is uncertain, however, and there was no call for projects in 2013.
http://stateparks.utah.gov/resources/grants/land-and-water-conservation-fund				
Federal Lands Access Program	Planning, engineering, construction, and other activities	Projects must be on, adjacent to, or provide access to federal lands. UCATS projects on the east side of the study area accessing USFS lands are the most likely candidates.	UDOT	Fund is administered through UDOT in coordination with the Central Federal Lands Highway Division, which develops a Programming Decisions Committee. The Committee prioritizes projects, establishes selection criteria, and calls for projects. Next call for projects is anticipated for 2015.
http://www.fhwa.dot.gov/map21/flap.cfm, http://www.cflhd.gov/programs/flap/ut/				

UCATS Funding Matrix

Funding Opportunity	Eligible UCATS Project Types	Qualifications	Lead Agency	Submittal Specifics
Rivers, Trails, and Conservation Assistance Program	Planning assistance for bicycle and pedestrian projects.	Staff support for facilitation and planning.	National Park Service	Projects need to be related to conservation and recreation, with broad community support, and supporting the National Park Service's mission. Applicants must submit National Park Service applications by August 1 annually, including basic information as well as letters of support. The local contact is Marcy DeMillion, at 801-741-1012 or marcy_demillion@nps.gov.
http://www.nps.gov/ncrc/programs/rtca/contactus/cu_apply.html				
FTA Joint Development	Station area improvements	Must be part of a transit-oriented development project on federal or FTA property, or on a FTA-assisted project owned by another party.	FTA, UTA	Projects must provide a public transportation benefit (by establishing new or enhanced coordination between public transportation and other transportation), along with other criteria. Potential applicants should coodinate with FTA through initial submittal of a Joint Development checklist.
http://www.fta.dot.gov/documents/2013-03-07_Proposed_Joint_Development_Circular_(FINAL)_(2).pdf				
Private or Corporate Funds				
The Regence Foundation	Programs and possibly infrastructure	Projects must improve access to healthy foods, recreation facilities, and encourage healthy behavior for families.	Cambia Health Foundation	Grants are typically in $50,000 - $100,000 range. Focus is on programs. Contact foundation staff at cambiahealthfoundation@cambiahealth.org for additional information.
Bikes Belong Foundation	Bicycle infrastructure	Projects must improve the cycling environment	Bikes Belong	Bike Belong partnered with REI to provide grants supporting the Green Lane Project. Grant applications are not currently being accepted, however.
http://www.bikesbelong.org/bikes-belong-foundation/foundation-grants/rei-grant-program				
Community Fundraising	All	Small dollar amounts	Local agency or non-profit	Lead agency manages the details, marketing, and range of a community fundraising campaign. Successful examples include Softwalks' Kickstarter campaign for sidewalk amenities in New York City, and use of volunteer labor for trail construction in Springdale, Utah. Follow link below for more ideas.
http://www.bicyclinginfo.org/funding/sources-community.cfm				

APPENDIX 9: TOP 25 PROJECT AREAS INFORMATION SHEETS

UCATS Top 25 Project Area Summary					
County	**Location**	**Municipality**	**Type**	**Length (miles)**	**Cost**
Weber	23rd Street and Grant Ave	Ogden, UDOT, UTA	Bike lanes, cycle tracks, pedestrian improvements	1.58	$ 195,000
Weber	Roy/Ogden	Roy/Ogden	Bicycle and pedestrian feasibility study		$ 100,000
Weber/Davis	SR-108	Roy, Clinton, West Point, Syracuse, UDOT, UTA	Bike lanes and pedestrian improvements	9.8	$ 1,500,000
Davis	Layton/Syracuse	Layton/Syracuse	Bicycle and pedestrian feasibility study		$ 100,000
Davis	Fort Lane/Main Street	Layton, Kaysville, Farmington, UDOT	Bike lanes	7.9	$ 3,000,000
Davis	Bountiful/West Bountiful	Bountiful/West Bountiful	Bicycle and pedestrian feasibility study		$ 100,000
Davis	US-89/Main Street	North Salt Lake, UDOT	Intersection improvements	0.32	$ 2,100,000
Salt Lake	Salt Lake Central Station	Salt Lake City, UTA	Bicycle and pedestrian improvements		$ 263,000
Salt Lake	800/900/700 East	Salt Lake City, Salt Lake County, Murray, Cottonwood Heights, Midvale, Sandy, UDOT	Bike lanes, bike boulevards, and pedestrian improvements	11.1	$ 6,500,000
Salt Lake	3900/4100 South	Salt Lake County, West Valley City, UTA	Bike lanes and pedestrian improvements	15	$ 2,100,000
Salt Lake	4800 South	Murray, Holladay, Salt Lake County	Bike lanes and pedestrian improvements	4.5	$ 630,000
Salt Lake	2700 West	Salt Lake City, West Valley City, Taylorsville, West Jordan, South Jordan, Riverton, Bluffdale, UTA	Bike lanes and pedestrian improvements	14.5	$ 2,640,000
Salt Lake	Main Street/Box Elder	Salt Lake City, South Salt Lake, Salt Lake County, Murray,UTA	Bike lanes and pedestrian improvements	6	$ 897,000
Salt Lake	Winchester Street	Murray	Bike lanes and pedestrian improvements	4	$ 1,100,000
Salt Lake	Porter Rockwell Trail	Murray, Midvale, UTA	Bicycle and pedestrian feasibility study		$ 100,000
Salt Lake	Sego Lily Drive	Sandy, South Jordan,	Bike lanes	4.2	$ 3,600,000
Salt Lake	11400 South	Sandy, South Jordan, UDOT	Bike lanes and pedestrian bridge	1.8	$ 1,800,000
Utah	Historic Utah Southern Rail Trail	Lehi, American Fork, Pleasant Grove	Bicycle and pedestrian feasibility study		$ 100,000
Utah	200 South	American Fork	Cycle tracks	2.3	$ 1,710,000
Utah	State Street	Pleasant Grove, Lindon, Orem, UDOT	Bike lanes	4.6	$ 250,000
Utah	Orem Central Station	Orem, UTA, UDOT	Bicycle and pedestrian bridge		$ 12,000,000
Utah	900 East	Provo	Buffered bike lanes	2.4	$ 3,200,000
Utah	500/300 West	Provo	Bike lanes/boulevards	3	$ 250,500
Utah	Provo Central Station	Provo, UTA	Bicycle and pedestrian improvements	1.3	$ 1,340,000
Utah	US-89	Provo, Springville, UDOT	Buffered bike lanes	3.2	$ 2,100,000
			UCATS Top 25 Summary	97.5	*$ 47,675,500*

UCATS Cost Assumptions

Planning level design:

The costs for the UCATS projects are based on a high level planning effort. There has been no design performed beyond identifying concept locations and treatments. The concepts have identified locations for projects which have been placed into GIS. These GIS files were used to identify project lengths. This was overlaid onto existing GIS layers gathered from County and ARC GIS databases. This information was used to determine the pavement widths, shoulders widths and areas where there is sidewalk. The information is not based on engineering design, so the lengths and widths are estimates only.

Unit costs:

The costs were developed using UDOT average unit bid costs combined with experience from other UDOT projects such as Mountain View Corridor. The costs represent average costs for each item. For example, the cost of pavement of $80 sq yard is based on a typical urban pavement section for UDOT.

The costs for the impacts to drainage facilities is a lump sum basis, there is no supporting engineering data to identify the existing facilities. The costs are based on general knowledge of the project area and the assumption that there are drainage facilities located underground.

The costs for ROW impacts are lump sum costs based on identified need for additional ROW. There has not been any ROW engineering performed to determine the extent of the impacts. The ROW was determined from County GIS data to identify location, and then utilizing the project improvements overlaid to determine if there was ROW impacts. The type of impact, such as a temporary easement, perpetual easement, or full or partial take was not able to be determined without design.

The costs for Mobilization, Traffic Control and Public Information were all lump sum based on the improvements proposed and engineering judgment.

The level of effort was not based on UDOT specifications. If it is determined that the projects will be evaluated further then they can be designed and the costs can be updated.

OGDEN TRANSIT STATION, OGDEN CITY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	23RD Street and Grant Avenue in Ogden
Summary	Bike facilities are proposed on 23rd Street and Grant Avenue. These would connect downtown Ogden, an economic center with high levels of bike and pedestrian activity, to the Ogden Transit Station.
Purpose	Ogden City is currently designing a cycle track on Grant Avenue between 18th-25th Streets. The proposed UCATS facility would extend the cycle track southward from 25th Street to 36th Street, and include a bike facility on 23rd Street to the Transit Station. While the Ogden Transit Station is well designed for bike and pedestrian access, improvements could include on-street accommodations for cyclists and wayfinding to bike racks and bike lockers. A pedestrian crossing may be needed on Wall Avenue at 24th Street.
Jurisdiction	Ogden City, UDOT, and UTA

Type	Distance	Conceptual Cost Estimate
Bike lanes, cycle track, and station improvements	1.58 miles	$195,000

Technical Details	
Distance (mi)	1.58
Lanes (total)	2-3
Pavement Width (ft)	24-56
Paved Shoulder Width (ft)	2-10
Right of Way (ft)	85
Posted Speed Limit (mph)	35 mph
Existing Sidewalks	Continuous
Existing Medians	TWLTL in some areas

Technical Details	
Required Roadway Modifications	Bike lanes, buffered bike lanes, and cycle track. A pedestrian crossing may be needed on Wall Avenue near 24th Street.
Impacts to On-street Parking	There is permitted on-street parking that would be impacted. Coordination is needed with the city.
Other Potential Impacts	The impacts would be to restripe the existing pavements and improve cross walks.
Environmental Clearance	Due to this being an existing corridor, the environmental impacts would likely be non-existent or very minimal, possibly just a memo to file. There would be no impacted resources.
Implementation Opportunities	UDOT has a project approximately 3 years out that includes pavement reconstruction, drainage improvements, and will provide enhanced mobility and safety. Brett Slater is the contact at 801-620-1689 or brettslater@utah.gov. It will take place on 24th Street South, from Lincoln Ave to Washington Blvd.
Cost Assumptions	This project is 1.58 miles from 25th to 36th on Grant. This estimate assumes that all striping will be removed, the lane widths adjusted and restriped with bike lanes. This includes repainting the roadway, thermoplastic bike lane messaging, as well as signage. The bike facility on 23rd has $10,000 allowance, based on minimal information about the size and details of the facility. Other improvements such as pedestrian crossings are not included in this estimate.

ROY / OGDEN FEASIBILITY STUDY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Hinckley Drive / Midland Drive area of Roy and Ogden, Weber County
Summary	Feasibility study
Purpose	A bicycle and pedestrian facility could connect the existing pathway west of SR-126 to the proposed Grant Avenue cycle track. A proposed facility would provide access over major barriers such as I-15, I-84, the Weber River, and rail corridors. There are several alignments that could be used in this area; Hinckley Drive and Midland Drive are two potential options. A feasibility study could analyze these and other options to connect from the Roy area to downtown Ogden. Connections to the Denver & Rio Grande trail should also be considered.
Jurisdiction	Roy and Ogden

Type	**Conceptual Cost Estimate**
Feasibility Study	$100,000

SR-108, WEBER/DAVIS COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	On SR-108 and 4000 South in Roy and SR-108 from Roy to Syracuse
Summary	This project proposes a bike facility to connect to existing trail networks, and walkability improvements at the Roy FrontRunner station.
Purpose	A proposed bike facility on SR-108 would extend from 4000 South in Roy to 2700 South in Syracuse and intersect with the Bluff Road trail network. The proposed project would include a link on 4000 South to Sand Ridge Drive and the Roy FrontRunner station, which needs walkability and access improvements. These improvements could include a trail connection across the tracks to access an existing trail on the west side of the tracks; neighborhood connections from that trail to the subdivision northwest of the station; a trail connection from the south end of the station to 2675 West; a trail connection along the east side of the tracks north to 4000 South, allowing pedestrians a more direct walking route; and on-street bike facilities on Sand Ridge Drive.
Jurisdiction	Roy, Clinton, West Point, Syracuse, UDOT, and UTA

Type	Distance	Conceptual Cost Estimate
Bike lanes and station improvements	9.8 miles	$1,500,000

Technical Details			
	Segment 1: 2000 W – Bluff St to 1700 S	Segment 2: 2000 W – 1700 S to 4800 S	Segment 3: 4000 S – Midland Dr to railroad tracks
Distance (mi)	1	7.3	1.5
Lanes (total)	2	3	2
Pavement Width (ft)	46	48-76	40-58
Paved Shoulder Width (ft)	11	3-11	0-12
Right of Way (ft)	68	60-96	62-74

Technical Details			
Posted Speed Limit (mph)	40	40	35
Existing Sidewalks	Yes	Sporadic and not continuous	Sporadic
Existing Medians	No	Yes, used for turning movements	No
Required Roadway Modifications	The existing pavement has 11 foot shoulders and no existing striping. This could be striped to accommodate a 6 foot bike lane, leaving 5 foot shoulders. Pavement messages can be added in the bike lane with signage.	The existing pavement has 11 foot shoulders and no existing striping. This could be striped to accommodate a 6 foot bike lane, leaving 5 foot shoulders. Pavement messages can be added in the bike lane with signage. There will be conflicts with intersection areas and turning traffic. Bikes can share these areas and this would not require adding ROW.	Pathways would need to be added at the Roy Frontrunner Station to connect the neighborhoods to the rail station. On-street bike lanes would need to be added along Sand Ridge Drive. The existing pavement is wide enough to just stripe bike lanes. Six-foot pathways around the Roy Frontrunner Station should be added. ROW will need to be purchased for the pathways. Pavement will need to be added in the areas where the shoulder is non-existent for about 2,500 feet along both sides. UDOT is currently funding the portion along Midland Drive which will be completed in 2014 with striping the shoulders and placing 4 foot bike lanes and 8 foot shoulders.
Impacts to On-street Parking	This segment has room for on-street parking, but it is not striped. Coordination with the cities will be required. This section contains segments owned by UDOT and by Syracuse City. The section from Antelope to Bluff will need to be coordinated with Syracuse.	There is existing on-street parking that would be impacted by adding the bike lanes.	Possibly. The portion of the roadway along 4000 South is a Roy City street. Coordination with the city will be required.

Technical Details

Other Potential Impacts	None	In the intersection areas there is not enough existing pavement to accommodate a bike lane, and there would be conflicts with turning traffic.	Additional ROW will need to be purchased for the pathways at the Roy Frontrunner station. Also, due to the lack of shoulders in this segment, ROW will need to be purchased to accommodate the addition of bike lanes. Due to the addition of pavement and ROW, there may be impacts to existing drainage facilities.
Environmental Clearance	There are some hazardous waste sites along the corridor that may require Phase 1 report to show the area is not contaminated. This would require a Cat-Ex.	There are some hazardous waste sites along the corridor that may require Phase 1 report to show the area is not contaminated. This would require a Cat-Ex. There is an agricultural protection area along this segment that would need to be discussed in the Cat-Ex.	There are some hazardous waste sites along the corridor that may require Phase 1 report to show the area is not contaminated. This would require a Cat-Ex.
Implementation Opportunities	UDOT began a study in January 2013 to evaluate improvements to SR-37 (4000 South) between 5100 West and SR-108 (Midland Drive). They are looking at ways to improve functionality and provide more efficient traffic flow through West Haven. UDOT is hoping to start the project in Jan of 2015. UDOT contact is Carlye Sommers (801)-859-3770. Updated information can be found at www.sr-37.com. UDOT has plans to do roadway rehabilitation on SR-37, SR-108 to SR-97. This extends from Hooper to Clinton. The preservation efforts may include resurfacing the roadway and or bridges, and will seal cracks, improve ride quality and increase skid resistance. UDOT contact is Daryl Ballantyne (801)-620-1682 dballyntyne@utah.gov		

LAYTON / SYRACUSE FEASIBILITY STUDY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	East/west corridor between Syracuse and Layton in Davis County
Summary	Feasibility study
Purpose	A feasibility study is needed to explore options for east-west bicycle connectivity in Layton and Syracuse. A study should evaluate a range of alignments and facility types, and address right-of-way issues, user demand, constructability, connectivity to nearby facilities, and other issues.
Jurisdiction	East Layton, Layton, Syracuse, and Clearfield

Type	**Conceptual Cost Estimate**
Feasibility Study	$100,000

MAIN STREET, DAVIS COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	On Fort Lane, Main Street, and Lagoon Frontage Road
Summary	A bike facility connecting to existing trail networks and FrontRunner stations.
Purpose	This proposed facility connects riders to two FrontRunner stations (Layton and Farmington), and accommodates cyclists over major interchanges with US-89 and I-15. It creates a north-south regional link east of I-15, where facilities are currently limited. The facility would extend from the Layton FrontRunner station along Gentile Street to Fort Lane and to Main Street, south on Main Street to Farmington's Park Lane, and connect to the Lagoon Frontage Road from Park Lane, ending at State Street in Farmington.
Jurisdiction	Layton, Kaysville, Farmington, and UDOT

Type	Distance	Conceptual Cost Estimate
Bike lanes	7.9 miles	$3,000,000

Technical Details

	Segment 1: Lagoon Dr. – State St to Park Ln	Segment 2: Main Street – Park Lane to US 89 Interchange	Segment 3: Main Street – US 89 Interchange to 400 W/ Millcreek Way (just north of 2000 N)	Segment 4: Main Street – 400 W / Millcreek Way (just north of 2000 N) to Layton Pkwy Interchange	Segment 5: Layton Pkwy Interchange to FrontRunner Station Access
Distance (mi)	1	1.7	2.9	1.3	1
Lanes (total)	2-3	2	5	3	5
Pavement Width (ft)	34-48	30-44	71-80	75	75
Paved Shoulder Width (ft)	5-8	2-10	2-10	15	2-10
Right of Way (ft)	100-112	60-74	96-102	98	150

Technical Details					
Posted Speed Limit (mph)	35 mph	40 mph	40 mph	40 mph	40 mph
Existing Sidewalks	No	Sporadic and not continuous	South side yes, north side is sporadic	Yes	Yes
Existing Medians	Some striped medians, accommodates turning movements.	Existing shoulders are about 2 feet wide to Shepard lane and then are 8-10 feet wide from Shepard Lane to US 89. There are some medians used for turning movements.	TWLTL, and there are some medians used for turning movements. Shoulders for the most part will accommodate restriping for a bike lane.	There are some medians used for turning movements. Shoulders for the most part will accommodate restriping for a bike lane.	There are some medians used for turning movements. Shoulders for the most part will accommodate restriping for a bike lane.
Required Roadway Modifications	Widen pavement for the entire segment. Provide striping for bike lanes and pavement messages.	Add pavement (6 feet) to accommodate bike lane from Main Street to Shepard Lane (0.7 mi); striping only would be least impactive to wetlands and could be done between Shepard Lane and US 89.	Provide striping for bike lanes and pavement messages.	Provide striping for bike lanes and pavement messages.	Pothole/water meter repair; widen roadway (6 feet) in North Farmington to allow for bicycle lanes, this length is about 0.5 miles.
Impacts to On-street Parking	None	There would be impacts to on-street parking. Recommend working with the cities.	None	There would be impacts to on-street parking. Recommend working with the cities.	None

Technical Details					
Other Potential Impacts	This segment follows the entrance to Lagoon and has multiple access points that will cause conflict with motorists. The shoulders are very narrow and additional pavement will be required. The existing shoulders are mainly 4 feet, so additional pavement will be 4 feet along each side. This road is adjacent to I-15 on the west and Lagoon on the east, which limits ROW acquisition. This segment will be challenging to implement. There will be drainage impacts to Farmington Creek.	There will be impacts to ROW from Main Street to Shepard Lane where added pavement will be needed. This may also cause impacts to existing drainage facilities. If there was a desire to make the sidewalks continuous there would be additional impacts.	This will require striping bike lanes and adding signage and pavement message.	This will require striping bike lanes and adding signage and pavement message. Kaysville City has indicated they do not want to eliminate on-street parking, so coordination will be required. There will be a challenge getting through Kaysville from 100 North to Center Street as there is no room for additional ROW due to development and the conflict with on-street parking. An alternative option of using 100 East could be considered.	There will be some impacts to ROW where added pavement is needed (0.5 mi). This may also cause impacts to existing drainage facilities.
Environmental Clearance	This segment does not contain many environmental concerns except the crossing of Farmington Creek. This may require a memo to file, but when added to the remaining segments, a Cat-Ex or EIS may be required.	There may be some minimal impacts to wetlands, so a Cat Ex will be necessary.	There may be some minimal impacts to wetlands, so a Cat Ex will be necessary.	There may be some minimal impacts to wetlands, so a Cat Ex will be necessary.	There may be some minimal impacts to wetlands, so a Cat Ex will be necessary.

Technical Details

Implementation Opportunities

There are two UDOT projects on this corridor. One project is at the intersection of SR-273 and Hidden Valley Drive. It will be an intersection improvement which may add turn lanes and improve signal operations. It is under planning and the contact is Rex Harris 801-791-3926 rexharris@utah.gov. UDOT also has an enhancement project that should be under construction currently. It is on SR-126, at the end of the corridor that UCATS is interested in. The project is enhancement of the Historic Train Station Parking in Layton. (F-0126(24)0. Farmington City has a project from Shepard Lane to State Street adding shoulders and sidewalks.

Improvement Summary	
Location	Bountiful and West Bountiful, Utah
Summary	Feasibility study
Purpose	A feasibility study is needed to explore options for east-west bicycle connectivity in Bountiful. A study should evaluate a range of alignments and facility types, and address right-of-way issues, user demand, and constructability. Nearby facilities to connect include the Legacy Parkway trail, bike lanes on 500 South (west of I-15), and bike lanes on Davis Boulevard.
Jurisdiction	Bountiful and West Bountiful

Type	**Conceptual Cost Estimate**
Feasibility Study	$100,000

US-89/MAIN STREET, NORTH SALT LAKE

Top 25 Project Area Technical Summary

Improvement Summary

Location	US-89/Main Street/Eagle Ridge Dr., North Salt Lake
Summary	This facility fills in a gap in the existing network and addresses intersection safety issues for both cyclists and pedestrians.
Purpose	An existing trail parallels the east side of US-89 until Eagle Ridge Drive, where it terminates. North Salt Lake has bicycle facilities on Center Street. This proposed facility would connect the gaps between the trail and Center Street, providing an opportunity for cyclists to get through the US-89 intersection and onto a lower-traffic alternative. Project improvements could potentially include enhanced crosswalk facilities at the US-89/Eagle Ridge Road intersection, and off-street trail connections on the west side of US-89 to Main Street.
Jurisdiction	North Salt Lake City and UDOT

Type	Distance	Conceptual Cost Estimate
Bike lanes, off-street trail, and intersection improvements	0.32 miles	$2,100,000

Technical Details

	Segment 1: US-89	Segment 2: Main Street	Segment 3: Eagle Ridge Drive
Distance (mi)	0.14	0.18	N/A
Lanes (total)	5	2	Intersection improvements only
Pavement Width (ft)	60	36	Intersection improvements only
Paved Shoulder Width (ft)	0	6	N/A
Right of Way (ft)	85	47	N/A
Posted Speed Limit (mph)	50 mph	40 mph	N/A

Technical Details			
Existing Sidewalks	Sporadic	Yes	Along the north side
Existing Medians	TWLTL	No	N/A
Required Roadway Modifications	Provide a 10 foot sidewalk/shared use path along the west side. Due to the grades along this portion of US-89, it will be necessary to purchase ROW, and build a retaining wall to accommodate the bike lane. This would be highly impactive and costly.	Bike lanes could be striped along the existing pavement, but this would be in conflict with the shoulders. The traffic volume along this road is small, so the conflict would be minimal. Add sidewalk along the west side to tie into Main Street and Eagle Ridge.	Improved cross walks, restriped.
Impacts to On-street Parking	Not permitted	This would impact on-street parking. This would have to be coordinated with the city.	N/A
Other Potential Impacts	There may be impacts to existing drainage facilities. Adding shoulders and bike lane will cause ROW impacts.	None	
Environmental Clearance	This would require a Cat-Ex most likely for documentation; however there are no anticipated impacts.	None	None
Implementation Opportunities	US-89 is a UDOT road; they have not posted any projects for this roadway. The North Salt Lake city engineer Paul Ottoson (801-335-8723) said there will be a water line project next year, on Main Street. He was concerned that there wasn't enough ROW for a full bike lane; maybe a shared lane could work. He thought the road was about 32 feet wide on Main Street.		

SALT LAKE CENTRAL STATION, SALT LAKE CITY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	200 South/600 West
Summary	This project encompasses station area improvements to walkability and bikeability at the Salt Lake Central Station.
Purpose	The Salt Lake Central Station is a major transit hub connecting riders to TRAX, FrontRunner, and local bus service. Cyclist and pedestrian activity is concentrated in this area, as riders access the station from areas near downtown, and several improvements could be made to enhance walkability and bikeability at this location. The crosswalk at the intersection of 300 South and 600 West has potholes, and high-visibility crosswalks that meet ADA requirements could be considered here. The section of 300 South between 500 West and 600 West needs sidewalks and parkstrips. A green bike lane on 600 West could help cyclists better navigate its intersection with 300 South, where the bike lane shifts from one side of the tracks to the other. The bike racks in use at the station can be confusing to cyclists and a simpler design might maximize bike rack capacity better. Shelters could also be added to protect bikes from inclement weather. In addition, Salt Lake Central Station is near several planned redevelopment projects. Bike and pedestrian improvements could be incorporated into redevelopment plans.
Jurisdiction	Salt Lake City and UTA

Type	Distance	Conceptual Cost Estimate
Station area improvements	See notes below	$263,000

Technical Details			
	Intersections: 200South/600 West, 300 South/600 West, 200 South/500 West	Sidewalks along 300 South	Bike lanes along 600 West
Distance (ft)	N/A	715	600
Lanes (total)	N/A	2	3

Technical Details			
Pavement Width (ft)	Varies	54	35
Paved Shoulder Width (ft)	N/A	No shoulder delineation	4-6
Right of Way (ft)	N/A	105	70
Posted Speed Limit (mph)	N/A	25	30
Existing Sidewalks	N/A	Yes, along both sides, poor condition	Sidewalk along the west side
Existing Medians	N/A	None	Rail separates traffic
Required Roadway Modifications	Restripe crosswalks at each intersection and repair the pedestrian ramps. Add 3 bike racks.	Restripe 300 west to accommodate bikes and replace the current sidewalk with 6 foot ADA compliant sidewalk.	Stripe bike lane.
Impacts to On-street Parking	N/A	There is permitted on-street parking, but with striping a bike lane this can be mitigated.	There is permitted on-street parking along the west side, and there is enough room for a bike lane without impacting the on-street parking.
Other Potential Impacts	There are not identified environmental resources in the area. With this project being mainly restriping and adding bike racks there may not be any environmental documentation necessary.	There are not identified environmental resources in the area. With this project being mainly restriping and adding bike racks there may not be any environmental documentation necessary.	There are not identified environmental resources in the area. With this project being mainly restriping and adding bike racks there may not be any environmental documentation necessary.
Environmental Clearance	This may require a Cat Ex.	This may require a Cat Ex.	This may require a Cat Ex.
Implementation Opportunities	There are no opportunities to coordinate improvements with local road projects currently. Redevelopment projects near the station may incorporate walkability and bikeability improvements. Coordination should continue with Salt Lake City.		

800 EAST/900 EAST/700 EAST, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	800 East, 900 East and 700 East in Salt Lake County
Summary	This proposed project includes multiple segments to create a regional, cross-jurisdictional facility from South Temple in Salt Lake City to 13200 South in Draper.
Purpose	A bike facility on 900 East would intersect with another high-priority route on 4800 South, where the 900 East/Van Winkle Expressway intersection is a major barrier. Design and construction of the 900 East facility could be coordinated with the 4800 South facility and potential intersection improvements. North of 1700 South, the route would shift to 800 East and become a shared-lane facility. The facility would shift to 700 East south of approximately 6200 South. This regional route would also connect riders to the Kimballs Lane TRAX station in Draper. Potential station area improvements at this station could include sidewalk installation on 700 East to accommodate potential riders living immediately north of the station; and along 11800 South to accommodate pedestrians walking to Juan Diego High School.
Jurisdiction	Salt Lake City, Murray, Cottonwood Heights, Midvale, Sandy, Draper, Salt Lake County, and UDOT

Type	Distance	Conceptual Cost Estimate
Bike lanes, bike boulevards, and pedestrian improvements	11.1 miles	$6,500,000

Technical Details

	Segment 1: 900 East from Salt Lake City to 4500 South	Segment 2: 900 East / 700 East from 4500 South to Creek Road	Segment 3: 700 East from 9000 South to 9400 South	Segment 4: 700 East from 13400 South to 13540 South
Distance (mi)	5.8	5.3	0.65	0.6
Lanes (total)	2	4	3	5
Pavement Width (ft)	36	80	52	80

Paved Shoulder Width (ft)	6	4-6	4-12	10
Right of Way (ft)	83	85	54	105
Posted Speed Limit (mph)	25	35-40	25	40
Existing Sidewalks	Yes - varies	Yes - varies	Yes - varies	Yes - varies
Existing Medians	Yes, used for turning movements and landscaping areas.	Yes, used for turning movements and landscaping areas.	Yes - varies	Yes - varies
Required Roadway Modifications	There will need to be additional pavement added to accommodate the bike lane. 4 Feet of pavement should be added to each side. There will potentially be ROW impacts.	There will need to be additional pavement added to accommodate the bike lane. 4 Feet of pavement should be added to each side. There will potentially be ROW impacts.	Bike lane striping will need to be added along the roadway. The existing pavement should be wide enough to accommodate the bike lanes.	Bike lane striping will need to be added along the roadway. The existing pavement should be wide enough to accommodate the bike lanes. New sidewalks need to be added to the Kimball TRAX Station to connect the existing sidewalks along 700 East and Kimballs Lane.
Impacts to On-street Parking	There is on street parking that could be impacted. Refining design to accommodate the bike lane and the parking will need to be discussed with the cities.	There is on street parking that could be impacted. Refining design to accommodate the bike lane and the parking will need to be discussed with the cities.	There is on street parking that could be impacted. Refining design to accommodate the bike lane and the parking will need to be discussed with the cities.	There is on street parking that could be impacted. Refining design to accommodate the bike lane and the parking will need to be discussed with the cities.
Other Potential Impacts	There will be impacts to ROW along this portion of the corridor. Some cases of drainage facilities will have to be addressed by lengthening box culverts.	There will be impacts to ROW along this portion of the corridor. Some cases of drainage facilities will have to be addressed by lengthening box culverts.		

Environmental Clearance	This will require and environmental document, it may be a Cat Ex, or a Re-Evaluation of a previous document.	This will require and environmental document, it may be a Cat Ex, or a Re-Evaluation of a previous document.	This will require and environmental document, it may be a Cat Ex, or a Re-Evaluation of a previous document.	This will require and environmental document, it may be a Cat Ex, or a Re-Evaluation of a previous document.

Implementation Opportunities

800 East, from South Temple to 1700 South, is currently considered a "quiet street". City engineer Dan Bergenthal (801-535-7106), said there are no plans in the near future for construction. 900 East was reconstructed several years ago by UDOT. Dan thought there might be room for a shared bike lane on 900 East, but not anything more. The section of 900 East through Murray and into Midvale is SR-71, maintained by UDOT. They do not have any projects posted for this area. 700 East (SR-71) in Sandy has existing bike facilities, except for the block north of 9400 South. UDOT Resident Engineer Peter Tang (801-910-2003) was not aware of any construction projects being planned for this block. The upper portion of 700 East in Draper is SR-71. UDOT Resident Engineer Peter Tang (801-910-2003) informed us that there is no work planned for this section of road. Draper City Engineer Troy Wolverton (801-576-6536) was not aware of any projects planned for 700 East in Draper. There is a short section in southern Draper that is no longer SR-71.

3900 SOUTH / 4100 SOUTH, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	3900 South / 4100 South (Wasatch Blvd to SR-111)
Summary	3900/4100 South provides a cross-valley opportunity for a bike facility, from SR-111 to Wasatch Boulevard. This project also includes walkability improvements at the Meadowbrook TRAX station.
Purpose	This facility would connect to existing facilities such as the Jordan River Trail and Wasatch Boulevard bike lanes, utilize existing bridges over I-15 and rail yards, and provide access to the Meadowbrook TRAX station. At the TRAX station, a frequently-used informal path near the southwest corner of the station could be paved; bike racks could be relocated and reconfigured to maximize usage; sidewalk improvements are needed along West Temple and 3900 South; and the 3900 South/300 West intersection may need to be evaluated to reduce pedestrian crossing distance.
Jurisdiction	Salt Lake County, West Valley City, and UTA

Type	Distance	Conceptual Cost Estimate
Bike lanes and station improvements	15.0 miles	$2,100,000

Technical Details			
	Segment 1: 3900 South / 4100 South from SR-111 to 5600 West	Segment 2: 3900 South / 4100 South from 5600 West to Holladay Boulevard	Segment 3: 3900 South / 4100 South from Holladay Boulevard to Wasatch Boulevard
Distance (mi)	3.5	11.0	2.3
Lanes (total)	2-3	5	3
Pavement Width (ft)	28	80	53
Paved Shoulder Width (ft)	2	10	10
Right of Way (ft)	33	147	96

Technical Details			
Posted Speed Limit (mph)	40 mph	35 mph	35 mph
Existing Sidewalks	Limited sidewalk, not continuous.	Yes - varies	Yes - varies
Existing Medians	TWLTL	TWLTL also hardscape	TWLTL
Required Roadway Modifications	Additional 6' of pavement is needed on both sides of roadway in order to accommodate bike lanes.	Striping of bike lanes can be accommodated within the existing pavement. Provide new or repaired sidewalks. Place a new path near southwest corner of Meadowbrook TRAX station.	Striping of bike lanes can be accommodated within the existing pavement.
Impacts to On-street Parking	There is no permitted on-street parking, so it will not be impacted.	Very limited on-street parking, design should be able to make accommodations.	Very limited on-street parking, design should be able to make accommodations.
Other Potential Impacts	There may be impacts to ROW due to adding 6 feet of pavement to both sides of the roadway. There may be impacts to existing drainage facilities that will need to be lengthened.	There may be impacts to existing drainage facilities that will need to be lengthened.	There may be impacts to existing drainage facilities that will need to be lengthened.
Environmental Clearance	A Cat-Ex will be required to determine impacts. The potential impacts are limited to hazardous waste sites, and creek crossings.	A Cat-Ex will be required to determine impacts. The potential impacts are limited to hazardous waste sites, and creek crossings.	A Cat-Ex will be required to determine impacts. The potential impacts are limited to hazardous waste sites, and creek crossings.
Implementation Opportunities	The western most section is in Salt Lake County and terminates at SR-111. West Valley City Engineer Dan Johnson (801-963-3318) had no work planned in the near future for 4100 South. They would like to add bike facilities from 5600 West to Bangerter Highway, but they have 5 lanes on a 55' ROW, with no room currently for bike lanes. South Salt Lake Deputy Director of Public Works Ed Rufner (801-243-8712) said that any construction on their section of 3900 South is 5 to 10 years out. Salt Lake County Engineer Andrea Pullos 385-468-6620 said that a construction project on 3900 South will take place next year. It will occur from 2850 East to Wasatch Blvd, and will include bike facilities. Holladay City Engineer Clarence Kemp (801-364-4785) has applied for a UDOT grant to get striping and signage for bike lanes on the section of 3900 South near Holladay.		

4800 SOUTH, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary

Location	4800 South (Murray Holladay Road) in Salt Lake County from the Jordan River Parkway to Holladay Boulevard
Summary	This project adds a bike lane on 4800 South and improves the Van Winkle Expressway/900 East intersection for pedestrians and cyclists.
Purpose	4800 South bike facilities would connect to existing facilities on either end: the Jordan River Parkway and Holladay Boulevard. This route also provides regional access across I-15 without requiring navigation of an interchange. At the intersection of 4800 South with Van Winkle Expressway, one potential solution would be to direct cyclists across Van Winkle at the existing 4800 South intersection via a new crosswalk, construct an off-street pathway on the north side of Van Winkle between that intersection and 900 East, direct cyclists to use the crosswalk at the north leg of the 900 East/Van Winkle intersection, and build a connection to Murray Holladay Road to allow cyclists to continue eastward on that route.
Jurisdiction	Salt Lake County, Murray, Holladay

Type	Distance	Conceptual Cost Estimate
Bike lanes and intersection improvements	4.5 miles	$630,000

Technical Details

	Segment 1: 4800 South from Jordan River Parkway to Van Winkle	Segment 2: 4800 South From Van Winkle to Holladay Boulevard
Distance (mi)	2.3	2.2
Lanes (total)	2	5
Pavement Width (ft)	48	68
Paved Shoulder Width (ft)	12	2-11
Right of Way (ft)	95	69

Technical Details		
Posted Speed Limit (mph)	30 mph	35 mph
Existing Sidewalks	Yes, continuous	Yes - varies
Existing Medians	No median	Median used for turning movements
Required Roadway Modifications	The bike lane can be accommodated by striping the existing shoulder. There may be drainage facilities that will need to be lengthened. There needs to be a pathway (80 feet) in the northwest quadrant of 900 East and Van Winkle. This pathway will cause ROW impacts.	The bike lane can be accommodated by striping the existing shoulder. There will be areas where additional pavement will be required. Pavement width of 6 feet will be required for 1.0 miles. There may be drainage facilities that will need to be lengthened.
Impacts to On-street Parking	On-street parking is permitted and will be impacted by striping a bike lane.	On-street parking is not permitted in this segment.
Other Potential Impacts	The bike lane can be accommodated by striping the existing shoulder. There may be drainage facilities that will need to be lengthened.	
Environmental Clearance	A Cat-Ex will be required. Impacts will be minimal.	A Cat-Ex will be required. There is a historic house that will need to be evaluated and coordinated with SHPO.
Implementation Opportunities	Murray City Engineer Trae Stokes (801-270-2400) noted that the section from Jordan River Parkway to Van Winkle was recently signed as a bike route. According to Salt Lake County Engineer Andrea Pullos 385-468-6600, there are no projects planned for 4800 South in the near future. Holladay City Engineer Clarence Kemp (801-364-4785) has applied for a UDOT grant to stripe and sign the section in Holladay for bike facilities.	

2700 WEST, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	2700 West from SR-201 to 15000 South
Summary	This facility connects to existing bike lanes on its north and south ends to create a regional link and fill in network gaps.
Purpose	The proposed facility would extend from roughly 2000 South to 15000 South (minus a section from 3100 South to 3800 South where bike lanes already exist). Safety and barrier analyses also indicated that improvements were needed on 2700 West. This facility would also connect to the TRAX station at 8351 South and 2700 West. Potential station accessibility improvements could including constructing a trail from the east end of the park-and-ride to Garden Creek Way and the neighborhoods to the east; extending sidewalk on 2700 West north from the station access to Bueno Vista Drive; and upgrading the pedestrian crossing at Spaulding Lane/2700 West to include high-visibility crosswalks and bulbouts at all legs of the intersection. This proposed facility would also include areas of shoulder improvements, signage, and striping along various segments of 2700 West.
Jurisdiction	West Valley City, West Jordan, South Jordan, Riverton, Bluffdale

Type	Distance	Conceptual Cost Estimate
Bike lanes	16 miles	$2,640,000

Technical Details

	Segment 1: 2700 West from 2100 South to 4700 South	Segment 2: 2700 West from 4700 South to 12600 South	Segment 3: 2700 West from 12600 South to Bangerter Highway	Segment 4: 2700 West from Bangerter Highway to 15000 South
Distance (mi)	3.94	10.0	0.52	1.47
Lanes (total)	5	3	2	2
Pavement Width (ft)	75	44	26	40
Paved Shoulder Width (ft)	5-15	0-8	2	2-10

Technical Details				
Right of Way (ft)	92	80	66	66
Posted Speed Limit (mph)	35 mph	35 mph	30 mph	35 mph
Existing Sidewalks	Varies	Continuous	Sporadic	Sporadic
Existing Medians	Medians are used for turning movements.	Medians are used for turning movements.	None	None
Required Roadway Modifications	Striping the existing pavement should accommodate bike lane.	Additional pavement of 6 feet would be required to be added along both sides of the street. There needs to be new sidewalk and trail at the 8350 South TRAX Station and a cross walk. Right-of-way would likely be required for the trail.	Additional pavement of 6 feet would be required to be added along both sides of the street.	Additional pavement of 6 feet would be required to be added along both sides of the street.
Impacts to On-street Parking	No on-street parking permitted.	On-street parking is permitted so this would be impacted. Would need to work with the cities to accommodate the bike lane.	No on-street parking permitted.	Some sections currently have capacity for on-street parking so this would be impacted. This would require working with the cities to accommodate the bike lane.
Other Potential Impacts	The bike lane can be accommodated by striping the existing shoulder. There may be drainage facilities that will need to be lengthened.	There may be drainage facilities that will need to be lengthened.	There may be drainage facilities that will need to be lengthened.	There may be drainage facilities that will need to be lengthened.
Environmental Clearance	A Cat-Ex will be required. Impacts will be minimal.	A Cat-Ex will be required. Impacts will be minimal.	A Cat-Ex will be required. Impacts will be minimal.	A Cat-Ex will be required. Impacts will be minimal.

Technical Details

Implementation Opportunities	The northern section of 2700 West is in West Valley City. UDOT has a small section of bike path that is scheduled to start July 2013 (CM-LC35(158)). The path is located on Parkway Blvd, and connects 2700 West to the bike path at Decker Lake Park to the east. The contract has been awarded and is waiting notice to proceed. The UDOT contact is Ritchie Taylor (801-887-3631) ritchietaylor@utah.gov. West Valley City Engineer Dan Johnson (801-963-3318) said there are no upcoming construction projects planned for 2700 West. A portion of the road in WVC has existing bike lanes, and Dan recognized the need for continuous bike facilities, but there is no funding for projects. The next section goes through Taylorsville; the city engineer was not aware of any construction projects planned for 2700 West in the near future. The city engineer from West Jordan, Wendall Rigby (801-569-5070) did not foresee any projects on 2700 West. He thought it could be up to 5 years before any pavement work or restriping. South Jordan City Engineer (801-254-3742) anticipated a road widening project on 2700 West, from 104th South to 114th South, in the next few years. Riverton City Engineer Nathan Page (801-208-3136) did not know of any projects on 2700 West. 2700 West from 13800 South to 15000 South is in Bluffdale. Planned improvements associated with a Salt Lake County Parks Department project will add needed shoulder width on the west side of 2700 West near 14000 South where it is currently missing; this is anticipated by 2015.

MAIN STREET/BOX ELDER STREET/300 WEST, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	2100 South to Winchester Street
Summary	This facility would extend from 2100 South to Winchester Street, connecting to the Murray North, Murray Central, and Fashion Place West TRAX stations.
Purpose	This project would add bike lanes along Main Street between 2100 South and 4500 South; Box Elder Street from 4500 South to Vine Street and Cottonwood Street near the Intermountain Medical Center, and connecting to 300 West south of 5300 South. At the Murray North Station, Fireclay Avenue between the station and Main Street could be improved to include full sidewalk segments on both sides of the street, bike lanes, and ADA accommodations at intersections. Cyclists accessing the Murray North station could utilize the bike facility proposed on Main Street to connect to the station, as well as to the proposed UCATS facility on 3900/4100 South. High-visibility crosswalks could be added at the west and south legs of the Main Street/Fireclay Avenue intersection. Much of the land use along Main Street north of the station is undeveloped; as it redevelops, Main Street's cross-section may be upgraded to comfortably accommodate pedestrians. At the Murray Central station, pedestrians have no designated walkway to access Cottonwood Street, and frequently end up walking in the bus lanes. Station improvements could include a sidewalk and wayfinding connecting pedestrians from the platform to Cottonwood Street by using the striped walkway already indicated, as well as a sidewalk along the bus lanes for pedestrians heading south of the station. Additional shelters in the bus loading zones would protect riders from inclement weather.
Jurisdiction	Salt Lake City, South Salt Lake City, Murray, Salt Lake County, and UTA

Type	Distance	Conceptual Cost Estimate
Bike lanes and pedestrian improvements	6.0 miles	$897,000

Technical Details

MAIN STREET/BOX ELDER STREET/300 WEST, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Technical Details		
	Segment 1: Main Street/Box Elder Street/ 300 West (North), 2100 South to 3300 South	Segment 2: Main Street/Box Elder Street/ 300 West (South), 3300 South to Winchester Street
Distance (mi)	1.8	4.2
Lanes (total)	5	2-3
Pavement Width (ft)	59	40
Paved Shoulder Width (ft)	2	8
Right of Way (ft)	83	58
Posted Speed Limit (mph)	30 mph	30 mph
Existing Sidewalks	Continuous	Sporadic
Existing Medians	Striped	Turning movements allowed
Required Roadway Modifications	Additional pavement of 6 feet would be required along both sides of the street.	Can stripe existing pavement. This would remove on-street parking, so coordination with the cities will be required.
Impacts to On-street Parking	On-street parking is permitted.	On-street parking is permitted.
Other Potential Impacts	There may be impacts to drainage facilities. The existing pavement is in poor condition. Existing crosswalks will need to be restriped.	There may be impacts to drainage facilities. The existing pavement is in poor condition. High visibility crosswalks are needed at the Murray Central and Murray North TRAX Stations. New sidewalk needs to be installed at the Murray Central TRAX station.
Environmental Clearance	A Cat-Ex will be required to determine the impacts, potential to impact impaired waters.	A Cat-Ex will be required to determine the impacts, potential to impact impaired waters.

Technical Details

Implementation Opportunities

Murray City Engineer Trae Stokes (801-270-2400) has applied for STIP funding to add bike facilities to Main St. (starts at about 4200 South, then turns into Box which eventually turns into 300 West). Trae said there is nothing in their 5 year plan for construction work on any of these corridors.

South Salt Lake Deputy Director of Public Works Ed Rufner (801-243-8712) mentioned that the Sugarhouse street car will likely go through this corridor in the next five years. This area has been designated as an RDA area (Redevelopment Agency). No other construction is planned for this section.

WINCHESTER STREET, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	1300 East to 1300 West
Summary	This project adds a bike lane on Winchester Street in Murray/Midvale.
Purpose	A bike facility on Winchester Street between Temple Drive (1300 West) and 1300 East would provide access past I-15 and I-215 without requiring cyclists to navigate interchanges. It would also connect to the Jordan River Parkway, proposed future facilities on 1300 East and the Utah and Salt Lake Canal Trail, and the Fashion Place West TRAX Station. Station accessibility improvements could provide high visibility crosswalks and crosswalk flags at the intersection of Winchester Street and Jefferson Street to improve the pedestrian crossing.
Jurisdiction	Murray City

Type	Distance	Conceptual Cost Estimate
Bike lanes and pedestrian improvements	4.0 miles	$1,100,000

Technical Details		
	Segment 1:1300 West to State Street	Segment 2: State Street to 1300 East
Distance (mi)	2.2	1.8
Lanes (total)	2-3	5
Pavement Width (ft)	55-60	60-80
Paved Shoulder Width (ft)	8-18	2-4
Right of Way (ft)	74-76	75-90
Posted Speed Limit (mph)	30-35 mph	30-35 mph

Technical Details

Existing Sidewalks	Sporadic	Continuous
Existing Medians	Striped or used for turning movements in 3 lane section.	Turning movements.
Required Roadway Modifications	2 intersections require crosswalks. Striping of the existing pavement will accommodate the bike lane.	Additional pavement will be required. Drainage facilities may need to be lengthened.
Impacts to On-street Parking	No on-street parking permitted.	No on-street parking permitted.
Other Potential Impacts	The bike lane can be accommodated by striping the existing shoulder. There may be drainage facilities that will need to be lengthened.	Additional pavement of 6 feet would be required along both sides of the street. This would require additional ROW. Drainage facilities may need to be lengthened. There is a power line running along the south side of the street.
Environmental Clearance	A Cat-Ex will be required. Impacts will be minimal.	A Cat-Ex will be required. Impacts will be minimal.
Implementation Opportunities	Murray City Engineer Trae Stokes (801-270-2400) was not aware of construction projects on this corridor. Murray City will have a construction project in the next few years on 5900 South from State Street to Vine Street (parallel and north of Winchester). Trae commented that the ROW varies along this section; some areas are wide enough for a bike lane, while others are not. Murray hopes to include any bike facilities that are feasible along this section.	

PORTER ROCKWELL TRAIL, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	UTA TRAX corridor between Winchester Street and 8500 South
Summary	Feasibility study
Purpose	A feasibility study is needed to evaluate options for extending the Porter Rockwell Trail north from its current terminus at Pioneer Avenue (roughly 8500 South) to the Fashion Place West TRAX station at Winchester Street. The study should address available right-of-way, easement and property constraints, compatibility in an existing light rail corridor, crossing treatments, public outreach needs, safety, and other concerns.
Jurisdiction	Murray, Midvale, and UTA

Type	Distance	Conceptual Cost Estimate
Feasibility Study	2.7 miles	$100,000

SEGO LILY DRIVE / 10000 SOUTH, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Two segments: from Porter Rockwell Trail/TRAX station to 1300 West, and from Bangerter Highway to 4800 West via Skye Drive
Summary	This project consists of bike lanes on two segments of Sego Lily Drive/10000 South.
Purpose	This proposed facility would fill in gaps between existing bike lane segments. Proposed bike facilities on Sego Lily Drive would extend between 4800 West and Bangerter Highway; and between 1300 West and the Porter Rockwell Trail accessing the Sandy Civic Center TRAX Station.
Jurisdiction	Sandy, South Jordan

Type	Distance	Conceptual Cost Estimate
Bike lanes	4.2 miles	$3,600,000

Technical Details		
	Segment 1: Sego Lily Drive / 10000 South from 4800 West to Bangerter Highway	Segment 2: Sego Lily Drive / 10000 South from 1300 West to Porter Rockwell Trail
Distance (mi)	1.7	2.5
Lanes (total)	3	5
Pavement Width (ft)	42	86
Paved Shoulder Width (ft)	6-8	2
Right of Way (ft)	76	105
Posted Speed Limit (mph)	40 mph	35 mph
Existing Sidewalks	Sporadic	Varies

Technical Details		
Existing Medians	Striped or used for turning movements	Turning movements.
Required Roadway Modifications	Existing pavement could be striped but there would not be room for a shoulder. Additional pavement would be required for 4 feet along each side. Drainage facilities may be impacted.	Additional pavement is necessary to accommodate the bike lanes. An additional 6 feet along both side will be required. Drainage facilities may be impacted.
Impacts to On-street Parking	There is no permitted on-street parking.	There is no permitted on-street parking.
Other Potential Impacts	There are power lines that run along the south side of the street in some areas.	There are power lines that run along the south side of the street in some areas. This will require additional ROW.
Environmental Clearance	A Cat Ex will be required to determine impacts, including the potential to impact impaired waters.	A Cat Ex will be required to determine impacts, including the potential to impact impaired waters.
Implementation Opportunities	The section on 10000 South from 4800 West to Bangerter is in the city of South Jordan. The city engineer was not aware of any upcoming projects for this section. The section on Shields Lane from 1300 West to I-215 is also in South Jordan. South Jordan has no projects planned for this segment. The segment from I-215 to Porter Rockwell Trail (170 East) is in Sandy City. The section from I-215 to State Street is designated as a bike route. The section from State Street to the Porter Rockwell Trail does not have any bike facilities. Sandy City official Dan Medina (801-568-2911) was not aware of any projects coming up for this section of roadway.	

11400 SOUTH, SALT LAKE COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	On 11400 South from Bangerter Highway to 3600 West, and from State Street to the Porter Rockwell Trail
Summary	This project proposes two segments of a bike facility to fill in existing network gaps.
Purpose	The segments would extend between Bangerter Highway to 3600 West and from State Street to the Porter Rockwell Trail and the Crescent View TRAX station. Constructing these two segments would result in a complete bike lane on 11400 South from the Mountain View Corridor to 1700 East.
Jurisdiction	Sandy, South Jordan, and UDOT

Type	Distance	Conceptual Cost Estimate
Bike lanes	1.82 miles	$1,800,000

Technical Details		
	Segment 1: 11400 South between Bangerter Highway and 3600 West	Segment 2: 11400 South between State Street to Porter Rockwell Trail
Distance (mi)	0.4	1.42
Lanes (total)	4-6	4
Pavement Width (ft)	86	90
Paved Shoulder Width (ft)	2-12	6-10
Right of Way (ft)	120	120
Posted Speed Limit (mph)	35 mph	35 mph
Existing Sidewalks	Continuous but goes through the continuous flow intersection.	Continuous

Technical Details		
Existing Medians	Turning movements.	Hard scape median with some breaks for turning movements.
Required Roadway Modifications	Pedestrian overpasses on Bangerter Highway are needed; this route also crosses a continuous flow intersection	Additional pavement of 2-4 feet would need to be added.
Impacts to On-street Parking	No on-street parking permitted.	No on-street parking permitted.
Other Potential Impacts	Crossing the continuous flow intersection will be challenging. Adding width may require additional ROW.	Potential impacts to ROW.
Environmental Clearance	A Cat-Ex would be required to determine impacts.	A Cat-Ex would be required to determine impacts.
Implementation Opportunities	Draper City Engineer Troy Wolverton (801-576-6536) did not anticipate any projects on 11400 South.	

HISTORIC UTAH SOUTHERN RAIL TRAIL, UTAH COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Lehi Main Street to Pleasant Grove Boulevard
Summary	A study is needed to analyze the feasibility of using roughly 4.3 miles of the Historic Utah Southern Rail corridor as a bicycle and pedestrian trail in Lehi, American Fork, and Pleasant Grove. The study should recommend a preferred alignment for the trail. The corridor runs roughly parallel to US-89 and Pacific Drive in these communities.
Purpose	A feasibility study would help trail planning agencies in Utah County (such as Mountainland Association of Governments) determine whether the Historic Utah Southern Rail corridor can be used as a bicycle and pedestrian trail. Feasibility study elements could include identification of opportunities and constraints, right-of-way availability, easements, roadway crossing treatments, user demand and needs, jurisdictional coordination issues, public involvement, and conceptual cross-section design. A study should also identify next steps such as potential property acquisition, environmental clearance, or other needs.
Jurisdiction	Lehi, American Fork, and Pleasant Grove

Type	Distance	Cost
Feasibility Study	4.3 miles	$100,000

200 SOUTH, AMERICAN FORK

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Center Street to Pioneer Crossing via 200 South
Summary	Approximately 2.3 miles of roadway will be modified to feature 5-foot shoulders with cycle tracks and signage.
Purpose	This project improves bike access to the American Fork FrontRunner station on the west side of I-15. Cyclists coming from the east can access the transit station via 200 South, which goes under I-15 and allows cyclists to avoid the Pioneer Crossing diverging diamond interchange. This proposed facility would connect to existing bike lanes on Center Street, and continue westward past the FrontRunner station to connect to an existing trail on Spring Creek Ranch Road. This project would also include a link from Spring Creek Ranch Road to Pioneer Crossing via Mill Pond Road. Wayfinding from downtown American Fork to the FrontRunner station may be included as part of this project.
Jurisdiction	American Fork City

Type	Distance	Conceptual Cost Estimate
Cycle track	2.3 miles	$1,710,000

Technical Details			
	Segment 1: 200 So (Center St to I-15)	Segment 2: 200 So/7750 N (I-15 to 7350 W)	Segment 3: 7750 W (7750 N to Pioneer Crossing)
Distance (mi)	0.5	1.4	0.4
Lanes (total)	2	2	2
Pavement Width (ft)	24	24	24
Paved Shoulder Width (ft)	0	0	0
Right of Way (ft)	87	87	87

Technical Details			
Posted Speed Limit (mph)	25 mph	25 mph	25 mph
Existing Sidewalks	Sporadic	None	None
Existing Medians	None	None	None
Required Roadway Modifications	Pot holes and uneven road (336 West). Bike lanes would require adding 6 feet of pavement on both sides of the roadway for the entire length.	Bike lanes would require adding 6 feet of pavement on both sides of the roadway for the entire length.	Bike lanes would require adding 6 feet of pavement on both sides of the roadway for the entire length.
Impacts to On-street Parking	There is no bike lane and when cars are parallel parked along the road, cyclists have to either ride in the right lane and take the whole lane or swerve in and out of the right lane. There is no permitted on-street parking.	There is no permitted on-street parking.	There is no permitted on-street parking.
Other Potential Impacts	This appears that there is excess ROW that could be used to expand the bike lanes and not require the purchase of ROW.	This appears that there is excess ROW that could be used to expand the bike lanes and not require the purchase of ROW.	This appears that there is excess ROW that could be used to expand the bike lanes and not require the purchase of ROW.
Environmental Clearance	This would require an environmental document for clearance. There is potential for archeological findings at the west end of this segment, possible Cat-Ex.	This would require an environmental document for clearance. There is potential for archeological findings along this segment, possible Cat-Ex.	This would require an environmental document for clearance. There is potential for archeological findings the site also crosses agricultural protected lands and possibly tribal lands, possible Cat-Ex.
Implementation Opportunities	Spoke with JoAnn Scott from city of American Fork (801-763-3060). Dependent on a city bond passing, there will be an overlay and restriping project on 200 South. No utility work is planned for this section in the near future. The frontage road connected to 200 South on the west side of I-15 has utility work planned, also dependent on the city bond passing.		

STATE STREET (US-89), UTAH COUNTY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	On State Street in Utah County, from Pleasant Grove Boulevard in Pleasant Grove to 800 North in Orem
Summary	Approximately 4.6 miles of roadway will be modified to feature 5-foot minimum shoulders with edge striping, bike lane pavement markings and signage.
Purpose	This project improves bike access and safety on a major regional route in Utah County, which connects to popular destinations and transit routes and already sees considerable use by cyclists.
Jurisdiction	Pleasant Grove, Lindon, Orem, and UDOT

Type	Distance	Conceptual Cost Estimate
Bike lanes	4.6 miles	$250,000

Technical Details	
Distance (mi)	4.6
Lanes (total)	There are 7 lanes from Pleasant Grove Boulevard to approximately 600 North where it transitions to 6 lanes. At 200 North it transitions to 5 lanes then back to 7 lanes.
Pavement Width (ft)	Varies from 95 to 108 feet in width.
Paved Shoulder Width (ft)	Shoulder varies from 8 feet to 12 feet
Right of Way (ft)	Varies from 110 feet to 98 feet.
Posted Speed Limit (mph)	40
Existing Sidewalks	Yes
Existing Medians	Medians with turn lanes the entire length.

Technical Details	
Required Roadway Modifications	The shoulders are mostly 12 foot wide, so there could simply be added striping for a bike lane.
Impacts to On-street Parking	There is some permitted on-street parking. This will have to be discussed with the cities.
Other Potential Impacts	There does not appear to be impacts as this is simply adding striping.
Environmental Clearance	The addition of striping should not require any environmental clearance.
Implementation Opportunities	There is a UDOT widening project occurring in 2013 (F-0089(183)342)). This is an opportunity to incorporate bike lanes or shoulder bikeway. It will be from 200 North in Orem to SR-114 in Pleasant Grove. Some coordination is already occurring.

OREM CENTRAL STATION, OREM

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Orem Central FrontRunner Station
Summary	Construct a bicycle and pedestrian bridge connecting the Orem Central FrontRunner Station to Utah Valley University on the opposite side of I-15.
Purpose	Much of the area around the Orem Central Station is undeveloped, making it challenging to improve walkability significantly. However, a major ridership base is located nearby: Utah Valley University, across I-15 from the station. A potential bridge at 800 South over the freeway could improve walk access to the station and potentially increase ridership as well. MAG studied potential bridge options and identified a preferred alignment in 2013.
Jurisdiction	Orem, UDOT, and UTA

Type	Conceptual Cost Estimate
Bridge construction	$12,000,000

900 EAST, PROVO CITY

Top 25 Project Technical Summary

Improvement Summary

Location	University Parkway to 900 South
Summary	This project would add buffered bike lanes on 900 East.
Purpose	A proposed facility on 900 East in Provo would provide access to Brigham Young University for the neighborhoods south of the campus. The safety and barriers analysis indicates there are opportunities to improve this corridor. The proposed facility would extend from University Parkway to 900 South, connecting to existing facilities at either end, and filling in network gaps. Wayfinding signage could be considered at the south end to direct cyclists to existing bike lanes on State Street and also to the proposed UCATS bike facility on 600 South leading to the Provo Central Station.
Jurisdiction	Provo City

Type	Distance	Conceptual Cost Estimate
Buffered bike lanes	2.4 miles	$3,200,000

Technical Details

Distance (mi)	2.4
Lanes (total)	5
Pavement Width (ft)	56
Paved Shoulder Width (ft)	3
Right of Way (ft)	68
Posted Speed Limit (mph)	35 mph
Existing Sidewalks	Varies, sporadic and in poor condition.

Technical Details

Existing Medians	Used for turning movements.
Required Roadway Modifications	This would require adding pavement to both sides as the existing shoulders are 3 feet. If buffered bike lanes are used then there would need to be 6 feet for the bike lane and 2 feet for the buffer area. This would require adding 16 feet of pavement. It would also require purchasing ROW so there would be impacts to adjacent development.
Impacts to On-street Parking	If additional pavement was added there would not be any impacts to on-street parking, though there is limited existing on-street parking.
Other Potential Impacts	There are only minor concerns with hazardous waste sites.
Environmental Clearance	The environmental requirements would most likely be limited to conducting Phase 1 analysis on potential hazardous waste sites.
Implementation Opportunities	Provo City Engineer David Graves (801-852-6741) informed us that the local water district is currently installing new water line along 900 East. He expects UTA's BRT program to have facilities along 900 East in 1 to 5 years. This sometimes means adding an additional bus lane.

500 WEST, PROVO CITY

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Bulldog Boulevard to 1560 South
Summary	This project consists of bike lanes on 500 West from Bulldog Boulevard to 500 North, bike lanes on 500 North between 500 West and 300 West, a bike boulevard on 300 West between 500 North and 400 South, a bike boulevard on 400 South to 500 West, and bike lanes on 500 West from 400 South to 1560 South.
Purpose	The proposed route would provide north-south access near Provo Central Station and to the west side of I-15, utilizing the new underpass at approximately 1200 South. This project is consistent with recommendations included in the 2013 Provo City Bicycle Master Plan.
Jurisdiction	Provo City

Type	Distance	Conceptual Cost Estimate
Bike lanes and bike boulevards	3.0 miles	$250,500

Technical Details

	Segment 1: Bulldog Blvd to 500 North, 500 North between 500 West and 300 West	Segment 2: 300 West between 500 North and 400 South	Segment 3: 400 South from 300 West to 500 West, 500 West from 400 South to 1560 South
Distance (mi)	0.8	0.9	1.3
Lanes (total)	5	2	2
Pavement Width (ft)	76	44	44
Paved Shoulder Width (ft)	8	No identified shoulder	No identified shoulder
Right of Way (ft)	115	45	45
Posted Speed Limit (mph)	40 mph	35 mph	25 mph
Existing Sidewalks	Yes	Yes, but not continuous	Yes, but not continuous

Technical Details			
Existing Medians	Medians used for turning movements	None	None
Required Roadway Modifications	This roadway segment is 5 lanes with unstriped shoulders that would allow for striped bike lanes. The lanes would have to be striped to accommodate 6 foot lanes.	This roadway segment is worn out pavement with no striping for lanes or shoulders. This would have to be striped to accommodate a bike lane, but it would impact on-street parking. This could be striped within the existing pavement.	This roadway segment is worn out pavement with no striping for lanes or shoulders. This would have to be striped to accommodate a bike lane, but it would impact on-street parking. This could be striped within the existing pavement.
Impacts to On-street Parking	There is on-street parking that would be impacted.	There is on-street parking that would be impacted. There are 45 striped parking stalls and parallel parking impacts.	There is on-street parking that would be impacted.
Other Potential Impacts			
Environmental Clearance	These lanes could be added via striping along the existing pavement therefore not requiring environmental clearance.	These lanes could be added via striping along the existing pavement therefore not requiring environmental clearance.	These lanes could be added via striping along the existing pavement therefore not requiring environmental clearance.
Implementation Opportunities	UDOT is planning to mill and pave next summer (north of 300 South). The contact is Teri Newell, Region Three Director, 801-227-8000.		

PROVO CENTRAL STATION, PROVO

Top 25 Project Area Technical Summary

Improvement Summary	
Location	Area surrounding Provo FrontRunner station
Summary	This project consists of bike lanes and walkability improvements around the FrontRunner station.
Purpose	The intersections of 400 South and 500 South with Freedom Boulevard are just northwest of Provo Central Station. These intersections could be improved to include marked crosswalks with truncated domes and directional curb ramps. A proposed bike facility on 600 South would extend from Freedom Boulevard and the Provo FrontRunner station to another UCATS high-priority project on 900 East in Provo. The project would provide access to the FrontRunner station and allow cyclists to cross University Avenue using a grade-separated intersection. The segment of the proposed bike facility on Freedom Boulevard would connect two existing on-street facilities.
Jurisdiction	Provo and UTA

Type	Distance	Conceptual Cost Estimate
Bike lanes and pedestrian improvements	1.3 miles	$1,340,000

Technical Details	
	Segment 1: Provo Central Station
Distance (mi)	1.3 (600 South bike lanes)
Lanes (total)	3
Pavement Width (ft)	48
Paved Shoulder Width (ft)	9
Right of Way (ft)	80
Posted Speed Limit (mph)	25 mph

Technical Details

Existing Sidewalks	Yes
Existing Medians	There is a median turn lane for turning movements.
Required Roadway Modifications	There will need to be pedestrian ramps installed at 400 and 500 South. The bike lane will need to be striped and marked with pavement message. Redesign and widening of the existing viaduct will be costly. The viaduct could be widened by 12 feet to accommodate cyclists. These 12 feet include a 6 foot bike lane and a 6 foot shoulder. The viaduct is approximately 1000 feet. Crossing the canal may require lengthening the existing box culvert.
Impacts to On-street Parking	There is on-street parking that will be impacted. The existing shoulders are approximately 9 feet.
Other Potential Impacts	There is a canal crossing that may need to be addressed if additional pavement is needed. There are sporadic hazardous waste sites that may be encountered.
Environmental Clearance	This will require a Cat-Ex; there is a historic house along 600 South that could be impacted, or will at least be required to coordinate with SHPO.
Implementation Opportunities	The Provo City Engineer, Dave Graves, was not aware of any upcoming projects on 600 South. Elsewhere in the area, UDOT has a current project on 300 South, from 700 East to 500 West (F-0089(328)335). The scope of work includes pavement reconstruction, drainage improvement, and safety/mobility enhancement. This section of US-89 is parallel to the Provo Central Station plan. It would also connect existing facilities from 700 East to existing facilities at 200 West.

US-89, PROVO/SPRINGVILLE

Top 25 Project Area Technical Summary

Improvement Summary	
Location	1860 South in Provo to Center Street in Springville
Summary	This project adds buffered bike lanes on US-89 between Provo and Springville.
Purpose	North-south opportunities for on-street cycling connections are limited in this area of Utah Valley. This proposed facility fills a gap in existing facilities between 1860 South in Provo and Center Street in Springville, creating a regional link and connecting to Springville's downtown area. This section, when combined with existing routes and other high-priority UCATS projects, creates an on-street bike facility along the east bench of Utah Valley through multiple communities.
Jurisdiction	Provo, Springville, and UDOT

Type	Distance	Conceptual Cost Estimate
Buffered bike lanes	3.2 miles	$2,100,000

Technical Details			
	Segment 1: US-89 (North), 1860 South to 1400 North	Segment 2: US-89 (Central), 1400 North to 600 North	Segment 3: US-89 (South), 600 North to Center Street
Distance (mi)	1.8	0.7	0.7
Lanes (total)	5	5	5
Pavement Width (ft)	60	76	98
Paved Shoulder Width (ft)	0	8	14
Right of Way (ft)	120	83	132
Posted Speed Limit (mph)	40 mph	40 mph	40 mph

Technical Details			
Existing Sidewalks	There are portions of sidewalk, but they are not continuous.	There are portions of sidewalk, but they are not continuous.	Continuous sidewalks
Existing Medians	The medians serve as turning movement lanes. In some areas there are no medians.	The medians serve as turning movement lanes.	The medians serve as turning movement lanes.
Required Roadway Modifications	Segment would require adding pavement for a bike lane and potentially at least 2-4 feet of shoulder. Total pavement is 10 feet along each side.	To add a bike lane, pavement would be required. Add 2 feet of pavement to both sides of the street.	Striping of bike lane.
Impacts to On-street Parking	On street parking may be impacted. Work with the cities to see if they would change the permitting.	On street parking may be impacted. Work with the cities to see if they would change the permitting.	On street parking may be impacted. Work with the cities to see if they would change the permitting.
Other Potential Impacts	There are no environmental impacts for this project. A Cat-Ex will need to be completed to show there are no impacts.	There are no environmental impacts for this project. A Cat-Ex will need to be completed to show there are no impacts.	
Environmental Clearance	A Cat Ex will be required for the first segment.	A Cat Ex will be required for the first segment.	No environmental clearance will be necessary for this segment.
Implementation Opportunities	UDOT has a proposed a project on 300 South, from 700 East to 500 West, for April 2015. The scope of work includes pavement reconstruction, drainage improvement, and safety/mobility enhancement. This section of US-89 is parallel to the Provo Central Station plan. It would also connect existing facilities at 700 East to existing facilities at 200 West. UDOT is currently repaving from Springville to about 900 South in Provo on US-89.		