State of Utah

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DEPARTMENT OF TRANSPORTATION

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November 15, 2023

Ivan Marrero, P.E.
Division Administrator
Federal Highway Administration - Utah Division
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84129

Dear Mr. Marrero,

Pursuant to 23 United States Code (U.S.C.) 148(l)(1), the Utah Department of Transportation (UDOT) has completed this initial Vulnerable Road User (VRU) Safety Assessment and is including it as an appendix in the Strategic Highway Safety Plan (SHSP) pursuant to 23 U.S.C. 148(a)(13)(G). UDOT will update the VRU assessment with subsequent SHSP updates in alignment with 23 U.S.C. 148(l)(5). This document provides the requested VRU assessment information in alignment with the VRU Safety Assessment Guidance Memorandum from the U.S. DOT Federal Highway Administration (FHWA), dated October 21, 2022, including but not limited to:

1. An overview of VRU safety performance in Utah for the six-year period beginning Jan. 1, 2017, and concluding on Dec. 31, 2022.
2. A summary of the quantitative analysis used to identify high-risk areas for VRUs statewide.
3. A summary of consultation efforts, which included stakeholder engagement throughout the assessment process.
4. A program of projects and strategies to reduce the safety risks for VRUs in the high-risk areas.
5. A description of how the Safe System Approach was considered in this assessment.

UDOT embraces and applies an "All Users" mindset to transportation decision making and is committed to identifying and mitigating safety concerns through proven countermeasures and the Safe System Approach to keep our most vulnerable of road users safe, healthy, and connected.

Sincerely,

Carlos M. Braceras, P.E.
Executive Director

UDOT
Keeping Utah Moving

U.S. Department of Transportation
Federal Highway Administration

November 15, 2023

Utah Department of Transportation

VULNERABLE ROAD USER SAFETY ASSESSMENT

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ENHANCE QUALITY OF LIFE THROUGH TRANSPORTATION

Utah's Transportation Vision — Pathway to Quality of Life — is a process to collaborate with partnering agencies to establish a shared vision for transportation statewide.

The Quality of Life Framework is supported by four pillars, as noted below, each of which has an active transportation component. This further underscores UDOT's dedication and commitment to improving VRU safety.

BETTER MOBILITY

Addresses traditional transportation objectives to reduce delay. It's thinking that goes beyond just moving cars to moving people. Public transit, walking, and biking need to become real options for more Utahns.

GOOD HEALTH

Encompasses the health of individuals and communities, recognizing the role of active transportation in mental and physical health as well as environmental conditions contributing to health such as air quality and water quality.

CONNECTED COMMUNITIES

Points to the intersection of transportation and land use as well as the need for intermodal connections between walking, biking, transit, and vehicle travel.

STRONG ECONOMY

Recognizes the vital role of transportation in business and commerce. Not just at the intra-state and inter-state levels, but also how transportation can help inter-city and intra-city economies.

INTRODUCTION

WHO IS A VULNERABLE ROAD USER (VRU)?

The FHWA defines a VRU as a non-motorist with a Fatality Analysis Reporting System (FARS) person attribute code for pedestrian, bicyclist, other cyclist, and person on personal conveyance or an injured person that is, or is equivalent to, a pedestrian or pedal cyclist as defined in the ANSI D16.1-2007 (see 23 U.S.C. 148(a)(15) and 23 Code of Federal Regulations [CFR] 490.205). A VRU may include people walking, biking, or rolling. The definition includes a highway worker on foot in a work zone, given highway workers on foot are considered pedestrians. The definition does not include a motorcyclist.

ASSESSMENT CRASH DATA & TIMEFRAME

To evaluate VRU safety performance for this assessment, UDOT utilized data for the six-year period beginning Jan. 1, 2017, and concluding Dec. 31, 2022. This length of time typically captures a representative sample that accurately conveys the essential characteristics and distribution of the entire dataset while avoiding the potential risk of one single event or short-term trend having a disproportionate impact on the results.

IMPACTS OF COVID-19 DURING THIS ASSESSMENT PERIOD

Data for this assessment period may be impacted by the COVID-19 pandemic which began in early 2020 and continues to influence the ways in which many people nationwide live, work, shop, and travel. Throughout 2020 (and in subsequent years) lockdowns, remote work options, reduced workforce capacity, and travel restrictions affected usual-and-customary travel patterns and behaviors which, in turn, affected the number and pattern of crashes involving all road users. At the same time, active transportation activities such as walking, bicycling, and other non-motorized modes of travel increased nationwide and in Utah as individuals sought alternative methods for commuting and exercising while adhering to social distancing guidelines. In Utah, for example:

- UDOT recorded triple-digit increases in trail usage from April and May 2019 to April and May 2020. Trail user counts data for April 2019 and 2020 showed a 133-percent increase in users of the Provo River Trail; a 151-percent increase in users of the Murdock Canal Trail; and a 171-percent increase in users of the Jordan River Trail. On the Mapleton Lateral Canal Trail, usage increased by 314 percent.
- This trend continued in May 2020, as usage compared to May 2019 increased by 130 percent on the University Avenue Buffered Bike Lanes; 165 percent on the College Connector Trail; 189 percent on the Art Dye Trail; 209 percent on the Provo River Trail – Canyon Mouth; 226 percent on the Murdock Canal Trail – Wade Springs; and 333 percent on the Vineyard Lakeshore Trail.
- Bicycle trips throughout Utah increased 52 percent between January and August 2020 compared to the same period in 2019, from 894,000 trips to 1,359,295 trips. The largest increases (81 percent and 91 percent) occurred in April and May 2020, respectively.

This data provides one example of the immediate and notable impact COVID-19 had on active transportation in Utah during the period of time analyzed for this assessment.

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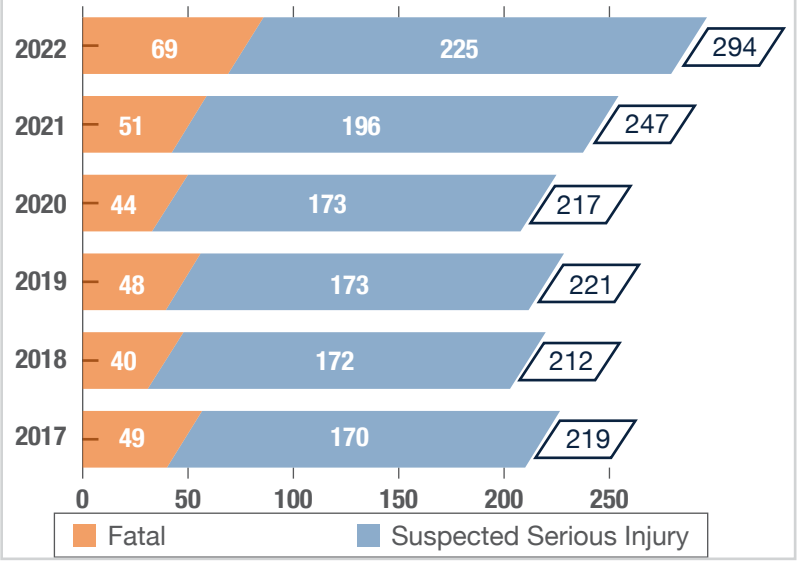
1.0 OVERVIEW OF VRU SAFETY PERFORMANCE IN UTAH

1.1 Historical Trends for VRU Fatalities and Suspected Serious Injuries

The number of fatalities involving VRUs between 2017 and 2020 fluctuated. Between 2017 and 2018, the number decreased 18 percent. However, it increased 20 percent from 2018 to 2019, and then dropped eight percent between 2019 and 2020. The number of suspected serious injury crashes involving VRUs remained steady, with no increase or an increase of one percent per year.

The number of VRU fatalities and suspected serious injuries increased notably in subsequent years. From 2020 to 2021, fatalities increased by 16 percent and suspected serious injuries increased by 13 percent. This upward trend continued from 2021 to 2022, with fatalities increasing by 35 percent and suspected serious injuries increasing by 15 percent. **Figure 1** illustrates these trends.

Figure 1: Fatal and Suspected Serious Injuries by Year



1.1.1 VRU-Related Fatal and Suspected Serious Injuries: Time of Day

The number of crashes in which a VRU sustained a fatal injury peaked multiple times during overnight, early morning, daytime, and early evening hours including midnight, 3:00 a.m., 6:00 a.m., 11:00 a.m., 3:00 p.m., 6:00 p.m., and 9:00 pm. The highest number of fatal crashes occurred at approximately 9:00 p.m. VRU-related suspected serious injuries occurred less frequently in the early morning hours and began to increase at 7:00 a.m. They continued increasing throughout the day, peaking at 4:00 p.m. and remaining high through 11:00 p.m. See **Figure 2**.

1.1.2 VRU-Related Fatal and Suspected Serious Injuries: Day of the Week

For this evaluation, the week begins on Sunday and ends on Saturday. Fatalities involving VRUs occurred less often on Sundays, increasing on Mondays and Tuesdays, dropping slightly through midweek, and rising to a peak on Saturdays. Suspected serious injuries occurred least often on Sundays and Mondays and most often on Thursdays. See **Figure 3**.

1.1.3 VRU-Related Fatalities and Suspected Serious Injuries: Month of the Year

Significant increases in the number of fatalities are seen in July and October, with decreases in May and June. Crashes in which a VRU suffered a suspected serious injury occurred most often in August, September, and October. See **Figure 4**.

1.1.4 VRU-Related Fatalities and Suspected Serious Injuries: Functional Class

As **Figure 5** shows, most VRU fatalities and suspected serious injuries occurred on arterial roads, with collector roads accounting for the next highest percentage of fatalities. Because arterial, collector, and local roads permit mixed traffic flow—that is, shared usage by motor vehicles, bicycles, pedestrians, and other micro-mobility users—the opportunity for conflicts between different modes is greater. Conversely, the number of VRU-related crashes on freeways and interstates is lower because the risk of exposure to most VRUs on the highway system is minimal. Most crashes on freeways and interstates occur when a highway motorist stops and exits their vehicle because of an emergency, mechanical malfunction, or to retrieve a lost item. In addition, highway workers on foot in a highway work zone are classified as pedestrians.

Of the 64 fatal and suspected-serious injury crashes on freeways and interstates during the assessment period, one involved a maintenance worker struck by a vehicle in a work zone. Another involved a law enforcement officer who was struck while aiding a stopped motorist.

1.1.5 Disaggregation of Trends by User Type

UDOT evaluated data for three VRU user types: pedestrians, bicycles, and others who use wheelchairs, scooters, skateboards, or use other personal conveyance devices. **Figures 6, 7,** and **8**, and the information that follows, summarize annual crash data by severity and in each category.

Figure 2: VRU Injuries by Time of the Day

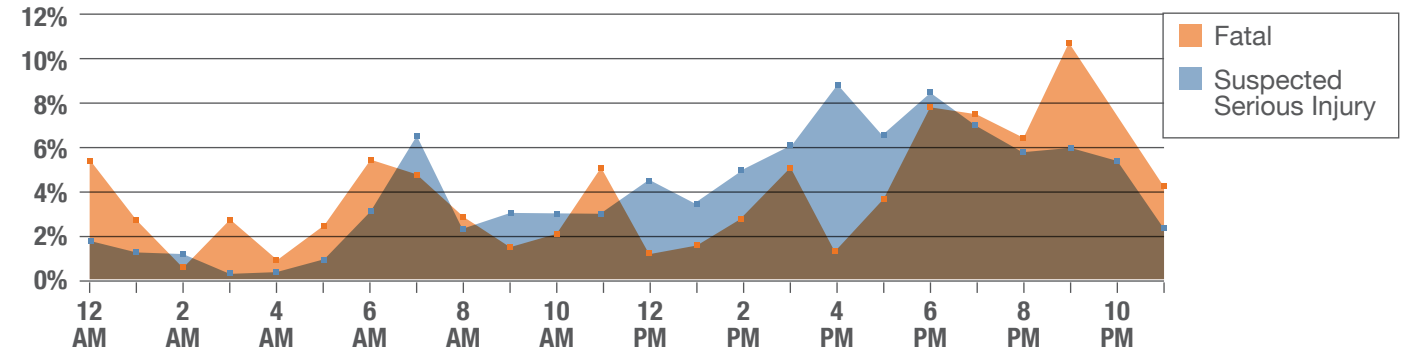


Figure 3: VRU Injuries by Day of the Week

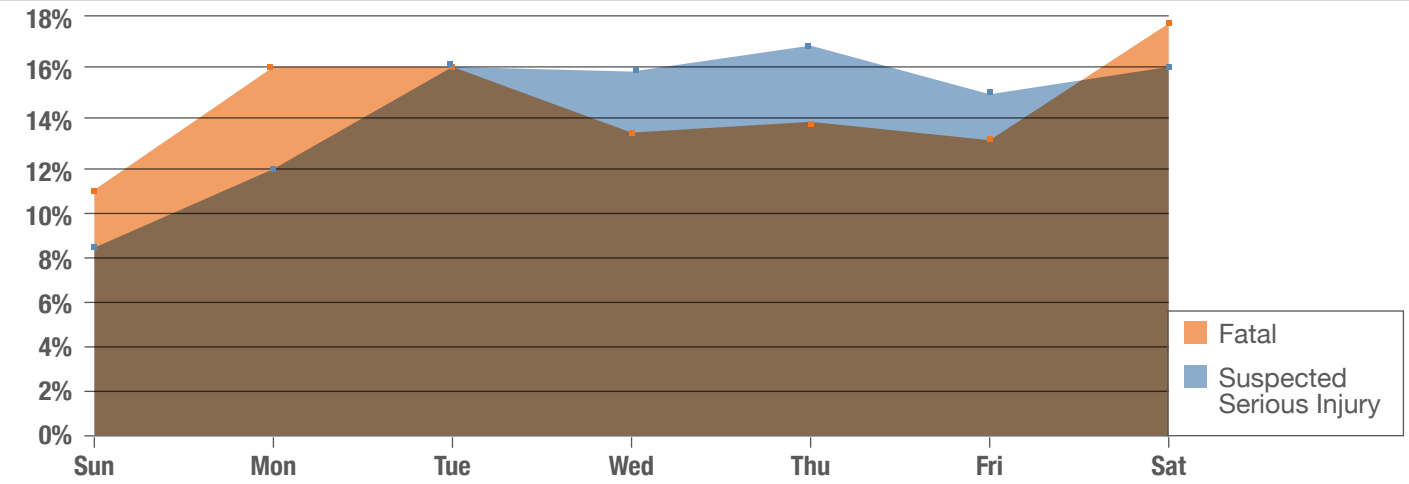


Figure 4: VRU Injuries by Month

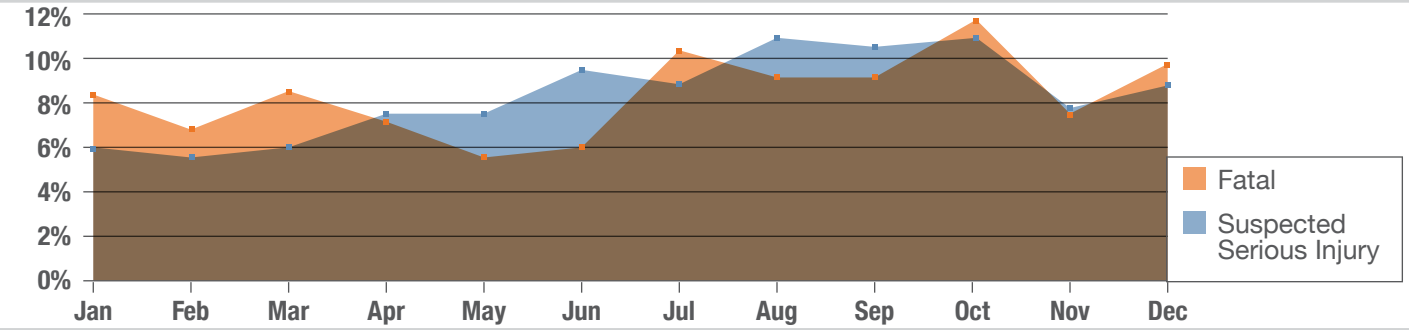
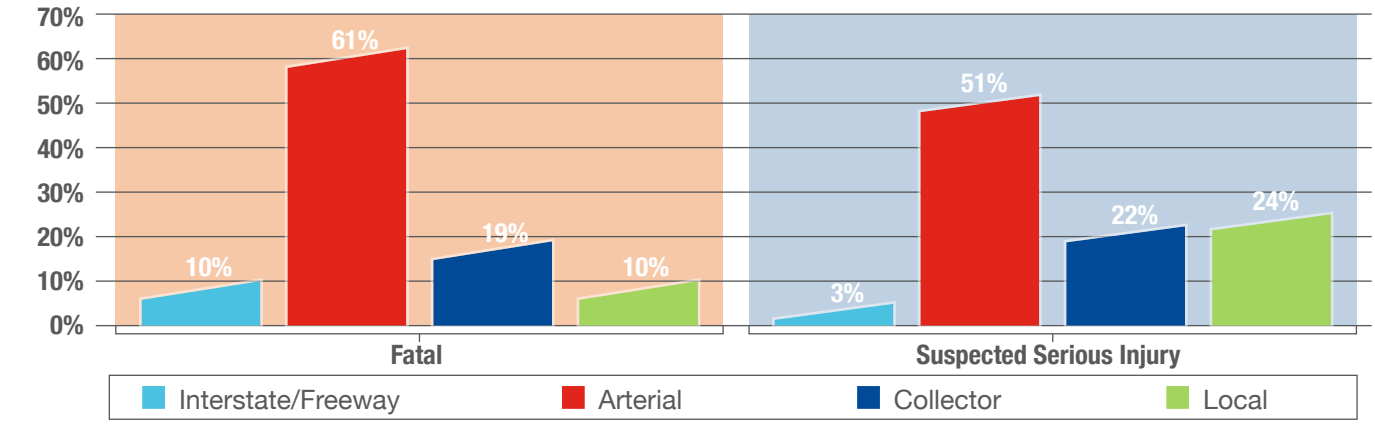


Figure 5: VRU Fatal & Suspected Serious Injuries by Functional Class



- **Pedestrians:** Crashes involving pedestrians increased by 8.8 percent from 2017 to 2018 and by 5.9 percent from 2018 to 2019. Although they decreased nearly 20 percent from 2019 to 2020, the number increased by 15.2 percent in 2021 and by 7.6 percent in 2022. The combined number of fatal and suspected serious injury crashes fluctuates between 19 to 23 percent of the total number of pedestrian crashes in each of the six years. Approximately 80 percent of all crashes resulted in no injury, a possible injury, or a suspected minor injury. See **Figure 6**.
- **Bicycles:** The number of bicycle-involved crashes was the highest in 2017, at 550 crashes, and decreased annually to a low of 461 in 2020, representing an overall decrease of 16.2 percent. Since 2020, the number of crashes has increased by approximately two-to-three percent per year. This may be attributable to increases in bicycle usage during and following the COVID-19 pandemic. See **Figure 7**.
- **Other Personal-Conveyance Devices:** Crashes in this VRU category—which includes skaters, users of wheelchairs, scooters, and other personal-conveyance devices—have increased annually since 2017. Crashes resulting in severe injuries (fatal or suspected serious injury) increased by 20 percent in 2018; decreased by 33 percent in 2019; increased by 175 percent in 2020; decreased by 36 percent in 2021; and, most notably, increased by more than 200 percent in 2022. See **Figure 8**.

1.1.6 VRU Safety Performance Compared to Overall Safety Performance

While overall traffic fatalities declined from 2017 to 2019, peaked in 2021, and declined again slightly in 2022, fatalities involving VRUs declined from 2017 to 2018, increased in 2019, decreased slightly in 2020, and increased again in 2022. When compared to overall suspected serious-injury crashes (which fluctuated between 2017 and 2022) those involving VRUs remained steady until 2020. The number increased by 13.3 percent in 2021, and increased again by 14.8 percent in 2022.

As a percentage of all fatal crashes, those involving VRUs fluctuated between 15 and 22 percent of all traffic fatalities. As a percentage of all suspected serious-injury crashes, they averaged approximately 12 percent of the total. **Figure 9** illustrates the total number of fatalities per year compared to VRU and non-VRU related fatalities between 2017 and 2022. **Figure 10** illustrates the total number of suspected serious injuries per year, compared to VRU and non-VRU-related suspected serious injuries between 2017 and 2022. **Figure 11** illustrates VRU-related fatal and suspected serious injuries as a percentage of all fatal and suspected serious injury crashes between 2017 and 2022.

Figure 6: Pedestrian Crashes by Year & Severity

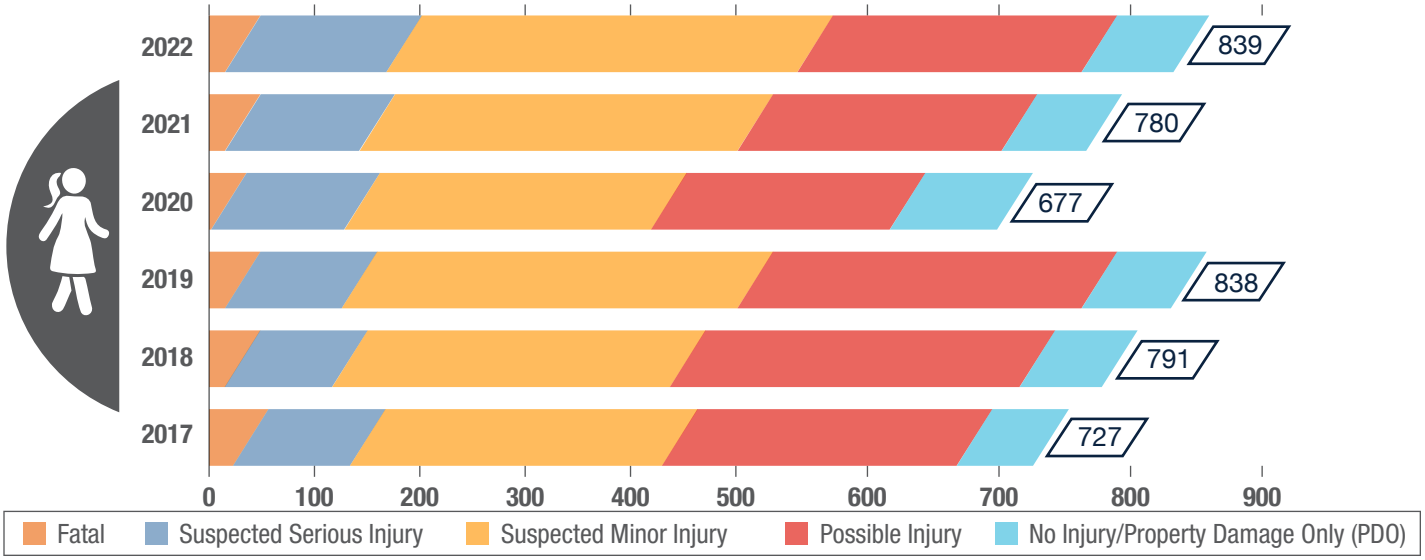


Figure 7: Bicycle Crashes by Year & Severity

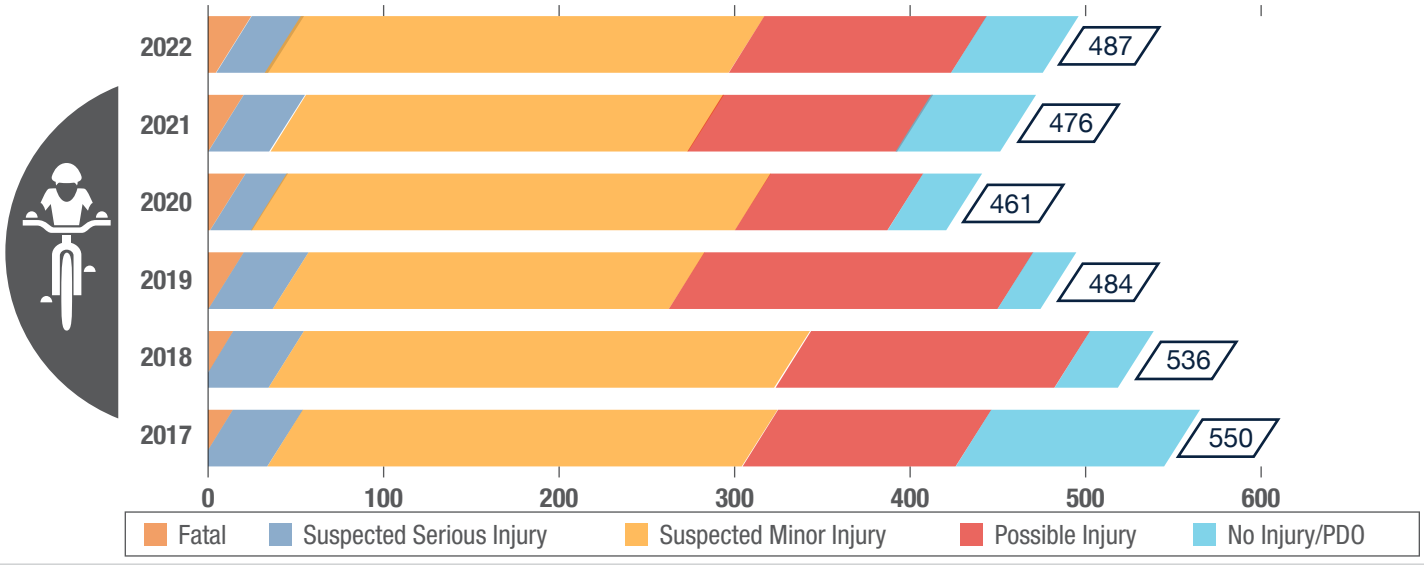


Figure 8: Other VRU Crashes by Year & Severity

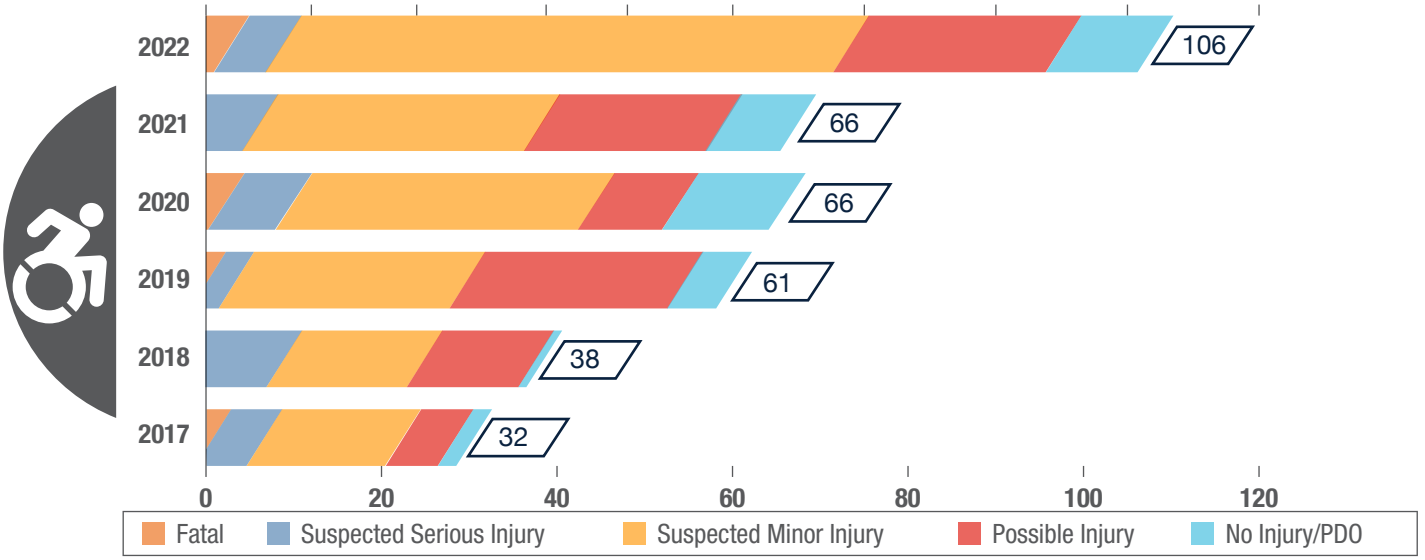


Figure 9: Total, VRU, & Non-VRU-Related Fatalities

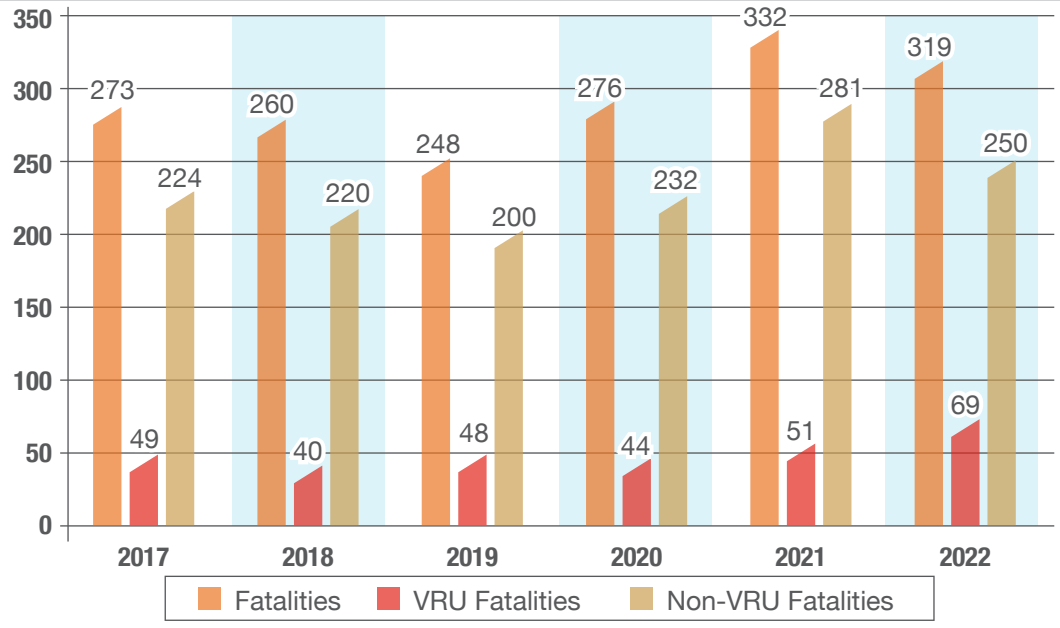


Figure 10: Total, VRU, & Non-VRU-Related Suspected Serious Injuries

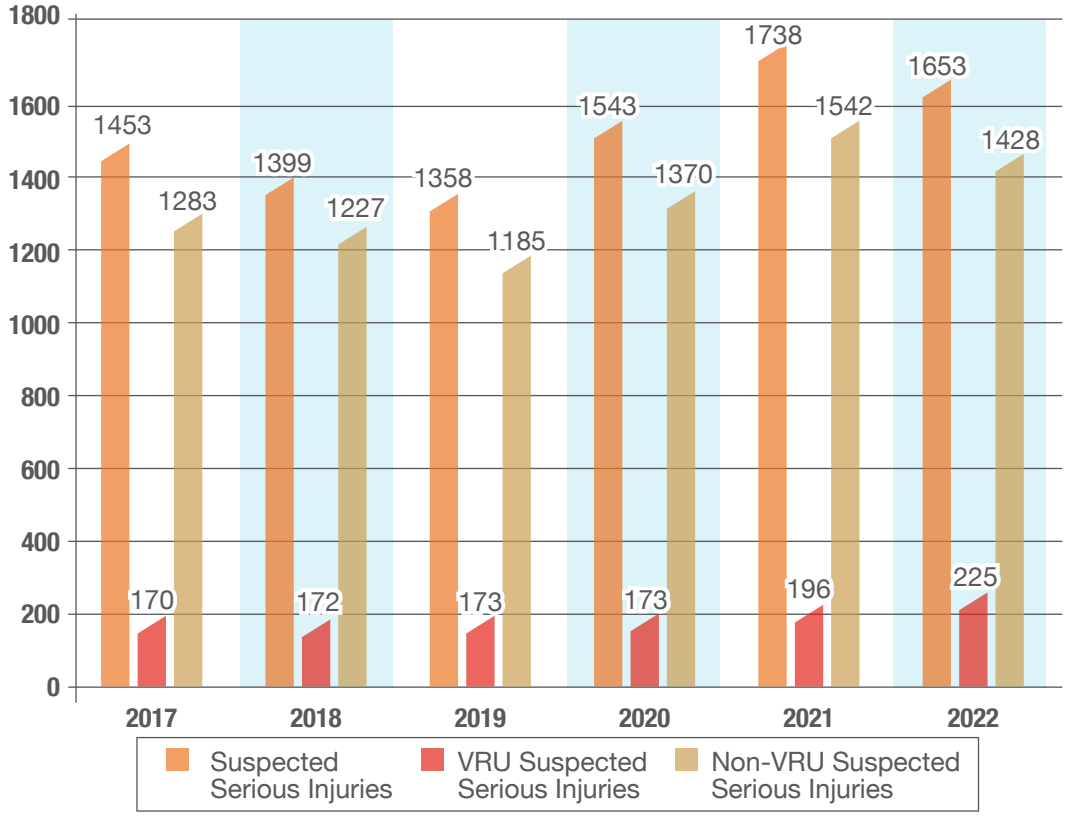
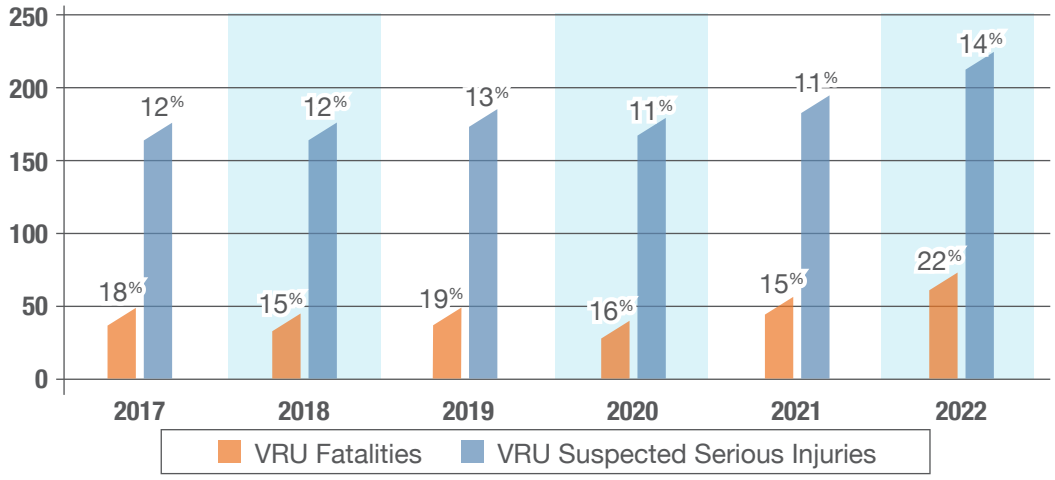


Figure 11: VRU Fatalities/Suspected Serious Injuries as a Percentage of All Crashes



1.2 Meeting Safety Performance Targets for Non-Motorized Users

UDOT demonstrates its interest in and commitment to promoting safety for non-motorized users and creating safe spaces for cyclists, pedestrians, and other micro-mobility users in multiple ways. This section examines UDOT's progress to improve VRU safety through traditional means, such as development and implementation of Highway Safety Improvement Program (HSIP) Performance Targets and a Strategic Highway Safety Plan (SHSP), as well as bold actions to create additional trails and bicycle routes, and research initiatives that explore VRU safety issues.

1.2.1 Safety Performance Targets for Non-Motorized Users

HIGHWAY SAFETY IMPROVEMENT PROGRAM PERFORMANCE TARGETS

In alignment with federally mandated HSIP Performance Targets, UDOT measures the annual number of non-motorized fatalities and suspected serious injuries. **Table 1** provides the targets and results for the years beginning on Jan. 1, 2018, and continuing through September 2023. Target Number data for calendar year 2017 is not available, as UDOT's HSIP Targets were set to begin in calendar year 2018. In summary, while Actual Numbers were below the Target Numbers in 2018 and 2019, they began and have continued to exceed the Target Numbers since 2020. This data mirrors other similar metrics shared in this assessment, which show increases in VRU fatal and suspected serious injuries since 2020.

***Table 1**: Non-Motorized Fatalities and Suspected Serious Injuries (2017-2023)**

YEAR	TARGET NUMBER	ACTUAL NUMBER
2017	N/A**	203.0
2018	208	207.8
2019	212	211.4
2020	210.8	213.6
2021	215.2	220.8
2022	213.8	234.8
2023 *(through Sept. 30)*	234.6	221.0

** Based on five-year rolling averages*
*** HSIP targets began in 2018*

STRATEGIC HIGHWAY SAFETY PLAN

UDOT's most-recent SHSP (version 5.0, effective 2020) has been coordinating five years of safety efforts since implementation began in 2021. The plan identifies Pedestrian Safety as one of 11 *Emphasis Areas* (EA). Each EA is data driven and designed to help Utah reach its Zero Fatalities goal. The SHSP recognizes that in this EA, efforts must be made to prevent pedestrian-related crashes by changing Utah's culture to provide safer pedestrian travel. Efforts must also be made to educate children and their parents about safety around vehicles and to reduce the possibility and/or severity of crashes involving children. The SHSP also cites Bicycle Safety as a *Continuing Safety Area* to address bicycle user needs on transportation facilities and increase efforts for bicyclist and motorist education. Together, these two areas of the SHSP identify 30 priority strategies across the four E's—Engineering, Education, Enforcement, and Emergency Medical Services (EMS)—to improve safety and reduce the number of serious and fatal injury crashes involving VRUs. **Table 2** and **Table 3** show each strategy and progress to date in the Pedestrian Safety EA and Bicycle Safety Continuing Safety Area, respectively.

Table 2: *Pedestrian Safety EA Priority Strategies*

E CATEGORY	STRATEGY	STATUS
Engineering	Evaluate top 10 locations having significant crash trends involving pedestrians.	This occurs every spring when the crash data for the previous year has been finalized. Each location is evaluated for improvements, which are coordinated with each UDOT region.
Engineering	Develop and implement improvement projects including signage, lighting, crosswalk, and roadway design features.	This is an ongoing effort. Projects are continuously developed and implemented—primarily through the region—but many are statewide projects such as the pedestrian push-button and under mast arm lighting initiatives. Locally, pedestrian crossing improvements and sidewalk installations are occurring.
Engineering	Continue to support the Safe Sidewalk Program.	The Safe Sidewalk Programs receives $500,000 each fiscal year. UDOT is exploring a new formula for allocation of funds to each region.
Engineering	Increase data for active transportation and implement active transportation crash review meetings.	UDOT holds a bimonthly meeting to review every fatal collision, including those involving a bicyclist and/or pedestrian.
Engineering	Identify locations having significant crash trends involving school zones.	UDOT is developing a new software that can input the Safe Routes to School plans into a GIS-compatible database. Implementation is expected to occur in about one year. Until then, UDOT can evaluate school zone information in its database.
Engineering	Improve infrastructure for Safe Routes to School.	Annually in the fall, UDOT distributes approximately $1.5 million through the Safe Routes to School Grant Program.
Education	Continue to support and implement safety messages and other education programs aimed at all age groups.	This is a continuous effort; at the time of this assessment, Zero Fatalities was running the "Back to Basics of Safe Driving" campaign, which highlights ways for bicyclists and pedestrians to be safer, and for motorists to be aware and safe around bicyclists and pedestrians. Zero Fatalities also provides educational presentations and curriculum for students in elementary, middle, and high school.
Education	Proactively plan to elevate pedestrian safety compared to capacity.	This effort might best be emphasized by UDOT's newly created Transit and Trails group.
Education	Shift culture toward moving people, not cars, through community engagement across Utah.	Update unavailable.

Table 2: *Pedestrian Safety EA Priority Strategies (continued)*

E CATEGORY	STRATEGY	STATUS
Education	Encourage walking to school and using the Safe Routes Utah tools and resources.	This is a continual effort as Safe Routes Utah provides assemblies for all public schools in Utah to teach students how to walk and bike to school safely. UDOT also encourages students and their parents to walk to school through the Walk and Roll Challenge. These efforts are publicized via messages to parents via the Peachjar platform, social media, and posters in schools.
Education	Research creating a Safety Garden in Utah.	Preliminary research and feasibility meetings have occurred, and UDOT leadership supports more exploration. Research about current gardens in other states is underway to determine what might work best in Utah.
Enforcement	Meet twice a year with local law enforcement on pedestrian concerns and more pedestrian enforcement.	This effort is underway. The Utah Department of Public Safety (UDPS) Highway Safety Office is conducting the Multi-Agency Task Force (MATF) meetings with law enforcement agencies in Davis, Weber, and Salt Lake counties and sharing information about federal and state enforcement campaigns including National Youth Traffic Safety Month and National Bicycle Safety Month. During fiscal year 2023, 93 pedestrian/crosswalk enforcement shifts were given to seven law enforcement agencies in Utah. Between February 2022 and June 2023, the Highway Safety Office met with law enforcement agencies (officers and administration) in all regions of Utah to discuss available safety programs, including those focused on pedestrians and bicyclists. In June 2023, the Utah Highway Safety Office (UHSO) shared pedestrian and bicycle educational materials with attendees of the Ogden Raptors Baseball Club games.
Enforcement	Broaden reach of pedestrian enforcement funded shifts or “blitzes.”	“Blitzes” occurred Aug. 21 to Sept. 1, 2023. The St. George Police Department and Utah Tech University took part in this year’s Back-to-School Blitz, which increased the reach to Southern Utah.
Enforcement	Promote crosswalk and school zone enforcement/public information campaigns when funding is available.	This occurs year-round, most recently from Aug. 21 to Sept. 1, 2023, with 17 agencies taking part in 138 shifts. In March 2023, 16 agencies took part in 211 crosswalk shifts, issuing 230 citations and 320 warnings.
EMS	Encourage local EMS providers to participate in local education programs.	The EMS division of the Utah Department of Health is a partner with Zero Fatalities and the Zero Fatalities Safety Summit Executive Committee.
EMS	Increase involvement of EMS for Children Coordinators in the implementation of educational programs.	Update unavailable.

Table 3: *Bicycle Safety Continuing Safety Area Priority Strategies*

E CATEGORY	STRATEGY	STATUS
Engineering	Use the American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities and other adopted guidance documents.	UDOT is waiting for this guide to become available but has incorporated some of its elements in its new Design Manual standards.
Engineering	Develop a Bicycle Accommodations in Work Zones standards book.	This has been developed and was scheduled for review by UDOT's Standards Committee in September 2023.
Engineering	Improve signage and infrastructure addressing safety for motorists and bicyclists along heavily used bicycle corridors where appropriate.	This is addressed at the UDOT region level.
Engineering	Determine heavy crash hotspots and implement mitigation measures.	This occurs every spring when the crash data for the previous year has been finalized. Each location is evaluated for improvements, which are coordinated with each region.
Engineering	Develop UDOT-specific bicycle standards.	UDOT has developed and adopted Design Manual drawings and continues to develop additional standards for bollards; guidance for the installation of bulb outs; and design standards for bicycles on Single Point Urban Interchanges (SPUIs).
Education	Continue bicycle and pedestrian safety campaigns.	This is a continuous effort; at the time of this assessment, Zero Fatalities is running the "Back to Basics of Safe Driving" campaign, which highlights ways for bicyclists and pedestrians to be safer, and for motorists to be aware and safe around bikes and pedestrians. Zero Fatalities also provides educational presentations and curriculum for students in elementary, middle, and high school.
Education	Develop safety messaging for micro-mobility users.	Zero Fatalities addresses micro-mobility and provides messaging.
Education	Increase the promotion of bicycle helmet use, with a special focus among school age children.	Safe Routes Utah educates children about helmet use during assemblies at schools and through its educational curriculum. It also awards helmets as prizes for the Walk and Roll Challenge.
Education	Continue partnership for educational programs targeting adults and children on bicycle safety.	Zero Fatalities and Bike Utah have worked together to develop bicycle safety videos for use on social media.
Education	Develop educational programs that teach drivers the importance of sharing the road, including the three-foot law.	This is a continuous effort; at the time of this assessment, Zero Fatalities was running the "Back to Basics of Safe Driving" campaign, which highlights ways for bicyclists and pedestrians to be safer, and for motorists to be aware and safe around bicyclists and pedestrians. Zero Fatalities also provides educational presentations and curriculum for students in elementary, middle, and high school.

Table 3: *Bicycle Safety Continuing Safety Area Priority Strategies (continued)*

E CATEGORY	STRATEGY	STATUS
Education	Research creating a Safety Garden in Utah.	Preliminary research and feasibility meetings have occurred, and UDOT leadership supports more exploration. Research about current gardens in other states is underway to determine what might work best in Utah.
Enforcement	Better inform law enforcement of traffic laws as they pertain to both motorists and bicyclists and encourage enforcement of the laws.	Meetings with the Department of Public Safety's Multi-Agency Task Force stalled with the onset of COVID-19. UDOT supports reinstating these meetings every three to six months.
Enforcement	Meet twice a year with local law enforcement on bicycle concerns.	This effort is underway. The Utah Department of Public Safety (UDPS) Highway Safety Office is conducting the Multi-Agency Task Force (MATF) meetings with law enforcement agencies in Davis, Weber, and Salt Lake counties and sharing information about federal and state enforcement campaigns including National Youth Traffic Safety Month and National Bicycle Safety Month. During fiscal year 2023, 93 pedestrian/crosswalk enforcement shifts were given to seven law enforcement agencies in Utah. Between February 2022 and June 2023, the Highway Safety Office met with law enforcement agencies (officers and administration) in all regions of Utah to discuss available safety programs, including those focused on pedestrians and bicyclists. In June 2023, the Highway Safety Office shared pedestrian and bicycle educational materials with attendees at Ogden Raptors Baseball Club games.
Enforcement	Continue to promote bike rodeos in local communities.	Bike rodeos are promoted year-round. Nineteen have occurred using the UHSO trailer and supplies. The bike rodeo trailers are featured on the UHSO website, and the program manager has informed all local health departments of the availability. An informational video is currently in the planning stage and could be used on social media to advertise this program.
EMS	Encourage a local EMS providers to participate in local education programs.	The EMS division of the Utah Department of Health is a partner with Zero Fatalities and the Zero Fatalities Safety Summit Executive Committee.

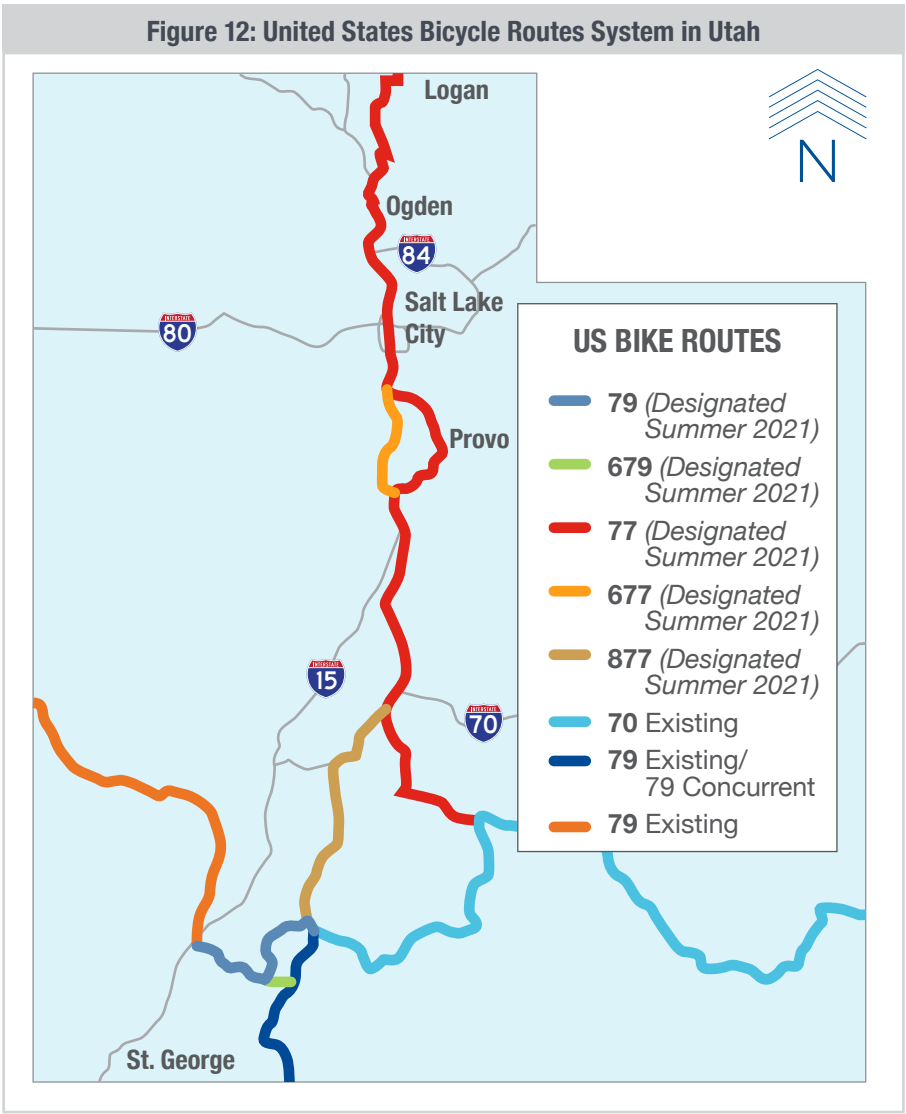
IMPROVING SAFETY WITH AN INTERSTATE OF TRAILS

In 2023, the Utah Legislature passed Senate Bill 185 to create an active transportation fund for infrastructure such as paved non-motorized trails. The fund can collect up to $45 million in a given fiscal year. The Legislature's 2024 fiscal budget also set aside $90 million for active transportation projects (half of which comes from one-time spending; the other half will go into the new fund). The bill provided the legislative framework and initial funding needed to begin building a statewide trail system similar to the interstate system, except without vehicles and only in Utah. This trail network will connect communities for people who opt not to or cannot drive for any reason and will offer a safer option for active transportation users.

ENHANCING THE SAFETY AND EASE OF CYCLING WITH A THOUSAND MILES OF NEW ROUTES IN UTAH

UDOT and Move UTAH, the Department's walking, biking, and community planning program, have partnered with Adventure Cycling, a national cyclist advocacy group, to develop a north-south route to connect cyclists from Idaho to Arizona. In 2021, more than 550 miles of bike routes were designated for the United States Bicycle Routes System (USBRS) in Utah to enhance safety and ease for biking in the state. The new route system includes 105 miles of continuous safe and separated cycling trails along the urbanized Wasatch Front. AASHTO approved the routes, which increase total USBRS routes in Utah to around **960 miles** of streets, highways, and trails (see **Figure 12**). The routes provide riders with the most safety and protection, as well as local points of interest, accommodations, and bike-friendly shops. Having the USBRS designation has multiple benefits for cyclists; for example, new signage will direct bicyclists to a preferred route through a city, county, or state. The designated routes also ensure that a rider's experience and safety are considered.

Figure 12: United States Bicycle Routes System in Utah



RESEARCH EFFORTS FOCUSED ON VRU SAFETY

Since 2017, numerous studies completed for the UDOT Research and Innovation Division have addressed pedestrian and cyclist safety on Utah's roadways. They include:

1. *Pedestrian Traffic Signal Violations: Safety, Design and Operational Implications* (No. UT-23.10) sought to improve pedestrian safety at signalized intersections by focusing on pedestrian signal violations, measuring behaviors, associating characteristics and locations, and identifying mitigation strategies.
2. *Impaired Active Transportation Users* (No. UT-22.22) involved an in-depth evaluation of Active Transportation fatalities involving intoxication. A comprehensive profile of characteristics associated with these crashes was created, along with a policy review of applicable actions taken by other jurisdictions on this issue.
3. *Mode Shift Potential Evaluations Using Desire Lines and Connections to Active Functional Classification Systems* (No. UT-22.20) documented the development and validation of a traveler alignment analysis tool used for evaluation of mode shift potential. The tool looked at orientation and magnitude of short trips in origin-destination data for this purpose.
4. *Non-Motorist Fatalities: A Deep Dive* (No. UT-22.19) examined non-motorist crashes in a holistic way to identify characteristics present in areas where these crashes result in a fatality. The study used several different datasets and analysis techniques including multinomial logistic (MNL) regression to evaluate evidence with the goal of creating an effective representation of crashes.
5. *A Systematic Analysis of Bicycle and Pedestrian Safety in Utah* (No. UT-22.07) identified risk factors, potential treatment sites, and potential countermeasures to promote safety. The systemic approach to roadway safety management is a proactive means of identifying risk factors and countermeasures, rather than just high crash treatment locations.
6. *Active Transportation Facilities in Canal Corridors* (No. UT-22.04) summarized challenges of establishing canal trails and provided insight and tools to resolve these challenges. The study reviewed past canal trail projects, interviewed stakeholders, and created a guide for overcoming obstacles to canal trail implementation.
7. *Utilizing Automated Traffic Signal Performance Measures (ATSPM) Data for Pedestrian Planning and Analysis – Phase II: Extending Pedestrian Volume Estimation Capabilities to Unsignalized Intersections* (No. UT-21.32) examined the use of estimated pedestrian crossing volumes based on push-button event data recorded by signal controller logs. This data type allowed the ability to study more sites over a longer time. Direct demand models and spatial error models were used in the analysis.
8. *Estimation and Simulation of Daily Activity Patterns for Individuals Using Wheelchairs* (No. UT-21.10) examined the travel patterns of wheelchair users from the 2017 National Household Travel Survey and presented a model of daily activity pattern choice of respondents who self-identify as using a wheelchair. It also discussed the application of a wheelchair status variable in the activity-based travel demand model (ActivitySim) and measured its effect on individual and household daily activity pattern choice.
9. *Safety in Numbers? Developing Improved Safety Predictive Methods for Pedestrian Crashes at Signalized Intersections in Utah Using Push Button-based Measures of Exposure* (No. UT-21.08) focused on estimating models of pedestrian crash frequency at signalized intersections, developing safety performance functions for application of model results, and examining where the 'safety in numbers' effect applies to pedestrian safety in the U.S.
10. *Utilizing Archived Traffic Signal Performance Measures for Pedestrian Planning and Analysis* (No. UT-20.17) explored the use of continuous pedestrian traffic signal data from the ATSPM system with the goal of finding patterns of pedestrian activity at signalized intersections. One year of observations from more than 1,500 signals was used to complete analysis.
11. *Gauging the Effectiveness of Safe Routes to School Projects* (UT-20.10) evaluated past Safe Routes to School and Safe Sidewalks Programs to determine which project types were most effective at promoting safety. Infrastructure projects funded under the programs were reviewed and evaluations of crashes within one mile of those projects were conducted.

12. *Guidance for Enhanced Pedestrian Treatments Within Reduced Speed School Zones* (UT-19.29) focused on developing appropriate treatments to enhance pedestrian crossing safety for situations where there is more demand for pedestrian crossings outside of normal school hours. Interviews were conducted with other departments of transportation and a review of literature was conducted to understand more about how the research community and practitioners approach this subject.
13. *Pedestrian Walking Speeds at Signalized Intersections in Utah* (No. UT-19.06) evaluated state guidance about pedestrian walking speeds. Several sites at signalized intersections around Utah were studied to evaluate pedestrian walking speeds and events.
14. *Driver Compliance at Enhanced Pedestrian Crossings in Utah* (No. UT-19.03) evaluated the safety impacts of pedestrian crossing enhancements and their effect on the driver compliance rate.
15. *Travel Behavior at Grade Rail Crossings* (UT-19.02) conducted a site survey of a sample of grade rail crossings, including existing conditions and non-motorist compliance with the guidelines provided in the UDOT Pedestrian Grade Crossing Manual.
16. *Measuring Systemic Impacts of Bike Infrastructure Projects* (No. UT-18.03) identified impacts of bicycle infrastructure treatments on all roadway users, including safety, operations, and travel route choice. Analysis was performed on geometric features, traffic characteristics, and bicycle lanes in a before-and-after comparison.
17. *Measuring Pedestrian Exposure and Risk in High-Risk Areas* (No. UT-17.05) used video footage from identified high-risk intersections for cyclist and pedestrian crashes to evaluate individual crossing behaviors. Crossings were coded based on demographics, crossing behaviors, and interaction/conflicts with vehicles and subsequently analyzed.

Several additional studies related to the safety of pedestrians, cyclists, and other VRUs are currently in progress:

1. *Responsive Tracking and Improvement of Work Zone Safety* (PIC No. 23.313).
2. *Effectiveness of Signalized intersection Treatments for Pedestrian Safety* (PIC No. 23.310).
3. *Pedestrian Safety and Traffic Operations Near Transit Stops* (PIC No. 22.601).
4. *EDI Evaluation of Transportation Infrastructure* (PIC No. 22.408).
5. *Bikeconomy: Economic and Health Benefits of Recreational Bicycling and Related Infrastructure Investments in Utah* (PIC No. 22.407).
6. *Utilizing LiDAR Sensors to Detect Pedestrian Movements at Signalized Intersections* (PIC No. 21.301).

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2.0 SUMMARY OF QUANTITATIVE ANALYSIS

2.1 Data, Methodology, and Time-period of Analysis Used to Identify High-Risk Areas for VRUs

2.1.1 VRU-Related Fatalities and Suspected Serious Injuries: Identifying High-Risk Locations

"High-risk" areas for VRUs are those shown to be the most dangerous for people who walk, run, ride a bicycle, skate, use a scooter or wheelchair, or use other active-transportation modes. A high-risk area could be a geographic region, a special facility type, a specific location, or another priority area that poses a hazard to VRUs. Work zones may also be high-risk locations, as highway workers on foot in a work zone are also VRUs.

Identifying the locations of suspected serious and fatal-injury crashes involving VRUs was critical to determining which areas are high risk. To make this determination, the study team began by evaluating the population, area in acres, and the number of fatal and suspected serious-injury crashes that involved a VRU in cities throughout Utah. **Figures 13a, 13b, 13c,** and **13d** provide an overview of the factors evaluated to identify high-risk cities in Utah. The project team also used this data to inform the selection of stakeholders involved in consultation, as outlined in Section 3, *Summary of Consultation.*

CRASH DATA ANALYSIS

The analysis of crash data for the years 2017 through 2022 began with 124 attributes related to Facilities, Transit, Crashes, Demographics, and Built Environment to identify potential high-risk areas for VRUs throughout the state. In this context, an attribute refers to a specific quality or characteristic of the transportation system, vehicle, or other component that could impact safety.

The project team prepared summary statistics for these attributes in comparison to crashes and presented the results to the Stakeholder Committee involved in the consultation process. Based on the Stakeholder Committee's input, the attributes were distilled from the original 124 down to 46 for further statistical analysis.

Pearson's Chi-Squared (χ^2) test was used to compare the observed distribution of location and crash data (categorical variables) to a theoretical one (measuring goodness of fit) for these attributes. A Chi-Squared test can be used to determine if two categorical variables are significantly associated. It is a useful method for understanding whether discrepancies exist between observed and expected frequencies due to random chance or if they reflect a true, significant relationship between the variables. A maximum likelihood least squares regression model was used to perform area-level analysis compared to the crash dataset since the area-level dataset (the Social Vulnerability Index and EPA Smart Location Database; see Section 2.2 *Consideration of Demographics in the Quantitative Analysis*) are nominal variables. Based upon this analysis, 21 statistically significant attributes were identified and grouped into the following five categories:

1. Roadway,
2. Motorist,
3. Non-Motorist,
4. Demographic, and
5. Built Environment.

Figure 13a: Factors Evaluated to Identify High-Risk Cities in Utah (Fatal Crashes)

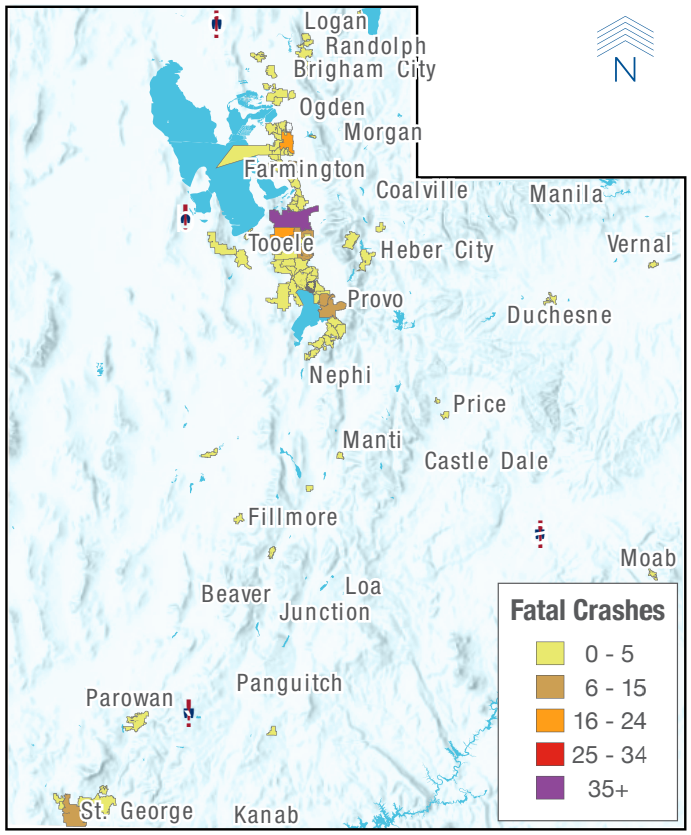


Figure 13c: Factors Evaluated to Identify High-Risk Cities in Utah (Area in Acres)

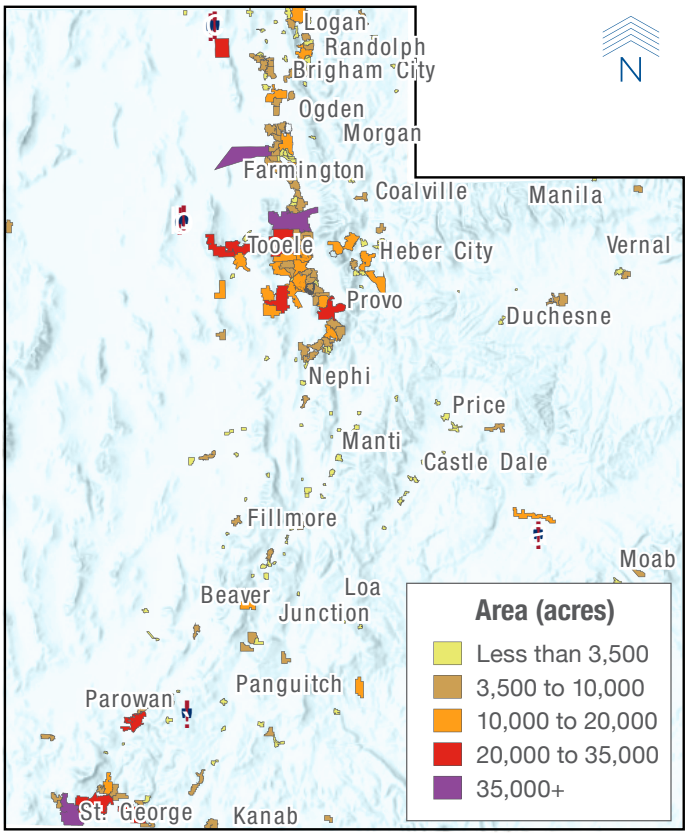


Figure 13b: Factors Evaluated to Identify High-Risk Cities in Utah (Suspected Serious Injury Crashes)

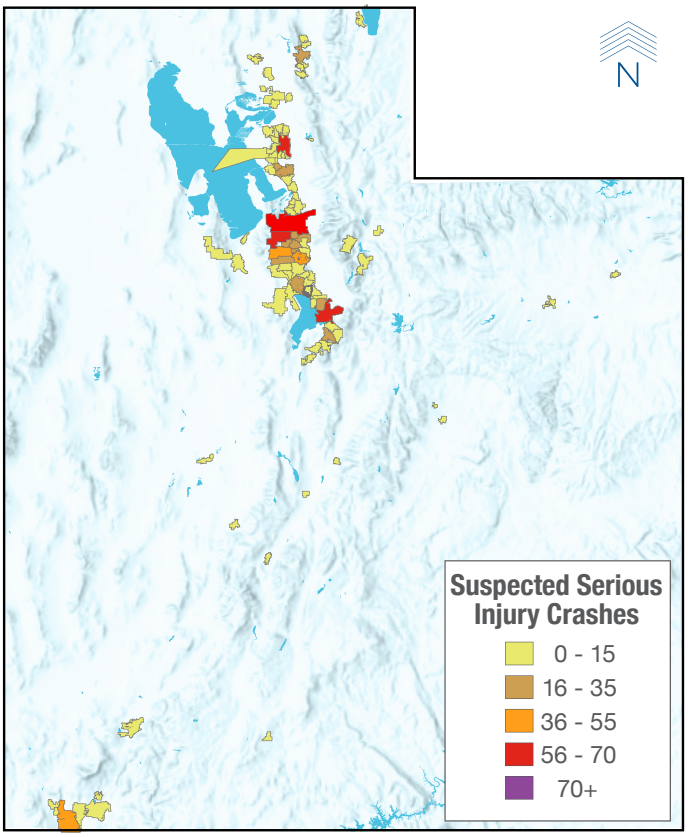


Figure 13d: Factors Evaluated to Identify High-Risk Cities in Utah (City Population)

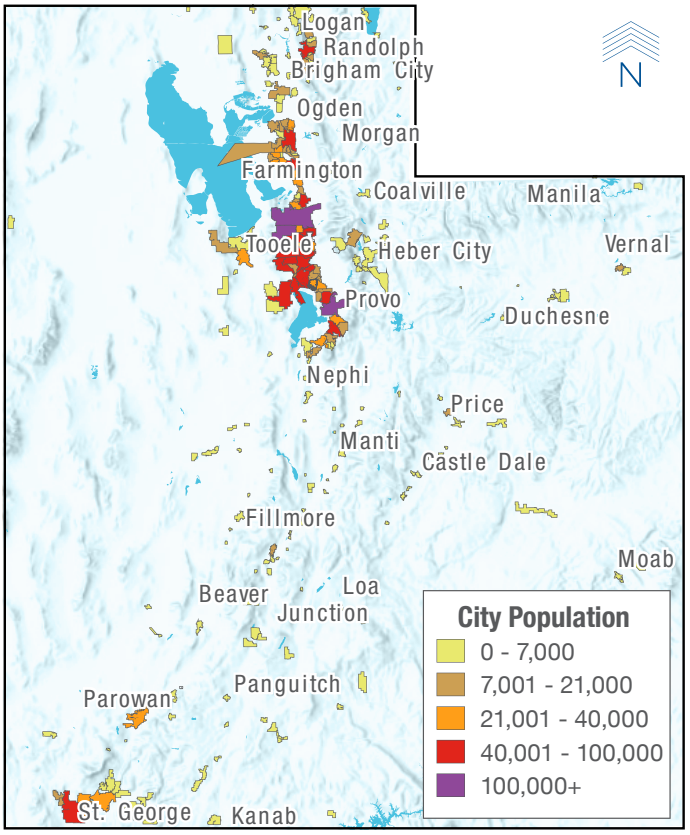


Figure 14 illustrates the process used to identify the 21 statistically significant attributes and the five categories into which they are grouped. See **Appendix 1.**

The significant attributes include 12 roadway attributes; four crash attributes; two area attributes (demographics/potential exposure); and three destination/land-use attributes. The roadway attributes can be further classified with one surrogate each for speed, volume, and level of exposure; eight lane-based attributes; and three VRU support facilities.

Figure 14: Analyzing and Identifying the Attributes

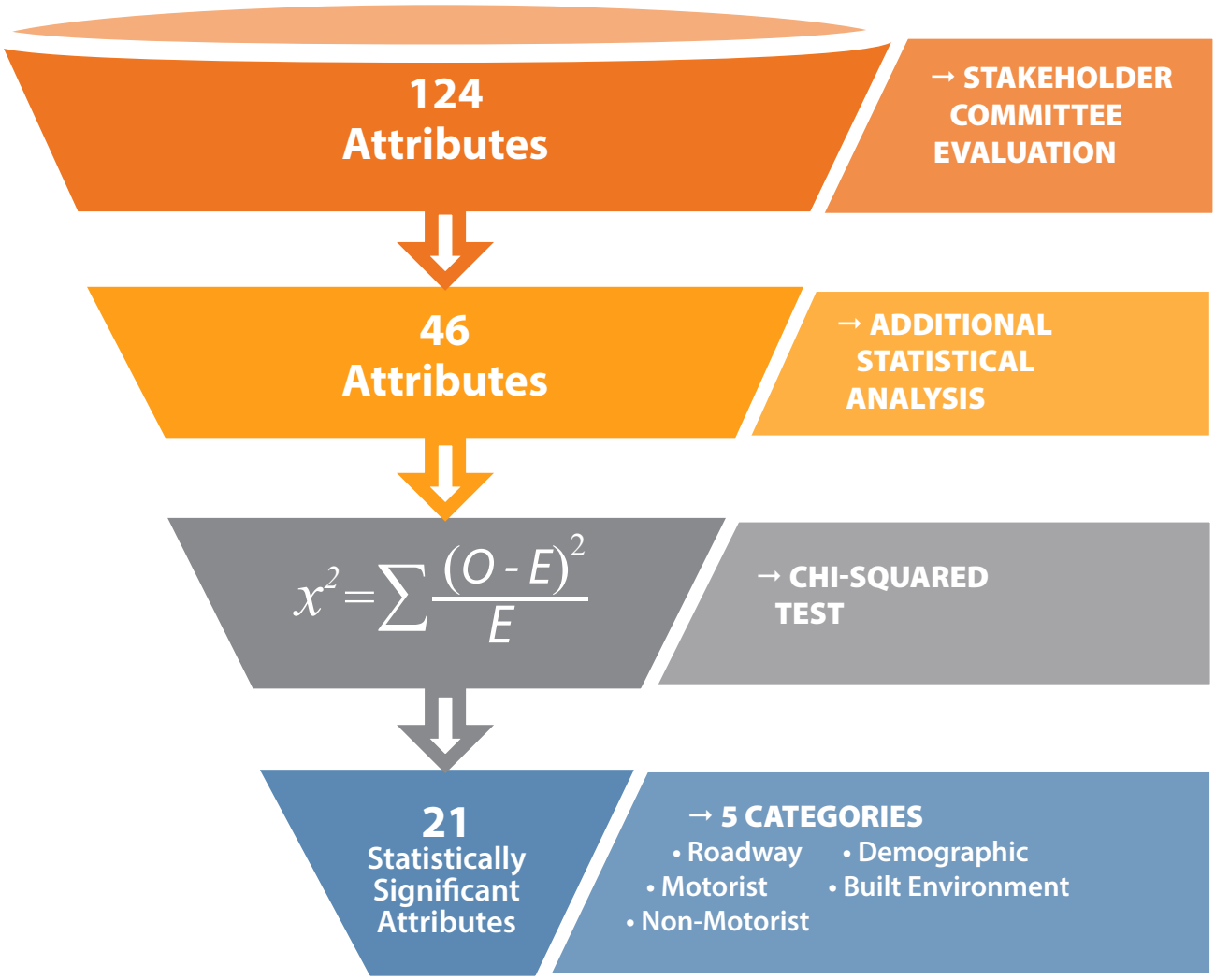


Table 4 provides these significant variables from the Chi-Squared Test. The results can be found in **Appendix 2**.

Table 4: *Evaluated Variables (from Chi-Squared Test)*

	VARIABLE	INCLUDED CRITERIA (Significant Variables)	EXCLUDED CRITERIA (Non-Significant Variables)
Roadway	HOV *(High Occupancy Vehicle)* Lanes	No HOV Lanes	1 HOV Lane
	Left-Turn Lanes	No Left-Turn Lanes	1-4 Left-Turn Lanes
	Passing Lanes	No Passing Lanes	1 Passing Lane
	Right-Turn Lanes	No Right-Turn Lanes	1-4 Right-Turn Lanes
	Through Lanes	4 to 6 Through Lanes	1 to 3 and 7 to 8 Through Lanes
	Median Type	Presence of Raised Median, Two-Way Left-Turn Lane, or Undivided	Presence of painted median, depressed median, concrete barrier, rapid transit, separated grades, railroad
	Median Island	No Traffic Island	Raised Traffic Island
	Sidewalks	Presence of Sidewalks	No Sidewalk, Restricted
Motorist	Driver Contributing Factor	No known contribution, or fails to yield right-of-way	Exceeded posted speed limit, too fast for conditions, failed to keep in proper lane, unsafe lane change, over-correcting, disregard traffic signs/signals/road markings, evasive action, followed too closely, wrong way, improper parking, ran off road, improper backing/passing/turn, reckless driving, aggressive driving
Non-Motorist	Non-Motorist Location	At an intersection marked crosswalk, or in a travel lane (not in crosswalk or intersection)	Intersection unmarked crosswalk, midblock crosswalk, intersection school crosswalk, midblock school crosswalk, intersection not in crosswalk, median/island, shoulder/ roadside, sidewalk, on-street bike lane, separated bike lane, shared-use path/trail, driveway/access, outside right-of-way
	Non-Motorist Action	Entering or crossing the road, or walking or cycling along the road with traffic	Walking or cycling along the road against traffic, waiting to cross roadway, walking or cycling on sidewalk, working in traffic, working on a vehicle, pushing motor vehicle, adjacent to vehicle, in roadway, other
	Non-Motorist Contributing Factor	No known contribution, or crossing improperly	Dart/dash, wrong side of road, not visible, inattentive, failure to obey signs/signal, failure to yield right-of-way, in roadway improperly, improper turn/merge/passing
Demographic	Social Vulnerability Index (SVI)	Highest Quartile with SVI > 4	Bottom Three Quartiles with SVI < 4
	Smart Location Database (SLD)	Lowest Quartile with SLD < 70.9	Top Three Quartiles with SLD > 70.9
Built Environment	Higher Education Facilities	Highest Quartile with a distance > 15,585' *(2.95 miles)*	Bottom Three Quartiles with a distance < 15,585' *(2.95 miles)*
	Pre-K to 12th Grade Schools	Highest Quartile with a distance > 3,082' *(0.58 miles)*	Bottom Three Quartiles with a distance > 3,082' *(0.58 miles)*
	Points of Interest	Highest Quartile with a distance > 859' *(0.16 miles)*	Bottom Three Quartiles with a distance > 859' *(0.16 miles)*

HIGH-RISK AREA MAPS

All significant attributes were included in the analysis when drafting the high-risk area maps. Each attribute is binary: Either 0 (does not exist) or 1 (exists) on every roadway segment within the state. For the index and distance attributes, the highest or lowest quartile is 1 and all other segments are considered 0. The total composite score for the number of significant variables present is unweighted and shown in **Figure 15.**

The draft high-risk areas were shared with the Stakeholder Committee, which identified a lack of high-risk areas on local roadways. This was because 100 percent of centerline miles of the areas identified on the Draft High-Risk Area Map were located on state routes. To address the concern about the lack of local roads identified as high risk, four additional scoring systems were presented to the Stakeholder Committee. These four options included scoring based upon:

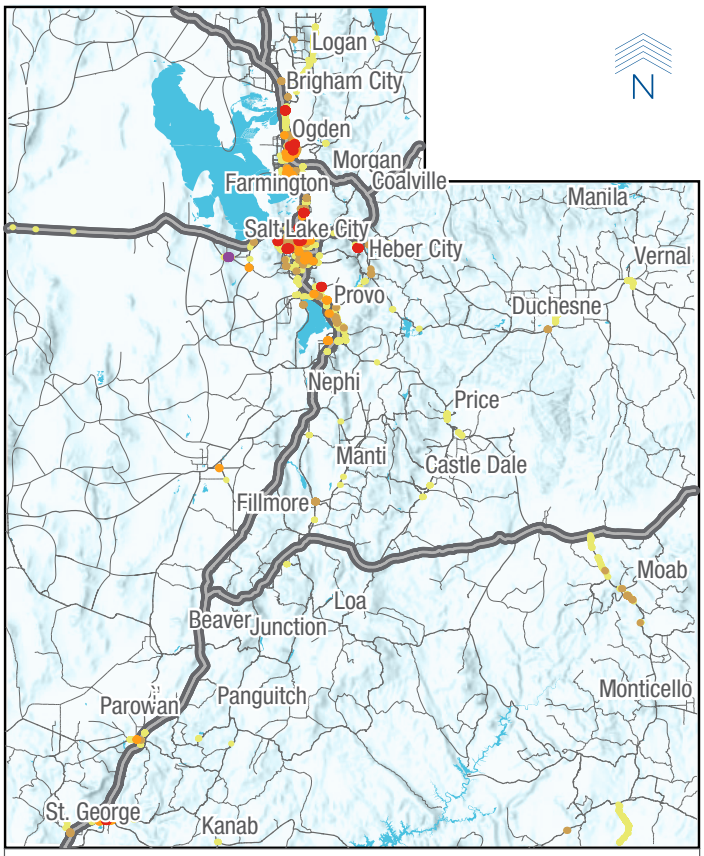
1. Proportion of available criteria rather than total significant criteria,
2. Significant crash variables only,
3. Proportion of available criteria with significant crash variables weighted with a factor of 2.0 on local roads, and
4. Proportion of available criteria with significant crash variables weighted with a factor of 3.0 on local roads.

The Stakeholder Committee selected option 3 above. It uses a composite score that weights crash attributes on local roads with a factor of 2.0 and scored roadway segments on the proportion of available criteria from 0 to 100 vs. using the total score of the individual criteria.

This scoring option resulted in high-risk areas on 7.24 centerline miles of local roads, or six percent of the total high-risk areas. The Final High-Risk Area Map, illustrated in **Figure 16**, includes 120.4 centerline miles, and represents 0.1 percent of all centerline miles within Utah.

Of the 120.4 centerline miles of identified high-risk areas, 21.42 miles are on Tribal Lands. They include:
- US-40 within the Uintah and Ouray Tribal Lands (0.61 miles),
- US-163 within the Navajo Tribal Lands (0.25 miles), and
- US-191 within the Navajo Tribal Lands (20.56 miles).

Figure 15: Draft High-Risk Area Map

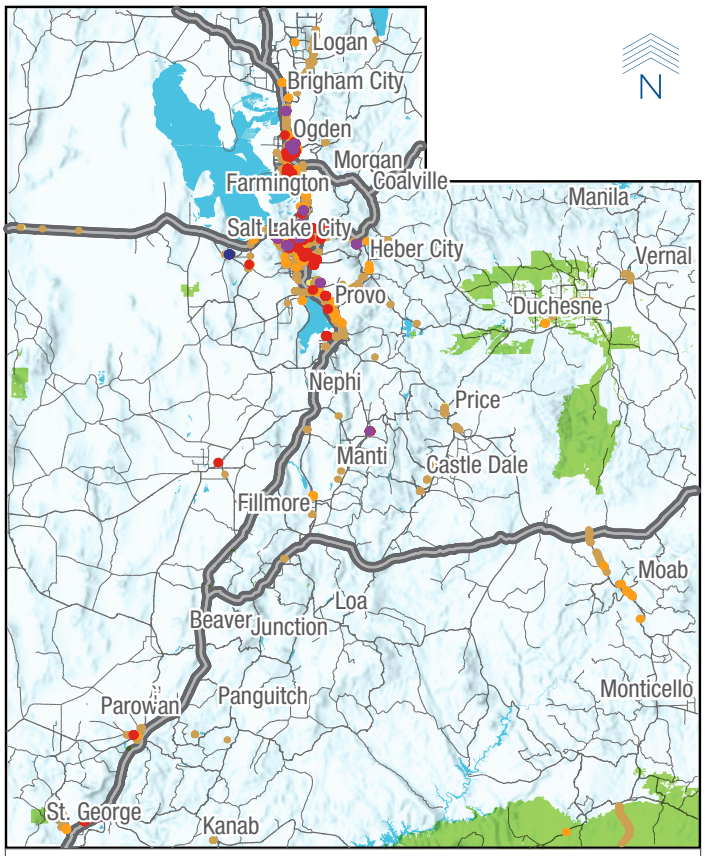


High-Risk Area Score (0-21)

- 15 (~92.0 Centerline Miles)
- 16 (~11.7 Centerline Miles)
- 17 (~5.6 Centerline Miles)
- 18 (~1.0 Centerline Miles)
- 19 (~0.03 Centerline Miles)

Note: Segments with higher scores have more significant variables associated with VRU crashes.

Figure 16: Final High-Risk Area Map



High-Risk Area Score (0-100)

- **68** (2.1 Miles)
- **70-74** (97.9 Miles)
- **75-79** (12.0 Miles)
- Tribal Lands
- **80-84** (7.06 Miles)
- **85-89** (1.27 Miles)
- **90** (0.03 Miles)

Note: Segments with higher scores have more significant variables associated with VRU crashes.

2.2 Consideration of Demographics in the Quantitative Analysis

UDOT utilized demographic data from two U.S. Census Data-based sources throughout the qualitative analysis: (1) the U.S. Centers for Disease Control and Prevention Agency for Toxic Substances and Disease Registry Social Vulnerability Index (SVI) and (2) the Environmental Protection Agency (EPA) Smart Location Database (SLD).

2.2.1 The SVI

Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health, such as natural or human-caused disasters and disease outbreaks. Socially vulnerable populations are especially at risk during public health emergencies because of factors like socioeconomic status, household characteristics, racial and ethnic minority status, housing type, and transportation. To help public health officials and emergency response planners meet the needs of socially vulnerable populations in emergency response and recovery efforts, the Geospatial Research, Analysis, and Services Program (GRASP) created and maintains the SVI. The SVI defines four types of social vulnerability: (1) socioeconomic status, (2) household characteristics, (3) racial and ethnic minority status, and (4) housing type and transportation. The U.S. Census Bureau American Community Survey (ACS) gathers the measures for the SVI at the census-tract level. The most recent update was in 2020. SVI consolidates various diverse issues into a standardized framework, enabling comparisons between different census tracts, which makes its use a nationally recognized practice (see **Figure 17**).

2.2.2 The EPA SLD

The SLD is a nationwide geographic data resource for measuring location efficiency and the built environment; that is, locations with compact neighborhoods, walkable streets, access to transit, and a variety of stores and services. The SLD includes more than 90 attributes summarizing characteristics such as housing density, diversity of land use, neighborhood design, destination accessibility, transit service, employment,

Figure 17: The Social Vulnerability Index (SVI)

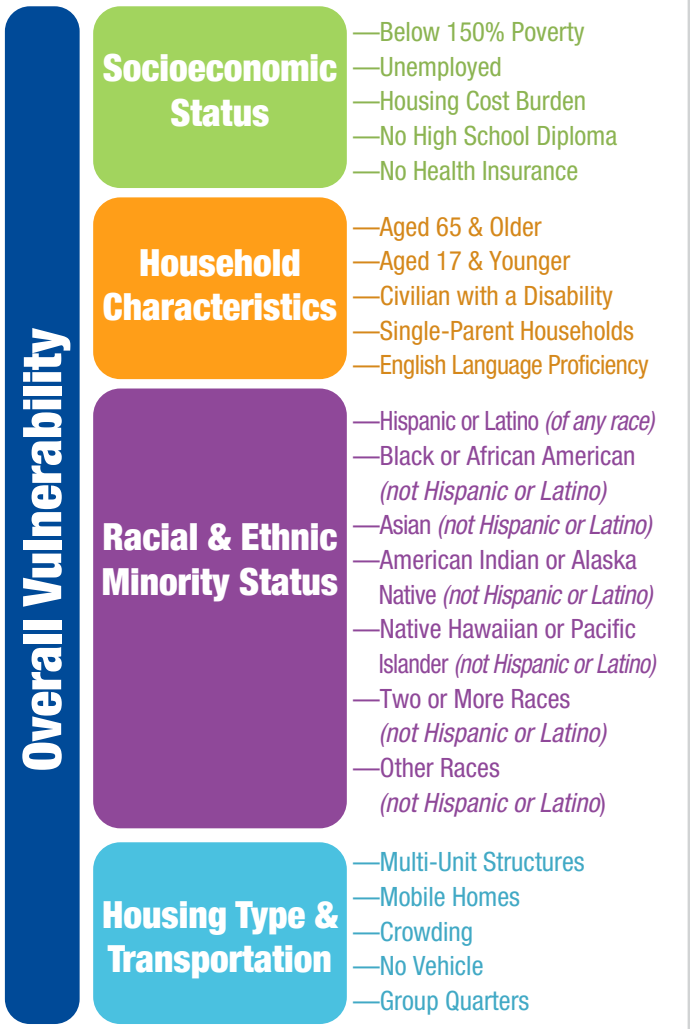
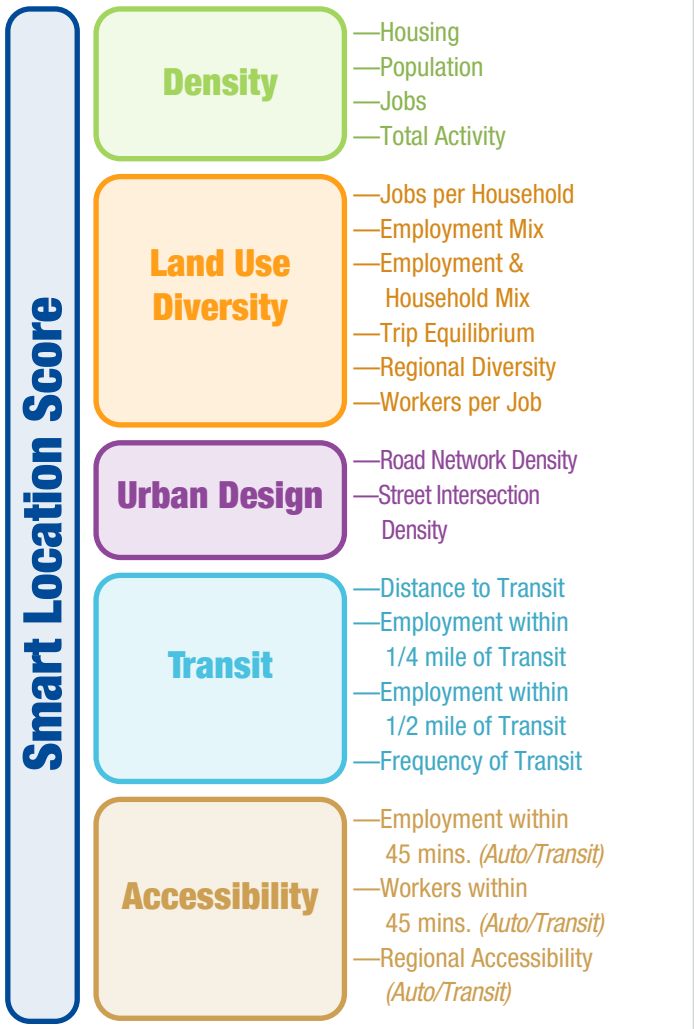


Figure 18: EPA SLD Smart Location Score



and demographics. Most attributes are available for every census block group in the United States. The SLD gathers information from three indexes: (1) the National Walkability Index, (2) the Accessibility Index, and (3) the Smart Location Index. The ACS most recently updated the SLD in 2019.

The SLD ranges from zero to 100. Zero indicates the least location-efficient site in the region and 100 indicates the most location-efficient site. When accounting for the attributes based on the values of the SVI and SLD, locations in the highest quartile of the SVI and the lowest quartile of the SLD were counted. The highest quartile of the SVI (indicating higher social vulnerability) was assigned a value of 1 for the composite score. All other segments received a zero. For the SLD, a lower score indicates less accessibility. The lowest quartile received 1 point in the composite score and all other road segments received zero. **Figure 18** highlights SLD scoring.

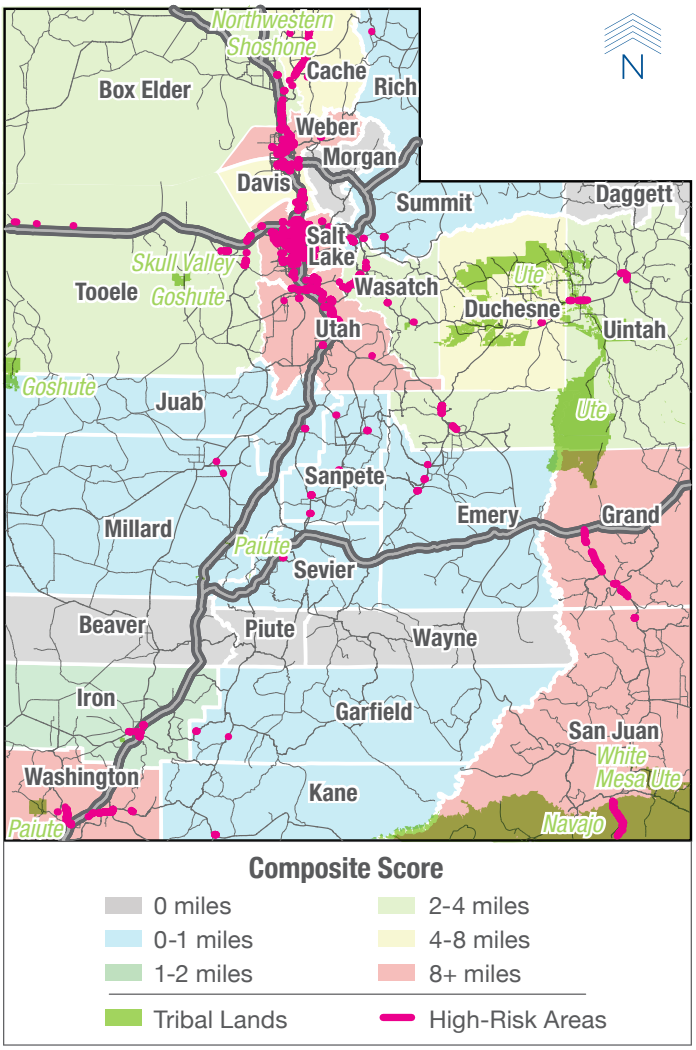
2.3 Identified High-Risk Areas for VRUs Based on Data and Demographic Information

Based on the data, demographic information, and analysis, 130 roadway segments are considered the highest-risk areas for VRUs (see **Appendix 3**).

Figure 19 summarizes the centerline miles of these roadways by county. Overall:

- Salt Lake County has the most high-risk road segments with 21.8 centerline miles.
- Beaver, Daggett, Morgan, Piute, and Wayne counties are not represented among these highest-risk road segments.
- High-risk areas were identified on Navajo Tribal Lands in San Juan County; Uintah and Ouray Tribal Lands in Duchesne County; and Uintah and Ouray Tribal Lands in Uintah County.

Figure 19: Identified High-Risk Areas for Vulnerable Road Users



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3.0 SUMMARY OF CONSULTATION

3.1 Consultation Process

UDOT began the consultation process in spring 2023. The first step was to establish an agreed-upon committee and engagement structure to assist in three key areas:

- To provide guidance on the criteria for identifying high-risk areas for VRUs,
- To evaluate strategies, programs, and projects to improve safety conditions for VRUs, and
- To share information with and gather comments from a diverse group of stakeholders and associated networks about high-risk areas and VRU safety.

UDOT created three committees: the Steering Committee made up of UDOT staff and consultants, a Technical Advisory Committee (TAC), and a Stakeholder Committee, all of which participated in and supported consultation. The engagement structure promoted two-way information sharing between the Steering Committee and the TAC, and between the Steering Committee and the Stakeholder Committee. The TAC included key regional partners and subject-matter experts, while the Stakeholder Committee included partners from across the state who filtered information further down into their community networks and, conversely, shared input from their community networks with the Steering Committee (see **Figure 20**).

In April 2023, UDOT met with Utah Tribal Leaders and invited them and their community members to participate in this VRU assessment. UDOT will continue to reach out to tribal communities and engage them in efforts to improve VRU safety conditions in their communities.

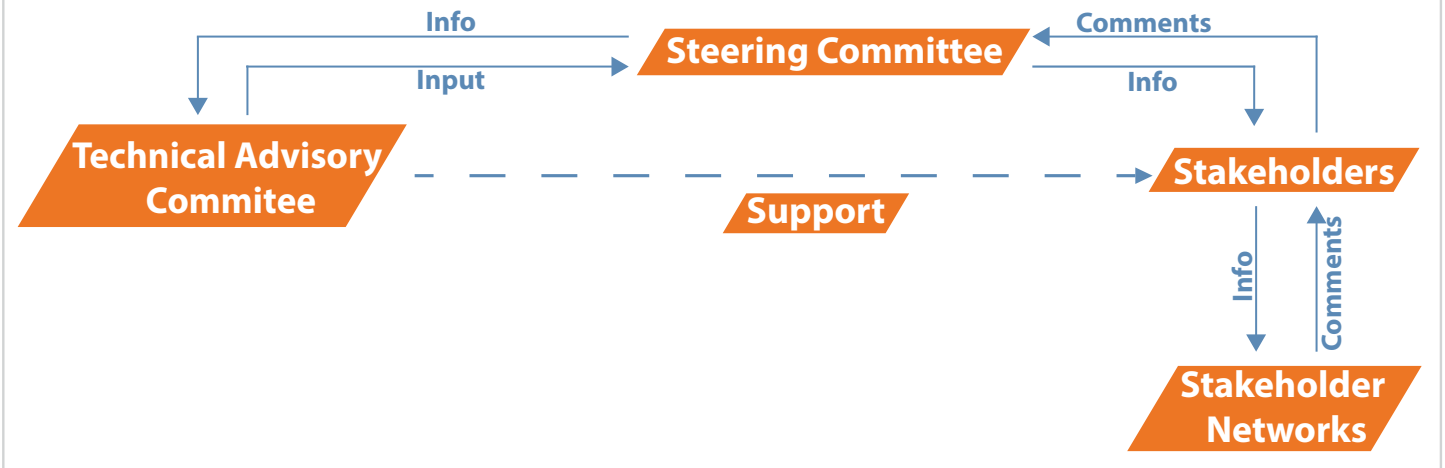
3.1.1 TAC

The TAC represented nine counties and 195 cities, towns, and other census-designated places across Utah. Its members supported the Stakeholder Committee by providing guidance on criteria to determine the VRU high-risk areas, create the high-risk area maps, and develop questions for a survey that asked participants to rank existing safety strategies in UDOT's current SHSP. The TAC further reviewed quality control of data and methodologies and offered input on the various comment maps shared with stakeholders. UDOT selected TAC members to represent heavily populated and diverse cities, metropolitan and rural transportation planning organizations, and state transportation programs. They also represented UDOT, Ogden, and Salt Lake City, and two metropolitan planning organizations that include rural planning organizations (see **Table 5**).

Table 5: *TAC Membership*

UDOT	
» Active Transportation and Safety	» Planning
» Traffic Safety Division	» Regions 2, 4
Salt Lake City Transportation Division	
Ogden	
» Engineering Division	» Police Department
Wasatch Front Regional Council	
Mountainland Association of Governments	

Figure 20: Committee and Engagement Structure for Consultation



3.1.2 Stakeholder Committee

The Stakeholder Committee was established with the intent of creating a statewide network of agencies, community organizations, and individuals whose breadth encompassed the prescriptive underserved and geographic communities in alignment with FHWA guidance for the VRU assessment process. Through collaboration and coordination with the Stakeholder Committee, the project team tapped into existing relationships and mechanisms to "meet people where they are" and provide information about the purpose, need, and benefits of the VRU assessment; gather comments to help identify the priority high-risk areas; and rank policies, programs, and projects to mitigate VRU safety issues.

The Stakeholder Committee was made up of agencies and groups engaging, serving, or representing VRUs across the state, in regional and city agencies, universities, and issue/advocacy groups. Through collaboration with groups like the Utah Office of Multicultural Affairs, the team's efforts potentially reached minority communities statewide. The Utah Department of Health and Human Services has a similar reach, but also includes older populations, as does the Salt Lake County Division of Aging and Adult Services. Community members with disabilities were represented by the Salt Lake City Accessibility and Disability Commission and the Utah Development Disabilities Council. Unhoused individuals were represented by The Road Home, which members of the project team have collaborated with on previous transportation projects to ensure these valuable community members are represented during transportation-project decision making.

The metropolitan and rural planning agencies on the Stakeholder Committee covered most of the state; the areas they did not represent were included through direct participation by city representatives. Much of the entire population of Utah was represented by these organizations alone. Additionally, key elected officials in Salt Lake and Washington counties were invited to participate because of their deep relationships with the Hispanic/Latino and bicycle advocacy communities in those areas (see **Table 6**).

Table 6: *Stakeholder Committee Representation*

AGENCY/ORGANIZATION TYPE/PROGRAM	PARTICIPANTS
Federal	Federal Highway Administration
State	**Utah Dept. of Health and Human Services** » Physical Activity Program » School Wellness Program Utah Developmental Disabilities Council Utah Office of Multicultural Affairs » Planning, Policy, & Engagement UDOT » Active Transportation Planning & Safety » Planning » Traffic Operations » Regions 1, 2, 3, 4 » Zero Fatalities Program Utah Highway Safety Office Utah State Board of Education
Universities	» Brigham Young University » University of Utah » Utah State University
Regional Agencies & Metropolitan Planning Organizations (MPOs)	» Cache Metropolitan Planning Organization » Five County Association of Governments » Mountainland Association of Governments » Wasatch Front Regional Council
Cities	» Hurricane » Layton » Logan » Moab » Ogden » Orem » Park City » Provo » Salt Lake City » South Salt Lake City » St. George » West Valley City

Table 6: *Stakeholder Committee Representation (continued)*

AGENCY/ORGANIZATION TYPE/PROGRAM	PARTICIPANTS
Individuals & Issues-Based Organizations	» Bike Utah » The Road Home » Utah Transit Authority » Penna Powers *(full-service communications agency)* » St. George City Councilmember Danielle Larkin » Utah State House Representative Angela Romero, District 25 » Salt Lake City Disability Advisory Commission » Salt Lake Division of Aging & Adult Services

3.1.3 TAC and Stakeholder Committee Meetings

Once the committees were formed, the Steering Committee agreed on having five TAC meetings and four Stakeholder Committee meetings to ensure consistent participation throughout consultation.

The TAC meetings were held in person with a virtual component to accommodate individuals who were working from home, traveling, or located in other parts of the state. All TAC Meetings occurred in 2023: on March 23, May 25, July 26, August 21, and October 2.

Stakeholder Committee outreach occurred in rounds: the first was to review the criteria to establish the VRU high-risk areas, identify safety concerns, and review and refine the high-risk area maps. During the second round, the committee reviewed the final VRU high-risk area map and discussed identified strategies, programs, and projects to mitigate VRU-related safety concerns. A survey was added to the online comment map in the second round of outreach asking stakeholders to rank safety strategies and to provide comments on the map (see **Appendix 4**).

The format for both rounds of meetings was identical. An in-person meeting occurred first and included a presentation and review of scroll plot maps for participants to markup with notes and comments. A virtual meeting followed and included the same presentation and an online review of the same scroll plot maps. Online participants could comment on the maps in two ways: verbally with a project team member transcribing their input into an online comment map, or the participant entered their comment directly into the online map at any point through the comment deadline.

The intent of offering in-person and virtual meeting options with physical and online map components was twofold: to provide flexibility for stakeholders to participate however they chose, and to make it convenient for them to share the information and maps with their respective networks, thereby amplifying information sharing and participation. Prior to each round of outreach, Stakeholder Committee members were specifically asked to send the maps and presentations to their networks for review and input to ensure broader participation.

The first in-person Stakeholder Committee meeting was held on May 30, 2023, followed by the virtual meeting on June 1, 2023. The second in-person Stakeholder Committee meeting was held on August 23, 2023, followed by the virtual meeting on August 24, 2023. The first round of meetings with the draft high-risk area map received 292 comments and reflected the key themes seen in **Figure 21**.

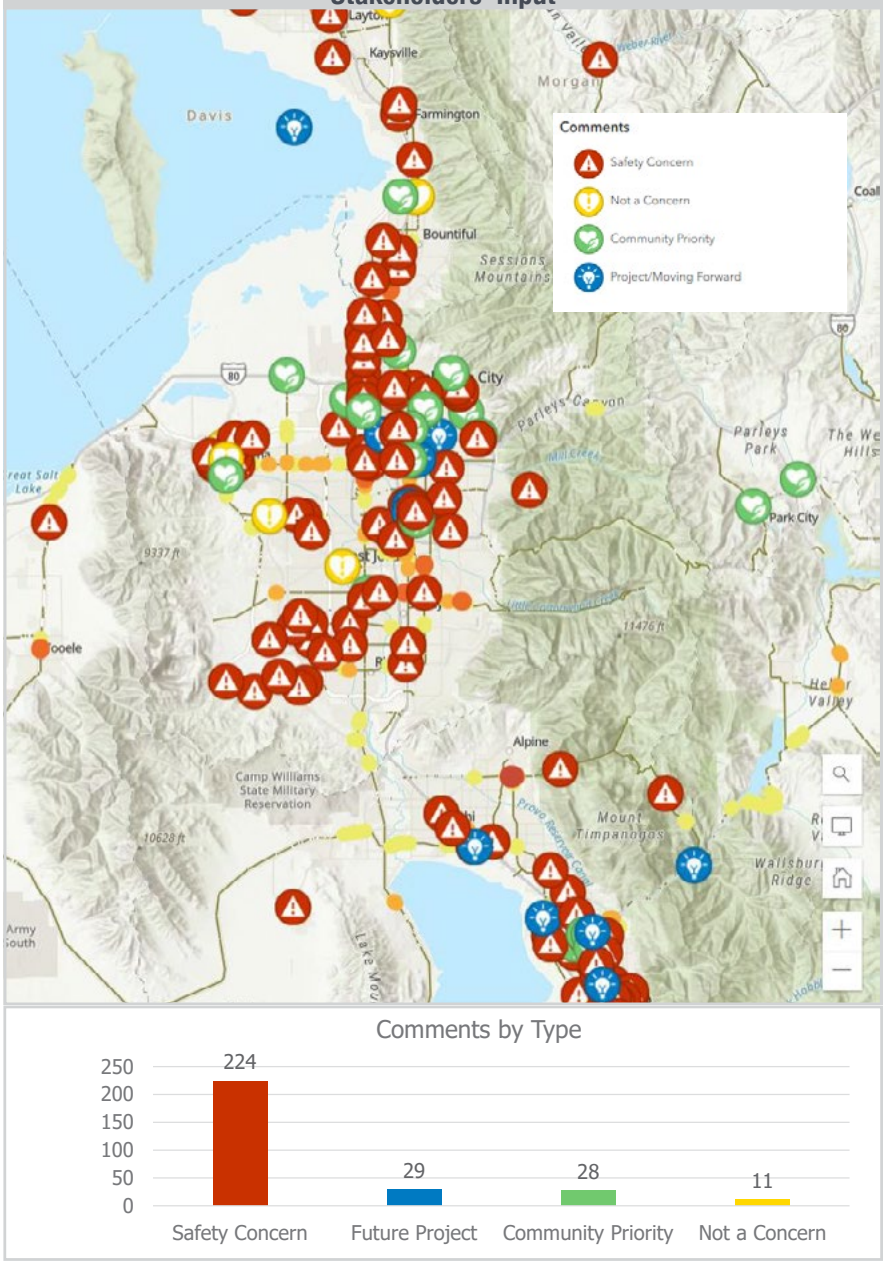
Figure 21: Word Cloud Reflecting Key Themes of Round One Stakeholder Comments

STAKEHOLDER OUTREACH – ROUND ONE

During the first round of stakeholder outreach, participants examined and commented on the draft VRU high-risk area map. They also provided input on safety concerns for VRUs.

Using a comment-map tool, stakeholders identified the location in Utah to which their comment referred. The interactive map captured four comment types: Safety Concern (red), Future Project (blue), Community Priority (green), and Not a Concern (yellow). **Figure 22** illustrates the representation of each comment type on the comment map used during consultation.

Figure 22: Interactive Comment Map Captured Stakeholders' Input



Eighty individuals from 22 different agencies or institutions provided comments, as well as several people who did not list an affiliation with their comment (see **Table 7).**

Table 7: *Stakeholder Outreach Summary*

AGENCY/ORGANIZATION/AFFILIATION	NO. PEOPLE COMMENTING
Residents/No Affiliation Listed	48
Wasatch Front Regional Council	4
Salt Lake City	3
Mountainland Association of Governments	2
Park City	2
Salt Lake County Health Dept.	2
Washington City	2
Bike Orem	2
Five County Association of Governments	1
Ivins	1
Logan	1
Ogden	1
Provo	1
Santa Clara City	1
South Salt Lake City	1
St. George	1
St. George Parks Planning	1
St. George Police Dept.	1
UDOT	1
UDOT Planning	1
UDOT TravelWise Team	1
University of Utah	1
Utah Highway Safety Office	1

STAKEHOLDER OUTREACH – ROUND TWO

Round two of Stakeholder Outreach included a survey that garnered 70 comments on the comment map, 42 new project ideas, 21 project concerns, and seven edits to the strategies, programs, and projects identified by the team. Survey participants also ranked existing safety strategies from the SHSP.

Table 8 and **Table 9** illustrate how stakeholders ranked existing safety strategies in the current UDOT SHSP, specifically the Top 10 and Bottom 10, respectively. Of the top 10 strategies, six are in the Engineering category, and four in the Education category. Of the bottom 10 strategies, four are in the Education category, three are in the Enforcement category, two are in the Emergency Medical Services (EMS) category, and one is in the Engineering category.

Table 8: *Top 10 Safety Strategies as Ranked by Stakeholders*

NUMBER	CATEGORY	STRATEGY
1	Engineering	Develop and implement improvement projects focused on VRUs.
2	Engineering	Determine heavy crash hotspots and implement mitigation measures.
3	Education	Shift culture toward moving people, not cars, through community engagement across Utah.
4	Education	Proactively plan to elevate VRU safety compared to capacity.
5	Engineering	Improve infrastructure for Safe Routes to School.
6	Engineering	Improve signage and infrastructure addressing safety for motorists and VRUs along heavily used road-user corridors where appropriate.
7	Education	Encourage walking to school and using the Safe Routes to School Utah tools and resources.
8	Engineering	Identify locations with significant crash trends involving school zones.
9	Engineering	Increase data for active transportation users and implement active transportation crash-review meetings.
10	Education	Develop educational programs that teach drivers the importance of sharing the road.

Table 9: *Bottom 10 Safety Strategies as Ranked by Stakeholders*

NUMBER	CATEGORY	STRATEGY
11	Engineering	Develop a Safe VRU Facilities Program.
12	Enforcement	Better inform law enforcement of traffic laws as they pertain to both motorists and VRUs and encourage enforcement of the laws.
13	Enforcement	Meet twice a year with local law enforcement on VRU concerns.
14	Education	Continue to support and implement the Heads Up and other educational programs aimed at all age groups.
15	Education	Continue partnership for educational programs targeting adults and children on bicycle and pedestrian safety.
16	Enforcement	Promote VRU enforcement/ public information campaigns when funding is available.
17	Education	Develop safety messaging for VRUs.
18	EMS	Encourage local emergency service providers to participate in local educational programs.
19	EMS	Increase involvement of EMS for Children Coordinators in the implementation of educational programs.
20	Education	Research creating a Safety Garden in Utah.

Although the designated outreach period for the VRU assessment concluded in September 2023, opportunities for stakeholders to weigh in have not. UDOT will share the input it received with the TAC and Stakeholder Committees. UDOT intends to invite stakeholders and Tribal Leaders to a future Move Utah Summit, focusing on pedestrians, cyclists, and other VRUs, and will notify them when opportunities to support similar work are scheduled so they can participate.

Members of the Steering, Stakeholder, and TAC committees discuss strategies and projects during the second round of stakeholder outreach.

3.2 Summary of Outcomes

As noted in Section 3.1.3, *TAC and Stakeholder Committee Meetings,* both rounds of stakeholder outreach provided an opportunity for participants to provide input via a comment map and, in the second round, a survey in which they ranked existing SHSP safety strategies. Summaries of input received during both rounds follow. **Appendix 5** provides the stakeholder comments from round one. **Appendix 6** provides stakeholder comments from round two.

3.2.1 Round One Summary of Outcomes

Stakeholder comments from the comment map (as seen in **Figure 14**) were segregated by three different infrastructure types: bike lanes, crossings, and trails. Commenters represented Cache, Salt Lake, Utah, and Washington counties.

Cache County: All comments related to crossings. For example, they included suggestions for grade-separated crossings along Main Street in Logan to reduce conflict points and avoid disruption to traffic. Other comments focused on identifying underpasses that frequently flood, the need for connecting lower-income communities to services, and providing queuing space at crossings for pedestrians and cyclists to wait safely.

Salt Lake County: Comments focused on trail infrastructure. The Life on State project—which aims to improve State Street (part of US 89) and provide a better experience for walking, growing a business, biking, building, riding transit, planting, driving, and living—was mentioned. Various other projects underway, or that soon will be, were also recognized. Several comments identified the significance of the Parley's Trail and a need for improved connections to other regionally significant trails (e.g., the Jordan River Trail).

Utah County: Comments heavily favored trails, with an emphasis on Safe Routes to School connections. Several comments also identified active transportation needs near transit, particularly the Utah Transit Authority's FrontRunner commuter rail system stations. FrontRunner operates along the Wasatch Front in north-central Utah with service from the Ogden Central Station in central Weber County through Davis County, Salt Lake City, and Salt Lake County to Provo Central station in central Utah County. The bulk of the remaining comments identified existing or planned projects within the county and their contributions to improving safety.

Washington County: Comments identified areas of safety concern, such as existing sidewalks or areas that need sidewalks. Other comments identified areas where crossing distances could be reduced to decrease crossing times and improve school travel conditions. Lastly, a comment identified that an existing project is underway to provide bike lanes and a separated path along Old Highway 91, which has a history of serious and fatal crashes.

3.2.2 Round Two Summary of Outcomes

Participants who responded to the survey in round two provided more than 100 specific comments which were summarized into four primary categories:
1. Specific locations,
2. Specific infrastructure types,
3. Policy, and
4. Current plans/planned efforts.

SPECIFIC LOCATIONS

Comments that referenced suggestions for a specific location ranged from infrastructure types such as trails or bike lanes in that location, to identifying specific areas where there is potential for integrating specific infrastructure.

Many specific locations were identified by stakeholders who have considerable safety concerns. These included corridors along major roadways and highways where there is limited right of way and higher-speed vehicles. There was notable concern regarding corridors that are popular with cyclists and where traffic is increasing, and areas where non-motorists are required to cross major corridors. Many locations along canyon roadways and waterways were identified as desirable for non-motorists, but unsafe. Additionally, specific areas near schools were mentioned for needed safety improvements. Many comments focused on the need for improved pedestrian signals and construction of sidewalks where they do not exist.

SPECIFIC INFRASTRUCTURE TYPES

The second category included comments regarding specific infrastructure types. These included broader comments on a facility type but did not identify a specific location for those facilities. There were fewer comments regarding specific infrastructure types that were not tied to a specific location. However, there were several trends in the comments.

Notably, respondents were concerned about a lack of separation between vehicles and non-motorists. Comments emphasized that "a paint stripe is not separation" and a strong desire to create separate paths for cyclists and pedestrians.

Respondents also expressed concern about the condition and presence of shoulders along roadways and a lack of sidewalk connectivity. Several comments addressed the need to integrate mid-block crossings or improve crossings along busier corridors and to provide adequate lighting along non-motorist corridors.

POLICY

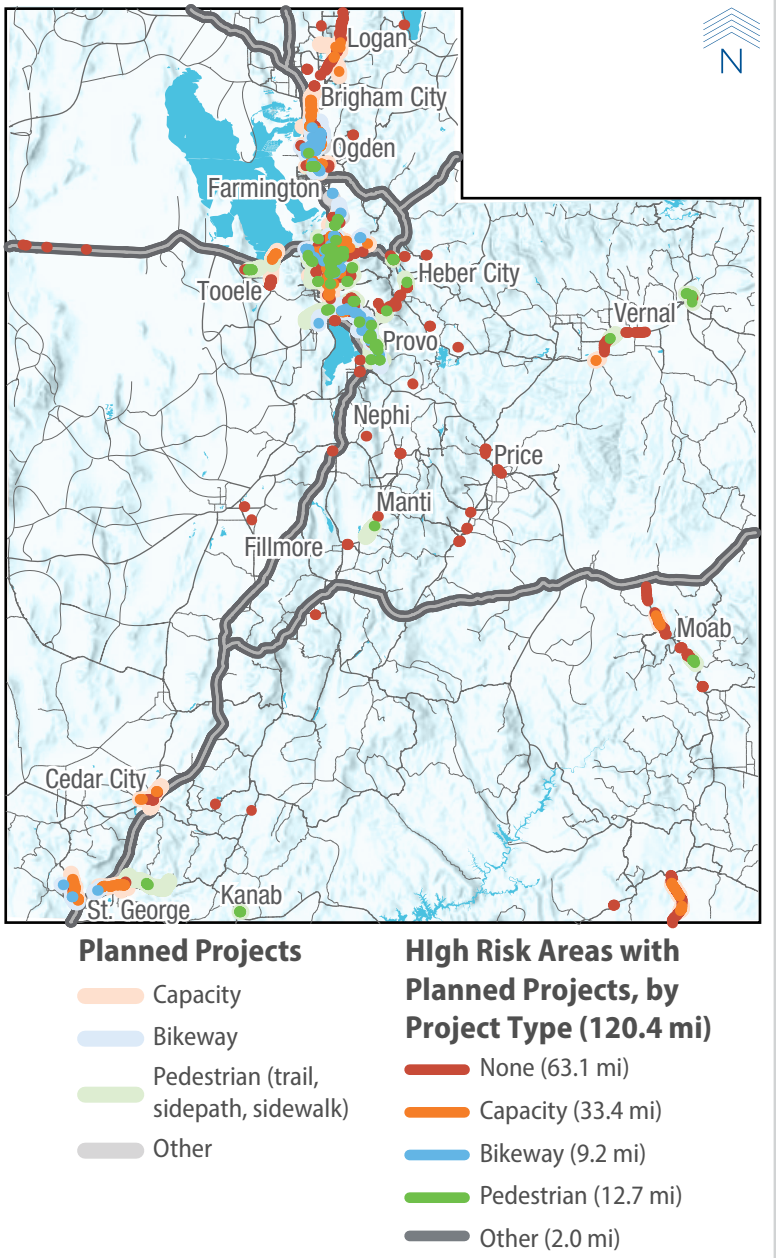
The third category of comments included discussions of policies to improve VRU safety in areas of concern. These comments suggested solutions such as conducting regional studies looking at connectivity between cities to prioritize bicycle/pedestrian safety. Another major theme included identifying planned and current projects that include high-risk areas based on this VRU assessment. A final concern involved identifying funding options for projects deemed necessary to improve VRU safety but are perceived to be too expensive to implement.

CURRENT PLANS/PLANNED EFFORTS

As previously noted, both rounds of stakeholder outreach provided an opportunity for participants to provide input via comment maps. In round two, stakeholders reviewed and commented on a map of existing and planned transportation projects. Commenters said that some of the planned projects are not included on the map; likewise, they noted that some projects identified on the map are not actually planned for the area.

Figure 23 is a static representation of a planned projects map that was reviewed. The interactive version is available online at [Utah's Unified Transportation Plan 2023-2050 (arcgis.com)].

Figure 23: Static Map of Planned Projects Throughout Utah



4.0 PROGRAM OF PROJECTS AND STRATEGIES

Based on the qualitative data detailed in Section 2 and input from stakeholders collected during the consultation process described in Section 3, UDOT has crafted a comprehensive program of projects and strategies to mitigate safety risks for VRUs in high-risk areas. In brief, this program encompasses 22 project areas across eight counties, each of which has been identified as having high-risk areas. These initiatives incorporate 23 specific countermeasures. As illustrated in **Table 10**, the countermeasures align with the FHWA Proven Safety Countermeasures for Pedestrians/ Bicyclists, the Safe System Approach (SSA), the Complete Streets Model, and/or the Americans with Disabilities Act (ADA). For more detailed information about the identified projects, their respective locations, and the countermeasures, please refer to Sections 4.2 through 4.6.

***Table 10**: Alignment of VRU-Safety Countermeasures*

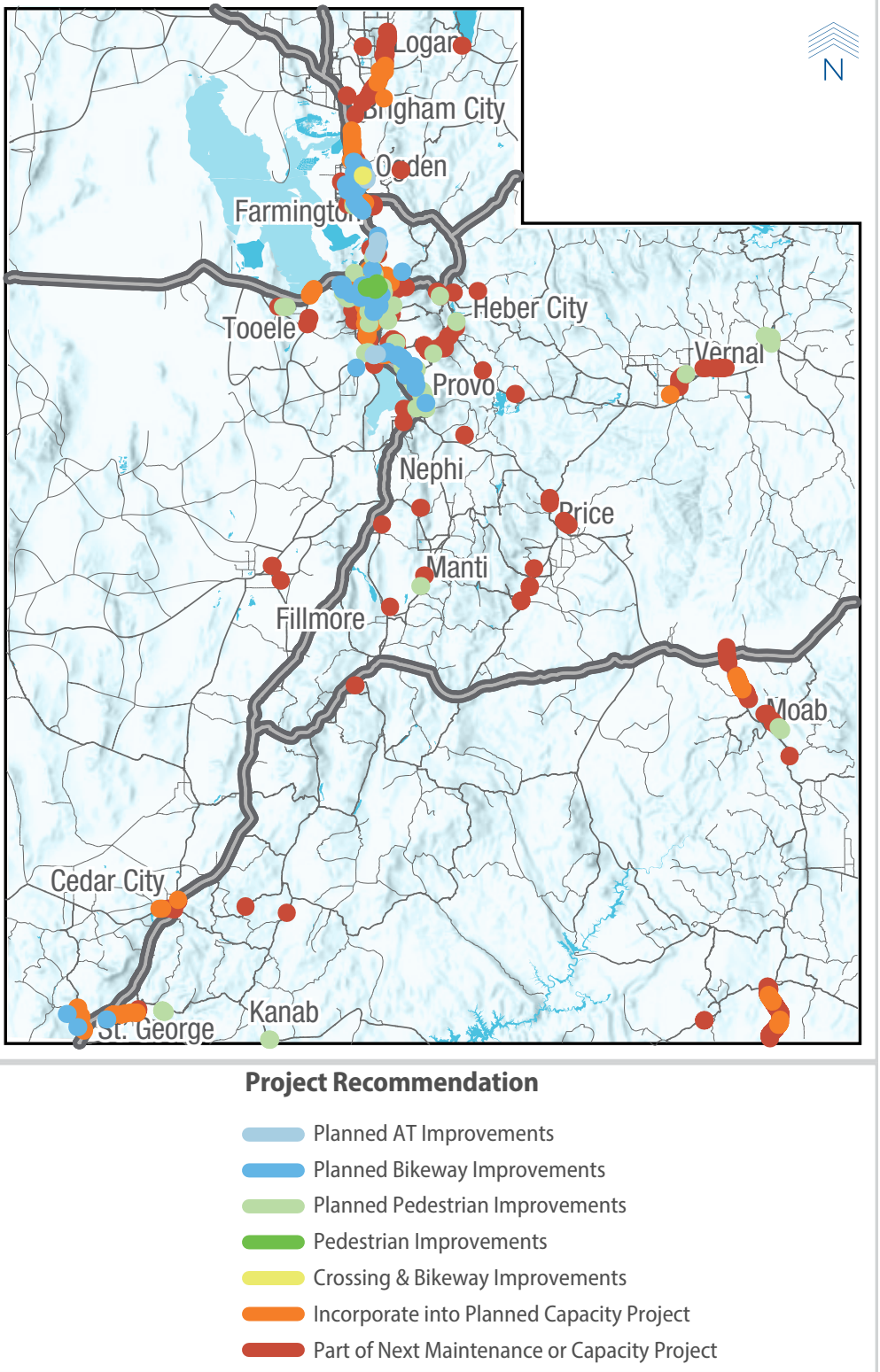
Safety countermeasures	FHWA proven safety counter-measures for peds/ bicyclsits	SSA 1: separate users in space	SSA 2: implement physical features to slow traffic	SSA 3: separate users in time	SSA 4: increase attentive-ness and awareness	Complete Streets Model	ADA
Bicycle Lanes	✓	✓					
Medians/Pedestrian Refuge Islands	✓	✓					✓
Road Diets	✓	✓					
Walkways	✓	✓					
Crosswalk Enhancements	✓	✓			✓		✓
Automated Pedestrian Detection Systems	✓			✓			✓
Raised Pedestrian Crossings		✓	✓				
Over/Underpasses		✓					
Modern Roundabouts			✓				
Road/Lane Narrowing			✓				
Fewer Lanes			✓				
Speed Tables			✓				
Chokers			✓				
Left-Turn Prohibitions				✓			✓
Roadway Lighting	✓				✓		✓
Curb Extensions			✓		✓		
Transit Access						✓	✓
Bus Bulb Outs						✓	
Transit Stop Treatments						✓	✓
Parking Restrictions					✓		
One-Way Streets				✓			
Paving Treatments	✓						

4.1 Selection Methodology

The process for selecting project improvements, locations, and associated countermeasures followed the steps below:

1. UDOT generated a Final High-Risk Area map using predetermined scoring criteria (refer to **Figure 8: Final High-Risk Area Map** in Section 2).
2. The Steering Committee granted approval for the final scoring criteria.
3. TAC members provided feedback on the Final High-Risk Area map, as detailed in Section 3. Their input served to validate the map's accuracy and highlight additional projects or needs not initially shown on the map.
4. The project team integrated these comments with the Final High-Risk Area map to compile a comprehensive list of project requirements. This list encompasses 380 road segments across the state.
5. Project areas were then grouped based on proximity, with high-risk areas and stakeholder comments within a quarter-mile radius, forming the basis for project clusters.
6. The identified project locations are organized by route or street, mile point or address, and are earmarked for future active transportation projects. Project locations were prioritized by averaging the high-risk scores and applying stakeholder/community feedback and concerns.

Figure 24: Project-Type Recommendations and Locations in High-Risk Areas



4.2 Recommended Project Improvements

Figure 24 illustrates recommended project improvements in identified high-risk areas. The recommended improvements fall into the following categories:

1. Planned Active Transportation Improvements.
2. Planned Bikeway Improvements.
3. Planned Pedestrian Improvements.
4. Pedestrian Improvements (not planned, but recommended).
5. Crossing and Bikeway Improvements (not planned, but recommended).
6. Incorporate Into Planned Capacity Projects (recommended for inclusion).
7. Part of Next Maintenance or Capacity Projects.

More information is available in **Appendix 7**.

4.3 Project Locations by County

Based on the average high-risk area scores and stakeholder comments, UDOT identified 22 project locations in eight counties: six in Salt Lake County, three in Utah County, three in Weber County, and two each in Cache, Davis, Grand, Wasatch, and Washington counites. The counties were selected based on the higher number of high-risk areas in each of them and stakeholder input.

Table 11 summarizes the number of projects by county and the number of high-risk locations on which stakeholders commented.

Table 11: *High-risk areas and stakeholder input*

COUNTY	NUMBER OF HIGH-RISK AREAS (BASED ON HIGH-RISK NETWORK)	COMMENTS RECEIVED FROM STAKEHOLDERS
Box Elder	6	0
Cache	23	0
Carbon	3	0
Davis	26	0
Duchesne	4	0
Emery	3	0
Garfield	2	0
Grand	14	2
Iron	6	2
Juab	1	0
Kane	2	0
Millard	2	0
Rich	1	0
Salt Lake	118	12
San Juan	9	0
Sanpete	4	0
Sevier	1	0
Summit	4	0
Tooele	9	0
Uintah	10	0
Utah	54	3
Wasatch	12	0
Washington	20	5
Weber	41	3

Counties listed in orange have at least one of the selected shortlisted project locations based on the number of high-risk areas.

4.4 Shortlisted Project Locations

Based on the aforementioned analysis, UDOT shortlisted 22 specific project locations and, where applicable, the category of planned project, and transportation plan. In locations where actual projects are planned, the Project Identification Number (PIN) is included (see **Table 12**).

***Table 12**: Project Locations*

Route /Street	MP / Address From	MP / Address To	City/Township	County	Avg. High Risk Score	Planned Project	Plan	Project ID (if any planned project)
SR-147 (6400 South)	8.121	8.371	Unincorporated	Utah	81	None		
SR-172 (5600 West)	0.888	1.138	Kearns/West Valley	Salt Lake	81	None		
600 North	1000 West	800 West	Salt Lake City	Salt Lake	80	Bikeway	WFRC	A-S-11, R-S-13
Emigration Canyon Rd	6000 E	6200 E	Emigration Canyon	Salt Lake	80	Bikeway	WFRC	A-S-9
Millcreek Canyon Rd	Near Rattlesnake Gulch		Unincorporated	Salt Lake	80	None		
Telegraph Street	Landfill Rd		Washington	Washington	80	Bikeway	Washington TMP	None
SR-173 (5400 South)	3.072	3.592	Kearns	Salt Lake	79.4	None		
SR-92 (Timpanogos Highway)	6.033	6.6	Highland	Utah	78.5	Pedestrian	MAG	M2023AT75
SR-79 (30th Street)	3.938	4.183	Ogden	Weber	78	Capacity	WFRC	R-W-27
SR-68 (Redwood Road)	53.399	54.904	Taylorsville/West Valley	Salt Lake	77.33	Pedestrian	WFRC	A-S-121, R-S-12
SR-9 (State Street)	7.479	7.943	Hurricane	Washington	77.4	Capacity	DMPO	D-95
SR-204 (Wall Avenue)	1.439	2.076	Ogden	Weber	76.2	Bikeway	WFRC	A-W-111, New
SR-108 (Antelope Drive)	0.998	1.129	Clearfield	Davis	76	Pedestrian	WFRC	A-D-38, R-D-29
SR-204 (Wall Avenue)	0.627	0.708	Ogden	Weber	76	Bikeway	WFRC	A-W-111, New
SR-218	0.784	1.037	Unincorporated	Cache	76	None		
US-40	14.86	15.11	Unincorporated	Wasatch	76	Pedestrian	UP	U2023033
US-191	137.469	137.488	Unincorporated	Grand	74	None		
SR-193	6.558	6.684	Layton/ Unincorporated	Davis	73.5	Capacity	WFRC	R-D-24
SR-248	4.974	5	Unincorporated	Wasatch	73.5	None		
US-191	122.254	122.504	Unincorporated	Grand	73	Pedestrian	UP	U2023038
US-89 (500 West)	335.791	335.9554	Provo	Utah	73	None		
400 West	7200 S	7000 S	Unincorporated	Cache	71	Capacity	CMPO	R-7

CMPO=Cache Metropolitan Planning Organization
DMPO=Dixie Metropolitan Planning Organization
MAG=Mountainland Association of Governments
MP=Milepost
SR=State Route
TMP=Transportation Management Plan
UP=Utah's 2023-2050 Unified Transportation Plan
US=United States
WFRC=Wasatch Front Regional Council

4.5 Countermeasures and Potential Project Ideas

UDOT developed a list of potential countermeasures for each of the 22 locations based on location, area attributes, and common crash patterns. The project team utilized the Pedestrian Safety Guide and Countermeasure Selection System (PedSafe) to select the countermeasures (see **Table 13**).

For a complete application of a future systemic approach, refinement and implementation of treatment plans are necessary, as well as further evaluation of these programs and project impacts.

***Table 13**: Potential Countermeasures*

			Potential Countermeasures (PedSafe)																													
Route / Street	**MP / Address From**	**MP / Address To**	Crosswalk Enhancement	Curb Extensions	Pedestrian Crossing Island	Raised Pedestrian Crossing	Roadway Lighting	Parking Restrictions	Over/ Underpass	Transit Access	Transit Stop Treatments	Bus Bulb Outs	Choker	Raised Median	One-way Street	Bike Lane /Shoulder	Modern Roundabout	Road/Lane Narrowing	Fewer Lanes	Paving Treatments	Speed Table	Smaller Curb Radius	Left-turn Prohibition	Automated Pedestrian Detection	Traffic Signal	Pedestrian Signal	Pedestrian Hybrid Beacon	Leading Pedestrian Interval	Pedestrian Signal Timing	Signal Enhancement	R-turn on red Restrictions	Advanced Stop Lines	Sign Improvments	Puffin Crossing	Left-turn Phasing
SR-147	8.121	8.371			✓								✓					✓									✓							
SR-172	0.888	1.138		✓	✓				✓	✓				✓									✓	✓					✓						✓
600 North	1000 West	800 West		✓	✓			✓		✓				✓									✓	✓				✓	✓						✓
Emigration Canyon Rd	6000 E	6200 E			✓		✓	✓					✓			✓		✓														✓	✓		
Millcreek Canyon Rd	Near Rattlesnake Gulch						✓	✓								✓																✓	✓		
Telegraph Street	Landfill Rd			✓	✓								✓	✓																				✓
SR-173	3.072	3.592	✓		✓				✓		✓			✓												✓								✓
SR-92	6.033	6.6		✓	✓	✓	✓	✓	✓		✓			✓	✓								✓	✓				✓	✓						✓
SR-79	3.938	4.183	✓	✓	✓	✓	✓	✓	✓		✓			✓		✓		✓			✓				✓	✓			✓			✓			
SR-68	53.399	54.904	✓		✓				✓		✓			✓									✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
SR-9	7.479	7.943					✓		✓																							✓		
SR-204	1.439	2.076	✓		✓				✓		✓	✓											✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
SR-108	0.998	1.129	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓					✓						✓			✓	✓		✓	✓	
SR-204	0.627	0.708		✓	✓	✓	✓	✓	✓		✓			✓	✓					✓					✓	✓	✓		✓			✓	✓	
SR-218	0.784	1.037			✓		✓										✓					✓			✓						✓	✓		
US-40	14.86	15.11					✓									✓																✓		
US-191	137.469	137.488			✓				✓									✓	✓								✓							
SR-193	6.558	6.684		✓	✓				✓					✓									✓	✓	✓	✓	✓		✓					✓
SR-248	4.974	5		✓	✓								✓	✓				✓	✓					✓					✓					
US-191	122.254	122.504	✓	✓	✓		✓							✓		✓		✓	✓	✓												✓	✓	
US-89	335.791	335.9554	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓					✓					✓	✓			✓	✓	✓		✓	✓	
400 West	7200 S	7000 S					✓	✓								✓																✓		

4.6 VRU Safety Strategy Prioritization

UDOT identified and ranked strategies which align with Safe System Approach methods and concepts to improve VRU safety on Utah's roadways. As noted in Section 3, stakeholders completed a survey during the consultation process to review and rate existing safety strategies. Survey results were compiled to determine the highest-ranking (top 10) and lowest-ranking (bottom 10) strategies. Using these outcomes, UDOT identified its focus areas. This effort also provided local agencies and advocate groups involved in the consultation process with a toolbox of potential strategies to implement within their respective groups. The Steering Committee determined that many of the identified strategies are already incorporated into safety programs throughout the state.

The strategies are listed below in the order in which they were ranked:

1. Develop and implement improvement projects focused on VRUs.
2. Determine heavy collision hotspots and implement mitigation measures.
3. Shift culture toward moving people, not cars, through community engagement across Utah.
4. Proactively plan to elevate VRU safety compared to capacity.
5. Improve infrastructure for Safe Routes to School.
6. Improve signage and infrastructure addressing safety for motorists and VRUs along heavily used road-user corridors where appropriate.
7. Encourage walking to school and using the Safe Routes to School Utah tools and resources.
8. Identify locations with significant crash trends involving school zones.
9. Increase data for active transportation users and implement active transportation crash-review meetings.
10. Develop educational programs that teach drivers the importance of sharing the road.
11. Develop a Safe VRU Facilities Program.
12. Better inform law enforcement of traffic laws as they pertain to both motorists and VRUs and encourage enforcement of the laws.
13. Meet twice a year with local law enforcement on VRU concerns.
14. Continue to support and implement the Heads Up and other educational programs aimed at all age groups.
15. Continue partnerships for educational programs targeting adults and children on bicycle and pedestrian safety.
16. Promote VRU enforcement/public information campaigns when funding is available.
17. Develop safety messaging for VRUs.
18. Encourage local emergency service providers to participate in local educational programs.
19. Increase involvement of EMS for Children Coordinators in the implementation of educational programs.
20. Research creating a Safety Garden in Utah.

Table 14 shows the top 10 strategies and their alignment with the Safe System Approach, which considers five elements of a safe transportation system in an integrated and holistic manner. UDOT understands that the five elements—safe road users, safe vehicles, safe speeds, safe roads, and post-crash care—must be continually strengthened and supported to achieve the ultimate goal of zero traffic deaths and serious injuries.

***Table 14**: Strategy Alignment with the Safe Systems Approach*

TOP 10 SAFETY STRATEGIES	Safe Road Users	Safe Vehicles	Safe Speeds	Safe Roads	Post-Crash Care
1. Develop and implement improvement projects focused on VRUs.				✓	
2. Determine heavy crash hotspots and implement mitigation measures.				✓	
3. Shift culture toward moving people, not cars, through community engagement across Utah.	✓				
4. Proactively plan to elevate VRU safety compared to capacity.	✓			✓	
5. Improve infrastructure for Safe Routes to School.	✓			✓	
6. Improve signage and infrastructure addressing safety for motorists and VRUs along heavily used road-user corridors where appropriate.	✓			✓	
7. Encourage walking to school and using the Safe Routes to School Utah tools and resources.	✓				
8. Identify locations with significant crash trends involving school zones.				✓	
9. Increase data for active transportation users and implement active transportation crash-review meetings.	✓			✓	✓
10. Develop educational programs that teach drivers the importance of sharing the road.	✓				

5.0 SAFE SYSTEM APPROACH

The Safe System Approach aims to eliminate fatal and serious injuries for all road users through its holistic view of the road system. By building and reinforcing multiple layers of protection, it works to prevent crashes from happening in the first place and, when they do, minimize the harm to those involved. **Figure 25** illustrates the principles and objectives of the Safe System Approach.

Figure 25: The Safe System Approach

The text outside of the circle identifies the five principles of the Safe System Approach. The text inside the circle provides its objectives.

5.1 How UDOT Considered the Safe System Approach As Part of This VRU Safety Assessment

Utah's Transportation Vision, *Pathway to Quality of Life*, embraces a framework that promotes safe and efficient transportation options for all people. Its components of **Good Health, Better Mobility, Strong Economy, and Connected Communities** reflect the value the State of Utah, and UDOT, place on active transportation; moving people, not just cars; bolstering inter- and intra-city economies with enhanced transportation options; and connecting communities with intermodal linkages for pedestrians and bicyclists. Most importantly, UDOT and the State of Utah embrace and advance safety for all. State and departmental leadership recognize how the Safe System Approach's holistic view of preventing and mitigating crashes—and their often-dire consequences—is foundational to quality of life.

UDOT integrated the Safe System Approach into this VRU Assessment at all levels. It started at the data-analysis level when identifying the 124 attributes that could impact VRU safety (see **Figure 14** in Section 2). It continued through the identification and selection of stakeholders, including law enforcement and advocacy groups, to represent a wide and diverse array of road users throughout several months of consultation. During the analysis and selection of projects and strategies, UDOT reflected on what it has done and looked ahead toward what it will do to improve all aspects of VRU safety through the Safe System Approach vs. focusing narrowly on a few select efforts.

The following sections outline actions UDOT has already taken to support and integrate the Safe System Approach through its projects and programs. Each section aligns with one of the five objectives of the Safe System Approach: Safer Vehicles, Safer Speeds, Safer Roads, Safer People, and Post-Crash Care.

5.1.1 Safer Vehicles

» **Connected Vehicle Ecosystem:** UDOT is working on a connected vehicle ecosystem to improve communications between vehicles, infrastructure, and mobile devices. This may improve communication between vehicles and devices in locations where pedestrians and other VRUs are on or alongside the roadway.

» **Connected Plow System:** UDOT is using Cellular Vehicle-to-Everything (C-V2X) systems so snowplows can communicate directly with traffic signals to request preemption. To date, this has proven successful in allowing snowplows to clear roadways more efficiently, making them safer for all users, including VRUs who are exposed to vehicles that might not have been able to stop quickly because of poor roadway conditions.

5.1.2 Safer Speeds

» **Evaluating a Speed Management Policy:** In November 2023, UDOT Senior Leadership approved updates and improvements to its current policies on speed limits on state-managed roads. This includes identifying potential issues with speeds and if or how they relate to the locations and times of VRU-related crashes. Policy changes will focus on how and when to change speed limits, provide traffic calming, and take other speed-management actions.

» **Building a Speed Management Tool:** In conjunction with the evaluation of the speed management policies, UDOT is developing a tool to support data-driven decision-making regarding speed and safety. The tool will integrate multiple big data speed sources including probe, freeway sensor, and signal-sensor data. It will provide an interactive view of high violation areas, various speed statistics, and trends for roadway segments statewide. This information will be linked to VRU-related crashes to identify the prevailing speeds on the roadway around the time of the crash.

5.1.3 Safer Roads

» **New UDOT Trails Division:** Utah has established the Utah Trail Network (UTN) to connect Utahns of all ages and abilities to their destinations and communities; in turn, UDOT created a new Trails Division to oversee the funding and implementation of the UTN program. UDOT intends to advance the comprehensive planning work that has already been done across the state, while creating space for municipalities to imagine new, yet-to-be-planned critical connections. The vision is for UDOT to build and maintain a network of paved trails throughout the state, offering a comfortable and reliable option for those walking, biking, scooting, or using other personal conveyance devices. When built out, the network would provide a regional trail backbone that local facilities could tie into wherever possible, making it seamless for VRUs to access and use the trail network for whatever distance they choose.

» **Funding for Statewide Trail Network:** During the 2023 Utah legislative session, lawmakers passed Senate Bill 185. It includes a provision to allocate $45 million in ongoing funding and $45 million one-time funding to UDOT to build, operate, and maintain the UTN.

» **Pedestrian-Specific Lighting at Crossings:** UDOT is working to reduce vehicle and VRU conflicts by enhancing lighting at VRU crossing areas. Specifically, UDOT is evaluating the efficacy of under mast arm light-emitting diode (LED) luminaires as a primary and supplementary light source at intersections; however, it also can be implemented at mid-block pedestrian hybrid beacon crossings and other crosswalks. This concept epitomizes continuous improvement in its approach to providing potentially life-saving lighting in locations where, because of utility conflicts or space limitations, overhead lights were not previously installed. Under mast arm lighting can serve as a primary lighting source in locations where installation and use of overhead lighting was deemed unfeasible, and to supplement overhead lighting at crossing areas where VRU crash data identifies a need for enhanced crossing visibility.

» **Audible Pedestrian Buttons with Optional Mobile Application:** UDOT is working to improve intersection push button technology across the state. Intersection push button technology includes the buttons pedestrians, cyclists, and other VRUs press to activate the crossing signal at traffic lights. UDOT understands the importance of this technology in intersection safety and recognizes that with optimization, it can contribute significantly to saving lives by reducing conflicts between VRUs and vehicles in crossing areas. UDOT's vision and implementation of this optimization includes (1) maximizing pedestrian-detection mapping data and (2) implementing audible push button technology. Whether each is used independently or, ideally together, this concept provides a holistic safety solution for all road users by accommodating the needs of VRUs, as well as traffic conditions, accessibility considerations, and safety priorities.

» **New Work Zone Design Standards for Active Transportation:** UDOT has completed an update to its design standards to include Management of Traffic (MOT) for pedestrians and bicyclists which aligns with the Americans with Disabilities Act (ADA). The standards include signage, guides, and wayfinding to create safe and clear passage through construction areas.

» **New Active Transportation Facilities Design Standards:** UDOT has completed an ADA-compliant update to its design standards for pedestrian and bicycle facilities. The standards include signage, guides, and wayfinding to create areas for VRUs to travel safely.

» **Funding Prioritization:** UDOT is prioritizing its Highway Safety Improvement Program (HSIP) funds according to the highest benefit-cost ratio. Safety projects for pedestrians and other VRUs often benefit from this type of prioritization because of the higher severity rate typically associated with vehicle vs. VRU crashes.

» **HSIP Funding Pledge:** UDOT has pledged a minimum of 15-percent of all HSIP funds for VRU safety projects annually, whether or not the FHWA requires it.

» **Effectiveness of Signalized Intersection Treatments for Pedestrian Safety:** This is a current research effort. UDOT recognizes that many roadway crashes occur at intersections, and crashes between vehicles and pedestrians are common. From 2013 through 2022, 37 percent of all pedestrian crashes in Utah occurred at signalized intersections and 16 percent resulted in serious or fatal injuries. Nearly 70 percent of these crashes involved a motor vehicle turning right (35 percent) or left (34 percent). UDOT understands the importance of applying proven strategies to reduce conflicts and collisions between pedestrians and motor vehicles that are turning at signalized intersections. UDOT has a Zero Fatalities goal "to eliminate fatalities on our roadways," and Salt Lake City has a Vision Zero goal to "achieve zero traffic fatalities and serious traffic injuries by 2035." To meet these goals for pedestrian safety, UDOT and local agencies are testing various signal operational strategies that are expected to reduce pedestrian and vehicle conflicts and improve safety outcomes. Some of the signalized-intersection treatments being implemented or considered include:

→ ***Right-turn restrictions, including no right-turn-on-red (no RTOR):*** When vehicles are permitted to turn right on red, drivers might focus more on finding gaps in traffic than paying attention to VRUs who are crossing or waiting to cross a street. Right-turning vehicles also might block the crosswalk, forcing VRUs to cross in less visible locations. No RTOR can be implemented on one or multiple legs of an intersection and can be in place all the time (with a static sign R10-11) or only during certain times (e.g., during potentially conflicting phases, or upon actuation of the pedestrian push button with a dynamic or blank-out sign).

→ ***Turning Vehicles Yield to Pedestrians Signage:*** This sign (R10-15) reminds drivers who are making turns that they must yield to pedestrians at the intersection. They can be static or dynamic and can also be used for left-turn movements.

→ ***Left-turn restrictions; specifically, a delayed permissive left-turn implemented through a flashing yellow arrow (FYA) left-turn signal:*** When a left-turn phase is allowed to operate either as protected or permitted, a FYA is often used to indicate that left-turns are permitted (but not protected). When vehicles are permitted to turn left, drivers may focus more on finding gaps in oncoming traffic and pay less attention to VRUs in the crosswalk. When permitted left turns would otherwise be allowed simultaneously with the through phase, the FYA can be delayed (staying red) for several seconds (e.g. seven seconds) while the conflicting walk indication starts. As a result, pedestrians and other VRUs are given time to enter and partially cross the intersection before drivers begin making left turns. Because of their position in the crosswalk, they also might be more visible to left-turning drivers.

→ ***Pedestrian signal priority, including a leading pedestrian interval (LPI):*** An LPI gives pedestrians and other VRUs three-to-seven seconds of time to start crossing before parallel vehicle traffic is given a green light. The LPI gives pedestrians and other VRUs a head start entering and at least partially crossing the intersection before drivers begin turning right. Because of their position in the crosswalk, they might also be more visible to right-turning drivers.

The efficacy of these kinds of signalized intersection treatments for improving pedestrian and VRU safety in Utah is unknown. While some of these treatments (such as no RTOR and LPI) have been evaluated in studies elsewhere in the U.S., they exist in only a few places in Utah. To date, their impact on outcomes related to VRU safety and whether they are effective in changing driver and VRU behavior remain to be seen. Other treatments, such as delayed permissive left turns at FYAs, have not been previously researched, to the best of the project team's knowledge.

This research will contribute to two of UDOT's Strategic Goals:

1. By investigating the effectiveness of signal actions that can improve pedestrian and VRU safety at intersections, this effort will help advance UDOT's "Zero Crashes, Injuries, and Fatalities" Strategic Goal.
2. Because these signal-action strategies are also designed to maintain effective signal operations, they help UDOT achieve its Strategic Goal to "Optimize Mobility."

5.1.4 Safer People

The following UDOT research efforts examine factors that do or may contribute to VRU-related crashes, as well as potential mitigating factors, with the goal of creating a transportation system that addresses the safety of all users.

» ***Impaired Active Transportation Users*** **(published in February 2023):** UDOT researched crashes involving pedestrians and other active mode users who were classified as impaired/intoxicated by alcohol. The research, based on pedestrian and

bicyclist crashes in Utah from 2010 through 2021, created a comprehensive profile of the characteristics associated with these crashes, including personal characteristics, demographics, and geographic/spatial information. Analyses of different groups of bicyclist/pedestrian crashes showed that impaired bicyclists/pedestrians involved in a crash tended to be older than non-impaired bicyclists/pedestrians (38 vs. 31 years old on average for bicyclists, and 35 vs. 32 years old on average for pedestrians). Active mode user impairment is more likely to be reported for crashes in neighborhoods with smaller average household sizes and fewer workers per household, in rural areas, and in areas with more facilities that sell liquor. These crashes are more likely to be reported on weekends (vs. weekdays) and overnight (vs. in the evening, morning, or afternoon). When considering only severe active mode user crashes, crashes involving an impaired active mode user were more likely to be reported in places with nearby grocery and/or convenience stores.

» ***Non-motorist Fatalities: A Deep Dive*** (published February 2023): UDOT conducted research into contributing factors to non-motorized crashes to understand their impact and find new ways to create safer environments for vulnerable users. Past research examined the characteristics associated with fatal pedestrian crashes in-depth; however, considerably less study has been done to understand the contextual factors surrounding these incidents. Non-motorist crashes may be influenced by many factors including environment, surrounding infrastructure, and availability of crossing locations. This research examined non-motorist crashes in a holistic way to identify characteristics present in areas where these crashes result in a fatality. It utilized several different datasets and analysis techniques including multinomial logistic (MNL) regression to evaluate evidence with the goal of creating an effective representation of crashes. Analysis of data revealed that nearly 36 percent of pedestrian fatalities and 33 percent of cyclist fatalities occur within a geographic envelope where installing a safe crossing is prohibited. Slightly more than seven percent of suspected serious injury bicycle crashes, and only six percent of fatal bicycle crashes, occurred in or near a bike lane. Fewer than four percent of suspected serious injury crashes and fewer than two and a half percent of fatal pedestrian crashes occurred near a bike lane. Additionally, the average Annual Average Daily Traffic (AADT) and speed limit along a road where a fatal pedestrian crash occurred are 37 percent and 16 percent higher (respectively) than the averages along roads where serious injury pedestrian crashes occurred.

» ***Right-Turn Safety for Walking/Bicycling: Impacts of Curb/Corner Radii and Other Factors*** (published September 2023)***:*** A significant portion of roadway crashes occur at intersections, and crashes/conflicts between right-turning vehicles and pedestrians and bicyclists are common. There are limited studies focusing on crashes between right-turning vehicles and pedestrians and bicyclists. In the early 1980s, a national report noted that crashes between motor vehicles and pedestrians increased by 43 to 107 percent when right-turn-on-red (RTOR) was implemented (Preusser et al., 1981, 1982). More recently, a 2006 study found that 32 percent of 255 vehicle-pedestrian crashes at intersections involved right-turning vehicles (Roudsari et al., 2006). Conceptually, turning speeds could be reduced and yielding behavior (and pedestrian visibility) potentially increased by using smaller curb radii or corner radii (UNC HSRC et al., 2013), but this treatment may have a negative impact on turning for large vehicles. Regardless, there are few studies on the impacts of corner radius (or other design and operational factors) on right-turn and pedestrian/bicyclist safety. This research project addressed this gap in understanding right-turn intersection safety using a "mixed-methods" approach, a process that included analyzing crash data and collecting and analyzing observations of road user behaviors.

» ***Do Safe Route Utah Plans Impact Safety?*** (current research effort): While each school is legally required to have a Safe Routes to School (SRTS) plan and map, the quality and depth of those plans varies widely. According to Safe Routes Utah, "school leadership officials have a significant influence on the way students travel to and from school. Policies, procedures and projects can be promoted at the school and district level that address concerns, improve safety, increase physical activity and encourage students to walk and bike more often." Some schools have a very comprehensive plan and accompanying map that clearly outlines facilities and routes and identify recommendations and areas for improvement. Alternatively, many schools do not have a plan and only a simple map that lacks detail, and some have nothing at all. While many resources are available through the SRTS Program, including assemblies and curriculum that promote safe walking and biking, they depend on teachers and administrators who actively promote safety to engage these resources. SRTS plans and programs are linked to infrastructure improvements. When a SRTS plan clearly outlines recommendations and necessary improvements, cities can easily respond to local needs. Additionally, funding provided through the SRTS Grant Program requires an existing Safe

Routes plan and map and a coordinated local effort to identify needs. Without local support, it is incredibly difficult to secure funding or planning for safety improvements. Traditionally, many communities with the greatest need for safe walking and biking routes to and from schools have been identified as lower income, minority, single-parent households and are least able to provide support for SRTS efforts. Staff and administration at Title 1 schools often face more pressing issues than completing their SRTS Plan and may lack volunteer support. This research will evaluate existing SRTS plans and maps for a sample area. The level of detail and depth will be determined and then correlated to safety data for the associated school/area. It is hypothesized that areas without a SRTS plan and those with lower levels of detail will be correlated to a higher safety risk near the school as well as potentially lower quality/outdated infrastructure.

» ***Implementing Safe Systems at Intersections in Utah*** (current research effort): In the original document *The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050,* the Road to Zero Coalition determined that three interrelated approaches are needed: 1) Double Down on What Works, 2) Accelerate Advanced Technology, and 3) Prioritize Safety. One of the key changes identified in approach No. 3 (Prioritize Safety) is the creation of a safety culture and adoption of a Safe System approach. "Adopting the Safe System Approach involves a fundamental shift from the common assumption that crashes generally happen because of people's behavior. Instead, a Safe System Approach assumes that people will occasionally, but inevitably, make mistakes behind the wheel and that the overall transportation system should be designed to be forgiving so that these mistakes do not lead to fatal outcomes. The Safe System Approach also involves commitment to analyze safety problems, identify changes that bring the best return on investment, and implement these improvements throughout the system to prevent further occurrences." As noted in the FHWA Technical Brief, A Safe System-Based Framework and Analytical Methodology for Assessing Intersections, the "Safe System Approach represents a paradigm shift in how road safety is addressed. Foundational to the Safe System Approach is that no person should be killed or seriously injured when using the road system, and that it is a shared responsibility by all parties involved to ensure this becomes reality…at an intersection, this challenge is characterized through managing speed and crash angles, as well as considering risk exposure and complexity " (https://safety.fhwa.dot.gov/intersection/ssi/fhwasa21013.pdf). By evaluating and implementing the Safe System Approach, the UDOT Traffic and Safety Division will continue to identify ways to reach "Zero Fatalities: A Goal We Can All Live With."

5.1.5 Post-Crash Care

» **Enhanced and Expanded Traffic Incident Management (TIM):** With this goal in mind, UDOT is implementing expanded TIM with incident management teams (IMT) traveling on highways to minimize the impact of incidents. The TIM Performance Management Focused States Initiative identified three major performance measures that are useful to all the stakeholders in this topic (FHWA 2017a):

1. ***Reduce roadway clearance time*** – the time between the first recordable awareness of an incident by a responsible agency and the first confirmation that all lanes are available for traffic flow.
2. ***Reduce incident clearance time*** – the time between the first recordable awareness of the incident by a responsible agency and the time at which the last responder has left the scene.
3. ***Reduce the number of secondary crashes*** – the number of unplanned crashes beginning with the time of detection of the primary incident where a collision occurs either within the incident scenes or within the queue, including the opposite direction, resulting from the original incident.

• **TIM-Focused Research:** UDOT has funded multiple research efforts on this topic. They include:

→ *Analysis of Benefits of Utah's Expanded Incident Management Team Program* (published September 2023): To evaluate the impacts of the expanded IMT program, both in terms of personnel and equipment, Brigham Young University and Avenue Consultants conducted a Phase II study that collected data after the UDOT expanded IMT program was established in summer 2020. The Phase II study integrated UDOT's Traffic Operations Center (TOC) TransSuite data with the Utah Highway Patrol (UHP) Computer-Aided Dispatch (CAD) data to analyze the effectiveness of IMTs. One challenge encountered in the 2020 study was the alterations of traffic patterns because of the COVID-19 pandemic. To account for the effects of the pandemic, the research team collected traffic data and adjusted it based on the differences in volumes from 2018 to 2020. The results of the 2020 evaluation showed a shift toward shorter response times. Statistical analysis accounting for discrepancies in volumes between the data collected in 2018 and 2020 indicated significant benefits of the IMT program's expansion, particularly in terms of increased

consistency. Specifically, the expansion of the IMT program was shown to provide more consistent services with similar levels of performance on wider geographic and temporal scales. However, one outcome of the 2020 research was a slightly longer overall roadway clearance time (RCT), possibly due to added pandemic-related precautions (Bennett et al., 2022; Schultz et al., 2021). The Phase II study demonstrated that the expansion of the IMT program improved the quality of service and expanded the range of the service provided on roadways in Utah. Because of the pandemic-related impacts, a follow-up study was recommended to verify the extent of the results of the Phase II study—without pandemic impacts—by collecting incident data in 2022 using the same methodology as Phase II and in the same six-month period to compare it with 2018 incident data from Phase I and Phase II.

→ ***Using Unmanned Aircraft Systems to Facilitate Traffic Incident Management*** (current research effort): The UDOT TOC control room staff utilizes traffic cameras to assist in incident management and guide the IMTs to reach a crash scene as quickly as possible and with the right resources for the situation. Occasionally, however, traffic cameras are not available in the area where an incident has occurred, and the TOC staff cannot assist the IMT as effectively. One tool that could be used to assist TOC staff is unmanned aircraft systems (UAS). When a crash occurs, the UAS could be deployed by the IMTs to stream video from the incident site to the TOC to facilitate the overall TIM effort. UAS has also been used to help document crashes, especially fatal crash scenes. The FHWA Everyday Counts Next-Generation Traffic Incident Management program states there is "great potential for [UAS] application to other traffic incident management (TIM) related purposes, including, but not limited to: situational awareness, detour route monitoring, incident verification, queue detection and monitoring, secondary crash detection, and response vehicle routing." The purpose of this research is to synthesize practices to document the use of UAS to help UDOT TOC staff in evaluating situational awareness of crashes by sending video to the TOC to aid with TIM. The research team will identify what other states are doing, how they are doing it, the overall capabilities of the state's current UAS fleet, and the capability of the fleet to transmit data to the TOC. The results of this research will be used to help UDOT understand what might be missing from a resources/systems standpoint so this tool can be used more efficiently. This research is anticipated as a first step in a pilot study that utilizes UAS and determines its efficacy in TIM efforts.

Appendix 1

Identification and Categorization of Statistically Significant Attributes

Quantitative Analysis Data Element - Universe (124 Attributes)

Facility	Intersection	Transit	Environmental Factors	Motorist/ Vehicle	Non-Motorist	Demographic	Built Environment
Route type/Functional Class	Distance from Intersection	Transit Involved	Lighting Conditions	DUI Involved	Location	Automobile Access	Housing units per acre
Shoulder	Roadway Junction Type	Bus Route Proximity	Weather	Speed Involved	Action	Computer and Internet Subscription	People per acre
Shoulder width	Traffic Control	Bus Stop Proximity	Roadway Surface Conditions	Drowsy Driving Involved	Non-Motorist Contributing Circumstances	Educational Attainment	Jobs per acre
Number lanes	Median	Bus Stop Boardings/Alightings	Month	Distracted Driving Involved	BAC	Hispanic or Latino Origin	Activity density (housing + jobs per acre)
Speed limit	Right turn involved	TRAX Line Proximity	Day of Week	Disregard of Traffic Control Involved	Age	Household income	Jobs per household
Estimated travel speed	Left turn involved	TRAX Stop Proximity	Time of Day	Wrong Way Driving Involved		Household Type	Workers per job equilibrium index
Median	Right turn lanes	TRAX Stop Boardings/Alightings		Aggressive Driving Involved		Language Spoken at Home	Land use diversity
Median width	Left turn lanes	FrontRunner Proximity		BAC		Means of Transportation to Work	Total road network density
Volume (AADT)	Left turn phasing	FrontRunner Stop Proximity		Age		Median Age	High-speed road network density
Driveways/access	Crosswalk	FrontRunner Boardings/Alightings		Teenage Driver		Owner/Renter	Street intersection density
Bike lane	Mid-block Crosswalk			Older Driver		Poverty Status	Distance to transit
Sidewalks	Frieght Rail Line			Driver Contributing Factor		Race	Percentage of jobs within 0.25 miles of fixed-guideway transit
Trail	Railroad Crossing Type			Alcohol Suspected		School Enrollment	Percentage of jobs within 0.5 miles of fixed-guideway transit
Work zone				Drugs Suspected		Travel Time to Work	Transit service frequency
Horizontal curve				Speed Differential		Household Size	Transit service frequency per square mile
Vertical curve				Sex (Male, Female)		Working-age population within a 45 min. transit ride	Jobs within a 45 min. transit ride (weighted)
Avg. grade				Maneuver		Working-age population within a 45 min. drive	Jobs within a 45 min. drive (weighted)
Roadway direction				Vehicle Type		Low-income workers	Accessibility index - Transit to jobs
Pedestrain Island				Vehicle Make/Model		Percent low-income workers	Accessibility index - Auto to jobs
				Vehicle Year		Zero car households	Accessibility Index - Transit to working-age population
						Zero car households as a percentage of all households	Accessibility Index - Auto to working-age population
							Total employment
							Schools Higher Education
							Schools Pre Kto 12
							Point of Interest
							HPI Score
							Bike Lane Access
							Neighborhood Score
							Park Access
							Tree Canopy

Quantitative Analysis Data Element - Recommendations (46 attributes)

Facility	Intersection	Transit	Environmental Factors	Motorist/Vehicle	Non-Motorist	Demographic	Built Environment
Route type/Functional Class	Roadway Junction Type / Traffic Control	As part of SLD		DUI Involved	Location	SVI Index	Schools Higher Education
Shoulder width	Traffic Control			Speed Involved	Action	SLD Index	Schools Pre K to 12
Number lanes (10 types)	Right turn involved			Drowsy Driving Involved	Non-Motorist Contributing Circumstances		Points of Interest
Speed limit	Left turn involved			Distracted Driving Involved	BAC		
Estimated travel speed	Left turn phasing			Disregard of Traffic Control Involved	Age		
Median	Crosswalk			Aggressive Driving Involved			
Volume (AADT)	Mid-block Crosswalk			BAC			
Driveways/access				Age			
Bike lane				Teenage Driver			
Sidewalks				Older Driver			
Trail				Driver Contributing Factor			
Work zone				Alcohol Suspected			
Vertical curve				Drugs suspected			
Pedestrian Island				Maneuver			
Intersection/Distance from Intersection							

Statistical Analysis

Crash Severity * Functional Class Crosstabulation

			Functional Class							
			Interstate	Other Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local	9999	Total
Crash Severity	4	Count	38$_a$	343$_b$	241$_c$	231$_c$	46$_{b,c}$	7$_{b,c}$	169$_c$	1075
		% within Crash Severity	3.5%	31.9%	22.4%	21.5%	4.3%	0.7%	15.7%	100.0%
	5	Count	29$_a$	130$_b$	51$_c$	48$_c$	9$_{b,c}$	0$_{b,c}$	30$_c$	297
		% within Crash Severity	9.8%	43.8%	17.2%	16.2%	3.0%	0.0%	10.1%	100.0%
Total		Count	67	473	292	279	55	7	199	1372
		% within Crash Severity	4.9%	34.5%	21.3%	20.3%	4.0%	0.5%	14.5%	100.0%

Each subscript letter denotes a subset of Functional Class categories whose column proportions do not differ significantly from each other at the .05 level.

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	-.272	.047	-5.614	<.001
	Spearman Correlation	-.154	.027	-5.752	<.001[c]
Interval by Interval	Pearson's R	-.066	.024	-2.440	.015[c]
N of Valid Cases		1372			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

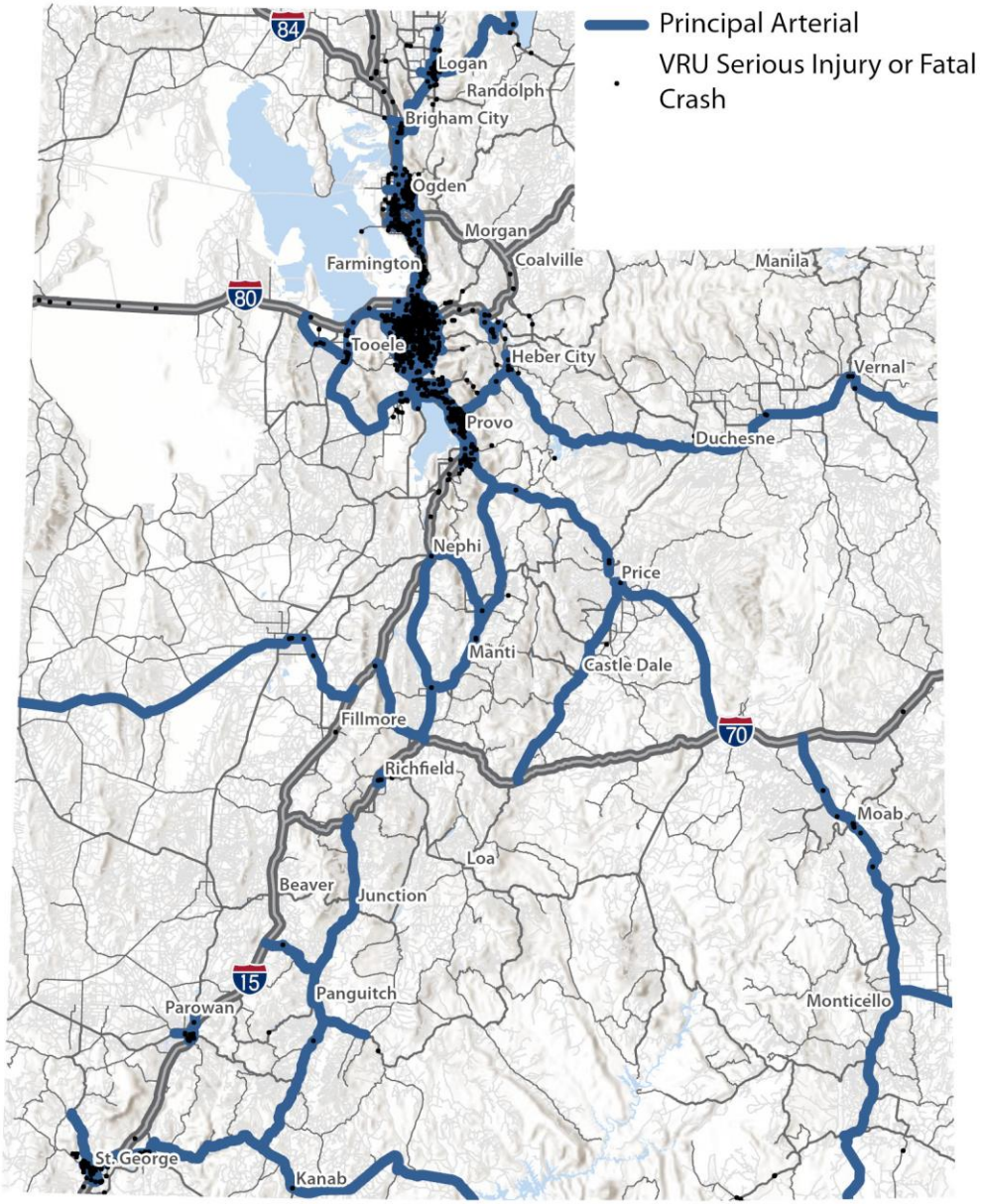
Severe VRU crashes are not evenly distributed across roadway types. **A significant majority are located on Principal Arterials (*Chi-Square=42.157, R Sig*= 0.015).**

Quantitative Analysis Data Element – Significant Attributes (21)

Facility	Motorist/Vehicle	Non-Motorist	Demographic	Built Environment
Functional Class	Driver Contributing Factor	Location	SVI Index	Schools Higher Education
Number Lanes • Acceleration Lanes • Auxiliary Lanes • Deceleration Lanes • HOV Lanes • Left-turn Lanes • Passing Lanes • Right-turn Lanes • Through Lanes		Action	SLD Index	Schools Pre K to 12
Median Type		Non-Motorist Contributing Factor		Points of Interest
Median Island				
Sidewalks				

Functional Classification

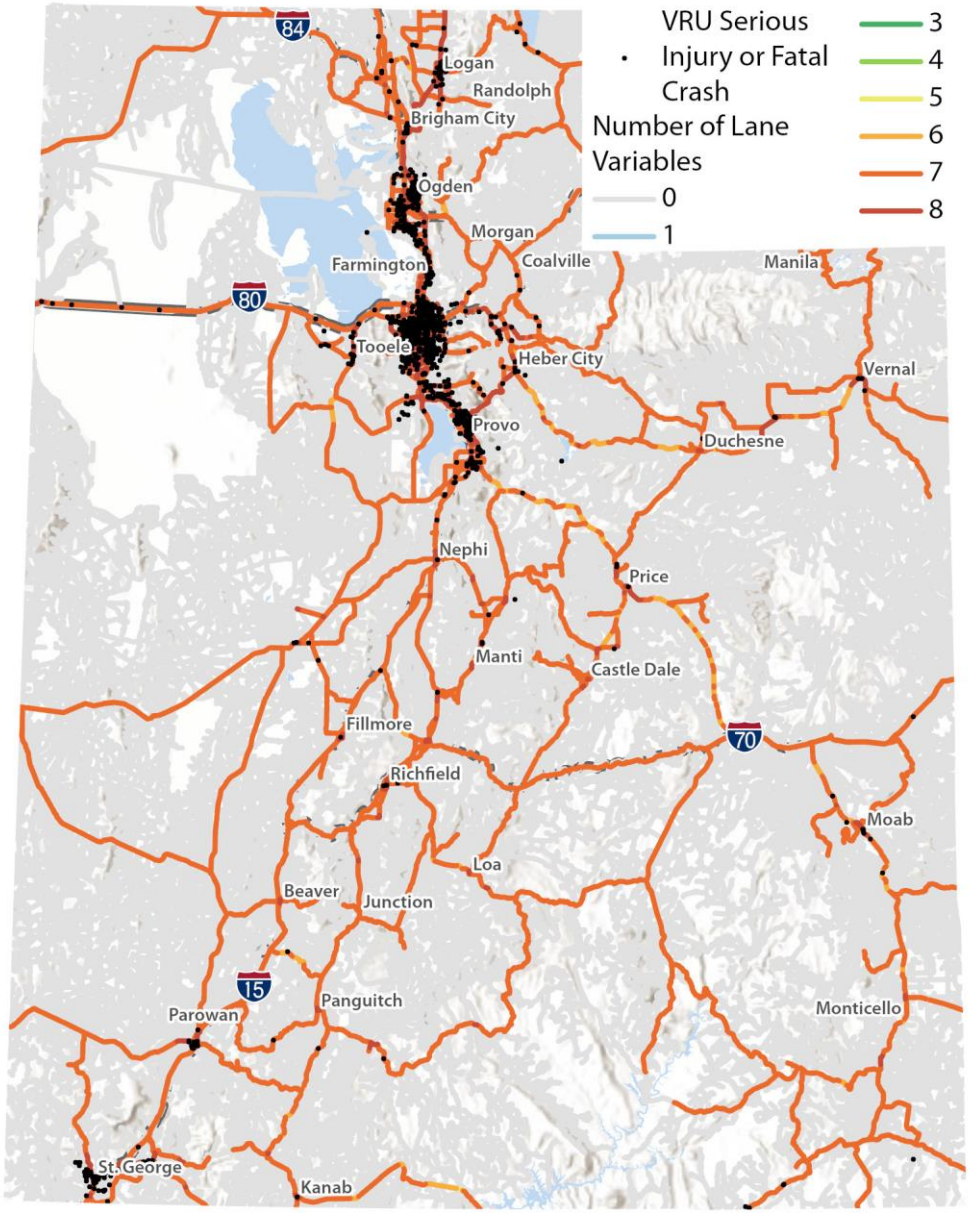
- Significant majority of VRU crashes are located on Principal Arterials
- 86% of all fatal and suspected serious injury VRU crashes occur on State or Federal Aid Routes.
  - 90% of Fatal
  - 82% of Suspected Serious



Lanes

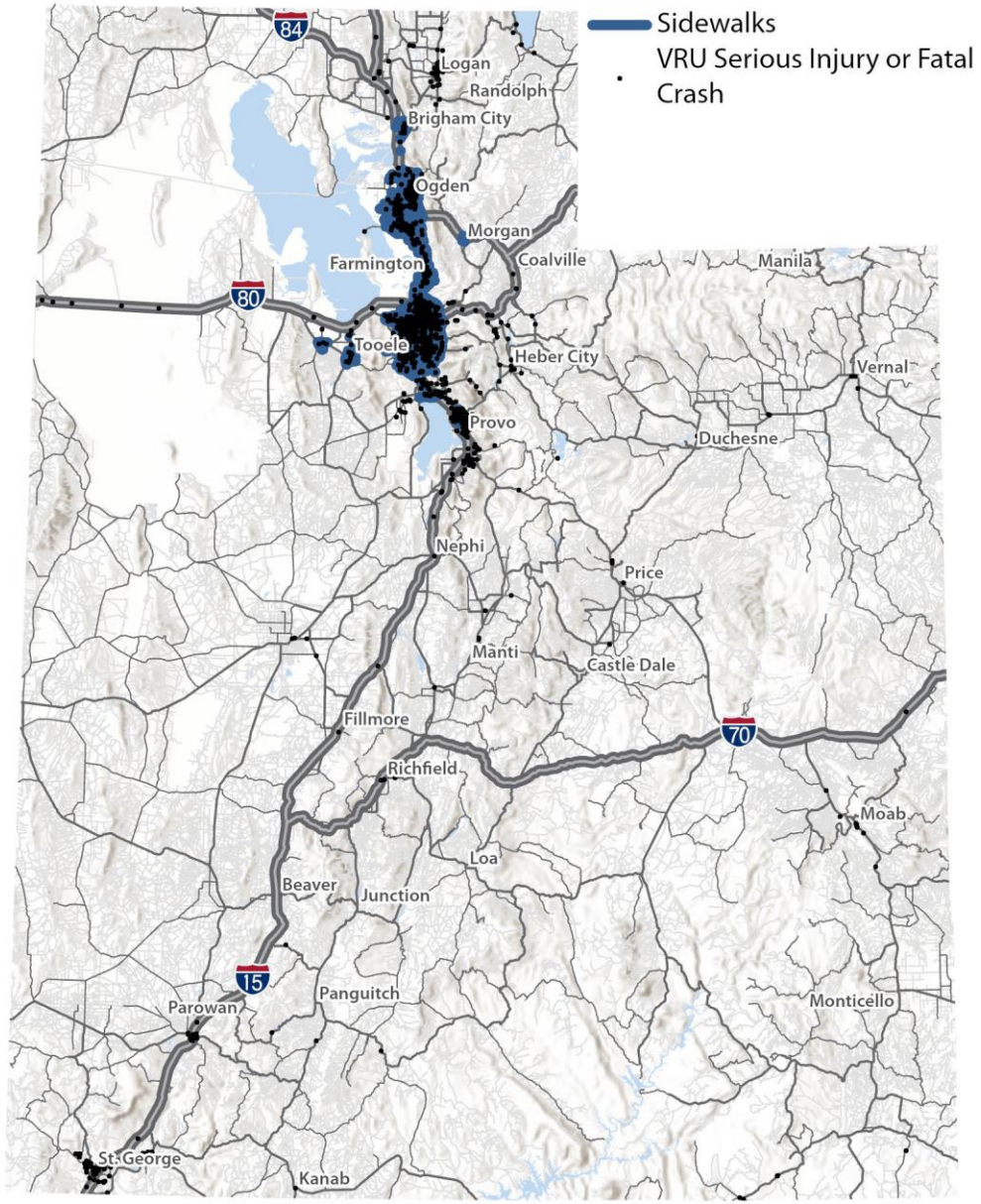
- Significantly more common on roadways with:
  - No Acceleration Lane
  - No Auxiliary Lane
  - No Deceleration Lane
  - No HOV Lane
  - No Left-turn Lane
  - No Passing Lane
  - No Right-turn Lane
  - Through Lanes 4-6

Data limited to State Routes



Sidewalks

- Significantly more common on roadways with sidewalks

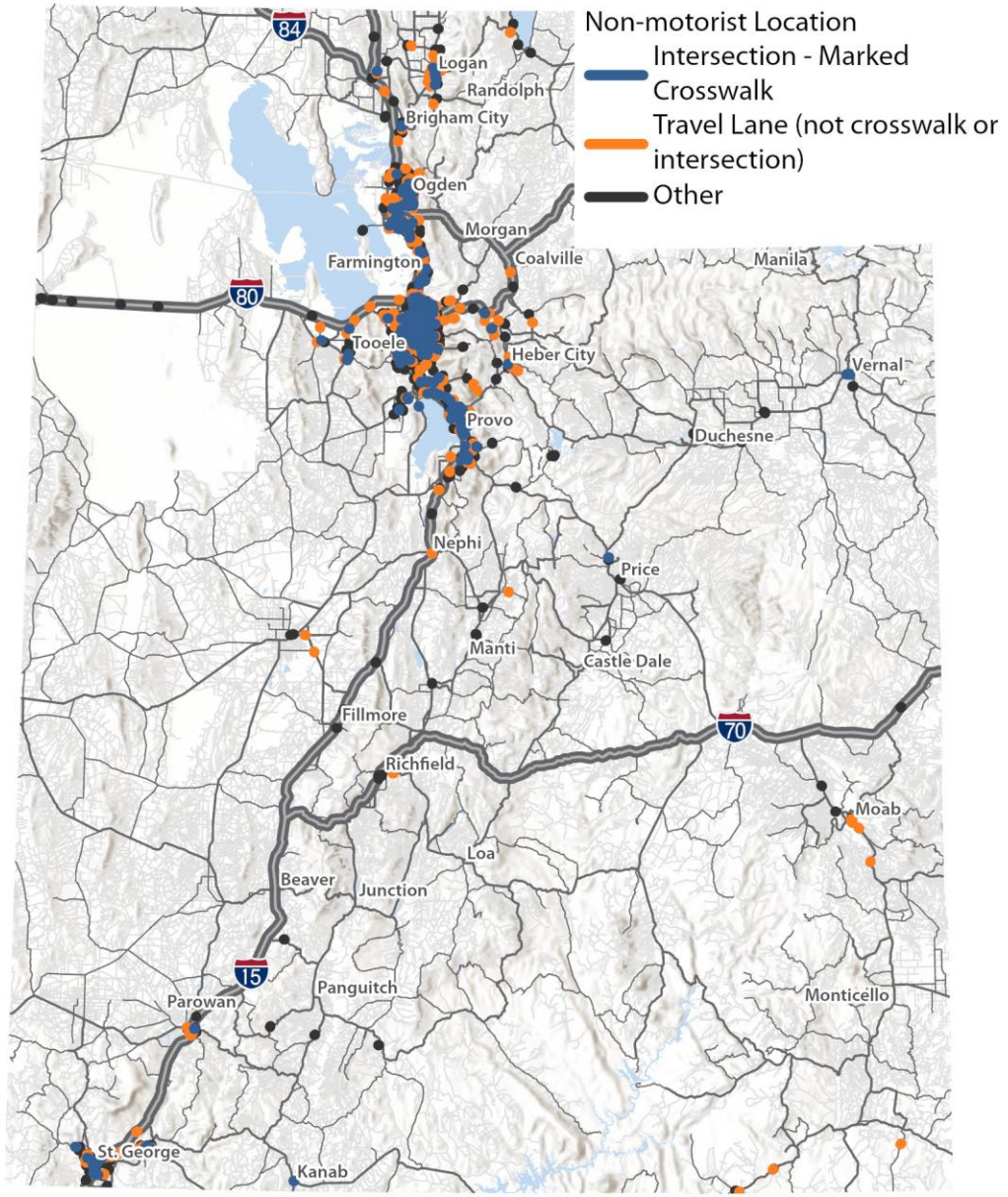


Statewide dataset but populated mostly in the WFRC region

Non-motorist Location

- Significantly more common at:
  - intersections with a marked crosswalk, and
  - in a travel lane (not crosswalk or intersection)

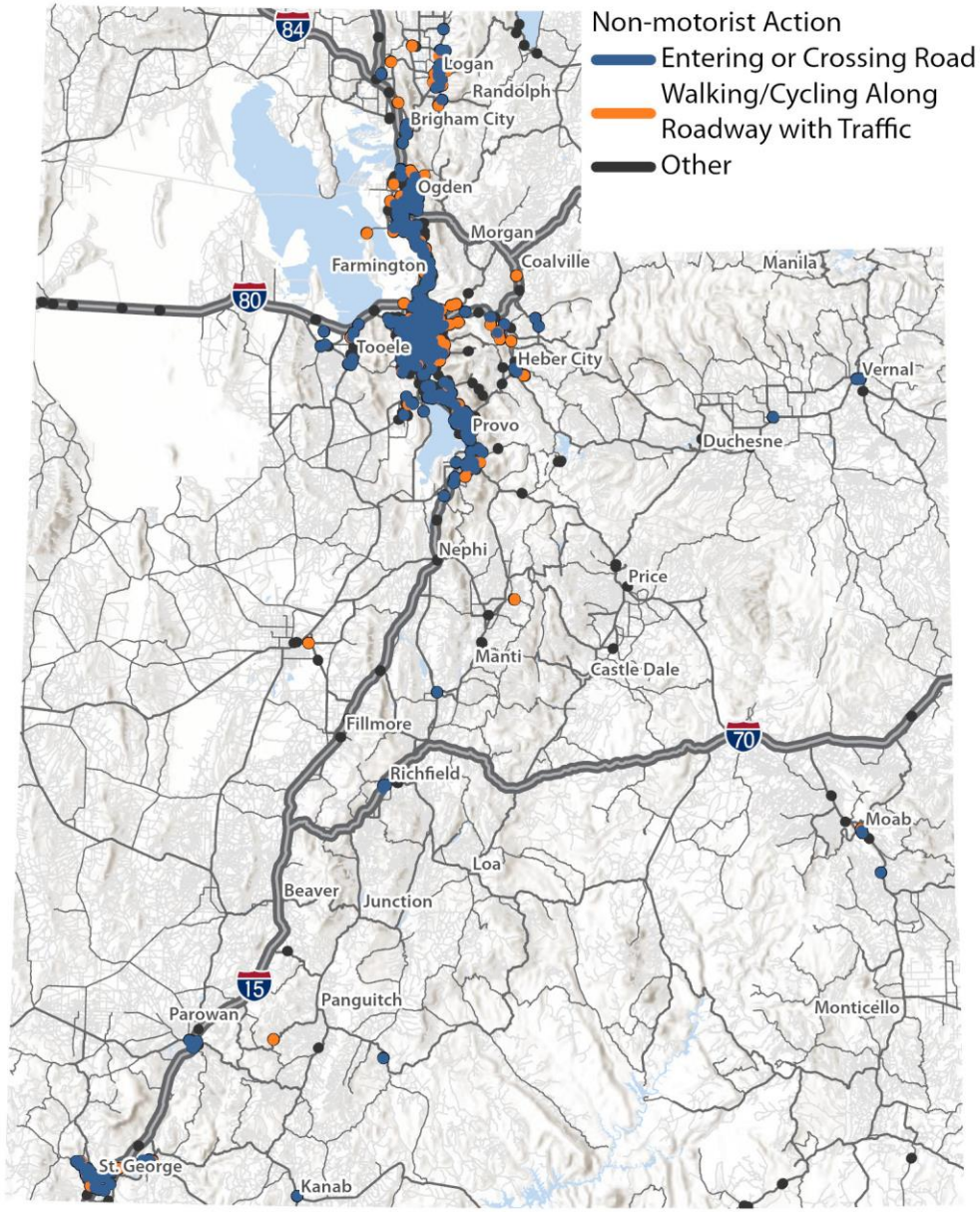
Segment +/- 660’ (~ 1 block) from crash location



Non-motorist Action

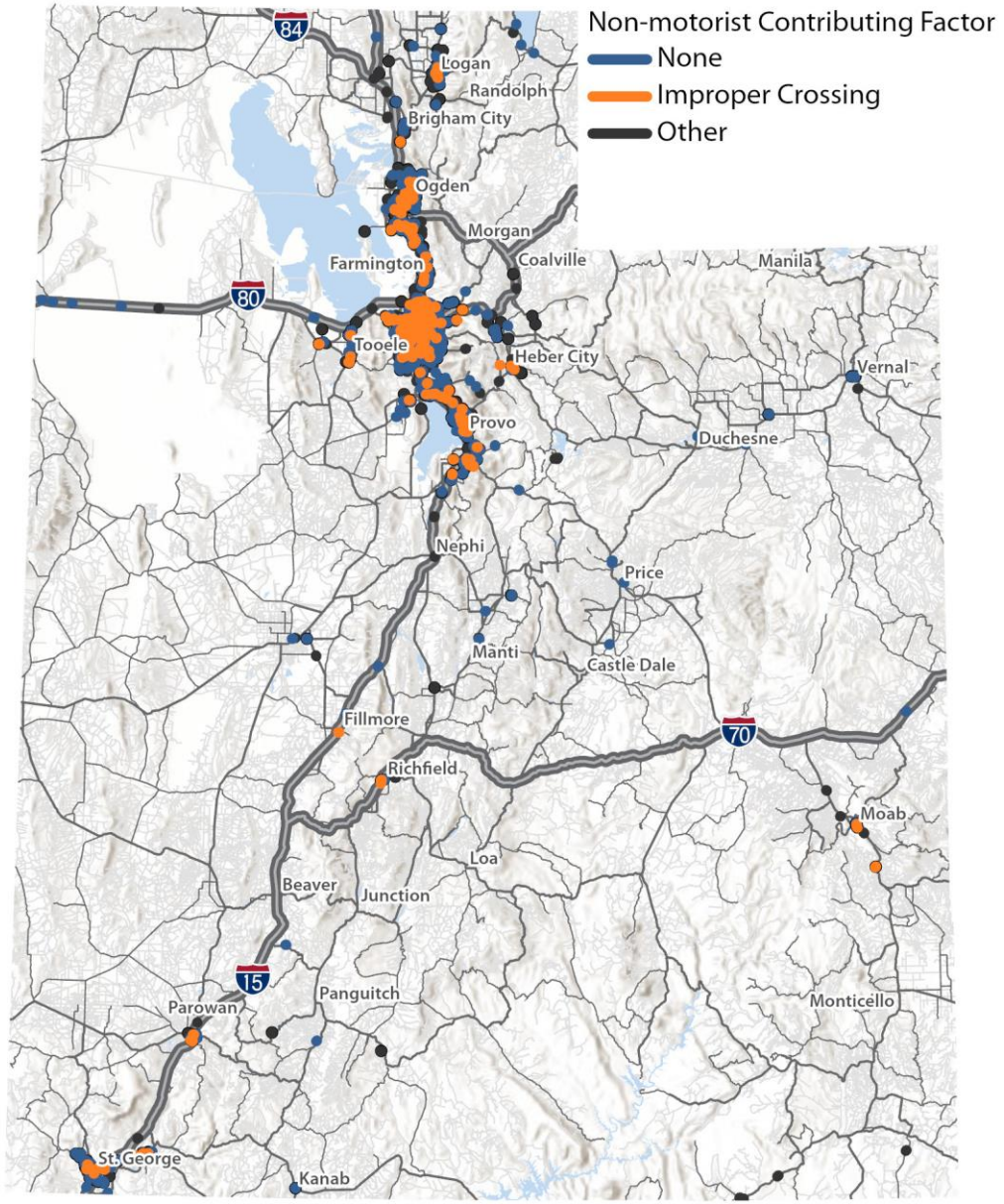
- Significantly more common when:
  - entering or crossing the road or
  - walking or cycling along the roadway with traffic

Segment +/- 660’ (~ 1 block) from crash location



Non-motorist Contributing Factor

- Significantly more common when the VRU:
  - has no known contribution to the crash, or
  - is crossing improperly



Segment +/- 660’ (~ 1 block) from crash location

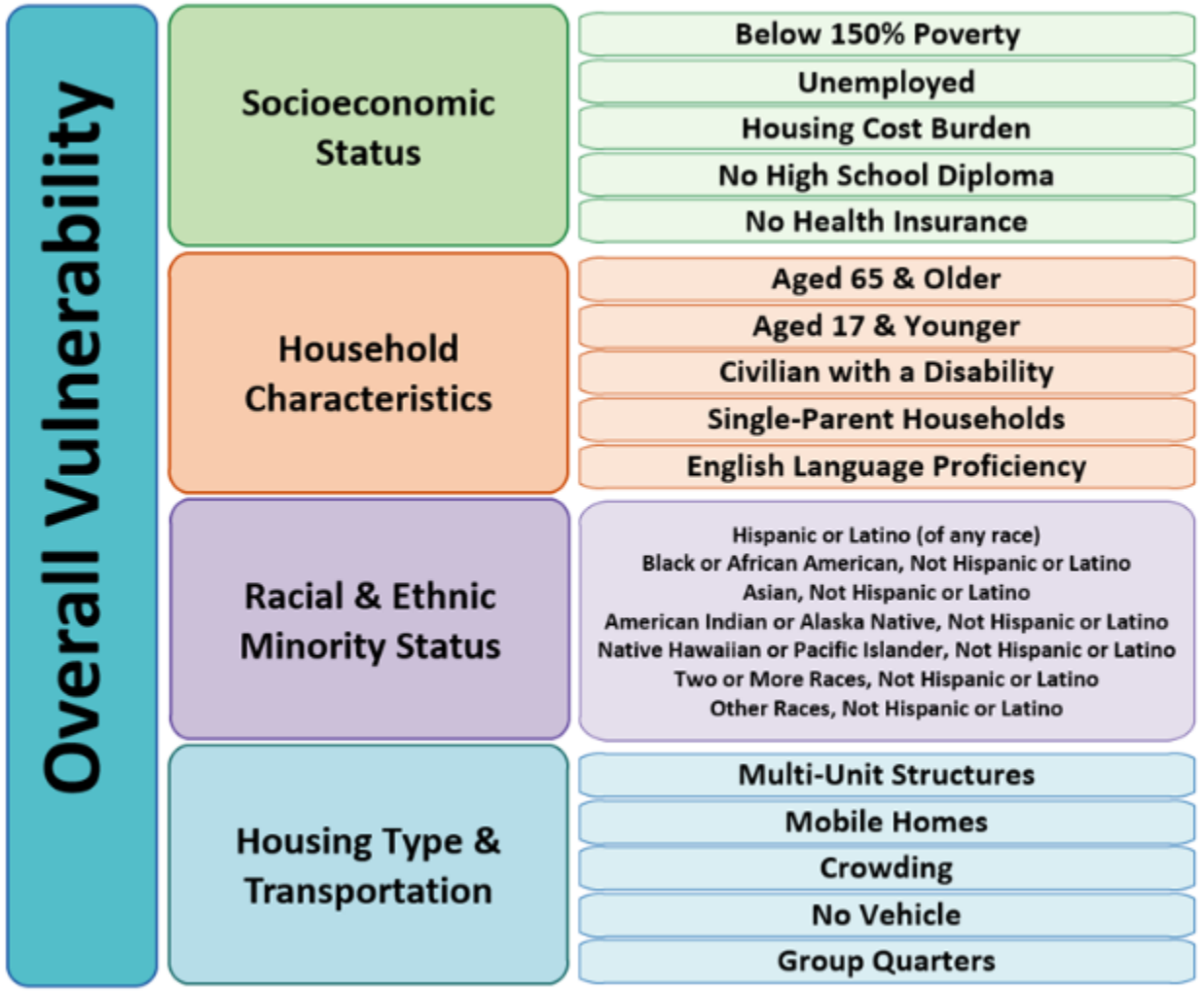
Social Vulnerability Index (SVI)

- CDC Created
- 4 types of SVI
- Definition-

What is Social Vulnerability?

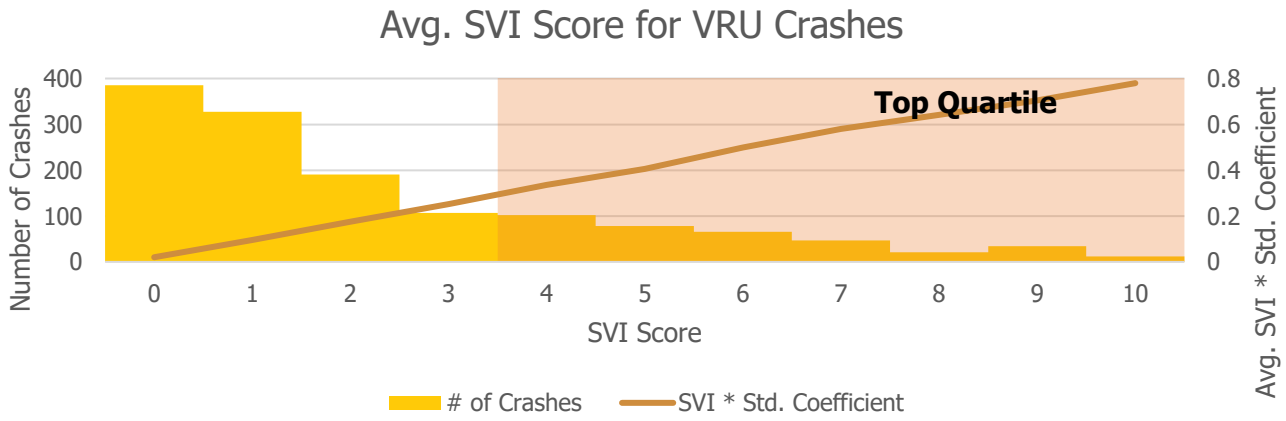
Every community must prepare for and respond to hazardous events, whether a natural disaster like a tornado or a disease outbreak, or an anthropogenic event such as a harmful chemical spill. The degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households, may affect that community's ability to prevent human suffering and financial loss in the event of disaster. These factors describe a community's social vulnerability.

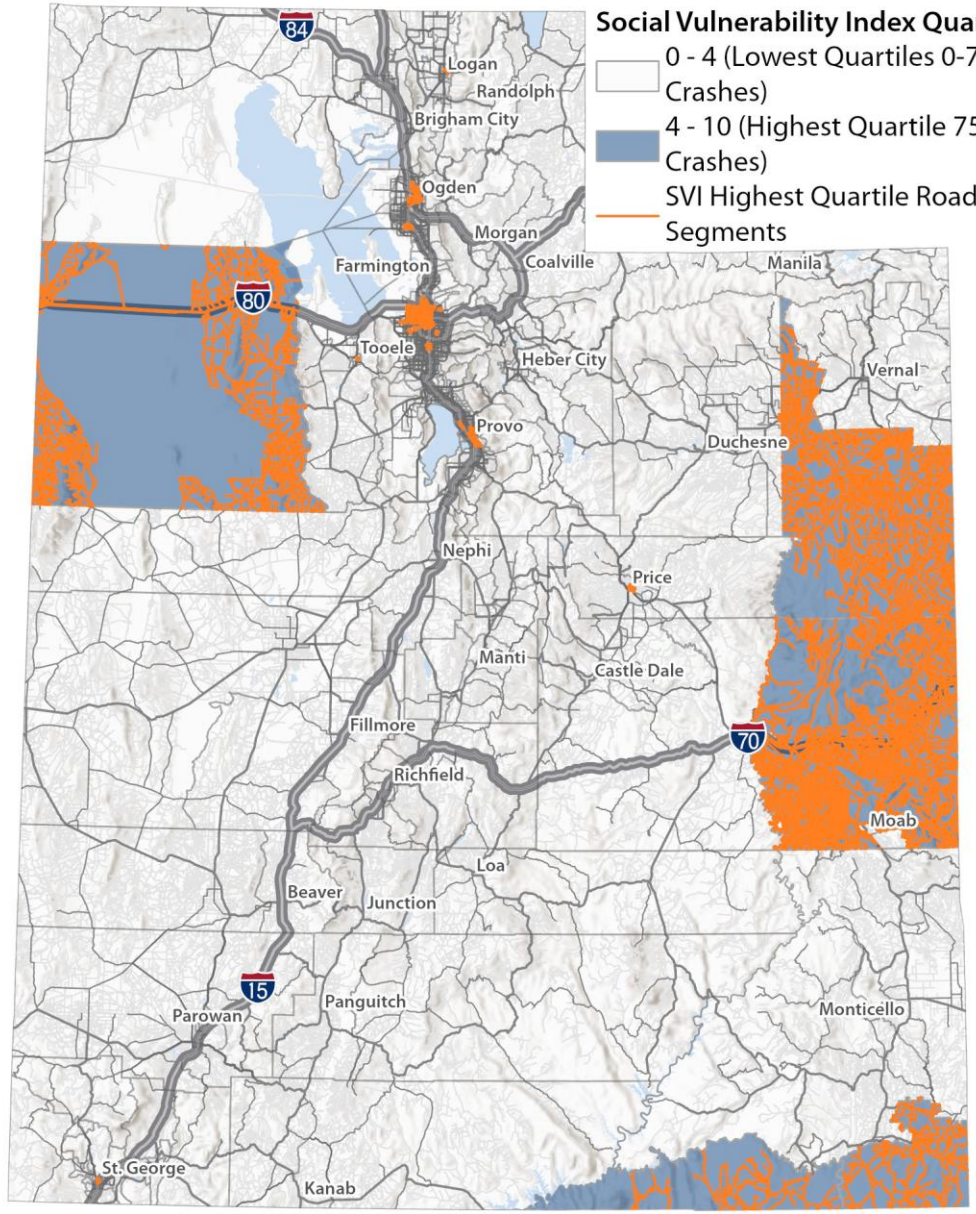
- Measures are gathered from ACS census tracts
- Most updated - 2020



Social Vulnerability Index

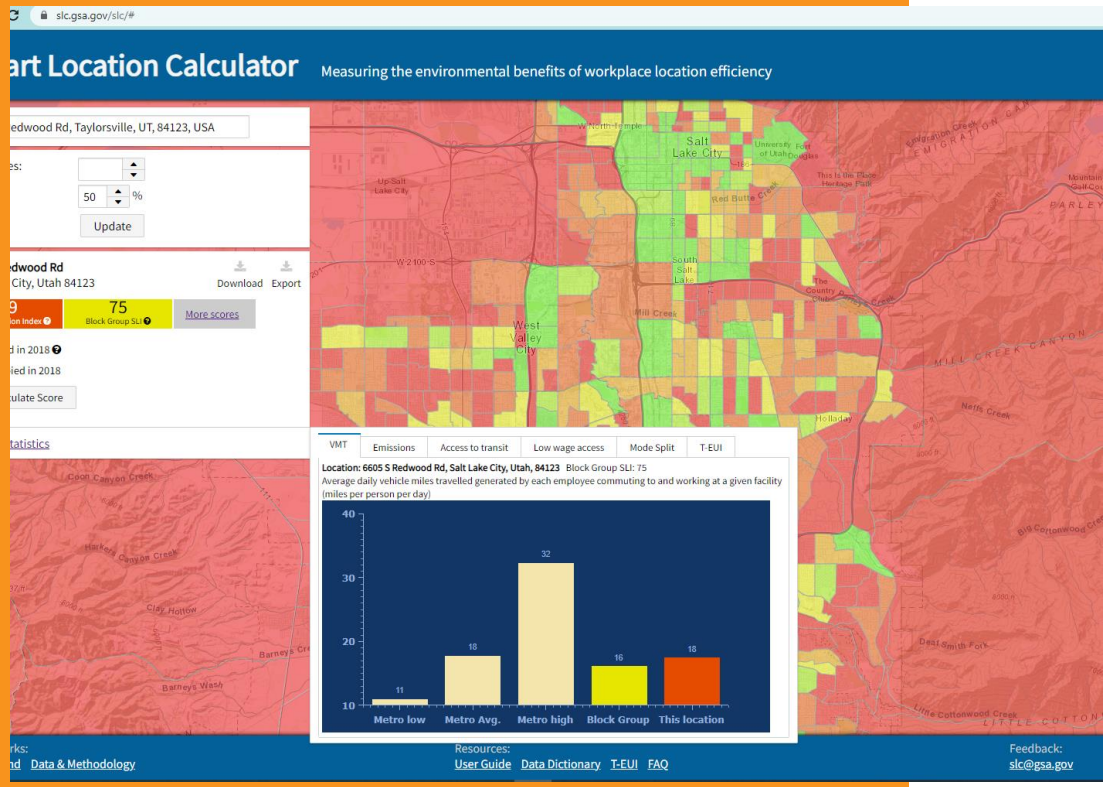
- Each level increase in the average SVI results in a significant **increase** (0.078 per level) in crash severity
- Highest Quartile of VRU Crashes have SVI of > 4





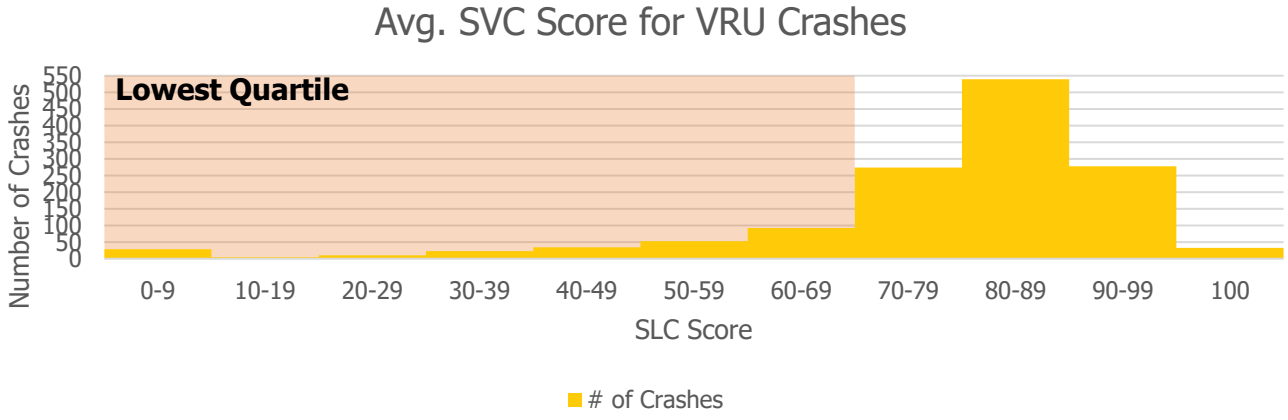
EPA Smart Location Database (SLD)

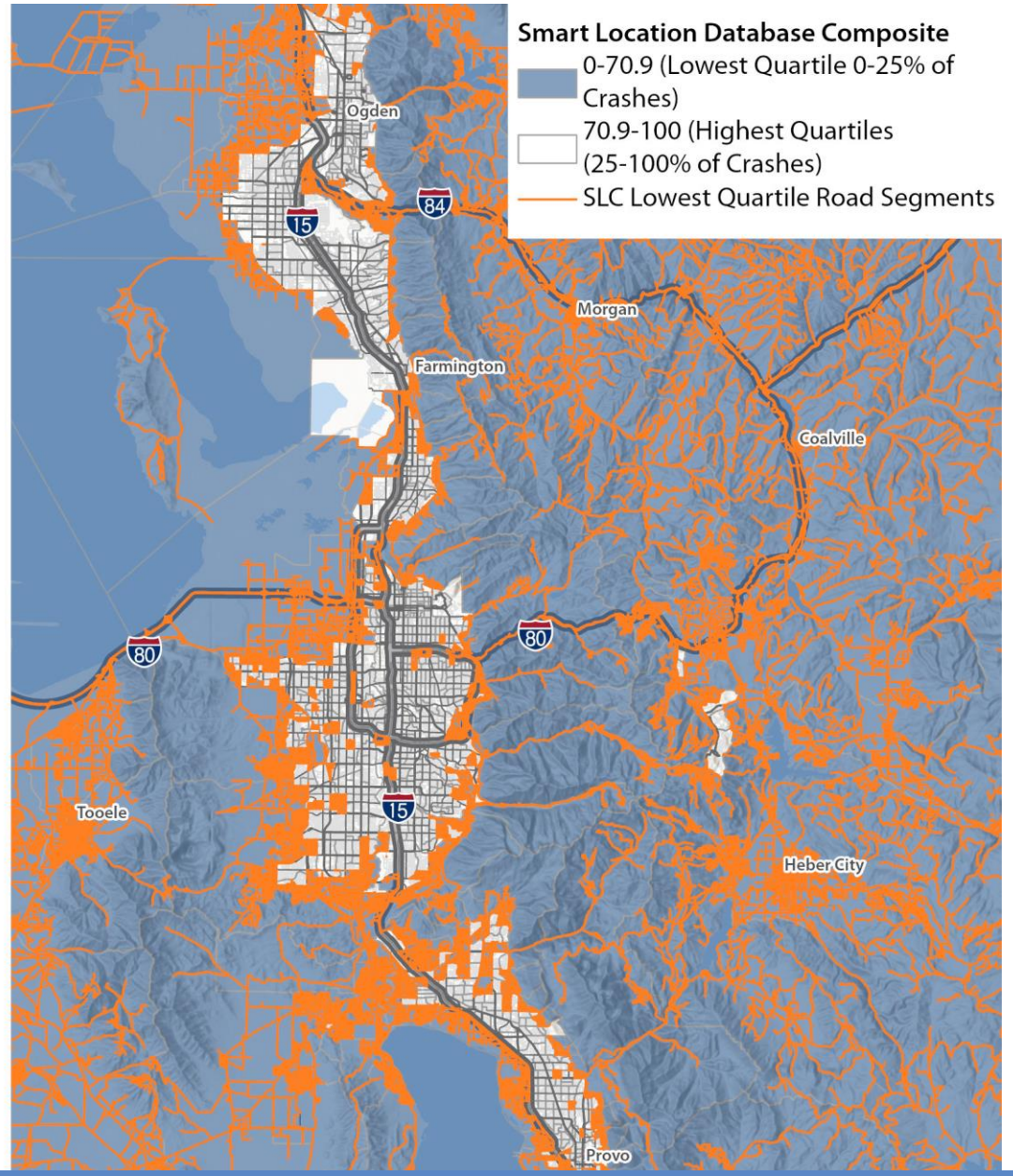
- 3 indexes –
  - **National Walkability Index** - characterizes every Census block group in the U.S. based on its relative walkability. Walkability depends upon characteristics of the built environment that influence the likelihood of walking being used as a mode of travel. Ranged from 1.0 (least walkable) to 20 (most walkable)
  - **Accessibility Index** - An index of the relative accessibility of a block group compared to other block groups within the same metropolitan region, as measured by travel time to working-age population via transit. 0-1 range. Values closer to 1 are more accessible.
  - **Smart location Index (SLI)** - Ranges in value from 0-100, where 0 indicates the least location-efficient site in the region, and 100 indicates the most location-efficient site.
- Measures are gathered from ACS census tracts
- Most updated - 2020



Smart Location Database Composite

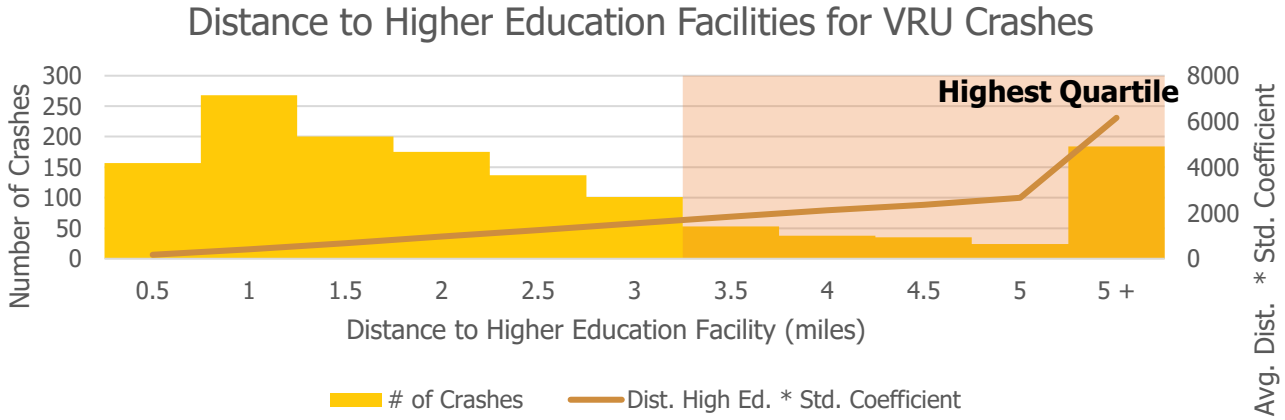
- Each level increase in the average SLD results in a significant **decrease** (-0.094 per level) in crash severity
- Lowest Quartile of VRU Crashes have SVD of < 70.9

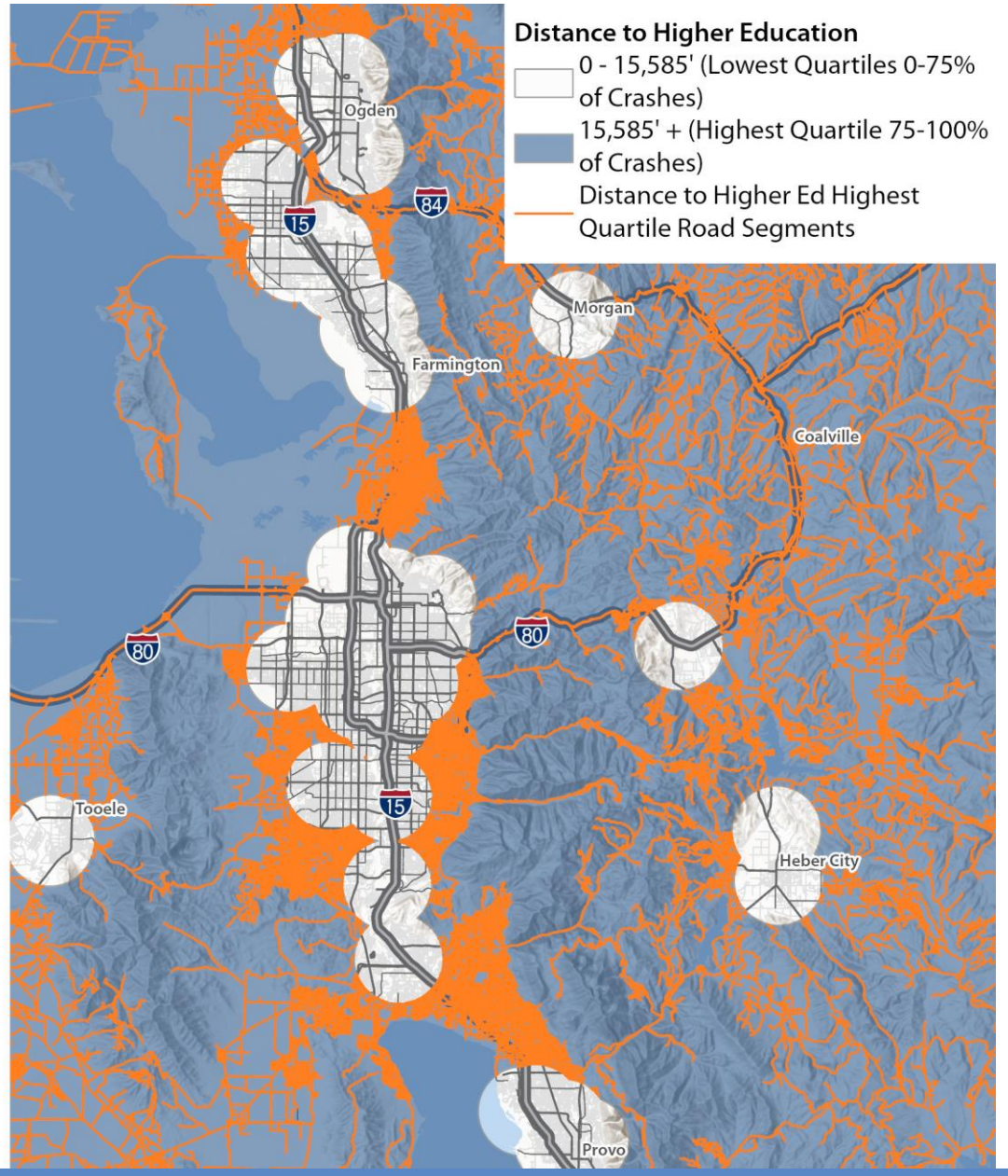




Higher Education

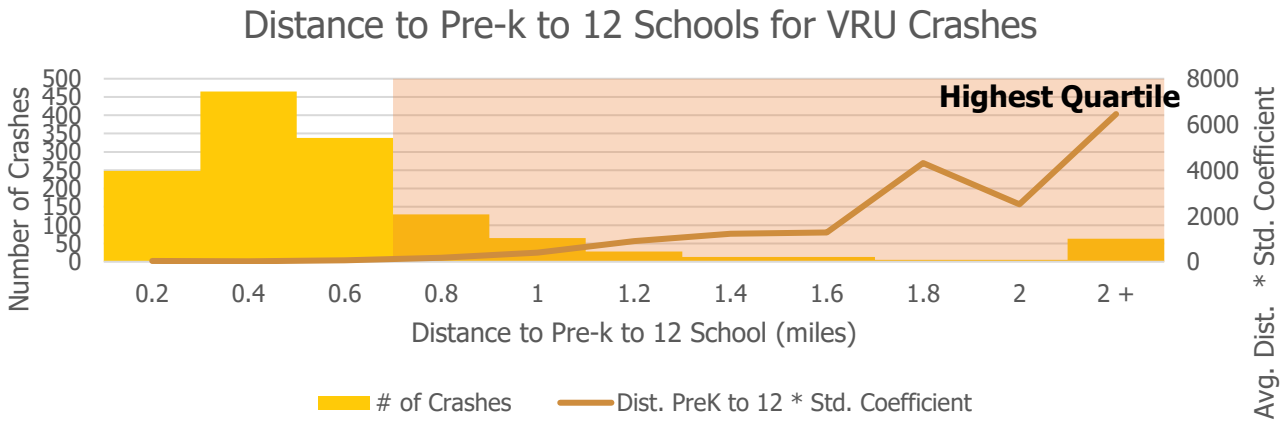
- Distance to higher education areas is significantly correlated to crash severity. Every 10 feet further from a higher ed facility is correlated to a 1.07 unit **increase** in crash severity.
- Highest Quartile of VRU Crashes have a distance > 15,585’ (2.95 miles)

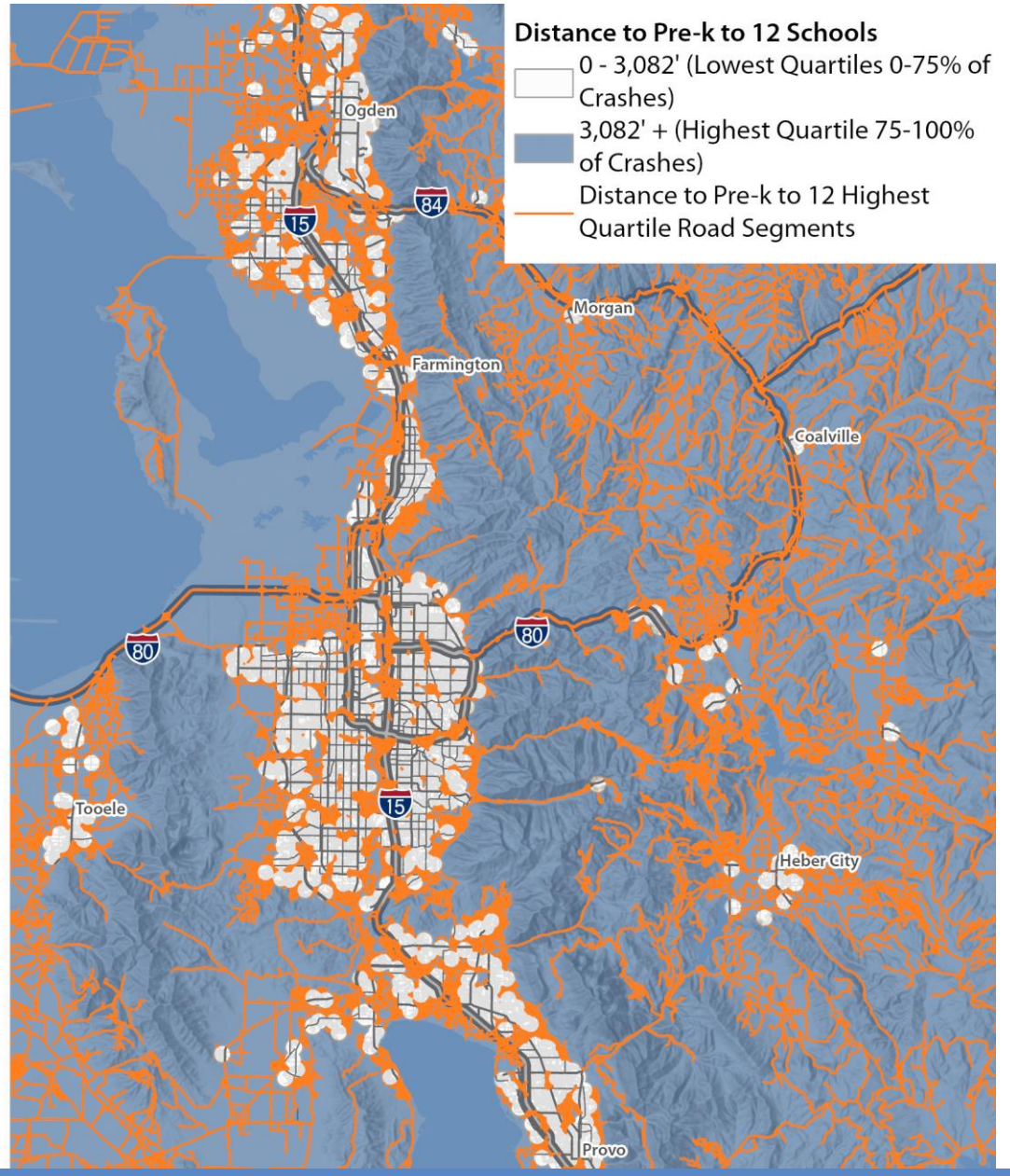




Schools
Pre-k to 12th

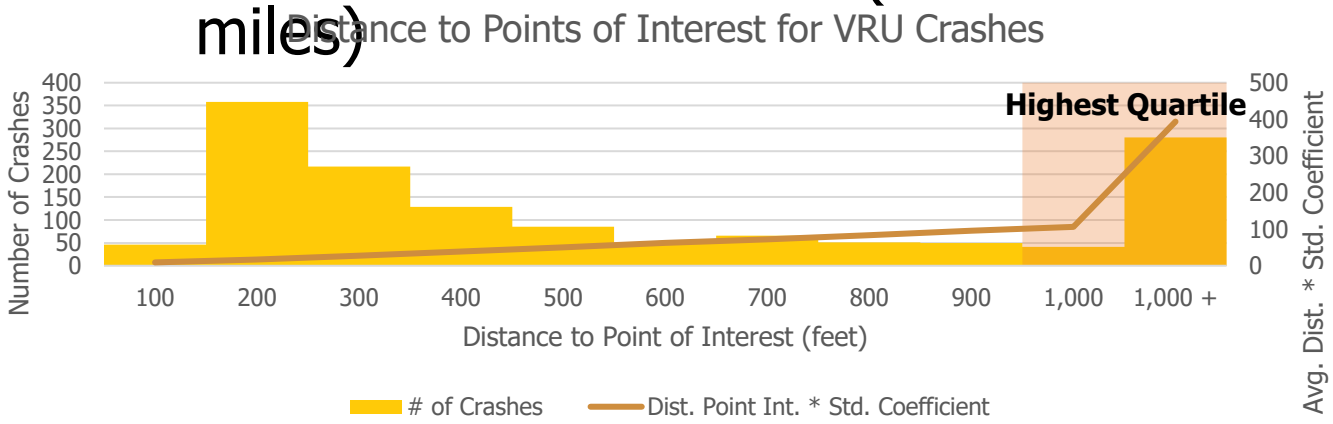
- Distance to Pre-k to 12th areas is significantly correlated to crash severity. Every 10 feet further from a Pre-k to 12 school is correlated to a 1.09 unit **increase** in crash severity.
- Highest Quartile of VRU Crashes have a distance > 3,082’ (0.58 miles)

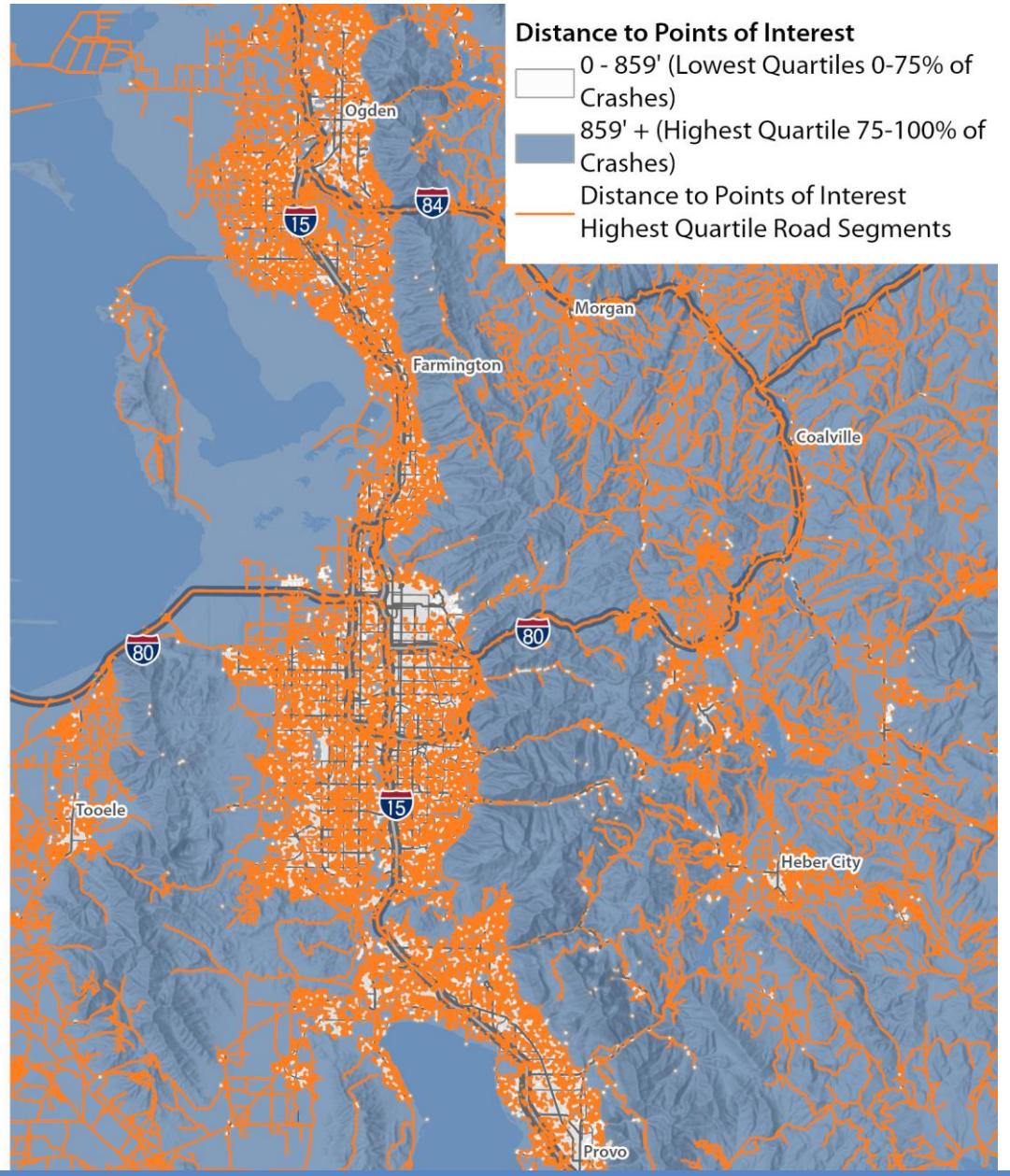




Points of Interest

- Distance to Points of Interest is significantly correlated to crash severity. Every 10 feet further from a location of interest is correlated to a 1.18 unit **increase** in crash severity.
- Highest Quartile of VRU Crashes have a distance > 859’ (0.16 miles)





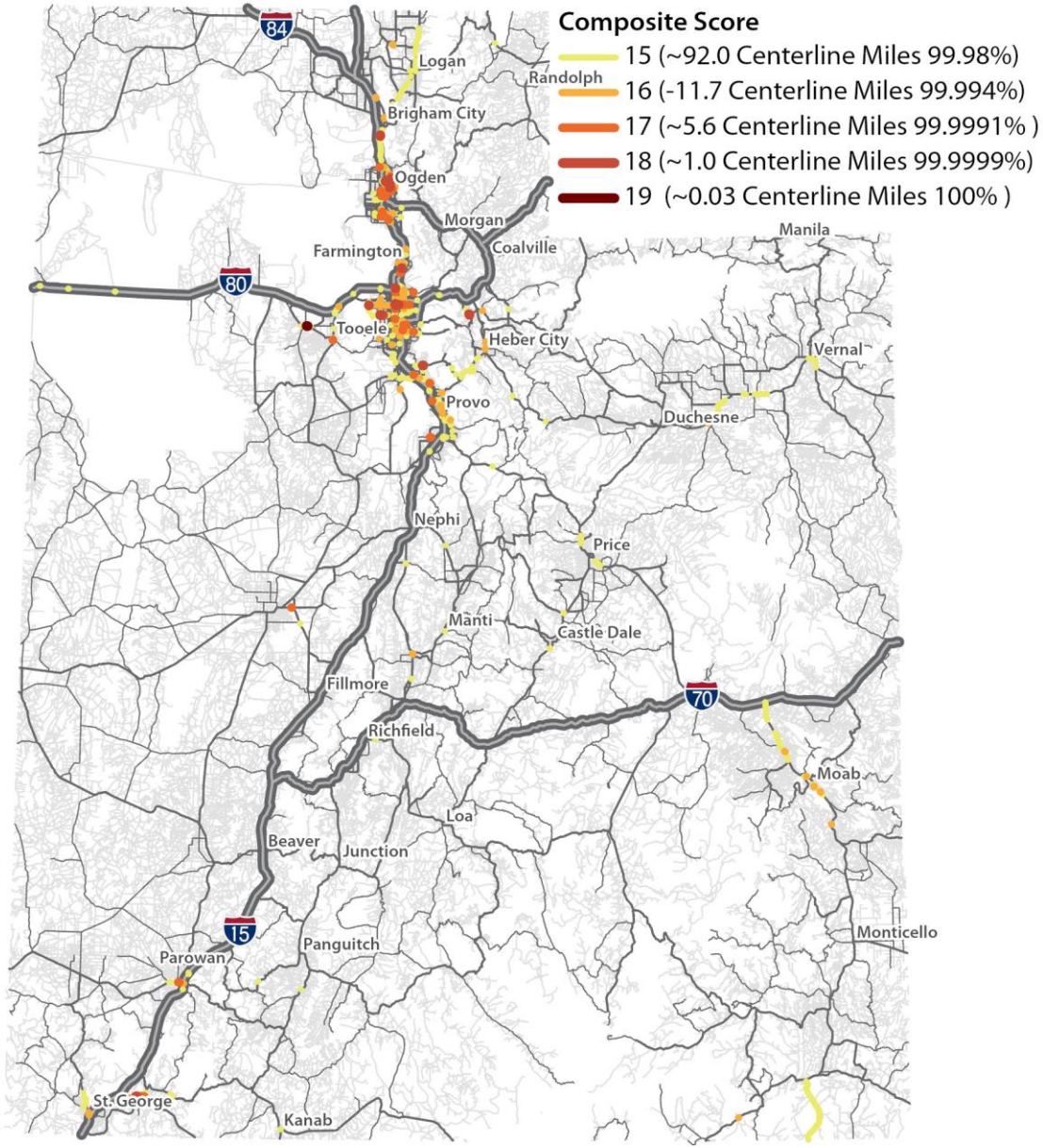
Significant Attributes

- 12 Roadway Attributes
  - 1 Surrogate for speed, volume, and level of exposure.
  - 8 Lane based
  - 3 VRU Support Facilities
- 4 Crash Attributes
- 2 Area (Demographics/Potential Exposure)
- 3 Destination/Land Use

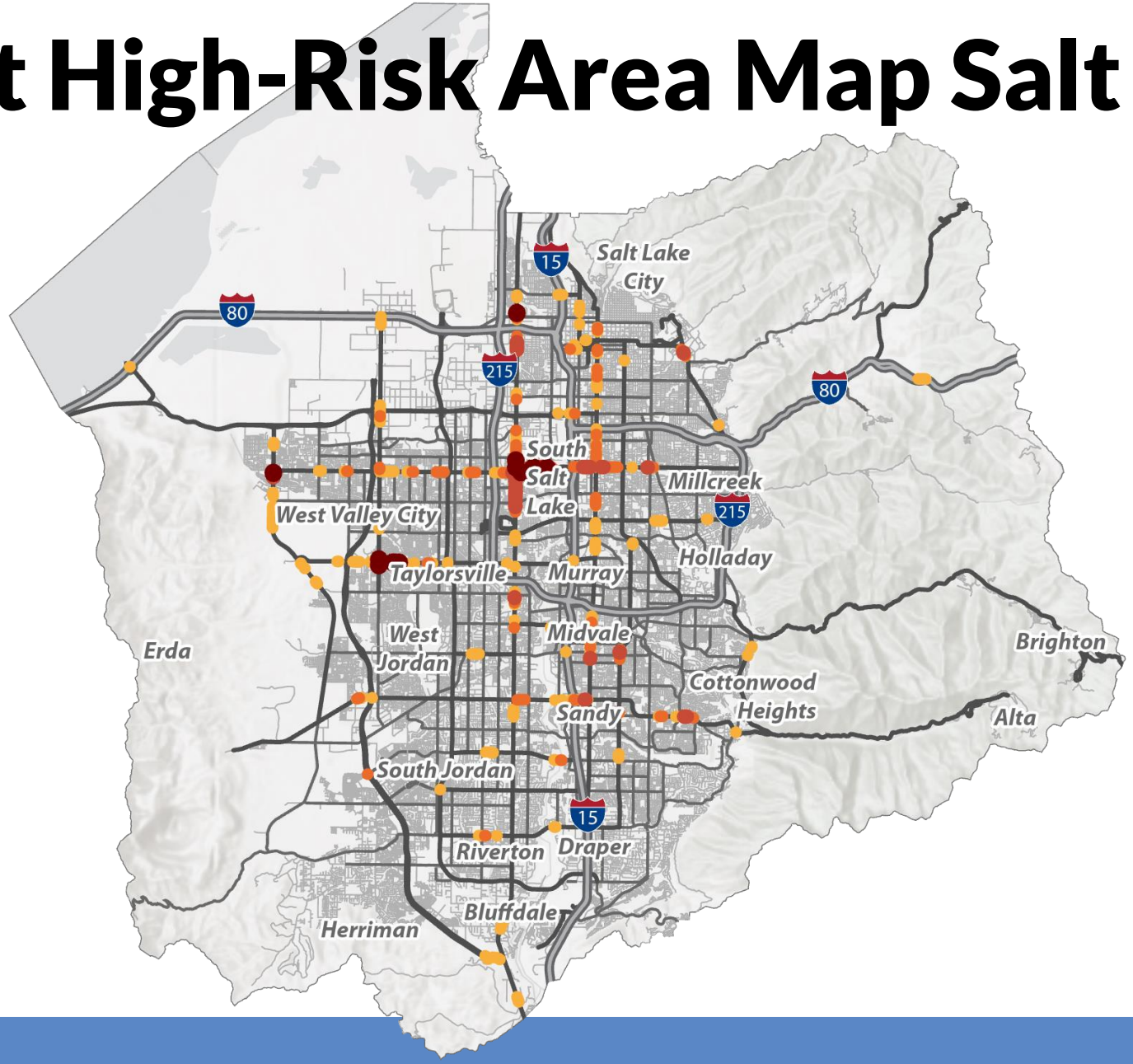
Facility (1/2 Mile Segments)	Yes	No
Route type/Functional Class - Arterial	1	0
Acceleration Lanes	0	1
Auxiliary Lanes	0	1
Deceleration Lanes	0	1
HOV Lanes	0	1
Left-turn Lanes	0	1
Passing Lanes	0	1
Right-turn Lanes	0	1
Through Lanes - 4-6	1	0
Median Type - Raised, 2 Way Left Turn, Undivided	1	0
Median Island	0	1
Sidewalks	1	0
Motorist/Vehicle (Crash Based)		
Driver Contributing Factor - no known contribution or fails to yield right of way	1	0
Non-Motorist (Crash Based)		
Location - intersections with marked crosswalk; in a travel lane (not crosswalk or intersection)	1	0
Action - entering or crossing the road; walking or cycling along the road with traffic	1	0
Non-Motorist Contributing Factor - no known contribution or crossing improperly	1	0
Area (Demographic/Potential Exposure)		
SVI Index - highest quartile	1	0
SLD Index - lowest quartile	1	0
Built Environment Destinations/Land Use		
Schools Higher Education - highest quartile (distance)	1	0
Schools Pre-K to 12 - highest quartile (distance)	1	0
Points of Interest - highest quartile (distance)	1	0

Draft High-Risk Area Map

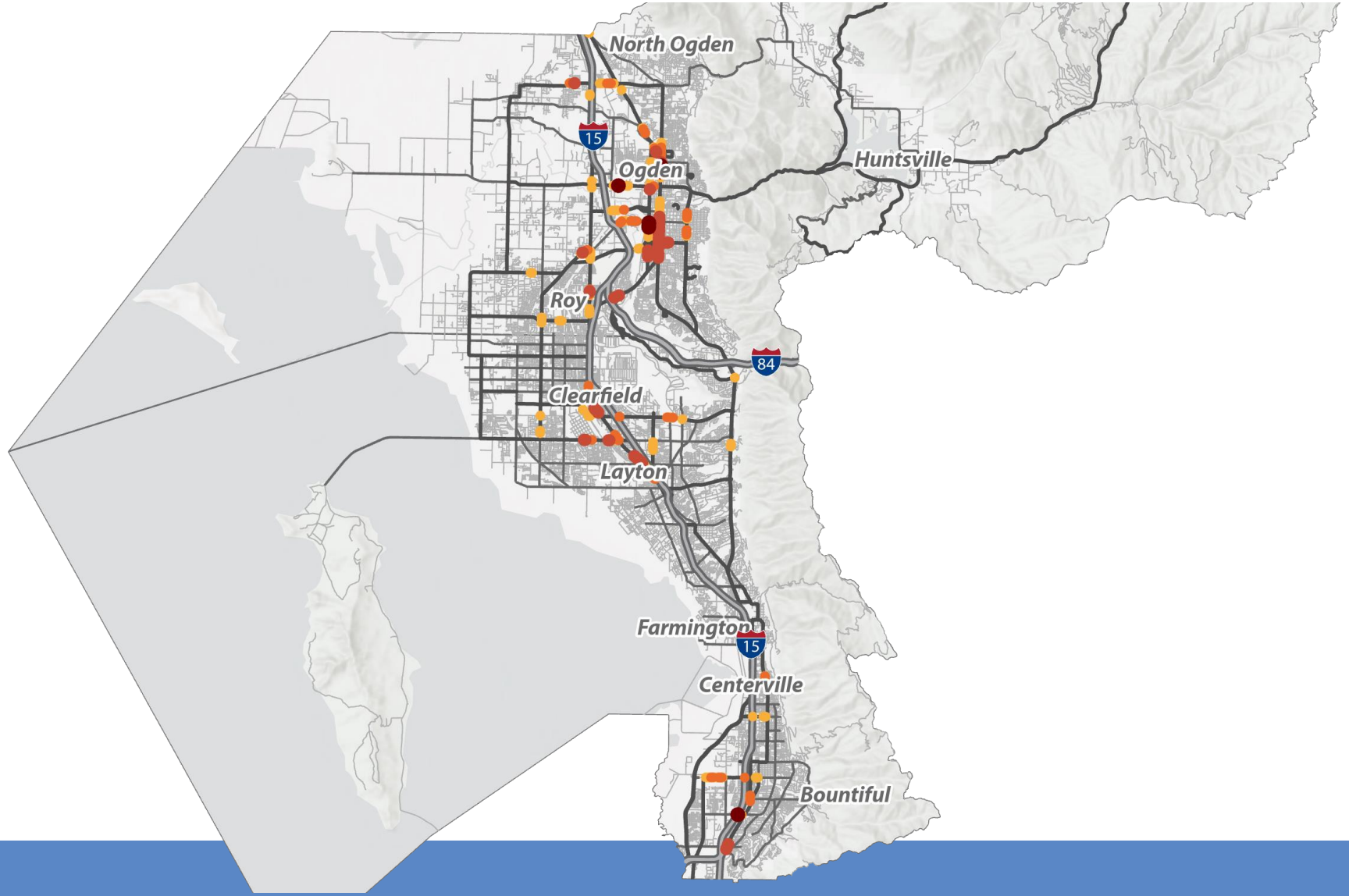
- Includes all significant attributes
- Each attribute is binary 0 (does not exist) or 1 (exists) on every roadway segment
- For index and distance attributes the highest or lowest crash quartile is 1 and all other segments 0
- Total composite score is **unweighted**
- Comment map link



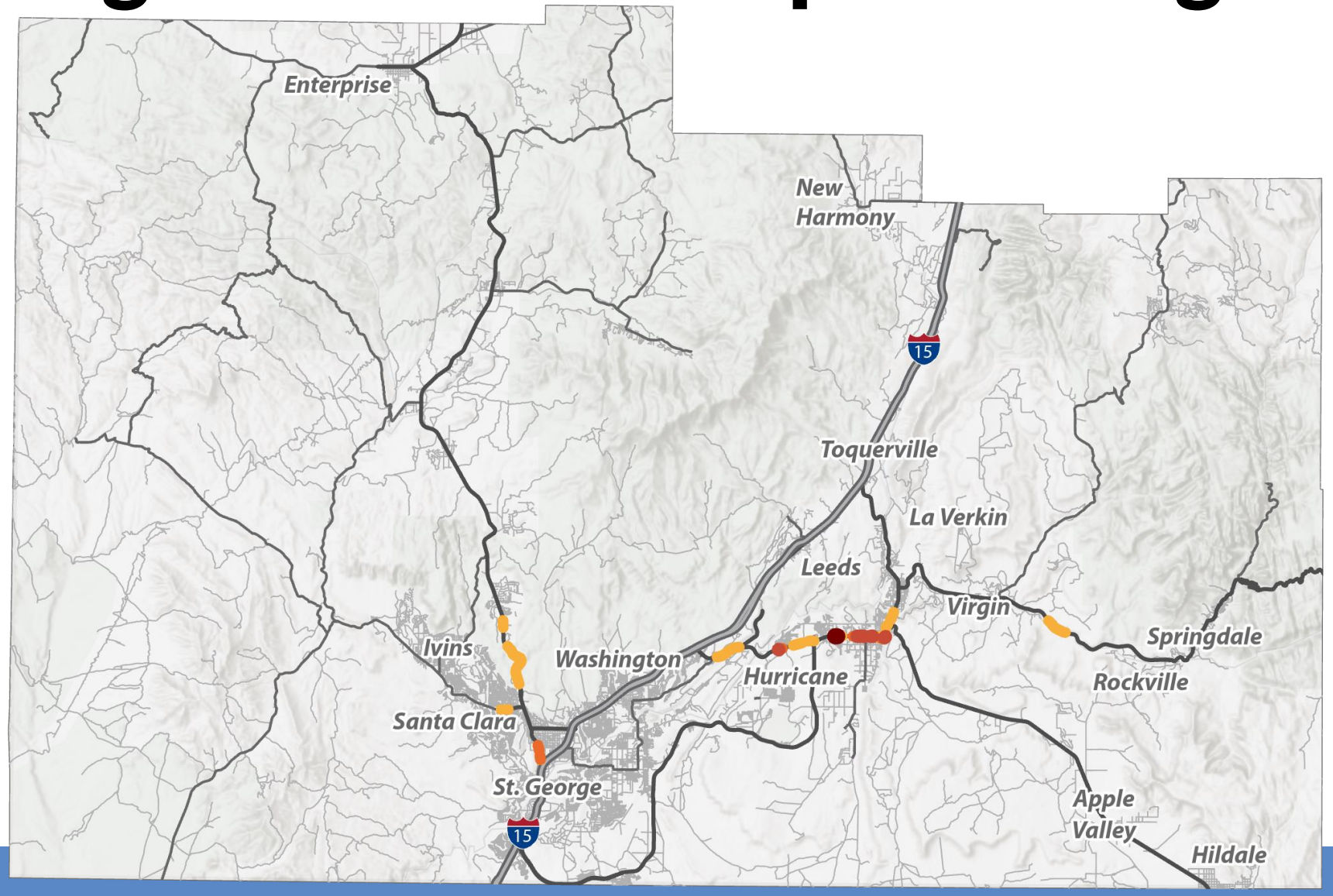
Draft High-Risk Area Map Salt Lake Co



Draft High-Risk Area Map Weber/Davis



Draft High-Risk Area Map Washington Co.



Appendix 2

Significant Variables from Pearson's Chi-Squared Test

Vulnerable Road Users Crash Location Analysis: n=1372

Crash Severity * Functional Class Crosstabulation

			Functional Class							
			Interstate	Other Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local	9999	Total
Crash Severity	4	Count	38_a	343_b	241_c	231_c	$46_{b,c}$	$7_{b,c}$	169_c	1075
		% within Crash Severity	3.5%	31.9%	22.4%	21.5%	4.3%	0.7%	15.7%	100.0%
	5	Count	29_a	130_b	51_c	48_c	$9_{b,c}$	$0_{b,c}$	30_c	297
		% within Crash Severity	9.8%	43.8%	17.2%	16.2%	3.0%	0.0%	10.1%	100.0%
Total		Count	67	473	292	279	55	7	199	1372
		% within Crash Severity	4.9%	34.5%	21.3%	20.3%	4.0%	0.5%	14.5%	100.0%

Each subscript letter denotes a subset of Functional Class categories whose column proportions do not differ significantly from each other at the .05 level.

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	-.272	.047	-5.614	<.001
	Spearman Correlation	-.154	.027	-5.752	<.001[c]
Interval by Interval	Pearson's R	-.066	.024	-2.440	.015[c]
N of Valid Cases		1372			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Severe VRU crashes are not evenly distributed across roadway types. **A significant majority are located on Principal Arterials (*Chi-Square=42.157, R Sig*= 0.015).**

Lane Configurations

Crash Severity * Accell_CNT

Crosstab

			ACCELL_CNT					
			0	1	2	3	9999	Total
Crash Severity	4	Count	401_{a}	13_{a}	$2_{a, b}$	$1_{a, b}$	658_{b}	1075
		% within Crash Severity	37.3%	1.2%	0.2%	0.1%	61.2%	100.0%
	5	Count	168_{a}	7_{a}	$0_{a, b}$	$0_{a, b}$	122_{b}	297
		% within Crash Severity	56.6%	2.4%	0.0%	0.0%	41.1%	100.0%
Total		Count	569	20	2	1	780	1372
		% within Crash Severity	41.5%	1.5%	0.1%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of ACCELL_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no ACCELL_CNT. *Chi-Square=40.34, R Sig*= 0.001.

Crash Severity *AUX_CNT

Crosstab

			AUX_CNT			
			0	1	9999	Total
Crash Severity	4	Count	405_{a}	12_{a}	658_{b}	1075
		% within Crash Severity	37.7%	1.1%	61.2%	100.0%
	5	Count	169_{a}	6_{a}	122_{b}	297
		% within Crash Severity	56.9%	2.0%	41.1%	100.0%
Total		Count	574	18	780	1372
		% within Crash Severity	41.8%	1.3%	56.9%	100.0%

Each subscript letter denotes a subset of AUX_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no AUX_CNT. *Chi-Square=38.603, R Sig*= 0.001.

Crash Severity* DECELL_CNT

Crosstab

			DECELL_CNT					
			0	1	2	3	9999	Total
Crash Severity	4	Count	412_{a}	$4_{a, b}$	$1_{a, b}$	0_{a}	658_{b}	1075
		% within Crash Severity	38.3%	0.4%	0.1%	0.0%	61.2%	100.0%
	5	Count	173_{a}	$1_{a, b}$	$0_{a, b}$	1_{a}	122_{b}	297
		% within Crash Severity	58.2%	0.3%	0.0%	0.3%	41.1%	100.0%
Total		Count	585	5	1	1	780	1372
		% within Crash Severity	42.6%	0.4%	0.1%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of DECELL_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no DECELL_CNT. *Chi-Square=42.158, R Sig*= 0.001.

Crash Severity * HOV_CNT

Crosstab

			HOV_CNT			
			0	1	9999	Total
Crash Severity	4	Count	403_{a}	14_{a}	658_{b}	1075
		% within Crash Severity	37.5%	1.3%	61.2%	100.0%
	5	Count	166_{a}	9_{a}	122_{b}	297
		% within Crash Severity	55.9%	3.0%	41.1%	100.0%
Total		Count	569	23	780	1372
		% within Crash Severity	41.5%	1.7%	56.9%	100.0%

Each subscript letter denotes a subset of HOV_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no HOV_CNT. *Chi-Square=39.740, R Sig*= 0.001.

Crash Severity * L_TURN_CNT

Crosstab

			L_TURN_CNT							
			0	1	2	3	4	5	9999	Total
Crash Severity	4	Count	$179_{a, b}$	$108_{c, d}$	$98_{a, b, c, d}$	$19_{a, b, c, d, e, f}$	$13_{b, d, f}$	$0_{a, c}$	$658_{e, f}$	1075
		% within Crash Severity	16.7%	10.0%	9.1%	1.8%	1.2%	0.0%	61.2%	100.0%
	5	Count	$91_{a, b}$	$34_{c, d}$	$42_{a, b, c, d}$	$5_{a, b, c, d, e, f}$	$2_{b, d, f}$	$1_{a, c}$	$122_{e, f}$	297
		% within Crash Severity	30.6%	11.4%	14.1%	1.7%	0.7%	0.3%	41.1%	100.0%
Total		Count	270	142	140	24	15	1	780	1372
		% within Crash Severity	19.7%	10.3%	10.2%	1.7%	1.1%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of L_TURN_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no L_TURN_CNT. *Chi-Square=50.169, R Sig*= 0.001.

Crash Severity * PASS-CNT

Crosstab

			PASS_CNT			
			0	1	9999	Total
Crash Severity	4	Count	414_{a}	$3_{a, b}$	658_{b}	1075
		% within Crash Severity	38.5%	0.3%	61.2%	100.0%
	5	Count	174_{a}	$1_{a, b}$	122_{b}	297
		% within Crash Severity	58.6%	0.3%	41.1%	100.0%
Total		Count	588	4	780	1372
		% within Crash Severity	42.9%	0.3%	56.9%	100.0%

Each subscript letter denotes a subset of PASS_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no PASS_CNT. *Chi-Square=38.497, R Sig*= 0.001.

Crash Severity * R_TURN_CNT

Crosstab

			R_TURN_CNT						
			0	1	2	3	4	9999	Total
Crash Severity	4	Count	260_{a}	96_{a}	$57_{a, b}$	$3_{a, b}$	$1_{a, b}$	658_{b}	1075
		% within Crash Severity	24.2%	8.9%	5.3%	0.3%	0.1%	61.2%	100.0%
	5	Count	122_{a}	36_{a}	$16_{a, b}$	$1_{a, b}$	$0_{a, b}$	122_{b}	297
		% within Crash Severity	41.1%	12.1%	5.4%	0.3%	0.0%	41.1%	100.0%
Total		Count	382	132	73	4	1	780	1372
		% within Crash Severity	27.8%	9.6%	5.3%	0.3%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of R_TURN_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no R_TURN_CNT. *Chi-Square=43.205, R Sig*= 0.001.

Crash Severity * THRU_CNT

Crosstab

			THRU_CNT										
			0	1	2	3	4	5	6	7	8	9999	Total
Crash Severity	4	Count	$1_{a, b, c, d, e, f, g, h, i}$	$7_{j, k, l}$	$78_{f, g, h, i, l}$	$14_{d, e, h, i}$	$163_{b, c, d, e, f, g, h, i, k, l}$	$38_{c, e, g, i, l}$	$101_{b, c, d, e, f, g, h, i, k, l}$	$14_{a, b, j, k}$	$1_{a, b, c, d, e, f, g, h, i}$	$658_{a, j}$	1075
		% within Crash Severity	0.1%	0.7%	7.3%	1.3%	15.2%	3.5%	9.4%	1.3%	0.1%	61.2%	100.0%
	5	Count	$1_{a, b, c, d, e, f, g, h, i}$	$0_{j, k, l}$	$35_{f, g, h, i, l}$	$11_{d, e, h, i}$	$60_{b, c, d, e, f, g, h, i, k, l}$	$22_{c, e, g, i, l}$	$44_{b, c, d, e, f, g, h, i, k, l}$	$1_{a, b, j, k}$	$1_{a, b, c, d, e, f, g, h, i}$	$122_{a, j}$	297
		% within Crash Severity	0.3%	0.0%	11.8%	3.7%	20.2%	7.4%	14.8%	0.3%	0.3%	41.1%	100.0%
Total		Count	2	7	113	25	223	60	145	15	2	780	1372
		% within Crash Severity	0.1%	0.5%	8.2%	1.8%	16.3%	4.4%	10.6%	1.1%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of THRU_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with higher THRU_CNT. However, <u>the correlation tapers off after a roadway exceeds 6 lanes</u>. *Chi-Square=53.646, R Sig*= 0.001.

Crash Severity *TWOWAY_CNT

Crosstab

			TWOWAY_CNT			
			0	1	9999	Total
Crash Severity	4	Count	337_a	80_a	658_b	1075
		% within Crash Severity	31.3%	7.4%	61.2%	100.0%
	5	Count	135_a	40_a	122_b	297
		% within Crash Severity	45.5%	13.5%	41.1%	100.0%
Total		Count	472	120	780	1372
		% within Crash Severity	34.4%	8.7%	56.9%	100.0%

Each subscript letter denotes a subset of TWOWAY_CNT categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are significantly more common on roadways with no TWOWAY_CNT. *Chi-Square=39.711, R Sig*= 0.001.

Crash Severity * Lanes

Crosstab

			LANES													
			1	2	3	4	5	6	7	8	9	10	11	12	13	9999	Total
Crash Severity	4	Count	$2_{a, b, c, d}$	$52_{b, d}$	$19_{a, b, c, d}$	$52_{b, d}$	$59_{b, d}$	$71_{b, d}$	$54_{b, d}$	$60_{b, d}$	$19_{b, d}$	$14_{a, b, c, d}$	$6_{a, b, c, d}$	$9_{c, d}$	0_b	$658_{a, c}$	1075
		% within Crash Severity	0.2%	4.8%	1.8%	4.8%	5.5%	6.6%	5.0%	5.6%	1.8%	1.3%	0.6%	0.8%	0.0%	61.2%	100.0%
	5	Count	$1_{a, b, c, d}$	$27_{b, d}$	$6_{a, b, c, d}$	$29_{b, d}$	$19_{b, d}$	$34_{b, d}$	$18_{b, d}$	$26_{b, d}$	$9_{b, d}$	$3_{a, b, c, d}$	$1_{a, b, c, d}$	$1_{c, d}$	1_b	$122_{a, c}$	297
		% within Crash Severity	0.3%	9.1%	2.0%	9.8%	6.4%	11.4%	6.1%	8.8%	3.0%	1.0%	0.3%	0.3%	0.3%	41.1%	100.0%
Total		Count	3	79	25	81	78	105	72	86	28	17	7	10	1	780	1372
		% within Crash Severity	0.2%	5.8%	1.8%	5.9%	5.7%	7.7%	5.2%	6.3%	2.0%	1.2%	0.5%	0.7%	0.1%	56.9%	100.0%

Each subscript letter denotes a subset of LANES categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed and are significantly more common on roadways with 4-8 lanes. *Chi-Square=52.101, R Sig*= 0.001.

Center Medians

Crash Severity * Median Type

Crosstab

			Median Type									
			Raised Median	Painted Median	Depressed Median	Two Way Left Turn Lane	Concrete Barrier or Bridge	Rapid Transit	Separated Grades	Railroad	Undivided	Total
Crash Severity	4	Count	126_{a}	$25_{a, b}$	6_{c}	$85_{b, d}$	$19_{c, d}$	$1_{a, b, c, d}$	$4_{a, b, c, d}$	$5_{a, b, d}$	200_{a}	471
		% within Crash Severity	26.8%	5.3%	1.3%	18.0%	4.0%	0.2%	0.8%	1.1%	42.5%	100.0%
	5	Count	29_{a}	$7_{a, b}$	16_{c}	$44_{b, d}$	$17_{c, d}$	$0_{a, b, c, d}$	$2_{a, b, c, d}$	$1_{a, b, d}$	64_{a}	180
		% within Crash Severity	16.1%	3.9%	8.9%	24.4%	9.4%	0.0%	1.1%	0.6%	35.6%	100.0%
Total		Count	155	32	22	129	36	1	6	6	264	651
		% within Crash Severity	23.8%	4.9%	3.4%	19.8%	5.5%	0.2%	0.9%	0.9%	40.6%	100.0%

Each subscript letter denotes a subset of Median Type categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed and are significantly more common on roadways with raised medians, two-way left turn lanes, and undivided highways. *Chi-Square=41.030, Sig*= 0.001.

Crash Severity * Med TrffcIIndTyp

Crosstab

			MedTrffcIIndTyp			
			0	1	9999	Total
Crash Severity	4	Count	345_{a}	126_{b}	604_{b}	1075
		% within Crash Severity	32.1%	11.7%	56.2%	100.0%
	5	Count	151_{a}	29_{b}	117_{b}	297
		% within Crash Severity	50.8%	9.8%	39.4%	100.0%
Total		Count	496	155	721	1372
		% within Crash Severity	36.2%	11.3%	52.6%	100.0%

Each subscript letter denotes a subset of MedTrffcIIndTyp categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed and are significantly more common on roadways with no median island. *Chi-Square=35.902, R Sig*= 0.001.

Crash Severity * RouteType Crosstabulation

			RouteType			
			1	2	3	Total
Crash Severity	4	Count	457$_a$	420$_b$	198$_a$	1075
		% within Crash Severity	42.5%	39.1%	18.4%	100.0%
	5	Count	90$_a$	176$_b$	31$_a$	297
		% within Crash Severity	30.3%	59.3%	10.4%	100.0%
Total		Count	547	596	229	1372
		% within Crash Severity	39.9%	43.4%	16.7%	100.0%

Each subscript letter denotes a subset of RouteType categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed, however, there is no significant variation in risk by route type. *Chi-Square=39.416, R Sig*= 0.124.

Crash Severity * Driveway Type Crosstabulation

			Driveway Type					
			Major Industrial/Institutional Driveway	Major Commercial Driveway	Minor Industrial/Institutional Driveway	Minor Commercial Driveway	Minor Residential Driveway	Total
Crash Severity	4	Count	1$_{a, b, c}$	4$_{a, b, c}$	0$_c$	17$_b$	11$_{a, c}$	33
		% within Crash Severity	3.0%	12.1%	0.0%	51.5%	33.3%	100.0%
	5	Count	0$_{a, b, c}$	1$_{a, b, c}$	2$_c$	2$_b$	7$_{a, c}$	12
		% within Crash Severity	0.0%	8.3%	16.7%	16.7%	58.3%	100.0%
Total		Count	1	5	2	19	18	45
		% within Crash Severity	2.2%	11.1%	4.4%	42.2%	40.0%	100.0%

Each subscript letter denotes a subset of Driveway Type categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed, however, there is no significant variation in risk by driveway type. *Chi-Square=9.883, R Sig*= 0.345.

Crash Severity *Pedestrian Facilities (L)

Crosstab

			Pedestrian Facility			
			Restricted	Sidewalk	9999	Total
Crash Severity	4	Count	121_a	418_b	536_c	1075
		% within Crash Severity	11.3%	38.9%	49.9%	100.0%
	5	Count	67_a	119_b	111_c	297
		% within Crash Severity	22.6%	40.1%	37.4%	100.0%
Total		Count	188	537	647	1372
		% within Crash Severity	13.7%	39.1%	47.2%	100.0%

Each subscript letter denotes a subset of Pedestrian Facility categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed and are significantly more common on roadways with sidewalks. *Chi-Square=28.485, R Sig*= 0.001.

Crash Severity *Pedestrian Facilities (R)

Crosstab

			Pedestrian Facility			
			Restricted	Sidewalk	9999	Total
Crash Severity	4	Count	121_a	423_b	531_b	1075
		% within Crash Severity	11.3%	39.3%	49.4%	100.0%
	5	Count	67_a	118_b	112_b	297
		% within Crash Severity	22.6%	39.7%	37.7%	100.0%
Total		Count	188	541	643	1372
		% within Crash Severity	13.7%	39.4%	46.9%	100.0%

Each subscript letter denotes a subset of Pedestrian Facility categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed and are significantly more common on roadways with sidewalks. *Chi-Square=28.485, R Sig*= 0.001.

Trails

Crash Severity * TrlStatus

Crosstab

			TrlStatus			
			1	2	9999	Total
Crash Severity	4	Count	121_a	9_a	945_a	1075
		% within Crash Severity	11.3%	0.8%	87.9%	100.0%
	5	Count	27_a	1_a	269_a	297
		% within Crash Severity	9.1%	0.3%	90.6%	100.0%
Total		Count	148	10	1214	1372
		% within Crash Severity	10.8%	0.7%	88.5%	100.0%

Each subscript letter denotes a subset of TrlStatus categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed, however, **there is now significant variation in risk by trail status**. *Chi-Square=1.988, R Sig*= 0.210.

Crash Severity * TrailSuface

Crosstab

			TrlSuface			
			0	1	9999	Total
Crash Severity	4	Count	5_a	120_a	950_a	1075
		% within Crash Severity	0.5%	11.2%	88.4%	100.0%
	5	Count	0_a	26_a	271_a	297
		% within Crash Severity	0.0%	8.8%	91.2%	100.0%
Total		Count	5	146	1221	1372
		% within Crash Severity	0.4%	10.6%	89.0%	100.0%

Each subscript letter denotes a subset of TrlSuface categories whose column proportions do not differ significantly from each other at the .05 level.

Severe VRU crashes are not evenly distributed, however, **there is now significant variation in risk by trail surface**. *Chi-Square=2.886, R Sig*= 0.156.

Crash Severity * Location ID

			Intersection - Marked Crosswalk	Intersection - Unmarked Crosswalk	Midblock Crosswalk	School Crosswalk - Intersection	School Crosswalk - Midblock	Travel Lane (not crosswalk or intersection)	Median/Island
Crash Severity	4	Count	271$_{a, b, c, d, e}$	69$_{d, e, f}$	26$_{c, e, f}$	5$_{a, b, c, d, e, f}$	8$_{a, b, c, d, e, f}$	266$_{f}$	5$_{a, b, c, d, e, f}$
		% within Crash Severity	31.7%	8.1%	3.0%	0.6%	0.9%	31.1%	0.6%
	5	Count	48$_{a, b, c, d, e}$	20$_{d, e, f}$	8$_{c, e, f}$	1$_{a, b, c, d, e, f}$	0$_{a, b, c, d, e, f}$	102$_{f}$	2$_{a, b, c, d, e, f}$
		% within Crash Severity	23.3%	9.7%	3.9%	0.5%	0.0%	49.5%	1.0%
Total		Count	319	89	34	6	8	368	7
		% within Crash Severity	30.1%	8.4%	3.2%	0.6%	0.8%	34.7%	0.7%

Shoulder/Roadside	Sidewalk	On-Street Bike Lane	Shared-Use Path/Trail	Outside Right-of-Way	Inside Building	Intersection - Not in a Crosswalk	Separated Bike Lane
96$_{b}$	43$_{a, b, c, d, e}$	26$_{a, b, c, d, e}$	2$_{a, b, c, d, e, f}$	9$_{a, b, c, d, e, f}$	1$_{a, b, c, d, e, f}$	16$_{a, c, d, e, f}$	2$_{a, b, c, d, e, f}$
11.2%	5.0%	3.0%	0.2%	1.1%	0.1%	1.9%	0.2%
11$_{b}$	5$_{a, b, c, d, e}$	2$_{a, b, c, d, e}$	0$_{a, b, c, d, e, f}$	1$_{a, b, c, d, e, f}$	0$_{a, b, c, d, e, f}$	6$_{a, c, d, e, f}$	0$_{a, b, c, d, e, f}$
5.3%	2.4%	1.0%	0.0%	0.5%	0.0%	2.9%	0.0%
107	48	28	2	10	1	22	2
10.1%	4.5%	2.6%	0.2%	0.9%	0.1%	2.1%	0.2%

Dirveway Access	
10$_{a, b, c, d, e, f}$	855
1.2%	100.0%
0$_{a, b, c, d, e, f}$	206
0.0%	100.0%
10	1061
0.9%	100.0%

Severe VRU crashes are not evenly distributed and are **significantly more common at intersections with a marked crosswalk**, and **in a travel lane (not crosswalk or intersection)**. *Chi-Square=39.268, Sig*= 0.001.

Crash Severity * Non-Motorist Action ID

			Non-Motorist Action ID							
			Entering or Crossing the Road	Walking/Cycling Along Roadway with Traffic	Walking/Cycling Along Roadway Against Traffic	Waiting to Cross Roadway	Walking/Cycling on Sidewalk	Working in Trafficway	Working on Vehicle	Pushing Motor Vehicle
Crash Severity	4	Count	494_{a}	133_{b}	$37_{a, b, c}$	13_{b}	$48_{b, c}$	$8_{a, b, c}$	$7_{a, b, c}$	$2_{a, b, c}$
		% within Crash Severity	58.0%	15.6%	4.3%	1.5%	5.6%	0.9%	0.8%	0.2%
	5	Count	151_{a}	18_{b}	$7_{a, b, c}$	0_{b}	$6_{b, c}$	$0_{a, b, c}$	$1_{a, b, c}$	$0_{a, b, c}$
		% within Crash Severity	71.6%	8.5%	3.3%	0.0%	2.8%	0.0%	0.5%	0.0%
Total		Count	645	151	44	13	54	8	8	2
		% within Crash Severity	60.7%	14.2%	4.1%	1.2%	5.1%	0.8%	0.8%	0.2%

In Roadway-other	Adjacent to Roadway	(retired) Going to or from K-12	Leaving/Approaching Disbled Vehicle	Entering Vehicle	
$77_{a, c}$	$24_{a, b, c}$	$7_{a, b, c}$	$1_{a, b, c}$	$1_{a, b, c}$	852
9.0%	2.8%	0.8%	0.1%	0.1%	100.0%
$24_{a, c}$	$4_{a, b, c}$	$0_{a, b, c}$	$0_{a, b, c}$	$0_{a, b, c}$	211
11.4%	1.9%	0.0%	0.0%	0.0%	100.0%
101	28	7	1	1	1063
9.5%	2.6%	0.7%	0.1%	0.1%	100.0%

Severe VRU crashes are not evenly distributed and are significantly more **common when entering or crossing the road and walking or cycling along the roadway with traffic**. *Chi-Square=23.844, Sig*= 0.002.

Crash Severity * Non-Motorist Contributing Factor

			Non-Motorist Contributing Factor				
			None	Improper Crossing	Dart/Dash	Wrong Side of Road	Not Visible
Crash Severity	4	Count	451_{a}	$157_{b, c, d, e}$	72_{a}	$10_{a, d, e}$	$59_{b, c, d, e}$
		% within Crash Severity	49.8%	17.3%	7.9%	1.1%	6.5%
	5	Count	94_{a}	$61_{b, c, d, e}$	12_{a}	$0_{a, d, e}$	$23_{b, c, d, e}$
		% within Crash Severity	39.0%	25.3%	5.0%	0.0%	9.5%
Total		Count	545	218	84	10	82
		% within Crash Severity	47.5%	19.0%	7.3%	0.9%	7.1%

Innatentive	Failure to Obey Traffic Sigs, Signals, or Officer	Failure to Yield Right-of-Way	In Roadway Improperly (Lying, kneeling, standing, etc.)	Improper Turn/Merge	Improper Passing	
$32_{a, b, c, d, e}$	$50_{a, b, c, d, e}$	$31_{a, c, e}$	35_{b}	$7_{a, b, c, d, e}$	$2_{a, b, c, d, e}$	906
3.5%	5.5%	3.4%	3.9%	0.8%	0.2%	100.0%
$8_{a, b, c, d, e}$	$15_{a, b, c, d, e}$	$6_{a, c, e}$	20_{b}	$2_{a, b, c, d, e}$	$0_{a, b, c, d, e}$	241
3.3%	6.2%	2.5%	8.3%	0.8%	0.0%	100.0%
40	65	37	55	9	2	1147
3.5%	5.7%	3.2%	4.8%	0.8%	0.2%	100.0%

Severe VRU crashes are not evenly distributed and are significantly more common when the VRU has no known contribution to the crash, or is crossing improperly. *Chi-Square=27.485, Sig*= 0.009.

Crash Severity * Driver Contributing Factor

			None	(retired) Exceeded Posted Speed Limit	(retired) Too Fast for Existing Conditions	Failed to Yield Right-of-Way	Failed to Keep in Proper Lane	Unsafe Lane Change	Over-Correcting/Over-Steering	Disregard Traffic Signs
Crash Severity	4	Count	449[a, b, c, d, e]	9[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	13[m, n, o, p]	283[j, k, l, o, p]	29[a, b, c, d, e, f, g, h, i]	3[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	0[d, e, h, i]	2[f, g, h, i]
		% within Crash Severity	50.5%	1.0%	1.5%	31.8%	3.3%	0.3%	0.0%	0.2%
	5	Count	141[a, b, c, d, e]	3[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	0[m, n, o, p]	40[j, k, l, o, p]	11[a, b, c, d, e, f, g, h, i]	1[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	1[d, e, h, i]	4[f, g, h, i]
		% within Crash Severity	61.8%	1.3%	0.0%	17.5%	4.8%	0.4%	0.4%	1.8%
Total		Count	590	12	13	323	40	4	1	6
		% within Crash Severity	52.8%	1.1%	1.2%	28.9%	3.6%	0.4%	0.1%	0.5%

Disregard Traffic Signals	Disregard Road Markings	Swerved or Evasive Action	Followed Too Closely	(retired) Reckless/Agressive	Wrong Side/Wrong Way	Improper Parking/Stopping
12[a, b, c, d, e, f, g, h, i]	2[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	9[a, b, c, d, e, j, k, l, m, n, o, p]	5[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	7[c, l, n, p]	1[b, e, g, i, k]	2[a, b, c, d, e, f, g, h, i, j, k, l]
1.3%	0.2%	1.0%	0.6%	0.8%	0.1%	0.2%
5[a, b, c, d, e, f, g, h, i]	0[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	2[a, b, c, d, e, j, k, l, m, n, o, p]	1[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	0[c, l, n, p]	1[b, e, g, i, k]	1[a, b, c, d, e, f, g, h, i, j, k, l]
2.2%	0.0%	0.9%	0.4%	0.0%	0.4%	0.4%
17	2	11	6	7	2	3
1.5%	0.2%	1.0%	0.5%	0.6%	0.2%	0.3%

Ran Off Road	Improper Backing	Improper Passing	Improper Turn	(retired) Hit and Run	Reckless Driving	Aggressive Driving/Road Rage
7[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	9[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	2[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	8[a, c, j, l, m, n, o, p]	23[a, b, c, d, e, f, g, h, i]	8[a, b, c, d, e, f, g, h, i, j, k, l]	3[a, b, c, f, g, j, k, l, m, n, o, p]
0.8%	1.0%	0.2%	0.9%	2.6%	0.9%	0.3%
2[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	3[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	0[a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p]	0[a, c, j, l, m, n, o, p]	9[a, b, c, d, e, f, g, h, i]	3[a, b, c, d, e, f, g, h, i, j, k, l]	0[a, b, c, f, g, j, k, l, m, n, o, p]
0.9%	1.3%	0.0%	0.0%	3.9%	1.3%	0.0%
9	12	2	8	32	11	3
0.8%	1.1%	0.2%	0.7%	2.9%	1.0%	0.3%

Severe VRU crashes are not evenly distributed and are significantly more common when the driver has no known contribution to the **crash or fails to yield right of way**. *Chi-Square=44.204, Sig*= 0.042.

Appendix 3

Highest-Risk Roadway Segments for Vulnerable Road Users Based on Data, Demographics, and Analysis

Route/Street	From	To	Length (mile)	County
SR-224	5.827	6.063	0.236	Summit
700 South	330 W	100 W	-	Tooele
SR-126	4.802	5.052	0.25	Davis
SR-172	0.888	1.138	0.25	Salt Lake
SR-147	8.121	8.371	0.25	Utah
SR-204	0.627	0.877	0.25	Weber
600 North	1000 West	800 West	-	Salt Lake
Emigration Canyon Rd	6000 E	6200 E	-	Salt Lake
MillCreek Canyon Rd	Near Rattlesnake Gulch		-	Salt Lake
Telegraph Street	Landfill Rd		-	Washington
SR-173	3.072	3.592	0.52	Salt Lake
SR-56	58.919	59.169	0.25	Iron
SR-50	92.043	92.293	0.25	Millard
SR-92	6.033	6.6	0.567	Utah
SR-79	3.938	4.183	0.245	Weber
SR-68	28.222	28.412	0.19	Utah
SR-9	7.479	7.943	0.464	Washington
SR-171	7.517	9.278	1.761	Salt Lake
3900 S	300 W	150 W	-	Salt Lake
3100 South	3690 W	3500 W	-	Salt Lake
Magna Main St	9070 W	8850 W	-	Salt Lake
Wasatch Blvd	Hidden Valley Blvd	Hidden Brook Blvd	-	Salt Lake
SR-89	0	0.015	0.015	Davis
SR-204	1.439	2.076	0.637	Weber
SR-89	63.877	63.894	0.017	Kane
SR-218	0.784	1.037	0.253	Cache
SR-108	0.882	0.998	0.116	Davis
SR-193	2.875	2.913	0.038	Davis
SR-89	64.089	64.122	0.033	Kane
SR-40	101.987	102.235	0.248	Duchesne
SR-172	4.073	4.138	0.065	Salt Lake

SR-48	4.41	4.485	0.075	Salt Lake
SR-89	117.512	117.617	0.105	Garfield
SR-40	14.86	15.11	0.25	Wasatch
SR-59	21.858	22.155	0.297	Washington
SR-9	4.715	4.964	0.249	Washington
SR-9	8.465	9.586	1.121	Washington
SR-104	1.382	1.402	0.02	Weber
SR-39	6.129	6.154	0.025	Weber
Meadow Brook Expy	800 W	550 W	-	Salt Lake
SR-111	8.837	9.086	0.249	Salt Lake
SR-68	36.694	36.867	0.173	Salt Lake
SR-89	241.602	241.854	0.252	Sanpete
1700 South	1800 W	1600 W	-	Salt Lake
Wasatch Blvd	10120 S	9980 S	-	Salt Lake
SR-68	39.233	39.497	0.264	Salt Lake
SR-134	10.426	10.675	0.249	Weber
SR-209	11.925	12.175	0.25	Salt Lake
1200 North	910 E	1100 E	-	Utah
SR-89	255.541	255.556	0.015	Sanpete
SR-26	1.209	1.459	0.25	Weber
SR-38	6.584	6.835	0.251	Box Elder
Center St	I-15		-	Salt Lake
Cougar Lane	6300 S	6200 S	-	Salt Lake
SR-68	42.483	42.484	0.001	Salt Lake
SR-126	1.11	2.472	1.362	Davis
SR-89	259.424	259.432	0.008	Sanpete
SR-186	5.621	5.871	0.25	Salt Lake
SR-106	4.722	4.763	0.041	Davis
SR-108	0.998	1.129	0.131	Davis
SR-126	3.368	3.54	0.172	Davis
SR-126	3.54	3.639	0.099	Davis

SR-126	9.884	10.133	0.249	Weber
SR-171	10.123	11.447	1.324	Salt Lake
SR-89	327.399	327.432	0.033	Utah
SR-191	137.469	137.488	0.019	Grand
SR-173	6.641	6.8	0.159	Salt Lake
SR-68	46.324	46.573	0.249	Salt Lake
SR-89	329.375	329.382	0.007	Utah
SR-171	5.534	5.655	0.121	Salt Lake
SR-68	49.268	49.282	0.014	Salt Lake
SR-193	3.236	3.312	0.076	Davis
SR-56	60.506	60.513	0.007	Iron
SR-171	2.358	2.475	0.117	Salt Lake
SR-171	12.446	12.642	0.196	Salt Lake
SR-173	4.362	4.534	0.172	Salt Lake
SR-209	9.842	10.092	0.25	Salt Lake
SR-209	14.88	15.007	0.127	Salt Lake
SR-71	1.276	1.504	0.228	Salt Lake
SR-71	9.807	9.841	0.034	Salt Lake
SR-71	11.6	11.675	0.075	Salt Lake
SR-89	330.893	331.435	0.542	Utah
SR-52	3.56	3.807	0.247	Utah
SR-248	4.974	5	0.026	Wasatch
SR-18	0.484	1.187	0.703	Washington
SR-39	4.45	5.048	0.598	Weber
SR-89	331.728	331.992	0.264	Utah
SR-209	15.445	16.037	0.592	Salt Lake
SR-68	50.045	50.416	0.371	Salt Lake
SR-138	10.815	11.088	0.273	Tooele
SR-235	0.165	0.822	0.657	Weber
SR-13	2.514	2.764	0.25	Box Elder
3100 South	Davis Boulevard	50 E	-	Davis

400 E	1025 S	850 S	-	Davis
SR-191	122.254	122.504	0.25	Grand
11800 S/Daybreak Pkwy	5620 W	5390 W	-	Salt Lake
3200 West	Montrone Dr	Brookway Dr	-	Salt Lake
400 South	500 W	400 W	-	Salt Lake
4015 West	5740 S	5700 S	-	Salt Lake
6400 West	4800 S	4700 S	-	Salt Lake
900 West	Central Valley Rd	3160 S	-	Salt Lake
Jordan Landing Blvd	7550 S	7430 S	-	Salt Lake
Jordan Landing Blvd	Cobble Ridge Dr		-	Salt Lake
Meadow Brook Expy	1500 W	1460 W	-	Salt Lake
Millcreek Canyon Rd	Near Burch Hollow		-	Salt Lake
Parkway Blvd	3300 W	3150 W	-	Salt Lake
SR-71	11.78	11.911	0.131	Salt Lake
SR-89	335.791	335.9554	0.1644	Utah
Wasatch Blvd	9820 S	SR-209	-	Salt Lake
SR-138	9.341	9.409	0.068	Tooele
700 South	650 West	350 West	-	Utah
800 East	Timpanogos Pkwy		-	Utah
Lakeview Pkwy	250 E	500 E	-	Utah
Pony Express Parkway	4400 N	4500 N	-	Utah
Center St	200 W	150 W	-	Washington
Dixie Drive	Sunbrook Dr	Santa Clara River	-	Washington
7th St	Washington Blvd		-	Weber
Lincoln Ave	2520 S	2420 S	-	Weber
SR-203	4.19	4.44	0.25	Weber
SR-203	4.911	5.161	0.25	Weber
SR-53	0.274	1.011	0.737	Weber
SR-191	124.87	125.771	0.901	Grand
SR-68	51.294	51.296	0.002	Salt Lake
SR-171	4.443	4.646	0.203	Salt Lake
SR-209	4.518	4.616	0.098	Salt Lake
SR-163	12.69	12.94	0.25	San Juan
SR-224	5.629	5.752	0.123	Summit
SR-40	16.852	17.103	0.251	Wasatch

SR-204	3.447	3.697	0.25	Weber
SR-89	336.869	337.344	0.475	Utah
SR-89	337.837	338.087	0.25	Utah
SR-89	338.911	339.122	0.211	Utah
SR-134	11.705	12.296	0.591	Weber
SR-171	6.451	6.698	0.247	Salt Lake
SR-189	0.704	1.044	0.34	Utah
SR-171	5.405	5.475	0.07	Salt Lake
SR-85	2.549	2.814	0.265	Salt Lake
SR-89	344.458	344.832	0.374	Utah
SR-89	345.908	346.158	0.25	Utah
SR-126	5.852	6.072	0.22	Davis
SR-268	0	0.124	0.124	Salt Lake
SR-191	110.455	110.705	0.25	San Juan
SR-93	0	0.236	0.236	Davis
SR-89	346.935	347.113	0.178	Utah
SR-151	3.431	3.681	0.25	Salt Lake
SR-191	139.908	141.374	1.466	Grand
Artesia Drive	1620	720	-	Washington
SR-130	5.574	5.788	0.214	Iron
SR-8	0.19	0.546	0.356	Washington
SR-53	1.842	1.898	0.056	Weber
SR-89	348.406	348.657	0.251	Utah
SR-89	350.469	350.725	0.256	Utah
SR-89	368.276	369.679	1.403	Salt Lake
SR-89	371.878	372.125	0.247	Salt Lake
400 W	4200 N	4300 N	-	Cache
400 West	7200 S	7000 S	-	Cache

SR-142	17	17.115	0.115	Cache
SR-252	0.862	0.971	0.109	Cache
SR-91	12.562	12.576	0.014	Cache
SR-91	16.338	16.355	0.017	Cache
SR-91	17.142	17.158	0.016	Cache
SR-91	17.61	18.205	0.595	Cache
SR-91	18.502	18.95	0.448	Cache
SR-91	19.275	22.038	2.763	Cache
SR-91	22.038	22.174	0.136	Cache
SR-91	22.59	22.648	0.058	Cache
SR-91	26.782	26.821	0.039	Cache
SR-91	28.497	28.577	0.08	Cache
SR-91	29.914	30.078	0.164	Cache
SR-91	31.932	32.011	0.079	Cache
SR-91	32.367	32.387	0.02	Cache
SR-91	33.62	33.8	0.18	Cache
SR-91	34.484	34.845	0.361	Cache
SR-91	35.127	38.02	2.893	Cache
SR-91	38.273	38.617	0.344	Cache
SR-6	233.628	235.475	1.847	Carbon
SR-6	244.038	245.473	1.435	Carbon
SR-6	245.794	246.122	0.328	Carbon
SR-105	0.949	1.047	0.098	Davis
SR-108	1.907	2.161	0.254	Davis
SR-108	4.276	4.377	0.101	Davis
SR-108	8.927	9.143	0.216	Weber

SR-193	6.558	6.684	0.126	Davis
SR-193	6.701	6.808	0.107	Davis
SR-232	0.873	1.212	0.339	Davis
SR-68	52.157	52.332	0.175	Salt Lake
SR-89	372.579	372.775	0.196	Salt Lake
SR-89	373.334	373.612	0.278	Salt Lake
SR-40	106.526	109.215	2.689	Duchesne
SR-40	110.03	111.456	1.426	Duchesne
SR-40	111.854	112.081	0.227	Duchesne
SR-10	41.393	41.882	0.489	Emery
SR-10	47.96	48.212	0.252	Emery
SR-143	31.344	31.594	0.25	Garfield
SR-89	374.819	375.883	1.064	Salt Lake
SR-191	121.244	121.309	0.065	Grand
SR-191	123.877	124.017	0.14	Grand
SR-191	128.812	129.224	0.412	Grand
SR-191	141.374	142.411	1.037	Grand
SR-191	142.411	143.777	1.366	Grand
SR-191	144.007	146.347	2.34	Grand
SR-191	146.347	146.631	0.284	Grand
SR-191	151.509	156.95	5.441	Grand
SR-130	6.147	6.217	0.07	Iron
SR-56	56.099	57.025	0.926	Iron
SR-56	60.631	60.755	0.124	Iron
SR-28	29.672	29.753	0.081	Juab
SR-89	376.704	376.719	0.015	Salt Lake

SR-50	98.154	98.404	0.25	Millard
SR-30	116.782	116.841	0.059	Rich
2840 West	10400 S	10200 S	-	Salt Lake
9400 South	Hidden Point Dr	670 W	-	Salt Lake
SR-111	4.784	4.876	0.092	Salt Lake
SR-111	7.207	7.928	0.721	Salt Lake
SR-111	8.269	8.365	0.096	Salt Lake
SR-111	9.924	10.03	0.106	Salt Lake
SR-151	1.127	1.377	0.25	Salt Lake
SR-171	1.51	1.583	0.073	Salt Lake
SR-171	3.531	3.994	0.463	Salt Lake
SR-172	2.098	2.106	0.008	Salt Lake
SR-172	8.858	8.918	0.06	Salt Lake
SR-173	1.377	1.426	0.049	Salt Lake
SR-173	2.477	2.548	0.071	Salt Lake
SR-173	3.91	3.936	0.026	Salt Lake
SR-186	2.285	2.422	0.137	Salt Lake
SR-186	8.464	8.475	0.011	Salt Lake
SR-201	17.353	17.532	0.179	Salt Lake
SR-209	11.311	11.341	0.03	Salt Lake
SR-266	5.528	5.779	0.251	Salt Lake
SR-266	7.253	7.292	0.039	Salt Lake
SR-48	0.612	0.862	0.25	Salt Lake
SR-48	3.254	3.277	0.023	Salt Lake
SR-68	53.108	54.904	1.796	Salt Lake
SR-68	54.904	55.766	0.862	Salt Lake
SR-68	56.837	56.843	0.006	Salt Lake
SR-68	58.476	58.931	0.455	Salt Lake
SR-68	59.488	59.7	0.212	Salt Lake

SR-68	60.209	60.284	0.075	Salt Lake
SR-68	67.498	68.203	0.705	Davis
SR-71	3.853	3.907	0.054	Salt Lake
SR-71	8.315	8.458	0.143	Salt Lake
SR-71	15.511	15.558	0.047	Salt Lake
SR-89	377.251	377.865	0.614	Salt Lake
SR-89	378.394	378.51	0.116	Salt Lake
SR-89	379.187	379.205	0.018	Salt Lake
SR-89	379.937	379.959	0.022	Salt Lake
SR-89	380.344	380.571	0.227	Salt Lake
West Temple	3900 S	3700 S	-	Salt Lake
SR-191	0	5.709	5.709	San Juan
SR-191	5.709	7.663	1.954	San Juan
SR-191	7.663	9.657	1.994	San Juan
SR-191	9.657	13.086	3.429	San Juan
SR-191	13.086	14.601	1.515	San Juan
SR-191	14.601	17.265	2.664	San Juan
SR-191	17.265	20.568	3.303	San Juan
SR-132	47.023	47.028	0.005	Sanpete
SR-89	385.312	385.562	0.25	Davis
SR-119	2.268	2.518	0.25	Sevier
Artesia Drive	SR-32	250 E	-	Summit
SR-224	7.807	7.817	0.01	Summit
SR-138	11.664	12.057	0.393	Tooele
SR-36	54.73	55.11	0.38	Tooele
SR-36	55.405	55.436	0.031	Tooele

SR-36	62.899	63.421	0.522	Tooele
SR-36	64.158	64.506	0.348	Tooele
SR-40	118.526	119.264	0.738	Uintah
SR-40	121.939	122.521	0.582	Uintah
SR-40	122.829	123.413	0.584	Uintah
SR-40	123.931	124.178	0.247	Uintah
SR-40	124.631	125.254	0.623	Uintah
SR-40	125.562	125.674	0.112	Uintah
SR-40	143.986	144.236	0.25	Uintah
SR-40	146.268	146.6	0.332	Uintah
SR-40	146.963	147.095	0.132	Uintah
SR-40	148.435	148.476	0.041	Uintah
Branch Rd	Near 18550 N		-	Utah
SR-114	8.048	8.408	0.36	Utah
SR-129	3.116	3.267	0.151	Utah
SR-129	5.682	5.697	0.015	Utah
SR-129	6.954	7.248	0.294	Utah
SR-145	1.543	2.71	1.167	Utah
SR-145	4.214	4.249	0.035	Utah
SR-145	4.685	4.97	0.285	Utah
SR-145	5.22	5.68	0.46	Utah
SR-156	0.755	0.843	0.088	Utah
SR-189	1.538	1.553	0.015	Utah
SR-189	2.24	2.481	0.241	Utah
SR-189	3.02	3.232	0.212	Utah
SR-189	6.749	6.816	0.067	Utah
SR-265	0.443	0.454	0.011	Utah
SR-265	2.43	2.553	0.123	Utah
SR-265	3.758	3.76	0.002	Utah
SR-2897	0	0.027	0.027	Utah
SR-6	193.086	193.337	0.251	Utah
SR-73	34.01	34.06	0.05	Utah

SR-73	34.484	35.279	0.795	Utah
SR-89	387.613	387.864	0.251	Davis
SR-89	402.79	402.912	0.122	Davis
SR-89	403.618	403.637	0.019	Davis
SR-89	412.259	414.084	1.825	Weber
SR-89	414.154	414.197	0.043	Weber
SR-89	414.45	414.7	0.25	Weber
SR-89	415.682	416.391	0.709	Weber
SR-89	416.772	417.022	0.25	Weber
SR-89	417.717	417.97	0.253	Weber
SR-92	0	0.011	0.011	Utah
SR-92	4.049	4.238	0.189	Utah
SR-92	19.668	19.924	0.256	Utah
SR-92	24.328	24.475	0.147	Utah
Westfield Road	Westfield Cove	Meadow Lane	-	Utah
SR-189	15.444	15.543	0.099	Wasatch
SR-189	16.941	16.991	0.05	Wasatch
SR-189	17.577	17.623	0.046	Wasatch
SR-189	18.681	20.368	1.687	Wasatch
SR-189	21.08	21.509	0.429	Wasatch
SR-189	22.254	22.294	0.04	Wasatch
SR-189	25.419	26.192	0.773	Wasatch
SR-40	48.914	48.917	0.003	Wasatch
SR-18	7.564	7.908	0.344	Washington
SR-59	22.155	22.196	0.041	Washington
SR-9	1.36	2.558	1.198	Washington

SR-9	5.507	5.969	0.462	Washington
SR-9	6.279	6.44	0.161	Washington
SR-9	10.382	10.559	0.177	Washington
SR-9	10.826	11.226	0.4	Washington
SR-9	21.615	22.644	1.029	Washington
5100 WEst	3550 S	3350 S	-	Weber
SR-104	0.861	1.115	0.254	Weber
SR-108	12.47	12.81	0.34	Weber
SR-126	9.241	9.302	0.061	Weber
SR-126	11.412	11.717	0.305	Weber
SR-126	14.672	14.694	0.022	Weber
SR-126	18.29	18.356	0.066	Weber
SR-204	0.708	0.763	0.055	Weber
SR-37	11.009	11.079	0.07	Weber
SR-39	20.311	20.373	0.062	Weber
SR-53	1.704	1.759	0.055	Weber
SR-79	2.878	2.946	0.068	Weber
SR-89	422.557	422.662	0.105	Box Elder
SR-97	3.816	3.858	0.042	Weber
SR-172	5.641	6.203	0.562	Salt Lake
SR-269	0	0.684	0.684	Salt Lake
SR-36	65.163	65.407	0.244	Tooele
SR-71	21.816	22.022	0.206	Salt Lake
SR-115	0.389	0.605	0.216	Utah
SR-10	35.101	35.498	0.397	Emery
SR-269	1.589	1.801	0.212	Salt Lake
SR-40	34.495	34.566	0.071	Wasatch
SR-48	3.373	3.712	0.339	Salt Lake
SR-30	108.368	108.511	0.143	Cache

SR-191	129.52	129.645	0.125	Grand
SR-191	138.685	139.551	0.866	Grand
SR-173	1.901	2.174	0.273	Salt Lake
SR-209	11.089	11.098	0.009	Salt Lake
SR-85	3.085	3.109	0.024	Salt Lake
SR-114	0.059	0.29	0.231	Utah
SR-75	1.029	1.195	0.166	Utah
SR-79	5.078	5.328	0.25	Weber
SR-201	16.971	17.171	0.2	Salt Lake
SR-210	0.368	0.639	0.271	Salt Lake
SR-147	15.195	15.331	0.136	Utah
SR-18	4.307	6.618	2.311	Washington
SR-126	9.101	9.241	0.14	Weber
SR-89	423.803	424.728	0.925	Box Elder
SR-89	425.372	426.993	1.621	Box Elder
SR-111	5.436	5.487	0.051	Salt Lake
SR-173	4.79	4.916	0.126	Salt Lake
SR-173	5.442	5.459	0.017	Salt Lake
SR-173	6.8	6.891	0.091	Salt Lake
SR-173	9.688	9.784	0.096	Salt Lake
SR-68	69.598	69.686	0.088	Davis
SR-89	428.154	430.351	2.197	Box Elder
SR-18	8.969	9.013	0.044	Washington
SR-79	3.334	3.428	0.094	Weber
Stoney Brook Lane	4800 W	Stoney Brook Ct.	-	Utah

High Risk Areas	Avg. High Risk Score	Planned Project	Plan
10	82	Pedestrian	UP
2	73	None	
3	81	Bikeway	WFRC
6	81	None	
2	81	None	
5	76	Bikeway	WFRC
2	80	Bikeway	WFRC
1	80	Bikeway	WFRC
1	80	None	
1	80	Bikeway	Washington TMP
16	79.4	None	
4	78.5	None	
2	78.5	None	
8	78.5	Pedestrian	MAG
5	78	Capacity	WFRC
4	74.8	None	
7	77.4	Capacity	DMPO
40	76.5	Capacity	WFRC
2	76.5	Pedestrian	WFRC
2	76.5	Bikeway	WFRC
2	76.5	Bikeway	Magna ATP
2	76.5	Pedestrian	Sandy-Draper ATP
1	71	None	
14	76.2	Bikeway	WFRC
2	71	Pedestrian	UP
1	76	None	
2	71	Bikeway	WFRC
1	71	Capacity	WFRC
1	68	Pedestrian	UP
2	76	Capacity	UP
1	76	None	

1	76	None	
1	71	None	
1	76	Pedestrian	UP
4	76	Capacity	DMPO
6	76	Capacity	DMPO
12	76	Capacity	DMPO
1	76	None	
1	76	Bikeway	WFRC
5	75.8	Pedestrian	WFRC
8	75.8	Bikeway	WFRC
1	71	None	
4	76	None	
3	75.3	None	WFRC
3	75.3	None	
3	71	Capacity	WFRC
8	75.1	Capacity	WFRC
5	75	None	
2	75	Bikeway	Orem TMP
1	71	Pedestrian	UP
11	74.9	Bikeway	WFRC
4	74.8	None	
4	74.8	Bikeway	WFRC
4	74.8	None	
1	68	Pedestrian	WFRC
18	74.6	Bikeway	WFRC
1	68	None	
6	74.5	Capacity	WFRC
3	74.3	Bikeway	WFRC
3	76	Pedestrian	WFRC
3	74.3	Bikeway	WFRC
3	74.3	Bikeway	WFRC

6	74.3	None	
33	74.2	Capacity	WFRC
1	71	Bikeway	MAG
1	74	None	
2	74	Pedestrian	WFRC
4	71	Pedestrian	WFRC
1	71	Pedestrian	MAG
3	73.7	None	
1	71	Pedestrian	WFRC
1	71	Capacity	WFRC
2	73.5	None	
2	73.5	Capacity	WFRC
4	73.5	Pedestrian	WFRC
4	73.5	None	
4	73.5	None	
2	73.5	None	
2	73.5	Capacity	WFRC
2	73.5	Capacity	WFRC
2	73.5	Capacity	WFRC
3	72.7	Pedestrian	MAG
4	73.5	None	
2	73.5	None	
6	73.5	Capacity	DMPO
6	73.5	Bikeway	WFRC
3	71	Pedestrian	MAG
10	73.2	None	
7	73.9	Pedestrian	WFRC
9	81.3	Pedestrian	UP
14	73.1	Bikeway	WFRC
5	73	None	
1	73	None	

1	73	Bikeway	WFRC
5	73	Pedestrian	UP
2	73	None	
1	73	Bikeway	Kearns ATP
1	73	Pedestrian	WFRC
1	73	Bikeway	WFRC, Kearns ATP
1	73	Bikeway	WFRC
1	73	Pedestrian	WFRC
1	73	None	
1	73	None	
1	73	Pedestrian	WFRC
1	73	None	
1	73	Pedestrian	WFRC
5	73	Bikeway	WFRC
5	73	None	UP
1	73	None	WFRC
1	71	None	
1	73	Bikeway	MAG
1	73	Bikeway	Orem TMP
1	73	None	
1	73	Bikeway	Eagle Mountain AT
1	73	Bikeway	
1	73	Bikeway	St. George
1	73	Bikeway	Ogden General Plan
1	73	Bikeway	Ogden General Plan
5	73	Other	WFRC
5	73	Other	WFRC
11	73	Bikeway	WFRC
8	72.9	None	
1	71	Pedestrian	WFRC
3	72.7	Capacity	WFRC
3	72.7	None	
3	72.7	None	
3	72.7	None	
6	72.7	None	

3	72.7	Bikeway	WFRC
6	72.7	None	
3	71	None	
3	71	None	UP
7	72.4	None	
4	72.3	None	
4	72.3	Bikeway	MAG
2	72	Capacity	WFRC
3	72	Capacity	WFRC
5	75	Bikeway	MAG
2	71	Bikeway	MAG
6	71.8	Capacity	WFRC
4	71.8	Bikeway	WFRC
7	71.7	None	
9	71.6	Other	WFRC
2	71	Bikeway	MAG
4	71.5	None	
5	71.4	None	
1	71	None	
2	71	None	
2	71	Capacity	DMPO
3	71	None	
5	72	None	
8	73.8	Bikeway	MAG
18	72.5	Capacity	WFRC
2	71	Capacity	WFRC
1	71	None	
1	71	Capacity	CMPO

2	71	None	
2	71	None	
1	71	None	
1	71	None	
1	71	None	
1	71	None	
2	71	None	
11	71	None	
1	71	Capacity	UP
1	71	Capacity	UP
1	71	Capacity	UP
1	71	Capacity	UP
2	71	None	
1	71	None	
1	71	None	
2	71	None	
3	71	None	
8	71	None	
1	71	None	
7	71	None	
2	71	None	
1	71	None	
2	71	Other	WFRC
3	74.3	Pedestrian	WFRC
2	71	None	
3	71	Bikeway	WFRC

2	73.5	Capacity	WFRC
2	73.5	Capacity	WFRC
4	71	Capacity	WFRC
3	71	Pedestrian	WFRC
2	71	Capacity	WFRC
9	73	Capacity	WFRC
7	71	None	
6	71	None	
2	71	Pedestrian	UP
2	71	None	
2	71	None	
2	71	None	
14	72.4	Capacity	WFRC
1	71	Pedestrian	UP
2	71	None	UP
4	71	None	
2	71	Capacity	UP
2	71	None	
2	71	Capacity	UP
1	71	None	
5	71	None	
3	71	Capacity	UP
3	71	Capacity	UP
3	71	None	UP
1	71	None	
1	71	Capacity	WFRC

1	71	None	
1	71	None	
1	71	None	
1	71	Bikeway	WFRC
1	71	Pedestrian	WFRC
2	71	Pedestrian	WFRC
1	71	Bikeway	WFRC
3	71	Bikeway	WFRC
4	71	Capacity	WFRC
1	71	Capacity	WFRC
4	71	Capacity	WFRC
1	71	None	
1	71	Pedestrian	WFRC
1	71	None	
1	71	None	
1	71	None	
4	71	Capacity	WFRC
1	71	Capacity	WFRC
3	71	Capacity	WFRC
1	71	None	
2	71	Pedestrian	WFRC
1	71	None	
2	71	Capacity	WFRC
1	71	Capacity	WFRC
30	77.33	Pedestrian	WFRC
9	73.2	Pedestrian	WFRC
1	71	Capacity	WFRC
15	73.7	Capacity	WFRC
9	75.4	Capacity	WFRC

2	71	Capacity	WFRC
9	72.7	None	
1	71	Capacity	WFRC
2	71	None	
2	71	Bikeway	WFRC
9	71.6	Capacity	WFRC
2	73.5	Capacity	WFRC
1	71	None	
1	71	Capacity	WFRC
3	72	None	
1	71	Bikeway	WFRC
3	71	None	
1	71	Capacity	UP
2	71	None	
4	71	None	UP
2	71	None	
1	71	Capacity	UP
3	71	None	
1	71	None	
7	76	Pedestrian	WFRC
2	71	None	
1	71	None	
1	71	None	
5	70.4	Pedestrian	UP
9	73.2	None	
1	71	None	

1	71	Capacity	UP
1	71	Capacity	UP
2	71	None	
2	71	None	
2	71	None	
4	71	None	
1	71	None	
1	71	None	
4	71	Pedestrian	UP
2	71	Pedestrian	UP
2	71	None	
1	71	Pedestrian	UP
1	71	None	
2	71	Pedestrian	MAG
2	71	Bikeway	MAG
1	71	None	
3	71	None	
1	71	Other	MAG
1	71	Capacity	MAG
2	71	Capacity	MAG
1	71	Capacity	MAG
2	71	Pedestrian	MAG
1	71	Bikeway	MAG
3	71	Pedestrian	MAG
2	71	Pedestrian	MAG
1	71	Pedestrian	MAG
1	71	Bikeway	MAG
2	71	Bikeway	MAG
1	71	Bikeway	MAG
1	71	None	
1	71	None	
2	71	Pedestrian	MAG

2	71	Pedestrian	MAG
6	73.2	Pedestrian	WFRC
2	71	None	
1	68	None	
60	75.4	Capacity	WFRC
2	71	Bikeway	WFRC
3	71	Bikeway	WFRC
17	76.4	None	
8	74.1	None	
9	72.7	Capacity	WFRC
1	71	None	
3	71	None	
1	71	None	
2	71	None	
1	71	None	
2	71	Pedestrian	MAG
1	71	None	
1	71	None	
4	71	None	
1	71	None	
1	71	None	
4	71	None	
1	71	None	
4	71	Capacity	DMPO
1	71	None	
1	71	Capacity	DMPO

1	71	Capacity	DMPO
1	71	Capacity	DMPO
2	71	None	
3	71	None	
1	71	Pedestrian	UP
1	71	None	
2	71	None	
7	75.3	Bikeway	WFRC
2	71	None	
2	71	Bikeway	WFRC
1	71	Bikeway	WFRC
1	71	Bikeway	WFRC
2	71	Bikeway	WFRC
1	71	Bikeway	WFRC
1	71	None	
1	71	Bikeway	WFRC
1	71	Bikeway	WFRC
1	71	None	
1	71	Pedestrian	WFRC
7	70.9	None	
10	70.6	Capacity	WFRC
4	71	Capacity	UP
4	70.3	Capacity	WFRC
4	70.3	None	
3	70	None	
3	70	Capacity	WFRC
3	70	None	
5	69.8	None	
2	69.5	Capacity	UP

2	69.5	None	
2	69.5	None	
2	69.5	None	
2	69.5	Pedestrian	WFRC
2	69.5	None	
4	69.5	Pedestrian	MAG
2	69.5	Pedestrian	MAG
4	69.5	None	
3	69	None	
3	69	Pedestrian	WFRC
3	69	Pedestrian	MAG
3	69	Capacity	DMPO
3	69	Capacity	WFRC
5	71	Capacity	WFRC
11	71	Capacity	WFRC
1	68	Pedestrian	WFRC
2	68	None	
1	68	None	
2	68	None	
2	68	Pedestrian	WFRC
1	71	Other	WFRC
13	74.5	Capacity	WFRC
1	68	Capacity	UP
2	68	Bikeway	WFRC
1	71	None	

Project ID (if any planned project)	Recommendation
UAT2023547	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-D-16, R-D-6	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-111, New	Planned Bikeway Improvements
A-S-11, R-S-13	Planned Bikeway Improvements
A-S-9	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
None	Planned Bikeway Improvements
	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT75	Planned Pedestrian Improvements
R-W-27	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
D-95	Incorporate AT Improvements into Planned Capacity Improvements
R-S-64	Pedestrian Crossing and Pedestrian/Bike Facilities on Jordan River Bridge
A-S-133	Pedestrian Crossing, Planned Pedestrian Improvements
A-S-118	Planned Bikeway Improvements
5.1	Planned Bikeway Improvements
S29	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-111, New	Planned Bikeway Improvements
UAT2023680	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-D-40, R-D-29	Planned Bikeway Improvements
R-D-19	Incorporate AT Improvements into Planned Capacity Improvements
UAT2023197	Planned Pedestrian Improvements
U2015053	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project

	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
U2023033	Planned Pedestrian Improvements
D-137	Incorporate AT Improvements into Planned Capacity Improvements
D-45	Incorporate AT Improvements into Planned Capacity Improvements
D-95	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-29	Planned Bikeway Improvements
A-S-133	Planned Pedestrian Improvements
A-S-107	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-73	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-195	Incorporate AT Improvements into Planned Capacity Improvements
R-W-5	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
None	Planned Bikeway Improvements
UAT2023971	Planned Pedestrian Improvements
A-W-132	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-197, R-S-108	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-262	Planned Pedestrian Improvements
A-D-32, R-D-6	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-31	Incorporate AT Improvements into Planned Capacity Improvements
A-D-91	Planned Bikeway Improvements
A-D-38, R-D-29	Planned Pedestrian Improvements
A-D-32, R-D-6	Planned Bikeway Improvements
A-D-16, R-D-6	Planned Bikeway Improvements

	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-64	Pedestrian Crossing(s) across 3300 S
M2023AT146	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-167	Planned Pedestrian Improvements
A-S-219	Planned Pedestrian Improvements
M2023AT51	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-181, R-S-87	Planned Pedestrian Improvements
R-D-19	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-68	Incorporate AT Improvements into Planned Capacity Improvements
A-S-125, R-S-64	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-183	Incorporate AT Improvements into Planned Capacity Improvements
R-S-102	Incorporate AT Improvements into Planned Capacity Improvements
R-S-102	Incorporate AT Improvements into Planned Capacity Improvements
M2023AT162	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
D-12	Incorporate AT Improvements into Planned Capacity Improvements
A-W-29, R-W-14	Planned Bikeway Improvements
M2023AT162	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-181, R-S-87	Planned Pedestrian Improvements
U2019012, UAT2023567	Planned Pedestrian Improvements
A-W-12	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project

A-D-98	Planned Bikeway Improvements
U2023038	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
None	Planned Bikeway Improvements
A-S-48	Planned Pedestrian Improvements
A-S-151, 4	Planned Bikeway Improvements
A-S-99	Planned Bikeway Improvements
A-S-84	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-133	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-105	Planned Pedestrian Improvements
A-S-108, R-S-102	Planned Bikeway Improvements
UAT2023503	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-220, R-S-142	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A10	Planned Bikeway Improvements
None	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
None	Planned Bikeway Improvements
Ivins-1	Planned Bikeway Improvements
	Planned Bikeway Improvements
None	Planned Bikeway Improvements
None	Planned Bikeway Improvements
A-W-82	Planned AT Improvements
A-W-82	Planned AT Improvements
A-W-89, R-W-55	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-141, R-S-12	Planned Pedestrian Improvements
R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project

A-W-111, New	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT37	Planned Bikeway Improvements
R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
R-S-212	Incorporate AT Improvements into Planned Capacity Improvements
M2023AT121	Planned Bikeway Improvements
M2023AT121; M2023H49	Planned Bikeway Improvements
R-D-6	Incorporate AT Improvements into Planned Capacity Improvements
A-S-11, R-S-13	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-D-122	Planned AT Improvements
M2023AT121; M2023H49	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
D-162	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A74, A13	Planned Bikeway Improvements
R-S-92	Incorporate AT Improvements into Planned Capacity Improvements
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-7	Incorporate AT Improvements into Planned Capacity Improvements

	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
S-9	Incorporate AT Improvements into Planned Capacity Improvements
S-9	Incorporate AT Improvements into Planned Capacity Improvements
S-4	Incorporate AT Improvements into Planned Capacity Improvements
S-4	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-D-97	Planned AT Improvements
A-D-38, R-D-29	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-87, R-W-52	Planned Bikeway Improvements

R-D-24	Incorporate AT Improvements into Planned Capacity Improvements
R-D-21	Incorporate AT Improvements into Planned Capacity Improvements
R-D-25	Incorporate AT Improvements into Planned Capacity Improvements
A-S-141, R-S-12	Planned Pedestrian Improvements
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
UAT2023530	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-18	Pedestrian Crossing and Comfort Improvements
U2023038	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019062	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019077	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
U2015225a	Incorporate AT Improvements into Planned Capacity Improvements
U2023048	Incorporate AT Improvements into Planned Capacity Improvements
UAT2023503	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements

	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-224	Planned Bikeway Improvements
A-S-165, R-S-81	Planned Pedestrian Improvements
A-S-138	Planned Pedestrian Improvements
A-S-107	Planned Bikeway Improvements
A-S-107, R-S-61	Planned Bikeway Improvements
R-S-154	Incorporate AT Improvements into Planned Capacity Improvements
R-S-68	Incorporate AT Improvements into Planned Capacity Improvements
R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-18	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
R-S-42	Incorporate AT Improvements into Planned Capacity Improvements
R-S-49	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-148, R-S-77	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-113	Incorporate AT Improvements into Planned Capacity Improvements
R-S-97	Incorporate AT Improvements into Planned Capacity Improvements
A-S-141, R-S-12	Planned Pedestrian Improvements
A-S-97, R-S-12	Planned Pedestrian Improvements
R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
R-S-12	Incorporate AT Improvements into Planned Capacity Improvements

R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-177	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-108	Planned Bikeway Improvements
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-25	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-85	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019084	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019071	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019087	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-D-116	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
U2019012, UAT2023567	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project

U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
UAT2023503	Planned Pedestrian Improvements
UAT2023503	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
UAT2023956	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT66	Planned Pedestrian Improvements
M2023AT165	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT115; M2023H13; M2023H46	Planned AT Improvements
M2023H13, M2023H46	Incorporate AT Improvements into Planned Capacity Improvements
M2023H13; M2023H13	Incorporate AT Improvements into Planned Capacity Improvements
M2023AT122; M2023H13; M2023H120	Incorporate AT Improvements into Planned Capacity Improvements
M2023AT50	Planned Pedestrian Improvements
M2023AT37	Planned Bikeway Improvements
M2023AT23; M2023AT237	Planned Pedestrian Improvements
M2023AT23; M2023AT237	Planned Pedestrian Improvements
M2023AT23	Planned Pedestrian Improvements
H14, A34	Planned Bikeway Improvements
M2023AT39	Planned Bikeway Improvements
M2023AT39	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT81; M2023H6	Planned Pedestrian Improvements

M2023AT81; M2023H6	Planned Pedestrian Improvements
A-D-116, R-D-55	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-W-66	Incorporate AT Improvements into Planned Capacity Improvements
A-W-115, R-W-66	Planned Bikeway Improvements
A-W-115, R-W-66	High Visibility Pedestrian Crossing Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-97	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT33	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
D-79	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
D-138	Incorporate AT Improvements into Planned Capacity Improvements

D-45	Incorporate AT Improvements into Planned Capacity Improvements
D-45	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
UAT2023556	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-100, R-W-65	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-41	Planned Bikeway Improvements
R-W-14, R-W-14	Planned Bikeway Improvements
A-W-8, R-W-14	Planned Bikeway Improvements
A-W-111, W-W-2023-R-29	Planned Bikeway Improvements
A-W-118	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
A-W-89	Planned Bikeway Improvements
A-W-99, R-W-61	Planned Bikeway Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-W-38, NEW	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-28	Incorporate AT Improvements into Planned Capacity Improvements
U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
R-S-26	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
R-S-30	Incorporate AT Improvements into Planned Capacity Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
S-1	Incorporate AT Improvements into Planned Capacity Improvements

	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-213	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
M2023AT140	Planned Pedestrian Improvements
M2023AT159	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-193	Planned Pedestrian Improvements
M2023AT155	Planned Pedestrian Improvements
D-79	Incorporate AT Improvements into Planned Capacity Improvements
R-W-57	Incorporate AT Improvements into Planned Capacity Improvements
R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
A-S-165, R-S-81	Planned Pedestrian Improvements
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
	AT Improvements as Part of Next Maintenance or Capacity Project
A-S-163, R-S-80	Planned Pedestrian Improvements
A-D-113, R-D-57	Planned AT Improvements
R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
U2023132	Incorporate AT Improvements into Planned Capacity Improvements
A-W-44	Planned Bikeway Improvements

Appendix 4

Stakeholder Survey

Vulnerable Road User Assessment Survey

Help us review and rank the following UDOT safety strategies that address improving the safety of vulnerable road users in Utah. Your input will remain anonymous. Please complete this survey by 4 p.m. Friday, Sept. 8, 2023.

1. Please rate the importance of each strategy on a scale of 1 to 5, with 1 being the lowest importance and 5 being the highest importance.

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Education - Continue to support and implement the Heads Up and other education programs aimed at all age groups.	○	○	○	○	○

Comment (optional)

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Education - Proactively plan to elevate vulnerable road user safety compared to capacity.	○	○	○	○	○

Comment (optional)

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Education - Shift culture toward moving people, not cars, through community engagement across Utah.	○	○	○	○	○

Comment (optional)

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Education - Encourage walking to school and using the Safe Routes Utah tools and resources.	○	○	○	○	○

Comment (optional)

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Education - Research creating a Safety Garden in Utah.	○	○	○	○	○

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Comment (optional)					
Education - Develop safety messaging for vulnerable road users.	○	○	○	○	○
Comment (optional)					
Education - Continue partnership for educational programs targeting adults and children on bicycle and pedestrian safety.	○	○	○	○	○
Comment (optional)					
Education - Develop educational programs that teach drivers the importance of sharing the road.	○	○	○	○	○
Comment (optional)					
EMS - Encourage local emergency medical service providers to participate in local educational programs.	○	○	○	○	○
Comment (optional)					
EMS - Increase involvement of EMS for Children Coordinators in the implementation of educational programs.	○	○	○	○	○
Comment (optional)					
Enforcement - Meet twice a year with local law enforcement on	○	○	○	○	○

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
vulnerable road user concerns.					

Comment (optional)

Enforcement - Promote vunerable road user enforcement/public information campaigns when funding is available.	○	○	○	○	○

Comment (optional)

Enforcement - Better inform law enforcement of traffic laws as they pertain to both motorists and vulnerable road users and encourage enforcement of the laws.	○	○	○	○	○

Comment (optional)

Engineering - Develop and implement improvement projects focused on vulnerable road users.	○	○	○	○	○

Comment (optional)

Engineering - Develop a Safe Vulnerable Road Users Facilities Program.	○	○	○	○	○

Comment (optional)

Engineering - Increase data for active transportation use and implement active transportation crash review meetings.	○	○	○	○	○

	1 - Not Important	2 - Slightly Important	3- Important	4- Fairly Important	5- Very Important
Comment (optional)					
Engineering - Identify locations with significant crash trends involving school zones.	○	○	○	○	○
Comment (optional)					
Engineering - Improve infrastructure for Safe Routes to School.	○	○	○	○	○
Comment (optional)					
Engineering - Improve signage and infrastructure addressing safety for motorists and vulnerable road users along heavily used vulnerable road user corridors where appropriate.	○	○	○	○	○
Comment (optional)					
Engineering - Determine heavy collision hotspots and implement mitigation measures.	○	○	○	○	○
Comment (optional)					

Thank you for your participation in this survey.

Done

Appendix 5

Stakeholder Comments – Round One of Consultation

Appendix 5: Stakeholder Comments | Round One of Consultation

COUNTY	STAKEHOLDER COMMENT
Cache	Would like to see separated crossings along main street. I suggest 300 or 400 s, 100 south, 100 N, 300 N, 500 N, 800 N, 1300 N, 1600 N. This would allow for significantly safer crossings with fewer interruptions to traffic, allow for more pedestrian/cyclist movement along mainstreet making it easier for people to park once, or not use a vehicle at all.
Cache	Trail underpass floods during spring run off. Crossing 10th west becomes significantly more dangerous when crossing at grade. Large number of low income families live on west side of 10th west. Need ability to cross safely
Cache	This is a much nicer crossing since the sidewalks and signal were added. Just need to be complete. Additional space for pedestrians and cyclists to wait for their crossing would be appreciated. The space available is narrow and limited
Salt Lake	Build better entrance and pathway to connect Parley's Trail to the JRT
Salt Lake	We have a Life on State implementation project happening this year on State Street from 600 S to 800 S
Salt Lake	Crossing of Surplus Canal Trail (in prelim design)
Salt Lake	Build trail connection from Central Pointe to Parley's Trail
Salt Lake	300 South did a study and developed a solution of a new northside trail.
Utah	Safe Routes crosswalk going from 4-way stop to traffic light. Must install traffic calming on both legs or accidents will be more severe. Crossing guard hospitalized due to collision.
Utah	Extension of Provo River Trail from Vivian to Lower Deer Creek underway. On MAG's TransPlan50 project list as multi-use path to support AF Station. Very uncomfortable at present, but little will happen until more construction is complete.
Utah	Critical connection to Vineyard Station on a high-speed, low-AT facility. Will be future AT project.
Utah	If North Union Canal became a trail (it's on Orem's plans) it would provide a safe route connecting schools and commercial areas. The legislature would have to allow the use of eminent domain for trails if this is to happen before the canals are abandoned and ownership reverted to adjacent landowners. A state-wide problem.
Utah	Future southern terminus of the Carterville Bikeway, connecting to planned bike lanes and Cougar Blvd.
Utah	Possible future multi-use path beginning behind Provo Cemetery and ending at DWS Springville. Would be 3.5 miles of trail totally separate from traffic. A must for Provo-Springville connections, even with other side-path projects planned along roads.
Utah	Future adjacent wide sidewalk. Currently very dangerous - high speeds and debris in bike lane.
Washington	Adding sidewalk along both sides of Telegraph from 300 E to Washington Pkwy
Washington	Adding sidewalk from 2000 S to Merrill Rd to provide a path for pedestrians.
Washington	Planned signal to provide less distance for ped crossings (result of Road Safety Assessment.) Just narrowed lanes, added buffered bike lanes (May 2023)
Washington	We have been trying to fund with Safe Routes to School, but can't seem to qualify since parents are not letting students walk it. We are going to fund with City funds, as soon as next fiscal year.

Washington	Puerto Drive is a busy roadway that has residential homes fronting it and no sidewalks. Plus there are schools in the vicinity. Old Highway 91 has been extremely unsafe for cyclists (two fatalities in past 15 years and other near misses). We are adding bike lanes and a paved separate path. First phase will be completed in Oct 2023. Will start design of next Phase in FY24.

Appendix 6

Stakeholder Comments – Round Two of Consultation

Appendix 6: Stakeholder Comments | Round Two of Consultation

COMMENT TYPE	NAME/AFFILIATION*	COMMENT
Project Concern	In-Person Meeting	Cache County Trails & AT Master Plan call for a trail along Hwy 89 in Logan Canyon. Forest Service has expressed support.
New Project Idea	In-Person Meeting	Regional studies looking at connectivity between cities prioritizing bike/ped safety. Example: Cache County Blacksmith Fork
New Project Idea	In-Person Meeting	Prioritize filling gaps in all sidewalk & bike lane networks.
New Project Idea	In-Person Meeting	Top Priorities: Hwy 91 from Wellsville to Richmond
New Project Idea	In-Person Meeting	Second Priorities: 10th West, Hwy 30, Hwy 165 + Western Alt. Route
Project Concern	In-Person Meeting	Richmond is about to adopt a trails & AT master plan with a proposed trail on Hwy 142.
New Project Idea	In-Person Meeting	There was a feasibility study completed to look at a potential trail along Hwy 91 from Smithfield to Richmond
Project Concern	In-Person Meeting	Cache Co. & CVTD First/Last Mile Study proposed pedestrian improvements to several bus stops
New Project Idea	In-Person Meeting	Cache County & CMPO recommend a trail along Hwy 165 to Paradise to pull pressure off western route, but cyclists prefer existing route, so improvement would be good.
New Project Idea	In-Person Meeting	Reach out now to all planned and current projects that are in identified high risk areas
Project Concern	In-Person Meeting	Cache Co. doesn't have any striping on paved trails or separated paths to reduce bike/ped conflict. Guidance from UDOT would be appreciated.
Project Concern	In-Person Meeting	10th W - There is an underpass {overpass?} along Logan River, but not a good way to walk along the road. No plan for sidewalk or trail.
New Project Idea	In-Person Meeting	Mendon Road is the most biked road in the county, and vehicle trips are increasing. This will be a place of high conflict in the future.
New Project Idea	In-Person Meeting	Hwy 101 from Wellsville to Hyrum has a lot of students walking but no sidewalk, and intersection w/ Hwy 89/91 unsafe
New Project Idea	In-Person Meeting	Cache Co. & CMPO have proposed a separated trail along Hwy 89/91 from Wellsville to Logan. Maybe UTAH Trail Network?
Project Concern	In-Person Meeting	Hwy 30 widening / improvements will include a separated paved trail on the south side.
Project Concern	In-Person Meeting	Lewiston & Trenton have plans for bike lanes but no funding and limited staff
Project Concern	In-Person Meeting	Lewiston & Trenton have plans for bike lanes but no funding and limited staff

New Project Idea	In-Person Meeting	Wider shoulders would be sufficient to improve safety on most county roads, but county doesn't have sufficient funding.
Project Concern	In-Person Meeting	Sharrows are scary
New Project Idea	In-Person Meeting	Coordinate with SS4A Study
New Project Idea	In-Person Meeting	Eliminate on-street parking. It is expensive to taxpayers and adds to safety risks
New Project Idea	In-Person Meeting	Make sidewalks 8' - 10' shared us ped/bike paths. Mixing bikes & vehicles is dangerous. Separating vehicles from peds/bikes is much safer. Paint stripe is not separation.
New Project Idea	In-Person Meeting	Overall Strategy: Lighting Improvements at intersections are an excellent saftey upgrade; Fill in missing gaps in sidewalk (coordinate with planned projects).
New Project Idea	In-Person Meeting	Pedestrian overcrossings/undercrossings at busy roads
New Project Idea	In-Person Meeting	Notify existing projects of high risk areas; Address areas with Transit and Trails Division where possible.
Project Concern	In-Person Meeting	Road Safety Assessment (RSA) done summer 2023: 300 N 500 W, 200 E 300 S, 700 E 300 S
Project Concern	In-Person Meeting	Road Safety Assessment (RSA) done summer 2023: 300 N 500 W, 200 E 300 S, 700 E 300 S
Project Concern	In-Person Meeting	Road Safety Assessment (RSA) done summer 2023: 300 N 500 W, 200 E 300 S, 700 E 300 S
New Project Idea	In-Person Meeting	Separated (or buffered) bicycle lanes on Ironton Hill
New Project Idea	In-Person Meeting	Consider a separate bike/ped trail facility parallel to Pioneer Crossing
New Project Idea	In-Person Meeting	Overcrossing connection from Meadows Crossing to Pioneer Crossing
Project Concern	In-Person Meeting	Intersection Improvements @ 800 N 1550 E. *Project on list to be funded
Project Concern	In-Person Meeting	SD Study Ongoing
Project Concern	In-Person Meeting	SD Study Ongoing
Project Concern	Thomas	You are missing a planned projects.
New Project Idea	[redacted]	Multifamily developments are/have occurred along the north frontage of SR-39. Sidewalk or ideally a shared use path should be considered to link the Ogden Canyon Trailhead west to Harrison Blvd/Smiths. Doing so will not only connect the community, but promote recreation and short walking trip shopping
Project Edits	[redacted]	Kearns ATP has sidepath identified along 5400 South. https://msd.utah.gov/DocumentCenter/View/768/Kearns-Active-Transportation-Plan-2023
New Project Idea	[redacted]	Longest school crosswalk in Ogden here. I doubt many school age actually use it but it does connect the communities on the North and South of SR-39

Project Concern	[redacted]	Is this actually a high risk roadway? Please reconsider as this looks like a low volume, low speed, neighborhood road.
New Project Idea	[redacted]	Agree with the concern at this location. A pedestrian warning system may be helpful here. During high flow, the Ogden River shared use path crossing beneath US 89 floods. Nearest signals are 20th or 17th.
Project Edits	[redacted]	Udot installed a pedestrian warning system coupled with a median at the Kiesel intersection. My opinion the VRU risk is much better as a result.
New Project Idea	In-Person Meeting	Sunset & 1300 W: New signal near homeless shelter
New Project Idea	In-Person Meeting	1400 W: New Signal
New Project Idea	In-Person Meeting	SUU Loop
New Project Idea	[redacted]	Large multi family development will replace Wangsgaards. Delineating turning movements (such as east leg right turn or long right turn has always been a challenge. The crossing the north leg is problematic. SW corner is hair pin for lane two southbound at speed. 5 points might be better off as 4 points in the future. This could be done by severing Harrisville Road and tying it in further north (near tech college drive)
New Project Idea	In-Person Meeting	200 N: New Signal
New Project Idea	In-Person Meeting	400 N: New Signal
New Project Idea	In-Person Meeting	790 S: New OFB Signal
Project Edits	In-Person Meeting	Audible Ped Buttons at 154 Intersections
New Project Idea	In-Person Meeting	West Valley City doesn't have a project planned on 3200 W.
New Project Idea	In-Person Meeting	WVC Project: 1300 W from 3900 S to 3300 S
New Project Idea	In-Person Meeting	WVC Project: 4700 S from 4000 W to 5600 W
New Project Idea	In-Person Meeting	WVC Project: Parkway Blvd from 6400 W to 5600 W
New Project Idea	In-Person Meeting	WVC Project: 4000 W from 4100 S to 4700 S
Project Concern	Enoch City	Westbound left turn back up
New Project Idea	Enoch City	Increase capacity under I-15 to connect from Old Hwy 91 to Summit Frontage Rd. & Canyon Creek Rd.
Project Edits	[redacted]	UDOT is currently evaluating the 4th Street area for a HAWK system. It is intended to be used for school and park traffic.
New Project Idea	[redacted]	A high density residential development is proposed in the area between the 20th/21st Street overpasses. Most likely pedestrian destination would be Walmart. Lack of sidewalks and high speeds raise the risk near this intersection
New Project Idea	[redacted]	Challenging corner. No sidewalk; compound curve along with grades make the stretch between Baker and the Trailhead a pinchpoint for all modes of transportation.
New Project Idea	[redacted]	No sidewalk/limited shoulder. Students tend to walk in this area to and from the University.

Project Concern	[redacted]	This road segment has not been on our radar and does not have any planned projects. Very surprised that this smaller, low-traffic residential road was identified as high risk.
Project Edits	[redacted]	Plan to widen to 7 lanes no longer actively being considered.
New Project Idea	[redacted]	SG Active Transportation Plan proposes a multi-use trail adjacent to Bluff. The City would like to consider this during a planned UDOT project to address drainage on the West side of Bluff.
Project Edits	[redacted]	In addition to bike lanes, SG City parks is also planning to connect Santa Clara River trail/Halfway Was trail along roughly the same extents
Project Concern	[redacted]	UDOT Recently completed a portion of the planned project with widening, asphalt overlay, and rumble strips. Would love to see shoulder widening and rumble strips along entire extent from Red Hills to Snow Canyon. The highway shoulder is heavily used throughout the year by runners/cyclists as it is a section of the marathon/Ironman course.
New Project Idea	[redacted]	Center Street from Main Street to 600W has no stop signs and no traffic calming. As a result, motorists use the road as a speedway. As residents we have observed 3 serious accidents at the corner of 300 W and Center St, and are often woken up in the middle of the night to the sound of heavy, revving acceleration which is likely far beyond the posted speed limit. Traffic calming is needed here both for the safety of pedestrians (especially the children in the neighborhood) but also drivers attempting to cross Center Street and unprepared for vehicles moving at high speeds down the road.
New Project Idea	City of South Salt Lake	Pedestrian Crossing across 3300 S
New Project Idea	City of South Salt Lake	Pedestrian Crossing across 3900 S
New Project Idea		Sidewalk on 300 E
New Project Idea	City of South Salt Lake	Pedestrian Crossing across State Street
New Project Idea	City of South Salt Lake	Actual HAWK device at State St crossing
New Project Idea	City of South Salt Lake	High Comfort Bike Facility on 500 E
New Project Idea	City of South Salt Lake	Bikeway on Gregson Ave between State St and 200 E
New Project Idea		Mid-block crossing between 3900 S and 4500 S
New Project Idea	City of South Salt Lake	Infill TRAX Station
New Project Idea	City of South Salt Lake	Shared Use Trail along Mill Creek
New Project Idea	City of South Salt Lake	Trail/Sidewalk along 500 E on Nibley Park side
New Project Idea	City of South Salt Lake	Mid-block Pedestrian Crossing
New Project Idea	City of South Salt Lake	Mid-block Pedestrian Crossing
New Project Idea	City of South Salt Lake	Pedestrian/Bike Facility on 2700 S Overpass

New Project Idea	City of South Salt Lake	Sidewalk on 600 W
New Project Idea	City of South Salt Lake	Add high-comfort pedestrian and bike facilities on Parley's Trail segment
New Project Idea	City of South Salt Lake	East access to Central Pointe transit plaza
New Project Idea	City of South Salt Lake	Crosswalk across 2100 S at TRAX
New Project Idea	City of South Salt Lake	Lighting under 1-80 overpass
New Project Idea	City of South Salt Lake	Lighting under 1-80 overpass
New Project Idea	City of South Salt Lake	Lighting under 1-80 overpass
New Project Idea	City of South Salt Lake	Pedestrian comfort under I-80 overpass
New Project Idea	City of South Salt Lake	Pedestrian comfort under I-80 overpass
New Project Idea		Mid-block Crossing across 700 E
New Project Idea	City of South Salt Lake	Access to Jordan River Trail
New Project Idea	City of South Salt Lake	Pedestrian/bike facility on 3300 S Jordan River bridge
New Project Idea	City of South Salt Lake	Pedestrian Crossing across 3300 S
New Project Idea	City of South Salt Lake	Trail bridge over Jordan River connecting separate segments of trail
New Project Idea	City of South Salt Lake	Pedestrian/Bike facility along Meadowbrook Expressway
New Project Idea	City of South Salt Lake	Sidewalk Connection to Jordan River Trail
New Project Idea	City of South Salt Lake	Improve lighting, pedestrian visibility at State & 3900 S intersection
New Project Idea		Pedestrian Crossing at 4200 S
New Project Idea	City of South Salt Lake	Shared Use Trail along Mill Creek
New Project Idea	City of South Salt Lake	Trail along Mill Creek with pedestrian access across I-80
Project Concern	[redacted]	The side of the road is limited in bike access.
Project Concern	[redacted]	Side of road is frequently cluttered with cars or trash making it dangerous for bikes.

**Personally Identifying Information redacted.*

Appendix 7

Recommended Project Improvements

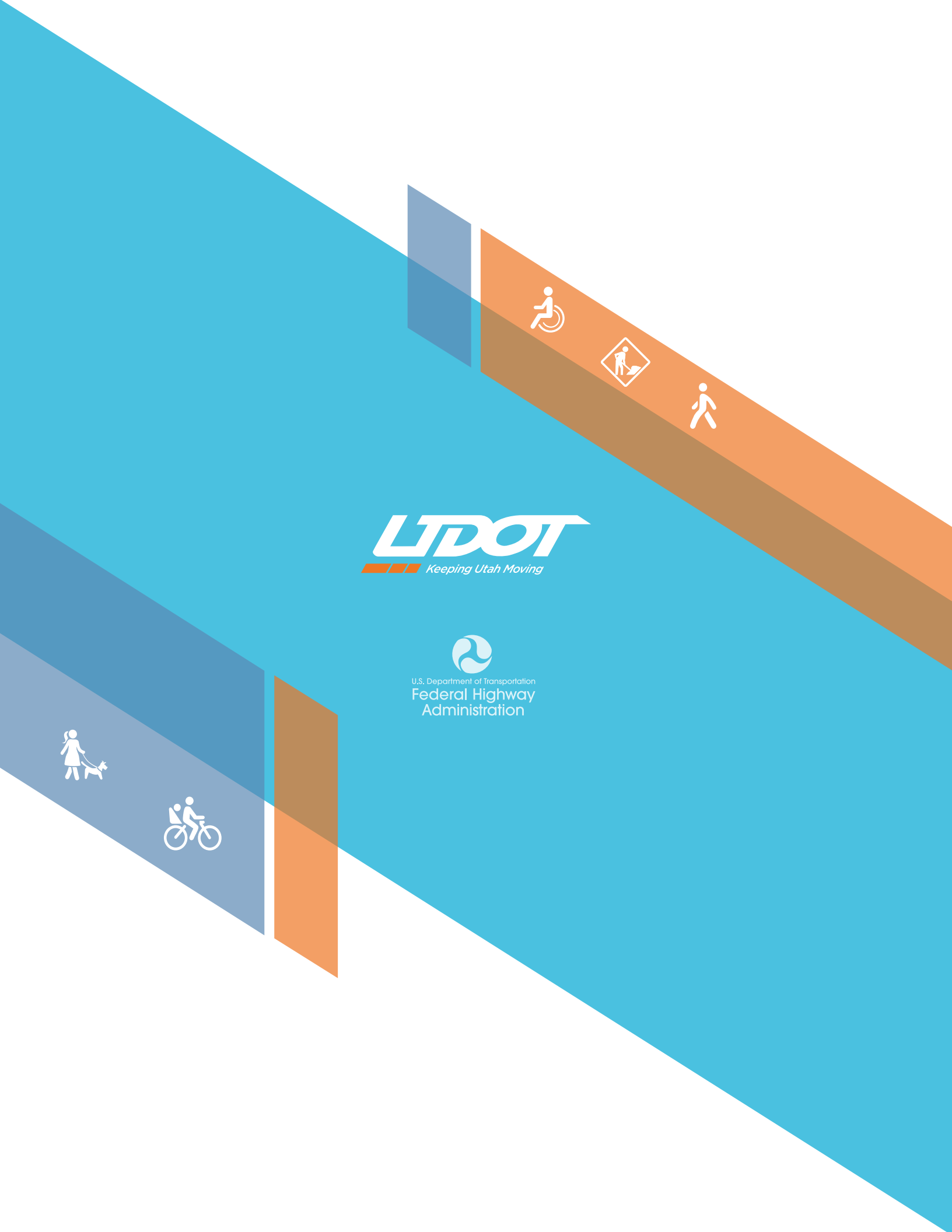
SR-71	11.6	11.675	0.075	Salt Lake	2	73.5	Capacity	WFRC	R-S-102	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	330.893	331.435	0.542	Utah	3	72.7	Pedestrian	MAG	M2023AT162	Planned Pedestrian Improvements
SR-52	3.56	3.807	0.247	Utah	4	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-248	4.974	5	0.026	Wasatch	2	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-18	0.484	1.187	0.703	Washington	6	73.5	Capacity	DMPO	D-12	Incorporate AT Improvements into Planned Capacity Improvements
SR-39	4.45	5.048	0.598	Weber	6	73.5	Bikeway	WFRC	A-W-29, R-W-14	Planned Bikeway Improvements
SR-89	331.728	331.992	0.264	Utah	3	71	Pedestrian	MAG	M2023AT162	Planned Pedestrian Improvements
SR-209	15.445	16.037	0.592	Salt Lake	10	73.2	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-68	50.045	50.416	0.371	Salt Lake	7	73.9	Pedestrian	WFRC	A-S-181, R-S-87	Planned Pedestrian Improvements
SR-138	10.815	11.088	0.273	Tooele	9	81.3	Pedestrian	UP	U2019012, UAT2023567	Planned Pedestrian Improvements
SR-235	0.165	0.822	0.657	Weber	14	73.1	Bikeway	WFRC	A-W-12	Planned Bikeway Improvements
SR-13	2.514	2.764	0.25	Box Elder	5	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
3100 South	Davis Boulevard	50 E	-	Davis	1	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
400 E	1025 S	850 S	-	Davis	1	73	Bikeway	WFRC	A-D-98	Planned Bikeway Improvements
SR-191	122.254	122.504	0.25	Grand	5	73	Pedestrian	UP	U2023038	Planned Pedestrian Improvements
11800 S/Daybreak Pkwy	5620 W	5390 W	-	Salt Lake	2	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
3200 West	Montrone Dr	Brookway Dr	-	Salt Lake	1	73	Bikeway	Kearns ATP	None	Planned Bikeway Improvements
400 South	500 W	400 W	-	Salt Lake	1	73	Pedestrian	WFRC	A-S-48	Planned Pedestrian Improvements
4015 West	5740 S	5700 S	-	Salt Lake	1	73	Bikeway	WFRC, Kearns ATP	A-S-151, 4	Planned Bikeway Improvements
6400 West	4800 S	4700 S	-	Salt Lake	1	73	Bikeway	WFRC	A-S-99	Planned Bikeway Improvements
900 West	Central Valley Rd	3160 S	-	Salt Lake	1	73	Pedestrian	WFRC	A-S-84	Planned Pedestrian Improvements
Jordan Landing Blvd	7550 S	7430 S	-	Salt Lake	1	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
Jordan Landing Blvd	Cobble Ridge Dr		-	Salt Lake	1	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
Meadow Brook Expy	1500 W	1460 W	-	Salt Lake	1	73	Pedestrian	WFRC	A-S-133	Planned Pedestrian Improvements
Millcreek Canyon Rd	Near Burch Hollow		-	Salt Lake	1	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
Parkway Blvd	3300 W	3150 W	-	Salt Lake	1	73	Pedestrian	WFRC	A-S-105	Planned Pedestrian Improvements
SR-71	11.78	11.911	0.131	Salt Lake	5	73	Bikeway	WFRC	A-S-108, R-S-102	Planned Bikeway Improvements
SR-89	335.791	335.9554	0.1644	Utah	5	73	None	UP	UAT2023503	AT Improvements as Part of Next Maintenance or Capacity Project
Wasatch Blvd	9820 S	SR-209	-	Salt Lake	1	73	None	WFRC	A-S-220, R-S-142	AT Improvements as Part of Next Maintenance or Capacity Project
SR-138	9.341	9.409	0.068	Tooele	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
700 South	650 West	350 West	-	Utah	1	73	Bikeway	MAG	A10	Planned Bikeway Improvements
800 East	Timpanogos Pkwy		-	Utah	1	73	Bikeway	Orem TMP	None	Planned Bikeway Improvements
Lakeview Pkwy	250 E	500 E	-	Utah	1	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
Pony Express Parkway	4400 N	4500 N	-	Utah	1	73	Bikeway	Eagle Mountain AT	None	Planned Bikeway Improvements
Center St	200 W	150 W	-	Washington	1	73	Bikeway		Ivins-1	Planned Bikeway Improvements
Dixie Drive	Sunbrook Dr	Santa Clara River	-	Washington	1	73	Bikeway	St. George		Planned Bikeway Improvements
7th St	Washington Blvd		-	Weber	1	73	Bikeway	Ogden General Plan	None	Planned Bikeway Improvements
Lincoln Ave	2520 S	2420 S	-	Weber	1	73	Bikeway	Ogden General Plan	None	Planned Bikeway Improvements
SR-203	4.19	4.44	0.25	Weber	5	73	Other	WFRC	A-W-82	Planned AT Improvements
SR-203	4.911	5.161	0.25	Weber	5	73	Other	WFRC	A-W-82	Planned AT Improvements
SR-53	0.274	1.011	0.737	Weber	11	73	Bikeway	WFRC	A-W-89, R-W-55	Planned Bikeway Improvements
SR-191	124.87	125.771	0.901	Grand	8	72.9	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-68	51.294	51.296	0.002	Salt Lake	1	71	Pedestrian	WFRC	A-S-141, R-S-12	Planned Pedestrian Improvements
SR-171	4.443	4.646	0.203	Salt Lake	3	72.7	Capacity	WFRC	R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
SR-209	4.518	4.616	0.098	Salt Lake	3	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-163	12.69	12.94	0.25	San Juan	3	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-224	5.629	5.752	0.123	Summit	3	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	16.852	17.103	0.251	Wasatch	6	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-204	3.447	3.697	0.25	Weber	3	72.7	Bikeway	WFRC	A-W-111, New	Planned Bikeway Improvements
SR-89	336.869	337.344	0.475	Utah	6	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	337.837	338.087	0.25	Utah	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	338.911	339.122	0.211	Utah	3	71	None	UP		AT Improvements as Part of Next Maintenance or Capacity Project
SR-134	11.705	12.296	0.591	Weber	7	72.4	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-171	6.451	6.698	0.247	Salt Lake	4	72.3	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	0.704	1.044	0.34	Utah	4	72.3	Bikeway	MAG	M2023AT37	Planned Bikeway Improvements
SR-171	5.405	5.475	0.07	Salt Lake	2	72	Capacity	WFRC	R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
SR-85	2.549	2.814	0.265	Salt Lake	3	72	Capacity	WFRC	R-S-212	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	344.458	344.832	0.374	Utah	5	75	Bikeway	MAG	M2023AT121	Planned Bikeway Improvements
SR-89	345.908	346.158	0.25	Utah	2	71	Bikeway	MAG	M2023AT121; M2023H49	Planned Bikeway Improvements
SR-126	5.852	6.072	0.22	Davis	6	71.8	Capacity	WFRC	R-D-6	Incorporate AT Improvements into Planned Capacity Improvements
SR-268	0	0.124	0.124	Salt Lake	4	71.8	Bikeway	WFRC	A-S-11, R-S-13	Planned Bikeway Improvements
SR-191	110.455	110.705	0.25	San Juan	7	71.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-93	0	0.236	0.236	Davis	9	71.6	Other	WFRC	A-D-122	Planned AT Improvements
SR-89	346.935	347.113	0.178	Utah	2	71	Bikeway	MAG	M2023AT121; M2023H49	Planned Bikeway Improvements
SR-151	3.431	3.681	0.25	Salt Lake	4	71.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	139.908	141.374	1.466	Grand	5	71.4	None			AT Improvements as Part of Next Maintenance or Capacity Project
Artesia Drive	1620	720	-	Washington	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-130	5.574	5.788	0.214	Iron	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-8	0.19	0.546	0.356	Washington	2	71	Capacity	DMPO	D-162	Incorporate AT Improvements into Planned Capacity Improvements
SR-53	1.842	1.898	0.056	Weber	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	348.406	348.657	0.251	Utah	5	72	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	350.469	350.725	0.256	Utah	8	73.8	Bikeway	MAG	A74, A13	Planned Bikeway Improvements
SR-89	368.276	369.679	1.403	Salt Lake	18	72.5	Capacity	WFRC	R-S-92	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	371.878	372.125	0.247	Salt Lake	2	71	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
400 W	4200 N	4300 N	-	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
400 West	7200 S	7000 S	-	Cache	1	71	Capacity	CMPO	R-7	Incorporate AT Improvements into Planned Capacity Improvements
SR-142	17	17.115	0.115	Cache	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-252	0.862	0.971	0.109	Cache	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	12.562	12.576	0.014	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	16.338	16.355	0.017	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project

SR-91	17.142	17.158	0.016	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	17.61	18.205	0.595	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	18.502	18.95	0.448	Cache	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	19.275	22.038	2.763	Cache	11	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	22.038	22.174	0.136	Cache	1	71	Capacity	UP	S-9	Incorporate AT Improvements into Planned Capacity Improvements
SR-91	22.59	22.648	0.058	Cache	1	71	Capacity	UP	S-9	Incorporate AT Improvements into Planned Capacity Improvements
SR-91	26.782	26.821	0.039	Cache	1	71	Capacity	UP	S-4	Incorporate AT Improvements into Planned Capacity Improvements
SR-91	28.497	28.577	0.08	Cache	1	71	Capacity	UP	S-4	Incorporate AT Improvements into Planned Capacity Improvements
SR-91	29.914	30.078	0.164	Cache	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	31.932	32.011	0.079	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	32.367	32.387	0.02	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	33.62	33.8	0.18	Cache	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	34.484	34.845	0.361	Cache	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	35.127	38.02	2.893	Cache	8	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-91	38.273	38.617	0.344	Cache	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-6	233.628	235.475	1.847	Carbon	7	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-6	244.038	245.473	1.435	Carbon	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-6	245.794	246.122	0.328	Carbon	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-105	0.949	1.047	0.098	Davis	2	71	Other	WFRC	A-D-97	Planned AT Improvements
SR-108	1.907	2.161	0.254	Davis	3	74.3	Pedestrian	WFRC	A-D-38, R-D-29	Planned Pedestrian Improvements
SR-108	4.276	4.377	0.101	Davis	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-108	8.927	9.143	0.216	Weber	3	71	Bikeway	WFRC	A-W-87, R-W-52	Planned Bikeway Improvements
SR-193	6.558	6.684	0.126	Davis	2	73.5	Capacity	WFRC	R-D-24	Incorporate AT Improvements into Planned Capacity Improvements
SR-193	6.701	6.808	0.107	Davis	2	73.5	Capacity	WFRC	R-D-21	Incorporate AT Improvements into Planned Capacity Improvements
SR-232	0.873	1.212	0.339	Davis	4	71	Capacity	WFRC	R-D-25	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	52.157	52.332	0.175	Salt Lake	3	71	Pedestrian	WFRC	A-S-141, R-S-12	Planned Pedestrian Improvements
SR-89	372.579	372.775	0.196	Salt Lake	2	71	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	373.334	373.612	0.278	Salt Lake	9	73	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-40	106.526	109.215	2.689	Duchesne	7	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	110.03	111.456	1.426	Duchesne	6	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	111.854	112.081	0.227	Duchesne	2	71	Pedestrian	UP	UAT2023530	Planned Pedestrian Improvements
SR-10	41.393	41.882	0.489	Emery	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-10	47.96	48.212	0.252	Emery	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-143	31.344	31.594	0.25	Garfield	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	374.819	375.883	1.064	Salt Lake	14	72.4	Capacity	WFRC	R-S-18	Pedestrian Crossing and Comfort Improvements
SR-191	121.244	121.309	0.065	Grand	1	71	Pedestrian	UP	U2023038	Planned Pedestrian Improvements
SR-191	123.877	124.017	0.14	Grand	2	71	None	UP		AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	128.812	129.224	0.412	Grand	4	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	141.374	142.411	1.037	Grand	2	71	Capacity	UP	U2019062	Incorporate AT Improvements into Planned Capacity Improvements
SR-191	142.411	143.777	1.366	Grand	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	144.007	146.347	2.34	Grand	2	71	Capacity	UP	U2019077	Incorporate AT Improvements into Planned Capacity Improvements
SR-191	146.347	146.631	0.284	Grand	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	151.509	156.95	5.441	Grand	5	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-130	6.147	6.217	0.07	Iron	3	71	Capacity	UP	U2015225a	Incorporate AT Improvements into Planned Capacity Improvements
SR-56	56.099	57.025	0.926	Iron	3	71	Capacity	UP	U2023048	Incorporate AT Improvements into Planned Capacity Improvements
SR-56	60.631	60.755	0.124	Iron	3	71	None	UP	UAT2023503	AT Improvements as Part of Next Maintenance or Capacity Project
SR-28	29.672	29.753	0.081	Juab	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	376.704	376.719	0.015	Salt Lake	1	71	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-50	98.154	98.404	0.25	Millard	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-30	116.782	116.841	0.059	Rich	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
2840 West	10400 S	10200 S	-	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
9400 South	Hidden Point Dr	670 W	-	Salt Lake	1	71	Bikeway	WFRC	A-S-224	Planned Bikeway Improvements
SR-111	4.784	4.876	0.092	Salt Lake	1	71	Pedestrian	WFRC	A-S-165, R-S-81	Planned Pedestrian Improvements
SR-111	7.207	7.928	0.721	Salt Lake	2	71	Pedestrian	WFRC	A-S-138	Planned Pedestrian Improvements
SR-111	8.269	8.365	0.096	Salt Lake	1	71	Bikeway	WFRC	A-S-107	Planned Bikeway Improvements
SR-111	9.924	10.03	0.106	Salt Lake	3	71	Bikeway	WFRC	A-S-107, R-S-61	Planned Bikeway Improvements
SR-151	1.127	1.377	0.25	Salt Lake	4	71	Capacity	WFRC	R-S-154	Incorporate AT Improvements into Planned Capacity Improvements
SR-171	1.51	1.583	0.073	Salt Lake	1	71	Capacity	WFRC	R-S-68	Incorporate AT Improvements into Planned Capacity Improvements
SR-171	3.531	3.994	0.463	Salt Lake	4	71	Capacity	WFRC	R-S-69	Incorporate AT Improvements into Planned Capacity Improvements
SR-172	2.098	2.106	0.008	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-172	8.858	8.918	0.06	Salt Lake	1	71	Pedestrian	WFRC	A-S-18	Planned Pedestrian Improvements
SR-173	1.377	1.426	0.049	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	2.477	2.548	0.071	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	3.91	3.936	0.026	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-186	2.285	2.422	0.137	Salt Lake	4	71	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-186	8.464	8.475	0.011	Salt Lake	1	71	Capacity	WFRC	R-S-42	Incorporate AT Improvements into Planned Capacity Improvements
SR-201	17.353	17.532	0.179	Salt Lake	3	71	Capacity	WFRC	R-S-49	Incorporate AT Improvements into Planned Capacity Improvements
SR-209	11.311	11.341	0.03	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-266	5.528	5.779	0.251	Salt Lake	2	71	Pedestrian	WFRC	A-S-148, R-S-77	Planned Pedestrian Improvements
SR-266	7.253	7.292	0.039	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project

SR-48	0.612	0.862	0.25	Salt Lake	2	71	Capacity	WFRC	R-S-113	Incorporate AT Improvements into Planned Capacity Improvements
SR-48	3.254	3.277	0.023	Salt Lake	1	71	Capacity	WFRC	R-S-97	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	53.108	54.904	1.796	Salt Lake	30	77.33	Pedestrian	WFRC	A-S-141, R-S-12	Planned Pedestrian Improvements
SR-68	54.904	55.766	0.862	Salt Lake	9	73.2	Pedestrian	WFRC	A-S-97, R-S-12	Planned Pedestrian Improvements
SR-68	56.837	56.843	0.006	Salt Lake	1	71	Capacity	WFRC	R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	58.476	58.931	0.455	Salt Lake	15	73.7	Capacity	WFRC	R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	59.488	59.7	0.212	Salt Lake	9	75.4	Capacity	WFRC	R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	60.209	60.284	0.075	Salt Lake	2	71	Capacity	WFRC	R-S-12	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	67.498	68.203	0.705	Davis	9	72.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-71	3.853	3.907	0.054	Salt Lake	1	71	Capacity	WFRC	R-S-177	Incorporate AT Improvements into Planned Capacity Improvements
SR-71	8.315	8.458	0.143	Salt Lake	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-71	15.511	15.558	0.047	Salt Lake	2	71	Bikeway	WFRC	A-S-108	Planned Bikeway Improvements
SR-89	377.251	377.865	0.614	Salt Lake	9	71.6	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	378.394	378.51	0.116	Salt Lake	2	73.5	Capacity	WFRC	R-S-18	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	379.187	379.205	0.018	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	379.937	379.959	0.022	Salt Lake	1	71	Capacity	WFRC	R-S-25	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	380.344	380.571	0.227	Salt Lake	3	72	None			AT Improvements as Part of Next Maintenance or Capacity Project
West Temple	3900 S	3700 S	-	Salt Lake	1	71	Bikeway	WFRC	A-S-85	Planned Bikeway Improvements
SR-191	0	5.709	5.709	San Juan	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	5.709	7.663	1.954	San Juan	1	71	Capacity	UP	U2019084	Incorporate AT Improvements into Planned Capacity Improvements
SR-191	7.663	9.657	1.994	San Juan	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	9.657	13.086	3.429	San Juan	4	71	None	UP	U2019071	AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	13.086	14.601	1.515	San Juan	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	14.601	17.265	2.664	San Juan	1	71	Capacity	UP	U2019087	Incorporate AT Improvements into Planned Capacity Improvements
SR-191	17.265	20.568	3.303	San Juan	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-132	47.023	47.028	0.005	Sanpete	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	385.312	385.562	0.25	Davis	7	76	Pedestrian	WFRC	A-D-116	Planned Pedestrian Improvements
SR-119	2.268	2.518	0.25	Sevier	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
Artesia Drive	SR-32	250 E	-	Summit	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-224	7.807	7.817	0.01	Summit	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-138	11.664	12.057	0.393	Tooele	5	70.4	Pedestrian	UP	U2019012, UAT2023567	Planned Pedestrian Improvements
SR-36	54.73	55.11	0.38	Tooele	9	73.2	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-36	55.405	55.436	0.031	Tooele	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-36	62.899	63.421	0.522	Tooele	1	71	Capacity	UP	U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
SR-36	64.158	64.506	0.348	Tooele	1	71	Capacity	UP	U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
SR-40	118.526	119.264	0.738	Uintah	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	121.939	122.521	0.582	Uintah	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	122.829	123.413	0.584	Uintah	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	123.931	124.178	0.247	Uintah	4	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	124.631	125.254	0.623	Uintah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	125.562	125.674	0.112	Uintah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	143.986	144.236	0.25	Uintah	4	71	Pedestrian	UP	UAT2023503	Planned Pedestrian Improvements
SR-40	146.268	146.6	0.332	Uintah	2	71	Pedestrian	UP	UAT2023503	Planned Pedestrian Improvements
SR-40	146.963	147.095	0.132	Uintah	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	148.435	148.476	0.041	Uintah	1	71	Pedestrian	UP	UAT2023956	Planned Pedestrian Improvements
Branch Rd	Near 18550 N		-	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-114	8.048	8.408	0.36	Utah	2	71	Pedestrian	MAG	M2023AT66	Planned Pedestrian Improvements
SR-129	3.116	3.267	0.151	Utah	2	71	Bikeway	MAG	M2023AT165	Planned Bikeway Improvements
SR-129	5.682	5.697	0.015	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-129	6.954	7.248	0.294	Utah	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-145	1.543	2.71	1.167	Utah	1	71	Other	MAG	M2023AT115; M2023H13; M2023H46	Planned AT Improvements
SR-145	4.214	4.249	0.035	Utah	1	71	Capacity	MAG	M2023H13, M2023H46	Incorporate AT Improvements into Planned Capacity Improvements
SR-145	4.685	4.97	0.285	Utah	2	71	Capacity	MAG	M2023H13; M2023H13	Incorporate AT Improvements into Planned Capacity Improvements
SR-145	5.22	5.68	0.46	Utah	1	71	Capacity	MAG	M2023AT122; M2023H13; M2023H120	Incorporate AT Improvements into Planned Capacity Improvements
SR-156	0.755	0.843	0.088	Utah	2	71	Pedestrian	MAG	M2023AT50	Planned Pedestrian Improvements
SR-189	1.538	1.553	0.015	Utah	1	71	Bikeway	MAG	M2023AT37	Planned Bikeway Improvements
SR-189	2.24	2.481	0.241	Utah	3	71	Pedestrian	MAG	M2023AT23; M2023AT237	Planned Pedestrian Improvements
SR-189	3.02	3.232	0.212	Utah	2	71	Pedestrian	MAG	M2023AT23; M2023AT237	Planned Pedestrian Improvements
SR-189	6.749	6.816	0.067	Utah	1	71	Pedestrian	MAG	M2023AT23	Planned Pedestrian Improvements
SR-265	0.443	0.454	0.011	Utah	1	71	Bikeway	MAG	H14, A34	Planned Bikeway Improvements
SR-265	2.43	2.553	0.123	Utah	2	71	Bikeway	MAG	M2023AT39	Planned Bikeway Improvements
SR-265	3.758	3.76	0.002	Utah	1	71	Bikeway	MAG	M2023AT39	Planned Bikeway Improvements
SR-2897	0	0.027	0.027	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-6	193.086	193.337	0.251	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-73	34.01	34.06	0.05	Utah	2	71	Pedestrian	MAG	M2023AT81; M2023H6	Planned Pedestrian Improvements
SR-73	34.484	35.279	0.795	Utah	2	71	Pedestrian	MAG	M2023AT81; M2023H6	Planned Pedestrian Improvements
SR-89	387.613	387.864	0.251	Davis	6	73.2	Pedestrian	WFRC	A-D-116, R-D-55	Planned Pedestrian Improvements
SR-89	402.79	402.912	0.122	Davis	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	403.618	403.637	0.019	Davis	1	68	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	412.259	414.084	1.825	Weber	60	75.4	Capacity	WFRC	R-W-66	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	414.154	414.197	0.043	Weber	2	71	Bikeway	WFRC	A-W-115, R-W-66	Planned Bikeway Improvements
SR-89	414.45	414.7	0.25	Weber	3	71	Bikeway	WFRC	A-W-115, R-W-66	High Visibility Pedestrian Crossing Planned Bikeway Improvements
SR-89	415.682	416.391	0.709	Weber	17	76.4	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	416.772	417.022	0.25	Weber	8	74.1	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	417.717	417.97	0.253	Weber	9	72.7	Capacity	WFRC	A-W-97	Incorporate AT Improvements into Planned Capacity Improvements

SR-92	0	0.011	0.011	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-92	4.049	4.238	0.189	Utah	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-92	19.668	19.924	0.256	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-92	24.328	24.475	0.147	Utah	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
Westfield Road	Westfield Cove	Meadow Lane	-	Utah	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	15.444	15.543	0.099	Wasatch	2	71	Pedestrian	MAG	M2023AT33	Planned Pedestrian Improvements
SR-189	16.941	16.991	0.05	Wasatch	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	17.577	17.623	0.046	Wasatch	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	18.681	20.368	1.687	Wasatch	4	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	21.08	21.509	0.429	Wasatch	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	22.254	22.294	0.04	Wasatch	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-189	25.419	26.192	0.773	Wasatch	4	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	48.914	48.917	0.003	Wasatch	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-18	7.564	7.908	0.344	Washington	4	71	Capacity	DMPO	D-79	Incorporate AT Improvements into Planned Capacity Improvements
SR-59	22.155	22.196	0.041	Washington	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-9	1.36	2.558	1.198	Washington	1	71	Capacity	DMPO	D-138	Incorporate AT Improvements into Planned Capacity Improvements
SR-9	5.507	5.969	0.462	Washington	1	71	Capacity	DMPO	D-45	Incorporate AT Improvements into Planned Capacity Improvements
SR-9	6.279	6.44	0.161	Washington	1	71	Capacity	DMPO	D-45	Incorporate AT Improvements into Planned Capacity Improvements
SR-9	10.382	10.559	0.177	Washington	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-9	10.826	11.226	0.4	Washington	3	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-9	21.615	22.644	1.029	Washington	1	71	Pedestrian	UP	UAT2023556	Planned Pedestrian Improvements
5100 WEst	3550 S	3350 S	-	Weber	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-104	0.861	1.115	0.254	Weber	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-108	12.47	12.81	0.34	Weber	7	75.3	Bikeway	WFRC	A-W-100, R-W-65	Planned Bikeway Improvements
SR-126	9.241	9.302	0.061	Weber	2	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-126	11.412	11.717	0.305	Weber	2	71	Bikeway	WFRC	A-W-41	Planned Bikeway Improvements
SR-126	14.672	14.694	0.022	Weber	1	71	Bikeway	WFRC	R-W-14, R-W-14	Planned Bikeway Improvements
SR-126	18.29	18.356	0.066	Weber	1	71	Bikeway	WFRC	A-W-8, R-W-14	Planned Bikeway Improvements
SR-204	0.708	0.763	0.055	Weber	2	71	Bikeway	WFRC	A-W-111, W-W-2023-R-29	Planned Bikeway Improvements
SR-37	11.009	11.079	0.07	Weber	1	71	Bikeway	WFRC	A-W-118	Planned Bikeway Improvements
SR-39	20.311	20.373	0.062	Weber	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-53	1.704	1.759	0.055	Weber	1	71	Bikeway	WFRC	A-W-89	Planned Bikeway Improvements
SR-79	2.878	2.946	0.068	Weber	1	71	Bikeway	WFRC	A-W-99, R-W-61	Planned Bikeway Improvements
SR-89	422.557	422.662	0.105	Box Elder	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-97	3.816	3.858	0.042	Weber	1	71	Pedestrian	WFRC	R-W-38, NEW	Planned Pedestrian Improvements
SR-172	5.641	6.203	0.562	Salt Lake	7	70.9	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-269	0	0.684	0.684	Salt Lake	10	70.6	Capacity	WFRC	R-S-28	Incorporate AT Improvements into Planned Capacity Improvements
SR-36	65.163	65.407	0.244	Tooele	4	71	Capacity	UP	U2023028, U2023029	Incorporate AT Improvements into Planned Capacity Improvements
SR-71	21.816	22.022	0.206	Salt Lake	4	70.3	Capacity	WFRC	R-S-26	Incorporate AT Improvements into Planned Capacity Improvements
SR-115	0.389	0.605	0.216	Utah	4	70.3	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-10	35.101	35.498	0.397	Emery	3	70	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-269	1.589	1.801	0.212	Salt Lake	3	70	Capacity	WFRC	R-S-30	Incorporate AT Improvements into Planned Capacity Improvements
SR-40	34.495	34.566	0.071	Wasatch	3	70	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-48	3.373	3.712	0.339	Salt Lake	5	69.8	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-30	108.368	108.511	0.143	Cache	2	69.5	Capacity	UP	S-1	Incorporate AT Improvements into Planned Capacity Improvements
SR-191	129.52	129.645	0.125	Grand	2	69.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-191	138.685	139.551	0.866	Grand	2	69.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	1.901	2.174	0.273	Salt Lake	2	69.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-209	11.089	11.098	0.009	Salt Lake	2	69.5	Pedestrian	WFRC	A-S-213	Planned Pedestrian Improvements
SR-85	3.085	3.109	0.024	Salt Lake	2	69.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-114	0.059	0.29	0.231	Utah	4	69.5	Pedestrian	MAG	M2023AT140	Planned Pedestrian Improvements
SR-75	1.029	1.195	0.166	Utah	2	69.5	Pedestrian	MAG	M2023AT159	Planned Pedestrian Improvements
SR-79	5.078	5.328	0.25	Weber	4	69.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-201	16.971	17.171	0.2	Salt Lake	3	69	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-210	0.368	0.639	0.271	Salt Lake	3	69	Pedestrian	WFRC	A-S-193	Planned Pedestrian Improvements
SR-147	15.195	15.331	0.136	Utah	3	69	Pedestrian	MAG	M2023AT155	Planned Pedestrian Improvements
SR-18	4.307	6.618	2.311	Washington	3	69	Capacity	DMPO	D-79	Incorporate AT Improvements into Planned Capacity Improvements
SR-126	9.101	9.241	0.14	Weber	3	69	Capacity	WFRC	R-W-57	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	423.803	424.728	0.925	Box Elder	5	71	Capacity	WFRC	R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	425.372	426.993	1.621	Box Elder	11	71	Capacity	WFRC	R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
SR-111	5.436	5.487	0.051	Salt Lake	1	68	Pedestrian	WFRC	A-S-165, R-S-81	Planned Pedestrian Improvements
SR-173	4.79	4.916	0.126	Salt Lake	2	68	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	5.442	5.459	0.017	Salt Lake	1	68	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	6.8	6.891	0.091	Salt Lake	2	68	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	9.688	9.784	0.096	Salt Lake	2	68	Pedestrian	WFRC	A-S-163, R-S-80	Planned Pedestrian Improvements
SR-68	69.598	69.686	0.088	Davis	1	71	Other	WFRC	A-D-113, R-D-57	Planned AT Improvements
SR-89	428.154	430.351	2.197	Box Elder	13	74.5	Capacity	WFRC	R-B-10	Incorporate AT Improvements into Planned Capacity Improvements
SR-18	8.969	9.013	0.044	Washington	1	68	Capacity	UP	U2023132	Incorporate AT Improvements into Planned Capacity Improvements
SR-79	3.334	3.428	0.094	Weber	2	68	Bikeway	WFRC	A-W-44	Planned Bikeway Improvements
Stoney Brook Lane	4800 W	Stoney Brook Ct.	-	Utah	1	71	None			

Route/Street	From	To	Length (mile)	County	High Risk Areas	Avg. High Risk Score	Planned Project	Plan	Project ID (if any planned project)	Recommendation
SR-224	5.827	6.063	0.236	Summit	10	82	Pedestrian	UP	UAT2023547	Planned Pedestrian Improvements
700 South	330 W	100 W	-	Tooele	2	73	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-126	4.802	5.052	0.25	Davis	3	81	Bikeway	WFRC	A-D-16, R-D-6	Planned Bikeway Improvements
SR-172	0.888	1.138	0.25	Salt Lake	6	81	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-147	8.121	8.371	0.25	Utah	2	81	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-204	0.627	0.877	0.25	Weber	5	76	Bikeway	WFRC	A-W-111, New	Planned Bikeway Improvements
600 North	1000 West	800 West	-	Salt Lake	2	80	Bikeway	WFRC	A-S-11, R-S-13	Planned Bikeway Improvements
Emigration Canyon Rd	6000 E	6200 E	-	Salt Lake	1	80	Bikeway	WFRC	A-S-9	Planned Bikeway Improvements
MillCreek Canyon Rd	Near Rattlesnake Gulch		-	Salt Lake	1	80	None			AT Improvements as Part of Next Maintenance or Capacity Project
Telegraph Street	Landfill Rd		-	Washington	1	80	Bikeway	Washington TMP	None	Planned Bikeway Improvements
SR-173	3.072	3.592	0.52	Salt Lake	16	79.4	None			Planned Pedestrian Improvements
SR-56	58.919	59.169	0.25	Iron	4	78.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-50	92.043	92.293	0.25	Millard	2	78.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-92	6.033	6.6	0.567	Utah	8	78.5	Pedestrian	MAG	M2023AT75	Planned Pedestrian Improvements
SR-79	3.938	4.183	0.245	Weber	5	78	Capacity	WFRC	R-W-27	Incorporate AT Improvements into Planned Capacity Improvements
SR-68	28.222	28.412	0.19	Utah	4	74.8	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-9	7.479	7.943	0.464	Washington	7	77.4	Capacity	DMPO	D-95	Incorporate AT Improvements into Planned Capacity Improvements
SR-171	7.517	9.278	1.761	Salt Lake	40	76.5	Capacity	WFRC	R-S-64	Pedestrian Crossing and Pedestrian/Bike Facilities on Jordan River Bridge
3900 S	300 W	150 W	-	Salt Lake	2	76.5	Pedestrian	WFRC	A-S-133	Pedestrian Crossing, Planned Pedestrian Improvements
3100 South	3690 W	3500 W	-	Salt Lake	2	76.5	Bikeway	WFRC	A-S-118	Planned Bikeway Improvements
Magna Main St	9070 W	8850 W	-	Salt Lake	2	76.5	Bikeway	Magna ATP	5.1	Planned Bikeway Improvements
Wasatch Blvd	Hidden Valley Blvd	Hidden Brook Blvd	-	Salt Lake	2	76.5	Pedestrian	Sandy-Draper ATP	S29	Planned Pedestrian Improvements
SR-89	0	0.015	0.015	Davis	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-204	1.439	2.076	0.637	Weber	14	76.2	Bikeway	WFRC	A-W-111, New	Planned Bikeway Improvements
SR-89	63.877	63.894	0.017	Kane	2	71	Pedestrian	UP	UAT2023680	Planned Pedestrian Improvements
SR-218	0.784	1.037	0.253	Cache	1	76	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-108	0.882	0.998	0.116	Davis	2	71	Bikeway	WFRC	A-D-40, R-D-29	Planned Bikeway Improvements
SR-193	2.875	2.913	0.038	Davis	1	71	Capacity	WFRC	R-D-19	Incorporate AT Improvements into Planned Capacity Improvements
SR-89	64.089	64.122	0.033	Kane	1	68	Pedestrian	UP	UAT2023197	Planned Pedestrian Improvements
SR-40	101.987	102.235	0.248	Duchesne	2	76	Capacity	UP	U2015053	Incorporate AT Improvements into Planned Capacity Improvements
SR-172	4.073	4.138	0.065	Salt Lake	1	76	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-48	4.41	4.485	0.075	Salt Lake	1	76	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	117.512	117.617	0.105	Garfield	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-40	14.86	15.11	0.25	Wasatch	1	76	Pedestrian	UP	U2023033	Planned Pedestrian Improvements
SR-59	21.858	22.155	0.297	Washington	4	76	Capacity	DMPO	D-137	Incorporate AT Improvements into Planned Capacity Improvements
SR-9	4.715	4.964	0.249	Washington	6	76	Capacity	DMPO	D-45	Incorporate AT Improvements into Planned Capacity Improvements
SR-9	8.465	9.586	1.121	Washington	12	76	Capacity	DMPO	D-95	Incorporate AT Improvements into Planned Capacity Improvements
SR-104	1.382	1.402	0.02	Weber	1	76	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-39	6.129	6.154	0.025	Weber	1	76	Bikeway	WFRC	A-W-29	Planned Bikeway Improvements
Meadow Brook Expy	800 W	550 W	-	Salt Lake	5	75.8	Pedestrian	WFRC	A-S-133	Planned Pedestrian Improvements
SR-111	8.837	9.086	0.249	Salt Lake	8	75.8	Bikeway	WFRC	A-S-107	Planned Bikeway Improvements
SR-68	36.694	36.867	0.173	Salt Lake	1	71	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-89	241.602	241.854	0.252	Sanpete	4	76	None			AT Improvements as Part of Next Maintenance or Capacity Project
1700 South	1800 W	1600 W	-	Salt Lake	3	75.3	None	WFRC	A-S-73	AT Improvements as Part of Next Maintenance or Capacity Project
Wasatch Blvd	10120 S	9980 S	-	Salt Lake	3	75.3	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-68	39.233	39.497	0.264	Salt Lake	3	71	Capacity	WFRC	R-S-195	Incorporate AT Improvements into Planned Capacity Improvements
SR-134	10.426	10.675	0.249	Weber	8	75.1	Capacity	WFRC	R-W-5	Incorporate AT Improvements into Planned Capacity Improvements
SR-209	11.925	12.175	0.25	Salt Lake	5	75	None			AT Improvements as Part of Next Maintenance or Capacity Project
1200 North	910 E	1100 E	-	Utah	2	75	Bikeway	Orem TMP	None	Planned Bikeway Improvements
SR-89	255.541	255.556	0.015	Sanpete	1	71	Pedestrian	UP	UAT2023971	Planned Pedestrian Improvements
SR-26	1.209	1.459	0.25	Weber	11	74.9	Bikeway	WFRC	A-W-132	Planned Bikeway Improvements
SR-38	6.584	6.835	0.251	Box Elder	4	74.8	None			AT Improvements as Part of Next Maintenance or Capacity Project
Center St	I-15		-	Salt Lake	4	74.8	Bikeway	WFRC	A-S-197, R-S-108	Planned Bikeway Improvements
Cougar Lane	6300 S	6200 S	-	Salt Lake	4	74.8	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-68	42.483	42.484	0.001	Salt Lake	1	68	Pedestrian	WFRC	A-S-262	Planned Pedestrian Improvements
SR-126	1.11	2.472	1.362	Davis	18	74.6	Bikeway	WFRC	A-D-32, R-D-6	Planned Bikeway Improvements
SR-89	259.424	259.432	0.008	Sanpete	1	68	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-186	5.621	5.871	0.25	Salt Lake	6	74.5	Capacity	WFRC	R-S-31	Incorporate AT Improvements into Planned Capacity Improvements
SR-106	4.722	4.763	0.041	Davis	3	74.3	Bikeway	WFRC	A-D-91	Planned Bikeway Improvements
SR-108	0.998	1.129	0.131	Davis	3	76	Pedestrian	WFRC	A-D-38, R-D-29	Planned Pedestrian Improvements
SR-126	3.368	3.54	0.172	Davis	3	74.3	Bikeway	WFRC	A-D-32, R-D-6	Planned Bikeway Improvements
SR-126	3.54	3.639	0.099	Davis	3	74.3	Bikeway	WFRC	A-D-16, R-D-6	Planned Bikeway Improvements
SR-126	9.884	10.133	0.249	Weber	6	74.3	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-171	10.123	11.447	1.324	Salt Lake	33	74.2	Capacity	WFRC	R-S-64	Pedestrian Crossing(s) across 3300 S
SR-89	327.399	327.432	0.033	Utah	1	71	Bikeway	MAG	M2023AT146	Planned Bikeway Improvements
SR-191	137.469	137.488	0.019	Grand	1	74	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-173	6.641	6.8	0.159	Salt Lake	2	74	Pedestrian	WFRC	A-S-167	Planned Pedestrian Improvements
SR-68	46.324	46.573	0.249	Salt Lake	4	71	Pedestrian	WFRC	A-S-219	Planned Pedestrian Improvements
SR-89	329.375	329.382	0.007	Utah	1	71	Pedestrian	MAG	M2023AT51	Planned Pedestrian Improvements
SR-171	5.534	5.655	0.121	Salt Lake	3	73.7	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-68	49.268	49.282	0.014	Salt Lake	1	71	Pedestrian	WFRC	A-S-181, R-S-87	Planned Pedestrian Improvements
SR-193	3.236	3.312	0.076	Davis	1	71	Capacity	WFRC	R-D-19	Incorporate AT Improvements into Planned Capacity Improvements
SR-56	60.506	60.513	0.007	Iron	2	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-171	2.358	2.475	0.117	Salt Lake	2	73.5	Capacity	WFRC	R-S-68	Incorporate AT Improvements into Planned Capacity Improvements
SR-171	12.446	12.642	0.196	Salt Lake	4	73.5	Pedestrian	WFRC	A-S-125, R-S-64	Planned Pedestrian Improvements
SR-173	4.362	4.534	0.172	Salt Lake	4	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-209	9.842	10.092	0.25	Salt Lake	4	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-209	14.88	15.007	0.127	Salt Lake	2	73.5	None			AT Improvements as Part of Next Maintenance or Capacity Project
SR-71	1.276	1.504	0.228	Salt Lake	2	73.5	Capacity	WFRC	R-S-183	Incorporate AT Improvements into Planned Capacity Improvements
SR-71	9.807	9.841	0.034	Salt Lake	2	73.5	Capacity	WFRC	R-S-102	Incorporate AT Improvements into Planned Capacity Improvements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