APPENDIX C: POLICY AND PROCEDURES TECH MEMO
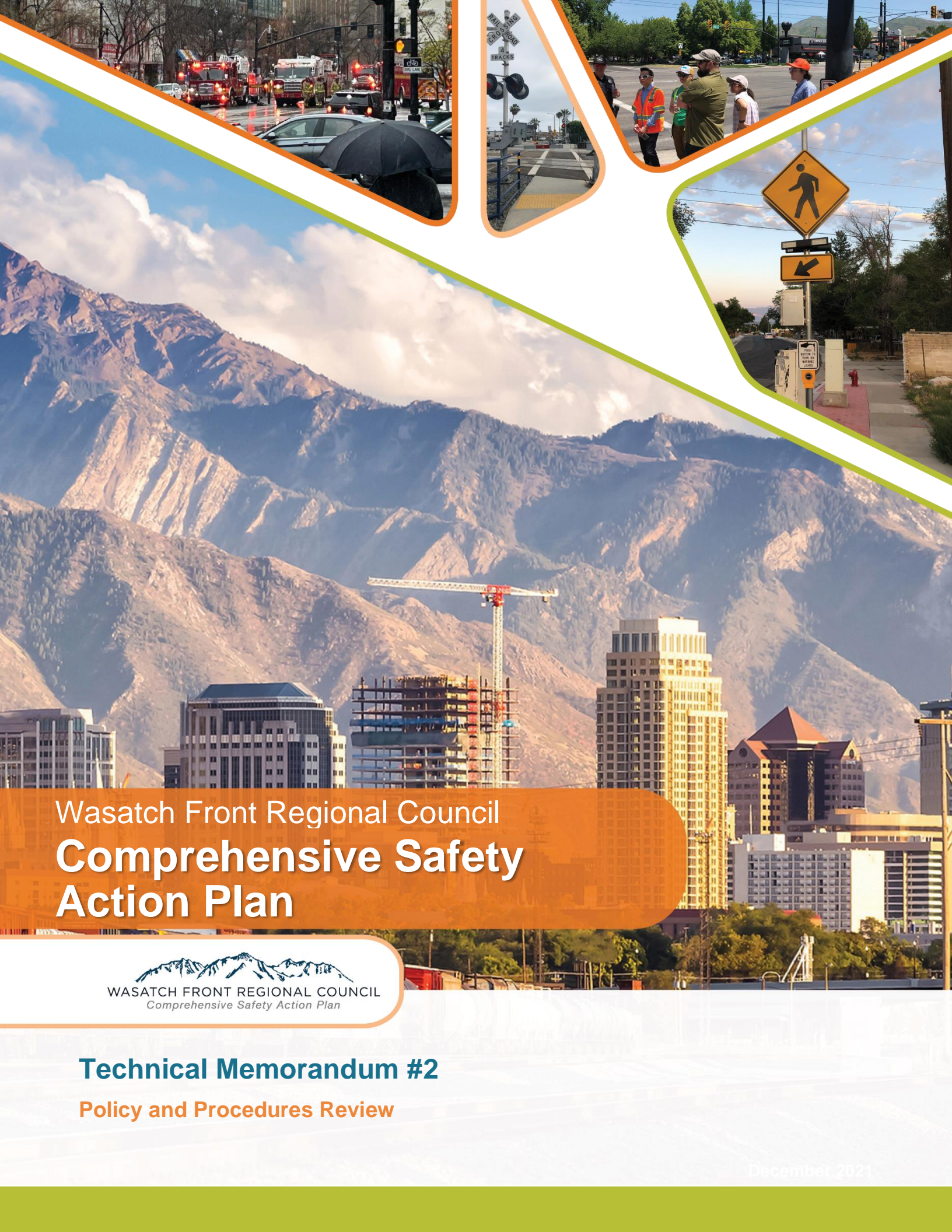
Wasatch Front Regional Council

Comprehensive Safety Action Plan

WASATCH FRONT REGIONAL COUNCIL
Comprehensive Safety Action Plan

Technical Memorandum #2

Policy and Procedures Review

December 2021

WASATCH FRONT REGIONAL COUNCIL COMPREHENSIVE SAFETY ACTION PLAN

TECHNICAL MEMORANDUM #2 – POLICY AND PROCEDURES REVIEW

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April 2024

Statutory Notice

<u>23 U.S.C. § 409: US Code - Section 409: Discovery and admission as evidence of certain reports and surveys</u>

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway- highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

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Exhibit A – Documents Reviewed

List of Acronyms

AADT   Average Annual Daily Traffic

AASHTO   American Association of State Highway and Transportation Officials

BIL   Bipartisan Infrastructure Law

CSAP   Comprehensive Safety Action Plan

FHWA   Federal Highway Administration

GIS   Geographic Information System

HSM   Highway Safety Manual

TWLTL   Two-Way Left-Turn Lane

UDOT   Utah Department of Transportation

USDOT   United States Department of Transportation

UTA   Utah Transit Authority

WFRC   Wasatch Front Regional Council

1.   Introduction

1.1.   Purpose of Technical Memorandum #2

Technical Memorandum #2, Policy and Procedures Review, outlines topic areas that could be addressed through policy, process, education, or enforcement changes. The analysis and recommendations are rooted in the core elements of the Safe System Approach, in recognition that moving the needle on safety will not come from individual capital infrastructure projects alone. Rather, change must be prioritized across all community operations to see meaningful improvements.

Upon identifying benchmarks across the region, Technical Memorandum #2 highlights effective program and policy opportunities that both address a demonstrated safety need and are suited to the context of WFRC communities. While these recommendations are intended to serve as a resource for general safety improvements, they will also support individual communities with a foundation for future Safe Streets and Roads for All (SS4A) grant applications.

Because MPOs can stimulate a collaborative process to address issues that no single jurisdiction can tackle alone, this memorandum also notes several opportunities through which the WFRC could lead the region in safety improvements.

This document is separated into the following sections:

- Background on the benchmarking process and safety approach
- Regional review of WFRC communities, including strengths and gaps in existing documented planning materials
- Recommended policies and strategies

1.1   Benchmarking Process

To evaluate the current state of practice on safety policy, 108 local and county general, transportation, active transportation, and transit station area plans across 68 communities and agencies in the WFRC region were examined. A table of the plans reviewed is provided in **Exhibit A**. The assessment focused on national best-practice benchmarks to assess the level of safety commitments in WFRC communities. These benchmarks primarily rely on the evaluation of published local planning documents and materials, some of which have remained unchanged for years. Consequently, they offer a comprehensive external overview, but lack an "inside look" into a community's processes. Therefore, these benchmarks serve as a general qualitative evaluation of regional safety planning progress undertaken to highlight core areas of focus.

Table 1.1 summarizes the benchmarks used in the assessment, organized by Safe System Approach element. These benchmarks provide a framework for an effective safety approach and can inform stronger safety-related policies and programs.

Table 1.1 – Safety Planning Benchmark Categories

Strategy Category	Strategy Detail
Safe Users	
Education	Propose educational safety programs targeting high-risk behaviors and audiences, alongside the use of demonstration projects to raise awareness of new designs, gain stakeholder support, and gather public feedback.
Progressive Enforcement	Examine and document the effects of traffic safety enforcement and surveillance on communities and reallocate enforcement efforts to focus on behaviors and locations most associated with death and serious injury.
Demographic Data	Develop and implement strategies for robust demographic data collection in crash reporting.
Safe Roadways	
Collision Avoidance	Recommend proven countermeasures to separate users in space, separate users in time, and increase attentiveness and awareness, particularly for active transportation users across ages and abilities.
Kinetic Energy Reduction	Advocate for established measures to control vehicle speed and collision angles, and assess intersection design and control decisions during planning, prioritizing reductions in kinetic energy transfer in alignment with FHWA guidance.
Policies and Tradeoffs	Assign functional class and modal priority to roadways for targeted safety countermeasures and efficient tradeoff decisions, evaluated at a network scale. Prioritize safety and accessibility for all users during construction and road maintenance projects.
Innovation	Advocate for intelligent transportation systems (ITS) infrastructure on roadways to facilitate data collection and analysis, promoting proactive system management.
Safe Vehicles	
Supportive Infrastructure	Provide supportive infrastructure for dynamic curbside management, autonomous vehicles, and infrastructure-to-vehicle communication to provide warnings to drivers that support safer driving behavior.
Fleet Management	Support safer operations of public and commercial vehicles through a transition plan of the vehicle fleet to lower-mass and safety feature enhanced vehicles; heavy vehicle route restrictions to avoid high-pedestrian areas; and curbside management programs to limit user conflicts around stopped or loading vehicles.
Vehicle Data	Collect data about the involvement of autonomous vehicles in crashes for future data analysis, and to inform local design and policies.
Safe Speeds	
Design and Operations	Travel speeds are set and managed to achieve safe conditions for the specific roadway context and to reduce risk of fatal and serious injuries for all road users, particularly those most at risk in crashes. Proven speed management policies and practices are prioritized to reach this goal.
Digital Enforcement*	Implement speed safety cameras and other digital enforcement technologies with an emphasis on fair fee structures.
Policy and Training	Adopt speed limit setting methodologies considering land use and roadway context for human-scale factors and provide staff training on speed management with a focus on minimizing fatalities and serious injuries.

Strategy Category	Strategy Detail
Post Crash Care	
Crash Investigation	Utilize effective collision reporting practices for accurate data collection and establish a feedback loop to share key insights with designers and inform outreach and education.
Partnerships	Promote data sharing among agencies, first responders, and hospitals for a comprehensive safety overview. Connect with victims' families and the advocacy community to provide support and resources, fostering partnerships in outreach and education.
Safety Planning and Culture	
Culture and Commitment	Planning materials commit to the goal of eliminating traffic fatalities and serious injuries within a specific timeframe while integrating Safe System principles across administrative, programming, and evaluation frameworks.
Meaningful Engagement	Meaningful and accessible community engagement efforts and materials toward Vision Zero strategy and implementation are employed, with a focus on equity.
Data and Analysis	A map of the community's fatal and serious injury crash locations and high injury network is developed, regularly updated, and used to guide priority actions and funding. Data is also obtained and analyzed in an innovative fashion.
Funding	Funding recommendations and allocations are intended to advance projects and policies for safe, equitable multimodal travel, with a prioritization framework that emphasizes roadways, strategies, and projects with highest safety impact.
Development Review	Recommend leveraging new developments with improvements to identify mitigation and cost sharing opportunities.
Equity First	Planning materials clearly define equity and incorporate equity considerations while meaningfully engaging with traditionally underserved groups.

Source: Fehr & Peers, 2023

*Automated enforcement is currently limited by Utah state statute, Utah Code Section 41-6a-608

2. Summary of Current Safety Planning

This section summarizes the results of the benchmarking process. In some cases, the region aligns with suggested best practice, while in other areas more work is needed to fully integrate safety into community practices. The strengths and gaps in policies around the region are described in this section. Worth noting is that several areas of focus described in the benchmarks may be more relevant or operable for larger and more well-resourced communities, rather than the many smaller communities in the WFRC region but are still included to potentially serve as best-practice options for establishing future policy and process commitments.

2.1. Regional Strengths

Data-Driven Safety Analysis: Approximately one-third of plans reviewed integrate a data-driven safety analysis, reflecting the "Safety Planning and Culture" benchmark category. These plans use data to identify overall safety trends in their region but may also target crash types or traffic movements, opting to incorporate systemic profiles, roadway factors, and mode-specific conditions. This also includes an integration of GIS data to describe roadway features such as intersection controls, bikeways, and sidewalks. Contextualizing roadways with local information is key, enabling the identification of crash patterns or correlations often missed in traditional analyses. Communities use this data lens to make clear policy, program, and project recommendations for the community to act upon.

Focused Roadway Network Screening: Many of the plans that utilized a data-driven analysis analyzed fatal and serious injuries visually across the roadway system. This reflects the "Safety Planning and Culture" benchmark category. Historically, planning efforts tended to evaluate crashes broadly to identify areas of frequent crashes, but missing contextual information. Plans undertaken within the last five years often included more contextual information, particularly those centered around active transportation.

Separation of Users: Half of plans recommend countermeasures to separate users in space and/or time, a core element reflected in the "Safe Roadways" benchmark category. Many of these plans advocate for infrastructure that supports traffic calming and active transportation. Additionally, half of plans emphasize the importance of connectivity for pedestrians and bicyclists, catering to all ages and abilities. While this is a broad recommendation, it highlights communities' desires to center multimodal safety as a core community value.

For many Safe System elements, local plans lacked direct references to the approaches described in **Table 1.1.** While it is possible that internal practices within each community may address these issues, the existing planning materials do not record an intent to tackling them. Although not captured through community-level reviews, certain strategies within some categories, such as *Supportive Infrastructure* or *Innovation,* often fall under the purview of the Utah Department of Transportation (UDOT) and are currently in practice, demonstrating a regional commitment to safety improvement in cases where implementation is often beyond the means of individual communities. For example, UDOT is working to accelerate development of a statewide system for collecting, monitoring, and sharing connected and autonomous vehicle (CAV) data. In such cases, rather than operating individually, communities can serve as key collaborators while these technologies grow in favor across the region.

This benchmarking assessment can be compared against regional crash data, shown below in **Figure 2.1,** to provide context for understanding where to focus safety measures. Crashes at intersections and roadway departures dominate alongside active transportation-related crashes. A notable finding from CSAP Technical Memorandum #1 is that half of all crashes occur around intersections, particularly on principal arterials and collectors, with left turns making up a considerable

share of intersection crashes. Motorcyclist-related crashes, mid-block urban incidents and rear-end collisions also contribute to the overall figures. Together, roadway departures and active transportation crashes hold the highest share of fatalities for the region by a wide margin. Although not the sole consideration for future planning efforts, especially given the regional focus of this analysis, these types of crashes represent some of the highest policy concerns across the region.
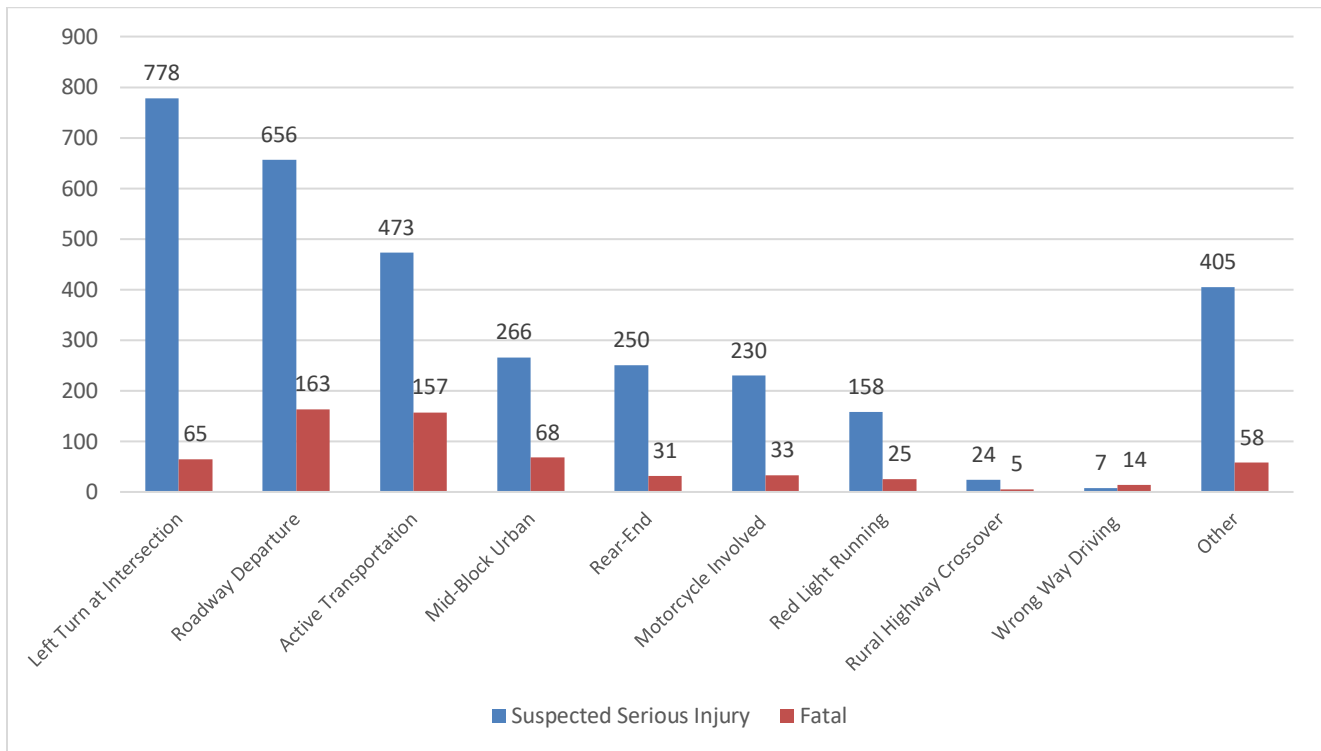
Figure 2.1 – Fatal and Serious Injury Crashes by Crash Type, 2018-2022

2.2.   Gaps in Regional Safety Policies

It is unlikely for any community to include every Safe System element. Notably, documented safety practices are concentrated in Salt Lake County, where cities may be larger and have more resources and staff to address transportation issues. Plans also show a number of safety references within the larger communities of Weber and Davis Counties with little to no safety practices found in the planning materials sourced from the northern and far western regions of the WFRC planning area. The following areas represent opportunities for enhancement across the region.

Vision Zero Commitment

Although the adoption of a Regional Safety Resolution by WFRC renders individual cities eligible to apply for SS4A Implementation Grant funding, each community can demonstrate its commitment to the Safe System Approach in order to support greater safety institutionalization. Currently, Salt Lake City is the only local community in the WFRC region with a documented Vision Zero commitment. In early 2023, Salt Lake City announced a resolution to adopt Vision Zero and has begun integrating Vision Zero principles into planning project work and has established a Vision Zero task force.[1] It should be noted

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[1] Salt Lake City Vision Zero Website

that UDOT led the region by adopting the Zero Fatalities program in 2017[2] and the City of South Salt Lake has an action item to eventually adopt a Vision Zero resolution documented in the 2021 General Plan[3].

Data Collection

Though noted as a regional strength, the benchmarking process documented in this memorandum, crash reporting guidelines[4], and previous crash analysis highlight a need for improvements to data collection. Safety data is increasingly integrated into planning efforts, but there are frequent gaps that prevent a more thorough crash analysis, falling primarily into three categories:

- Availability of Driver Contributing Factors

- Availability of Roadway Contributing Factors

- Integration of Demographic Data

While data utilization is an area of success for the region, these gaps may highlight why planning materials have mostly yet to integrate a more thorough safety analysis. The lack of these additional factors in analysis may be missing key systemic issues and result in insufficient planning safety recommendations.

Equity

A key feature in modern safety approaches and funding, efforts to highlight issues of equity were present in just a handful of plans. This includes not only defining equity priority communities where underserved populations are concentrated but exploring the impact of existing safety approaches on communities of color and other underrepresented groups, particularly regarding law enforcement and community engagement.

Safe System

While safety as a value is stated in most planning materials, a targeted approach to improving safety is infrequently outlined, and no plans explicitly mention the Safe System Approach. While the Safe System Approach does not represent the only avenue to safety improvements, it is important to recognize this lack of mention, as it may indicate a gap in regional safety planning knowledge among staff. Worth noting is the tendency of the region to prefer approaches to safety centered around individual responsibility rather than systemic responsibility, exemplified by recommendations to improve outreach and education and broadly increase traffic enforcement efforts.

Partnered Approaches

The integration of partnered approaches concerning post-crash care is notably absent from the planning materials. Recommendations to build direct partnerships with external organizations, enabling the sharing of pertinent data and establishing feedback mechanisms, were not evident in the documentation. While data collection efforts are expanding between law enforcement, hospitals, social care, and health departments, these collaborations were not formally acknowledged within the planning materials, indicating a need for greater emphasis on these safety strategies in future planning initiatives.

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[2] UDOT Zero Fatalities Program Website
[3] South Salt Lake City General Plan Update, 2021
[4] Utah Crash Report Manual

Kinetic Energy Transfer

The assessed plans do not include specific design standards with the purpose of reducing kinetic energy transfer in crash events, particularly at intersections. Kinetic energy transfer is influenced by speed and mass—vehicles that are larger or move faster transfer more of that kinetic energy when they crash, increasing the damage and injury sustained by others. Implementing design standards aligned with Safe System Approach principles, particularly through speed management, modern context-appropriate speed limit setting methodologies, and intersection design evaluations, can enhance road safety by reducing the transfer of kinetic energy and therefore the severity of crashes. The absence of such standards may indicate a gap between local regulations and best engineering practices.

Progressive Enforcement

Automated enforcement is currently limited by Utah state statute, although it has been shown to be effective elsewhere in the country. Strategies such as high-visibility enforcement campaigns, focused enforcement in problem areas, and an equitable review of both the efficacy and harm of current activities have yet to be integrated into planning materials. While the Safe System Approach emphasizes a transportation system designed with a reduced reliance on police monitoring, targeted and thoughtful enforcement remains a central piece of the philosophy.

3.   Recommendations

Leadership commitment and goal setting that includes a timeline for eliminating roadway fatalities and serious injuries are central elements of the Safe System Approach. But effective change requires deeper institutional commitments to safety, integrating across the planning and operational elements of each community.

The following recommendations are presented as components of the five Safe System elements, illustrated in **Figure 3.1**, and are intended to build upon the strengths of the region, while filling gaps identified in planning materials and addressing historic fatal and serious injury crash trends.

Broadly speaking, these recommendations serve as an assortment of tools for individual communities to consider, working internally or in partnership with other communities and agencies. The *Regionwide* context identifies policies that may be considered across the WFRC region. However, it is assumed that that some of the recommended policies may have limited relevance in some WFRC communities, limitations which communities may identify themselves. Like many of the recommendations, *Regionwide* options often require close partnership with other entities, such as agencies, counties, or hospitals, with needs ranging from shared programmatic responsibilities to advocacy. For some policy

Figure 3.1 – Safe System Approach

options, a geographically focused context is provided to emphasize where limited resources may be best applied, such as along the Composite Network identified in the CSAP or areas with higher-than-average development or activity densities.

Included are rough timelines estimated for the implementation of each policy option.

- *Ongoing* options are those which have the potential to integrate into current processes or programs, though in some cases may incur long-term program or funding adjustments.
- *Short-term* options are assumed to be those with less in the way of obvious institutional barriers to implementation, such as funding, legislative deliberations, or political buy-in.
- *Medium-term* assumes that higher-level decisions and public feedback will be required but incur smaller programmatic or funding limitations.
- *Longer-term* assumes a combination of heavier funding needs, major programmatic changes, legislative decision making, or sharper political pushback.

3.1. Safe Road Users

3.1.1. Improve Data Collection Practices

Timeline: Ongoing | Context: Regionwide

Safer systems start with quality data. Good data and effective analysis are key to making sound decisions on the safety, design, and operation of roadways. Unfortunately, more than a quarter of regional crash data lacks comprehensive *Driver Contributing Factor* entries inhibiting a robust and reliable analysis of crash trends. Crash reporting entities such as police departments should seek to investigate issues associated with data gaps. While the reasons behind these data gaps are not clear, they may be a result of technical errors, incomplete report standardization, administrative burden of crash reporting, or human error. In cases where distracted driving is suspected, the reporting officer may not have adequate resources to determine cell phone usage. To counter barriers associated with reporting, local communities, regional agencies, and emergency responders could institutionalize strategies to improve reporting performance by recording a commitment to collaborate and review in transportation safety planning efforts.

To support greater data consistency, communities and agencies across the region should engage in quality control of crash data. While different methodologies exist, a common strategy includes ground truthing. Ground truthing involves comparing a sample of traditionally collected data with other data, such as hospital or insurance claim data, to assess relative accuracy. Another method employs random sampling, investigating small bundles of data entries to evaluate their completeness, assigning a ranking to each sample, or reporting institution to better track issues and improvements.

Resources:
Several resources exist to guide individual communities (police and public safety departments), counties, and regional agencies on many common data collection and crash reporting practices. They also highlight opportunities to fill gaps, identify support, and adopt updated technologies and procedures. The State of Utah also provides crash reporting resources to ensure reporting aligns with statewide formats and expectations.

Utah Crash Report Data Dictionary
Utah Crash Report Instruction Manual
Utah Crash Report General Guidance
NHTSA Crash Data Improvement Program Guide
National Safety Council Incomplete Crash Reporting Summary

3.1.2. Expand Data Scope

Timeline: Ongoing | Context: Regionwide

Comprehensive roadway contributing factors and demographic data can provide powerful insight into the "who, what, where, when, how, and why" of safety analysis and allow for more effective evaluation of crash prevention strategies. Linking normally disparate crash and traffic databases, such as those shown below in **Table 3.1,** into standard crash reporting and analysis can refine recommendations of both behavioral, procedural, and engineering-related issue identification and countermeasure selection. Additionally, the identification of over-represented populations in crashes and roadway features linked to heightened risk is possible through increased data availability. More complete data collection also supports shared efforts to evaluate the impacts of crashes and effectiveness of pre-crash and post-crash strategies, particularly for health outcomes.

Table 3.1 – Crash and Traffic Records System

Risk Factor	Characteristic
Crash	The crash database includes all law enforcement-reported crashes, capturing data elements related to the environment, people, and vehicles involved in crashes.
Vehicle	Vehicle databases include information on the numbers and types of vehicles registered in the state and about the owners of those vehicles.
Driver	Driver databases detail the license status, past convictions, and demographic attributes of drivers.
Roadway	Roadway data has two key component databases: roadway attributes (inventory data) and traffic volume data.
Citation and Adjudication	Citation and Adjudication databases including information about traffic violation charges, convictions, and associated court actions.
Injury Surveillance	Injury Surveillance data include multiple databases describing emergency medical services (EMS, hospital and emergency department treatments, toxicology results, trauma records, and vital records data).

Source: NHTSA Crash Data Improvement Program Guide

Local communities can contribute to greater data coverage by actively working to improve accuracy and completeness of roadway data (e.g., sidewalks, bikeways, intersection controls, posted speed limits, signing, striping), and user volume data, fostering greater links between crash and roadway analysis. One option could be ensuring that roadway improvements are reported continuously in local or regional databases. Another option is to perform periodic counts of users in high traffic areas, especially counts of people walking and biking, data which is often substituted with less reliable sources or even entirely absent from analysis.

Utah's historic safety improvements demonstrate the impact of data integration. Before 2008, the existing child passenger restraint law only applied to children aged four and under. Analysis of newly linked police and hospital data revealed older unrestrained children faced significantly higher hospitalization rates. This insight led to extending the law to cover children up to age eight, resulting in an 18% reduction in child injuries within one year and a substantial 25% decrease after five years, showcasing the effectiveness of data informed policy changes in enhancing safety.[5]

Resources:
Multiple resources exist to help communities, agencies, public safety, planning, or technology departments adopt best practices for data collection and linking. These are often provided by public agencies such as the CDC, NHTSA, and FHWA and range in applications from basic principles to advanced implementation guidelines. They also provide standardized formats for basic crash reporting and highlight opportunities to partner and link with other data collecting entities for more a holistic safety approach.

NHTSA's Model Minimum Uniform Crash Criteria (MMUCC) Guidelines
NHTSA Crash Data Improvement Program Guide
Center for Disease Control's Linking Information for Nonfatal Crash Surveillance
FHWA's Model Inventory of Roadway Elements (MIRE)
Framework for Integrated Spatially Referenced Driver Crash Databases

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[5] CDC Building a Data Linkage Program for Nonfatal Crash Surveillance Fact Sheet

3.1.3. Prioritize Equitable Enforcement

Timeline: Ongoing | Context: Composite Network Corridors and vulnerable communities

Even with engineering countermeasures in place, road users can fail to obey traffic laws. Law enforcement can increase driver awareness and reduce traffic crashes. If enforcement strategies are to improve overall safety in a community and build trust with its members, traffic laws must be applied equitably and with sensitivity toward groups where there may be limited rapport with law enforcement. Whenever possible, communities should investigate, document, and address the impacts of traffic safety enforcement and traffic safety surveillance on underserved groups, integrating it into public-facing performance monitoring mechanisms. Effective partnerships with community and safety stakeholders with health professionals, parents, community organizations, law enforcement, members of the justice system, and nonprofit organizations can help reduce the chances of harmful impacts.

Resources:
Though transportation safety planning staff may take the initial charge on refining equity in enforcement, the main responsibility remains with policymakers and law enforcement. Best practices strategies to improve, monitor, and question current enforcement practices and behavior are provided from both public agencies and non-profit organizations.

Vision Zero Planning for Equity
Re-thinking the Role of Enforcement in Traffic Safety
FHWA Equity in Roadway Safety Hub

3.1.4. Safe Routes to School

Timeline: Ongoing | Context: Regionwide

Communities can collaborate with school districts to utilize the Safe Routes to School (SRTS) programs that exist within the WFRC region, administered by UDOT, to improve route planning, provide parent/driver education, safety data collection and potentially modify roadways to ensure safe routes for all students, particularly students in underserved areas. Many communities utilize their SRTS programs to highlight areas in need of investments, steering roadway capital improvements. Individually, communities and schools/school districts can bolster SRTS programs by implementing safe walking and biking curriculum to elementary and middle school students. One such example is Salt Lake City, which was recently awarded an SS4A Demonstration Grant to pilot an interactive safety education program[6].

Recognizing the resident-supported nature of many SRTS programs, communities can help establish formalized volunteer efforts to support safer access to schools, such as walking chaperones, bike buses, or even speed watch programs, akin to neighborhood watches. Safe cycling/walking education programs are also an effective means of fostering user knowledge; communities can turn to local and national organizations such as Bike Utah and the League of American Bicyclists for assistance with developing such initiatives.

Dialogue and coordination between school districts and transportation planners could be improved in the school site selection process and the design of the school access and other transportation elements. A more thorough site design review involving transportation professionals can be immensely valuable to minimize pedestrian crossings on major streets and to avoid congestion and traffic conflicts at school start and end times.

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[6] Salt Lake City receives $953,000 grant for Safe Streets for All pilot program

Resources:
A range of resources and examples exist from across Utah and the world to support safer commutes to school. Many of these are intended to help school and transportation planning staff administer SRTS objectives but may include other members of the community such as law enforcement, public health, or residents. Many of these resources include robust assistance materials, such as this [tally form](#) and [parent survey](#), or [evaluation worksheet.](#) *(links embedded)*

[UDOT SRTS Program](#)
[Safe Routes to School Online Guide](#)
[FHWA PedSafe Pedestrian Countermeasure Selection System](#)
[Bike Utah Community Planning Assistance](#)
[Safe Routes to School National Program](#)
[How to Start a Bike Bus in Your Community](#)

3.1.5. Active Transportation Plans

Timeline: Short-Medium Term | Context: Communities without established Active Transportation Plans

Out of 68 WFRC communities, only 26 have a published active transportation plan. As illustrated in **Figure 2.1,** active transportation deaths make up the second highest share of regional roadway fatalities, reaching a quarter of all roadway user deaths in 2022[7]. The benefit of developing an active transportation plan includes the opportunity to provide a large menu of policy, program, and practice suggestions, as well as site-specific engineering treatment suggestions for high-risk areas. Communities may choose to utilize the Composite Network identified in the CSAP safety analysis, the usRAP bike and pedestrian datasets[8], or other risk-centered contextual data to provide an additional critical perspective when making recommendations for some of the region's most vulnerable users. Special attention should be given when developing active transportation facilities alongside other roadway configurations to ensure appropriate levels of separation between users. Recognizing that safety outcomes are not solely a result of infrastructure, but rather that the behavior of users can introduce risk, communities may also consider integrating safety education for active transportation users into long-term planning efforts. Organizations such as [Bike Utah](#) and the [League of American Bicyclists](#) can assist communities developing such initiatives.

Resources:
Utah and the WFRC offer a robust selection of high-quality planning assistance options for communities looking to develop active transportation plans. These not only link communities with best-practice resources, but also provide funding, technical assistance, and training for local practitioners. Several communities (such as [Farmington](#)) have developed robust, local-context appropriate design guidance based on AASHTO expertise that may help inform their peers. Communities may also consider connecting with larger organizations such as [UDOT](#) to help guide local vulnerable roadway user safety assessments and subsequent planning work.

[WFRC Active Transportation Webpage](#) and [Standards](#)
[Farmington Bicycle & Pedestrian Facility Design Guidelines](#)
[WFRC Transportation and Land Use Connection Program](#)
[Bike Utah Community Planning Assistance](#) and [Toolkit](#)
[UDOT's MOVE Utah Program](#)

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[7] [Utah Vulnerable Road User Assessment, 2023](#)

[8] The tool is available free of charge but requires training. Additional information is available at [usRAP](#).

UDOT Technical Planning Assistance
FHWA PedSafe Pedestrian Countermeasure Selection System
UDOT Vulnerable Road User (VRU) study 2023

3.1.6. Motorcycle Helmet Use

Timeline: Medium - Long Term | Context: Regionwide

Communities should consider requesting to the Utah State Legislature to update the state code to include a universal coverage helmet law for motorcycles. Universal coverage motorcycle helmet use laws require all motorcycle riders and passengers to wear a helmet, preferably those that comply with Federal Motor Vehicle Safety Standard No. 218[9]. Motorcycle helmets are highly effective in protecting motorcycle riders' heads in crashes, and it has been shown that in states with universal coverage laws had much lower fatality rates per registered motorcycle and per vehicle mile traveled.[10]

Resources:
Communities can serve as a resource to their residents when advocating for best practices enforcement and other safety strategies at the state or county level. Nationally and locally, some communities provide resources to their electorate that highlight key legislative opportunities, describing the reasoning behind potentially unpopular but impactful policy stances. Organizations such as the Utah League of Cities and Towns can also serve as effective convenors of policy discussion. However, it is worth nothing that historically, efforts to enact a universal helmet law has been met with opposition.

Utah League of Cities and Towns
NHTSA Motorcycle Safety Countermeasures

3.2. Safe Vehicles

3.2.1. Government and Commercial Fleets

Timeline: Long-Term | Context: Regionwide

Cities can support safer operations of city and commercial vehicles through a plan to transition their vehicle fleets to safety feature enhanced vehicles (or provide after-market safety upgrades such as telematics or speed limiters) and an update of existing heavy duty vehicle routes to avoid high-pedestrian areas. Fleet replacement specifications should include the latest collision avoidance technologies such as cameras, proximity sensors, automatic braking, dynamic cruise control, and more. Fleet improvements could also mean increasing the use of alternate modes, such as e-bikes, for local trips so long as such a transition avoids overexposing staff to risk. Communities should also consider vehicle safety and size/weight enforcement in the planning, design, and operation of the regional transportation system, particularly when considering upgrades to existing fleets. This is particularly salient with the rise of battery electric automobiles.

Resources:
While transitioning fleets and making changes to existing fleets and services can be costly and difficult, getting ahead of the game can help staff make more informed decisions as opportunities come along. Resources such as Vision Zero exist to help outline potential approaches, but peer communities have also published their own efforts to begin transitioning towards safer vehicles.

Vision Zero Network Fleet Safety

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[9] Federal Motor Vehicle Safety Standards; Motorcycle Helmets
[10] Guide to Community Preventive Services, 2013

NYC Safe Fleet Transition Plan
NYC Vision Zero Safety Toolkit for Trucks

3.2.2. Curbside Management

Timeline: Short-Medium | Context: Neighborhood and High-Density Areas

With the growth of shared mobility services, typically offered by private companies in the form of ride-hail services (e.g., Lyft or Uber), bike share, and scooter shares, curbsides in urban areas are increasingly complex. Developing policies and design standards to address the risks associated with a concentration of shared mobility services can allow communities to encourage, prohibit, or direct how they want shared mobility to work on their streets, particularly as they interact with other elements. Such strategies may be particularly adept at addressing the serious injuries and deaths occurring at urban mid-blocks, one of the most common regional crash types. As different users vie for limited space, communities should consider where to implement increased user separation.

Resources:
If considering developing their own curbside management strategies, community staff should explore documented best practices from locations with experience in this area. In areas that have yet to experience growth in shared mobility, proactive assessments of potential issues may smooth the way for easier future implementation.

Virginia Tech Curb Management Practices for Safety
NYC Vision Zero Safety Toolkit for Trucks

3.2.3. Updates to Driver Licensing and Registration

Timeline: Medium – Long Term | Context: Regionwide

Communities should consider requesting Utah State Legislature to consider modifying regulations and procedures for both driver licensing and registration to better address risks associated with inexperienced drivers, high-risk drivers, and the gaps in knowledge of experienced drivers.

In Utah, before obtaining a driver's license, permit holders younger than 18 may only drive under the supervision of a driving instructor, a parent or guardian, or a responsible adult who has accepted liability for the permit holder's driving by signing the permit application. Permit applicants younger than 19 must also be enrolled in driver education. However, Utah ranks among the lowest of all states in the minimum requirements set forth for young learners, with key selected requirements shown below in **Table 3.2**. New, young drivers typically have less time and practice requirements to become fully licensed drivers than their peers in other states. In some cases, the Utah requirements fall below those of states such as Colorado, Maryland, and Kentucky, which require 50, 60, and 65 hours of supervised driving, respectively. Young drivers may be insufficiently experienced to safely operate vehicles across the transportation system.

Table 3.2 – Graduated Licensing Requirements

Risk Factor	Minimum Entry Age	Mandatory Holding Period	Minimum Amount of Supervised Driving	Nighttime Restrictions May Be Lifted
National Average	15	7.3 months	50 hours	After 12 months or until age 18, whichever occurs first

Risk Factor	Minimum Entry Age	Mandatory Holding Period	Minimum Amount of Supervised Driving	Nighttime Restrictions May Be Lifted
Utah	15	6 months	40 hours	Until age 17

Source: Insurance Institute for Highway Safety

The region can investigate how to address drivers with a repeated history of reckless or careless driving, driving under the influence, and other moving violations. For non-DUI violations, the state relies on the Point System, where a driver who accumulates 200 or more points in three years, may be suspended for three months to a year, depending upon the severity of the record. Points are allocated according to the severity of each violation, with excessive speeding garnering the highest number of points (75). The region can participate in state-level conversations to determine whether this point system should be adjusted to better reflect regional safety priorities. For DUI-related violations, among other charges, the state revokes first-time offenders' licenses for 120 days, and up to two years after their second offense.[11] Communities may consider participating in regional conversations on the topic to evaluate whether these measures align with their safety goals and collaboratively explore their effectiveness.

Resources:
Communities can serve as a resource to their residents when advocating for best practices enforcement and other safety strategies at the state or county level. Nationally and locally, some communities provide resources to their electorate that highlight key legislative opportunities, describing the reasoning behind potentially unpopular but impactful policy stances. Organizations such as the Utah League of Cities and Towns can also serve as effective convenors of policy discussion.

Utah League of Cities and Towns
ACLU of Utah
NHTSA Licensing Countermeasures
NHTSA Impaired Driving Countermeasures
NHTSA Graduated Licensing

3.3. Safe Vehicle Speeds

3.3.1. Adjusting Speeds

Timeline: Short-Medium | Context: Regionwide, particularly along WFRC Composite Safety Segment Corridors and problem areas

Inappropriate speeds worsen all crash types, particularly those which expose roadway users to death and injury, such as those occurring at both signalized and unsignalized intersections, among active transportation users, and in more complex urban areas. As communities develop and the context around existing roadways changes, communities should consider adjusting their existing target speeds based on speed management principles. Speed management is an effective measure to reduce fatalities and serious injuries. Communities that adjust their regulations and design speeds can expect to see significant safety improvements, particularly along roadways with high volumes, multiple conflict points, and greater speeds. The design of the roadway should include features consistent with the desired design speed to encourage compliance. While not an exhaustive list, the strategies outlined in **Table 3.3** offer tools by which speed management can be implemented throughout the WFRC region.

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[11] Utah DUI Sentencing Matrix

Table 3.3 – Speed Management Infrastructure Treatments

Treatment	Paired Speed Reduction	Estimated Crash Reduction
Vehicle Activated Signs (e.g., Changeable Message Signs)	3 mph reduction in 85th percentile speed	70% reduction in crashes
Roundabouts	6 mph reduction in 85th percentile speed	75% reduction in crashes[12]
Raised Intersections (intersections with vertical deflection)	5 mph reduction in 85th percentile speed	40% reduction in casualty crashes
Horizontal Deflection (e.g., curb extensions, chicanes, raised islands)	Up to 3 mph reduction in speed	30% reduction in pedestrian crashes
Perceptual Countermeasures (e.g., painted speed bars, narrowing lanes, widening pavement marking that make drivers feel they need to slow down)	8 mph reduction in 85th percentile speed from perceptual narrowing 7 mph reduction in 85th percentile speed from lane narrowing through buildings, parked cars, etc. Up to 5 mph reduction in 85th percentile speed from markings that give the appearance of travelling faster on the approach to an intersection	-
Transverse Rumble Strips	Up to 3 mph reduction in speed	30% reduction in fatal and serious injury crashes
Reduce Excessive Sight Distance at Roundabouts	Up to 12 mph reduction in 85th percentile speed at roundabouts	Up to 40% (CMF 0.60) for reductions in excess sight distances at roundabouts
Lower speed limits	4 mph reduction in 85th percentile speed (without high volumes of vulnerable roadway users)	25% reduction in casualty crashes
Variable Speed Limits (VSL)	Evidence of overall reductions in speed	8% reduction in casualty crashes

Source: [FWHA Safe System Approach for Speed Management](#)

Speed management is highly contextual and should not be applied without discretion. Some strategies described in **Table 3.3** are most effective in high-density urban contexts, whereas others may offer greater benefit or have lower barriers to implementation elsewhere. In cases where safety improvements may result in reduced performance in other areas, such as traffic speeds or roadway capacity, communities should consider the tradeoffs between the safety benefits and the mobility benefits. For example, if warranted, communities may consider selectively reducing target speeds or roadway capacities to accommodate projects in favor of a strongly demonstrated potential safety improvement.

Resources:
These resources include existing statewide standards and programs for speed limit determination. For example, UDOT may perform speed management studies at the request of communities. Communities, particularly their engineering, public works, and planning departments, can also reference additional tools and methodologies to find a best practice approach most suitable for their requirements.

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[12] Reduction in crashes may be more directly tied to decrease in conflict points than to speed reduction.

Utah MUTCD[13]
FWHA Safe System Approach for Speed Management

3.3.2. Update Speed Limit Methodologies

Timeline: Short-Medium | Context: Regionwide, along Composite Network Corridors

Appropriate speed limits reduce fatalities and serious injuries, particularly on roadways where vehicles and vulnerable road users mix. As vehicle speeds increase, the probability of death for pedestrians increases, as illustrated in **Figure 3.2.** As communities develop and the land use context around existing roadways changes, communities should consider adjusting existing speed limits to encourage driving speeds more appropriately aligned with the surrounding context. Communities should set appropriate speed limits to reduce the significant risks drivers impose on vulnerable road users. This may involve updating not only the speed limits, but the methodologies used to determine these limits.
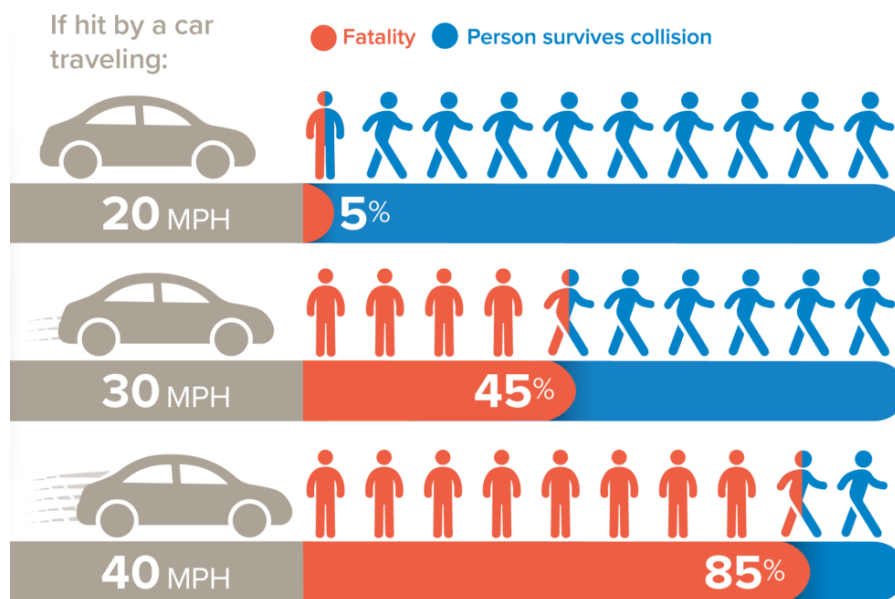
Figure 3.2 – Relationship Between Vehicle Speed and Pedestrian Injury Probability

Source: National Traffic Safety Board

Previously, many agencies and communities relied on the 85th percentile methodology for determining appropriate speed limits, which is the speed at or below which 85 percent of the drivers travel on a road segment. Frequently, limits are set within 5 mph plus or minus of this speed. This approach does not consider contextual elements that would otherwise constitute different limits, including road characteristics, roadside development and environment, pedestrian activity, parking, and historic crashes. As a result, the appropriate speed for the roadway is often misestimated. This methodology is encoded into the traffic control guidelines of many communities and agencies, owing to the 2009 Edition

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[13] Note: *The Utah State MUTCD will update to align with the National MUTCD by 2026, which will included updates to preferences for speed limit setting methodologies.*

of the Manual of Uniform of Traffic Control Devices (MUTCD) [14], which has governed statewide standards for traffic control.

Recent updates to the MUTCD (effective January 8th, 2024) have deemphasized the focus on this methodology, and instead recommends that agencies explore additional approaches when setting speed limits on urban and suburban arterials, and on rural arterials that serve as main streets through developed areas of communities. As part of UDOT's goal of zero fatalities, the Utah policy has been updated[15] to consider potential alternatives to the 85th percentile including the 50th percentile (median) speed, the *FHWA USLIMITS2 Tool*, and contextualizing assumed roadway conditions through Safe System approaches. Communities should consider adjusting not only the speed limits of their roadways to fit the adjacent land use context most appropriately, but also updating their preferred methodologies for determining these speeds to align with recommended best practices, particularly those that emphasize the importance of roadway context in speed limit setting. Rather than solely adjusting target speeds on their roadways, communities should also work to ensure that street designs are updated to complement these adjustments whenever possible, with the physical design reinforcing speed goals.

Resources:
These resources include existing statewide standards and programs for speed limit determination. Notably, UDOT may perform speed management studies at the request of communities, integrating the Safe System approach when doing so. Communities, particularly their engineering, public works, and planning departments, can also reference additional tools and methodologies to find a best practice approach most suitable for their requirements.

[Utah MUTCD](#)[16]
[UDOT Policy Update: Establishment of Speed Limits](#)
[UDOT Speed Management Study Guidance](#)
[FHWA USLIMITS2 Speed Limit Tool](#)
[FHWA Safe System Speed Limit Setting](#)
[Caltrans Safe System Speed Limit Report](#)

3.3.3. Neighborhood Slow Zones

Timeline: Short-Medium | Context: Neighborhood and High-Density Areas

Communities may consider developing a slow zone program to allow neighborhoods to request treatments to slow motor vehicles to 15 - 20 mph using traffic calming features, signs, and markings. Selected locations are typically in areas serving children, seniors, public transit users, commercial activity, and pedestrian/bicycle activity. When appropriate, launch local initiatives to treat streets as places by incorporating permanent placemaking efforts (public art, green infrastructure, and neighborhood amenities) into traffic safety initiatives. Placemaking initiatives can include streets opened to pedestrian traffic and activities, reduced speeds, and other features that encourage safe driving and increase visibility of pedestrian and bicycle roadway users. The use of placemaking and demonstration projects can raise awareness of new designs, encourage piloting of safety projects requiring capacity trade-offs, and solicit feedback from the public. Demonstration projects also provide an opportunity to measure safety effects, encourage innovation, design flexibility, and provide education to the public of design features and purposes. However, communities should work to ensure that limited resources and

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[14] [FHWA Updates to the MUTCD](#)

[15] [UDOT Policy Update: Establishment of Speed Limits](#)

[16] Note: *The Utah State MUTCD will update to align with the National MUTCD by [2026](#), which will included updates to preferences for speed limit setting methodologies.*

energies are directed towards the most impactful opportunities to improve safety and consider focusing on other opportunities in areas with the greatest need.

Resources:
If considering creating their own slow zones or implementing demonstration safety projects, community staff and advocates are fortunate to have a rich variety of ongoing and documented efforts from within Utah and across the nation.

Salt Lake City's Livable Streets Program
Salt Lake City's Open Streets Initiative
Smart Growth for America Safety Demonstration Projects Case Studies
NYC DOT's Neighborhood Slow Zones Program
Orlando, FL Safety Quick Build Guide
Leicestershire Community Speed Watch Program

3.3.4. High Visibility Enforcement

Timeline: Short-Term | Context: High-Injury Corridors and problem areas

When utilizing enforcement strategies, communities should target enforcement behaviors and locations most linked to fatalities and serious injuries, including speeding, distracted driving, disobeying traffic signals and signs, and driving under the influence. They could utilize crash histories along the Composite Network as one criterion for where and for what type of behavior to concentrate traffic enforcement efforts. Crash data can also help identify priority intersections and/or road segments and the times of day when certain behaviors may be more prevalent. The following considerations can help lead to more successful outcomes for roadway safety enforcement strategies:

- Dedicate a portion of enforcement revenue to outreach and engagement with community groups about roadway safety.
- Tailor enforcement campaigns to suit the needs of different neighborhoods and demographics and incorporate education as part of those campaigns.
- Conduct enforcement with staff support and awareness of the courts.
- Use warnings and flyers before moving on to issuing citations.
- Use mobile non-intrusive radar devices to collect speed data for analysis and documentation of perceived speeding issues and to guide enforcement needs.

High visibility enforcement techniques such as sobriety checkpoints, speed enforcement waves, visibility elements such as electronic messaging, and coordinated media publicity can all effectively deter problematic roadway behaviors.

Resources:
Guidance from public agencies and through examples from peer communities exist to help initiate high visibility enforcement efforts. Planning staff and other public bodies can help identify areas to focus on while collaborating with law enforcement and staff from other relevant agencies to implement the most appropriate and effective strategies. Notably, Utah Highway Patrol and other agencies have already utilized this type of enforcement at one time or another. Multi-agency collaboration can further expand and refine these efforts.

NHTSA High Visibility Enforcement Toolkit
Utah Highway Patrol Memorial Day High Visibility Enforcement Report
High Visibility Enforcement Paper: Change and Opportunities
Charlotte, NC HIN Enforcement Areas

3.3.5. Policy on Enforcement Cameras

Timeline: Medium-Long Term | Context: Regionwide contingent on adjustments to state statutes

FHWA recommends the use of digital traffic law enforcement strategies as one of the most effective means to reducing risky driving behavior, a strategy which has yet to become popular in Utah. Strategies such as cameras are effective at curbing fatalities and injuries while reducing the risks of interactions with law enforcement, benefitting from the low-cost, 24/7 features of the approach.

Resources:
Communities can serve as a resource to their residents when exploring best practices enforcement and other safety strategies at the state or county level. Well-coordinated national and local advocacy support exists from which to draw support, often made up of peer communities. Some communities provide resources to their electorate that highlight key legislative opportunities and offer actionable resources for members of the public.

Advocates for Highway & Auto Safety
Utah League of Cities and Towns
NYC Speak Up For Safe Streets
Washington Traffic Safety Commission: Speed Safety Camera Readiness Guide

3.3.6. Addressing Roadway Departures

Timeline: Ongoing | Context: Regionwide

Because roadway departures make up the second-highest share of fatal crashes in the region, as shown previously in **Figure 2.1,** addressing this crash type directly should be a key consideration for communities. While these crashes typically result from drowsy, distracted, impaired and aggressive driving, there are often many other contributing factors to be considered.[17] Importantly, these types of crashes tend to be significantly over-represented in curves, often resulting in rollovers or head-on collisions. In addition, roadway departure crashes occur frequently on collectors and local roads, and especially rural two-way undivided roads[18] which are further away from emergency response teams. Many of the most harmful crashes of this type are compounded by roadside obstacles including trees, slopes, and safety hardware, along with the increased impact severity of oncoming vehicles.

Strategies to keep vehicles on the roadway, particularly to prevent deadly rollovers and collisions, broadly focus on reducing excessive vehicle traveling speeds, increasing the clear space between the road edge and travel lane, and the use of friction treatments such as rumble strips, medians, or guardrails. Communities should consider adopting modern approaches to reducing departures, such Safety Edge[19] treatments, and prioritize implementing new regulatory safety updates, such as the pavement retro-reflectivity standards outlined in the most recent MUTCD update[20]. Communities should also continue to explore potential updates to their current roadway layout standards to ensure that they address this critical safety issue and are aligned with national best practice guidance.

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[17] UDOT Strategic Highway Safety Plan
[18] FHWA Roadway Departures Review
[19] FHWA Safety Edge Fact Sheet
[20] FHWA Pavement Markings Regulations / Standards Update, 2023

Resources:
A deep well of design guidance exists to prevent roadway departures, particularly at the federal level but also at the local level in the form of standards and training. Many of these are intended to guide local roadway designers with best practices that not only prevent departures or provide opportunities for easier course corrections but can mitigate some of the worst potential impacts of these crash types. These designs should also be implemented in coordination with other strategies described in this document, particularly speed management. Additionally, UDOT maintains an ongoing program of studies to investigate departure countermeasures, particularly pavement markings, which may offer guidance to WFRC communities.

UDOT Roadway Departure Training
UDOT Traffic Safety Division
UDOT Pavement Marking Performance Measures
Sample FHWA Roadway Departure Safety Implementation Plan
Utah MUTCD
FHWA Clear Zone Guidance and Hub
FHWA Safety Edge Methodology

3.3.7. Safe System Training

Timeline: Medium-Term | Context: Regionwide

Communities should begin developing and implementing ongoing Safe System training programs, focused on management and key staff in departments whose work touches transportation. Key topics should include design philosophy and appropriate speed management focused on fatality and serious injury minimization.

Resources:
Resources exist from both public and non-profit organizations to help train staff on safe systems principles. Some, such as the National Center for Rural Road Safety, provide training materials for communities traditionally less resourced, and are intended to be accessible for staff with minimal background safety knowledge.

UDOT Safety Standards and Training
UDOT Traffic Safety Division
FHWA National Highway Institute Highway Safety Courses
ITE Safe System Courses
Vision Zero Network Resources
National Center for Rural Road Safety Webinars

3.4. Safe Roads for All Users

3.4.1. Addressing Intersection Safety

Timeline: Ongoing | Context: Signalized and Unsignalized Intersections

Intersections represent a convergence of multiple decisions and conflict points. As illustrated in **Figure 2.1,** intersection crashes make up the most frequent regional crash types which result in serious injury, while also near the top in terms of fatalities. Left turns at signalized intersections are one of the highest frequency crash types. Various factors can influence these crash types, including signal phasing, traffic speeds, roadway/lane widths, visibility, sight distances, and the presence of high pedestrian and

bicyclist volumes. Several of the most effective solutions are described in **Table 3.4**. Jurisdictions are also encouraged to refer to FHWA Proven Safety Countermeasures.[21]

### Table 3.4 – Potential Countermeasures - Intersections

Treatment	Description
Differential Stop Bar Locations	Placing through lane stop bars further back from the intersection than the right turn lane stop bars allow unobstructed sight lines for right-turning vehicles, improving safety for all.
Reduced Cycle Lengths	Reduce traffic signal cycle lengths to achieve shorter wait and travel times. This also increases compliance by vulnerable users crossing the street.
Right Turn On Red Restrictions	Right turn on red restrictions help reduce conflicts between turning vehicles and people in the crosswalk and can be applied selectively throughout the day if needed (where pedestrian and turning volumes are both high).
Horizontal Deflections (e.g., curb extensions/bulbouts)	These improvements narrow the roadway at crosswalks to help slow traffic, shorten crossing distances, and improve pedestrian visibility.
Traffic Diverters	Traffic diverters physically block vehicles from passing through intersections, typically used to calm traffic in residential areas, blocking one or both lanes.
Leading Pedestrian Intervals	Leading Pedestrian Intervals offer pedestrians a head start with a "walk" signal before vehicles get a green light, improving visibility in areas with high pedestrian and turning vehicle volumes.
Adequate Pedestrian Cross Times	Assuming a crossing speed of 3.5 feet/second, or even closer to 3.0 in slower or crowded pedestrian areas, allows more time for vulnerable users to cross intersections.
Roundabouts	Roundabouts, when designed following best practices, can be effective at reducing vehicle delay, crashes, and improving safety for vulnerable users in appropriate intersections.
Raised Intersections/Crosswalks	Raising roadways at minor intersections help slow traffic and improve visibility for pedestrians and cyclists. Designs must consider factors like target speed, design vehicle, drainage, emergency response, spacing, and other requirements.
Median U-Turns	Directing major and minor street left-turning vehicles to use one-way median openings eliminates risky left turns at the main intersection and reduces dangerous conflict points.
Restricted Crossing U-Turns	Alters left-turn and through movements, requiring minor road traffic to turn right and execute an upstream U-turn at a designated location, signalized or unsignalized, to proceed in the desired direction.
Offset Turn Lanes	Offsetting left- and right-turn lanes for increased visibility enhances safety, especially in areas with higher speeds or potential for free-flow movements.
Appropriately Timed Yellow Signals	Properly timing the yellow interval helps reduce red-light running, among the most frequent of intersection crash types. Factors like vehicle speed, turning movements, driver reaction time, and intersection geometry should be considered in the calculation.
Lighting	Lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings in order to reduce the chances of a crash. Adequate lighting (i.e., at or above minimum acceptable standards) is based on research recommending horizontal and vertical illuminance levels to provide safety benefits to all users of the roadway environment
Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections	This systemic approach to intersection safety involves deploying a package of multiple low-cost countermeasures, including enhanced signing and pavement markings, at a large number of stop-controlled intersections within a jurisdiction. These countermeasures increase driver awareness and recognition of the intersections and potential conflicts.

Source:
NHTSA Countermeasures That Work,
FHWA Proven Safety Countermeasures

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[21] https://highways.dot.gov/safety/proven-safety-countermeasures

Communities might consider utilizing a decision-making framework to assess intersection safety, such as the example shown in **Figure 3.3**, which helps roadway designers investigate the need for a positive offset lane treatment and other related strategies (see FHWA's "Safety Evaluation of Offset Improvements for Left-Turn Lanes"[22] for a description of positive and negative offset turn lanes). Such frameworks may be institutionalized into local guidelines and regulations to help cement the focus on safety improvements.
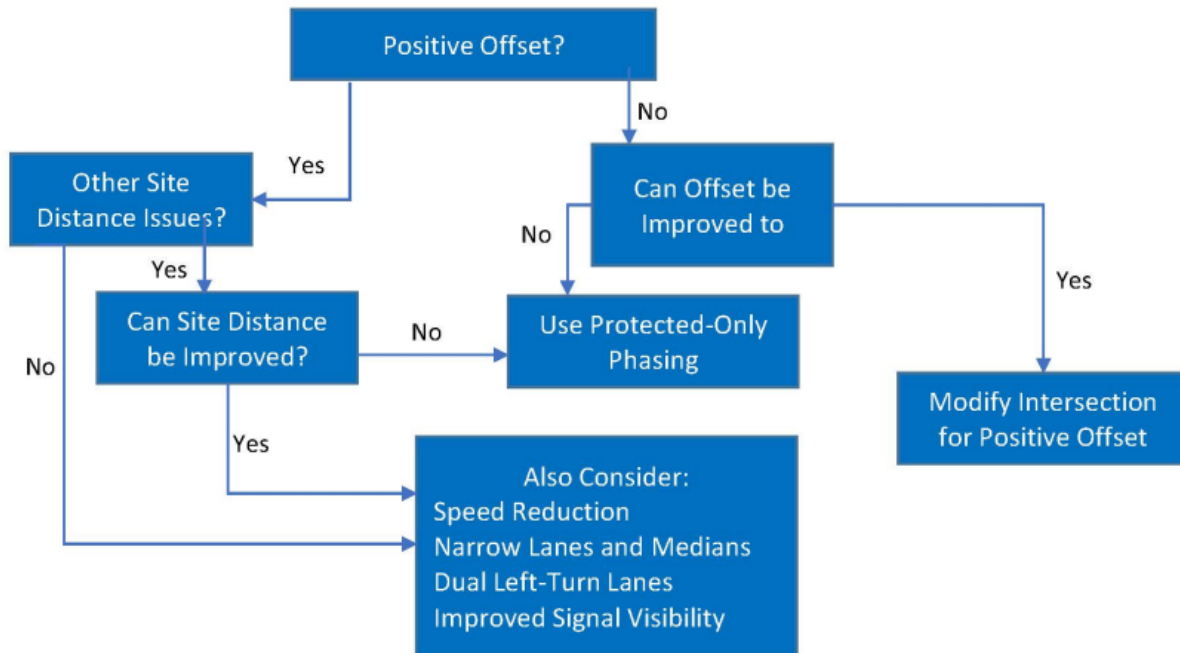
Figure 3.3 – Flowchart for Assessing Left-Turn Safety at Signalized Intersections

Source: Maricopa Association of Governments

Resources:
While intersection types span across a wide range of contexts, many improvements center around a few key objectives: speed management, separation of users, and a more intuitive and less complex environment. Several resources translate these guidelines across diverse environments, many of which prioritize a range of performance improvements.

SLC Street and Intersection Typologies Design Guide
FHWA Reduced Left-Turn Conflict Intersections
MAG Left Turn Crash Mitigation Implementation Template and Guidance
FHWA Signalized Intersection Safety Strategies

3.4.2. Update Local Planning Procedures

Timeline: Medium-Term | Context: Regionwide

To further institutionalize safety outside of the planning arena, communities can develop and engage safety-focused boards or commissions to advise on safety project development. Rather than develop

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[22] FHWA Safety Evaluation of Offset Improvements for Left-Turn Lanes

new commissions or working groups, some communities opt to reorient existing groups towards a Vision Zero focus, as exemplified by Salt Lake City in early 2023.[23]

Communities should also work to set safety improvement goals for high-risk areas (such as along WFRC Composite Network corridors or in areas identified as high-risk by usRAP safety datasets[24]), areas with frequent vulnerable user crashes, and traditionally underserved populations. They should further integrate these goals into project planning, design, implementation, and assessment. This comprehensive approach ensures inclusivity, community involvement, and a focused commitment to enhancing safety for all. In some cases, safety improvements may result in reduced performance in other areas. If so, communities should consider weighing the potential benefits of safety improvements against any impacts. For example, many roadway safety projects have the potential to reduce vehicle capacity or speeds. In these cases, safety should be considered as the most important criteria over speed or capacity.

Another important area communities should consider addressing are local access management guidelines. Access management guidance can assist communities to encourage new development and roadway construction to implement access management that improves safety. A region-wide access management guidance document would benefit local jurisdictions who otherwise do not have the resources to develop such guidance.

Resources:
Core elements to consider when making changes to safety planning procedures are provided by the Vision Zero Network. Many communities maintain their own forms of planning procedures and programs to support safety improvements. These may operate as well-structured programs or on an ad-hoc basis according to the needs and capacities of individual communities and can frequently be directly administered by staff.

Vision Zero Minimum Elements
SLC Vision Zero Commitment
SLC Livable Streets Feedback Form
Kansas City, MO Traffic Calming Projects Requests Page
Milton, GA Traffic Calming Requests Page

3.4.3. Project Prioritization Process

Timeline: Ongoing | Context: Regionwide

Develop a local project evaluation framework that prioritizes funding based on fatal and serious injury crash reduction opportunities, especially for underserved populations. Advance safety priorities based on criteria that include both the history of collisions and the potential risk of collisions to address systemic safety needs, utilizing criteria such as:

1. A substantial history of collisions – multiple severe collisions at a location
2. A history of vulnerable road user collisions – multiple pedestrians or bicycle fatal or serious injury collisions at a location
3. Presence on the Composite Network
4. Areas with identified safety risks factors, including prevalence of vulnerable road users (seniors, school children, members of underserved communities), high speeds, and significant cut-through traffic (only used for local-serving roadway traffic calming)

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[23] Salt Lake City Vision Zero Webpage

[24] The tool is available free of charge but requires training. Additional information is available at usRAP.

Some definitions for the risk factors used within each criterion might include:

- Areas with school children activity: Roadways within ¼ mile of a school
- Areas with senior activity: Roadways within ¼ mile of senior housing or a senior center
- Underserved communities
- Higher volume roadways with average speeds over 30 MPH
- Local residential streets with average speeds over 20 MPH
- Roadways with recorded median speeds that are at least 5 MPH higher than target speeds
- Cut-through traffic: Roadways with above average volumes of cut-through traffic
- Absence of sidewalks, barriers, or other separating roadway elements

Communities can institutionalize safety considerations in all project types across departments to systematically implement safety improvements through operations and maintenance efforts (such as repaving projects). Routinely reviewing maintenance conditions on high crash corridors (e.g., roadway striping, pavement condition, street sweeping) and allocating funding to support ongoing maintenance will help continuously support safety.

Finally, communities can consider auditing existing local capital improvement programs to find opportunities for enhanced safety benefits to already funded projects.

Resources:
Communities could explore resources provided by the Vision Zero Network. They can also take notes from peer communities, such as Salt Lake City or Austin, Texas, when developing their own programs and priorities.

Developing a Robust Vision Zero Prioritization Process
UDOT Project Safety Analysis Reports
SLC Safety Projects
Austin, Texas Vision Zero Project Work

Integrate Safety Evaluation Criteria in Planning

Timeline: Short-Medium Term | Context: Regionwide

To promote implementation of safety best practices, communities should adopt design guidelines to support safer infrastructure, particularly for managing speeds and protecting vulnerable roadway users. These criteria should review the Composite Network identified through the CSAP and subsequent planning efforts to identify effective projects. This includes evaluating updates to intersection design and control decisions in the planning or scoping stage for opportunities to better prioritize using design and control strategies that separate users in time and space. These updates should materialize through local standards, specifications, and drawings and include modern best practices in speed management, (e.g., roadway geometries designed for context-appropriate speeds), kinetic energy reduction, and roadway user separation. Broadly speaking, recommendations should support the most vulnerable roadway users and align with the general recommendations described in **Table 3.5**, supplemented and refined by the resources linked in this section and *Safety Countermeasures Toolbox* section of this report.

Table 3.5 – Systemic Safety Countermeasures

Roadway Type	Characteristic
High Volume State Roadways	Signal treatments such as protected turn phasing, shortened cycle lengths, retro-reflective signal backings, and extended yellow and all-red times; crossing improvements such as HAWK beacons and pedestrian signals; and striping improvements such as high-visibility crosswalks and lane narrowing.
Arterial Roadways	Pavement markings such as green conflict striping for bikes and lane narrowing; signal improvements including signal coordination, protected turns, and flashing yellow turn phases; improved signage, LED-enhanced signs, and crossing improvements such as HAWK beacons and Pedestrian Signals.
Local-Serving Roadways	Pavement markings such as lane narrowing, high visibility crosswalks, and advanced stop bars; and bicycle improvements such as Bicycle Boulevards and Bikes May Use Full Lane signage. Speed management strategies are recommended, including traffic calming devices such as driver feedback signs, shoulder stripes, bulb-outs, speed humps, speed tables, and raised crosswalks.
Signalized Intersections	Hardscape improvements such as protected intersections, refuge islands, and curb extensions; and signal treatments such as protected turn phasing, shortened cycle lengths, retro-reflective signal backings, and extended yellow and all-red times.
Stop-Controlled Intersections	Crossing improvements such as Rectangular Rapid Flashing Beacons (RRFBs), pedestrian signals, and curb extensions; traffic calming devices like speed humps, speed tables, and raised crosswalks; striping improvements like lane narrowing, high visibility crosswalks, and advanced stop bars; and control changes like all way stop control.

Source: NHTSA Countermeasures That Work

These guidelines can serve to mitigate key safety issues and movements on roadways, particularly those heavily represented in the crash analysis. These include collisions that occurred at signalized intersections associated with vehicle through movements or turns, rear end collisions, high speed collisions, and drivers failing to yield. They also help support the needs of vulnerable road users such as people walking and bicycling, children, and seniors.

Communities may also consider translating the following general approaches into their local policies to establish long-term foundations within their planning frameworks:

- Add flexibility for multimodal design and operation, particularly for designs that separate users in space.
- Update design guidance with speed reduction options for locations where land use suggests current or latent demand for active transportation.

When preparing for new planning work, communities should also clearly state in project solicitation forms, the safety goals and objectives of the project or plan, as well as ranking criteria for safety elements to ensure project recommendations center on safety. They should also ensure guidelines for safety improvement to be integrated into development review, particularly around high-risk areas, which can help develop a process to conduct safety impact assessments of all new land use developments to identify standard safety improvements and cost sharing opportunities. Finally, communities should ensure that a direct planning mechanism exists to address the concerns and requests of residents, which may even allow for project requests from residents.

Resources:
Institutions such as the National Cooperative Highway Research Program and federal government provide a host of resources for safety best practices, particularly to illustrate systemic countermeasures and engineering/design interventions. While the latter often fall within the realm of engineering or planning professionals, many countermeasures are options accessible to a broader range of decision-makers. Some communities, such as NYC, have fitted engineering/design guidance to their unique environment and created living documents to guide decision-makers and inform stakeholders.

UDOT Safety Standards Guidance
UDOT Traffic Safety Division
UDOT Project Safety Analysis Reports
NHTSA Countermeasures That Work
FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations
FHWA Guide for Separated Bike Lane Planning and Design
FHWA Signalized Intersection Safety Strategies
NCHRP Practices for Preventing Roadway Departures
NYC Street Design Manual

3.4.4. Complete Streets

Timeline: Ongoing | Context: Regionwide

WFRC communities should consider joining the more than 1,500 US towns, cities, and agencies[25] who have adopted a Complete Streets Policy into local ordinance, which requires that all users be considered each time a street investment is made. Coupled with robust, multi-modal network planning, these policies enable communities to systematically assess the trade-offs associated with accommodating or not accommodating each type of user. In practical terms, a commitment and vision mean that the policy uses clear, binding, and enforceable language like "shall" or "must" in the legislative text itself, rather than words like "may" or "consider." The policies that provide maximum value mention several transportation modes and specifically call out biking and walking, and especially vulnerable groups of roadway users. However, Complete Streets include an increasingly wide spectrum of options that are intended to be right-sized approaches for addressing critical infrastructure gaps within any community. The policy should include guidance on which streets or roadways would be prioritized for different modes – vehicles, freight, transit, bicycling and walking. Not all roadways will address all modes.

Resources:
National and local resources exist to help communities adopt a Complete Streets Policy appropriate for their unique identity and communities can turn to hundreds of peers for examples. Alternatively, such resources may be used to adopt select elements most appropriate for each community. Planning staff, residents, and decision makers may turn to these resources when considering proposing such updates to local ordinance and regulation.

Smart Growth for America Complete Streets Policy Framework
Smart Growth for America Complete Streets
WFRC Complete Streets Tools
Salt Lake City Complete Streets Ordinance

3.5. Post-Crash Care

3.5.1. Proactive Institutional Coordination

Timeline: Medium-Term | Context: Regionwide

First responders include state highway safety, EMS, 911 offices, designated trauma systems, police, federal interagency committees, and other trauma system stakeholders.

Emergency first responders must be able to quickly locate, stabilize, and transport crash victims to medical facilities. Post-crash care, however, extends beyond emergency response to include analysis of why a crash occurred, traffic incident management, and even adjudication. Communities should partner

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[25] Complete list of communities that have adopted a Complete Streets Policy, compiled by Smart Growth for America, December 2023.

local planning agencies with emergency response to identify areas for collaboration and information sharing around mitigating the severity of injuries sustained in crashes. Examples for which planning and engineering bodies could seek guidance include:

- Enforcement preferences for lane counts, particularly in areas where roadside clear space is needed by EMS for effective incident management.
- EMS vehicle size requirements, particularly with traffic calming treatments.
- Grid versus cul-de-sac challenges.
- Prime locations for signal preemption.
- On-street parking as a speed management technique vs EMS vehicle space and tradeoffs associated with increased conflict points.
- Multi-agency review of all fatal incidents on their roadways to identify any lessons to be learned.

Communities can collaborate with local partners to evaluate opportunities for improvements in the emergency response and trauma care portions of safety work, traditionally reserved for medical and law enforcement professionals. Opportunities for collaboration may include identifying barriers to effective traffic incident management or providing training to staff or residents in trauma care. Consistently sharing data and reports across agencies and organizations, including first responders and hospitals, also helps develop a holistic understanding of the safety landscape and improves data accuracy to reduce the likelihood of collision underreporting. While regional planning bodies may have better access to this data, local roadway managers rarely do. Ensuring that the Safe System feedback loop operates on the local level should be a central approach to any post-crash care policy responses.

Resources:
Resources in this category are intended to both guide higher-level decision makers towards making community-wide policy while also giving community staff the necessary background knowledge to effectively collaborate with post-crash care partners.

FICEMS Recommendations to Improve Post-Crash Care
National Safety Council Survivor Advocate Network
EMS, Highway Safety & Post-Crash Care

3.5.2. Crash Response Team

Timeline: Long-Term | Context: Regionwide

Communities may encourage their law enforcement and public safety departments to develop and deploy a multi-discipline rapid response team to all crash locations with a fatality or serious injury to evaluate the site for safety enhancements. The team would be comprised of law enforcement, emergency services, engineering, planning, and management.

Resources:
Local training exists to elevate crash response skills among law enforcement personnel. This training may offer an entry point for local communities to link their own staff with training opportunities through collaboration with the Utah Highway Patrol (UHP).

Utah Highway Patrol Accident Investigation Training

EXHIBIT A: PLANNING DOCUMENTS REVIEWED

Table A.1 below includes a list of plans reviewed. Acronyms to represent individual documents include:

- TMP: Transportation Master Plan
- GP: General Plan
- AT: Active Transportation Plan
- SAP/TOD: Station Area Plan/Transit Oriented Development Plan
- TR: Trails & Open Space Plan
- RTP: Regional Transportation Plan

Table A.1 – Plans Reviewed

Entity	Plans
WFRC	RTP
Box Elder County	GP, TMP, AT
Morgan County	GP
Weber County	GP
Tooele County	TMP, AT
Davis County	GP, AT
Salt Lake County	GP
Town of Alta	GP, AT
Bluffdale	TMP
Bountiful	TMP
Brigham City	GP
Brighton	GP
Centerville	GP
Clinton	GP
Copperton	GP
Corinne	GP
Cottonwood Heights	GP, AT, TR
Draper City	TMP, AT
Elwood	GP
Emigration Canyon	GP

Entity	Plans
Farmington	GP, TMP, AT, SAP
Farr West	GP, AT
Fruit Heights	GP
Harrisville	GP
Herriman	GP, TMP, AT
Holladay	GP, AT
Honeyville	GP
Hooper	GP
Kaysville	GP, AT
Kearns	GP, AT
Layton	GP, TMP
Magna	GP, TMP, AT
Mantua	GP
Marriot-Slaterville	GP
Midvale	GP, AT
Millcreek	GP, TMP, AT
Murray	GP, AT
North Ogden	GP
North Salt Lake	GP
Ogden	GP, AT, TOD
Perry	GP
Plain City	GP
Pleasant View	GP
Riverdale	GP, AT
Riverside	GP, AT
Riverton	AT
Roy	GP, TMP
Salt Lake City	GP, TMP, AT

Entity	Plans
Stockton	GP
South Salt Lake	GP
Sandy	GP, TMP, AT
South Jordan	GP, AT
South Ogden	GP
South Weber	GP
Sunset	GP
Syracuse	GP
Taylorsville	GP, AT
Tremonton	GP, TMP
Tooele	TMP
Uintah	GP, TMP
Washington Terrace	GP
West Bountiful	GP
West Haven	GP
West Jordan	GP, AT
West Point City	GP
West Valley City	GP, AT
White City	GP
Woods Cross	GP, SAP