APPENDIX D2: WESTERN WEBER COUNTY

Safety Summary Tech Memo #1 Safety Analysis Case Study Project Information Sheets Case Study Project Location Map Equity Index Map

WESTERN WEBER COUNTY SAFETY SUMMARY



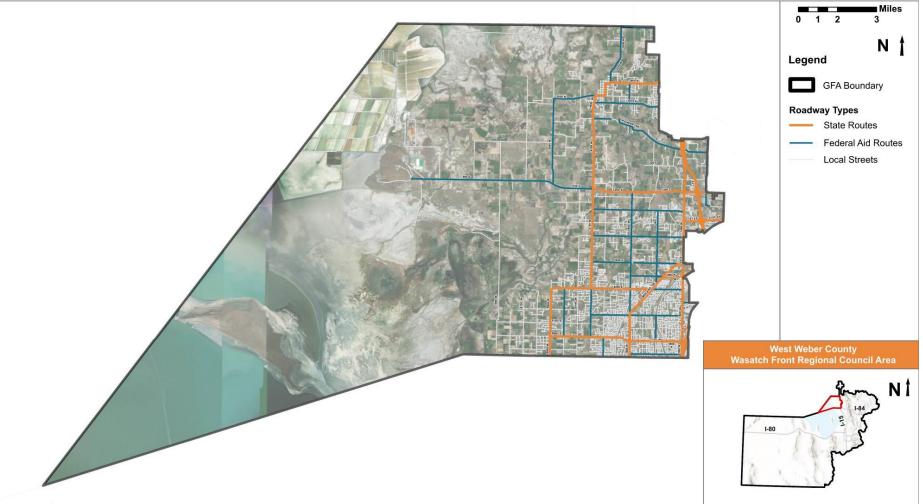
CSAP OVERVIEW

"A plan to provide local governments the means to make strategic roadway safety improvements"

Wasatch Front Regional Council (WFRC) is preparing a regional Comprehensive Safety Action Plan (CSAP). The CSAP will present a holistic, well-defined strategy to reduce roadway fatalities and serious injuries in the Wasatch Front region.

The CSAP will analyze safety needs, identify high-risk locations and factors contributing to crashes, and *prioritize* strategies to address them.

The CSAP will meet eligibility requirements that allow local jurisdictions to apply for Implementation Grants from the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) discretionary grant program. The grant program was established by the Bipartisan Infrastructure Law (BIL) with \$5 billion in appropriated funds, 2022-2026. A Safety Action Plan must include the following elements, as specified by FHWA to satisfy eligibility requirements to apply for an implementation grant:



Self-Certification Checklist

Plan must include the following:

- **Safety Analysis**
 - Existing conditions and historical trends
 - Crashes by location, severity, and contributing factor
 - Systemic and specific safety needs
 - Geospatial identification of higher risk locations
- Identification of comprehensive set of projects and strategies
- ...And must complete 4 of the 6 elements to the right:

- Leadership Commitment
 - Governing body publicly commit to a
 - zero fatalities and serious injury goal

State Route: Roadways owned, operated, and maintained by UDOT

Plan Development 2.

Committee charged with plan development, implementation, and

monitoring

Development Activities 3.

- Engagement with public and relevant stakeholders
- 5.

4.

6.

Western Weber County Geographic Focus Area

Federal-Aid Route: Non-UDOT roadways eligible for federal funding - typically minor arterials and collectors

Equity

Data-driven, inclusive, and representative processes

Policies, Plans, Guidelines, and/or **Standards**

Assessment policies, plans, guidelines, and/or standards

Progress

Description on how progress will be measured over time



Safe System Approach

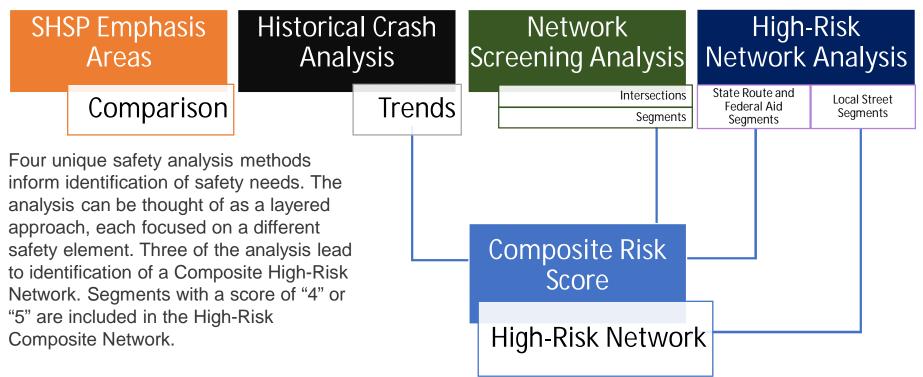
Implementing a Safe System Approach requires moving away from traditional safety paradigms.

- □ The Safe System approach seeks to prevent death and serious injuries.
- □ The Safe System approach designs for human mistakes and limitations.
- □ The Safe System approach focuses on speed management and strategies to reduce system kinetic energy.
- □ The Safe System approach aims to share responsibility among system users, managers, and others.
- □ The Safe System approach proactively identifies and addresses risks



Traditional Approach to Safety	
Prevent crashes	Prever
Improve human behavior	Desigr
Control speeding	Reduc
Individuals are responsible	Share
React based on crash history	Proact

Safety Analysis Methodology



Analysis	Composite High Risk Score Element	Value
Historical Crash Analysis	Segment 5-Year Crash Totals ≥ 3 Crashes	1
Network Screening Analysis	Positive CCR Differential	1
	Crash Profile Risk Score ≥ 20	1
High Diek Network Apolysia	usRAP Vehicle Star Rating = 1-2 Stars	1
High-Risk Network Analysis	usRAP Pedestrian Star Rating = 1-2 Stars	0.5
	usRAP Bicycle Star Rating = 1-2 Stars	0.5
Total Possible Composite Risk Score		5

Safe System Approach Paradigm

ent death and serious injury

In for human mistakes/limitations

ce system kinetic energy

e responsibility

ctively identify and address risks



Strategic Highway Safety Plan (SHSP) Emphasis Area Comparison

Based on a comparison of fatal and serious injuries for each Utah SHSP emphasis area, the following emphasis areas should be considered when developing safety improvement projects specific to the Western Weber County GFA.

- Intersections
- **Teen Driver**
- Older Driver
- Motorcycle
- Roadway Departure

Intersection, Roadway Departure, and Speed-Related emphasis areas rank highest in terms of number of fatal and serious injuries at the Statewide and WFRC Levels.

In addition to Intersection and Roadway Departure emphasis areas within the Western Weber County GFA, Teen Driver, Older Driver, and Motorcycle are also identified as top emphasis areas.

Strategic Highway Safety Plan Emphasis Area Comparison

		Statewid	le Totals	WFRC	Totals	Western	Weber Coun	nty Totals		
Category	Utah SHSP Safety Emphasis Area	Fatal and Serious Injury	Rank	Fatal and Serious Injury	Rank	Fatal and Serious Injury	Rank	Change in Rank From WFRC		
	Teen Driver	1,640	4	751	4	37	2	2		
	Older Driver	1,508	6	700	6	37	3	3		
	Speed-Related	2,133	3	936	3	11	10	-7		
Driver	Aggressive Driving	555	11	297	10	7	11	-1		
	Distracted Driving	718	10	286	11	7	11	0		
	Impaired Driving	1,184	8	623	8	19	7	1		
	No Safety Restraints	1,542	5	599	9	22	6	3		
	Intersection	3,567	1	2,163	1	95	1	0		
Roadway	Roadway Departure	2,931	2	1,014	2	23	5	-3		
	Motorcycle	1,457	7	750	5	30	4	1		
Special Users	Pedestrian	912	9	636	7	14	8	-1		
	Bicycle*	280	12	167	12	13	9	3		

*While Bicycles are not one of the eleven Utah SHSP emphasis areas, they are included as part of the CSAP safety analysis.

Western Weber County Geographic Focus Area

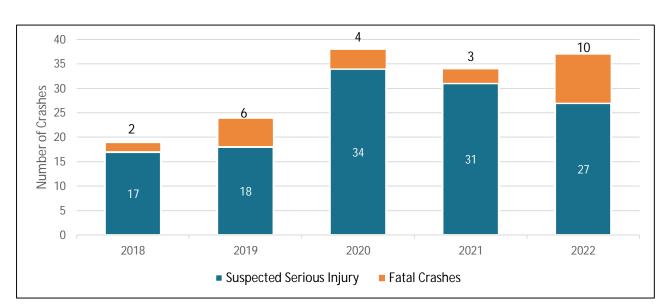
SHSP Emphasis Areas

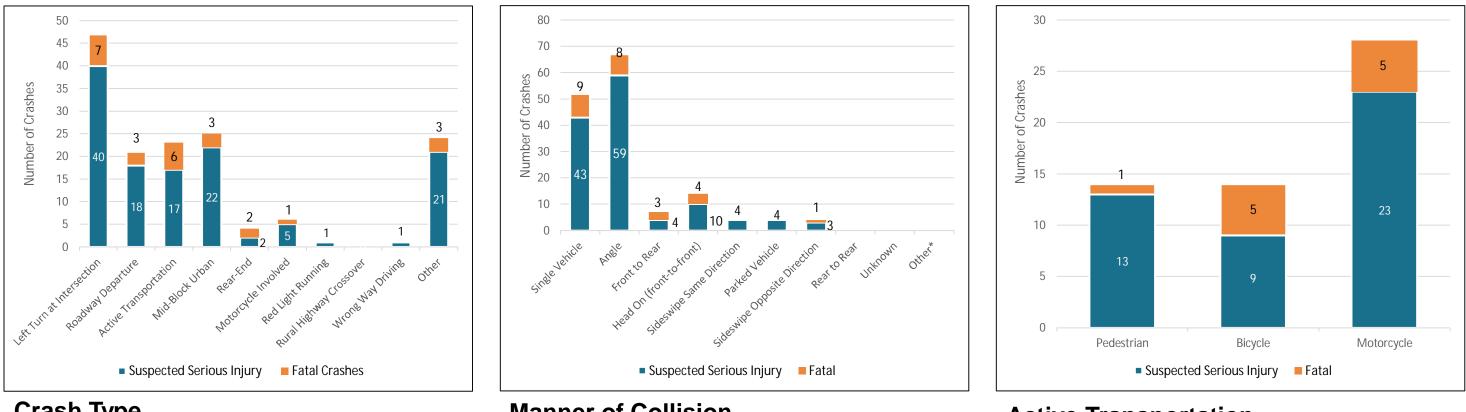
Comparison



5-Year Historical Crash Trends in Western Weber County GFA

Route Type	State	Route		al Aid ute	Local	Street	Overa	Overall Total	
Crash Severity	Cras	shes	Cras	shes	Cras	shes	Cras	shes	%
orash oeventy	#	%	#	%	#	%	#	%	
Fatal	20	0%	3	0%	2	0%	25	0.4%	< 0.1%
Suspected Serious Injury	92	2%	23	2%	12	2%	127	2.1%	0.1%
Suspected Minor Injury	582	13%	137	14%	65	9%	784	12.7%	0.4%
Possible Injury	859	19%	193	20%	96	14%	1,148	18.7%	0.6%
No Injury / Property Damage Only	2,926	65%	633	64%	511	74%	4,070	66.1%	2.3%
Route Total	4,479	100%	989	100%	686	100%	6,154	100%	3.4%





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Manner of Collision

Active Transportation

Western Weber County Geographic Focus Area

Annual Fatal and Serious Injury Crashes (2018-2022)

Historical Crash Analysis

Trends



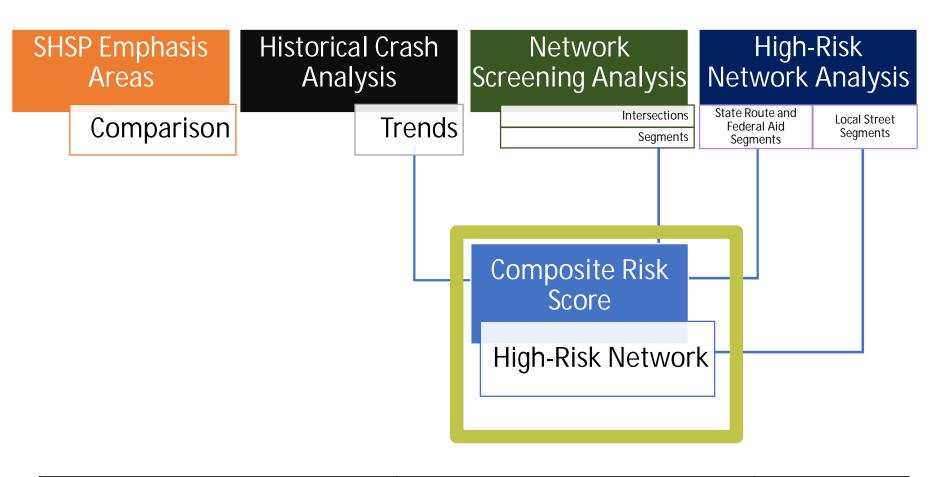
Composite High-Risk Roadway Network

Each of the completed safety analysis methodologies identified segments or intersections that may be candidates for safety improvements to reduce fatalities and serious injury crashes.

To provide focused information for jurisdictional decisions regarding prioritization of safety improvements, an analysis was performed to identify overlapping segments from each of the analysis methodologies. A composite score, from zero to five, was assigned to each State Highway or Federal Aid Route segment in the region. State Route or Federal Aid Route segments with a score of "4" or higher are included in the High-Risk Network. These represent the top 10% of State Route and Federal Aid Route segments for the entire WFRC area.

State Route and Federal Aid segments in the Western Weber County **GFA** that scored "4" or higher, and included in the Composite High-Risk Network, are listed in the table on page 6 and page 7. The table also lists streets identified through a separate Local Street Risk Assessment.

The Composite High Risk Network map on page 8 includes State Route and Federal Aid Route segments with a score of "4" or higher. The map also shows local streets identified through a separate Local Street Risk Assessment.



Analysis	Composite High Risk Score Element	Value
Historical Crash Analysis	Segment 5-Year Crash Totals ≥ 3 Crashes	1
Network Screening Analysis	Positive Local CCR Differential	1
	Crash Profile Risk Score ≥ 20	1
High Risk Network Analysis	usRAP Vehicle Star Rating = 1-2 Stars	1
HIGH RISK NELWORK ANALYSIS	usRAP Pedestrian Star Rating = 1-2 Stars	0.5
	usRAP Bicycle Star Rating = 1-2 Stars	0.5
Total Possible Composite Risk Score		5

Western Weber County Geographic Focus Area

Composite Risk Score



Composite High-Risk Network (State Route/Federal Aid) and Local Street Risk Network

						R	ISK ⁻	TYPE	-			S
Facility	Limits	Functional Classification	City	Length (miles)	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment	C sh a se U m
State Route	·		·	<u>.</u>		<u> </u>	·					
4275 West / 2600 North (SR-13-	4275 West to 4200 West	Minor Arterial	Plain City	0.2	Х	Х	Х	Х	Х	Х		
4700 West	1850 North to Silver Wolfer Run	Minor Arterial	Plain City	0.2	Х	Х	Х	Х	Х	Х		
1200 South	4700 West to East GFA Extent	Other Principal Arterial	Plain City	5.0	Х	Х	Х	Х		Х		
21st Street	I-15 to East GFA Extents	Minor Arterial	West Haven	5.0	Х	Х	Х	Х		Х		
1900 West	1200 South to South GFA Extent	Other Principal Arterial	West Haven, Roy	0.6	Х	Х	Х	Х	Х	Х		
Riverdale Road	1900 West to East GFA Extent	Other Principal Arterial	Roy	0.3	Х	Х	Х	Х		Х		
5600 South	1500 West to 1900 West	Other Principal Arterial	Roy	2.0	Х	Х		Х	Х	Х		
2500 West	South GFA Extent to 4800 South	Other Principal Arterial	Roy	1.5	Х	Х	Х	Х	Х	Х		
Midland Drive	3800 West to 2550 South	Other Principal Arterial	Roy	2.9	Х	Х	Х	Х		Х		
4000 South	5900 West to 5500 West	Minor Arterial	Hooper	0.5	Х	Х	Х		Х	Х		
4700 West	2550 South to 2400 South	Minor Arterial	Unincorporated	0.2	Х	Х		Х	Х	Х		

Western Weber County Geographic Focus Area

State Route segments in the **Western Weber** County GFA Composite High-Risk Network are shown on the left. Each of these segments received composite risk score of "4" or higher. These segments provide a focus for coordination with JDOT. Each of these segments are shown on the

> Composite Risk Score



Composite High-Risk Network (State Route/Federal Aid) and Local Street Risk Network, Cont'd

						R	ISK	TYPE	Ξ		
Facility	Limits	Functional Classification	City	Length (miles)	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment
Federal Aid Routes											_
1975 N	1900 N to 4700 W	Major Collector	Plain City	3.0	Х	Х		Х	Х	Х	
1200 W	Bill Bailey St to 1100 W	Minor Arterial	Marriott-Slaterville	1.5	Х	Х	Х	Х	Х	Х	
2550 S	3500 W to 1900 W	Major Collector	West Haven	2.0	Х	Х	Х	Х		Х	
Local Streets					Lo	ical St	reet	Risk <i>i</i>	Asses	smer	nt
1100 West/Wilson Lane	Excalibur to 1900 South	Local	West Haven	0.5							Х
6000 South	1900 West to 3100 West	Minor Collector	Roy	1.5							Х
4000 South	SR-108 to 1800 West	Major Collector	Roy	1.4							Х
3100 West	5400 South to 6000 South	Local	Roy	0.7		he Lo					Х
4800 South	I-15 to 4500 West	Minor Collector	Roy	3.6		sessr					Х
4400 South	1700 West to 2675 West	Local	Roy	1.1		rs su rashe					Х
2700 West	5400 South to 5600 South	Major Collector	Roy	0.2		ols, a	-		-		Х
5200 South	1750 West to 2675 West	Local	Roy	0.3						-	Х
2550 South	1700 West to 2000 West	Minor Arterial	West Haven	0.4							Х
3300 South	SR-108 to 3500 West	Minor Collector	West Haven	1.8							Х

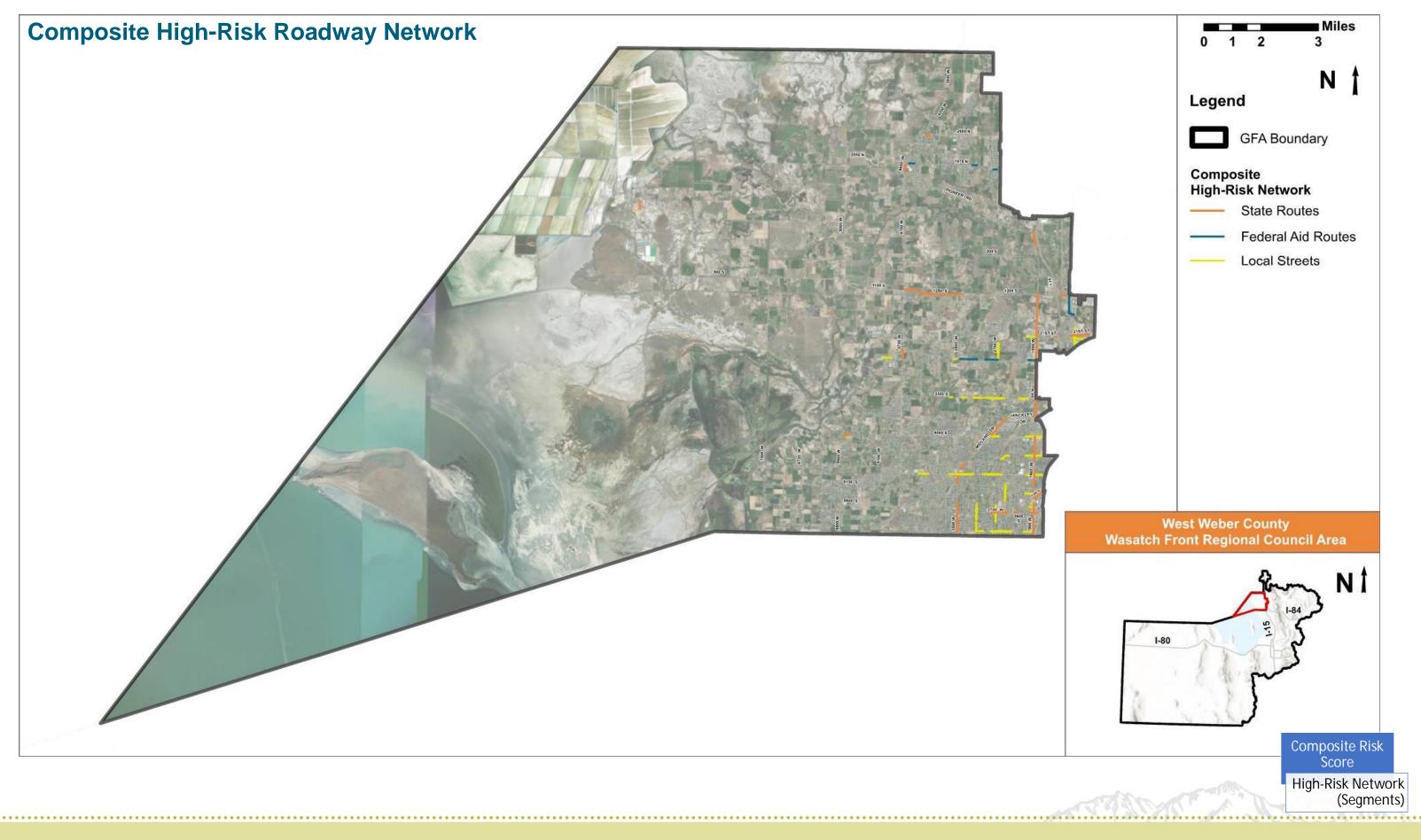
Federal Aid segments in the Western Weber County GFA Composite High-Risk Network are listed at left. Each of these segments received a composite risk score of "4" or higher. These segments provide a focus for local jurisdictions. Each of these segments are shown on the map on page 8.

Local Streets are also listed at left. These segments were identified through a separate analysis that considered factors such as crash location, proximity to schools, and hard braking.

Western Weber County Geographic Focus Area

Composite Risk Score







Network Screening -Intersections

Network Screening is one of the inputs to the Composite High-Risk Roadway Network. Network screening is based on Critical Crash Rate Differential analysis as documented in the Highway Safety Manual. This analysis identified intersections where historical crash rates exceed those which can be expected for similar facilities.

A list of the top 10 intersections on State Routes, Federal Aid Routes, and Local (Non-Federal Aid) Streets in the **Western Weber County** GFA are listed at right, along with their associated number of crashes.

For each intersection, the Critical Crash Rate (CCR) Differential and Equivalent Property Damage Only (EDPO) value is listed. These intersections represent those with the highest potential for safety improvements and can be considered as project candidate locations.

Signalized and unsignalized intersections in the **Western Weber County** GFA with a positive Critical Crash Rate Differential (rate exceeds expected rate) are mapped on page 10.

Intersection	City	Crashes	Critical Crash Rate Differential	EPDO ¹	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	No Injury/PDO	Angle	Front to Rear	Head On	Parked Vehicle	Single Vehicle	Rear to Rear	Rear to Side	Sideswipe (Same Direction)	Sideswipe (opposite Direction)	Other/Unknown	Pedestrian	Bicycle	Motorcycle
Signalized Intersections	,													0								
1900 W & Pioneer Rd	Marriott-Slat	56	1.6	1280	1	0	9	14	32	28	17	3	4	0	0	0	1	3	0	0	1	4
1900 W & Midland Dr	Unincorpora ⁻	94	0.5	2732	2	5	10	18	59	45	32	7	3	0	0	0	3	4	0	1	0	3
3500 W & 5600 S	Roy	99	0.3	1165	0	4	20	26	49	64	17	5	8	0	0	0	1	3	1	3	1	0
1900 W & Hinckley Dr	Roy	75	0.1	1347	0	7	21	17	30	51	17	3	2	0	0	0	1	1	0	1	0	3
1900 W & 4000 S	Roy	65	0.0	444	0	0	10	16	39	13	43	2	2	1	0	0	1	2	1	0	1	0
1900 W & 5600 S	Roy	124	0.0	995	0	1	21	32	70	66	36	6	3	0	0	0	1	11	1	2	0	2
2475 W & Hinckley Dr	West Haven	49	0.0	354	0	0	9	11	29	13	20	2	9	0	0	0	1	3	1	0	0	1
1900 W & 2550 S	West Haven	68	-0.1	425	0	0	9	16	43	29	20	6	5	0	0	0	3	5	0	1	0	0
1100 W & 21St St	West Haven	59	-0.1	685	0	3	11	11	34	25	17	1	6	1	0	0	3	3	3	4	0	0
2825 W & Midland Dr	Roy	63	-0.1	909	0	4	17	11	31	34	23	2	2	0	0	0	1	1	0	0	0	1
Unsignalized Intersections																						
Airport Rd & 4400 S St	Roy	4	17.8	4	0	0	0	0	4	2	0	0	2	0	0	0	0	0	0	0	0	0
2700 W & 3300 S	West Haven	14	4.5	67	0	0	2	1	11	11	1	0	1	0	0	0	0	0	1	0	0	0
4425 W & 2200 N	Plain City	11	2.4	53	0	0	1	2	8	11	0	0	0	0	0	0	0	0	0	0	0	0
4700 W & 1500 N	Plain City	19	2.3	207	0	1	4	1	13	16	3	0	0	0	0	0	0	0	0	0	0	0
5100 W & 4000 S	West Haven	13	1.6	45	0	0	1	1	11	11	1	0	0	0	0	0	0	0	1	0	0	0
3500 W & 2550 S	Unincorpora [,]	26	1.2	202	0	1	0	8	17	23	1	1	0	0	0	0	0	0	1	0	0	0
2100 W & 5500 S	Roy	3	1.1	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Bouwhuis Dr & Midland Dr	West Haven	30	0.9	166	0	0	3	7	20	23	2	0	4	0	0	0	0	0	1	0	0	0
5500 W & 4000 S	Hooper	13	0.9	66	0	0	2	1	10	4	4	1	3	0	0	0	0	1	0	0	1	0
1100 W & 2100 S	West Haven	22	0.8	84	0	0	0	6	16	8	9	0	3	0	0	0	0	1	1	1	0	0
1. Equivalent Property Damage Only Crashes																						

= 90 - 100% probability that crash type is over-represented

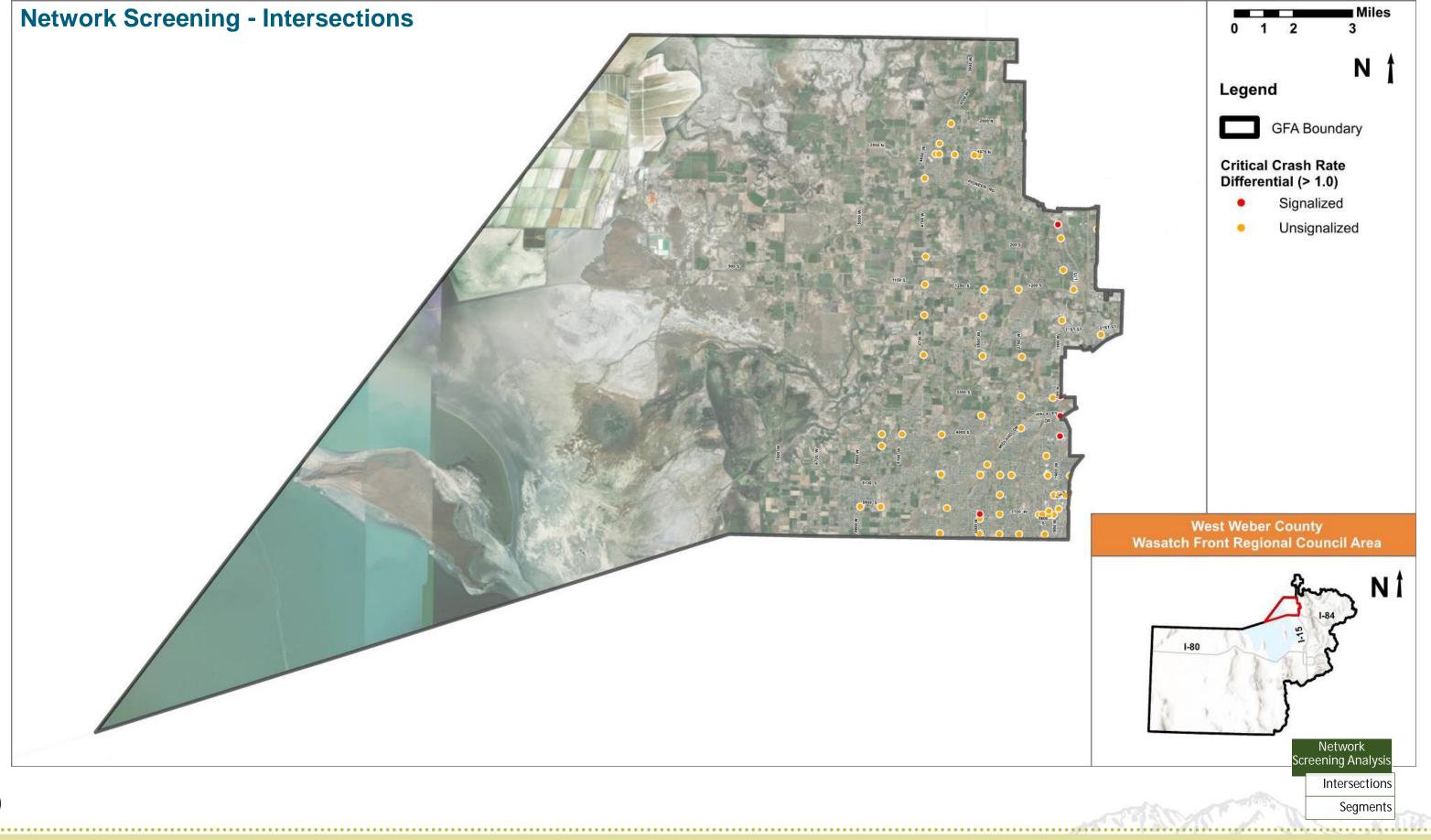
= 80 - 90% probability that crash type is over-represented

= 70 - 80% probability that crash type is over-represented

Network Screening Analysis

Segments







Supporting Information



12

High-Risk Roadwa	y Segments (Federal Aid F	(outes)							
		/		R	ISK ⁻	TYPE			
Facility	Limits	City	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment
Federal Aid Routes			_						
4000 North	3900 West to East GFA Extents	Unincorporated	Х	Х	Х				
4200 West / 3900 West	2600 North to 4000 North	Plain City	Х						
Plain City Road	2800 West to East GFA Extents	Plain City	Х		Х				
3600 West	Silver Wolf Run to 2600 North	Plain City	Х		Х				
Silver Wolf Run	1900 North (West) to 1900 North (East)	Plain City	Х	Х					
1900 North	Silver Wolf Run to East GFA Extents	Plain City	Х	Х					
2800 North	4200 West to Gravel Road	Plain City	Х						
2050 North / 2150 North	5900 West to 4650 West	Plain City	Х						
5900 West	1150 South to 2050 North	Unincorporated	Х						
900 South	9350 West to 5900 West	Unincorporated	Х	Х					
11500 South	5900 West to 4700 West	Hooper	Х						
400 North	1600 West to 1200 West	West Point	Х	Х	Х				
1200 West	17th Street to North GFA Boundary	Syracuse	Х	Х	Х				
1800 South	4700 West to 1900 West	Ogden	Х		Х				
2550 South	4701 West to 1900 West	West Haven	Х	Х	Х				

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The maps on page 16 through 20 map each of these segments as identified by the respective analysis.

Western Weber County Geographic Focus Area

Federal Aid Route segments in the Western Weber County GFA identified from the safety analysis methods are listed at left. These include the top-10 segments from each analysis. An "x" is placed to identify the analysis that flagged the segment:

• usRAP Star Ratings (Vehicle, Bicycle, Pedestrian • Crash Profile Risk Score Network Screening, applying Critical Crash

Rate (CCR) and Significant Crashes (three or more crashes over 5-year period)

> Composite Risk Score

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

13

High-Risk Roadwa – Cont'd	y Segments (Federal Aid	d Routes)		R	ISK ⁻	ΓΥΡΕ	-		
Facility	Limits	City	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment
Federal Aid Routes	·			<u> </u>					
3300 South	4300 West to 2700 West	Ogden	Х		Х				
5500 West	5500 South to 4000 South	Hooper	Х		Х				
3500 West	2550 South to 1200 South	Ogden	Х						
4800 South	4700 West to 3100 West	Hooper	Х						
Silver Wolf Run / 1900 North	4650 West to East GFA Extents	Farr West				Х			
400 North	I-15 to 1200 West	Marriott-Slaterville				Х			
4800 South	4700 West to 3900 West	Roy				Х			
1500 South	4700 West to Pioneer Road	Ogden				Х			
900 South / 1150 South	Little Mountain Training Annex to 4	700 West				Х			
2550 South	5900 West to 1900 West	Ogden				Х			
1200 West	17th Street to Bill Bailey Street	Unincorporated				Х			
3600 West	Silver Wolf Run to 2600 North	Plain City				Х			
1800 South	5900 West to 1900 West	Ogden				Х			
3300 South	4700 West to 2700 West	West Haven				Х			
2150 North	5900 West to 4700 West	Plain City				Х			

Western Weber County Geographic Focus Area

Composite Risk Score

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

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High-Risk Roadwa	ay Segments (Federal A	id Routes)							
– Cont'd		-		R	ISK ⁻	TYPE			
Facility	Limits	City	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment
Federal Aid Routes									
5900 West	1150 South to 2150 North	Ogden				Х			
Pioneer Rd	2200 W to 2000 W	Marriott-Slaterville					Х	Х	
4800 S	2700 W to 2675 W	Roy					Х	Х	
2550 S	2050 W to 1900 W	West Haven					Х	Х	
4800 S	3500 W to 3350 W	Roy					Х	Х	
1975 N	4600 W to 4500 W	Plain City					Х	Х	
1975 N	3475 N to Silver Wolf Run	Plain City					Х	Х	
1200 W	1450 S to 1200 S	Marriott-Slaterville					Х	Х	
2550 S	1900 W to 1760 W	West Haven					Х	Х	
4800 S	Midland Dr to 3500 W	Roy					Х	Х	
1200 W	1450 S to 1100 W	Marriott-Slaterville					Х	Х	

14

Western Weber County Geographic Focus Area

Composite Risk Score

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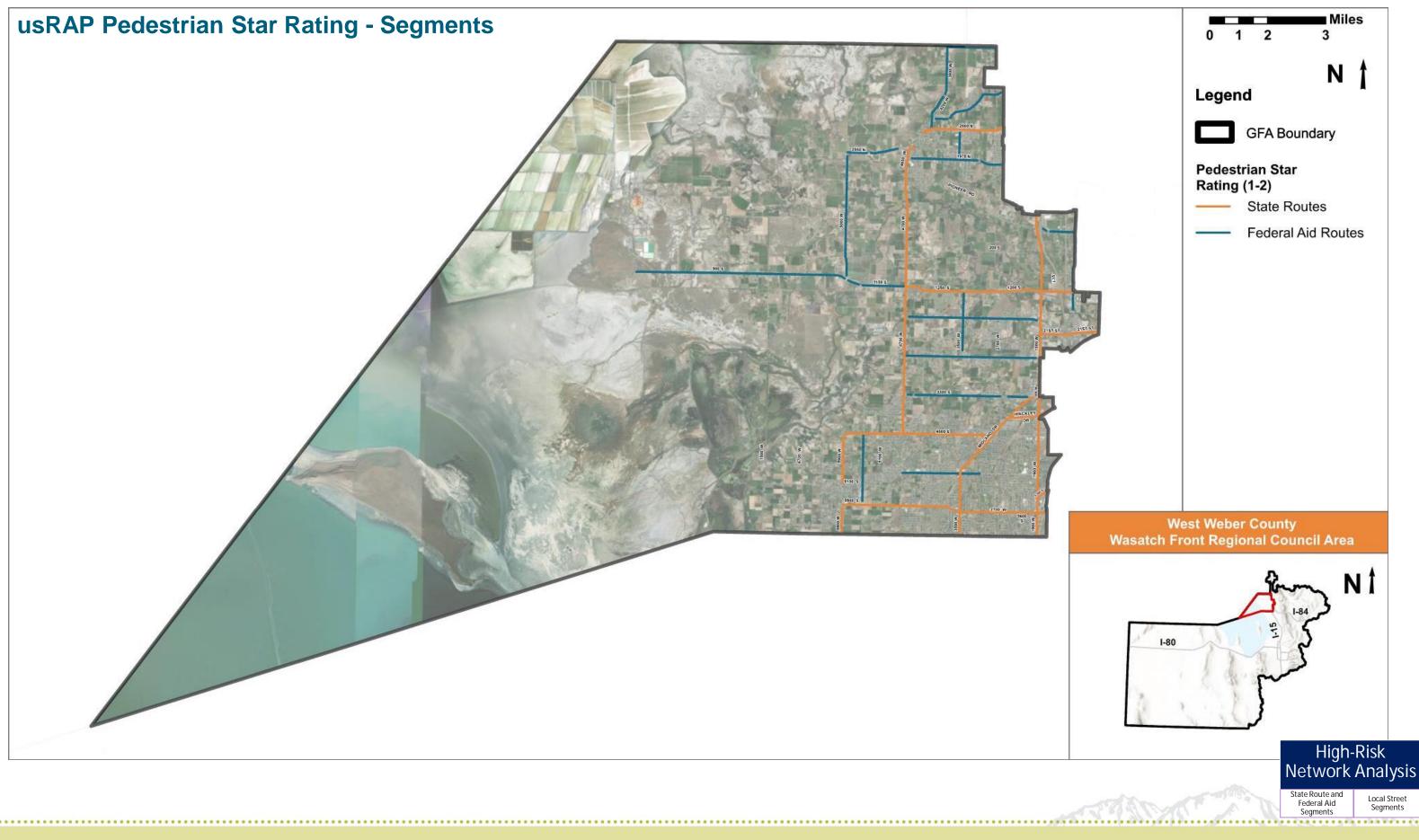
Network Screen	ing – Segments (Local Stre	ets)							_
	5 5 (R	ISK ⁻	TYPE	-		
Facility	Limits	City	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Street Risk Assessment
Local Streets			_						
5200 S	2000 W to 1950 W	Roy					Х	Х	
2100 S	Shadybrook Ln to 1100 W	West Haven					Х	Х	
5700 S	2000 W to 1900 W	Roy					Х	Х	
Commerce Way	Scott Ln to 1900 W	West Haven					Х	Х	
2000 W	5125 S to 5075 S	Roy					Х	Х	
4975 W	Haven Rd to 4890 W	West Haven					Х	Х	
7500 W	5100 S to North Fork Weber River	Hooper					Х	Х	
2275 W	4975 S to 4900 S	Roy					Х	Х	
5100 W	4600 S to 4525 S	West Haven					Х	Х	
5100 W	3000 S to 2550 S	Unincorporated					Х	Х	

Local Street segments in the Western Weber GFA identified from Network Screening, applying Critical Crash Rate (CCR) and Significant Crashes (three or more crashes over 5-year period), are listed at left.

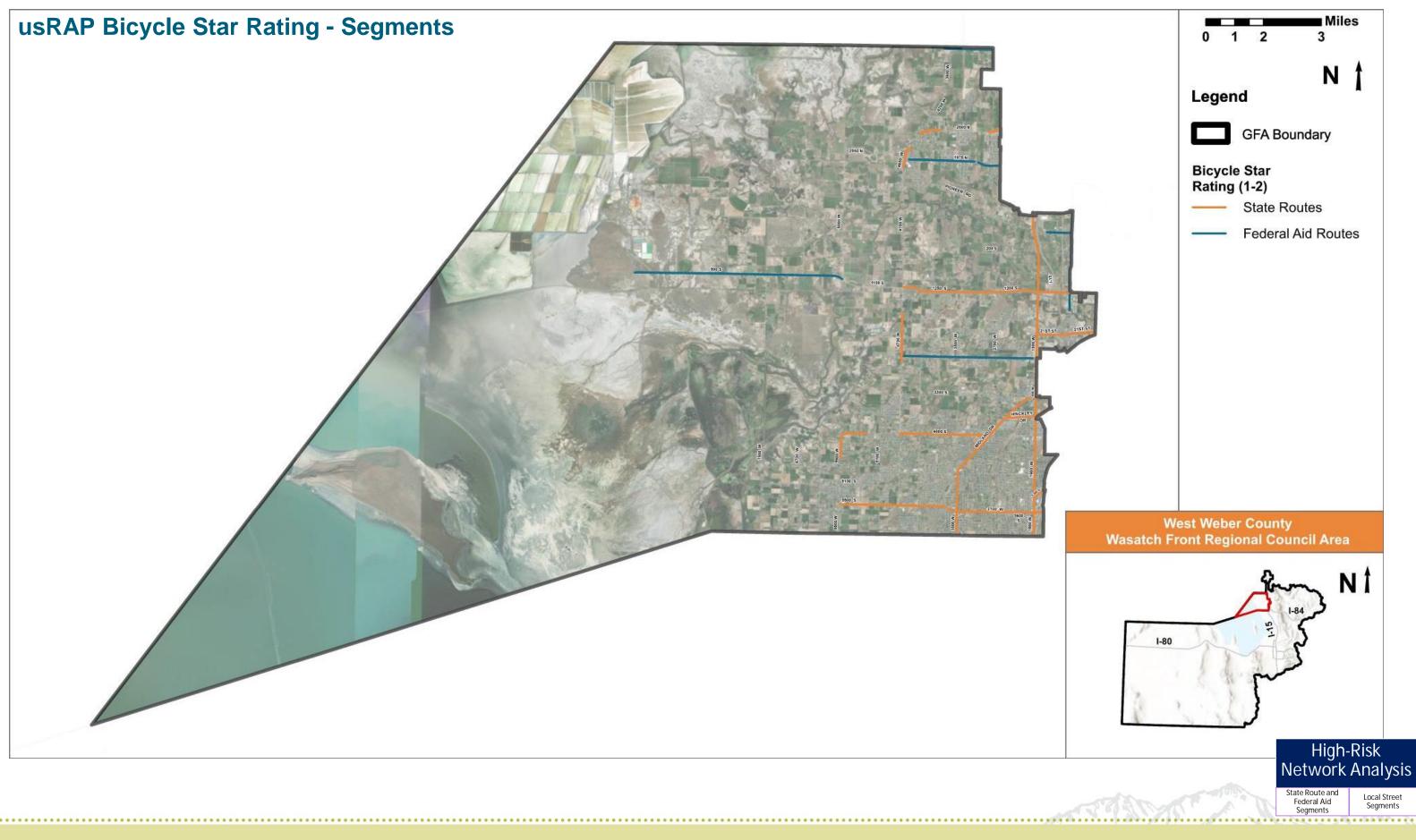
> Composite Risk Score

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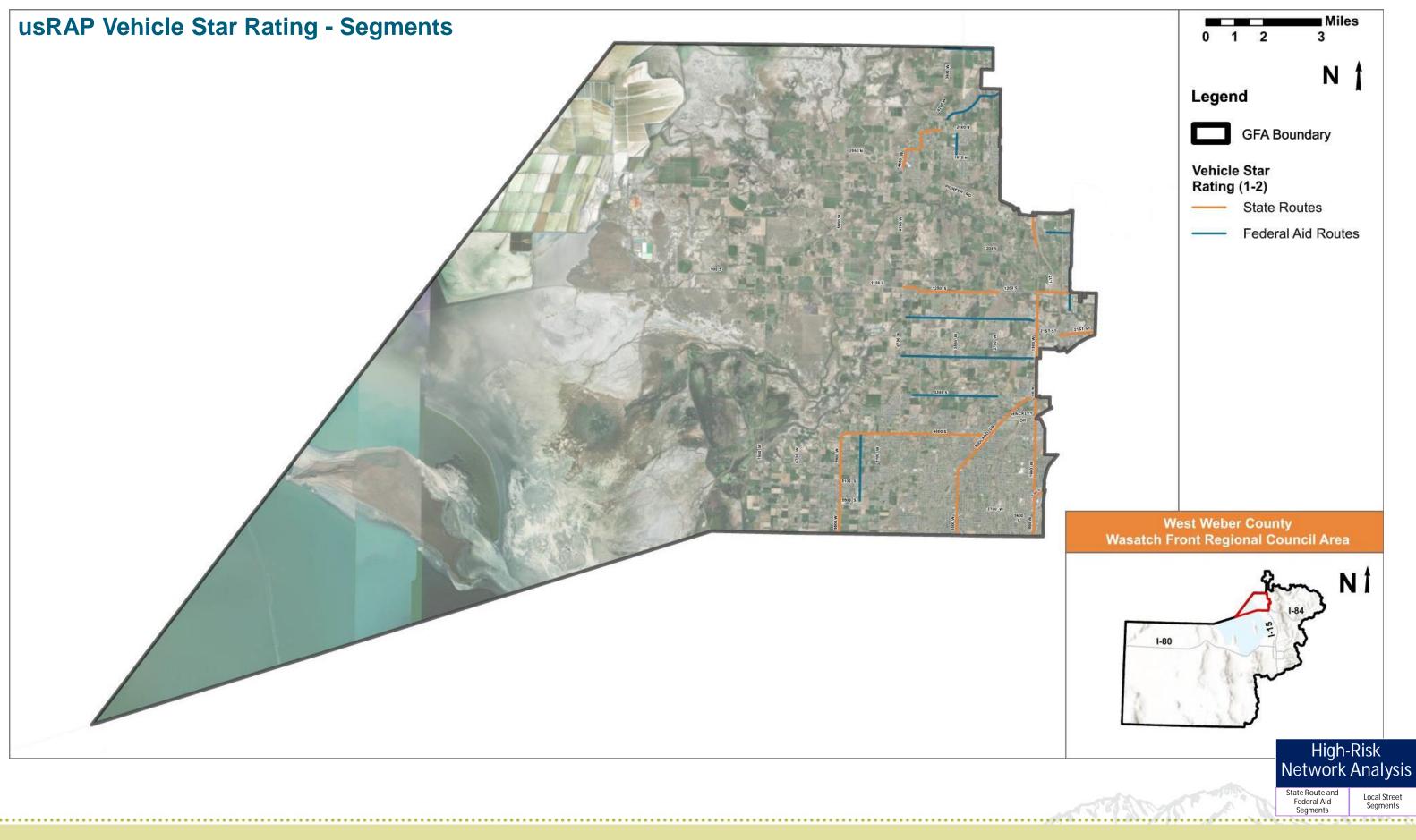




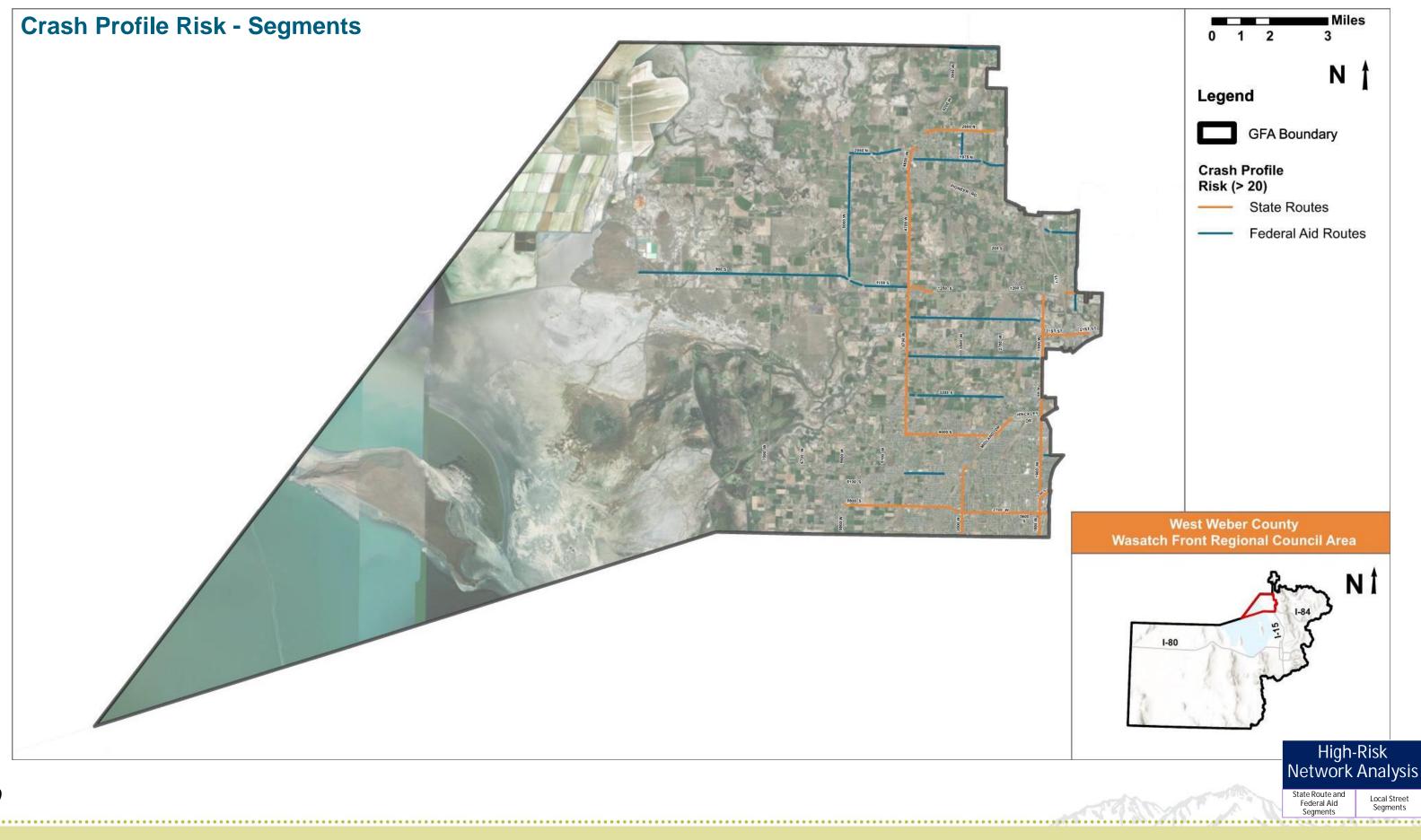




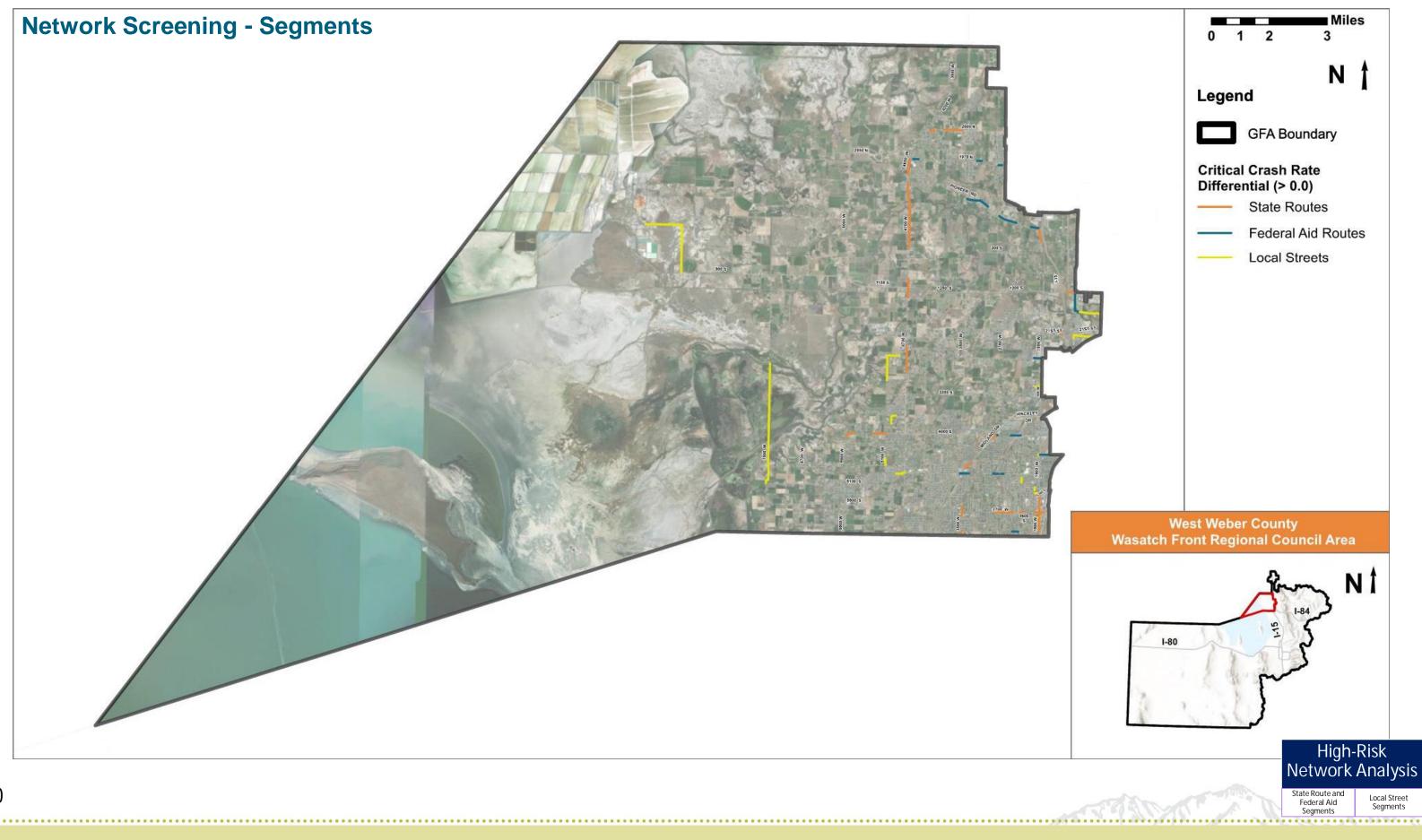












WESTERN WEBER COUNTY TECH MEMO #1 SAFETY ANALYSIS



TECHNICAL MEMORANDUM #1

APPENDIX A2 - WESTERN WEBER COUNTY GEOGRAPHIC FOCUS AREA ANALYSIS

September 2023

Statutory Notice

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

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.

File name: Appendix A2 - Western Weber - Safety Analysis.docx

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Table of Contents

1.	Introduction						
	1.1.	Safety Analysis	. 5				
	1.2.	Appendix Organization	. 5				
2.	Stud	ly Area	6				
3.	SHS	P Emphasis Area Analysis	. 9				
4.	Historical Crash Analysis						
	4.1.	Overall Crashes	10				
	4.2.	Fatal and Serious Injury Crashes by Year	10				
	4.3.	Fatal and Serious Injury Crashes by Location	10				
	4.4.	Fatal and Serious Injury Crashes by Crash Type	16				
	4.5.	Fatal and Serious Injury Vulnerable User Crashes	18				
	4.6.	Fatal and Serious Injury Crashes by Manner of Collision	20				
	4.7.	Fatal and Serious Injury Intersection Crashes	21				
	4.8.	Fatal and Serious Injury Crashes by Functional Class	24				
	4.9.	Fatal and Serious Injury Crash Trees Diagrams	26				
5.	Cras	h and Network Screening Analysis	30				
6.	Road	dway Characteristic Risk Analysis	38				
	6.1.	Crash Profile Risk Assessment	38				
	6.2.	usRAP Risk Assessment	41				
	6.3.	Local Street Risk Assessment	48				
7.	Safe	Safety Analysis Summary					
	7.1.	Common Risk Characteristics	50				
	7.2.	Composite High-Risk Roadway Network	50				



List of Figures

Figure 2.1 – Western Weber County GFA Study Area	7
Figure 2.2 – Western Weber County GFA Roadway Network	8
Figure 4.1 – Fatal and Serious Injury Crashes by Year	. 11
Figure 4.2 – Fatal Crashes by Year	. 11
Figure 4.3 – Annual Fatal Crashes by Roadway Ownership	. 12
Figure 4.4 – Serious Injury Crashes by Year	. 12
Figure 4.5 – Annual Serious Injury Crashes by Roadway Ownership	. 13
Figure 4.6 – Fatal and Serious Injury Crashes	. 14
Figure 4.7 – Fatal and Serious Injury Crash Density	. 15
Figure 4.8 – Fatal and Serious Injury Crashes by Crash Type	. 16
Figure 4.9 – Fatal Crashes by Crash Type and Roadway Ownership	. 17
Figure 4.10 – Serious Injury Crashes by Crash Type and Roadway Ownership	. 17
Figure 4.11 – Fatal and Serious Injury Crashes by Vulnerable User	. 18
Figure 4.12 – Fatal Crashes by Vulnerable User and Roadway Ownership	. 19
Figure 4.13 – Serious Injury Crashes by Vulnerable User and Roadway Ownership	. 19
Figure 4.14 – Fatal and Serious Injury Crashes by Manner of Collision	. 20
Figure 4.15 – Fatal Crashes by Manner of Collision and Roadway Ownership	. 20
Figure 4.16 – Serious Injury Crashes by Manner of Collision and Roadway Ownership	. 21
Figure 4.17 – Fatal and Serious Injury Crashes by Intersection	. 22
Figure 4.18 – Fatal Crashes by Intersection and Roadway Ownership	. 22
Figure 4.19 – Serious Injury Crashes by Intersection and Roadway Ownership	. 23
Figure 4.20 – Fatal and Serious Injury Crashes by Functional Class	. 24
Figure 4.21 – Fatal Injury Crashes by Functional Class and Roadway Ownership	. 25
Figure 4.22 – Serious Injury Crashes by Functional Class and Roadway Ownership	. 25
Figure 4.23 – Fatal and Serious Injury Crash Tree Diagram (Crash Type)	. 27
Figure 4.24 – Fatal and Serious Injury Crash Tree Diagram (Manner of Collision)	. 28
Figure 4.25 – Fatal and Serious Injury Crash Tree Diagram (Active Transportation)	. 29
Figure 5.1 – CCR Differential – Segments (State Routes)	. 31
Figure 5.2 – CCR Differential – Segments (Federal Aid Routes)	. 32
Figure 5.3 – CCR Differential – Segments (Local Routes)	. 33
Figure 5.4 – CCR Differential – Intersections (Signalized)	. 35



WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Figure 5.5 – CCR Differential – Intersections (Unsignalized)	. 36
Figure 6.1 – Crash Profile Risk Assessment Results (State Routes)	. 39
Figure 6.2 – Crash Profile Risk Assessment Results (Federal Aid Routes)	. 40
Figure 6.3 – Vehicle Star Rating (State Routes)	. 42
Figure 6.4 – Vehicle Star Rating (Federal Aid Routes)	. 43
Figure 6.5 – Pedestrian Star Rating (State Routes)	. 44
Figure 6.6 – Pedestrian Star Rating (Federal Aid Routes)	. 45
Figure 6.7 – Bicycle Star Rating (State Routes)	. 46
Figure 6.8 – Bicycle Star Rating (Federal Aid Routes)	. 47
Figure 6.9 – Local Street Risk Assessment Results	. 49
Figure 7.1 – Western Weber County High-Risk Roadway Network (State Routes)	. 52
Figure 7.2 – Western Weber County High-Risk Roadway Network (Federal Aid Routes)	. 53

List of Tables

Table 3.1 – SHSP Emphasis Areas Analysis	9
Table 4.1 – Crashes by Severity by Roadway Ownership	10
Table 5.1 – Crash and Network Screening Analysis Results - Segments	34
Table 5.2 – Crash and Network Screening Analysis Results - Intersections	37
Table 6.1 – Crash Profile Risk Assessment Segments (Federal Aid Routes)	38
Table 6.2 – usRAP Risk Segments (Federal Aid Route)	41
Table 6.3 – Local Street High Priority Segments	48
Table 7.1 – Composite High-Risk Roadway	51
Table 7.2 – Western Weber County High-Risk Roadway Network (Federal Aid Routes)	51



Comprehensive Safety Action Plan

1. Introduction

Appendix A2 summarizes the safety analysis performed for the Western Weber County Geographic Focus Area (GFA) for the Wasatch Front Area Comprehensive Safety Action Plan (CSAP).

The analysis of available safety related data informs identification of a potential project locations that may be further considered in the development of safety related projects and project types.

1.1. Safety Analysis

The following safety analysis methodologies were completed for the Western Weber County GFA:

- Strategic Highway Safety Plan (SHSP) Emphasis Area Analysis
- Historical Crash Analysis
- Crash and Network Screening Analysis
- Roadway Characteristic Risk Analysis
 - Region-specific Risk Assessment
 - usRAP Risk Factors Analysis
 - Local Street Risk Assessment

An overview on the methodologies used to perform these safety analyses are described in Technical Memorandum #1: Safety Analysis Results Summary. **Appendix A2** summarizes the results of the analyses for the Western Weber County GFA.

1.2. Appendix Organization

This Appendix is organized into the following sections:

- Section 1 Introduction
- **Section 2** Western Weber County GFA Study Area and Roadway Network.
- Section 3 Strategic Highway Safety Plan (SHSP) Emphasis Area Analysis.
- Section 4 Historical Crash Analysis
- Section 5 Crash and Network Screening Analysis based on Highway Safety Manual (HSM).
- Section 6 Roadway Characteristic Risk Analysis
- Section 7 Common Risk Characteristics and Composite High-Risk Roadway Network



2. Study Area

The CSAP study area includes each jurisdiction within the WFRC area. To organize the large number of jurisdictions within the WFRC area into manageable analysis areas, jurisdictions are organized into Geographic Focus Areas (GFA). The Western Weber County GFA (**Figure 2.1**) is located entirely within Weber County and includes the following agencies and jurisdictions:

- Plain City
- Marriott Slaterville
- West Haven
- Roy
- Hooper

The safety analyses presented in this Technical Memorandum are specific to the Western Weber County GFA.

Figure 2.2 highlights the roadway network within the Western Weber County GFA study area. Roadways within the study area are divided into the following three categories:

- State Routes: UDOT-maintained roads
- Federal Aid Routes: Jurisdiction-maintained roads eligible for federal funding
- Local Streets: Local Jurisdiction-maintained roads that are not Federal Aid routes.

NOTE ON CRASH DATA ANALYSIS: All crash data presented in this Technical Memorandum are specific to the Western Weber County GFA, for the years 2018-2022. Crash data was obtained from the Utah Department of Transportation.





Figure 2.1 – Western Weber County GFA Study Area



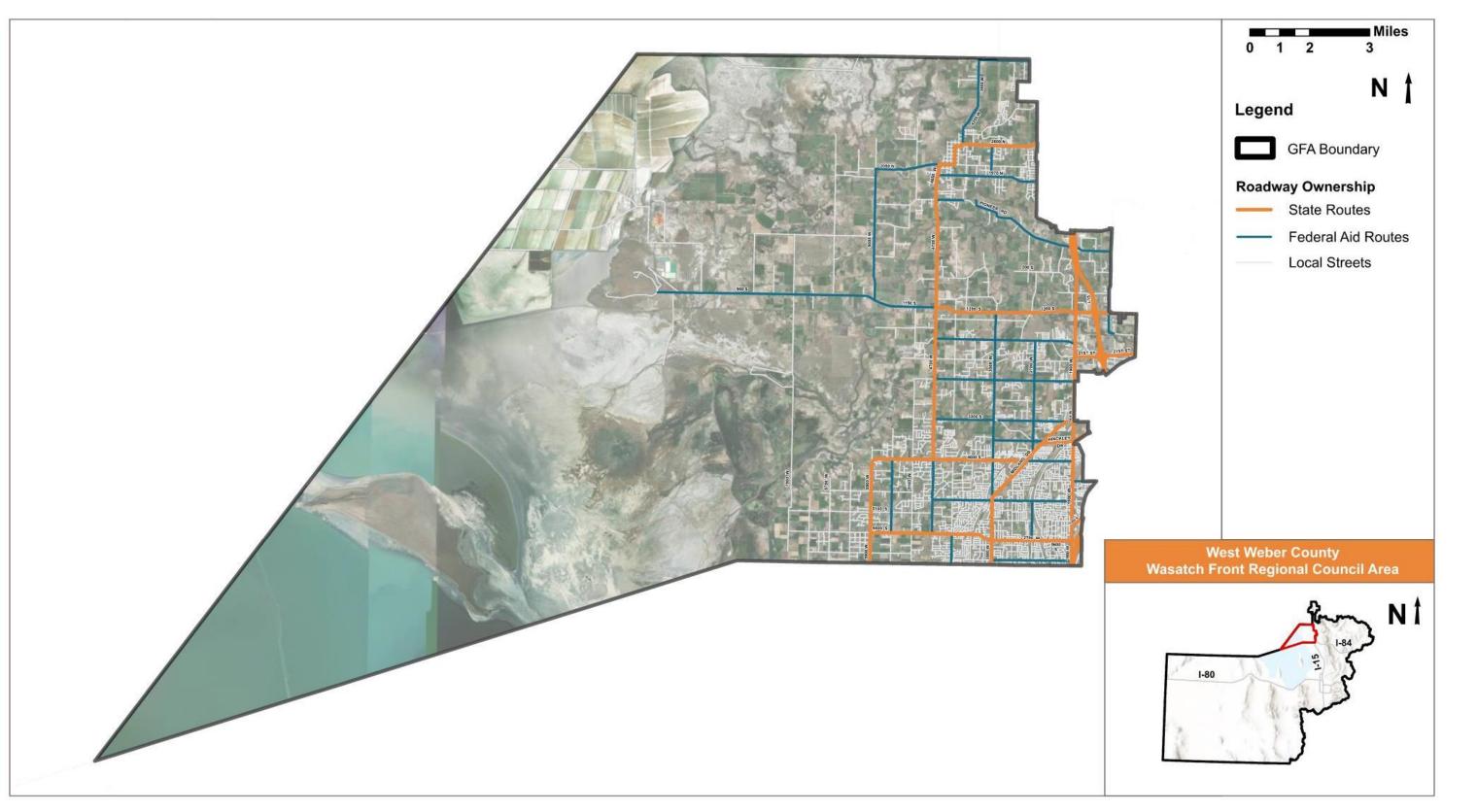


Figure 2.2 – Western Weber County GFA Roadway Network



3. SHSP Emphasis Area Analysis

The SHSP emphasis area analysis ranks the frequency of fatal and serious injury crashes in the Western Weber County GFA for each of the eleven Utah SHSP emphasis areas. The rankings of the emphasis areas are compared for the Western Weber County GFA, statewide (all public roads statewide), and the WFRC study area totals. Each reported crash can have more than one emphasis area identified. The results of the SHSP emphasis area analysis are displayed in **Table 3.1**. The top five ranked emphasis areas are highlighted in the table with the top five for the Western Weber County GFA listed below:

- Intersections
- Teen Driver
- Older Driver
- Motorcycle
- Roadway Departure

	Utah SHSP	Statewid	le Totals	WFRC	Totals	Western Weber County Totals			
Category	Safety Emphasis Area	Fatal and Serious Injury	Rank	Fatal and Serious Injury	Rank	Fatal and Serious Injury	Rank	Change in Rank From WFRC	
	Teen Driver	1,640	4	751	4	37	2	2	
	Older Driver	1,508	6	700	6	37	3	3	
	Speed- Related	2,133	3	936	3	11	10	-7	
Driver	Aggressive Driving	555	11	297	10	7	11	-1	
	Distracted Driving	718	10	286	11	7	11	0	
	Impaired Driving	1,184	8	623	8	19	7	1	
	No Safety Restraints	1,542	5	599	9	22	6	3	
	Intersection	3,567	1	2,163	1	95	1	0	
Roadway	Roadway Departure	2,931	2	1,014	2	23	5	-3	
	Motorcycle	1,457	7	750	5	30	4	1	
Special Users	Pedestrian	912	9	636	7	14	8	-1	
	Bicycle*	280	12	167	12	13	9	3	

Table 3.1 – SHSP Emphasis Areas Analysis

*Bicyclists aren't one of the eleven Utah SHSP emphasis areas but was included as part of the CSAP safety analysis.



WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

4. Historical Crash Analysis

A historical crash data analysis was conducted for the most recent complete 5-year period from 2018 to 2022. This historical crash analysis is primarily focused on fatal and serious injury crashes.

4.1. Overall Crashes

Table 4.1 provides an overview of overall crashes by severity and roadway ownership within the WesternWeber County GFA. The data shows the following:

- State Routes recorded 73% of the total crashes in this GFA
- State Routes recorded 20 of 25 fatal crashes in this GFA
- Federal Aid routes recorded 16% of fatal and serious injury crashes in this GFA
- Federal Aid routes recorded three of 20 fatal crashes in this GFA
- Local Streets (non-Federal Aid) recorded 11% of fatal and serious injury crashes in this GFA
- Local Streets recorded two of 20 fatal crashes in this GFA

Route Type	State Route		Federal Aid Route		Local Street		Overall Total		% of WFRC
Crash Severity	Crashes		Crashes		Crashes		Crashes		%
ordan oeventy	#	%	#	%	#	%	#	%	70
Fatal	20	0%	3	0%	2	0%	25	0.4%	< 0.1%
Suspected Serious Injury	92	2%	23	2%	12	2%	127	2.1%	0.1%
Suspected Minor Injury	582	13%	137	14%	65	9%	784	12.7%	0.4%
Possible Injury	859	19%	193	20%	96	14%	1,148	18.7%	0.6%
No Injury / Property Damage Only	2,926	65%	633	64%	511	74%	4,070	66.1%	2.3%
Route Total	4,479	100%	989	100%	686	100%	6,154	100%	3.4%

Table 4.1 – Crashes by Severity by Roadway Ownership

4.2. Fatal and Serious Injury Crashes by Year

Figure 4.1 through **Figure 4.5** provide an overview of fatal and serious injury crashes by year and roadway ownership for the Western Weber County GFA. The data shows the following:

- Fatal crashes have increased during the 5-year period (2018-2022), with a 5-year high of 10 fatal crashes in 2022
- Serious injury crashes have increased during the 5-year period (2018-2022), but peaked in 2022 and show a slight decrease in 2021 and 2022 (as compared to 2020)

4.3. Fatal and Serious Injury Crashes by Location

Error! Reference source not found. shows the locations of the fatal and serious injury crashes within the Western Weber County GFA. Crashes are largely focused on State Routes.

Error! Reference source not found. is a density map of fatal and serious injury crashes within the Western Weber County GFA.



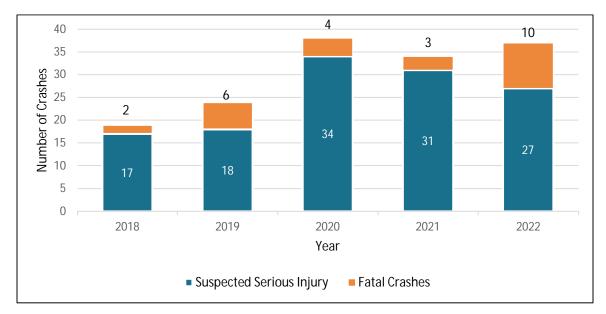


Figure 4.1 – Fatal and Serious Injury Crashes by Year

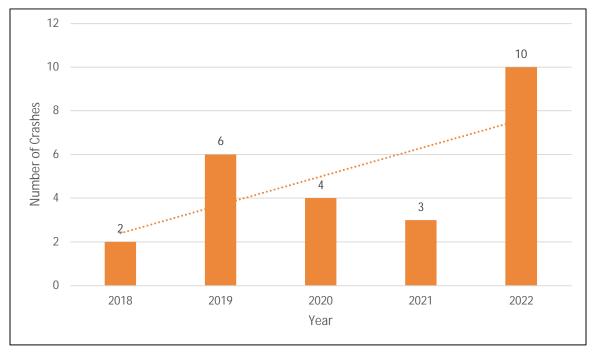


Figure 4.2 – Fatal Crashes by Year

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

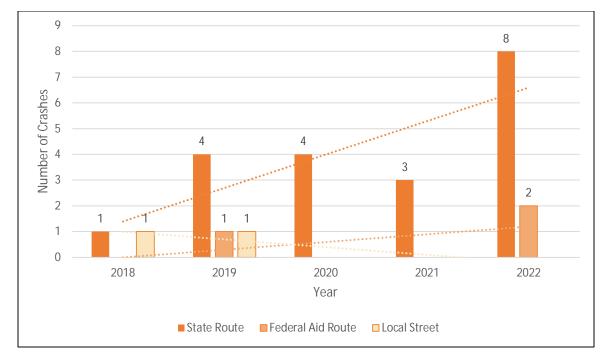


Figure 4.3 – Annual Fatal Crashes by Roadway Ownership

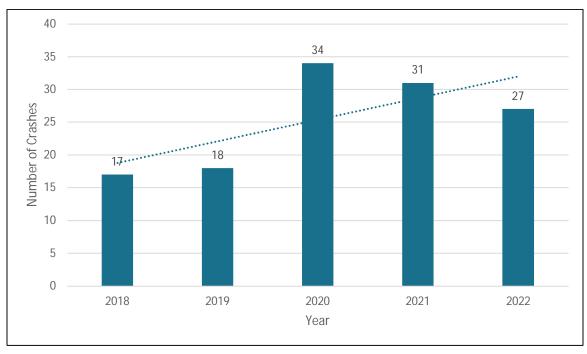


Figure 4.4 – Serious Injury Crashes by Year



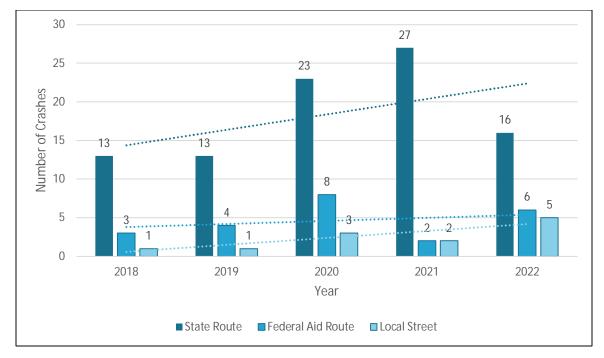


Figure 4.5 – Annual Serious Injury Crashes by Roadway Ownership



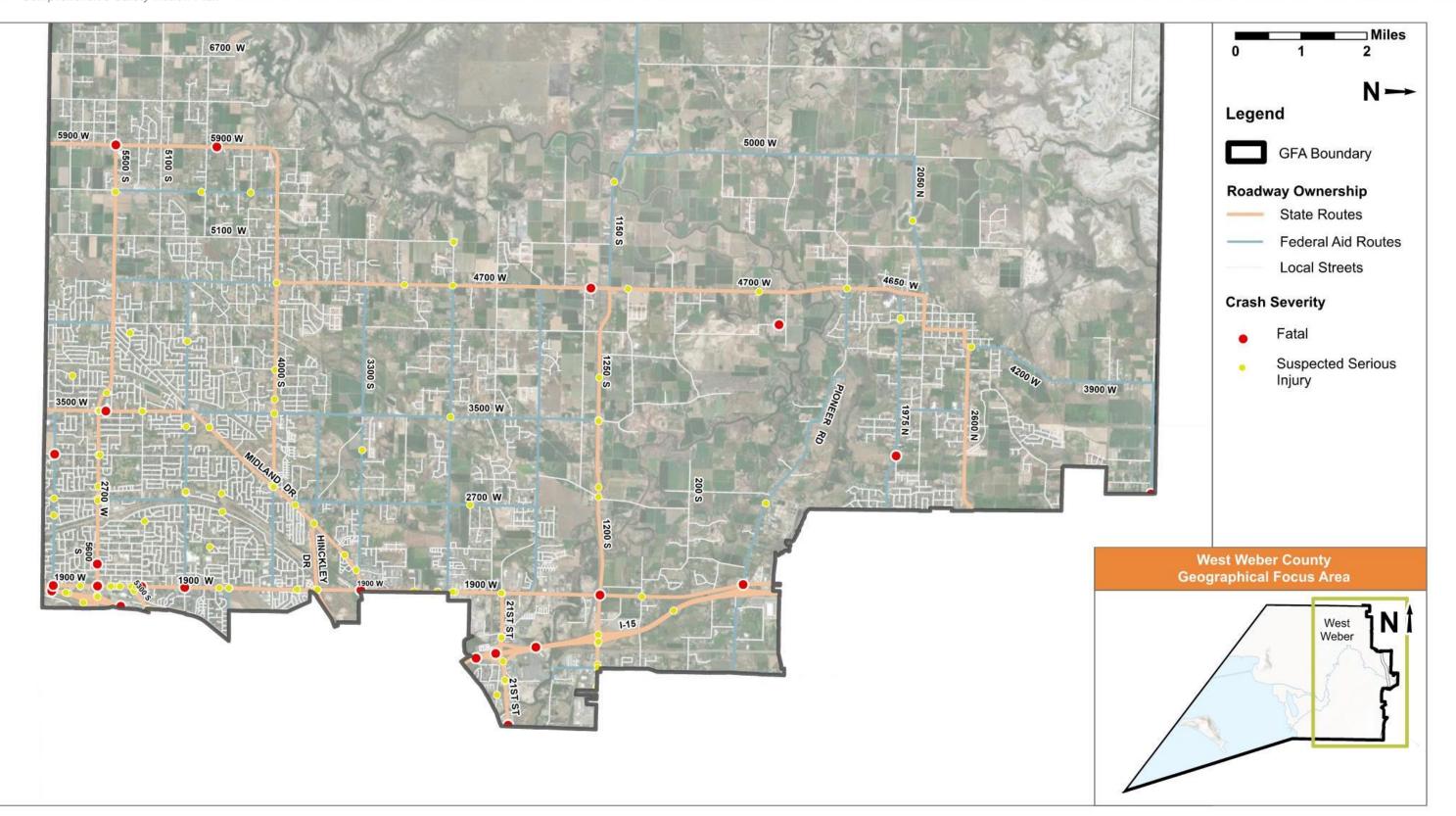


Figure 4.6 – Fatal and Serious Injury Crashes



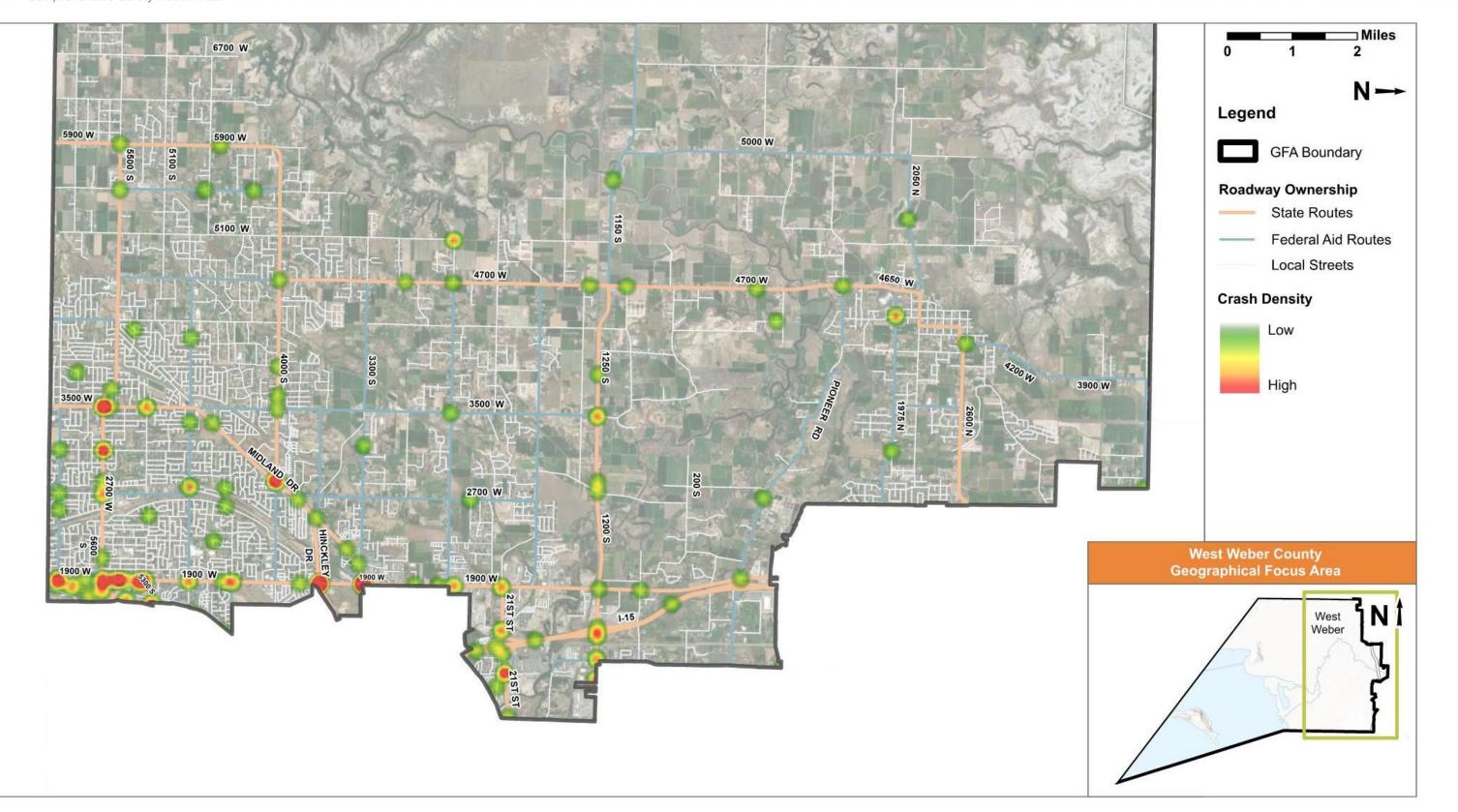


Figure 4.7 – Fatal and Serious Injury Crash Density



4.4. Fatal and Serious Injury Crashes by Crash Type

Figure 4.8 through **Figure 4.10** provide an overview of fatal and serious injury crashes by crash type and roadway ownership for the Western Weber County GFA. The data shows the following:

- The Left Turn at Intersection crash type has the highest number of total fatal and serious injuries with 47 crashes
- Active Transportation crash type is the second highest number of fatal crashes with 6 crashes
- Mid-block urban is the second highest number of serious injuries; this crash type represents non intersection-related crashes that involved left-turn, angle, head-on or sideswipe in areas designed as "urban clusters" or "urban areas".

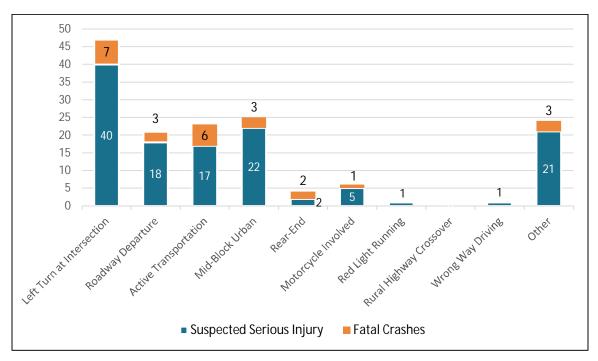


Figure 4.8 – Fatal and Serious Injury Crashes by Crash Type







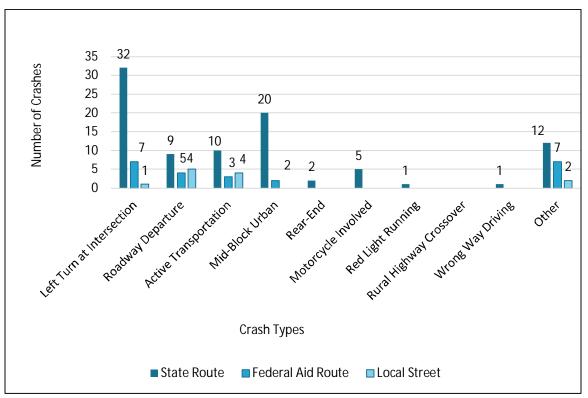


Figure 4.10 – Serious Injury Crashes by Crash Type and Roadway Ownership



4.5. Fatal and Serious Injury Vulnerable User Crashes

Figure 4.11 through **Figure 4.13** provide an overview of fatal and serious injury crashes by vulnerable road user and roadway ownership for the Western Weber County GFA. The data shows the following:

- Motorcycle-related fatal and serious injury crashes (28) are double the number of pedestrian (14) or bicycle related crashes (14)
- The highest number of motorcycle crashes occurred on State Routes
- There was only one pedestrian fatal crash in the five-year period in this GFA; there were 5 bicycle fatal crashes in the five-year period, three of which occurred on State Routes, and one each on Federal Aid routes and Local Streets

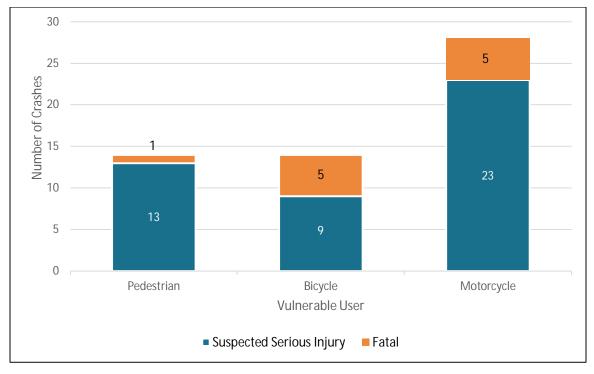


Figure 4.11 – Fatal and Serious Injury Crashes by Vulnerable User



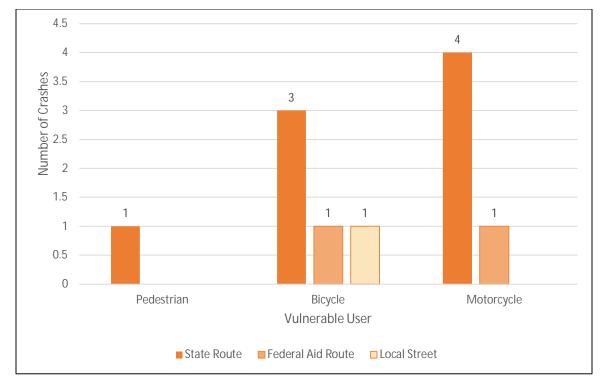


Figure 4.12 – Fatal Crashes by Vulnerable User and Roadway Ownership

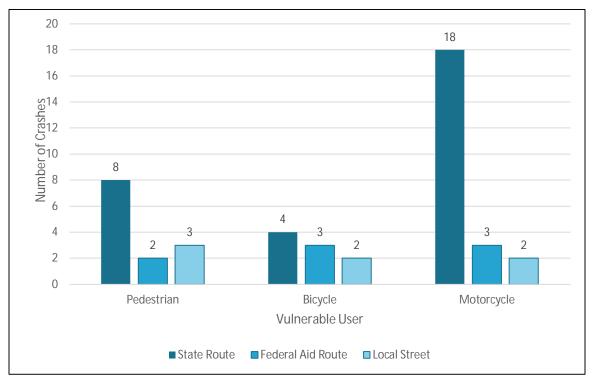


Figure 4.13 – Serious Injury Crashes by Vulnerable User and Roadway Ownership

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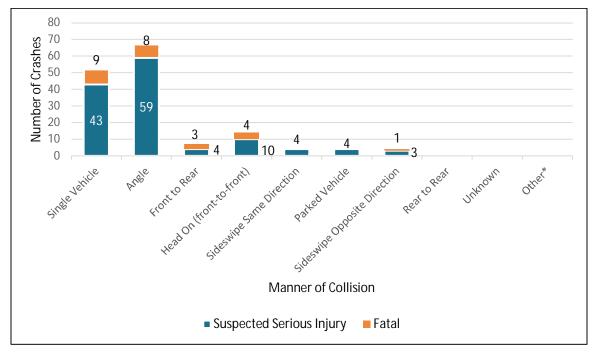
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4.6. Fatal and Serious Injury Crashes by Manner of Collision

Figure 4.14 through **Figure 4.16** provide an overview of fatal and serious injury crashes by manner of collision and roadway ownership for the Western Weber County GFA. The data shows the following:

 Single vehicle and angle crash types resulted in the largest number of fatal and serious injury crashes in this GFA.



No other crash types exceeded four fatal crashes.



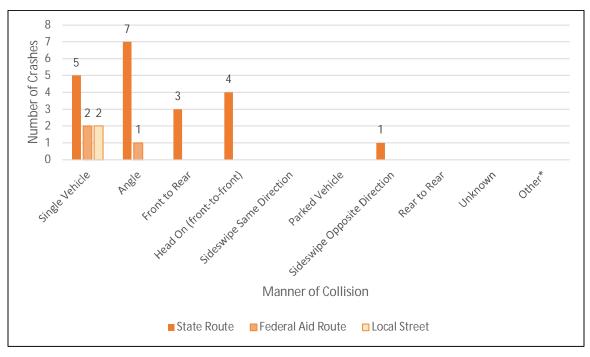


Figure 4.15 – Fatal Crashes by Manner of Collision and Roadway Ownership

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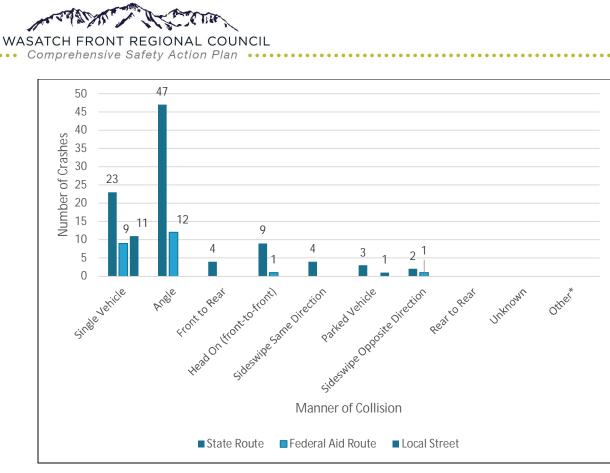


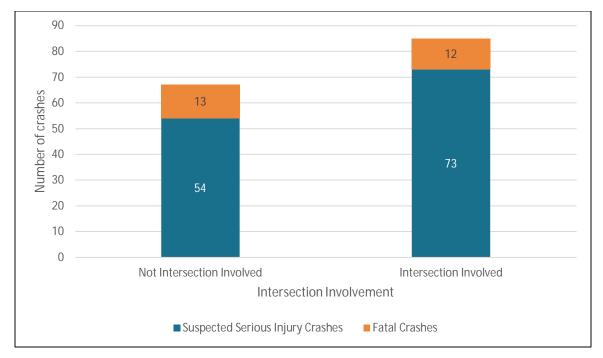
Figure 4.16 – Serious Injury Crashes by Manner of Collision and Roadway Ownership

4.7. Fatal and Serious Injury Intersection Crashes

Figure 4.17 through **Figure 4.19** provide an overview of fatal and serious injury crashes by intersection and roadway ownership for the Western Weber County GFA. The data shows the following:

- Intersection involved fatal and serious injury crashes exceed that of not intersection involved crashes
- A majority occurred intersections involved and not intersection involved occurred on State Routes







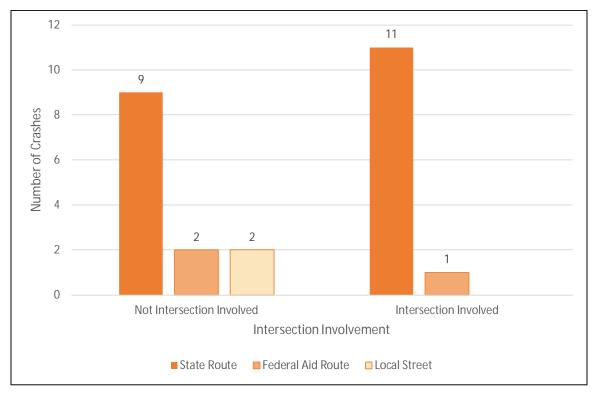


Figure 4.18 – Fatal Crashes by Intersection and Roadway Ownership



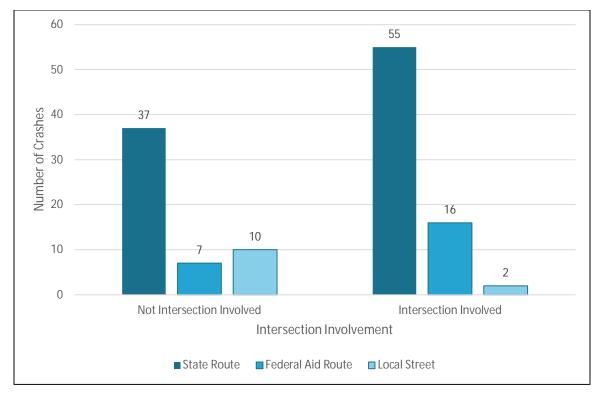


Figure 4.19 – Serious Injury Crashes by Intersection and Roadway Ownership



4.8. Fatal and Serious Injury Crashes by Functional Class

Figure 4.20 through **Figure 4.22** provide an overview of fatal and serious injury crashes by functional class and roadway ownership for the Western Weber County GFA. The data shows the following:

- Principal Arterial recorded the highest total number of fatal and serious injury crashes
- Fatal crashes on Principal Arterials is double that of any other functional class including Interstate

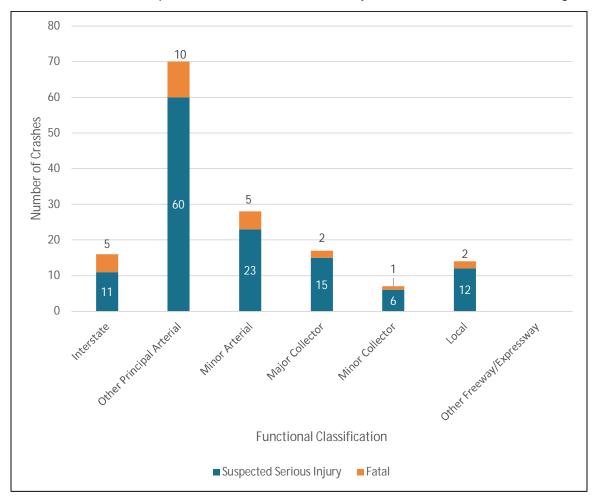


Figure 4.20 – Fatal and Serious Injury Crashes by Functional Class

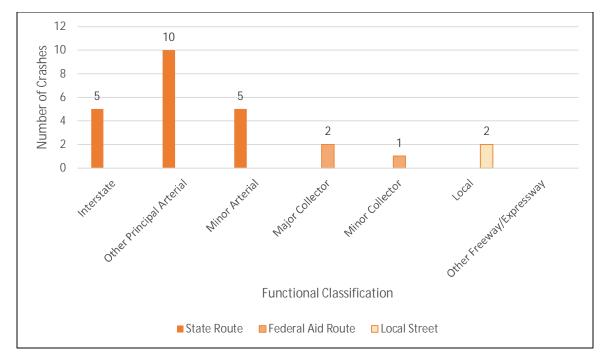


Figure 4.21 – Fatal Injury Crashes by Functional Class and Roadway Ownership

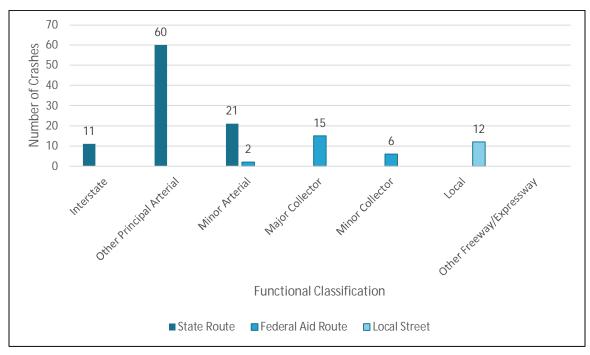


Figure 4.22 – Serious Injury Crashes by Functional Class and Roadway Ownership



4.9. Fatal and Serious Injury Crash Trees Diagrams

Fatal and serious injury crash tree diagrams were generated for the Western Weber County GFA. These crash tree diagrams are presented in **Figure 4.23** through **Figure 4.25**.

The crash trees are limited to the top 3 categories for crash type and manner of collision. Each crash tree diagram displays the total fatal and serious injury crashes (T), fatal crashes (K), and serious injury crashes (A). The data shows the following:

- State Routes recorded the highest number of crashes (73%)
- There are no rural State Route or rural Federal Aid crashes in this GFA; Local Streets had two rural crashes
- Intersection-related crashes exceed that of non-intersection on State Routes and Federal Aid routes; on Local Streets, non-intersection related crashes exceed intersection-related crashes
- Of the intersection related, Left Turn at intersection was prominent on State Routes and Federal Aid routes
- On State Routes, Mid-Block urban is a prominent crash type. This includes U-turns or left-turns not at intersections



CRASH TYPE

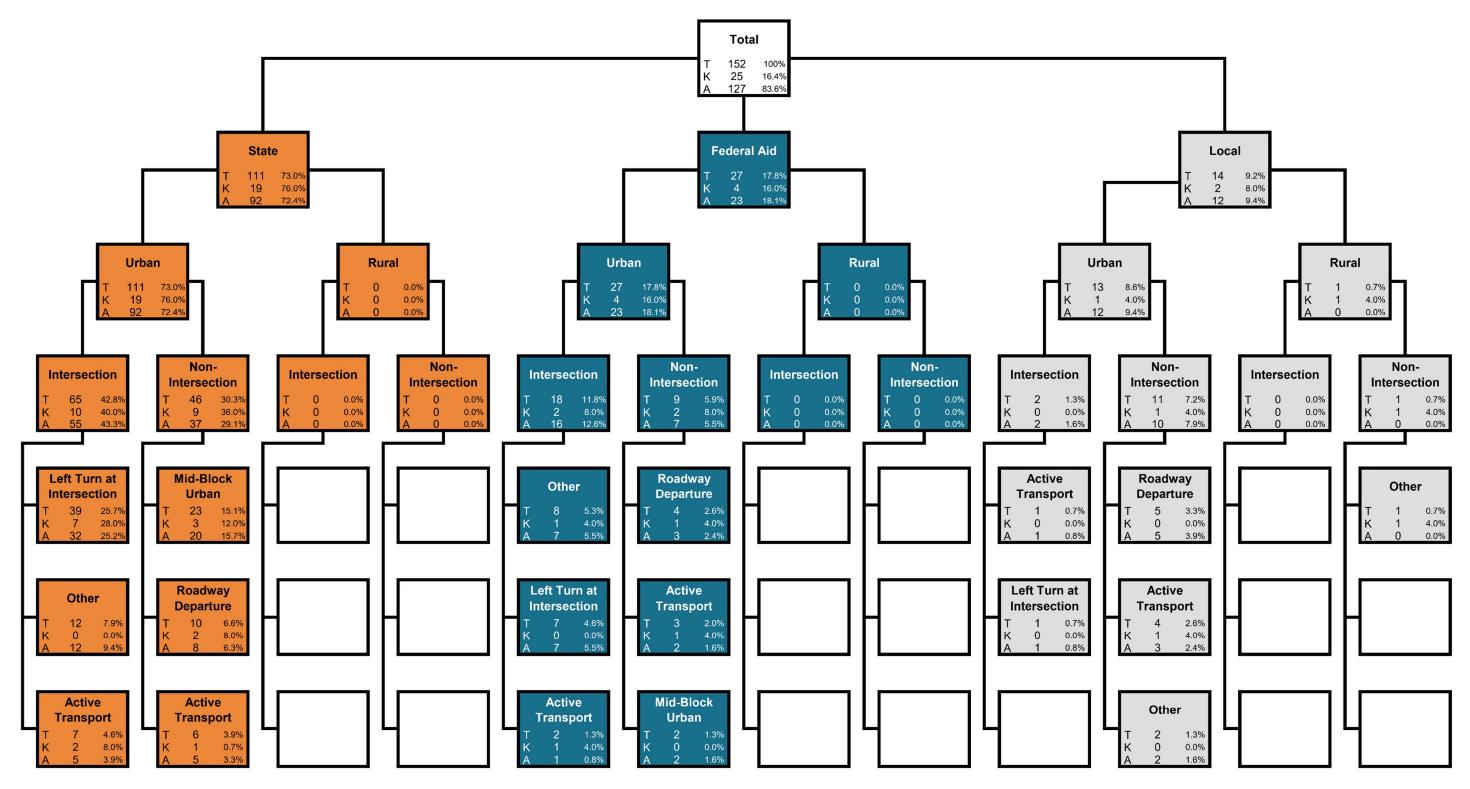


Figure 4.23 – Fatal and Serious Injury Crash Tree Diagram (Crash Type)

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MANNER OF COLLISION

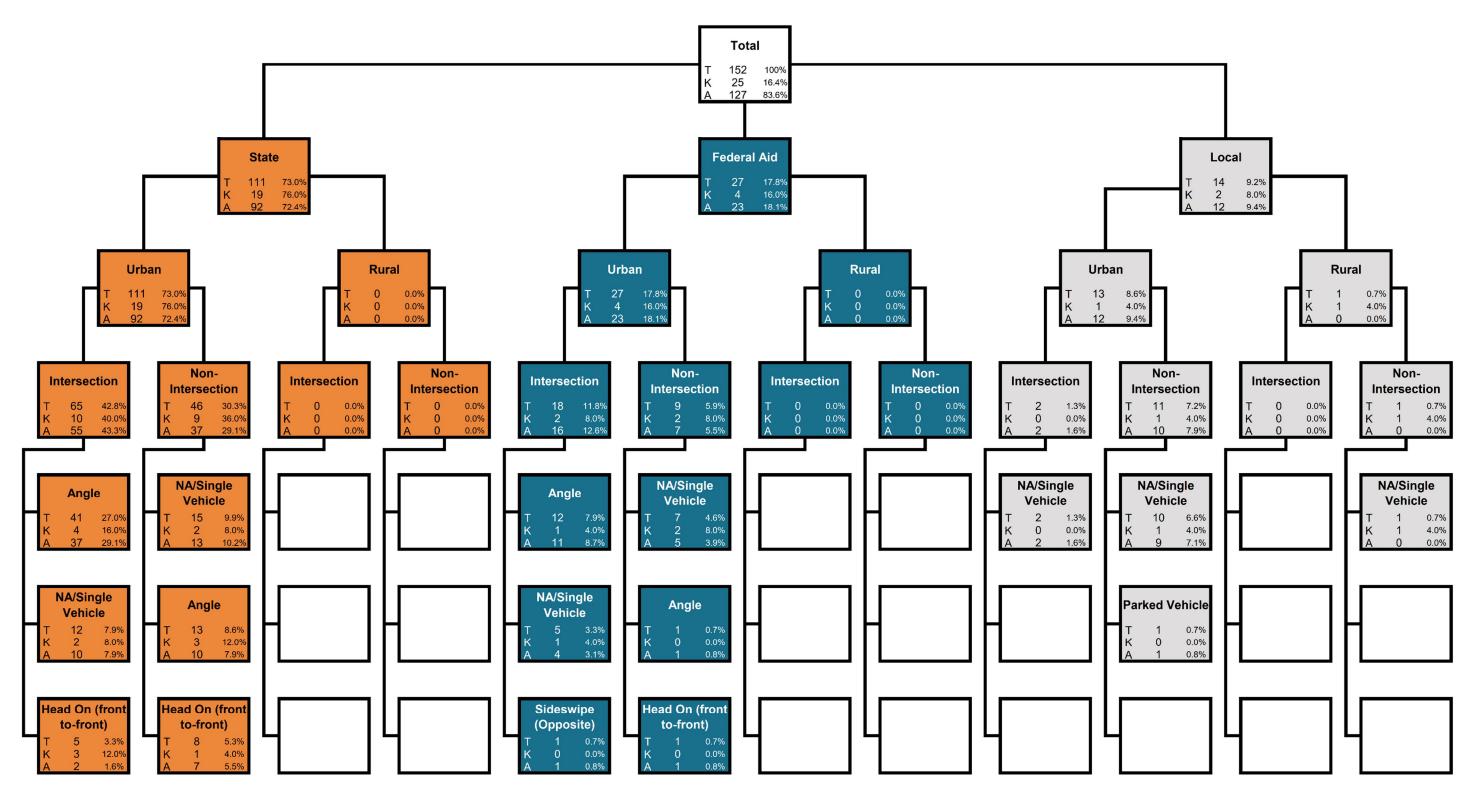


Figure 4.24 – Fatal and Serious Injury Crash Tree Diagram (Manner of Collision)

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ACTIVE TRANSPORTATION

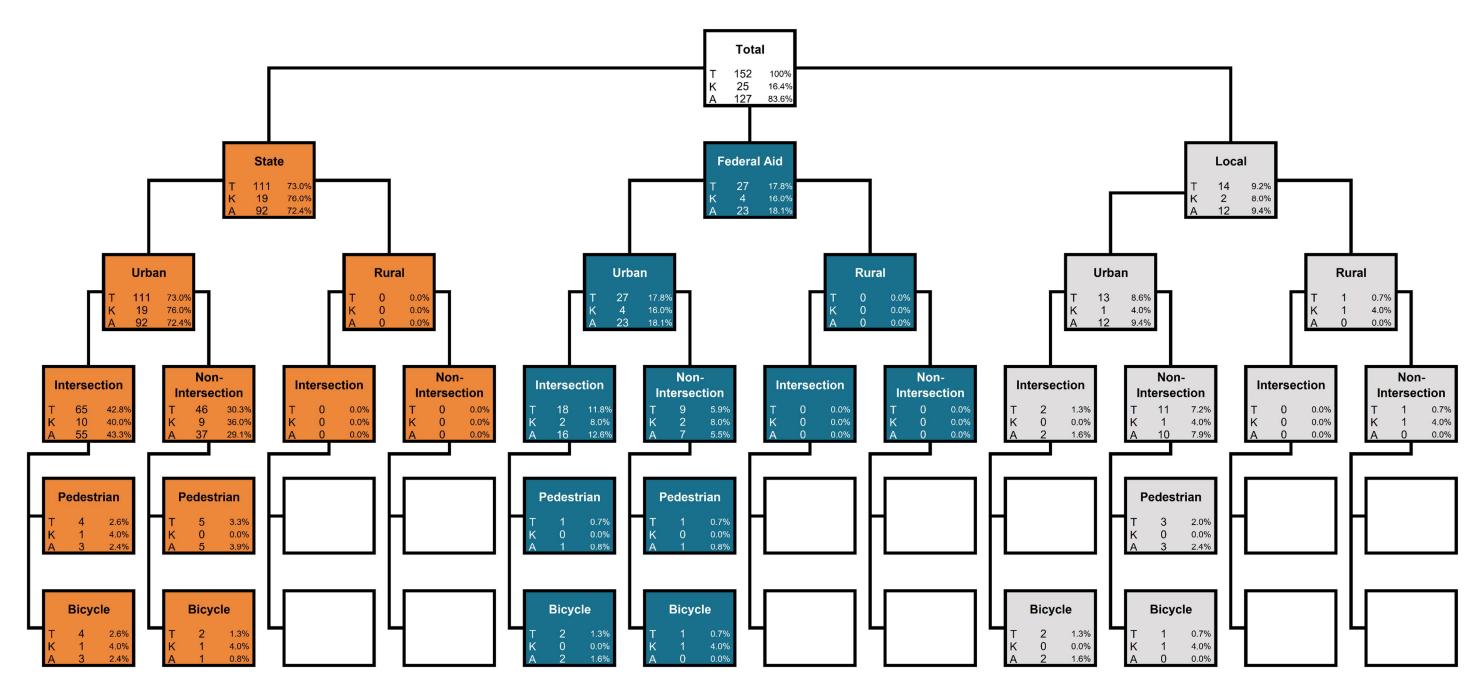


Figure 4.25 – Fatal and Serious Injury Crash Tree Diagram (Active Transportation)



5. Crash and Network Screening Analysis

A crash and network screening analysis was prepared for the Western Weber County GFA informed by four sub-analyses:

- Number of Crashes
- Critical Crash Rate (CCR)
- Probability of a Specific Crash Type Exceeding Threshold Proportion
- Equivalent Property Damage Only (EPDO)

CCR Differential by roadway ownership are mapped in the following figures:

- Figure 5.1 CCR Differential Segments (State Routes)
- **Figure 5.2** CCR Differential Segments (Federal Aid Routes)
- Figure 5.3 CCR Differential Segments (Local Routes)
- Figure 5.4 CCR Differential Intersections (Signalized)
- Figure 5.5 CCR Differential Intersections (Unsignalized)

A positive Local CCR Differential is an indication of a location with a potential for safety improvement (PSI).

A list of the top 10 CCR Differential segments and intersections for the Western Weber County GFA are located in **Table 5.1** and **Table 5.2** along with their associated number of crashes, probability of a specific crash type exceeding threshold proportion, and EPDO analysis results.

These locations represent those with the highest potential for safety improvements and can be considered as project candidate locations.





Figure 5.1 – CCR Differential – Segments (State Routes)





Figure 5.2 – CCR Differential – Segments (Federal Aid Routes)





Figure 5.3 – CCR Differential – Segments (Local Routes)



Table 5.1 – Crash and Network Screening Analysis Results - Segments

Facility	Limits	Functional Classification	City	Crashes	Critical Crash Rate Differential	EPDO ¹	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	No Injury/PDO	Angle	Front to Rear	Head On	Single Vehicle	Parked Vehicle	Rear to Rear	Rear to Side	Sideswipe (Same Direction)	Sideswipe (opposite Direction)	Other/Unknown	Pedestrian	Bicycle	Motorcycle
State Routes							1																	
4650 W (SR-134)	1850 N to Silver Wolf Run	Minor Arterial	Plain City	19	16.8	29	0	0	0	1	18	8	5	0	1	4	0	0	1	0	0	0	0	0
2575 N (SR-134)	2575 N to 2600 N	Minor Arterial	Plain City	6	14.4	27	0	0	1	0	5	1	0	0	4	0	0	0	0	1	0	0	0	0
1900 W (SR-126)	5700 S to 5600 S	Other Principal Arterial	Roy	54	6.2	338	0	0	7	13	34	30	17	1	2	0	0	0	0	4	0	1	1	1
4700 W (SR-134)	1650 N to 1850 N	Minor Arterial	Plain City	8	4.7	29	0	0	0	2	6	2	4	0	0	1	0	0	0	0	1	0	0	0
5600 S (SR-97)	2775 W to 2700 W	Minor Arterial	Roy	16	2.6	152	0	0	3	7	6	1	14	0	1	0	0	0	0	0	0	0	0	0
5600 S (SR-97)	2000 W to 1900 W	Minor Arterial	Roy	23	2.5	75	0	0	1	3	19	14	4	0	1	0	0	0	0	3	1	0	0	0
3500 W (SR-108)	5600 S to 5500 S	Other Principal Arterial	Roy	27	2.5	132	0	0	3	4	20	10	7	4	1	3	0	0	0	1	1	0	0	0
5600 S (SR-97)	2775 W to 2800 W	Minor Arterial	Roy	5	2.3	37	0	0	1	1	3	1	4	0	0	0	0	0	0	0	0	0	0	0
4700 W (SR-134)	1150 S to 900 S	Minor Arterial		6	2.2	119	0	1	0	2	3	1	3	0	0	0	0	0	0	2	0	0	0	0
1900 W (SR-126)	250 N to 400 N	Other Principal Arterial	Marriott-Slatervil	23	1.9	106	0	0	1	6	16	9	11	0	3	0	0	0	0	0	0	0	0	0
Federal Aid Routes																								
Pioneer Rd	2200 W to 2000 W	Major Collector	Marriott-Slatervil	6	4.0	27	0	0	0	2	4	4	1	0	0	0	0	0	0	1	0	0	0	0
4800 S	2700 W to 2675 W	Major Collector	Roy	8	2.5	50	0	0	1	2	5	0	5	0	3	0	0	0	0	0	0	0	0	1
2550 S	2050 W to 1900 W	Major Collector	West Haven	10	2.3	31	0	0	1	0	9	6	1	0	1	0	0	0	1	1	0	1	0	0
4800 S	3500 W to 3350 W	Major Collector	Roy	15	2.1	99	0	0	2	4	9	7	6	1	0	0	0	0	0	1	0	0	0	0
1975 N	4600 W to 4500 W	Major Collector	Plain City	6	1.5	6	0	0	0	0	6	3	2	1	0	0	0	0	0	0	0	0	0	0
1975 N	3475 N to Silver Wolf Run	Major Collector	Plain City	5	1.1	914	1	0	1	0	3	0	1	0	4	0	0	0	0	0	0	0	0	1
1200 W	1450 S to 1200 S	Major Collector	Marriott-Slatervil	4	1.1	4	0	0	0	0	4	1	2	0	0	0	0	0	0	1	0	0	0	0
2550 S	1900 W to 1760 W	Minor Arterial	West Haven	8	1.0	29	0	0	0	2	6	7	1	0	0	0	0	0	0	0	0	0	0	1
4800 S	Midland Dr to 3500 W	Minor Collector	Roy	5	1.0	37	0	0	1	1	3	2	1	0	0	0	0	0	0	2	0	0	0	0
1200 W	1450 S to 1100 W	Major Collector	Marriott-Slatervil	5	0.9	26	0	0	0	2	3	0	0	0	5	0	0	0	0	0	0	0	0	0
Local Streets																		ļ					le i	
5200 S	2000 W to 1950 W	Local	Roy	3	7264.3	35	0	0	1	1	1	0	1	0	2	0	0	0	0	0	0	1	0	0
2100 S	Shadybrook Ln to 1100 W	Local	West Haven	3	726.3	3	0	0	0	0	3	1	0	0	2	0	0	0	0	0	0	0	0	0
5700 S	2000 W to 1900 W	Local	Roy	4	270.8	25	0	0	1	0	3	1	0	1	0	1	0	0	0	1	0	0	0	0
Commerce Way	Scott Ln to 1900 W	Local	West Haven	3	68.1	3	0	0	0	0	3	1	0	0	1	1	0	0	0	0	0	0	0	1
2000 W	5125 S to 5075 S	Local	Roy	3	14.1	24	0	0	1	0	2	0	0	0	1	1	0	0	0	1	0	0	0	0
4975 W	Haven Rd to 4890 W	Local	West Haven	3	11.6	3	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0
7500 W	5100 S to North Fork Weber River	Local	Hooper	6	6.8	48	0	0	1	2	3	0	0	0	6	0	0	0	0	0	0	0	0	0
2275 W	4975 S to 4900 S	Local	Roy	3	4.9	24	0	0	1	0	2	1	0	0	2	0	0	0	0	0	0	0	0	1
5100 W	4600 S to 4525 S	Local	West Haven	3	4.1	3	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
5100 W	3000 S to 2550 S	Local		5	3.2	201	0	2	0	1	2	0	0	0	5	0	0	0	0	0	0	0	0	0
1. Equivalent Property Dama		 = Local CCR Differentia 	I 1.0 - 3.0 I 0.66 - 1.0 I 0.33 - 0.66	= 90 - = 80 -	100% prob 90% proba 80% proba	ability t bility th	at cra	ash ty	ype i pe is	over	repr	esent	nted ted											

A2-34





Figure 5.4 – CCR Differential – Intersections (Signalized)



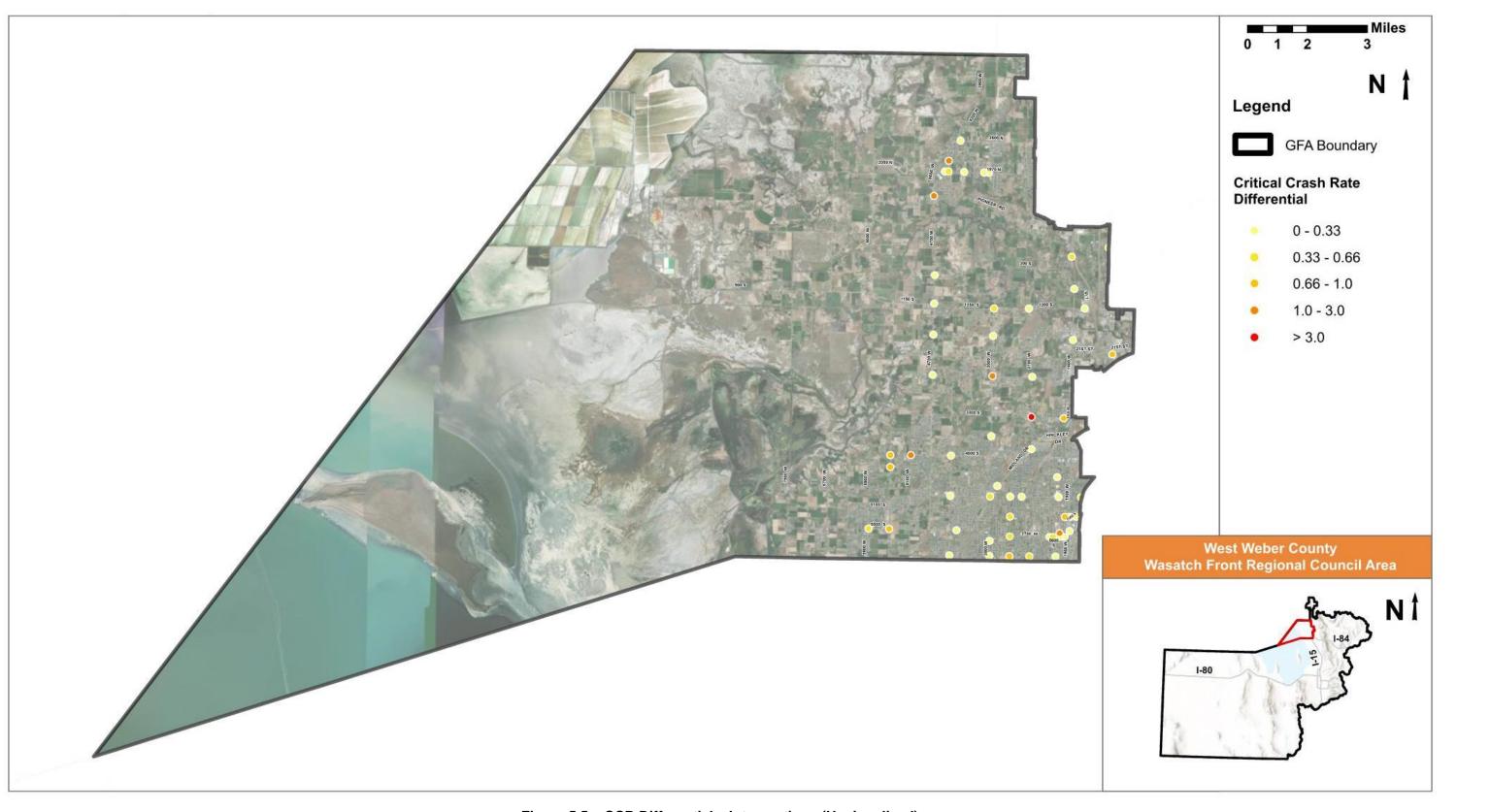


Figure 5.5 – CCR Differential – Intersections (Unsignalized)



Table 5.2 – Crash and Network Screening Analysis Results - Intersections

Intersection	City	Crashes	Critical Crash Rate Differential	EPDO ¹	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	No Injury/PDO	Angle	Front to Rear	Head On	Parked Vehicle	Single Vehicle	Rear to Rear	Rear to Side	Sideswipe (Same Direction)	Sideswipe (opposite Direction)	Other/Unknown	Pedestrian	Bicycle	Motorcycle
Signalized Intersections				_	_		_						-							-		
1900 W & Pioneer Rd	Marriott-Slat	56	1.6	1280	1	0	9	14	32	28	17	3	4	0	0	0	1	3	0	0	1	4
1900 W & Midland Dr		94	0.5	2732	2	5	10	18	59	45	32	7	3	0	0	0	3	4	0	1	0	3
3500 W & 5600 S	Roy	99	0.3	1165	0	4	20	26	49	64	17	5	8	0	0	0	1	3	1	3	1	0
1900 W & Hinckley Dr	Roy	75	0.1	1347	0	7	21	17	30	51	17	3	2	0	0	0	1	1	0	1	0	3
1900 W & 4000 S	Roy	65	0.0	444	0	0	10	16	39	13	43	2	2	1	0	0	1	2	1	0	1	0
1900 W & 5600 S	Roy	124	0.0	995	0	1	21	32	70	66	36	6	3	0	0	0	1	11	1	2	0	2
2475 W & Hinckley Dr	West Haven	49	0.0	354	0	0	9	11	29	13	20	2	9	0	0	0	1	3	1	0	0	1
1900 W & 2550 S	West Haven	68	-0.1	425	0	0	9	16	43	29	20	6	5	0	0	0	3	5	0	1	0	0
1100 W & 21St St	West Haven	59	-0.1	685	0	3	11	11	34	25	17	1	6	1	0	0	3	3	3	4	0	0
2825 W & Midland Dr	Roy	63	-0.1	909	0	4	17	11	31	34	23	2	2	0	0	0	1	1	0	0	0	1
Unsignalized Intersections																						
Airport Rd & 4400 S St	Roy	4	17.8	4	0	0	0	0	4	2	0	0	2	0	0	0	0	0	0	0	0	0
2700 W & 3300 S	West Haven	14	4.5	67	0	0	2	1	11	11	1	0	1	0	0	0	0	0	1	0	0	0
4425 W & 2200 N	Plain City	11	2.4	53	0	0	1	2	8	11	0	0	0	0	0	0	0	0	0	0	0	0
4700 W & 1500 N	Plain City	19	2.3	207	0	1	4	1	13	16	3	0	0	0	0	0	0	0	0	0	0	0
5100 W & 4000 S	West Haven	13	1.6	45	0	0	1	1	11	11	1	0	0	0	0	0	0	0	1	0	0	0
3500 W & 2550 S		26	1.2	202	0	1	0	8	17	23	1	1	0	0	0	0	0	0	1	0	0	0
2100 W & 5500 S	Roy	3	1.1	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Bouwhuis Dr & Midland Dr	West Haven	30	0.9	166	0	0	3	7	20	23	2	0	4	0	0	0	0	0	1	0	0	0
5500 W & 4000 S	Hooper	13	0.9	66	0	0	2	1	10	4	4	1	3	0	0	0	0	1	0	0	1	0
1100 W & 2100 S	West Haven	22	0.8	84	0	0	0	6	16	8	9	0	3	0	0	0	0	1	1	1	0	0
Equivalent Property Damage Only Crashes = Local CCR Differential > 3.0 = 90 - 100% probability that crash type is over-represented = Local CCR Differential 1.0 - 3.0 = 80 - 90% probability that crash type is over-represented = Local CCR Differential 0.66 - 1.0 = 70 - 80% probability that crash type is over-represented = Local CCR Differential 0.33 - 0.66 = Local CCR Differential 0.0 - 0.33															dt.							



6. Roadway Characteristic Risk Analysis

A roadway characteristic risk analysis was performed using the following three sub-analysis:

- Crash Profile Risk Assessment
- usRAP Risk Assessment
- Local Street Risk Assessment

6.1. Crash Profile Risk Assessment

This risk assessment sub-analysis identifies common roadway characteristics for fatal and serious injury crashes that occurred within the WFRC study area. Based on the scoring of the various roadway characteristic risks identified from analysis of crash reports, a risk score was assigned to all state and federal aid routes within the Western Weber County GFA consistent with the methodology described in Tech Memo #1 Section 3.4. The results of the Crash Profile Risk Assessment are mapped in the following figures:

- Figure 6.1 Crash Profile Risk Assessment Results (State Routes)
- **Figure 6.2** Crash Profile Risk Assessment Results (Federal Aid Routes)

Table 6.1 provides an overview of urban and rural segments with the highest risk scoring. Up to ten urban and rural segments are listed if the segment received at least 67% of the overall total risk score.

Area Type	Road Segment	nent Extents						
Urban	Silver Wolf Run / 1900 North	4650 West to East GFA Extents	24					
Urban	400 North	I-15 to 1200 West	23.5					
Urban	4800 South	4700 West to 3900 West	20.1					
Urban	1500 South	4700 West to Pioneer Road	20					
Rural	900 South / 1150 South	Little Mountain Training Annex to 4700 West	22.3 to 23.5					
Rural	2550 South	5900 West to 1900 West	23.4					
Rural	1200 West	17th Street to Bill Bailey Street	23.2					
Rural	3600 West	Silver Wolf Run to 2600 North	21.5					
Rural	1800 South	5900 West to 1900 West	21.5					
Rural	3300 South	4700 West to 2700 West	20.5 to 21.5					
Rural	2150 North	5900 West to 4700 West	21					
Rural 5900 West		1150 South to 2150 North	21					

Table 6.1 – Crash Profile Risk Assessment Segments (Federal Aid Routes)



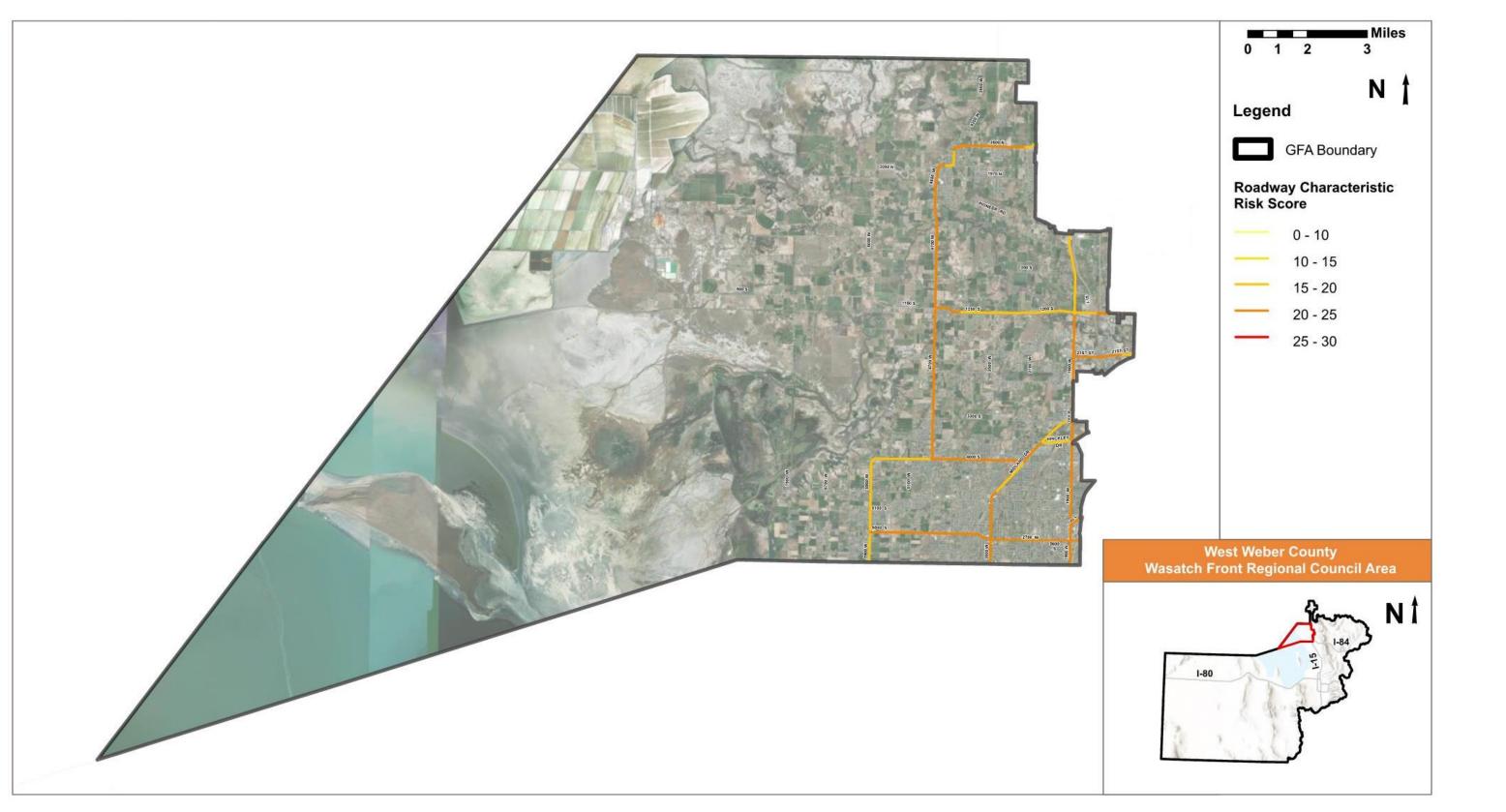


Figure 6.1 – Crash Profile Risk Assessment Results (State Routes)



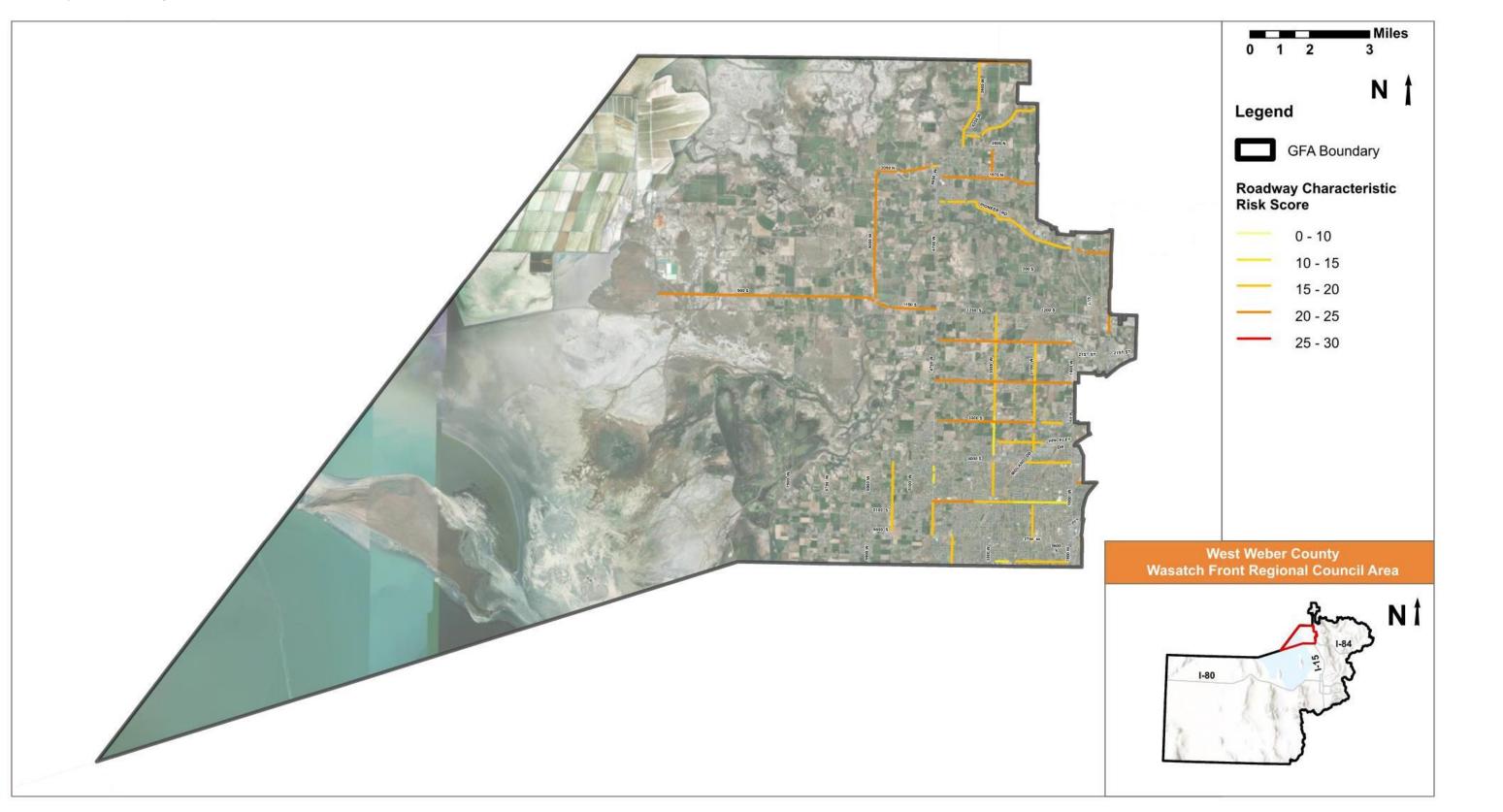


Figure 6.2 – Crash Profile Risk Assessment Results (Federal Aid Routes)



6.2. usRAP Risk Assessment

A roadway characteristic risk assessment was performed using roadway feature data collected for Utah state and federal aid routes. The risk assessment was performed using the usRAP tool. The output of the usRAP tool is a star rating or risk rating for vehicle, pedestrian, and bicyclist features. The results of the usRAP risk assessment by star rating are mapped in the following figures:

- Figure 6.3 Vehicle Star Rating (State Routes)
- Figure 6.4 Vehicle Star Rating (Federal Aid Routes)
- Figure 6.5 Pedestrian Star Rating (State Routes)
- Figure 6.6 Pedestrian Star Rating (Federal Aid Routes)
- Figure 6.7 Bicycle Star Rating (State Routes)
- Figure 6.8 Bicycle Star Rating (Federal Aid Routes)

A summary of the highest risk segments (1-2 Stars) for federal aid routes in the Western Weber County GFA are located in **Table 6.2**.

Road Segment	Extents	Vehicle Risk	Pedestrian Risk	Bicycle Risk
4000 North	3900 West to East GFA Extents	X	X	X
4200 West / 3900 West	2600 North to 4000 North		x	
Plain City Road	2800 West to East GFA Extents	X	X	
3600 West	Silver Wolf Run to 2600 North	X	X	
Silver Wolf Run	er Wolf Run 1900 North (West) to 1900 North (East)		X	Х
1900 North	1900 North Silver Wolf Run to East GFA Extents		X	Х
2800 North	4200 West to Gravel Road		X	
2050 North / 2150 North	5900 West to 4650 West		х	
5900 West	1150 South to 2050 North		X	
900 South	9350 West to 5900 West		Х	x
11500 South	5900 West to 4700 West		X	
400 North	1600 West to 1200 West	X	Х	x
1200 West	17th Street to North GFA Boundary	x	X	x
1800 South	4700 West to 1900 West	X	Х	
2550 South	4701 West to 1900 West	X	X	x
3300 South	3300 South 4300 West to 2700 West		Х	
5500 West	5500 West 5500 South to 4000 South		X	
3500 West	3500 West 2550 South to 1200 South		X	
4800 South	4700 West to 3100 West		X	

Table 6.2 – usRAP Risk Segments (Federal Aid Route)



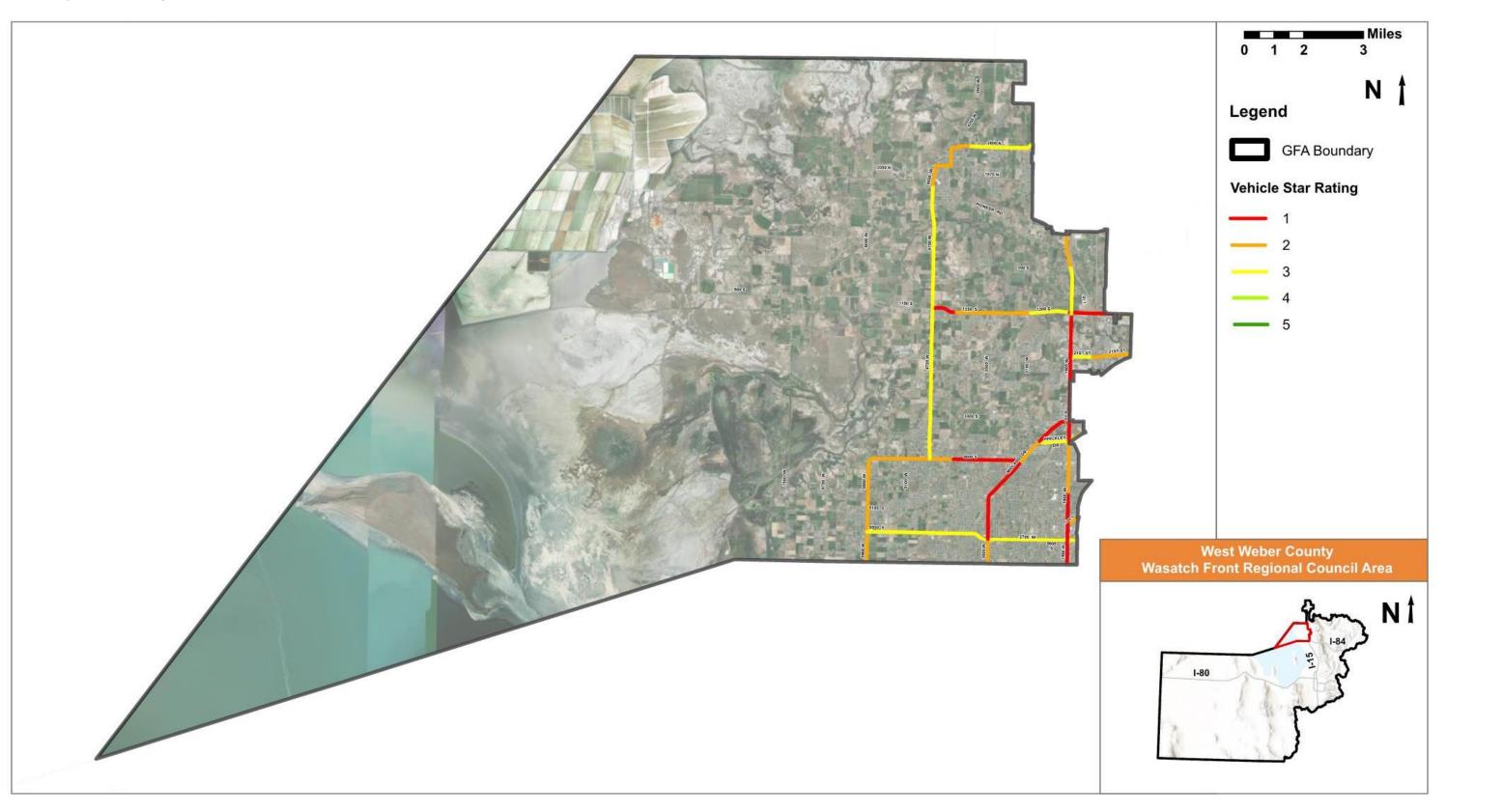


Figure 6.3 – Vehicle Star Rating (State Routes)



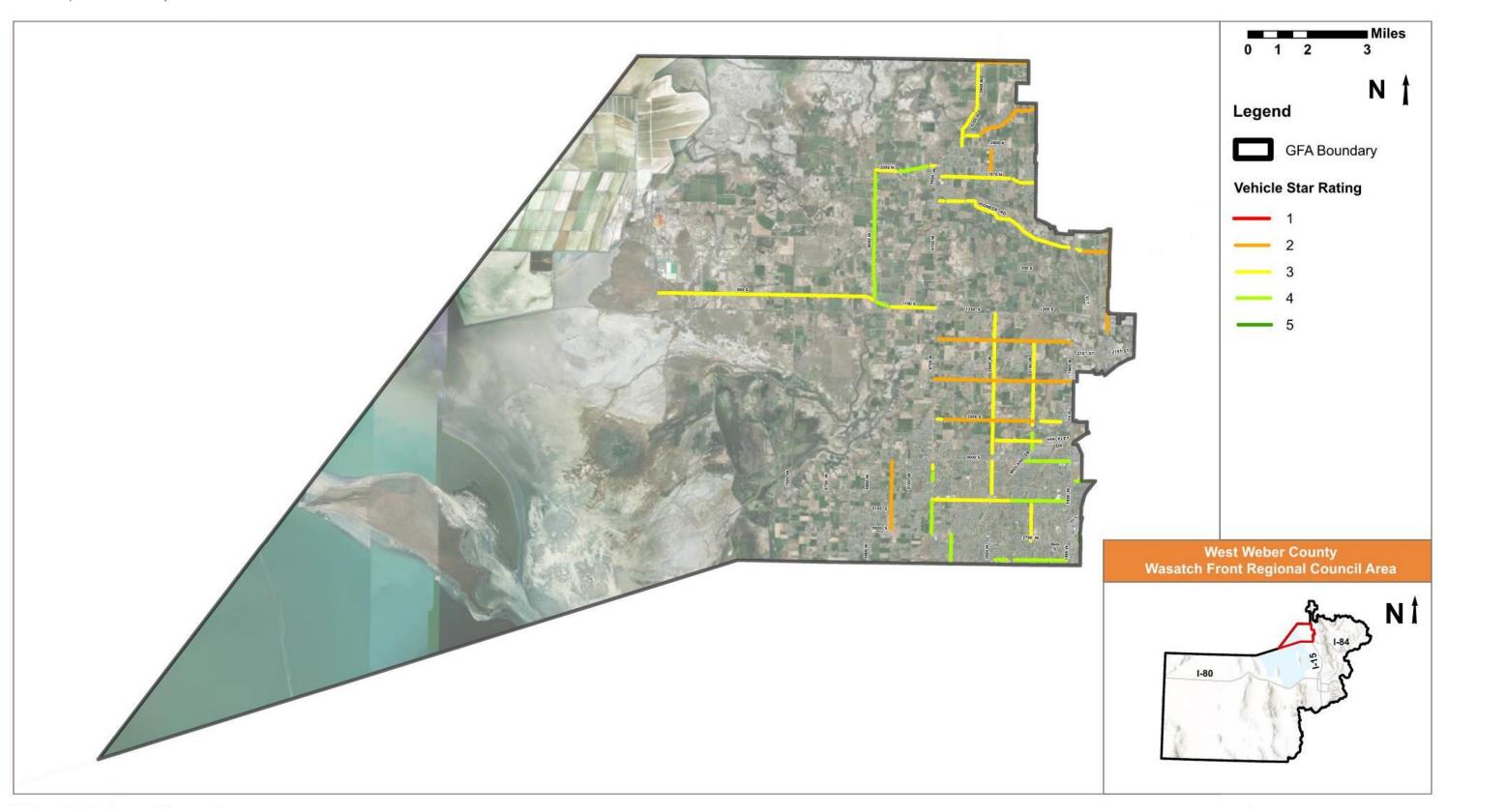


Figure 6.4 – Vehicle Star Rating (Federal Aid Routes)



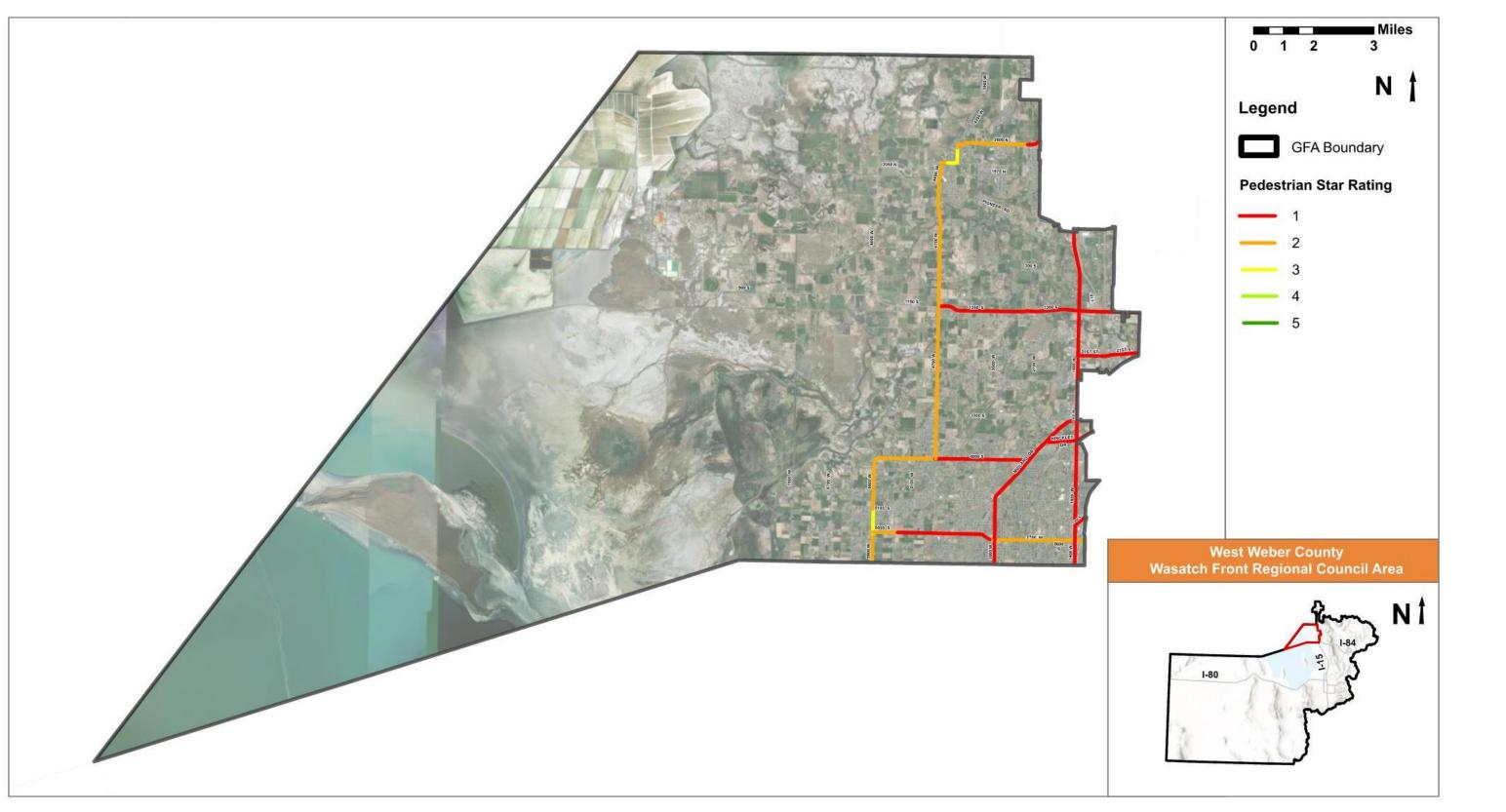


Figure 6.5 – Pedestrian Star Rating (State Routes)



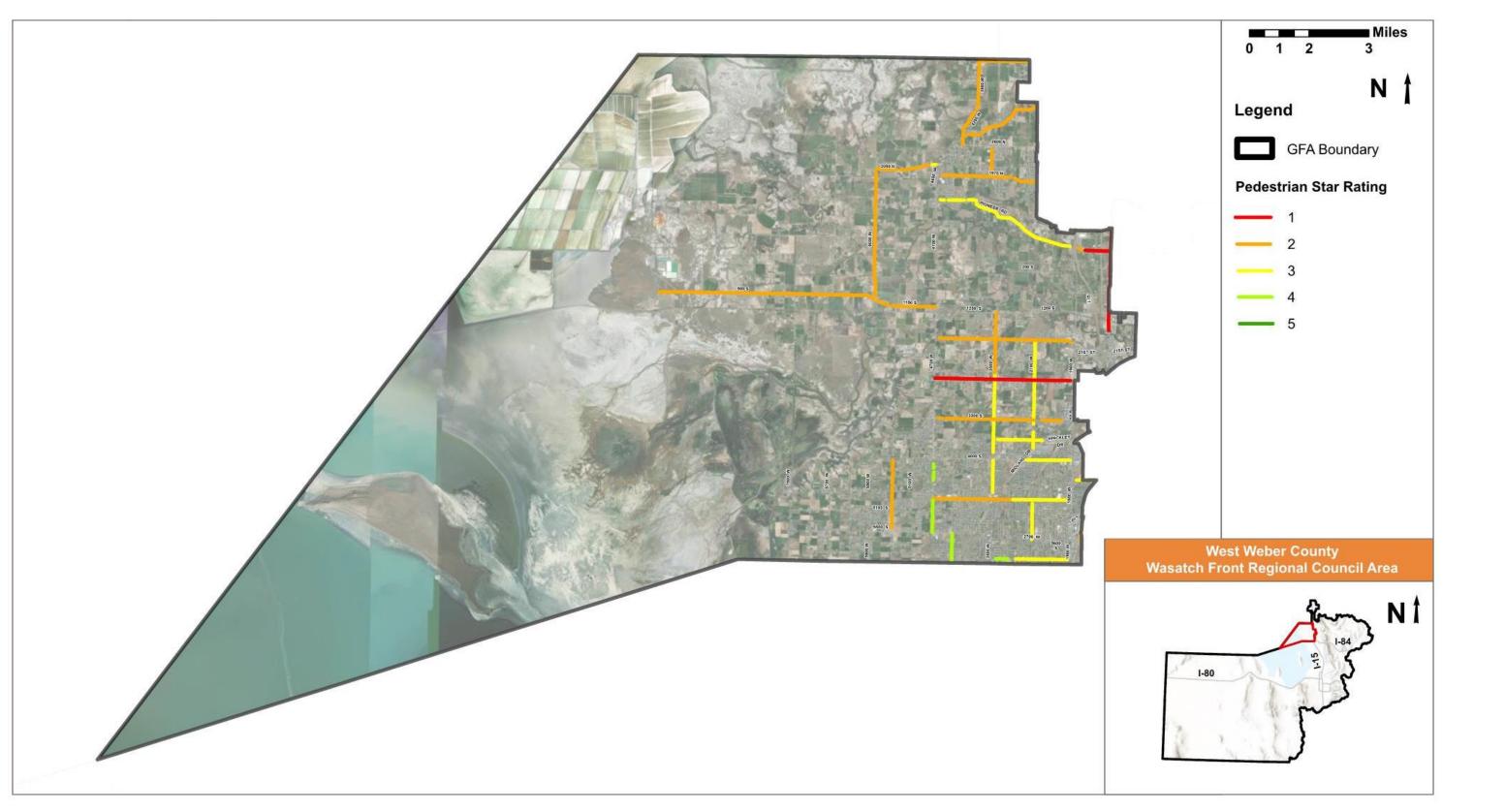


Figure 6.6 – Pedestrian Star Rating (Federal Aid Routes)



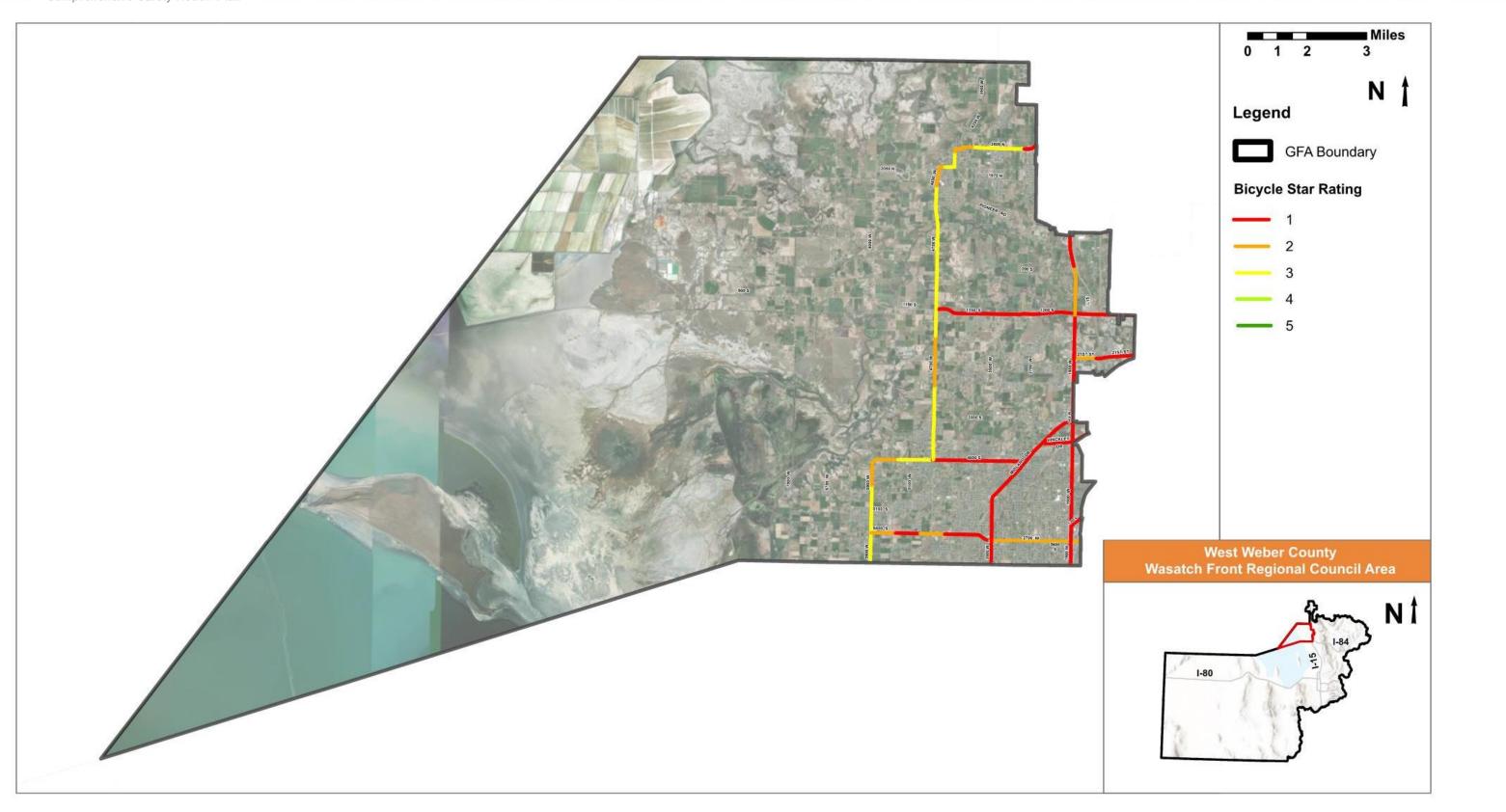


Figure 6.7 – Bicycle Star Rating (State Routes)



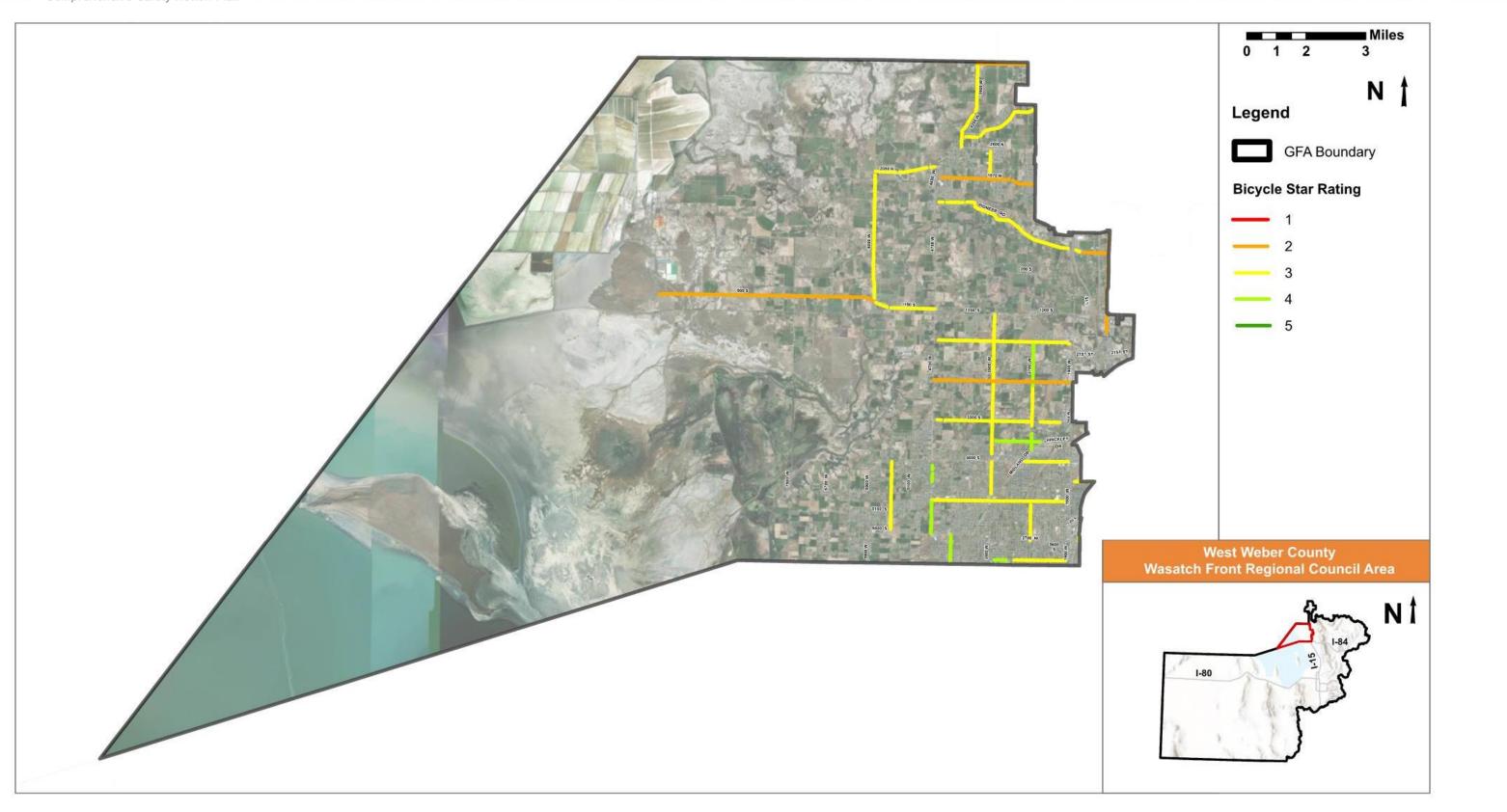


Figure 6.8 – Bicycle Star Rating (Federal Aid Routes)



6.3. Local Street Risk Assessment

A local street risk assessment was performed for all local roads within WFRC that are not included in the usRAP network. The results of the local street risk assessment are summarized in **Table 6.3** and **Figure 6.9**. Mapped segments include the top 5% risk segments within the WFRC study area and the top 10 segments or high priority segments within the Western Weber County GFA.

Road Segment	Extents
1100 West/Wilson Lane	Excalibur – 1900 South
6000 South	1900 West – 3100 West
4000 South	SR-108 – 1800 West
3100 West	5400 South – 6000 South
4800 South	I-15 – 4500 West
4400 South	1700 West – 2675 West
2700 West	5400 South – 5600 South
5200 South	1750 West – 2675 West
2550 South	1700 West – 2000 West
3300 South	SR-108 – 3500 West

Table 6.3 – Local Street High Priority Segments





Figure 6.9 – Local Street Risk Assessment Results



7. Safety Analysis Summary

This section summarizes the safety analysis performed for the Western Weber County GFA by identifying common risk characteristics and a composite high-risk roadway network.

7.1. Common Risk Characteristics

Based on the SHSP Emphasis Area Analysis and the Historical Crash Analysis summarized above, the following are common risk characteristics that should be considered when developing safety improvement projects specific to the Western Weber County GFA.

- Intersections
 - 57.6% of all fatal and serious injuries
- Teen Driver
 - 22.4% of all fatal and serious injuries
- Older Driver
 - 22.4% of all fatal and serious injuries
- Motorcycle
 - 18.2% of all fatal and serious injuries
 - 3.9% of all fatal and serious injury crashes
- Roadway Departure
 - 13.9% of all fatal and serious injuries
 - 13.8% of all fatal and serious injury crashes
- Active Transportation
 - 15.1% of all fatal and serious injury crashes
- Left Turn at Intersection
 - 30.9% of all fatal and serious injury crashes

7.2. Composite High-Risk Roadway Network

Each of the safety analysis methodologies completed identified segments that can be improved to reduce fatalities and serious injuries.

To identify an overall high-risk roadway network and provide focused information for jurisdictional decisions regarding prioritization of safety improvements, an analysis was performed to identify overlapping segments from each of the analysis methodologies. A composite score, from zero to five, was determined using the approach in **Table 7.1**. The high-risk roadway network is a composite of the various risks as presented in **Section 4** through **Section 6** of Tech Memo #1. The top 10% of roadway segments for the entire WFRC area are included in the Composite High-Risk Network. These segments have a composite risk value of four or higher.

The Western Weber County GFA Composite High-Risk Network for Federal Aid routes is summarized in **Table 7.2**.

The results are also mapped in Figure 7.1 (State Routes) and Figure 7.2 (Federal Aid Routes).



Table 7.1 – Composite High-Risk Roadway

Analysis	Approach	Value
Historical Crash Analysis	5-Year Crash Totals ≥ 3 Crashes	1
Crash and Network Screening Analysis	Positive Local CCR Differential	1
Crash Profile Risk Assessment	Risk Score ≥ 20	1
usRAP Risk Assessment - Vehicle	Vehicle Star Rating = 1-2 Stars	1
usRAP Risk Assessment – Pedestrian	Pedestrian Star Rating = 1-2 Stars	0.5
usRAP Risk Assessment - Bicycle	Bicycle Star Rating = 1-2 Stars	0.5
	Total Possible Composite Risk Score	5

Table 7.2 – Western Weber County High-Risk Roadway Network (Federal Aid Routes)

Facility	Limits	Functional Classification	City	Composite Risk Score	Length (miles)	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes
1975 N	1900 N to 2750 W	Major Collector	Plain City	4	2.7	Х	Х		Х	Х	Х
1200 W	Bill Bailey St to 1100 W	Minor Arterial	Marriott- Slaterville	5	2.7	Х	х	Х	х	х	х
2550 S	3500 W to 1900 W	Major Collector	West Haven	4	2.0	Х	х	Х	Х		Х





Figure 7.1 – Western Weber County High-Risk Roadway Network (State Routes)





Figure 7.2 – Western Weber County High-Risk Roadway Network (Federal Aid Routes)

APPENDIX

WESTERN WEBER COUNTY CASE STUDY PROJECT INFORMATION SHEETS

		West Weber County
Project ID	Jurisdictions	Project Name
2.8.1	Hooper	Unsignalized Intersection Improvements
2.8.2	Hooper	SR 97 (5500 South) from 5900 West to 4300 West
2.9.1	Marriott- Slaterville	Pioneer Road from 1500 North to 1200 West
2.9.2.1	Marriott- Slaterville, Farr West	1200 West from 2700 North to 17th Street
2.10.1	Plain City	1975 North/ 1900 North from 4650 West to 2750 West
2.11.1	Roy	6000 South from 3100 West (SR 108) to 1900 W (SR 126)
2.11.2.1	Roy, West Haven, Sunset	1900 West (SR 126) from SR 39 to 2400 North
2.12.1	West Haven	2550 South from 3500 West to 1900 West
2.12.2.1	West Haven, Sunset, Roy	1900 West (SR 126) from SR 39 to 2400 North

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):
Project Name:
Jurisdiction(s):
Emphasis Areas:
Equity Priority:

Western Weber County Unsignalized Intersection Improvements Hooper Intersections, Teen Drivers, Roadway Departures Low

Location Description

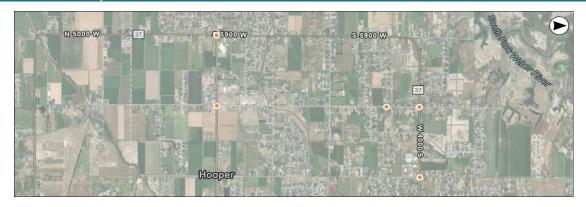
Roadway:	NA	Key Intersection Locations:
From:	NA	4000 South & 5500 West
To:	NA	5500 South & 5500 West
Length:	NA	4200 South & 5500 West

Project Location Map

5500 South & 5900 West 4000 South & 5100 West

Map ID: 2.8.1

NA



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	NA
Average Daily Traffic (vehicles per day)	NA
Functional Classification	NA
Roadway Ownership	NA
Urban/Rural Designation	NA
Number of Key Intersections	NA

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	NA
Suspected Serious Injury Crashes (A)	NA
Suspected Minor Injury Crashes (B)	NA
Possible Injury Crashes (C)	NA
No Injury/PDO Crashes (O)	NA
Total Crashes	NA
Total EPDO Crashes	NA

Intersection Crash History

										What (Crash T	vpes ar	e Over-	Repres	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
4000 South & 5500 West		0	0	2	1	10	13	66		✓			✓			
5500 South & 5500 West		0	0	4	6	12	22	169			✓					
4200 South & 5500 West		0	1	0	0	2	3	96	~					✓		1
5500 South & 5900 West		1	0	1	2	9	13	942	✓		✓					✓
4000 South & 5100 West		0	0	1	1	11	13	45			1					

Date Prepared: 3/13/2024 Prepared By: JSF/MA Checked By: ES

Why Was This Location Identified?

What Crash Types are Over-Represented? NA Head On (HO)

NA

NA

NA

NA Parked Vehicle (PV)

Single Vehicle

Rear to Side (RS)

Other/Unknown

NA Rear to Rear (RR)

NA Sideswipe (SS)

Composite Safety Score

Crash Profile Risk Score

Local Street Assessment

Critical Crash Rate Differential

usRAP - Star Rating (Veh, Ped, Bike)

Historic Crashes

Fatal

Angle

Serious Injury

Bicycle (Bike)

Motorcycle

Pedestrian (Ped)

Front to Rear (FR

Unsignalized Intersection Improvements

a the way way is

WASATCH FRONT REGIONAL COUNCIL Safety Action

Project Description/How is safety improved?

This project recommends improvements to the following intersections, consistent with overrepresented crash types found for each location:

-Intersection control evaluations to evaluate a potential roundabout at the intersections of 4000 S/5500 W, 4000 S/5100 W

-Intersection control evaluations to evaluate a potential signal at the intersections of 5500 S/5500 W, 5900 S/5500 W

-General low-cost visibility and sight distance improvements at the intersections of 5900 S/5500 W, 4200 S/5500 W

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Driver Feedback Speed Limit Signs	NA	All Crashes	6.00	EACH	\$ 10,000	\$ 60,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Un	it Price		Item Cost
Perform an Intersection Control Evaluation and Implement	NA	All Crashes	4.00	INT	\$	225,000	\$	900,000
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	2.00	INT	\$	19,000	\$	38,000
Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	2.00	INT	\$	2,500,000	\$	5,000,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
						ts Subtotal:		5,998,000
				/obilizatior				75,000
				affic Contr				299,900
		Items Not Es	stimated / C					1,799,400
				Estimate	d Constru	uction Cost:	\$	8,172,300
Local Match [†] : 20% \$ 2,075,800						-		
[†] Toward SS4A Implementation Grants		Prece	onstruction	Engineerii	ng/Desig	n 12%	\$	980,676
					Utilities	**	\$	-
					ROW**		\$	-
		Construe	ction Engine	eering/Ma	nagemer	nt 15%	\$	1,225,845
				Estim	ated Pro	oject Total:	\$	10,379,000
*Mobilization	is 10% +/- (of the subtotal with a	minimum o	f \$2,500 a	nd a ma	ximum of \$7	5,00	0
**To be eval	uated during	feasibility study/desi	gn					

Additional Potential Improvements

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the Countermeasure Toolbox for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

Use Restricted 23 U.S.C. § 407

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County
Project Name:	SR 97 (5500 South) from 5900 West to 4300 West
Jurisdiction(s):	Hooper
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	Low

Location Description

Roadway: From: To: Length:

SR 97 (5500 South) 5900 West 4300 West 2.04 miles

Project Location Map

Key Intersection Locations: 5900 West 5500 West

> 2.8.2 Map ID:



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.04
Average Daily Traffic (vehicles per day)	11,042
Functional Classification	Minor Arterial
Roadway Ownership	State
Urban/Rural Designation	Urban
Number of Key Intersections	2

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	1
Suspected Minor Injury Crashes (B)	0
Possible Injury Crashes (C)	2
No Injury/PDO Crashes (O)	6
Total Crashes	9
Total EPDO Crashes	122

Intersection Crash History

Why Was This Location Identified?				
Composite Safety Score				
Historic Crashes	✓			
Critical Crash Rate Differential				
Crash Profile Risk Score	✓			
usRAP - Star Rating (Veh, Ped, Bike)	✓			
Local Street Assessment				

What Crash Types are Over-Represented?							
Fatal		Head On (HO)					
Serious Injury	✓	Parked Vehicle (PV)	✓				
Pedestrian (Ped)		Single Vehicle					
Bicycle (Bike)		Rear to Rear (RR)					
Motorcycle		Rear to Side (RS)					
Angle		Sideswipe (SS)					
Front to Rear (FR)		Other/Unknown					

										What	Crash T	ypes ar	e Over-l	Represe	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
5900 West & 5500 South		1	0	2	9	9	21	1,044	✓		1					✓
5500 West & 5500 South		0	0	6	12	17	35	287			✓					

Date Prepared: 3/13/2024 Prepared By: JSF Checked By: EJS

SR 97 (5500 South) from 5900 West to 4300 West

SR 97 (5500 South) from 5900 West to 4300 West

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved? This project improves safety through countermeasures that mitigate roadway departures, manages speed, and improves active transportation infrastructure along the corridor and at intersections. Improvements include widening narrow shoulders, speed feedback signs (school and 5500 W.), sidewalk, bicycle lanes, traffic calming by installing wider lane lines, upgraded school crossings (5900 W.) and unsignalized intersection improvements (5900 W., 5500 W., 5100 W., 4700 W. and 4300 W.).

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Wider I Lines

Wider Edge Lines

Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Shoulder Widening on Rural Roads	0.771	All Crashes	0.54	MILE	\$ 32,000	\$ 17,280
Install Driver Feedback Speed Limit Signs	NA	All Crashes	4.00	EACH	\$ 10,000	\$ 40,000
Traffic Calming - Wider Lane Lines	0.68	All Crashes	2.04	MILE	\$ 21,000	\$ 42,840
Install Bicycle Lane	0.51 - 0.694	Bicycle	2.04	MILE	\$ 21,000	\$ 42,840
Install Sidewalk or Walkways	NA	Pedestrian	1.23	MILE	\$ 634,000	\$ 778,691
Provide 2-Ft Paved Shoulder on Rural 2-Lane Roadways	0.66 - 0.89	All Crashes	1.00	MILE	\$ 298,000	\$ 298,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Uni	t Price		Item Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	5.00	INT	\$	19,000	\$	95,000
Upgrade Existing Crosswalk to High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	2.00	XING	\$	37,000	\$	74,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovemen	ts Subtotal:	\$	1,388,651
				Mobilization				75,000
				affic Contr				69,433
		Items Not E	stimated / C					416,595
				Estimate	d Constru	uction Cost:	\$	1,949,679
Local Match [†] : 20% \$ 495,400		_						
[†] Toward SS4A Implementation Grants		Prece	onstruction	Engineeri			\$	233,962
					Utilities*	*	\$	-
		-			ROW**		\$	-
		Constru	ction Engin					292,452
						ject Total:		2,477,000
		of the subtotal with a		of \$2,500 a	and a max	kimum of \$7	'5,000)
**To be ev	aluated during	g feasibility study/desi	gn					

Additional Potential Improvements

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the *Countermeasure Toolbox* for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Pioneer Road from 1500 North to 1200 West

Project Information Sheet	

GFA(s):	West Weber County	Date Prepared:	3/13/2024	
Project Name:	Pioneer Road from 1500 North to 1200 West	Prepared By:	JSF/MA	
Jurisdiction(s):	Marriott-Slaterville	Checked By:	ES	
Emphasis Areas: Equity Priority:	Intersections, Teen Drivers, Roadway Departures Low, High			

Location Description

Roadway:	Pioneer Road	ł	Key Intersection Locations:
From:	1500 North		1900 West
То:	1200 West		1200 West
Length:	4.22	miles	

Project Location Map

Map ID: 2.9.1



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	4.22
Average Daily Traffic (vehicles per day)	3,591
Functional Classification	Major Collector, Local
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	2

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	1
Suspected Minor Injury Crashes (B)	3
Possible Injury Crashes (C)	3
No Injury/PDO Crashes (O)	15
Total Crashes	22
Total EPDO Crashes	210

Why Was This Location Identified? Composite Safety Score Historic Crashes Critical Crash Rate Differential 1 Crash Profile Risk Score usRAP - Star Rating (Veh, Ped, Bike) 1 ~ Local Street Assessment

What Crash Types are Over-Represented?							
Fatal		Head On (HO)					
Serious Injury	✓	Parked Vehicle (PV)	✓				
Pedestrian (Ped)		Single Vehicle	~				
Bicycle (Bike)		Rear to Rear (RR)					
Motorcycle		Rear to Side (RS)					
Angle		Sideswipe (SS)					
Front to Rear (FR)	~	Other/Unknown					

Intersection Crash History

										What C	Crash T	vpes ar	e Over-	Repres	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
1900 West & Pioneer Road	 ✓ 	1	0	9	14	32	56	1,280	1	✓						
1200 West & Pioneer Road	 ✓ 	0	0	2	3	9	14	88				1				
																<u> </u>
																<u> </u>
																<u> </u>

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved?

This project includes improvements to address overrepresentation of speeding, roadway departure, fixed object and serious injuries along W Pioneer Rd between N 1200 W and 4150 W:

-Street-level lighting consistent with local jurisdiction standards on W Pioneer Rd from 4150 W to N 2000 W St and from 1750 W St to 1200 W St

-Improvements to horizontal curves on W Pioneer Rd, including high friction surface treatments, in-lane curve warning pavement markings, driver feedback speed limit signs, and retroreflective strips on curve signage.

-Provide a 2-ft paved shoulder on W Pioneer Rd from N Pioneer Rd to N 2000 W St, with wide edge lines and rumble strips

-Install Driver Feedback Speed Limit Signs on all approaches to the W Pioneer Rd/N 2000 W St intersection, and on W Pioneer Rd near the Marriott Slaterville City

Office. This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Longitudinal Rumble Strips and Stripes on Two-Lane Roads

Pioneer Road from 1500 North to 1200 West

Opinion of Probable Construction Cost

Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit P	rice	Item Cost
Provide Highway Lighting	0.72	Nighttime	3.60	MILE	\$ 3	300,000	\$ 1,080,00
nstall High Friction Surface Treatment (HFST) on Curve	0.515	Fatal & Injury	3.00	CURVE	\$	53,000	\$ 159,00
nstall In-Lane Curve Warning Pavement Markings	0.616 - 0.65	All Crashes	3.00	CURVE	\$	3,000	\$ 9,00
nstall Driver Feedback Speed Limit Signs on Rural Curves	0.93 - 0.95	Rural Curves	6.00	EACH	\$	10,000	\$ 60,00
nstall Retroreflective Strips on Curve Signage	NA	All Crashes	3.00	CURVE	\$	1,000	\$ 3,00
Provide 2-Ft Paved Shoulder on Rural 2-Lane Roadways	0.66 - 0.89	All Crashes	2.70	MILE	\$ 2	298,000	\$ 804,60
nstall Driver Feedback Speed Limit Signs	NA	All Crashes	6.00	EACH	\$	10,000	\$ 60,00
nstall Edge line Rumble Strips	0.49 - 0.87	' Fatal & Injury	2.70	MILE	\$	9,000	\$ 24,30
nstall 6" Edge line (Both Sides of Road)	0.64 - 0.88	All Crashes	2.70	MILE	\$	7,000	\$ 18,90
							\$ -
						ç	\$-
ntersection Improvements							
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit P	rico	Item Cost
Jpgrade Existing Crosswalk to High-Visibility Crosswalk	0.6 - 0.75		2.00	XING	\$		\$ 74,00
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.6 - 0.75		1.00	INT	φ \$		\$ 74,00 \$ 19,00
systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Clashes	1.00	1111	φ	- /	\$ 19,00 \$ -
							<u>թ -</u> Տ -
							<u> </u>
							•
							\$-
							\$-
							\$-
							\$-
							\$-
						9	\$-
				Impi	ovements S	Subtotal: §	\$ 2,311,80
			٨	/lobilization	: (% +/-)*	10%	\$ 75,00
			Tra	affic Contro	ol: (% +/-)	5%	\$ 115,59
		Items Not E	stimated / C	Contingenc	y: (% +/-)	30%	\$ 693,54
				Estimated	Constructi	on Cost:	\$ 3,195,93
.ocal Match [†] : 20% \$ 811,800							
Toward SS4A Implementation Grants		Prec	onstruction	Engineerir	a/Desian	12%	\$ 383,51
		1,000			Utilities**		\$ <u>-</u>
					ROW**		\$
		Constru	ction Engin				\$ 479.39
		Constitu			ated Project		
*Mobili	zation is 10% ±/-	of the subtotal with a	minimum o				
		g feasibility study/desi		ι ψ <u>2</u> ,000 αι		ωποι ψ/ 5,	
Additional Potential Improvements		g reasibility study/desi	911				

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the **Countermeasure Toolbox** for a complete list of safety countermeasures.

Additional Improvements #1: Additional Improvements #2: Additional Improvements #3: Additional Improvements #4: Additional Improvements #5:

Set Appropriate Speed Limits for All Road Users	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County, South Box Elder & North Weber County
Project Name:	1200 West from 2700 North to 17th Street
Jurisdiction(s):	Marriott-Slaterville, Farr West
Emphasis Areas:	Roadway Departures, Intersections, Impaired Driving
Equity Priority:	High, Low

Location Description

Roadway: 1200 West From: To: Length: 4.99

2700 North 17th Street miles

400 North Harrisville Road Eccles Street

Composite Safety Score Historic Crashes

Crash Profile Risk Score

Local Street Assessment

Fatal

Angle Front to Rear (FR)

Serious Injury Pedestrian (Ped)

Bicycle (Bike) Motorcycle

Critical Crash Rate Differential

usRAP - Star Rating (Veh, Ped, Bike)

Key Intersection Locations:

Project Location Map



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	4.99
Average Daily Traffic (vehicles per day)	5,784
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	3

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	1
Suspected Minor Injury Crashes (B)	1
Possible Injury Crashes (C)	8
No Injury/PDO Crashes (O)	26
Total Crashes	36
Total EPDO Crashes	233

Intersection Crash History

										What	Crash T	ypes ar	e Over-	Represe	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
400 North & 1200 West	✓	0	0	2	3	9	14	88				1				
Harrisville Road & 1200 West		0	0	2	12	11	25	192			✓					
Eccles Street & 1250 West		0	0	1	5	2	8	81				✓				√

1200 West from 2700 North to 17th Street

Date Prepared: 3/13/2024 Prepared By: JSF Checked By: EJS

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Map ID:

Why Was This Location Identified?

What Crash Types are Over-Represented? Head On (HO)

Parked Vehicle (PV) Single Vehicle Rear to Rear (RR)

Rear to Side (RS) Sideswipe (SS)

Other/Unknown

1200 West from 2700 North to 17th Street

No. 11 March a the way way is

WASATCH FRONT REGIONAL COUNCIL Safety Action Plan

Project Description/How is safety improved?

This project improves safety through implementation of systemic countermeasures. These include adding new or widened shoulders, adding bicycle lanes, speed management through the installation of speed feedback signs, improving stop-controlled intersection (Eccles St. & Harrisville Rd.), upgrading existing "doghouse" signals to Flashing Yellow Arrow (FYA) signal heads (1200 S.), and installing additional FYA signal heads (400 N.).

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Bicycle Lane	0.51 - 0.694	4 Bicycle	4.38	MILE	\$ 21,000	\$ 91,980
Shoulder Widening on Rural Roads	0.771	All Crashes	2.00	MILE	\$ 32,000	\$ 64,000
Provide 2-Ft Paved Shoulder on Rural 2-Lane Roadways	0.66 - 0.89	All Crashes	0.86	MILE	\$ 298,000	\$ 256,280
Install Driver Feedback Speed Limit Signs	NA	All Crashes	8.00	EACH	\$ 10,000	\$ 80,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit	Price	ľ	tem Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	2.00	INT	\$	19,000	\$	38,000
Change a permissive only to Flashing Yellow Arrow	0.5 - 0.6	Left-Turn	0.50	INT	\$	8,000	\$	4,000
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	0.50	INT	\$	8,000	\$	4,000
Perform an Intersection Control Evaluation and Implement	NA	All Crashes	1.00	INT	\$	225,000	\$	225,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
						s Subtotal:		763,260
				<i>Nobilization</i>			+	75,000
				affic Contr				38,163
		Items Not Es	stimated / C				•	228,978
				Estimate	d Constru	ction Cost:	\$	1,105,401
Local Match [†] : 20% \$ 280,800		_						
		Preco	onstruction	Engineeri	na/Desiar	12%	\$	132,648
[†] Toward SS4A Implementation Grants							÷	
Toward SS4A Implementation Grants					Utilities*		\$	-
· I oward SS4A Implementation Grants		•		Ū.	Utilities* ROW**	ŧ	\$	-
1 oward SS4A Implementation Grants		Construc	ction Engin	eering/Ma	Utilities* ROW** nagemen	t 15%	() () () () () () () () () () () () ()	- - 165,810
			ction Engin	eering/Ma Estin	Utilities* ROW** nagement nated Pro	t 15% ject Total:	୬ ୬ ୬ ୬	1,404,000
· *Mobiliz		<i>Construc</i> of the subtotal with a g feasibility study/desi	c <i>tion Engin</i> minimum c	eering/Ma Estin	Utilities* ROW** nagement nated Pro	t 15% ject Total:	୬ ୬ ୬ ୬	1,404,000

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the Countermeasure Toolbox for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	Re-Evaluate Speed Based on Roadway Context, Built Environment, and Existing Road Users
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

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Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County
Project Name:	1975 North/ 1900 North from 4650 West to 2750 West
Jurisdiction(s):	Plain City
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	Low

Location Description

Roadway: From: To: Length:

1975 North/ 1900 North 4650 West 2750 West miles 2.41

Project Location Map



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.41
Average Daily Traffic (vehicles per day)	6,280
Functional Classification	Major Collector
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	5

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	1
Suspected Serious Injury Crashes (A)	1
Suspected Minor Injury Crashes (B)	2
Possible Injury Crashes (C)	3
No Injury/PDO Crashes (O)	27
Total Crashes	34
Total EPDO Crashes	1,088

Intersection Crash History

	,															
									What	Crash T	ypes ar	e Over-	Represe	ented?		
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
4500 West & 1975 North		0	0	2	3	1	6	80				✓				 Image: A second s
4425 West & 1975 North		0	1	3	7	6	17	246	✓				✓			✓
4100 West & 1975 North		0	0	1	5	1	7	80				1	✓			~
3700 West & 1975 North		0	0	1	4	1	6	69								
3600 West & 1975 North		0	0	2	2	2	6	69				✓				
																1
																1
															_	

Date Prepared:	3/13/2024
Prepared By:	JSF
Checked By:	EJS

1975 North/ 1900 North from 4650 West to 2750 West

Map ID:

2.10.1

Why Was This Location Identified?			
Composite Safety Score	✓		
Historic Crashes	 ✓ 		
Critical Crash Rate Differential	 ✓ 		
Crash Profile Risk Score	 ✓ 		
usRAP - Star Rating (Veh, Ped, Bike)			
Local Street Assessment			

Why Was This Location Identified?	
te Safety Score	1
Crashes	1
crash Rate Differential	✓

What Crash 1	ypes a	re Over-Represented?	
Fatal	 ✓ 	Head On (HO)	
Serious Injury	✓	Parked Vehicle (PV)	 ✓
Pedestrian (Ped)		Single Vehicle	
Bicycle (Bike)		Rear to Rear (RR)	
Motorcycle		Rear to Side (RS)	
Angle		Sideswipe (SS)	
Front to Rear (FR)	✓	Other/Unknown	

3700 West

3600 West

Key Intersection Locations:

4500 West

4425 West

4100 West

1975 North/ 1900 North from 4650 West to 2750 West

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved?

This project includes corridor access management, speed management, active transportation, and intersection improvements. Countermeasures include medians, wider shoulders and bicycle lanes, sidewalks, roundabouts (4500 W., 4425 W., & 4100 W.), unsignalized intersection improvements (3700 W. & 3600 W.) and a speed feedback sign near the school.

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Bicycle Lane	0.51 - 0.694	Bicycle	2.41	MILE	\$ 21,000	\$ 50,610
Install Sidewalk or Walkways	NA	Pedestrian	1.91	MILE	\$ 634,000	\$ 1,210,940
Install Medians and Pedestrian Refuge Islands in Urban Areas	0.44	Pedestrian	2.41	LE (URBA	\$ 958,000	\$ 2,308,780
Shoulder Widening on Rural Roads	0.771	All Crashes	1.21	MILE	\$ 32,000	\$ 38,720
Provide 2-Ft Paved Shoulder on Rural 2-Lane Roadways	0.66 - 0.89	All Crashes	1.21	MILE	\$ 298,000	\$ 360,580
Install Driver Feedback Speed Limit Signs	NA	All Crashes	2.00	EACH	\$ 10,000	\$ 20,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	U	nit Price		Item Cost
Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	3.00	INT	\$	2,500,000	\$	7,500,000
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	2.00	INT	\$	19,000	\$	38,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imn	rovoma	ents Subtotal:	\$ \$	11,527,630
			,	Mobilizatior				75,000
				affic Contr				576,382
		Items Not E						3,458,289
		nems Not L	sumated / C			truction Cost:		15,637,301
Local Match [†] : 20% \$ 3,972,000				Loundle		0031.	Ψ	13,037,301
[†] Toward SS4A Implementation Grants		Proc	onstruction	Enginoori	na/Des	ian 12%	\$	1,876,476
Toward 004A Implementation Grants		11000	011311 4011011	Ligincom	Utilitie		\$	1,070,470
					ROW*		¢ \$	-
		Constru	ction Engin	eerina/Ma			\$	2,345,595
		Condition	<u>-</u> giii			roject Total:		19,860,000
*Mobilization	n is 10% +/-	of the subtotal with a	minimum o					
		g feasibility study/desi		. ,			,	

Additional Potential Improvements

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the **Countermeasure Toolbox** for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	Targeted Enforcement and Deterrence
Additional Improvements #3:	Re-Evaluate Speed Based on Roadway Context, Built Environment, and Existing Road Users
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan 6000 South from 3100 West (SR 108) to 1900 W (SR 126)

Project Information Sheet

GFA(s):	West Weber County
Project Name:	6000 South from 4300 West to 1900 West (SR 126)
Jurisdiction(s):	Roy
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	Medium

Location Description

Roadway:	6000 South	Key Intersection Locations:
From:	4300 West	4300 West 2700 West
To:	1900 West (SR 126)	3500 West 2200 West
Length:	3.01 miles	3100 West

Project Location Map



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	3.01
Average Daily Traffic (vehicles per day)	5,678
Functional Classification	Minor Collector
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	5

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	0
Suspected Minor Injury Crashes (B)	7
Possible Injury Crashes (C)	3
No Injury/PDO Crashes (O)	17
Total Crashes	27
Total EPDO Crashes	207

Why Was This Location Identified?			
Composite Safety Score			
Historic Crashes	~		
Critical Crash Rate Differential			
Crash Profile Risk Score			
usRAP - Star Rating (Veh, Ped, Bike)			
Local Street Assessment	1		

What Crash Types are Over-Represented?					
Fatal		Head On (HO)			
Serious Injury	✓	Parked Vehicle (PV)	✓		
Pedestrian (Ped)		Single Vehicle			
Bicycle (Bike)		Rear to Rear (RR)			
Motorcycle		Rear to Side (RS)			
Angle	✓	Sideswipe (SS)			
Front to Rear (FR)		Other/Unknown			

Intersection Crash History

								1		What 0	Crash T	ypes ar	e Over-	Repres	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
4300 West & 6000 South		0	0	0	3	0	3	34						✓		
3500 West & 6000 South	✓	0	0	6	15	9	30	313			✓				✓	
3100 West & 6000 South		1	0	3	5	12	21	1,024	~	✓	~					
2700 West & 6000 South		0	1	1	4	12	18	173		✓		1				
2200 West & 6000 South		0	0	0	3	6	9	40		✓			✓			✓

Date Prepared: 3/13/2024 Prepared By: MA вс Checked By:

> Map ID: 2.11.1

A LINE AND AND A March 1188 WASATCH FRONT REGIONAL COUNCIL

6000 South from 3100 West (SR 108) to 1900 W (SR 126)

Project Description/How is safety improved?

Safety Action Plan

This project includes the segment improvements along W 6000 S to address an overrepresentation of speeding, angle and parked vehicle crashes: -Narrowing of the travelled way on either side of the street between S 3375 W and S 1900 W by clearly delineating/striping the parking shoulder

-Installation of multiple speed limit feedback signs across the corridor to help drivers gauge their travelled speed against the speed limit

The following intersection improvements are recommended to address an overrepresentation of angle and pedestrian crashes:

-A variety of low-cost countermeasures, such as visibility and sight distance improvements along W 6000 S at S 3100 W, S 2700 W, and S 2200 W

Installation of RRFR's including high visibility improvements at the intersections of \$2100 W and \$2200 W This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures







Rectangular Rapid Flashing Beacons (RRFB)



Wider Edge Lines

Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Traffic Calming - Lane Narrowing	0.68	All Crashes	3.01	MILE	\$ 39,000	\$ 117,390
Install Driver Feedback Speed Limit Signs	NA	All Crashes	4.00	EACH	\$ 10,000	\$ 40,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements					_		
Item Description	CMF	Applicable Crashes		Unit		Unit Price	Item Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	4.00	INT	\$	19,000	\$ 76,000
Install a Rectangular Rapid Flashing Beacons (RRFB)	0.526	Pedestrian	3.00	XING (2)	\$	15,000	\$ 45,000
Install High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	2.00	XING	\$	36,000	\$ 72,000
Upgrade Existing Crosswalk to High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	2.00	XING	\$	37,000	\$ 74,000
Perform an Intersection Control Evaluation and Implement	NA	All Crashes	4.00	INT	\$	225,000	\$ 900,000
Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	4.00	INT	\$	2,500,000	\$ 10,000,000
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
				Imp	rover	ments Subtotal:	\$ 11,324,39
			Λ	/lobilizatior	n: (%	+/-)* 10%	\$ 75,00
			Tra	affic Contro	ol: (%	6 +/-)	\$ 566,22
		Items Not Es	stimated / C	Contingenc	y: (%	6 +/-) 30%	\$ 3,397,31
				Estimated	l Cor	nstruction Cost:	\$ 15,362,92
Local Match [†] : 20% \$ 3,902,200							
Toward SS4A Implementation Grants		Prece	onstruction	Engineerir	ng/De	esign 12%	\$ 1,843,55
,				5	•	ties**	\$ -
					RO	N**	\$ -
		Construe	ction Engin	eering/Mar			\$ 2,304,43
			5	0	•	Project Total:	19,511,00

*Mobilization is 10% +/- of the subtotal with a minimum of \$2,500 and a maximum of \$75,000

**To be evaluated during feasibility study/design

Additional Potential Improvements

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the Countermeasure Toolbox for a complete list of safety countermeasures.

Additional Improvements #1:
Additional Improvements #2:
Additional Improvements #3:
Additional Improvements #4:
Additional Improvements #5:

Set Appropriate Speed Limits for All Road Users

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

Use Restricted 23 U.S.C. § 407

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County, North Davis County
Project Name:	1900 West (SR 126) from SR 39 to 2400 North
Jurisdiction(s):	Roy, West Haven, Sunset
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	High, Medium

Location Description

Roadway:	1900 West (SR 126)	Key Intersection Locations:					
From:	SR 39	2400 North 4000 South					
To:	2400 North	5450 South Hinckley Drive					
Length:	6.65 miles	5200 South Midland Drive					

Project Location Map



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	6.65
Average Daily Traffic (vehicles per day)	24,723
Functional Classification	Other Principal Arteria
Roadway Ownership	State
Urban/Rural Designation	Urban
Number of Key Intersections	7

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	1
Suspected Serious Injury Crashes (A)	14
Suspected Minor Injury Crashes (B)	60
Possible Injury Crashes (C)	103
No Injury/PDO Crashes (O)	262
Total Crashes	440
Total EPDO Crashes	4,969

Intersection Crash History

											ypes ar	e Over-	Represe	ented?		
Intersections	Signal	K	Α	в	с	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
2400 North & 1900 West		0	0	2	9	8	19	155		<	~					
5450 South & 1900 West		0	2	4	15	21	42	468	1		✓					
5200 South & 1900 West		1	0	5	10	10	26	1,123	✓		~		✓			
4000 South & 1900 West	✓	0	0	16	39	13	68	813		✓		✓				
Hinckley Drive & 1900 West	✓	0	7	17	30	51	105	1,427	✓		1					
Midland Drive & 1900 West	✓	2	5	18	59	45	129	3,362	~				✓			~
1800 South & 1900 West		0	0	2	11	7	20	177				1				~

ate Prepared:	3/13/2024
Prepared By:	JSF
	E IO

1900 West (SR 126) from SR 39 to 2400 North

Why Was This Location Identified?				
Composite Safety Score	1			
Historic Crashes	✓			
Critical Crash Rate Differential	1			
Crash Profile Risk Score	✓			
usRAP - Star Rating (Veh, Ped, Bike)	1			
Local Street Assessment				

What Crash Types are Over-Represented?							
Fatal	atal Head On (HO)		✓				
Serious Injury	✓	Parked Vehicle (PV)	✓				
Pedestrian (Ped)	✓	Single Vehicle	✓				
Bicycle (Bike)		Rear to Rear (RR)					
Motorcycle	✓	Rear to Side (RS)					
Angle	✓	Sideswipe (SS)	✓				
Front to Rear (FR)	✓	Other/Unknown					

1800 South

Map ID: 2.11.2.1

Checked By: EJS and the second that

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan 1900 West (SR 126) from SR 39 to 2400 North

Project Description/How is safety improved?

This project improves safety by installing a raised median along the entire length of the corridor. Other improvements include completing the bicycle lane where it is not present and strategic intersection upgrades at various locations. Signalized intersection improvement include upgrading existing "doghouse" signal heads to flashing yellow arrow (FYA) signal heads (4000 S.), upgrading left-turns to protected left-turn signal timing (4800 S. Hinckley, and 6000 S.), systemic stop-controlled improvements (2400 N., 5450 S., and 5200 S.), pedestrian signal at 4975 South and midblock between 5200 S. and 5300 S, evaluating the need for right-turn lanes at 5200 S.

5200 S. This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Intersection Improve







Pedestrian Hybrid Beacons

Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	6.65	MILE	\$ 928,000	\$ 6,171,200
Install Bicycle Lane	0.51 - 0.694	Bicycle	3.50	MILE	\$ 21,000	\$ 73,500
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection improvements								(
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit	Price		Item Cost
Provide Right-Turn Lanes	0.74 - 0.86	All Crashes	2.00	LANE	\$	150,000	\$	300,000
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	2.00	INT	\$	8,000	\$	16,000
Install Pedestrian Hybrid Beacons (PHB) or HAWK	0.453	Pedestrian	2.00	EACH	\$	200,000	\$	400,000
Change Permissive Left-Turn to Protected or Protected/Permissive	0.79 - 0.95	Left-Turn	4.00	INT	\$	8,000	\$	32,000
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	3.00	INT	\$	19,000	\$	57,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovement	s Subtotal:	\$	7,049,700
			Λ	Nobilization	n: (% +/-)*	* 10%	\$	75,000
Traffic Control: (% +/-) 5%							\$	352,485
		Items Not E	stimated / 0	Contingend	cy: (% +/-)	30%	\$	2,114,910
				Estimate	d Constru	ction Cost:	\$	9,592,095
Local Match [†] : 20% \$ 2,436,400								
[†] Toward SS4A Implementation Grants		Prece	onstruction	Engineerii	ng/Design	12%	\$	1,151,051
					l Itilitios**	*	\$	

 Seconstruction Engineering/Design
 12%
 \$
 1,151,051

 Utilities**
 \$

 ROW**
 \$

 Construction Engineering/Management
 15%
 \$
 1,438,814

 Estimated Project Total:
 \$
 12,182,000

*Mobilization is 10% +/- of the subtotal with a minimum of \$2,500 and a maximum of \$75,000 **To be evaluated during feasibility study/design

Additional Potential Improvements

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the **Countermeasure Toolbox** for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County, North Davis County
Project Name:	2550 South from 3500 West to 1900 West
Jurisdiction(s):	West Haven
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	Low, Medium

Location Description

Roadway: From: To: Length:

2550 South 3500 West 1900 West miles 2.00

Project Location Map



Key Intersection Locations:

2700 West

3500 West

Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.00
Average Daily Traffic (vehicles per day)	6,380
Functional Classification	Major Collector
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	2

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	0
Suspected Minor Injury Crashes (B)	3
Possible Injury Crashes (C)	1
No Injury/PDO Crashes (O)	15
Total Crashes	19
Total EPDO Crashes	93

Intersection Crash History

														_		
													e Over-			
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
2700 West & 2550 South		0	0	3	3	5	11	106			~					1
3500 West & 2550 South		0	1	8	17	23	49	488			✓					

Fatal

Angle

Serious Injury Pedestrian (Ped)

Front to Rear (FR)

Bicycle (Bike) Motorcycle

2550 South from 3500 West to 1900 West

Date Prepared:	3/13/2024
Prepared By:	JSF
Checked By:	EJS

		W 2800
Contraction of the	and the second	LE

Why Was This Location Identified?	
Composite Safety Score	~
Historic Crashes	1
Critical Crash Rate Differential	1
Crash Profile Risk Score	1
usRAP - Star Rating (Veh, Ped, Bike)	1
Local Street Assessment	~

What Crash Types are Over-Represented? Head On (HO)

Parked Vehicle (PV) Single Vehicle Rear to Rear (RR)

Rear to Side (RS)

1

Sideswipe (SS)

Other/Unknown

2550 South from 3500 West to 1900 West

A. W. There and a the way way is

WASATCH FRONT REGIONAL COUNCIL Safety Action Plan

Project Description/How is safety improved?

This project improves safety by completing the full buildout of the roadway to include complete active transportation facilities including bicycle lanes (north side), sidewalks, and an enhanced marked pedetrian crosswalk. The project also includes systemic upgrades to the key unsignalized intersections (2700 W. & 3500 W.), including lighting.

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures



Stop-Controlled . Intersection Countermeasures

Walkways

Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Shoulder Widening on Rural Roads	0.771	All Crashes	1.04	MILE	\$ 32,000	\$ 33,182
Install Sidewalk or Walkways	NA	Pedestrian	1.04	MILE	\$ 634,000	\$ 657,415
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	U	nit Price		Item Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	2.00	INT	\$	19,000	\$	38,000
Upgrade Existing Crosswalk to High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	1.00	XING	\$	37,000	\$	37,000
Install Intersection Lighting	0.62 - 0.67	Nighttime	2.00	INT	\$	31,000	\$	62,000
Add Sidewalk	0.2	Pedestrian	1.00	INT	\$	4,500	\$	4,500
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
						ents Subtotal:		832,097
				Nobilizatio			•	75,000
				affic Contr				41,605
		Items Not E	stimated / 0					249,629
Local Match [†] : 20% \$ 304,400				Estimate	d Cons	truction Cost:	\$	1,198,330
[†] Toward SS4A Implementation Grants		Proc	onstruction	Engineeri	na/Dec	ian 12%	\$	143,800
Toward 554A Implementation Grants		11600	011311 4011011	Ligineen	Utilitie	5	Ψ	143,000
					ROW		φ	
		Constru	ction Engin	oorina/Ma			ф Ф	179,750
		Constitu	cuon Lingin			Project Total:		1,522,000
*Mobilizat	tion is 10% ±/-	of the subtotal with a	minimum					
		g feasibility study/desi		, ψ <u>2</u> ,000 c			5,00	~
Additional Potential Improvements		, , , , , , , , , , , , , , , , , , , ,	U U					

Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the Countermeasure Toolbox for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

Use Restricted 23 U.S.C. § 407

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Information Sheet

GFA(s):	West Weber County, North Davis County
Project Name:	1900 West (SR 126) from SR 39 to 2400 North
Jurisdiction(s):	West Haven, Sunset, Roy
Emphasis Areas:	Intersections, Teen Drivers, Roadway Departures
Equity Priority:	High, Medium

Location Description

Roadway:	1900 West (SR 126)	Key Intersection Locations:
From:	SR 39	2400 North 4000 South
To:	2400 North	5450 South Hinckley Drive
Length:	6.65 miles	5200 South Midland Drive

Project Location Map



Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	6.65
Average Daily Traffic (vehicles per day)	24,723
Functional Classification	Other Principal Arteria
Roadway Ownership	State
Urban/Rural Designation	Urban
Number of Key Intersections	7

Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	1
Suspected Serious Injury Crashes (A)	14
Suspected Minor Injury Crashes (B)	60
Possible Injury Crashes (C)	103
No Injury/PDO Crashes (O)	262
Total Crashes	440
Total EPDO Crashes	4,969

Intersection Crash History

									What Crash Types are Over-Represented?							
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
2400 North & 1900 West		0	0	2	9	8	19	155		✓	~					1
5450 South & 1900 West		0	2	4	15	21	42	468	✓		✓					
5200 South & 1900 West		1	0	5	10	10	26	1,123	✓		~		~			
4000 South & 1900 West	✓	0	0	16	39	13	68	813		✓		✓				
Hinckley Drive & 1900 West	✓	0	7	17	30	51	105	1,427	✓		~					
Midland Drive & 1900 West	✓	2	5	18	59	45	129	3,362	1				 ✓ 			~
1800 South & 1900 West		0	0	2	11	7	20	177				✓				√
																1
																1

ate Prepared:	3/13/2024
Prepared By:	JSF
Checked By:	FJS

Why Was This Location Identified?		
Composite Safety Score	1	
Historic Crashes	✓	
Critical Crash Rate Differential	✓	
Crash Profile Risk Score	1	
usRAP - Star Rating (Veh, Ped, Bike)	1	
Local Street Assessment		

What Crash Types are Over-Represented?				
Fatal		Head On (HO)	1	
Serious Injury	✓	Parked Vehicle (PV)	 ✓ 	
Pedestrian (Ped)	✓	Single Vehicle	 ✓ 	
Bicycle (Bike)		Rear to Rear (RR)		
Motorcycle	✓	Rear to Side (RS)		
Angle	✓	Sideswipe (SS)	✓	
Front to Rear (FR)	✓	Other/Unknown		

Date Prepared:	3/13/2024
Prepared By:	JSF
Checked By:	EJS

1800 South

Map ID: 2.12.2.1

1900 West (SR 126) from SR 39 to 2400 North

1900 West (SR 126) from SR 39 to 2400 North

madely a france in

WASATCH FRONT REGIONAL COUNCIL Safety Action I

Project Description/How is safety improved?

This project improves safety by installing raised medians, completing the bicycle lane where a bicycle lane is not present and strategic intersection upgrades at various locations. Signalized intersection improvement include upgrading existing "doghouse" signal heads to flashing yellow arrow (FYA) signal heads (4000 S.), upgrading left-turns to protected left-turn signal timing (4800 S. Hinckley, and 6000 S.), systemic stop-controlled improvements (2400 N., 5450 S., and 5200 S.). Pedestrian signal at 4975 South and midblock between 5200 S. and 5300 S. Evaluate the need for right-turn lanes at 5200 S.

This project description represents potential safety improvement strategies that could be implemented at this location, as well as other locations with similar conditions. Additional improvement strategies could be considered subject to engineering analysis.

Proposed Proven Safety Countermeasures









Pedestrian Hybrid Beacons

Opinion of Probable Construction Cost

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	6.65	MILE	\$ 928,000	\$ 6,171,200
Install Bicycle Lane	0.51 - 0.694	Bicycle	3.50	MILE	\$ 21,000	\$ 73,500
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements							
Item Description	CMF	Applicable Crashes	Quantity	Unit	Un	it Price	Item Cost
Provide Right-Turn Lanes	0.74 - 0.86	All Crashes	2.00	LANE	\$	150,000	\$ 300,000
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	2.00	INT	\$	8,000	\$ 16,000
Install Pedestrian Hybrid Beacons (PHB) or HAWK	0.453	Pedestrian	2.00	EACH	\$	200,000	\$ 400,000
Change Permissive Left-Turn to Protected or Protected/Permissive	0.79 - 0.95	Left-Turn	3.00	INT	\$	8,000	\$ 24,000
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	3.00	INT	\$	19,000	\$ 57,000
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
				Imp	roveme	nts Subtotal:	\$ 7,041,700
			1	Mobilizatio	1: (% +/-)* 10%	\$ 75,000
				affic Contr			\$ 352,085
		Items Not Es	stimated / 0	Contingena	:y: (% +/	(-) 30%	\$ 2,112,510
Local Match [†] : 20% \$ 2,433,800				Estimate	d Consti	ruction Cost:	\$ 9,581,295
[†] Toward SS4A Implementation Grants		Prece	onstruction	Engineeri	ng/Desig	gn 12%	\$ 1,149,755

Estimated Project Total:	\$	12,169,000
Construction Engineering/Management 15%	\$	1,437,194
ROW**	\$	-
Utilities**	\$	-
Preconstruction Engineering/Design 12%	Э	1,149,755

*Mobilization is 10% +/- of the subtotal with a minimum of \$2,500 and a maximum of \$75,000 **To be evaluated during feasibility study/design

Additional Potential Improvements

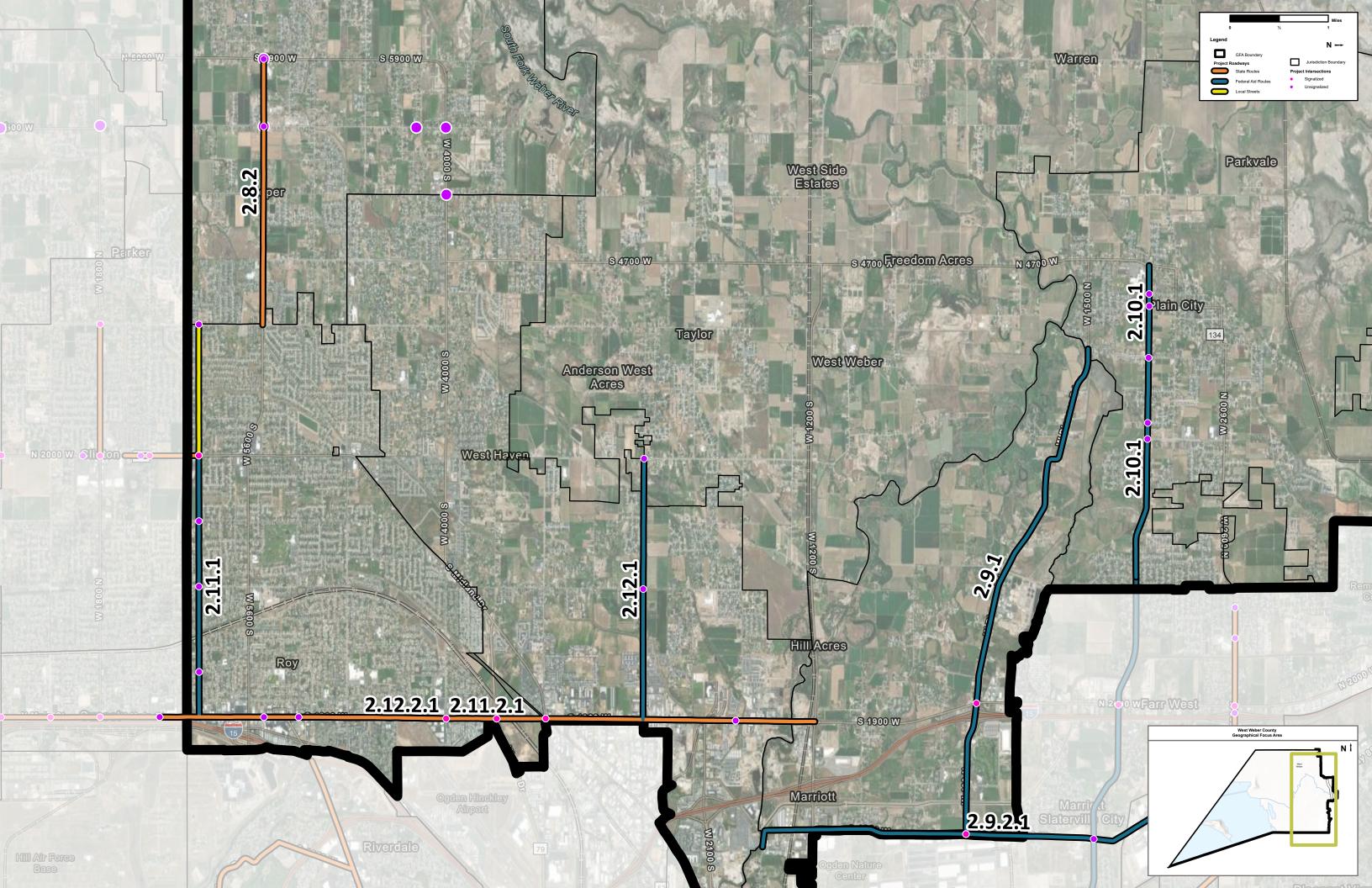
Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the Countermeasure Toolbox for a complete list of safety countermeasures.

Additional Improvements #1:	Set Appropriate Speed Limits for All Road Users
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

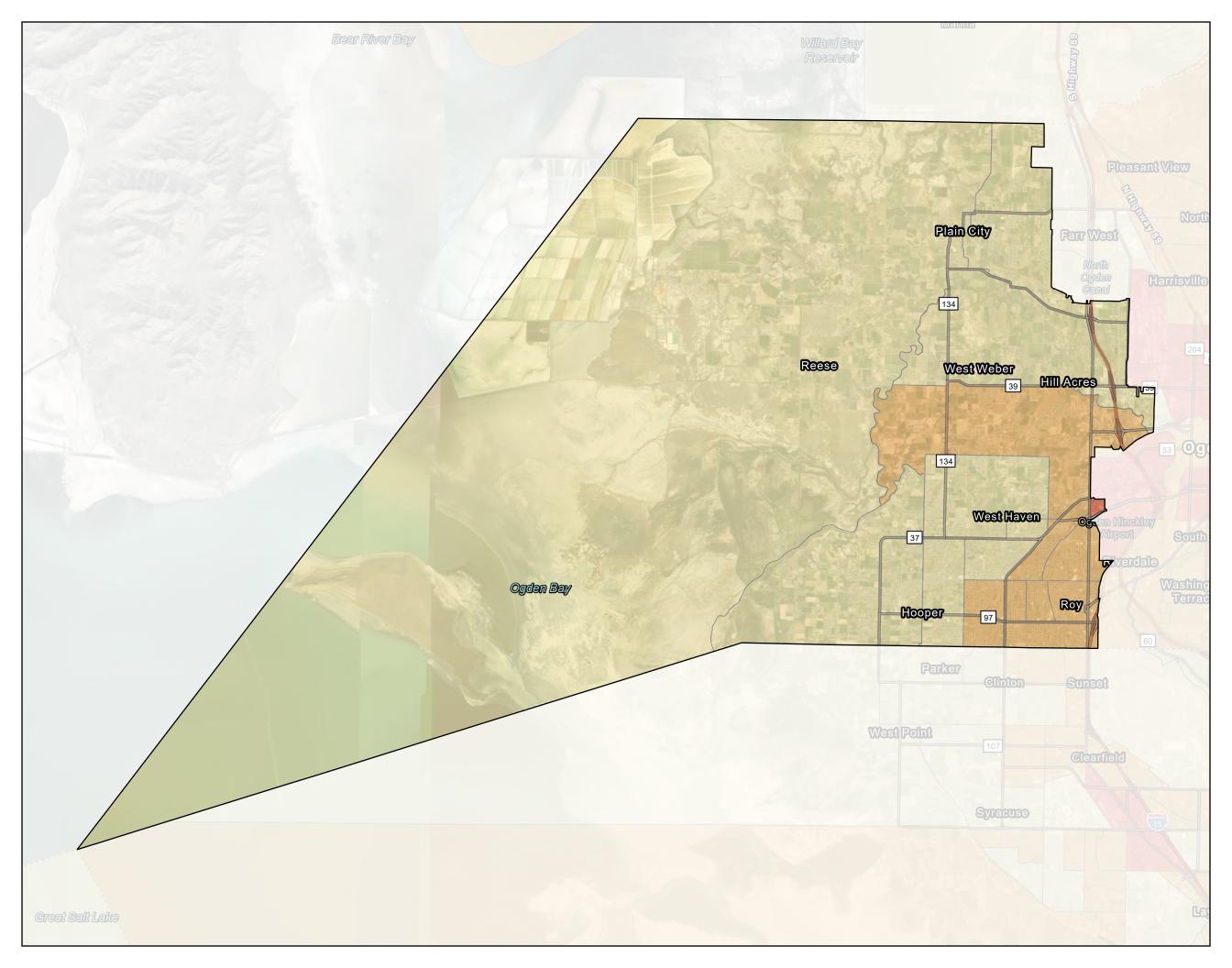
Disclaimer:

Disclaimer: The cost estimates provided in this document are for comparison purposes only. Actual project costs will vary. The recommended safety improvement strategies were based on available data and reasonable engineering judgment and a more detailed assessment may suggest additional safety strategies that could be considered.

WESTERN WEBER COUNTY CASE STUDY PROJECT LOCATION MAP



WESTERN WEBER COUNTY EQUITY INDEX MAP



West Weber County Equity Need Areas High Medium Low