### **APPENDIX D9: EAST SALT LAKE VALLEY**

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

## EAST SALT LAKE VALLEY SAFETY SUMMARY



### **CSAP OVERVIEW**

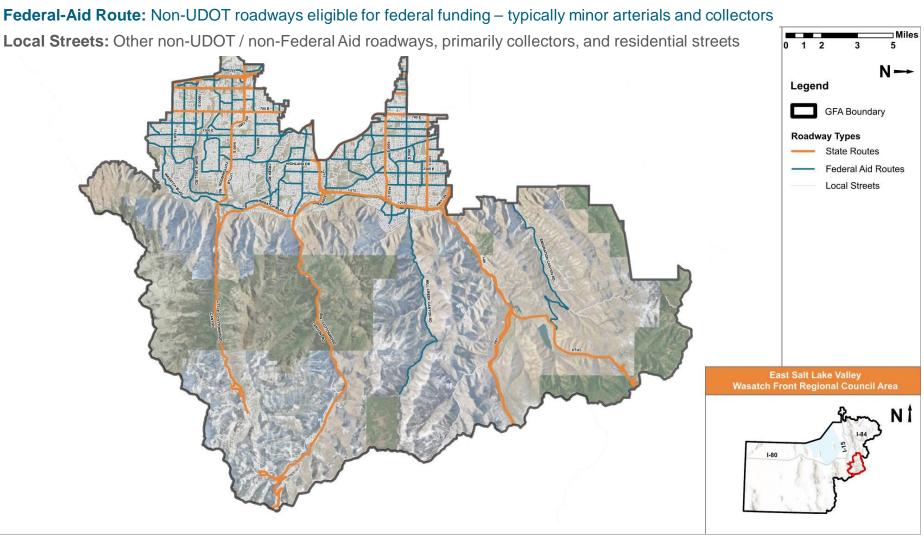
"A plan to provide local governments the means to make strategic roadway safety improvements"

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:

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



### **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:

1. Leadership Commitment	
--------------------------	--

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

#### **Plan Development** 2.

Committee charged with plan development, implementation, and monitoring

#### **Development Activities** 3.

Engagement with public and relevant stakeholders

4.

6.

#### Equity

Data-driven, inclusive, and representative processes

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

Assessment policies, plans, guidelines, and/or standards

#### Progress

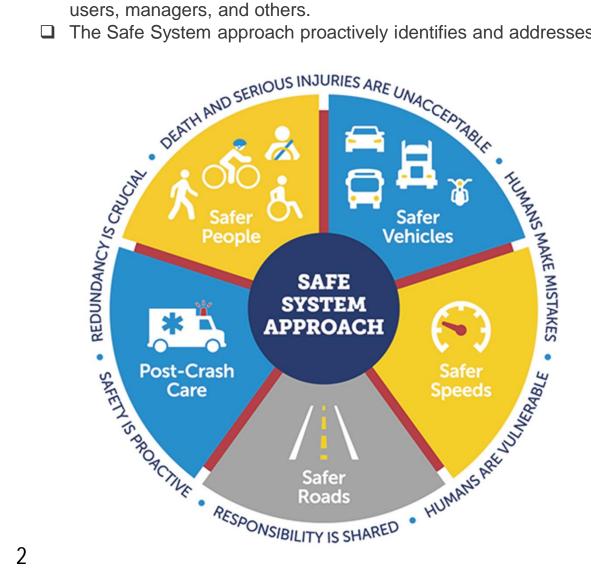
Description on how progress will be measured over time



## Safe System Approach

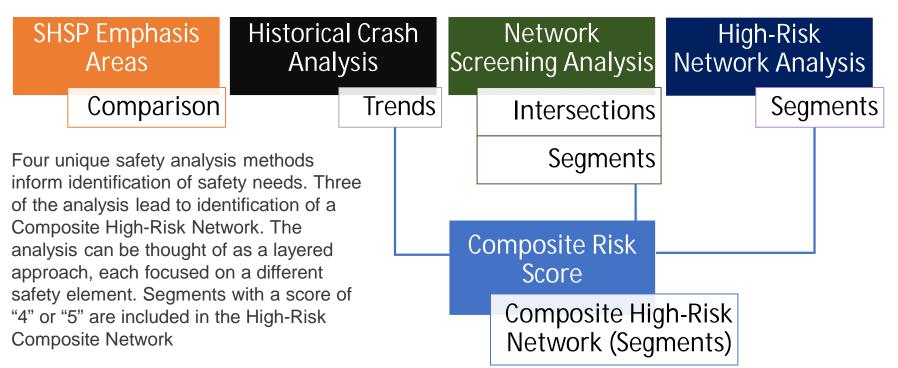
Implementing a Safe System Approach requires moving away from traditional safety paradigms.

- □ 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
Lish Diek Network Analysia	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

# East Salt Lake Valley Geographic Focus Area

#### Safe System Approach Paradigm

ent death and serious injury

In for human mistakes/limitations

ce system kinetic energy

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 East Salt Lake Valley GFA.

- Intersections
- Roadway Departure
- Speed-Related
- Older Driver
- Motorcycle

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, Roadway Departure, and Speed-Related emphasis areas within the East Salt Lake Valley GFA, Older Driver and Motorcycle are also identified as top emphasis areas.

### Strategic Highway Safety Plan Emphasis Area Comparison

		Statewid	le Totals	WFRC	Totals	East Sal	t Lake Valle	y 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	69	8	-4
	Older Driver	1,508	6	700	6	98	4	3
	Speed-Related	2,133	3	936	3	98	3	0
Driver	Aggressive Driving	555	11	297	10	35	10	0
	Distracted Driving	718	10	286	11	34	11	0
	Impaired Driving	1,184	8	623	8	70	and bus bryRankin Rank From WFRC $0$ $8$ $-4$ $0$ $8$ $-4$ $3$ $4$ $3$ $3$ $4$ $3$ $3$ $3$ $0$ $5$ $10$ $0$ $4$ $11$ $0$ $0$ $6$ $2$ $3$ $9$ $0$ $2$ $1$ $0$ $4$ $2$ $0$ $4$ $5$ $0$ $0$ $6$ $1$	2
	No Safety Restraints	1,542	5	599	9	58	9	0
	Intersection	3,567	1	2,163	1	212	1	0
Roadway	Roadway Departure	2,931	2	1,014	2	124	Rank       Change in Rank From WFRC         8       -4         4       3         3       0         10       0         11       0         6       2         9       0         1       0         2       0         5       0         6       1	0
	Motorcycle	1,457	7	750	5	94	5	0
Special Users	Pedestrian	912	9	636	7	70	6	1
	Bicycle*	280	12	167	12	34	11	1

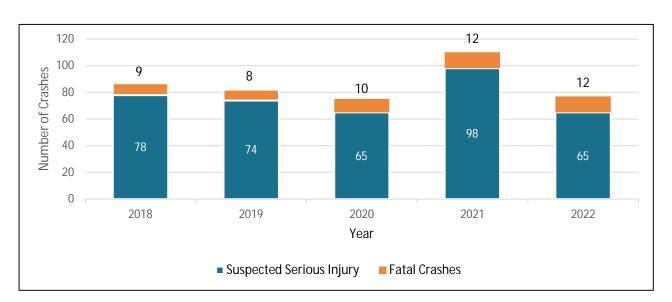
\*While Bicycles are not one of the eleven Utah SHSP emphasis areas, they are included as part of the CSAP safety analysis.

## East Salt Lake Valley Geographic Focus Area

SHSP Emphasis Areas Comparison



Route Type	State	Route		al Aid ute	Local	Street	Overal	I Total	% of WFRC
Crash Severity	Cras	shes	Cras	shes	Cras	shes	Cras	shes	%
orash oeventy	#	%	#	%	#	%	#	%	/0
Fatal	28	0%	19	0%	4	0%	51	0.2%	0.0%
Suspected Serious Injury	197	2%	156	2%	27	1%	380	1.8%	0.2%
Suspected Minor Injury	944	9%	832	10%	160	7%	1,936	9.1%	1.1%
Possible Injury	2,038	19%	1,427	18%	209	9%	3,674	17.3%	2.0%
No Injury / Property Damage Only	7,545	70%	5,624	70%	2,001	83%	15,170	71.5%	8.4%
Route Total	10,752	100%	8,058	100%	2,401	100%	21,211	100%	11.8%



### Annual Fatal and Serious Injury Crashes (2018-2022)

100

90

80

70

60

50

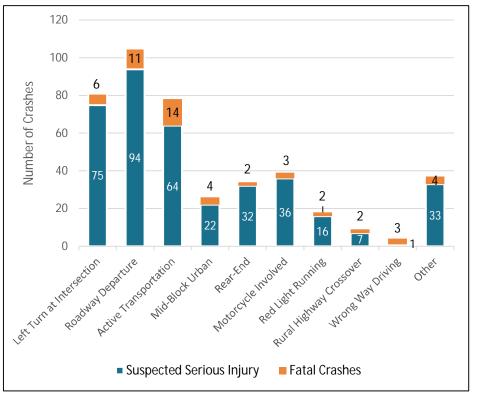
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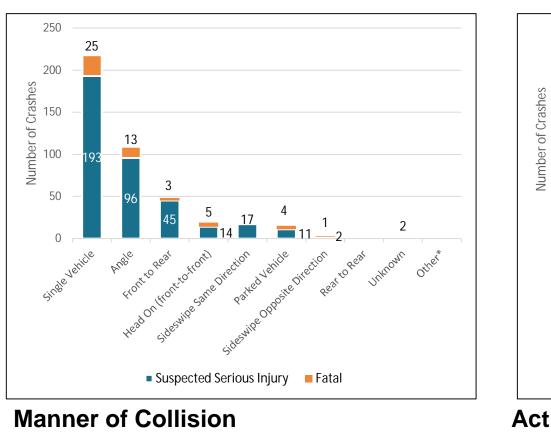
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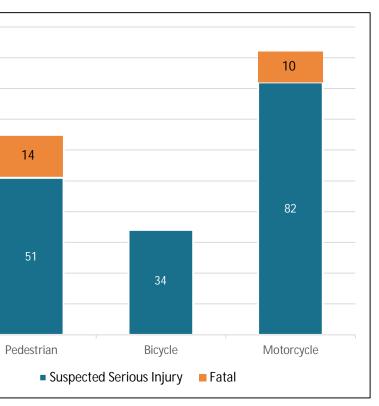
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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan



# East Salt Lake Valley Geographic Focus Area



**Active Transportation** 

#### **Historical Crash** Analysis

Trends



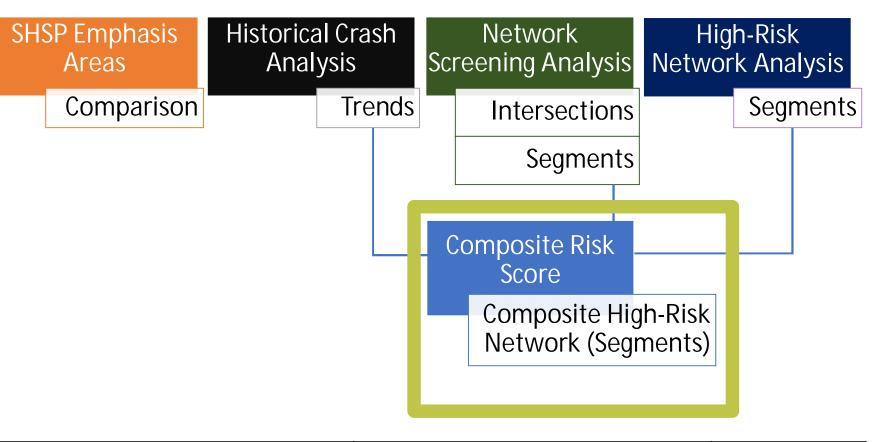
### **Composite High-Risk Roadway Network**

Each of the completed safety analysis methodologies identified segments or intersections that are 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 Composite High-Risk Network. These represent the top 10% of State Route and Federal Aid Route segments for the entire WFRC area.

The Composite High Risk Network map on page 8 includes State Route and Federal Aid Route segments with a score of "4" or higher.

A list of locally-owned and maintained Federal Aid Route segments in the East Salt Lake Valley GFA Composite High-Risk Network is included on the next page. Streets operated and maintained by local agencies are an emphasis of the SS4A program.



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 Pick Network Applycia	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

## East Salt Lake Valley Geographic Focus Area

Composite Risk Score Composite High-Risk Network (Segments)



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

						R	ISK <sup>-</sup>	FYPE	_		
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
State Route		·									
SR-65	Emigratino Canyon Road to I-80	Major Collector	Unincorporated	2.5	Х	Х	Х		Х	Х	
SR-171	700 East to I-215	Other Principle Arterial	Millcreek	4.0	Х	Х	Х	Х	Х	Х	
SR-266	700 East to I-215	Other Principle Arterial	Holladay	3.5	Х	Х	Х	Х	Х	Х	
SR-190	Wasatch Boulevard to Guardsman Pass	Minor Arterial	Brighton, Unincorporated	15.0	Х	Х	Х	Х	Х	Х	
Little Cotton Wood (SR-210)	Russel Park Road to Snowbird Center D	Other Principle Arterial	Cottonwood Heights, Uninc	8.0	Х	Х	Х	Х		Х	
SR-209	Main Street to Wasatch Boulevard	Other Principle Arterial	Sandy	7.0	Х	Х	Х	Х	Х	Х	
700 East (SR-71)	7800 South to 11400 South	Other Principle Arterial	Sandy	4.5	Х	Х	Х	Х		Х	
State Street (US-89)	Princeton Drive to 11400 South	Other Principle Arterial	Sandy	4.0	Х	Х	Х	Х		Х	
Federal Aid Routes											
Highland Dr	Hudson Ave to Van Winkle Expy	Minor Arterial	Millcreek, Holladay	4.8	Х	Х	Х	Х		Х	
1300 E	3205 S to 3340 S	Minor Arterial	Millcreek, Holladay	0.2	Х	Х	Х		Х	Х	
2300 E	3395 S to Phylden Dr	Minor Arterial	Millcreek, Holladay	2.0	Х	Х		Х	Х	Х	
3900 S	700 E to Woodline Dr	Minor Arterial	Millcreek	1.5	Х	Х	Х	Х		Х	
Lincoln Ln	Lynne Ln to Camille St	Minor Collector	Holladay	0.7	Х	Х	Х	Х		Х	
1300 E	Pondoray Cir	Minor Arterial	Millcreek	0.1	Х	Х	Х		Х	Х	
Holladay Blvd	Murray Holladay Rd to Le Jardin Pl	Minor Arterial	Holladay	1.5	Х	Х	Х	Х		Х	
Murray Holladay Rd	Highland Cir to Highland Dr	Minor Arterial	Millcreek	0.1	Х	Х		Х	Х	Х	

State Route and Federal Aid segments in the East Salt Lake Valley 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 or for coordination with UDOT. Each of these segments are shown on the map on page 8.

## East Salt Lake Valley Geographic Focus Area

**Composite Risk** Score Composite High-Risk Network (Segments)



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

			-			R	ISK <sup>-</sup>	ΓΥΡΕ			
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											
Fort Union Blvd	Union Park Ave to Promenade Dr	Minor Arterial	Cottonwood Heights	2.5	Х	Х	Х	Х		Х	
Fort Union Blvd	Racquet Club Dr to Wasatch Blvd	Minor Arterial	Cottonwood Heights	0.1	Х	Х	Х	Х	Х	Х	
Highland Dr	700 S to 7200 S	Other Principal Arterial	Cottonwoods Heights	0.3	Х	Х	Х		Х	Х	
Bengal Blvd	Butler Hills Dr to 2300 E	Minor Arterial	Cottonwoods Heights	0.1	Х	Х	Х		Х	Х	
Sego Lily Dr	Kills Ln to Kristin Dr	Minor Arterial	Cottonwoods Heights	0.1	Х	Х	Х		Х	Х	
Sandy Pkwy	9120 S to Universal Cir	Minor Arterial	Sandy	0.1	Х	Х		Х	Х	Х	
10600 S	I-15 to 2000 E	Minor Arterial	Sandy	3.5	Х	Х	Х	Х		Х	
11000 S	Heather Ridge Dr to Sady Ln	Major Collector	Sandy	0.1	Х	Х	Х		Х	Х	
11400 S	700 E to Sandy Creek Dr	Minor Arterial	Sandy	0.2	Х	Х	Х		Х	Х	
Local Streets					Lo	cal St	reet l	Risk <i>F</i>	lsses	smen	t
900 East	3100 South to 3500 South	Major Collector	Millcreek	0.7							Х
Sandy Parkway	SR-209 to 700 West	Major Collector	Sandy	0.9							Х
Alta Canyon Drive	Highland Drive to Willow Creek Drive	Local	Sandy	1.0							Х
Riverside Drive	SR-209 to 9600 South	Local	Sandy	0.9		ne Lo					Х
900 East	3700 South to 4000 South	Major Collector	Millcreek	0.6		essn					Х
Monroe Street	8755 South to 9000 South	Local	Sandy	0.3	facto	rs su ashe					Х
Jupiter Drive	Wasatch Boulevard to 4100 South	Minor Collector	Millcreek	0.4	scho				,		Х
300 East	9800 South to 8400 South	Minor Collector	Sandy	1.8						2	Х
1100 East	3200 South to SR-266	Minor Collector	Millcreek	1.8							Х
9400 South	Riverside Drive to I-15	Local	Sandy	0.8							Х

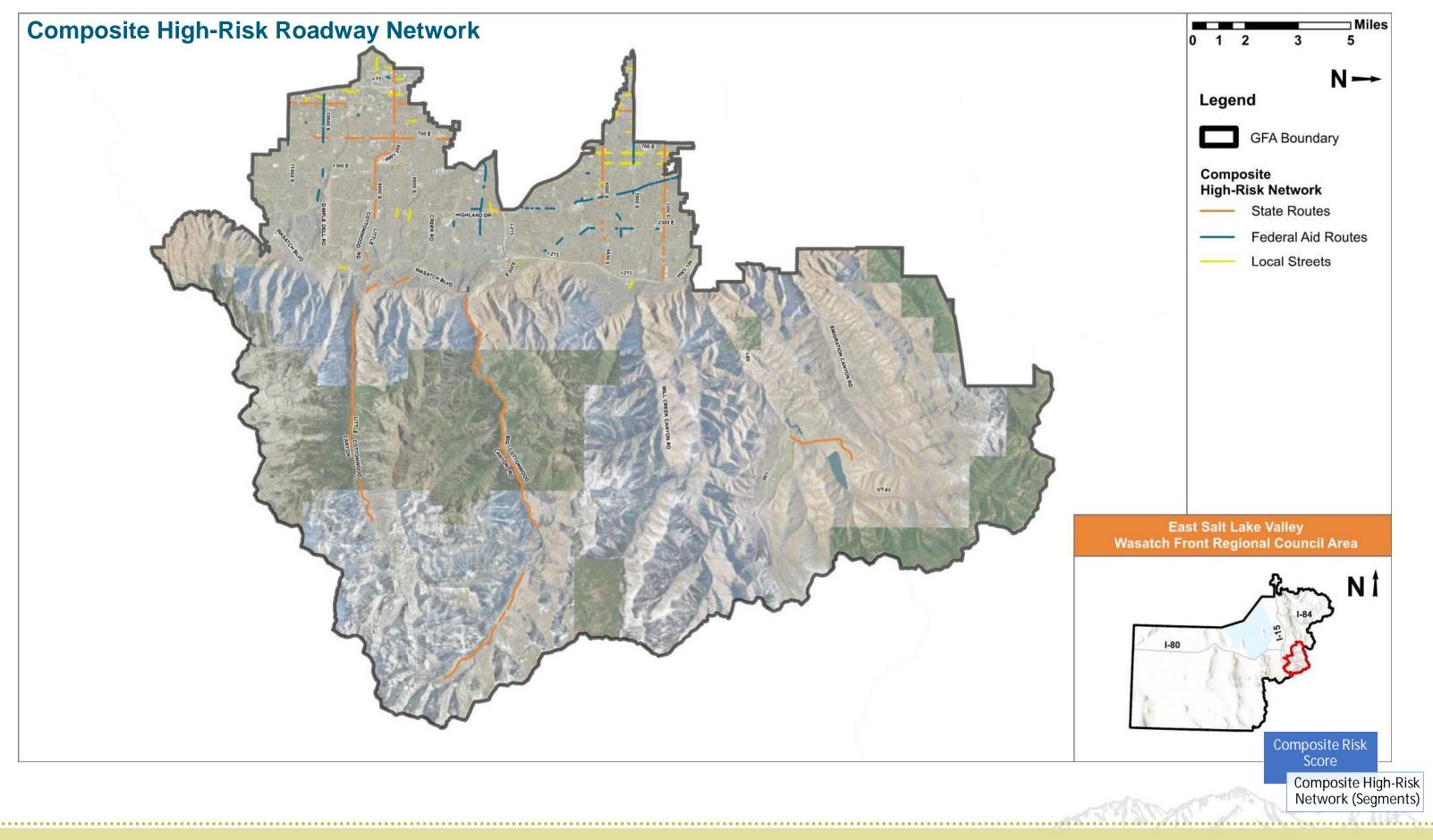
Federal Aid segments in the East Salt Lake Valley GFA Composite High-Risk Network are listed at left. Each of these segments received a composite risk score of "4" or higher. These segments provide a focus for local jurisdictions or for coordination with UDOT. Each of these segments are shown on the 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.

## East Salt Lake Valley Geographic Focus Area

Composite Risk Score Composite High-Risk Network (Segments)







### **Network Screening** - Intersections

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

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 East Salt Lake Valley 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 East Salt Lake Valley 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 <sup>1</sup>	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																						
State St & 3900 S	Millcreek	182	0.8	1524	0	3	32	37	110	106	41	10	6	3	0	0	1	15	0	2	0	5
Monroe St & 9000 S	Sandy	141	0.6	957	0	1	15	39	86	60	61	1	0	1	0	0	2	16	0	0	0	2
700 E & 3300 S	Millcreek	149	0.5	1665	1	1	13	25	109	66	54	3	9	0	0	0	1	13	3	4	1	2
Wasatch Blvd & 3900 S	Millcreek	48	0.5	423	0	2	6	6	34	23	16	1	3	0	0	0	1	4	0	0	1	0
State St & 9000 S	Sandy	160	0.3	1182	0	3	15	41	101	33	87	0	14	2	0	0	0	23	1	3	2	2
1300 E & 11400 S	Sandy	68	0.3	653	0	2	10	18	38	39	21	3	2	1	0	0	1	1	0	0	0	1
900 E & 4500 S	Millcreek	113	0.3	969	0	4	15	16	78	53	42	4	7	0	0	1	1	5	0	3	1	5
Sandy Pkwy & 9000 S	Sandy	118	0.2	851	0	1	15	31	71	37	62	2	1	0	0	0	0	16	0	1	1	2
900 E & Vanwinkle Expy	Millcreek	98	0.2	539	0	0	11	20	67	26	52	6	2	0	0	0	1	9	2	0	0	0
1300 E & 9400 S	Sandy	103	0.1	604	0	1	7	25	70	15	71	2	7	0	0	0	0	8	0	2	1	0
Unsignalized Intersections																	-					
Monroe St & Freedom Ave	Sandy	9	4.3	41	0	0	1	1	7	4	2	0	1	0	0	0	0	2	0	1	0	0
Quarry Bend Dr & 9375 S	Sandy	4	3.6	14	0	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0
Quarry Bend Dr & 9070 S	Sandy	4	3.6	35	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0
Centennial Pkwy & 10070 S	Sandy	6	2.1	69	0	0	2	2	2	6	0	0	0	0	0	0	0	0	0	0	0	0
Alpen Cir & Escalade Ave	Cottonwood	3	1.9	3	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
Auto Mall Dr & 11000 S	Sandy	5	1.5	15	0	0	0	1	4	4	1	0	0	0	0	0	0	0	0	0	0	0
150 E & Pioneer Ave	Sandy	7	1.5	39	0	0	1	1	5	7	0	0	0	0	0	0	0	0	0	0	0	0
Greenfield Way & Clover Dale Rd	Cottonwood	3	1.3	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Quarry Bend Dr & 9070 S	Sandy	7	1.3	28	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	0
200 E & Hill Ave	Millcreek	3	1.2	3	0	0	0	0	3	1	1	0	1	0	0	0	0	0	0	0	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

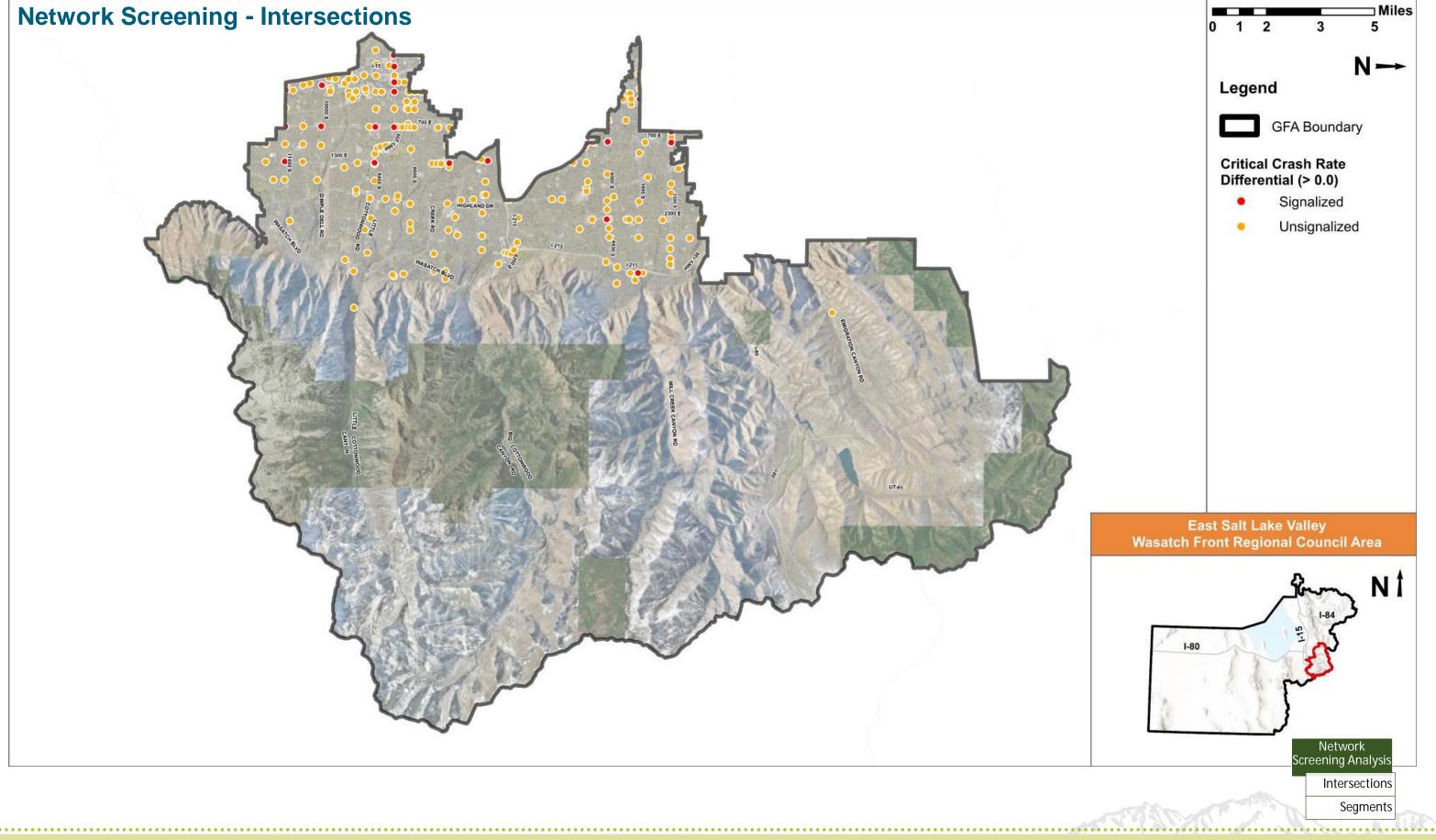
= 70 - 80% probability that crash type is over-represented

# East Salt Lake Valley Geographic Focus Area

Network Screening Analysi Intersections

Segments







# **Supporting Information**



12

### High-Risk Roadway Segments (Federal Aid Routes)

				R	ISK 7	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 Streets Risk Assessment
ederal Aid Routes									
Emigration Canyon Road	West GFA Extents to Pioneer Ridge Road	Emigration Canyon	Х						
Emigration Canyon Road	Margarethe Lane to SR-65	Emigration Canyon	Х						
Mill Creek Canyon Road	NF-020 to Upper Big Water TH	Emigration Canyon	Х						
Richmond Street/1300 East	Lavon Drive to North GFA Extents	Millcreek	Х	Х	Х				
Highland Drive	Van Winkle Expressway to North GFA Extent	Millcreek	Х	Х	Х				
Imperial Street	3300 South to North GFA Extents	South Salt Lake	Х	Х	Х				
2000 East	3300 South to North GFA Extents	Millcreek	Х	Х	Х				
2300 East	Claybourne Avenue to 2700 South	Millcreek	Х	Х	Х				
2700 East	3600 South to 3210 South	Millcreek			Х				
2300 East	3380 South to North GFA Extents	Millcreek	Х						
2300 East	Delia Drive to 3380 South	Millcreek	Х	Х	Х				
2300 East	Sky Pines Court to Delia Drive	Millcreek	Х	Х					
2300 East	Murray Holladay Road to Sky Pines Court	Holladay	Х	Х	Х				
Holladay Blvd	County Road to Murray Holladay Road	Holladay	Х	Х	Х				
Holladay Blvd	6200 South to County Road	Holladay	Х	Х					
Siggard Drive	Highland Drive to 2000 East	Holladay		Х	Х				
Wasatch Blvd	Bernada Drive to 3300 South	Holladay	Х						

## East Salt Lake Valley Geographic Focus Area

list of Federal Aid segments in the East Salt Lake alley GFA identified from each of the safety nalysis methods is listed in the table at left. An "x" placed to identify the analysis that flagged the gment:

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)

he maps on page 19 through 23 depict each of nese segments identified by the respective nalysis.

> **Composite Risk** Score



				R	ISK 1	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 Streets Risk Assessment
ederal Aid Routes									
Wasatch Blvd	Juniper Way to Bernada Drive	Holladay	Х	Х					
Wasatch Blvd	6200 South to Juniper Way	Holladay	Х						
1300 East	Van Winkle Expressway to College Street	Millcreek	Х	Х	Х				
1300 East	College Street to Park Crest Circle	Millcreek	Х	Х					
3900 South	West GFA Extents to 1100 East	Millcreek	Х	Х	Х				
3900 South	1100 East to Highland Drive	Millcreek	Х	Х					
3900 South	Highland Drive to I-215	Holladay	Х	Х	Х				
900 East	Van Winkle Expressway to 3580 South	Millcreek	Х						
Lincoln Lane	Highland Drive to 2700 East	Holladay	Х	Х	Х				
2700 East	4500 South to Delsa Drive	Holladay			Х				
Murray Holiday Road	Highland Drive to 2300 East	Holladay	Х	Х					
6200 South	Highland Drive to Field Rose Drive	Holladay	Х						
5200 South	Field Rose Drive to Holladay Blvd	Holladay	Х	Х					
6200 South	Holladay Blvd to I-215	Holladay	Х						
Union Park Avenue	1300 East to I-15	Midvale	Х						
Union Park Avenue	Forbusch Lane to 1300 East	Midvale	Х	Х					
1300 East	8125 South to Forbusch Lane	Sandy	Х						

## East Salt Lake Valley Geographic Focus Area

list of Federal Aid segments in the East Salt Lake alley GFA identified from each of the safety alysis methods is listed in the table at left. An "x" placed to identify the analysis that flagged the gment:

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)

ne maps on page 19 through 23 depict each of ese segments identified by the respective alysis.

> **Composite Risk** Score



				R	ISK <sup>-</sup>	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 Streets Risk Assessment
Federal Aid Routes									
1300 East	8255 South to 8125 South	Sandy	Х	Х					
Forbush Lane/7755 South	West GFA Extents to Canterwood Lane	Midvale	Х	Х					
Fort Union Blvd/7000 South	West GFA Extents to Wasatch Blvd	Midvale, Cottonwood I	Х	Х	Х				
1300 East	Union Park Avenue to I-215	Midvale	Х						
1700 East	Parkridge Drive to 7000 South	Cottonwood Heights			Х				
Parkridge Drive	1700 East to Highland Drive	Cottonwood Heights			Х				
Bengal Blvd	Highland Drive to Wasatch Blvd	Cottonwood Heights	Х	Х	Х				
Highland Drive	Bengal Blvd to I-215	Cottonwood Heights	Х	Х	Х				
Highland Drive	Johnstone Drive to Bengal Blvd	Cottonwood Heights	Х	Х					
Highland Drive	9400 South to Johnstone Drive	Cottonwood Heights	Х						
Highland Drive	9800 South to 9400 South	Sandy	Х	Х					
2300 East	Bengal Blvd to 6200 South	Cottonwood Heights	Х	Х	Х				
2700 East	Bengal Blvd to 7000 South	Cottonwood Heights			Х				
3500 East	Wasatch Blvd to Bengal Blvd	Sandy	Х	Х	Х				
Creek Road	Telford Way to 3500 East	Cottonwood Heights	Х	Х	Х				
Danish Road	Wasatch Blvd to Bengal Blvd	Cottonwood Heights	Х		Х				
Wasatch Blvd	Little Cottonwood Road (South) to Little Cot	Cottonwood Heights	Х	Х					

A list of Federal Aid segments in the East Salt Lake Valley GFA identified from each of the safety analysis methods is listed in the table at left. An "x" is placed to identify the analysis that flagged the segment:

- •

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The maps on page 19 through 23 depict each of these segments identified by the respective analysis.

## East Salt Lake Valley Geographic Focus Area

• 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



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 Streets Risk Assessment	
Federal Aid Routes			_							
8600 South	State Street to 550 East	Sandy			Х					
500 West	South GFA Extents to 9120 South	Sandy	Х	Х						
225 West/Monroe Street	10000 South to 9000 South	Sandy	Х	Х						
240 West	Mall Ring Road to 10000 South	Sandy	Х							
9400 South	Center Street to 9400 South	Sandy	Х							
10000 South	West GFA Extents to State Street	Sandy	Х	Х	Х					
Sego Lily Drive	State Street to Tonya Drive	Sandy	Х	Х	Х					
Sego Lily Drive	Tonya Drive to Poppy Lane	Sandy	Х	Х						
Sego Lily Drive	Poppy Lane to Hoast Lane	Sandy	Х							
Sego Lily Drive	Firelight Way to 2165 East	Sandy	Х							
Sego Lily Drive	2165 East to Vilas Drive	Sandy	Х	Х						
Larkspur Drive	700 East to Violet Drive	Sandy		Х	Х					
10600 South	I-15 to 1300 East	Sandy	Х	Х	Х					
10720 South	1300 East to 2000 East	Sandy	Х	Х	Х					
11000 South	Auto Mall Drive to Vista Way	Sandy	Х	Х	Х					
11000 South	Vista Way to Hawkwood Drive	Sandy	Х	Х						
11000 South	Hawkwood Drive to 1300 East	Sandy	Х		Х					

## East Salt Lake Valley Geographic Focus Area

ist of Federal Aid segments in the East Salt Lake **Iley GFA** identified from each of the safety alysis methods is listed in the table at left. An "x" placed to identify the analysis that flagged the ament:

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)

e maps on page 19 through 23 depict each of ese segments identified by the respective alysis.

> **Composite Risk** Score



	RISK 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 Streets Risk Assessment
ederal Aid Routes									
11400 South	I-15 to 11340 South	Sandy	Х	Х	Х				
11340 South/11270 South	11400 South to High Mesa Drive	Sandy	Х		Х				
High Mesa Drive	11270 South to 10720 South	Sandy			Х				
Wasatch Blvd	1700 East to Pepperwood Drive	Sandy	Х	Х					
Wasatch Blvd	Pepperwood Drive to Little Bell Canyon Roa	Sandy	Х						
1700 East	South GFA Extents 10720 South	Sandy	Х						
Hidden Valley Drive	1000 East to 1300 East	Sandy			Х				
1300 East	South GFA Extents to Sego Lily Drive	Sandy	Х	Х					
Wasatch Boulevard	Heughs Canyon Way to 4431 South	Sandy				Х			
9400 South	255 West to SR-209	Sandy				Х			
Sandy Parkway / 500 West	South GFA Extents to North GFA Extents	Sandy				Х			
7000 South / Fort Union Boulev	Union Park Avenue to Wasatch Boulevard	Cottonwood Heights				Х			
7800 South	415 East to Creek Road	Sandy				Х			
Murray Holliday Road	Highland Drive to Holladay Boulevard	Holladay				Х			
Holladay Boulevard	6200 South to 4500 South	Holladay				Х			
3900 South	500 West to Highland Drive	Millcreek				Х			
Wasatch Boulevard	Little Cottonwood Road to Danish Road	Cottonwood Heights				Х			

## East Salt Lake Valley Geographic Focus Area

list of Federal Aid segments in the East Salt Lake alley GFA identified from each of the safety nalysis methods is listed in the table at left. An "x" placed to identify the analysis that flagged the gment:

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)

ne maps on page 19 through 23 depict each of ese segments identified by the respective nalysis.

> **Composite Risk** Score



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 Streets Risk Assessment
Federal Aid Routes									
10600 South	465 East to Crocus Street	Sandy				Х			
Highland Drive	South GFA Extents to North GFA Extents	Holladay				Х			
Emigration Canyon Road	West GFA Extents to SR-65	Emigration Canyon				Х			
Mill Creek Canyon Road	Scout Hollow River to Soldier Fork River	Millcreek				Х			
Imperial Street	3300 South to North GFA Extents	Millcreek				Х			
Lincoln Lane	Highland Drive to 2700 East	Millcreek				Х			
Millcreek Canyon Rd	NF-018 to NF-020	Unincorporated					Х	Х	
Millcreek Canyon Rd	Fir Crest to Big Water Gulch	Unincorporated					Х	Х	
Jupiter Dr	Pluto Way to Juno Cir	Millcreek					Х	Х	
8000 S	615 E to 700 E	Sandy					Х	Х	
Millcreek Canyon Rd	Nf-020 to Maple Cove	Unincorporated					Х	Х	
Auto Mall Dr	State St to 11000 S	Sandy					Х	Х	
Auto Mall Dr	Holiday Park Dr to 10600 S	Sandy					Х	Х	
2700 E	Hillside Ln to Evergreen Ave	Millcreek					Х	Х	
1100 E	3900 S to 3745 S	Millcreek					Х	Х	
Oakview Dr	Diana Way to Fortuna Way	Millcreek					Х	Х	

## East Salt Lake Valley Geographic Focus Area

st of Federal Aid segments in the East Salt Lake ley GFA identified from each of the safety lysis methods is listed in the table at left. An "x" laced to identify the analysis that flagged the ment:

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)

maps on page 19 through 23 depict each of se segments identified by the respective lysis.

> **Composite Risk** Score



### **Network Screening – Segments (Local Streets)**

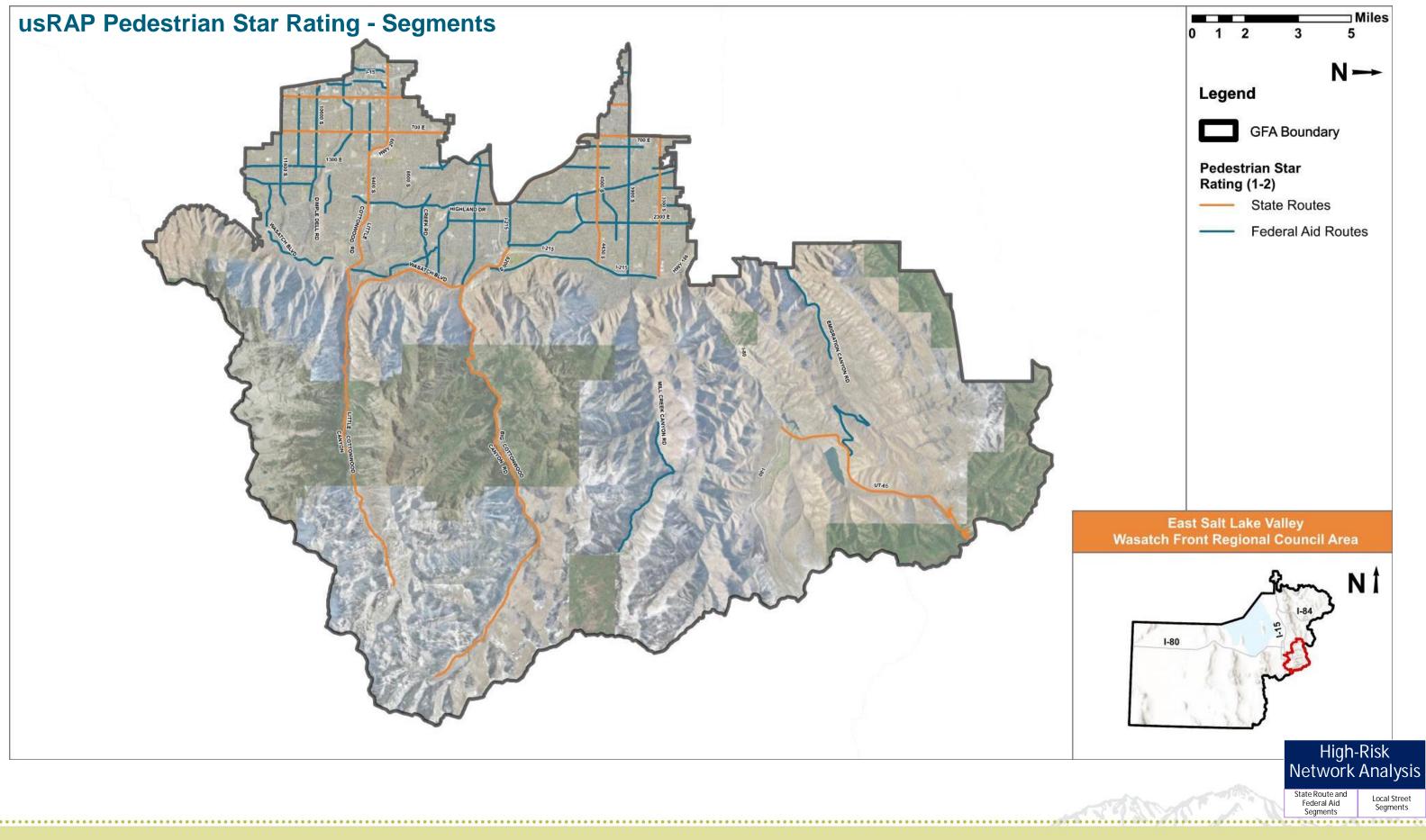
				R	ISK 7	ΓΥΡΕ			
Facility	Limits	City	usRAP- Pedestrian Star Rating	usRAP - Bicycle Star Rating	usRAP- Vehicle Star Rating	Crash Profile Risk Score	CCR Differential Analysis	Significant Crashes	Local Streets Risk Assessment
Local Streets			_						
Oak Grove Dr	Rockhampton Dr to High Mountain Dr	Sandy					Х	Х	
Sunnyvale Apartments	3940 S	Millcreek					Х	Х	
775 E	3900 S to 3805 S	Millcreek					Х	Х	
Civic Center Dr	240 W to Evening Star Way	Sandy					Х	Х	
Snake Creek Rd	Brighton Lp to Mary Lake Ln	Brighton					Х	Х	
Wasatch Resort Rd	Little Cottonwood to Power Plant Rd	Unincorporated					Х	Х	
4100 S	430 E to 465 E	Millcreek					Х	Х	
Vista Way	Cresent Vista Ln to 11000 S	Sandy					Х	Х	
The Falls Apartment Complex	Falls at Hunters Pointe to The Falls Apartm	Sandy					Х	Х	
Beetdigger Blvd	State St to Sego Lily Dr	Sandy					Х	Х	

A list of Local Street segments in the **East Salt** Lake Valley GFA identified from Network Screening, applying Critical Crash Rate (CCR) and Significant Crashes (three or more crashes over 5year period), is shown at left.

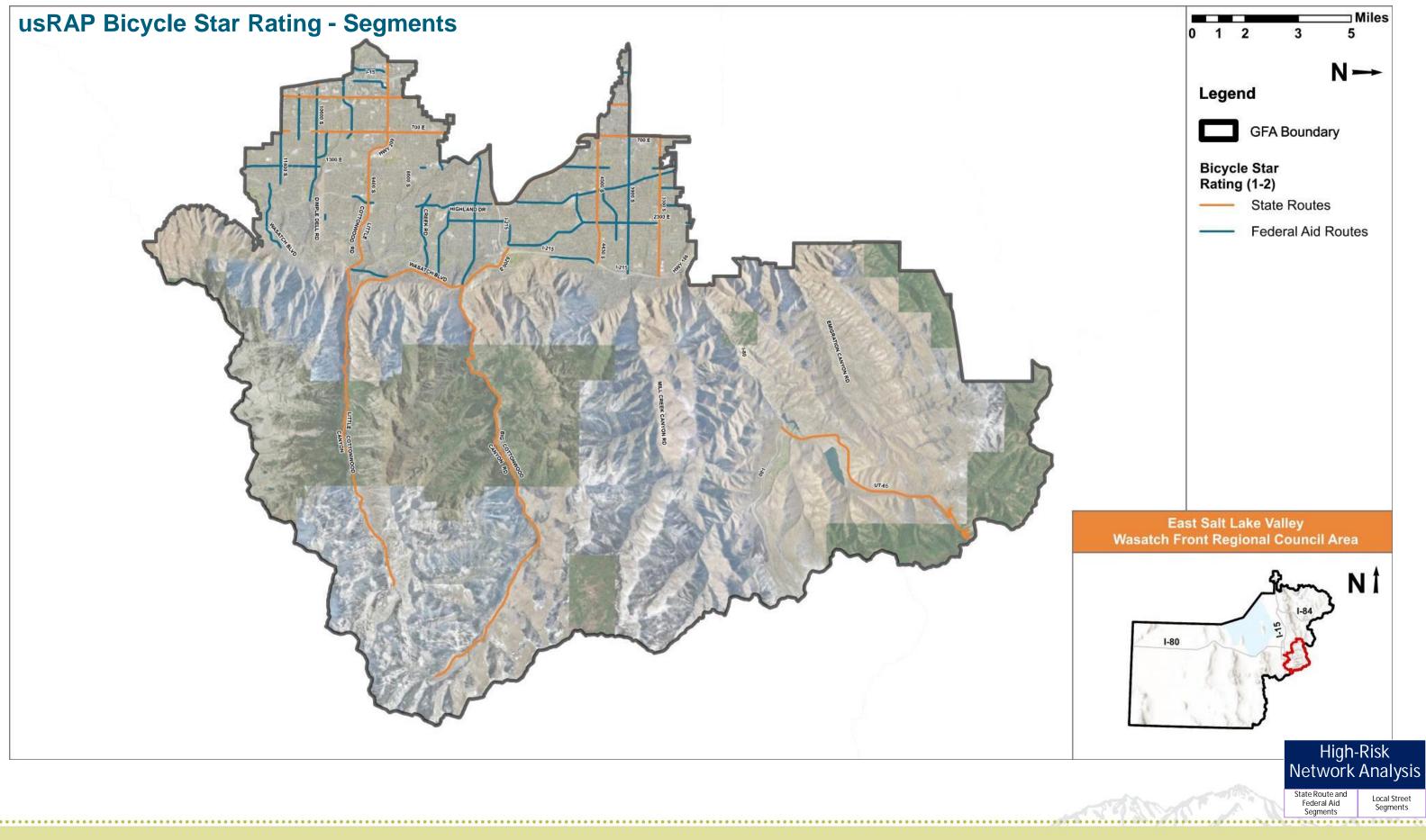
## East Salt Lake Valley Geographic Focus Area

Composite Risk Score

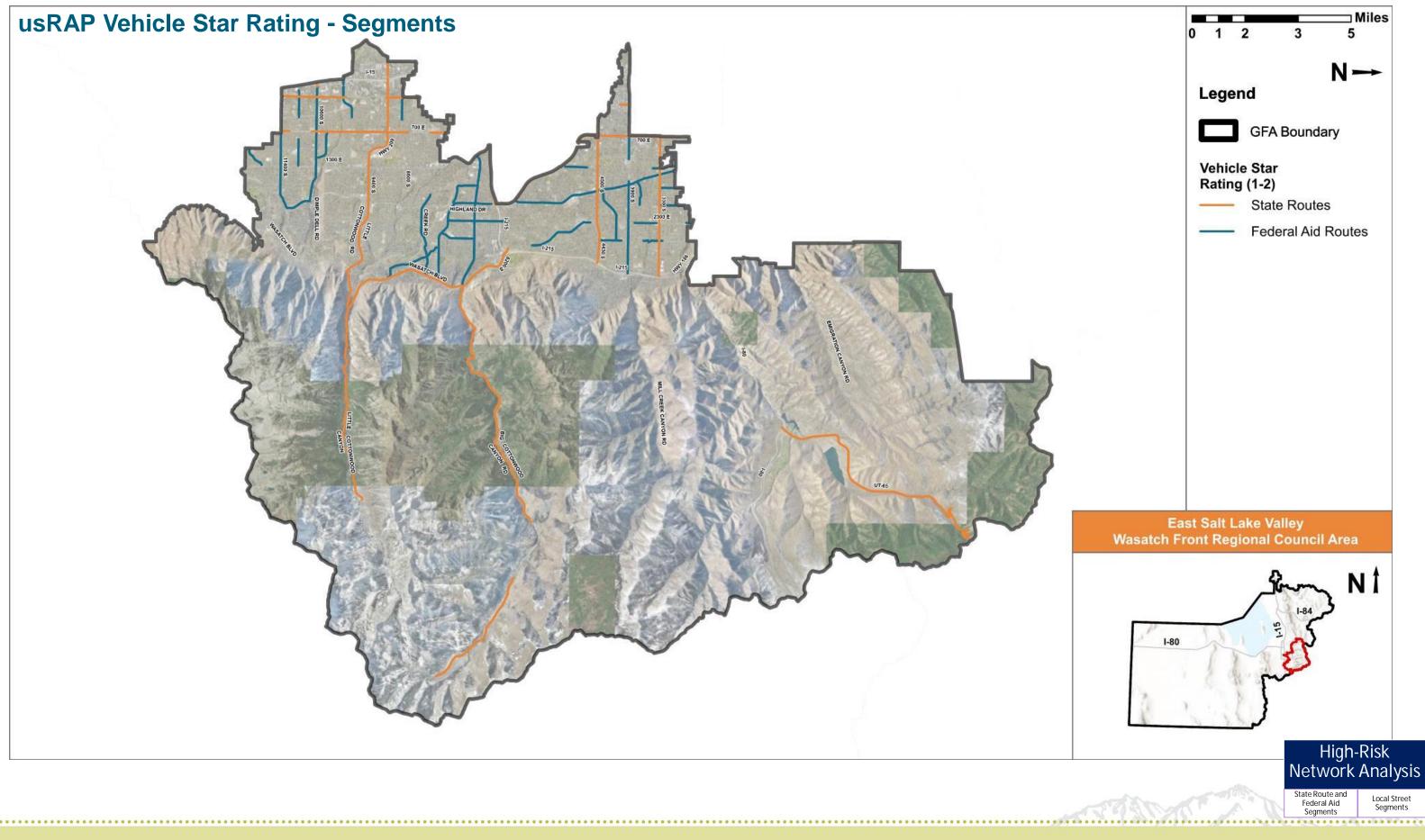




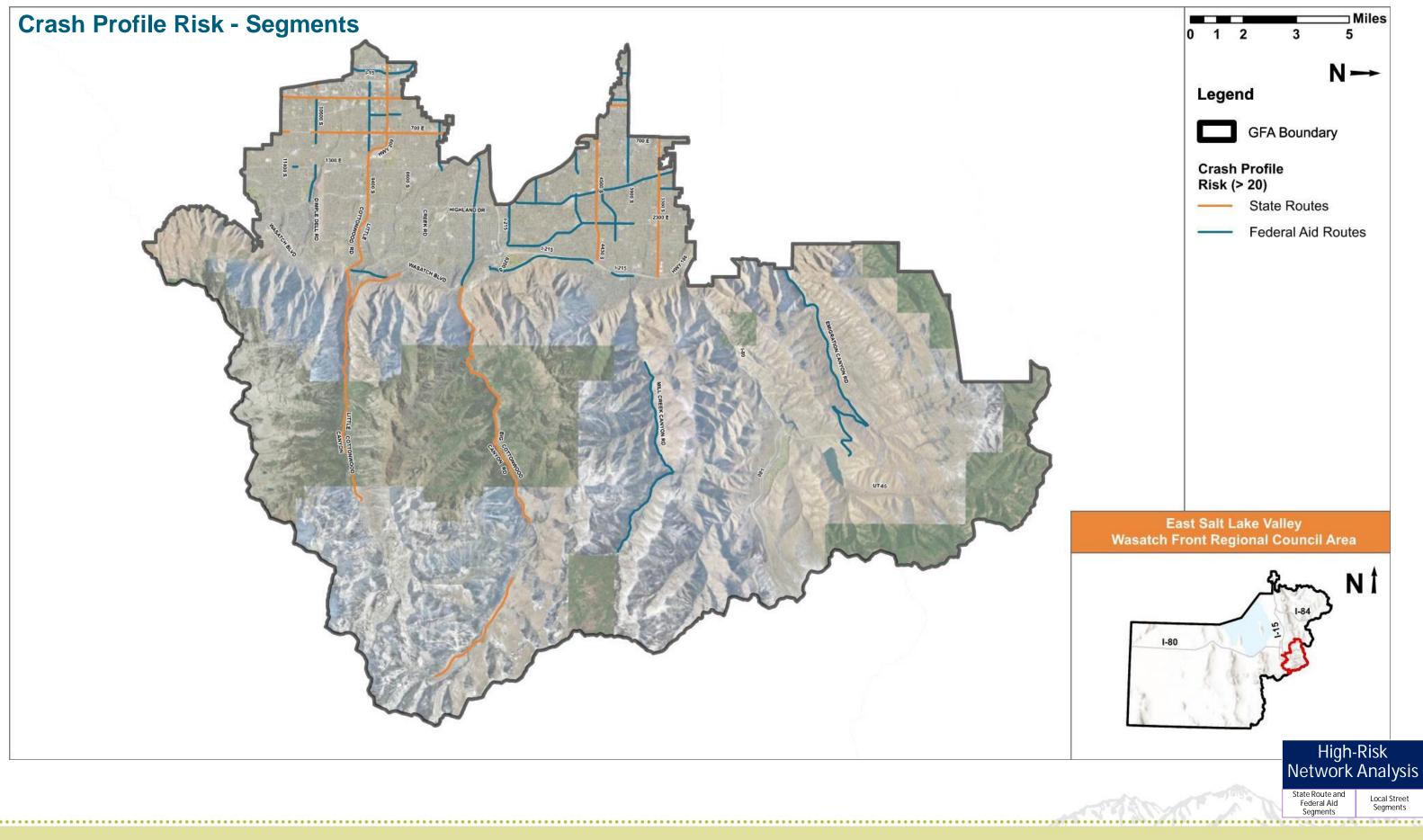




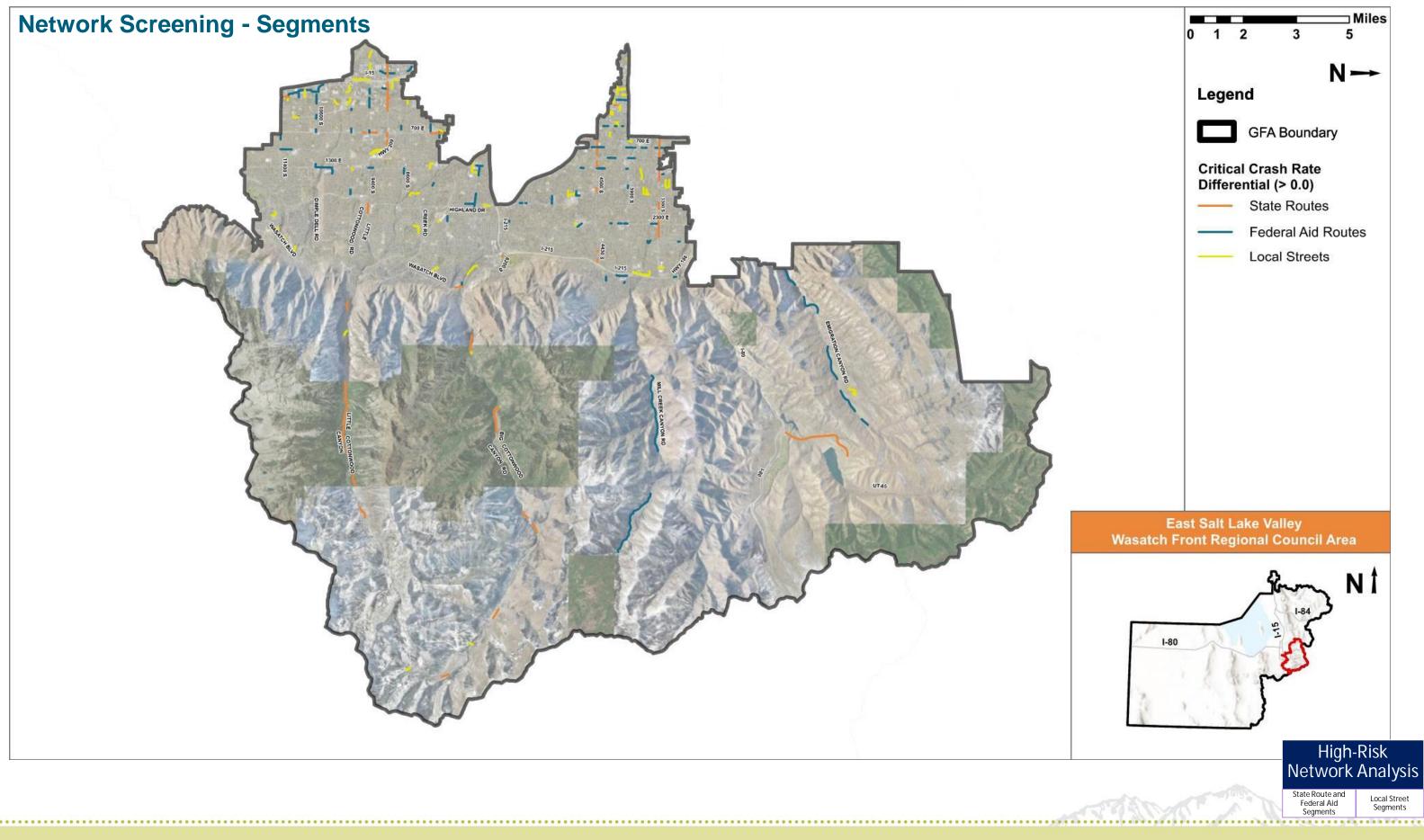












## EAST SALT LAKE VALLEY TECH MEMO #1 SAFETY ANALYSIS



#### **TECHNICAL MEMORANDUM #1**

## APPENDIX A9 - EAST SALT LAKE VALLEY 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 A9 - East Salt Lake Valley GFA - Safety Analysis

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•• Comprehensive Safety Action Plan

#### 1. Introduction

**Appendix A9** summarizes the safety analysis performed for the East Salt Lake Valley 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 East Salt Lake Valley GFA:

- Strategic Highway Safety Plan (SHSP) Emphasis Area Analysis
- Historical Crash Analysis
- Crash and Network Screening Analysis
- Roadway Characteristic Risk Analysis
  - Crash Profile 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 A9** summarizes the results of the analyses for the East Salt Lake Valley GFA.

#### **1.2.** Appendix Organization

This Appendix is organized into the following sections:

- Section 1 Introduction
- Section 2 East Salt Lake Valley 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 East Salt Lake Valley GFA (**Figure 2.1**) is located entirely within Salt Lake County and includes the following agencies and jurisdictions:

- Sandy
- White City
- Cottonwood Heights
- Holladay
- Millcreek
- Alta
- Brighton
- Emigration Canyon

The safety analyses presented in this Technical Memorandum are specific to the South Box Elder & North Weber Counties GFA.

**Figure 2.2** highlights the roadway network within the East Salt Lake Valley 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 East Salt Lake Valley, for the years 2018-2022. Crash data was obtained from the Utah Department of Transportation.



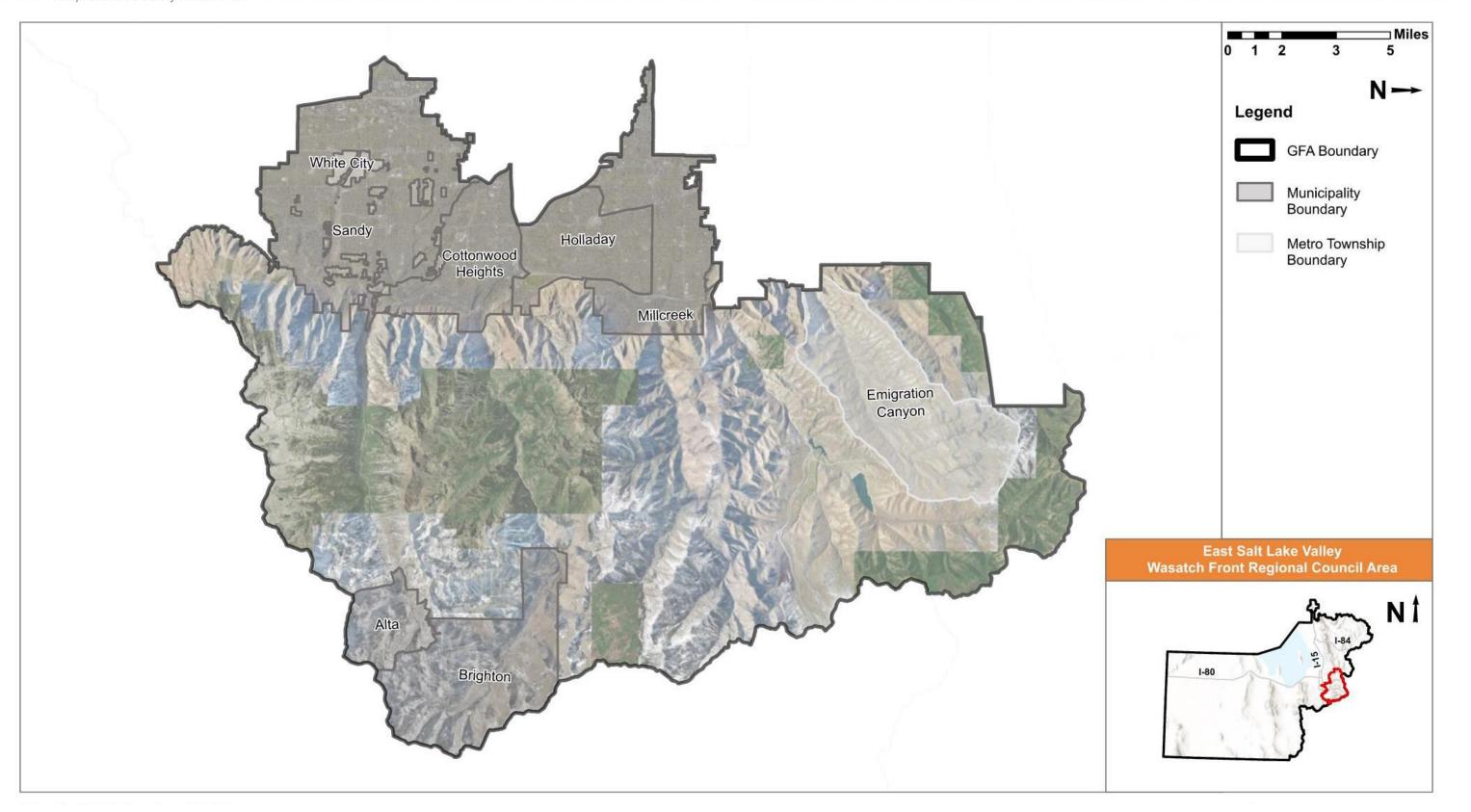


Figure 2.1 – East Salt Lake Valley GFA Study Area



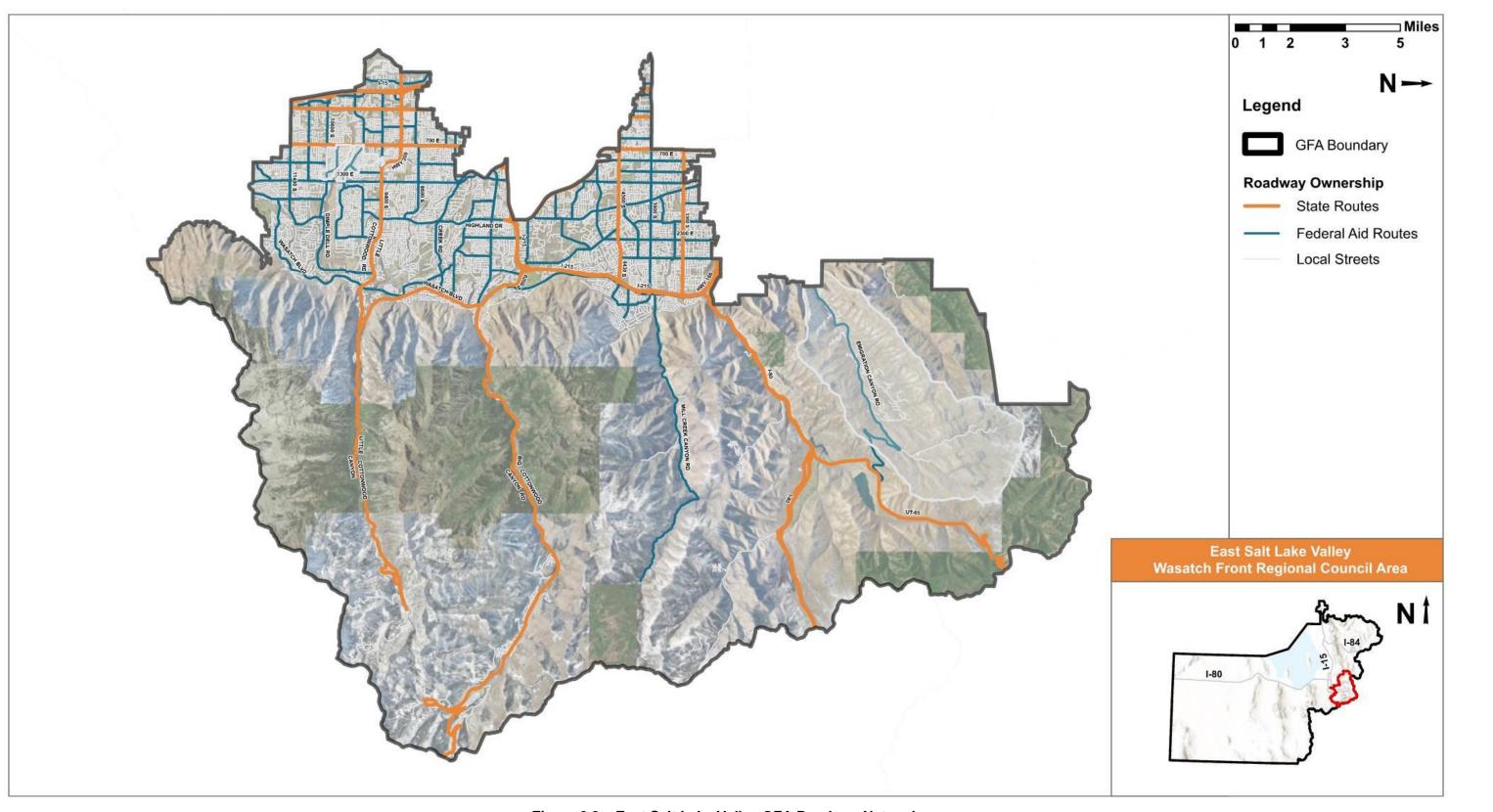


Figure 2.2 – East Salt Lake Valley GFA Roadway Network



#### 3. SHSP Emphasis Area Analysis

The SHSP emphasis area analysis ranks the frequency of fatal and serious injury crashes in East Salt Lake Valley GFA for each of the eleven Utah SHSP emphasis areas. The rankings of the emphasis areas are compared for the East Salt Lake Valley 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 East Salt Lake Valley GFA listed below:

- Intersections
- Roadway Departure
- Speed-Related
- Older Driver
- Motorcycle

	Utah SHSP	Statewid	le Totals	WFRC	Totals	East Salt Lake Valley 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	69	8	-4			
	Older Driver	1,508	6	700	6	98	4	3			
	Speed- Related	2,133	3	936	3	98	3	0			
Driver	Aggressive Driving	555	11	297	10	35	10	0			
Diiver	Distracted Driving	718	10	286	11	34	11	0			
	Impaired Driving	1,184	8	623	8	70	6	2			
	No Safety Restraints	1,542	5	599	9	58	9	0			
	Intersection	3,567	1	2,163	1	212	1	0			
Roadway	Roadway Departure	2,931	2	1,014	2	124	2	0			
	Motorcycle	1,457	7	750	5	94	5	0			
Special Users	Pedestrian	912	9	636	7	70	6	1			
00010	Bicycle*	280	12	167	12	34	11	1			

#### 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.



#### 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 East
 Salt Lake Valley GFA.

Route Type	State	Route		al Aid ute	Local Street Overall Lota		ll Total	% of WFRC	
Crash Severity	Crashes		Crashes		Crashes		Cras	shes	%
	#	%	#	%	#	%	#	%	70
Fatal	28	0%	19	0%	4	0%	51	0.2%	0.0%
Suspected Serious Injury	197	2%	156	2%	27	1%	380	1.8%	0.2%
Suspected Minor Injury	944	9%	832	10%	160	7%	1,936	9.1%	1.1%
Possible Injury	2,038	19%	1,427	18%	209	9%	3,674	17.3%	2.0%
No Injury / Property Damage Only	7,545	70%	5,624	70%	2,001	83%	15,170	71.5%	8.4%
Route Total	10,752	100%	8,058	100%	2,401	100%	21,211	100%	11.8%

 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 East Salt Lake Valley GFA. The data shows the following:

- Fatal crashes have slightly increased during the most recent 5-year period (2018-2022), from 9 in 2018 to 12 in 2022
- Serious injury crashes have decreased during the most recent 5-year period (2018-2022), with exception to spike in 2021

#### 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 East Salt Lake Valley 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 East Salt Lake Valley GFA.



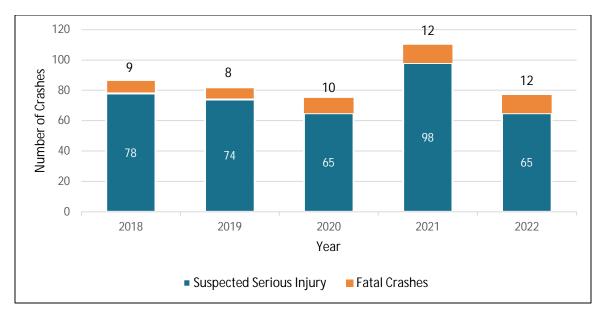


Figure 4.1 – Fatal and Serious Injury Crashes by Year

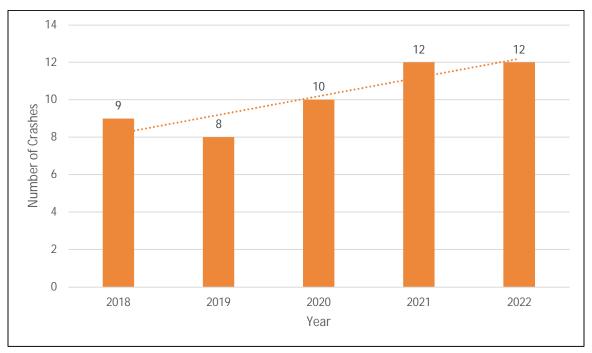
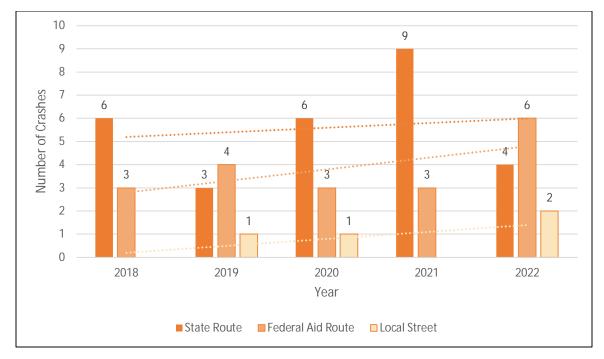


Figure 4.2 – Fatal Crashes by Year







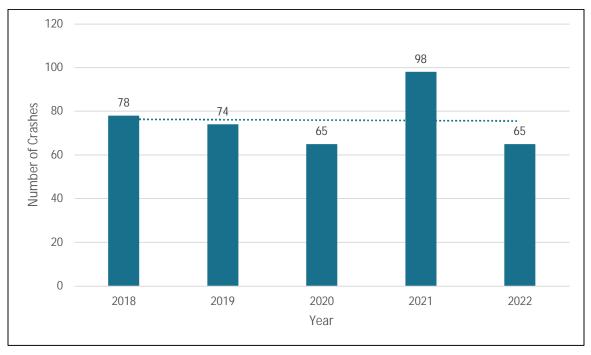


Figure 4.4 – Serious Injury Crashes by Year



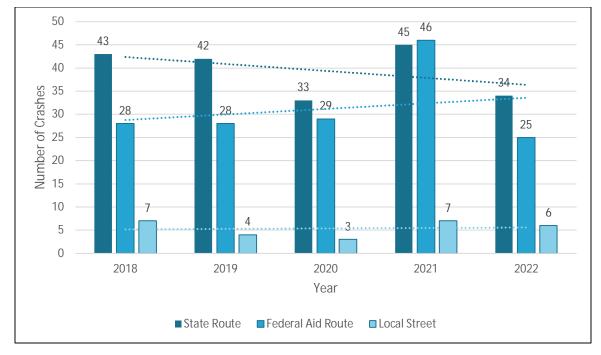


Figure 4.5 – Annual Serious Injury Crashes by Roadway Ownership



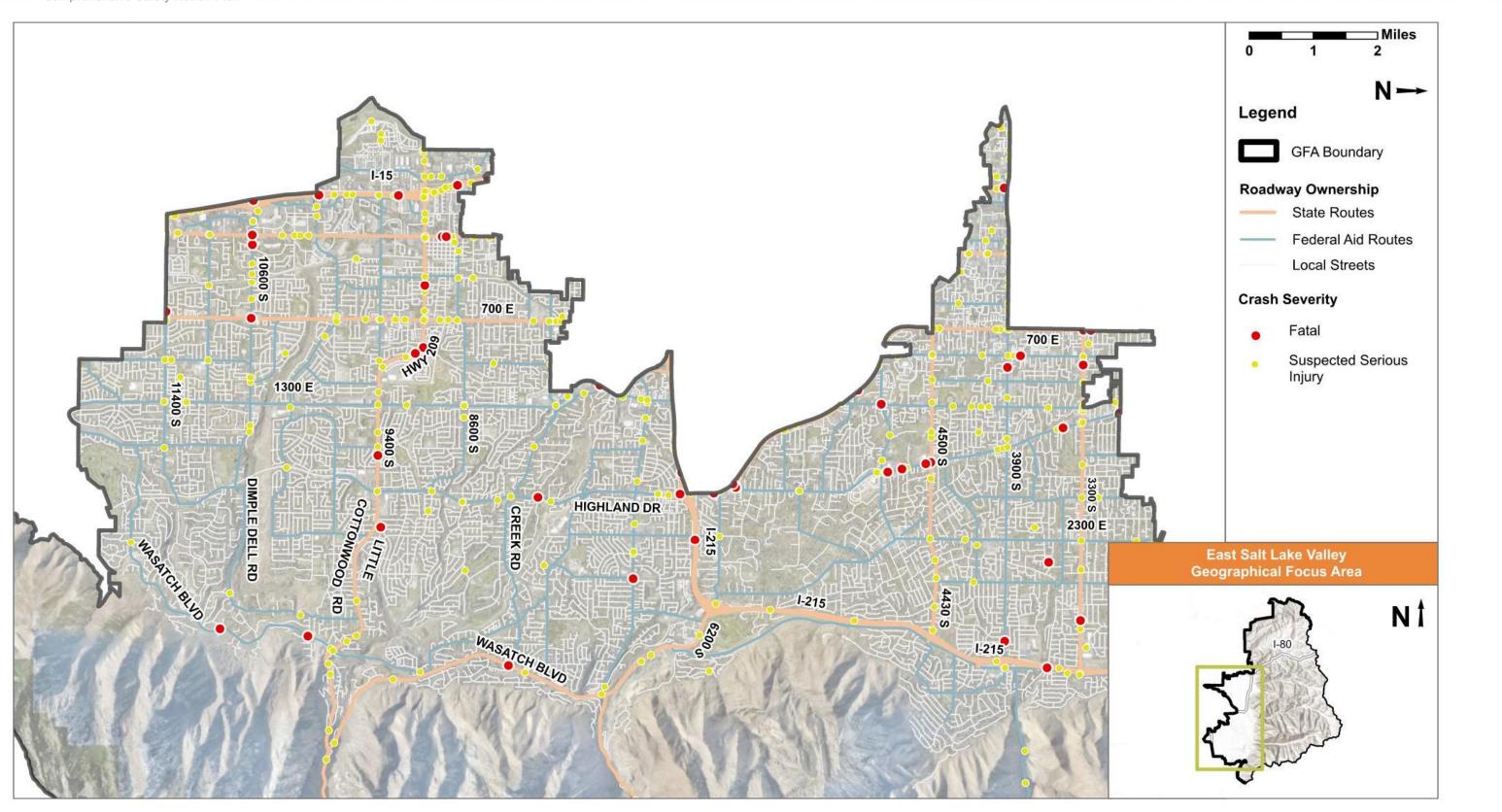


Figure 4.6 – Fatal and Serious Injury Crashes



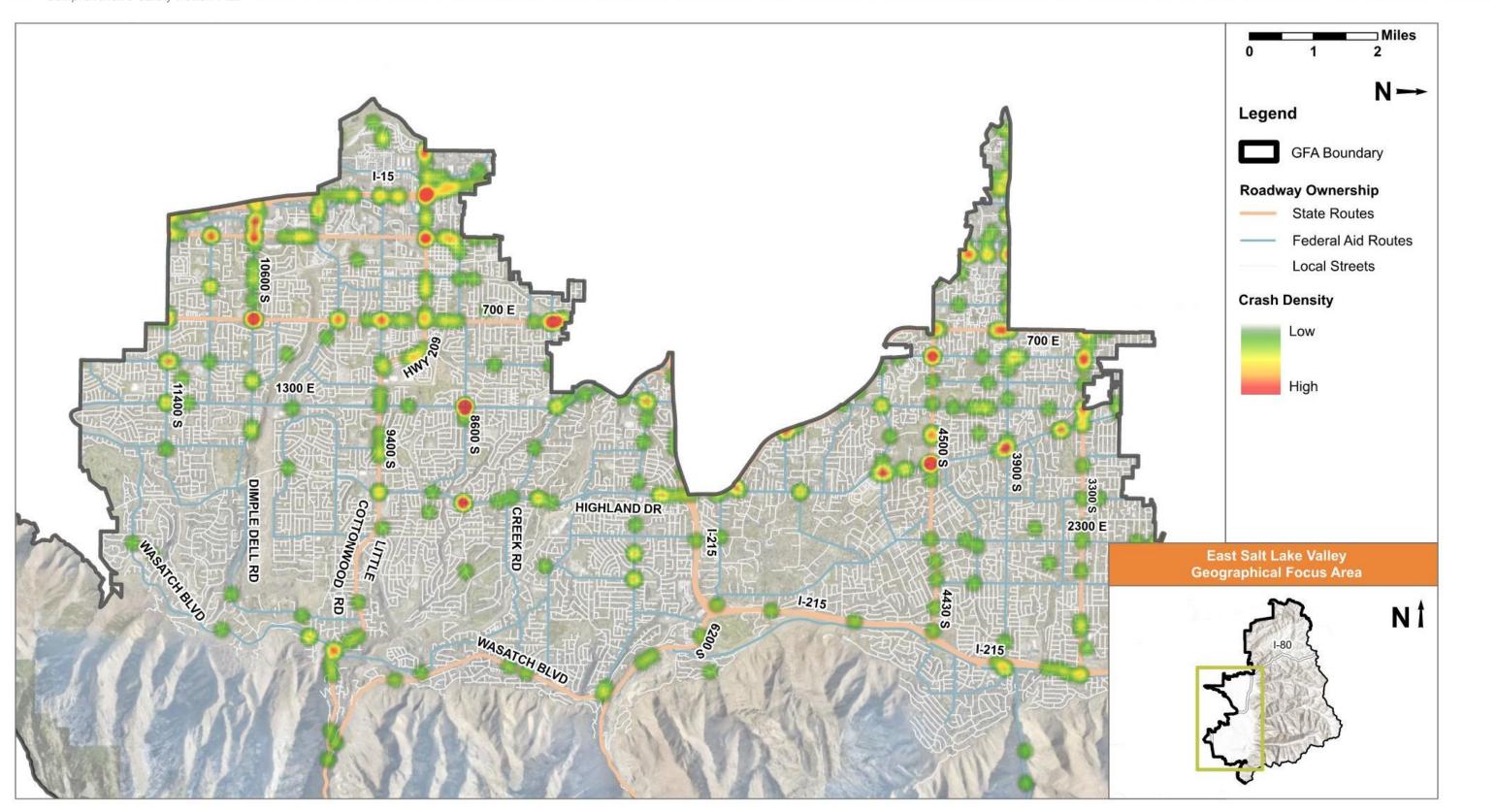


Figure 4.7 – Fatal and Serious Injury Crash Density

# 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 East Salt Lake Valley GFA. The data shows the following:

- Roadway departure crash type has the highest number of total fatal and serious injuries with 105 crashes
- Active Transportation has the highest number of fatal crashes (14)
  - Half of the Active Transportation fatal crashes occurred on State Routes, with the other half on Federal Aid routes and Local Routes

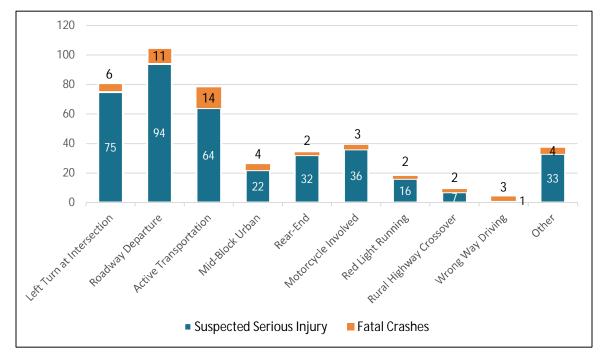


Figure 4.8 – Fatal and Serious Injury Crashes by Crash Type

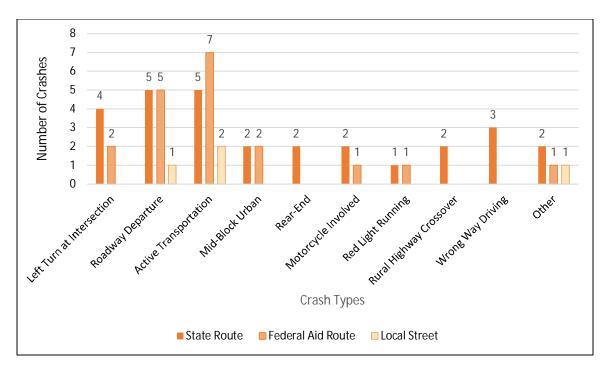


Figure 4.9 – Fatal Crashes by Crash Type and Roadway Ownership

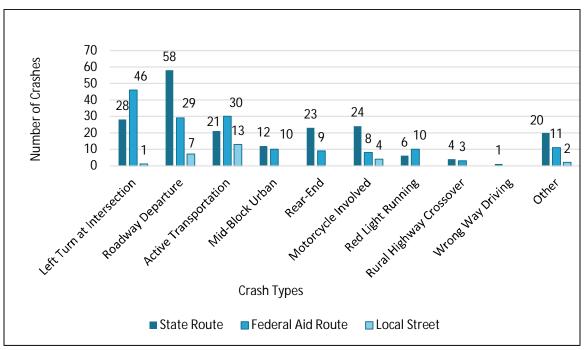
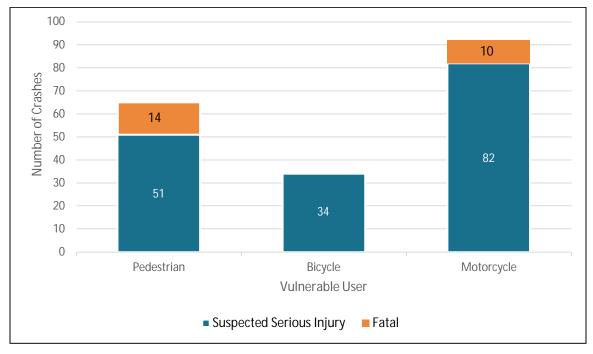


Figure 4.10 – Serious Injury Crashes by Crash Type and Roadway Ownership

## 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 East Salt Lake Valley GFA. The data shows the following:

 Pedestrian fatal crashes accounted for all the active transportation crashes; there were no bicycle fatal crashes during the 5-yer period



There were 10 motorcycle fatal crashes



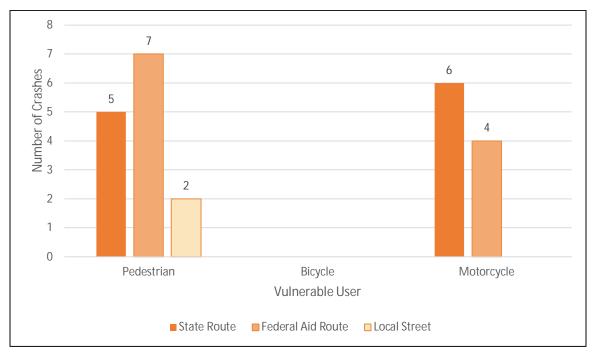


Figure 4.12 – Fatal Crashes by Vulnerable User and Roadway Ownership

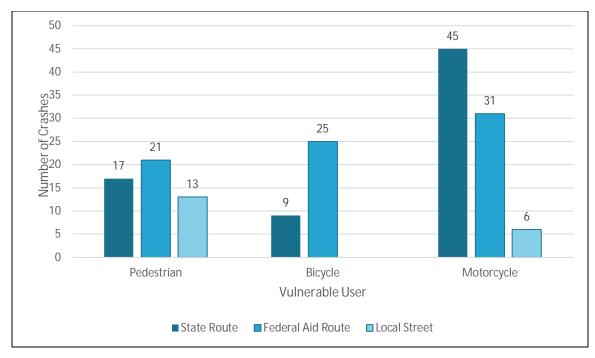
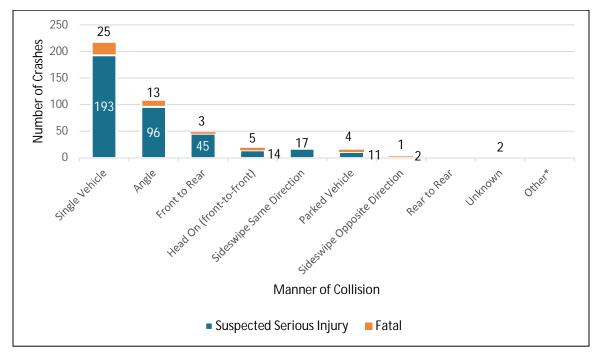


Figure 4.13 – Serious Injury Crashes by Vulnerable User and Roadway Ownership

### 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 East Salt Lake Valley GFA. The data shows the following:



Single vehicle crashes have the highest number of total fatal and serious injuries with 218 crashes

Figure 4.14 – Fatal and Serious Injury Crashes by Manner of Collision

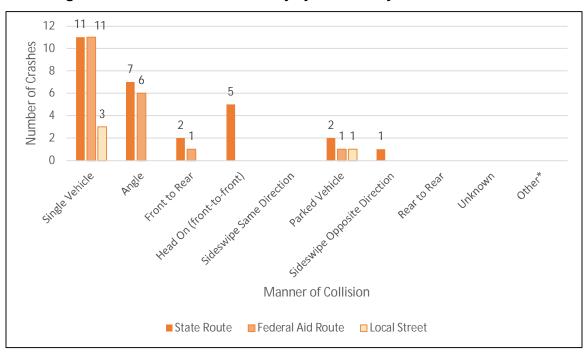


Figure 4.15 – Fatal Crashes by Manner of Collision and Roadway Ownership

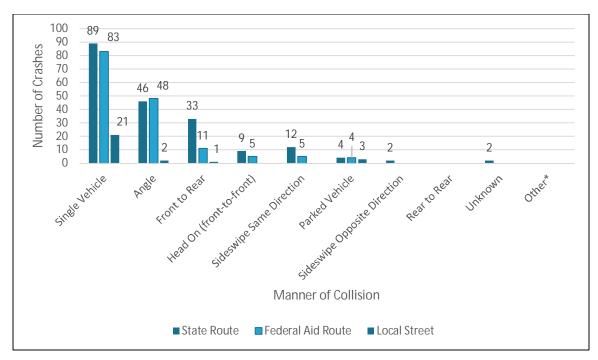


Figure 4.16 – Serious Injury Crashes by Manner of Collision and Roadway Ownership

## 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 East Salt Lake Valley GFA. The data shows the following:

- 57% of crashes were Not Intersection Involved and 43% as Intersection Involved
- 20 Not Intersection Involved fatal crashes occurred on State Routes, and 10 on Federal Aid Routes

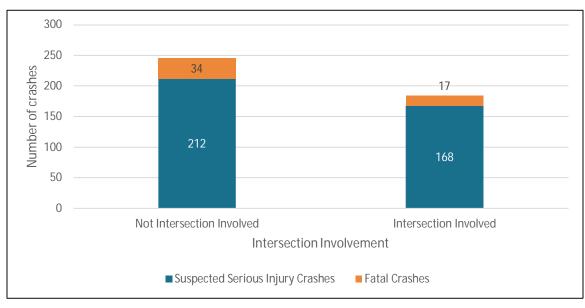
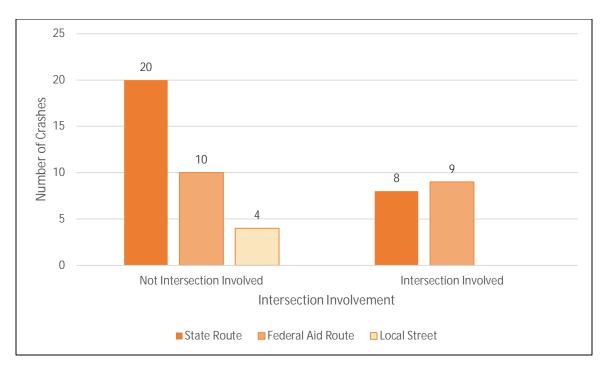


Figure 4.17 – Fatal and Serious Injury Crashes by Intersection



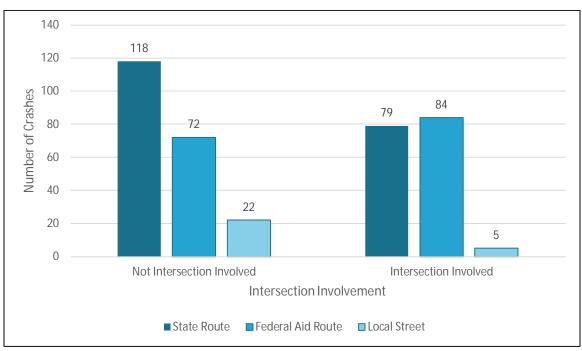


Figure 4.18 – Fatal Crashes by Intersection and Roadway Ownership

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 East Salt Lake Valley GFA. The data shows the following:

- Principal Arterials and Minor Arterials accounted for the highest frequency of serious injury and fatal crashes
- Most Principal Arterial crashes were on State Routes, while most Minor Arterial are on Federal Aid routes

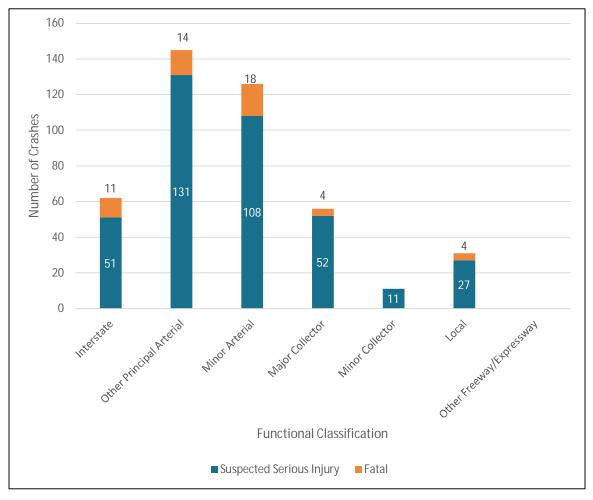


Figure 4.20 – Fatal and Serious Injury Crashes by Functional Class

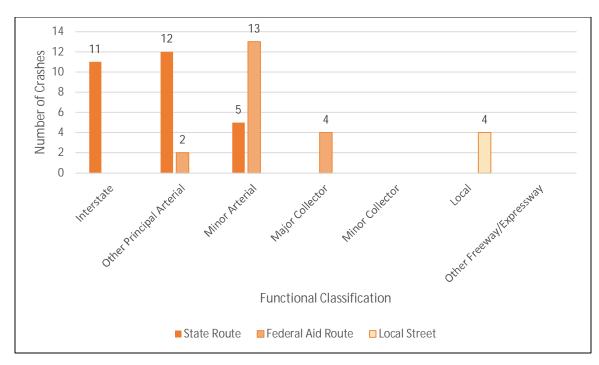


Figure 4.21 – Fatal Injury Crashes by Functional Class and Roadway Ownership

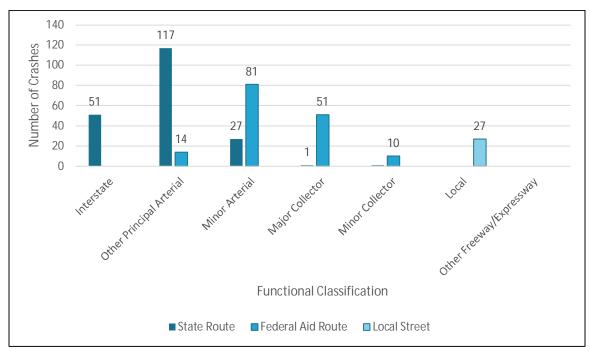


Figure 4.22 – Serious Injury Crashes by Functional Class and Roadway Ownership

## 4.9. Fatal and Serious Injury Crash Trees Diagrams

Fatal and serious injury crash tree diagrams were generated for the East Salt Lake Valley GFA. These crash tree diagrams are presented in **Figure 4.25** through **Figure 4.24**.

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 (52%), with Federal Aid at 40% and Local Routes at 7%
- 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



**CRASH TYPE** 

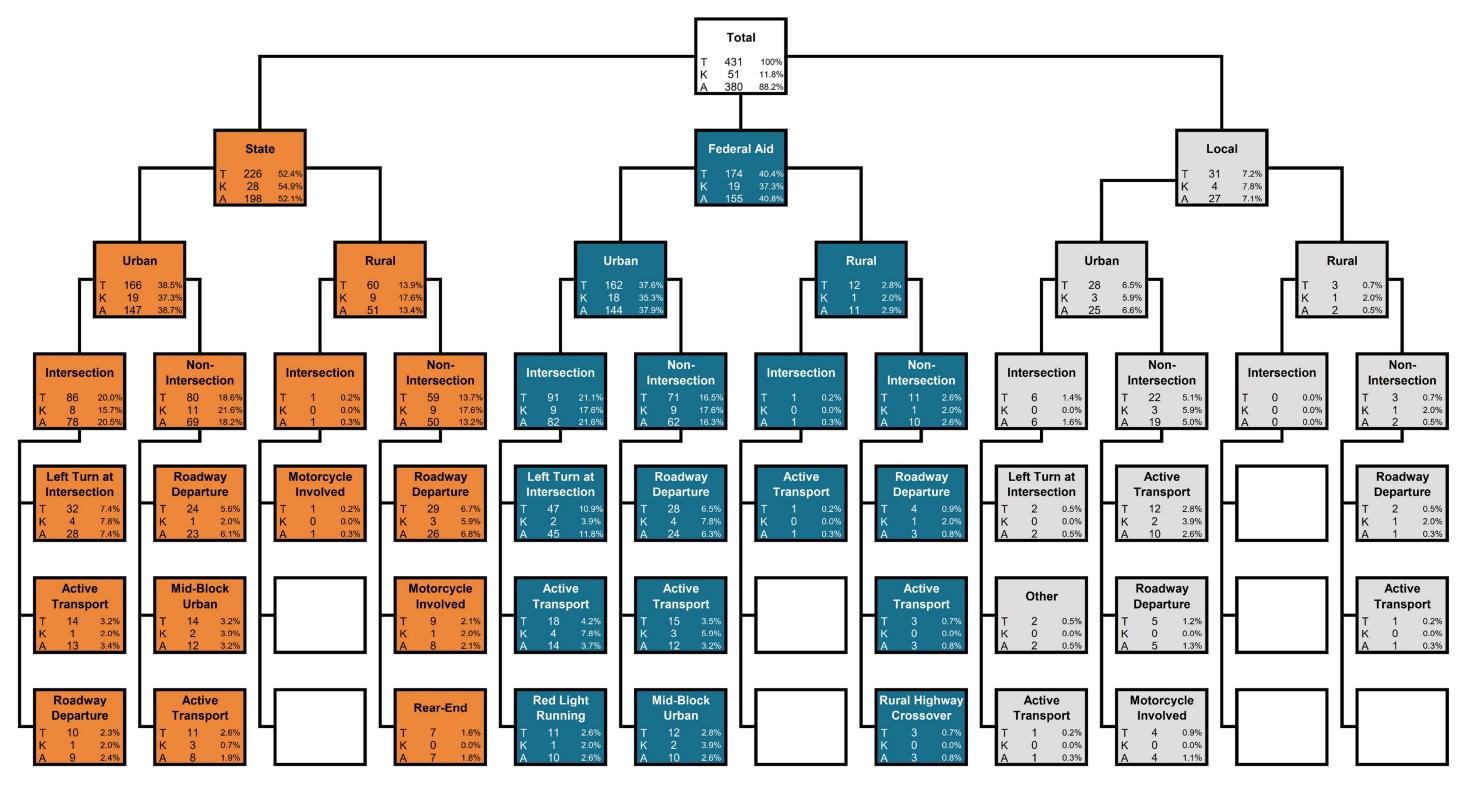


Figure 4.23 – Fatal and Serious Injury Crash Tree Diagram (Crash Type)

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MANNER OF COLLISION

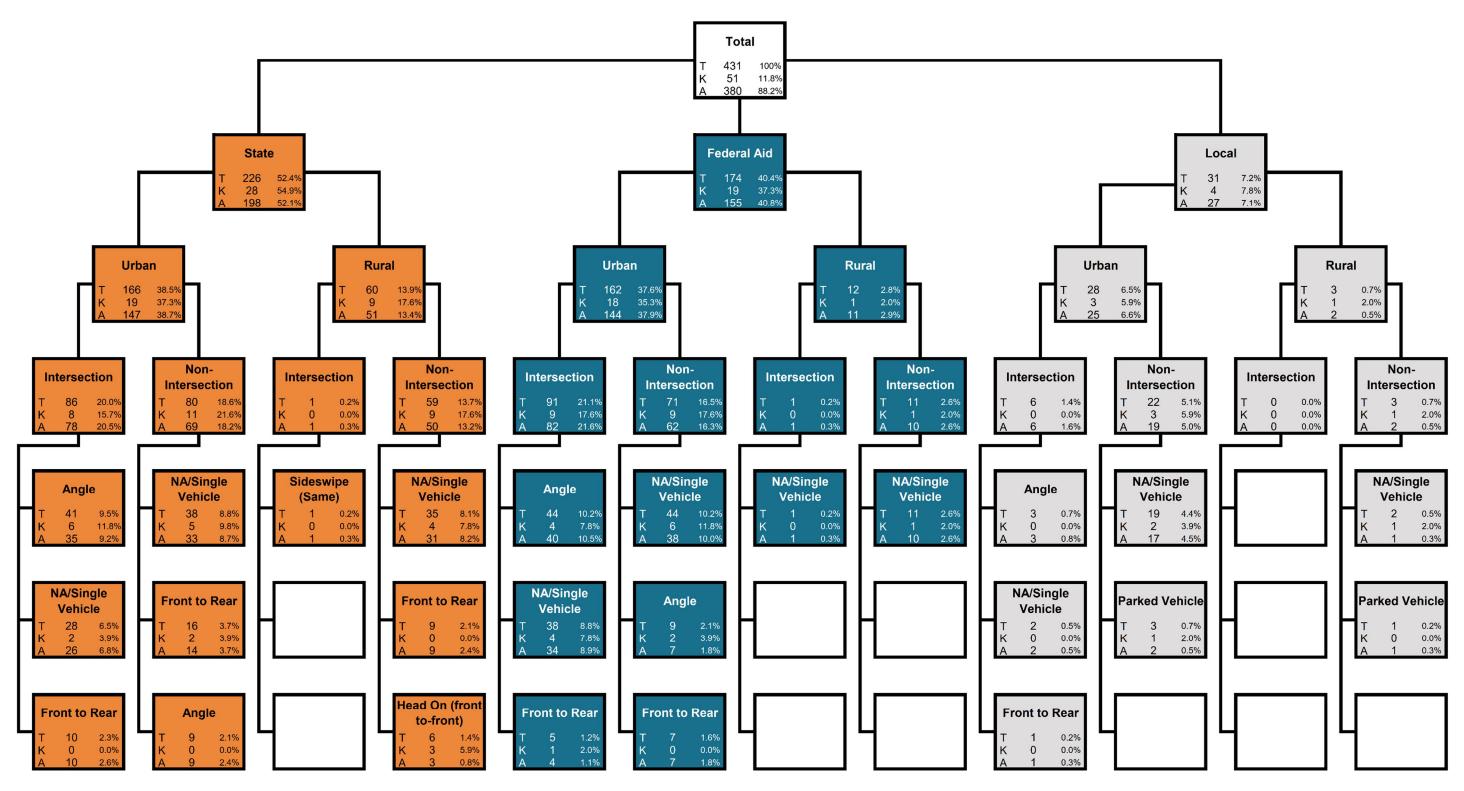


Figure 4.24 – Fatal and Serious Injury Crash Tree Diagram (Manner of Collision)

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#### **ACTIVE TRANSPORTATION**

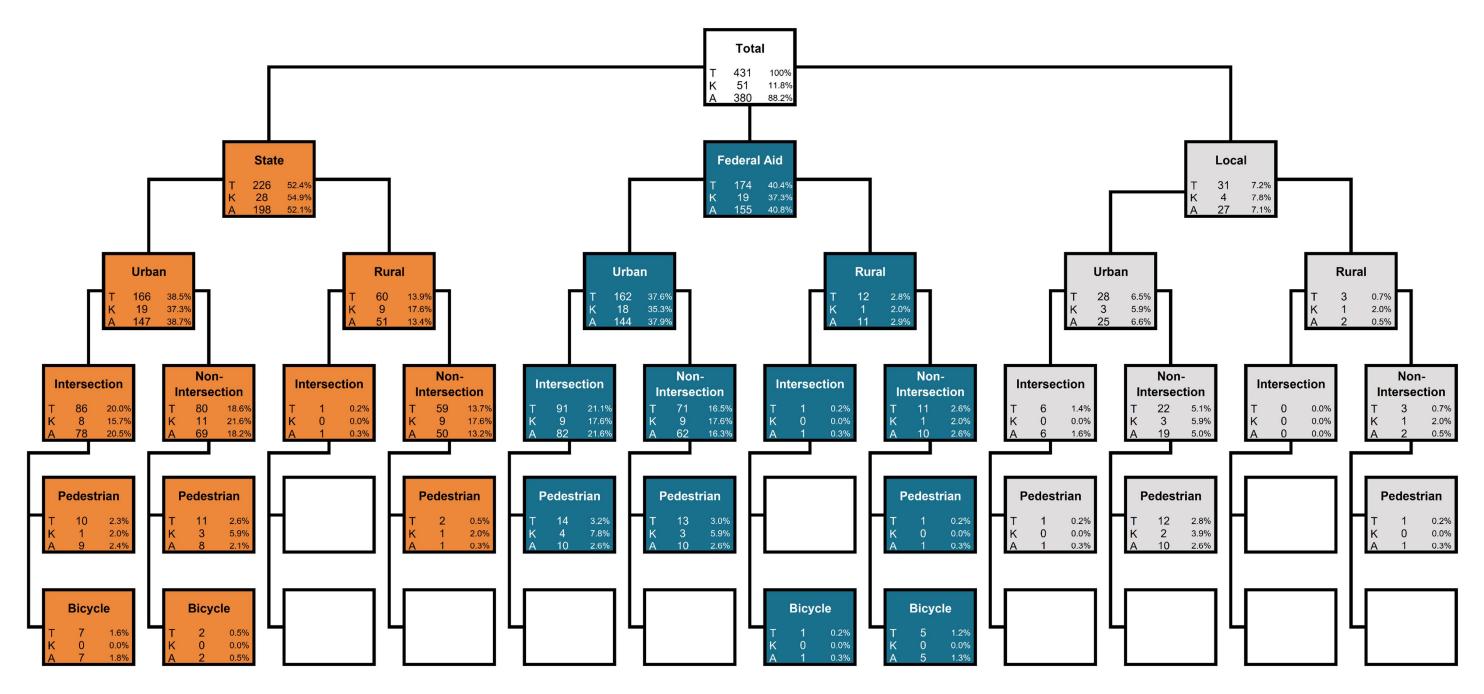


Figure 4.25 – Fatal and Serious Injury Crash Tree Diagram (Active Transportation)



# 5. Crash and Network Screening Analysis

A crash and network screening analysis was prepared for the East Salt Lake Valley 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 East Salt Lake Valley 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.



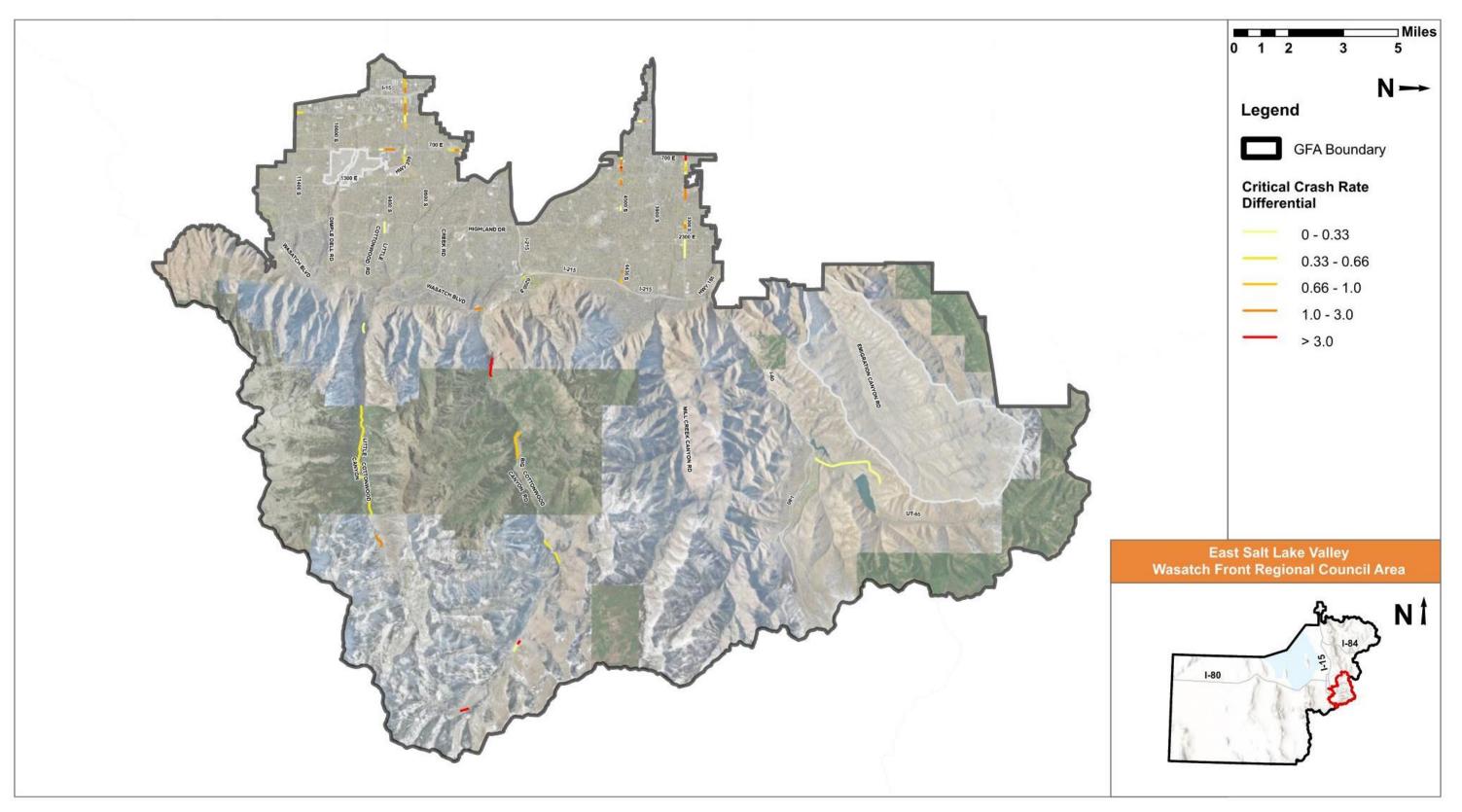


Figure 5.1 – CCR Differential – Segments (State Routes)



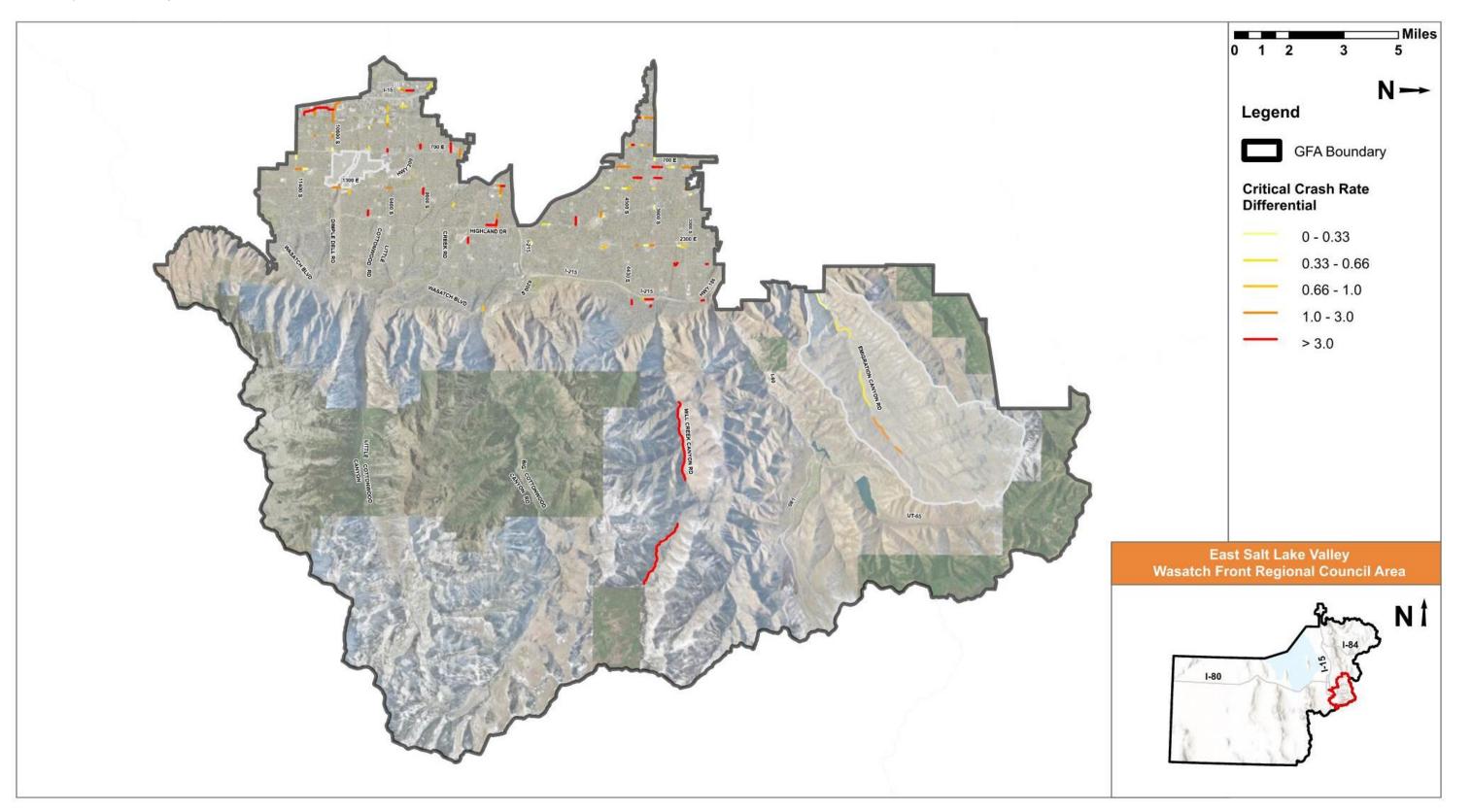


Figure 5.2 – CCR Differential – Segments (Federal Aid Routes)



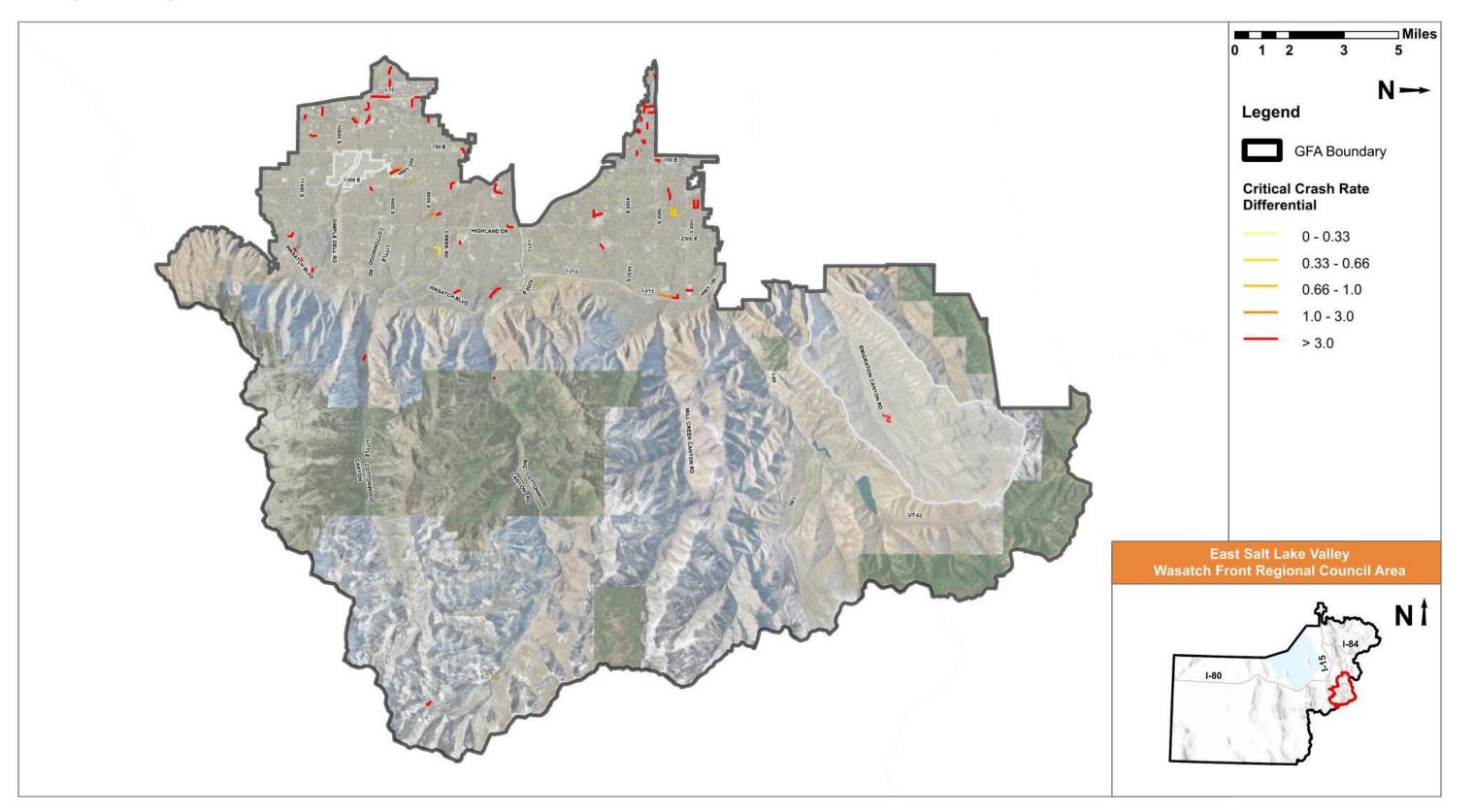


Figure 5.3 – CCR Differential – Segments (Local Routes)



### Table 5.1 – Crash and Network Screening Analysis Results - Segments

Facility	Limits	Functional Classification	City	Crashes	Critical Crash Rate Differential	EPDO <sup>1</sup>	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										_							
	Fallen Pines Ln to Skyline View Ln		Brighton	4	7.3	36	0	0	1	1	2	0	0	0	2	0	1	0	1	0	0	0	0	1
	Silver Fork Rd to Mountain Sun Ln	Minor Arterial	Brighton	4	5.8	4	0	0	0	0	4	0	2	0	2	0	0	0	0	0	0	0	0	0
	Moose Meadow Ln to Silver Fork Rd	Minor Arterial	Brighton	4	5.5	46	0	0	1	2	1	0	0	0	3	0	0	0	1	0	0	0	0	0
Big Cottonwood Canyon Rd (SR-		Minor Arterial		55	5.4	587	0	3	9	6	37	4	6	0	37	4	0	0	4	0	0	0	0	7
3300 S (SR-171)	800 E to Scott Ct		Millcreek	26	4.3	78	0	0	1	3	22	10	11	1	1	0	0	0	0	2	1	0	0	0
4500 S (SR-266)	950 E to Lemans Dr		Millcreek	4	4.0	35	0	0	0	3	1	1	3	0	0	0	0	0	0	0	0	0	0	0
4500 S (SR-266)	Arcadia Green Way to 900 E	Other Principal Arterial	Millcreek	27	3.0	163	0	0	3	7	17	11	7	0	4	2	0	0	0	3	0	2	0	0
4430 S (SR-266)	2950 E to Wallace Ln	Other Principal Arterial	Holladay	6	2.4	152	0	1	2	1	2	5	0	0	1	0	0	0	0	0	0	0	0	0
9000 S (SR-209)	Sandy Pkwy to I-15	Other Principal Arterial	Sandy	34	2.4	170	0	0	3	7	24	2	12	0	4	1	0	0	0	15	0	0	0	2
State St (US-89)	Gordon Ave to Hill Ave	Other Principal Arterial	Millcreek	9	2.3	144	0	1	2	0	6	7	0	0	2	0	0	0	0	0	0	1	0	0
Federal Aid Routes																								
Millcreek Canyon Rd	NF-018 to NF-020	Minor Collector		6	171.7	234	0	2	2	0	2	0	0	0	4	2	0	0	0	0	0	0	4	0
Millcreek Canyon Rd	Fir Crest to Big Water Gulch	Minor Collector		5	128.0	26	0	0	1	0	4	0	0	0	4	1	0	0	0	0	0	0	0	0
Jupiter Dr	Pluto Way to Juno Cir	Minor Collector	Millcreek	5	121.3	5	0	0	0	0	5	2	1	0	2	0	0	0	0	0	0	0	0	0
8000 S	615 E to 700 E	Minor Collector	Sandy	7	52.6	17	0	0	0	1	6	3	3	1	0	0	0	0	0	0	0	0	0	0
Millcreek Canyon Rd	Nf-020 to Maple Cove	Minor Collector		3	50.2	96	0	1	0	0	2	0	1	0	1	1	0	0	0	0	0	1	0	0
Auto Mall Dr	State St to 11000 S	Major Collector	Sandy	18	23.5	101	0	0	1	6	11	10	4	0	0	0	0	0	0	4	0	0	0	0
Auto Mall Dr	Holiday Park Dr to 10600 S	Major Collector	Sandy	10	23.4	31	0	0	0	2	8	5	3	0	1	0	0	0	0	1	0	0	0	0
2700 E	Hillside Ln to Evergreen Ave	Major Collector	Millcreek	9	23.2	41	0	0	1	1	7	0	0	0	7	0	0	0	2	0	0	0	0	0
1100 E	3900 S to 3745 S	Minor Collector	Millcreek	5	15.9	5	0	0	0	0	5	0	1	0	3	0	0	0	0	1	0	0	0	0
Oakview Dr	Diana Way to Fortuna Way	Minor Collector	Millcreek	3	13.1	24	0	0	1	0	2	0	0	0	1	2	0	0	0	0	0	0	0	1
Local Streets																			,					
Oak Grove Dr	Rockhampton Dr to High Mountain Dr	Local	Sandy	3	317.2	24	0	0	1	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0
Sunnyvale Aprtments	3940 S	Local	Millcreek	3	176.8	3	0	0	0	0	3	0	1	0	1	1	0	0	0	0	0	0	0	0
775 E	3900 S to 3805 S	Local	Millcreek	3	127.6	3	0	0	0	0	3	0	1	0	1	1	0	0	0	0	0	0	0	0
Civic Center Dr	240 W to Evening Star Way	Local	Sandy	5	92.9	5	0	0	0	0	5	0	0	0	4	1	0	0	0	0	0	0	0	0
Snake Creek Rd	Brighton Lp to Mary Lake Ln	Local	Brighton	3	87.5	3	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0
Wasatch Resort Rd	Little Cottonwood to Power Plant Rd	Local		3	74.3	35	0	0	1	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0
4100 S	430 E to 465 E	Local	Millcreek	3	70.1	3	0	0	0	0	3	1	0	0	0	1	0	0	0	0	1	0	0	0
Vista Way	Cresent Vista Ln to 11000 S	Local	Sandy	4	69.4	25	0	0	1	0	3	2	0	0	2	0	0	0	0	0	0	0	0	0
The Falls Apartment Complex	Falls at Hunters Pointe to The Falls Apa	Local	Sandy	3	69.0	3	0	0	0	0	3	0	0	0	2	1	0	0	0	0	0	1	0	1
Beetdigger Blvd State St to Sego Lily Dr		Local	Sandy	7	68.6	28	0	0	1	0	6	4	2	0	1	0	0	0	0	0	0	0	0	0
1. Equivalent Property Damage		<ul> <li>Local CCR Differential</li> </ul>	1.0 - 3.0       0.66 - 1.0       0.33 - 0.66	= 80 - 9 = 70 - 8	100% prob 90% proba 80% proba	bility th	at cra	ish ty	pe is	over-	repr	esent	ed											

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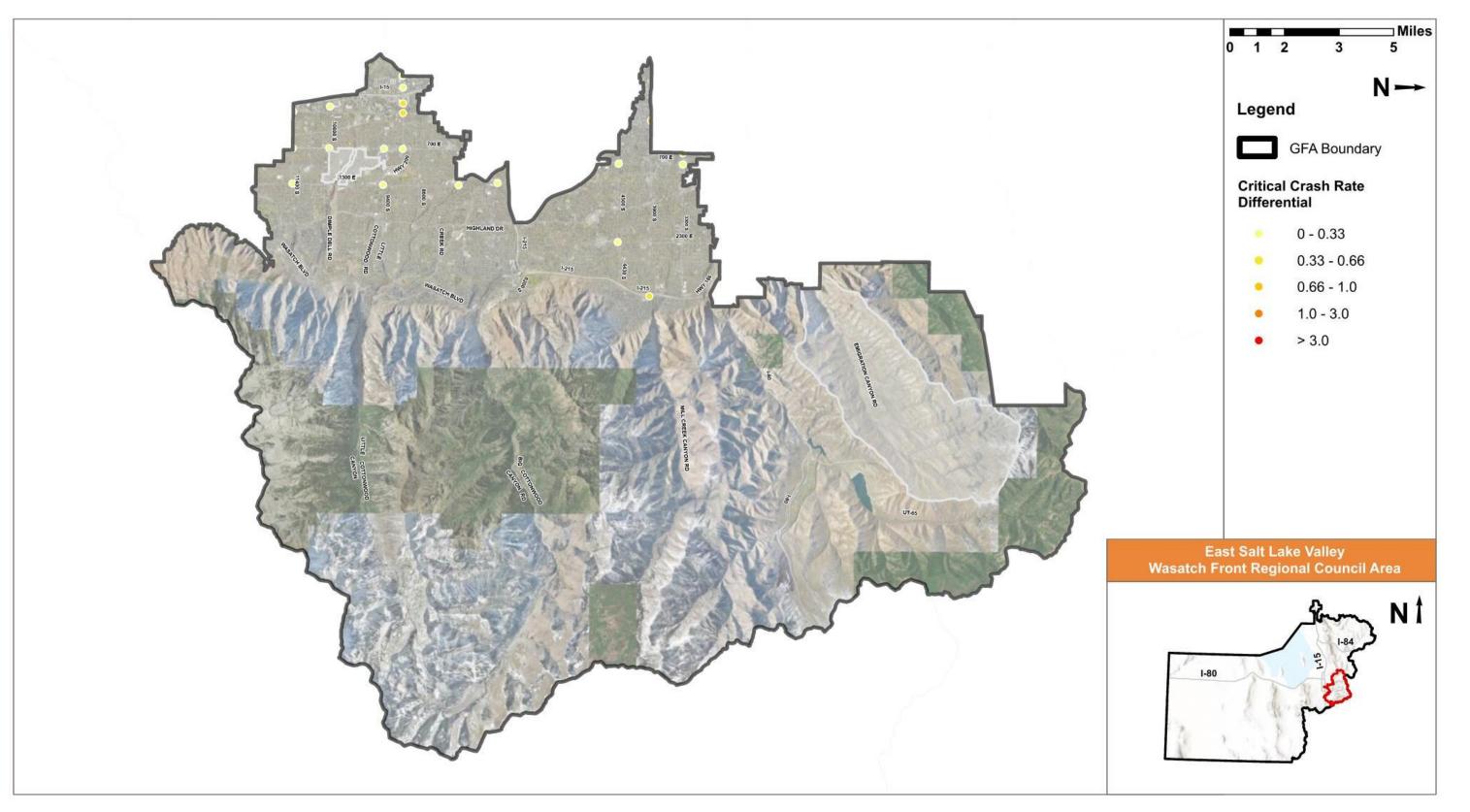


Figure 5.4 – CCR Differential – Intersections (Signalized)



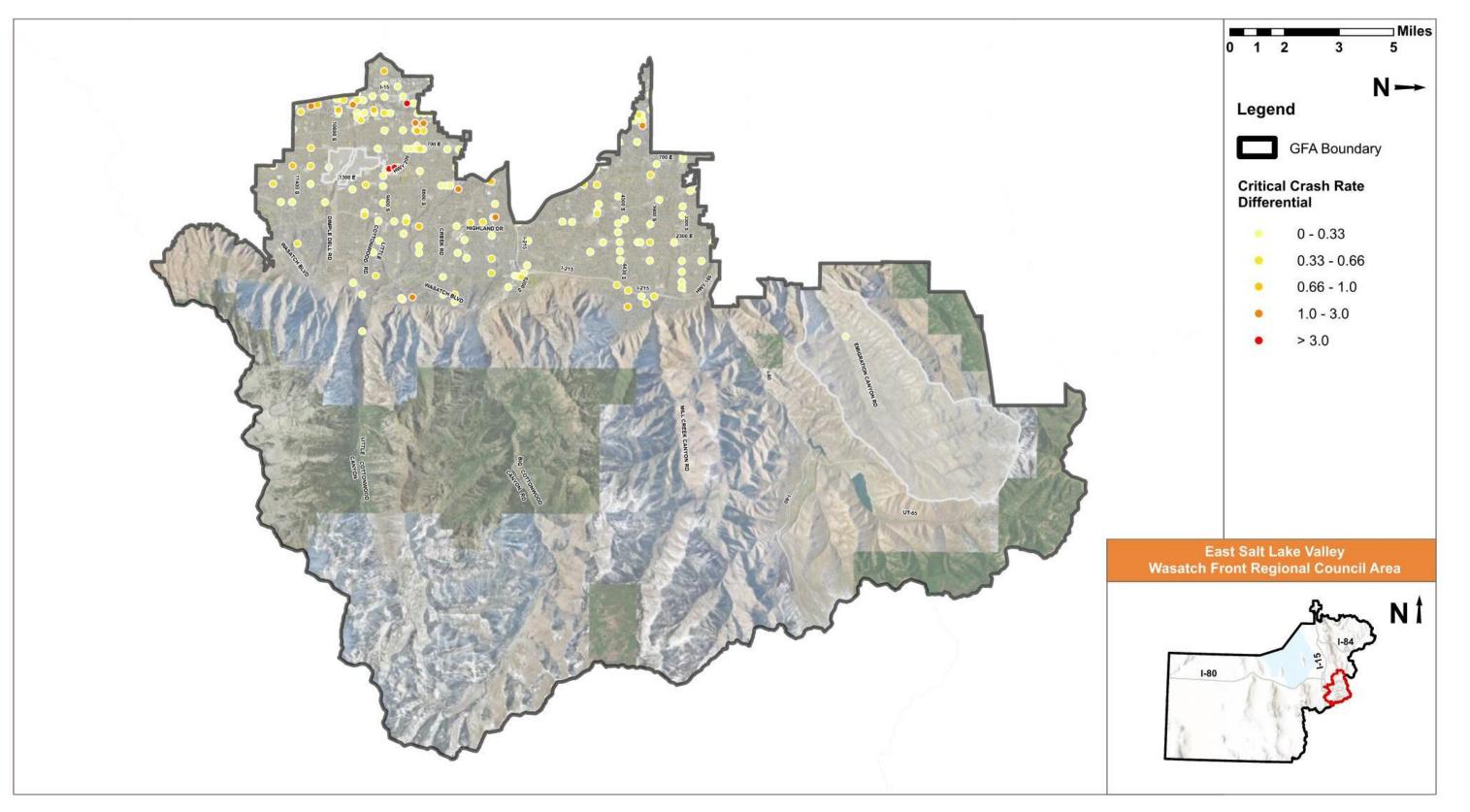


Figure 5.5 – CCR Differential – Intersections (Unsignalized)



### Table 5.2 – Crash and Network Screening Analysis Results - Intersections

Intersection	City	Crashes	Critical Crash Rate Differential	EPDO <sup>1</sup>	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																				-		
State St & 3900 S	Millcreek	182	0.8	1524	0	3	32	37	110	106	41	10	6	3	0	0	1	15	0	2	0	5
Monroe St & 9000 S	Sandy	141	0.6	957	0	1	15	39	86	60	61	1	0	1	0	0	2	16	0	0	0	2
700 E & 3300 S	Millcreek	149	0.5	1665	1	1	13	25	109	66	54	3	9	0	0	0	1	13	3	4	1	2
Wasatch Blvd & 3900 S	Millcreek	48	0.5	423	0	2	6	6	34	23	16	1	3	0	0	0	1	4	0	0	1	0
State St & 9000 S	Sandy	160	0.3	1182	0	3	15	41	101	33	87	0	14	2	0	0	0	23	1	3	2	2
1300 E & 11400 S	Sandy	68	0.3	653	0	2	10	18	38	39	21	3	2	1	0	0	1	1	0	0	0	1
900 E & 4500 S	Millcreek	113	0.3	969	0	4	15	16	78	53	42	4	7	0	0	1	1	5	0	3	1	5
Sandy Pkwy & 9000 S	Sandy	118	0.2	851	0	1	15	31	71	37	62	2	1	0	0	0	0	16	0	1	1	2
900 E & Vanwinkle Expy	Millcreek	98	0.2	539	0	0	11	20	67	26	52	6	2	0	0	0	1	9	2	0	0	0
1300 E & 9400 S	Sandy	103	0.1	604	0	1	7	25	70	15	71	2	7	0	0	0	0	8	0	2	1	0
Unsignalized Intersections																				-		
Monroe St & Freedom Ave	Sandy	9	4.3	41	0	0	1	1	7	4	2	0	1	0	0	0	0	2	0	1	0	0
Quarry Bend Dr & 9375 S	Sandy	4	3.6	14	0	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0
Quarry Bend Dr & 9070 S	Sandy	4	3.6	35	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0
Centennial Pkwy & 10070 S	Sandy	6	2.1	69	0	0	2	2	2	6	0	0	0	0	0	0	0	0	0	0	0	0
Alpen Cir & Escalade Ave	Cottonwood	3	1.9	3	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
Auto Mall Dr & 11000 S	Sandy	5	1.5	15	0	0	0	1	4	4	1	0	0	0	0	0	0	0	0	0	0	0
150 E & Pioneer Ave	Sandy	7	1.5	39	0	0	1	1	5	7	0	0	0	0	0	0	0	0	0	0	0	0
Greenfield Way & Clover Dale Rd	Cottonwood	3	1.3	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Quarry Bend Dr & 9070 S	Sandy	7	1.3	28	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	0
200 E & Hill Ave	Millcreek	3	1.2	3	0	0	0	0	3	1	1	0	1	0	0	0	0	0	0	0	0	0
1. Equivalent Property Damage Only Crashes	<ul> <li>= Local CCR Differential &gt; 3.0</li> <li>= Local CCR Differential 1.0 - 3.0</li> <li>= Local CCR Differential 1.0 - 3.0</li> <li>= Local CCR Differential 0.66 - 1.0</li> <li>= Local CCR Differential 0.33 - 0.66</li> <li>= Local CCR Differential 0.0 - 0.33</li> </ul>						ed															



# 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 East Salt Lake Valley 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)

**Error! Not a valid bookmark self-reference.** 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	Extents	Risk Score
Urban	Wasatch Boulevard	Heughs Canyon Way to 4431 South	23.1 to 27
Urban	9400 South	255 West to SR-209	23.4 to 25
Urban	Sandy Parkway / 500 West	South GFA Extents to North GFA Extents	23.2 to 25
Urban	7000 South / Fort Union Boulevard	Union Park Avenue to Wasatch Boulevard	23 to 25
Urban	7800 South	415 East to Creek Road	23 to 25
Urban	Murray Holliday Road	Highland Drive to Holladay Boulevard	23.3
Urban	Holladay Boulevard	6200 South to 4500 South	21.8 to 23.1
Urban	3900 South	500 West to Highland Drive	22.2 to 22.9
Urban	Wasatch Boulevard	Little Cottonwood Road to Danish Road	22.2
Urban	10600 South	465 East to Crocus Street	21.6
Rural	Highland Drive	South GFA Extents to North GFA Extents	22.4 to 24.9
Rural	Emigration Canyon Road	West GFA Extents to SR-65	20.1 to 22.8
Rural	Mill Creek Canyon Road	Scout Hollow River to Soldier Fork River	20.7 to 21.5
Rural	Imperial Street	3300 South to North GFA Extents	20.6
Rural	Lincoln Lane	Highland Drive to 2700 East	20.3

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



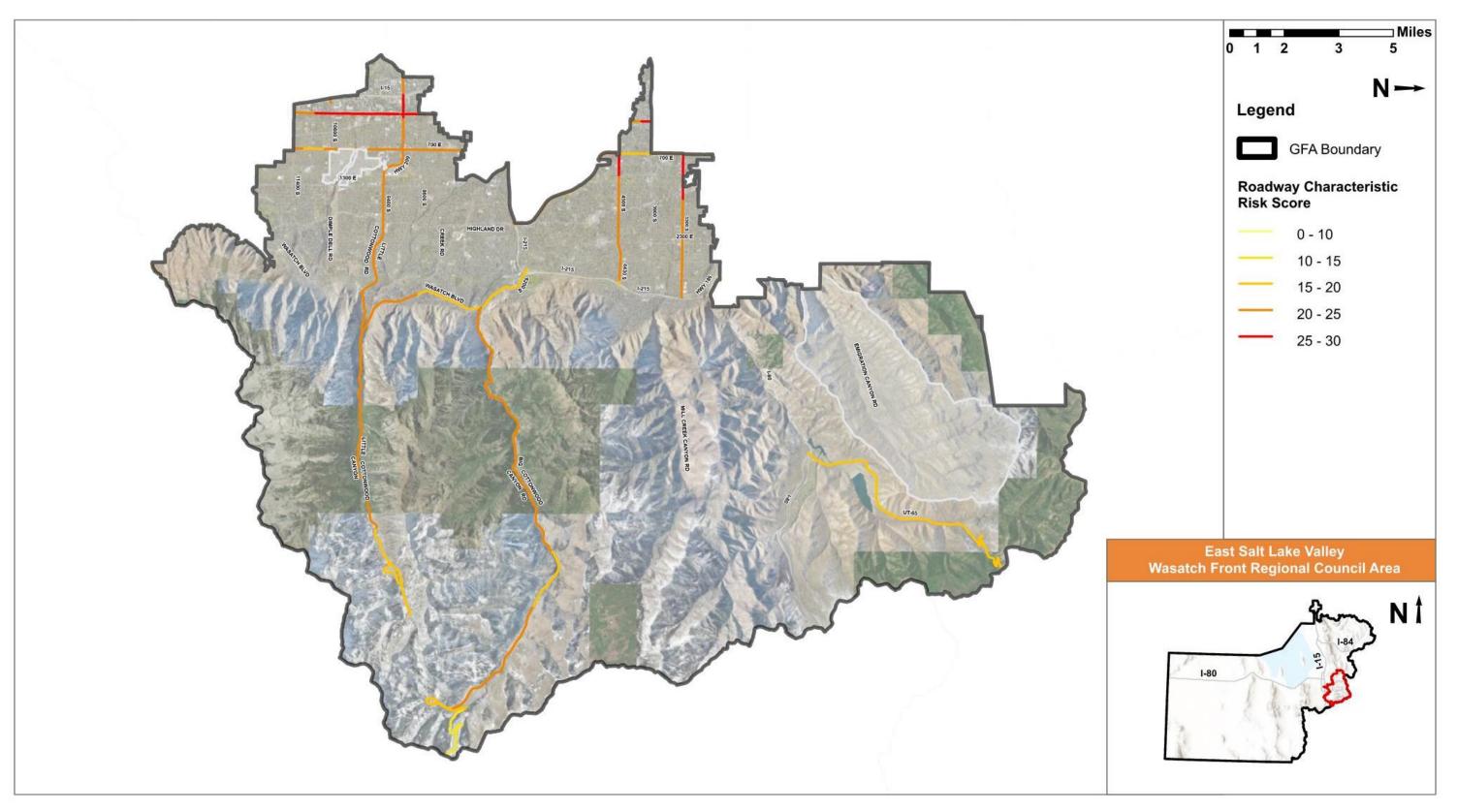


Figure 6.1 – Crash Profile Risk Assessment Results (State Routes)



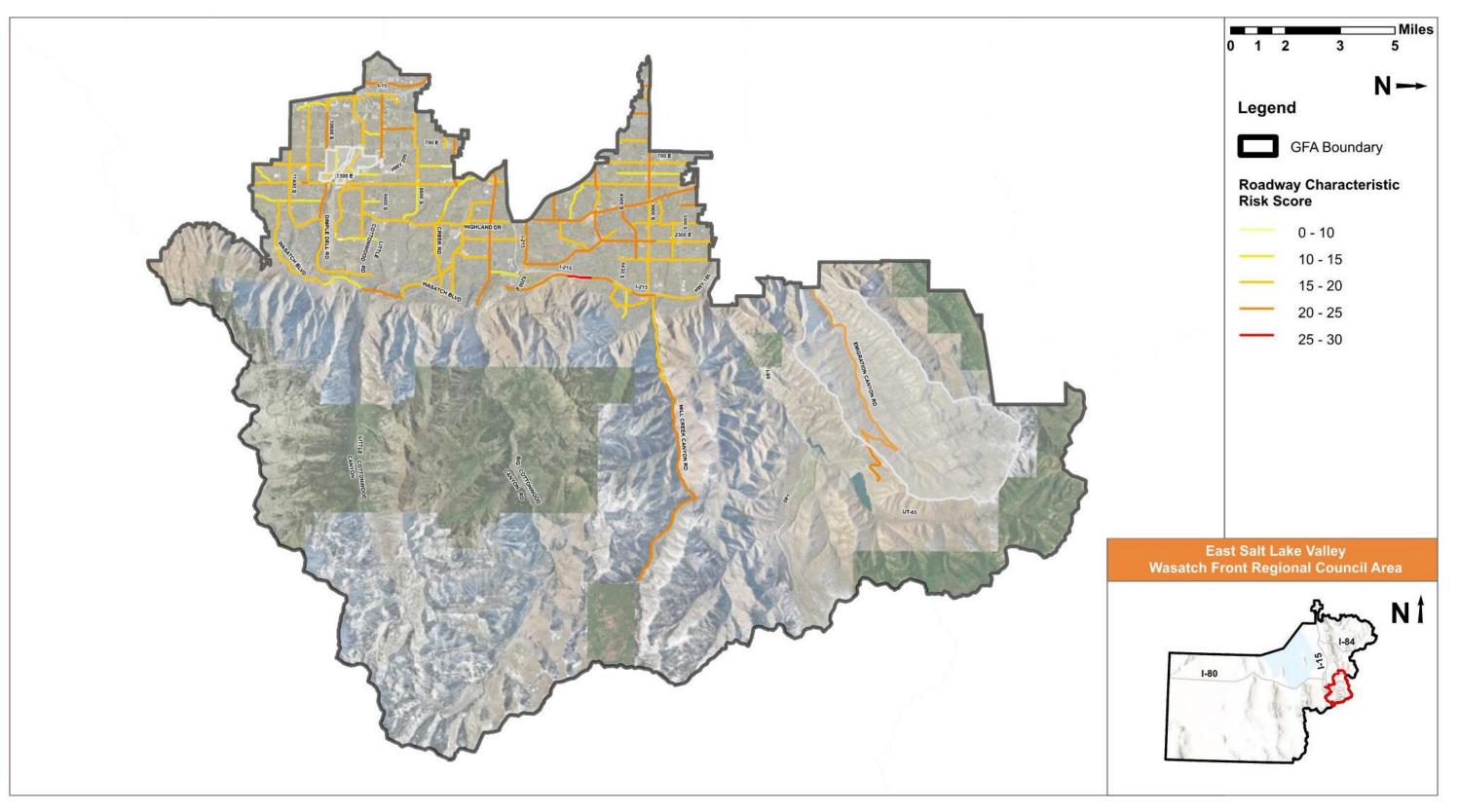


Figure 6.2 – Crash Profile Risk Assessment Results (Federal Aid Routes)



WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### 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 East Salt Lake Valley GFA are located in **Table 6.2**.

Road Segment	Extents	Vehicle Risk	Pedestrian Risk	Bicycle Risk
Emigration Canyon Road	West GFA Extents to Pioneer Ridge Road		x	
Emigration Canyon Road	Margarethe Lane to SR-65		x	
Mill Creek Canyon Road	NF-020 to Upper Big Water TH		x	
Richmond Street/1300 East	Lavon Drive to North GFA Extents	x	x	x
Highland Drive	Van Winkle Expressway to North GFA Extents	х	x	x
Imperial Street	3300 South to North GFA Extents	Х	Х	X
2000 East	3300 South to North GFA Extents	х	X	x
2300 East	Claybourne Avenue to 2700 South	X	Х	X
2700 East	3600 South to 3210 South	х		
2300 East	3380 South to North GFA Extents		Х	
2300 East	Delia Drive to 3380 South	х	X	x
2300 East	Sky Pines Court to Delia Drive		Х	X
2300 East	Murray Holladay Road to Sky Pines Court	X	x	x
Holladay Blvd	County Road to Murray Holladay Road	х	x	x
Holladay Blvd	6200 South to County Road		X	x
Siggard Drive	Highland Drive to 2000 East	X		x
Wasatch Blvd	Bernada Drive to 3300 South		X	

#### Table 6.2 – usRAP Risk Segments (Federal Aid Route)



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#### WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Road Segment	Extents	Vehicle Risk	Pedestrian Risk	Bicycle Risk
Wasatch Blvd	Juniper Way to Bernada Drive		X	X
Wasatch Blvd	6200 South to Juniper Way		X	
1300 East	Van Winkle Expressway to College Street	x	x	x
1300 East	College Street to Park Crest Circle		x	X
3900 South	West GFA Extents to 1100 East	X	x	X
3900 South	1100 East to Highland Drive		x	X
3900 South	Highland Driveto I-215	X	x	X
900 East	Van Winkle Expressway to 3580 South		x	
Lincoln Lane	Highland Drive to 2700 East	x	X	X
2700 East	4500 South to Delsa Drive	x		
Murray Holiday Road	Highland Drive to 2300 East		x	x
6200 South	Highland Drive to Field Rose Drive		X	
6200 South	Field Rose Drive to Holladay Blvd		x	X
6200 South	Holladay Blvd to I-215		X	
Union Park Avenue	1300 East to I-15		x	
Union Park Avenue	Forbusch Lane to 1300 East		X	X
1300 East	8125 South to Forbusch Lane		x	
1300 East	8255 South to 8125 South		X	X
Forbush Lane/7755 South	West GFA Extents to Canterwood Lane		x	x
Fort Union Blvd/7000 South	West GFA Extents to Wasatch Blvd	х	x	x
1300 East	Union park Avenue to I-215		X	
1700 East	Parkridge Drive to 7000 South	X		
Parkridge Drive	1700 East to Highland Drive	X		
Bengal Blvd	Highland Drive to Wasatch Blvd	X	X	x
Highland Drive	Bengal Blvd to I-215	X	X	X
Highland Drive	Johnstone Drive to Bengal Blvd		X	X
Highland Drive	9400 South to Johnstone Drive		X	
Highland Drive	9800 South to 9400 South		X	x
2300 East	2300 East Bengal Blvd to 6200 South		X	x
2700 East	Bengal Blvd to 7000 South	X		
3500 East	Wasatch Blvd to Bengal Blvd	X	X	x
Creek Road	Telford Way to 3500 East	x	X	X



#### WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Road Segment	Extents	Vehicle Risk	Pedestrian Risk	Bicycle Risk
Danish Road	Wasatch Blvd to Bengal Blvd	X	X	
Wasatch Blvd	Little Cottonwood Road (South) to Little Cottonwood Road (North)		x	x
8600 South	State Street to 550 East	X		
500 West	South GFA Extents to 9120 South		Х	X
225 West/Monroe Street	10000 South to 9000 South		x	x
240 West	Mall Ring Road to 10000 South		X	
9400 South	Center Street to 9400 South		X	
10000 South	West GFA Extents to State Street	X	X	X
Sego Lily Drive	State Street to Tonya Drive	X	X	X
Sego Lily Drive	Tonya Drive to Poppy Lane		X	x
Sego Lily Drive	Poppy Lane to Hoast Lane		X	
Sego Lily Drive	Firelight Way to 2165 East		X	
Sego Lily Drive	2165 East to Vilas Drive		Х	X
Larkspur Drive	700 East to Violet Drive	X		X
10600 South	I-15 to 1300 East	X	X	x
10720 South	1300 East to 2000 East	X	X	x
11000 South	Auto Mall Drive to Vista Way	X	X	x
11000 South	Vista Way to Hawkwood Drive		X	x
11000 South	Hawkwood Drive to 1300 East	X	Х	
11400 South	I-15 to 11340 South	X	Х	X
11340 South/11270 South	11400 South to High Mesa Drive	x	x	
High Mesa Drive	11270 South to 10720 South	X		
Wasatch Blvd	1700 East to Pepperwood Drive		X	x
Wasatch Blvd	Pepperwood Drive to Little Bell Canyon Road		x	
1700 East	South GFA Extents 10720 South		X	
Hidden Valley Drive	1000 East to 1300 East	X		
1300 East	South GFA Extents to Sego Lily Drive		X	x



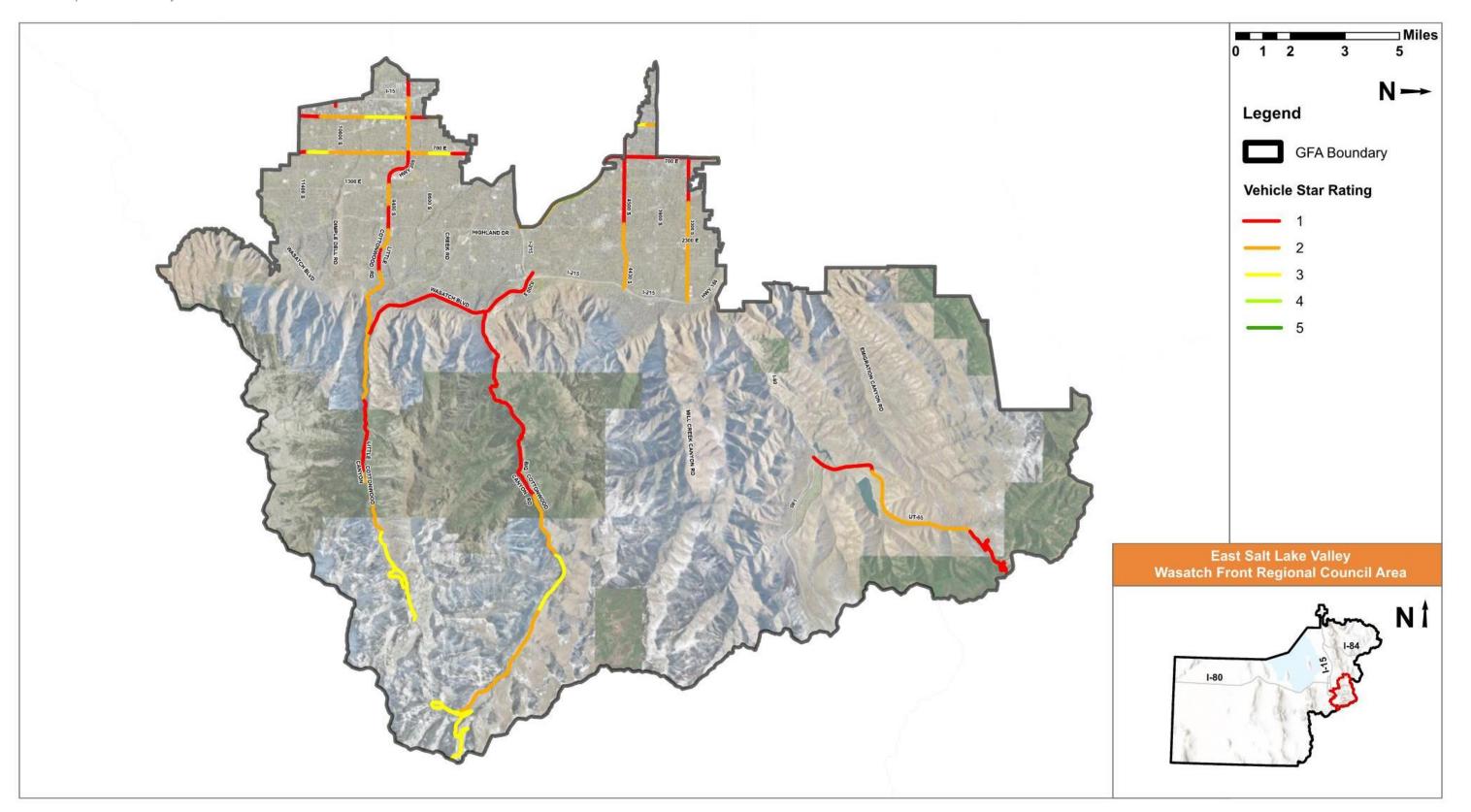


Figure 6.3 – Vehicle Star Rating (State Routes)



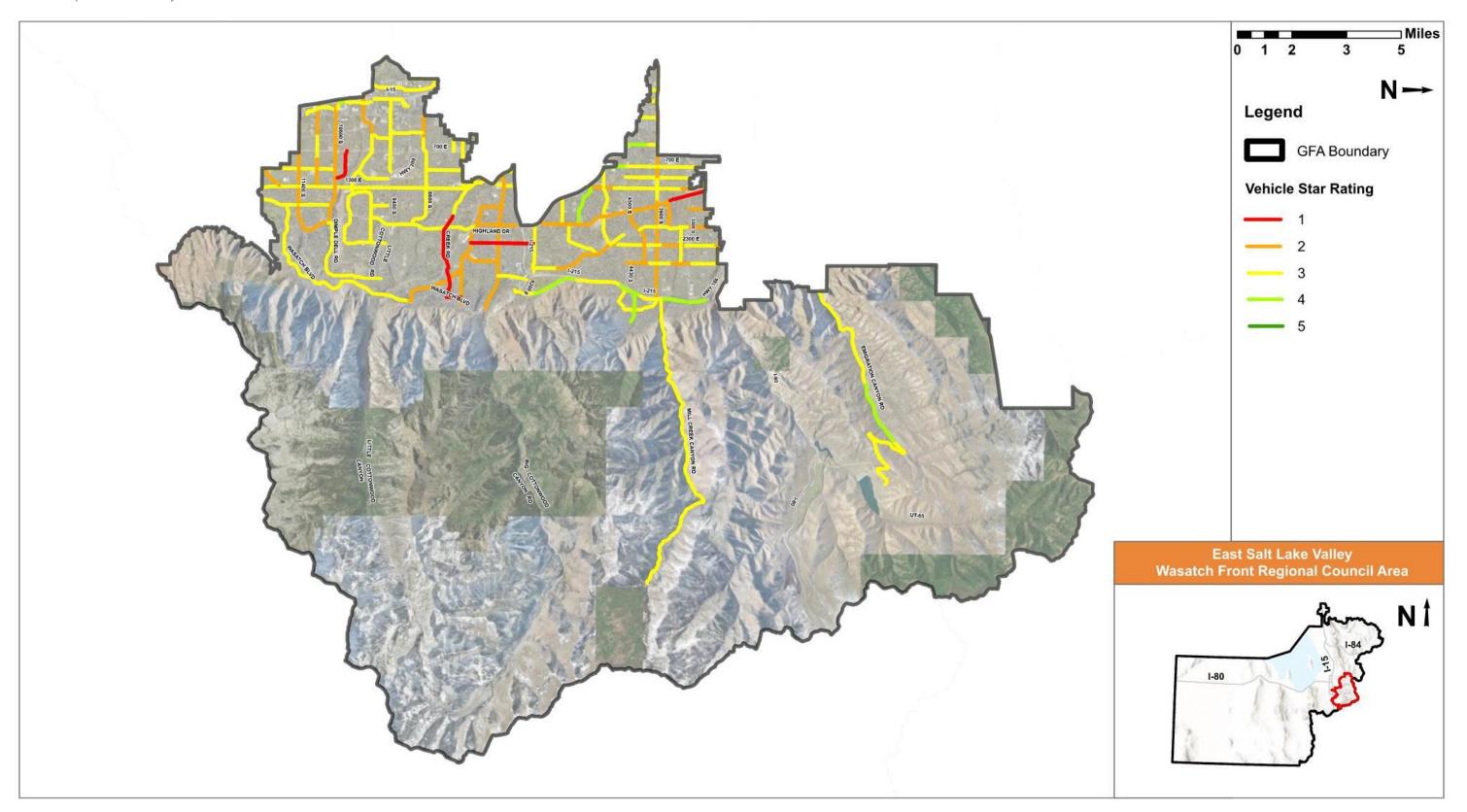


Figure 6.4 – Vehicle Star Rating (Federal Aid Routes)



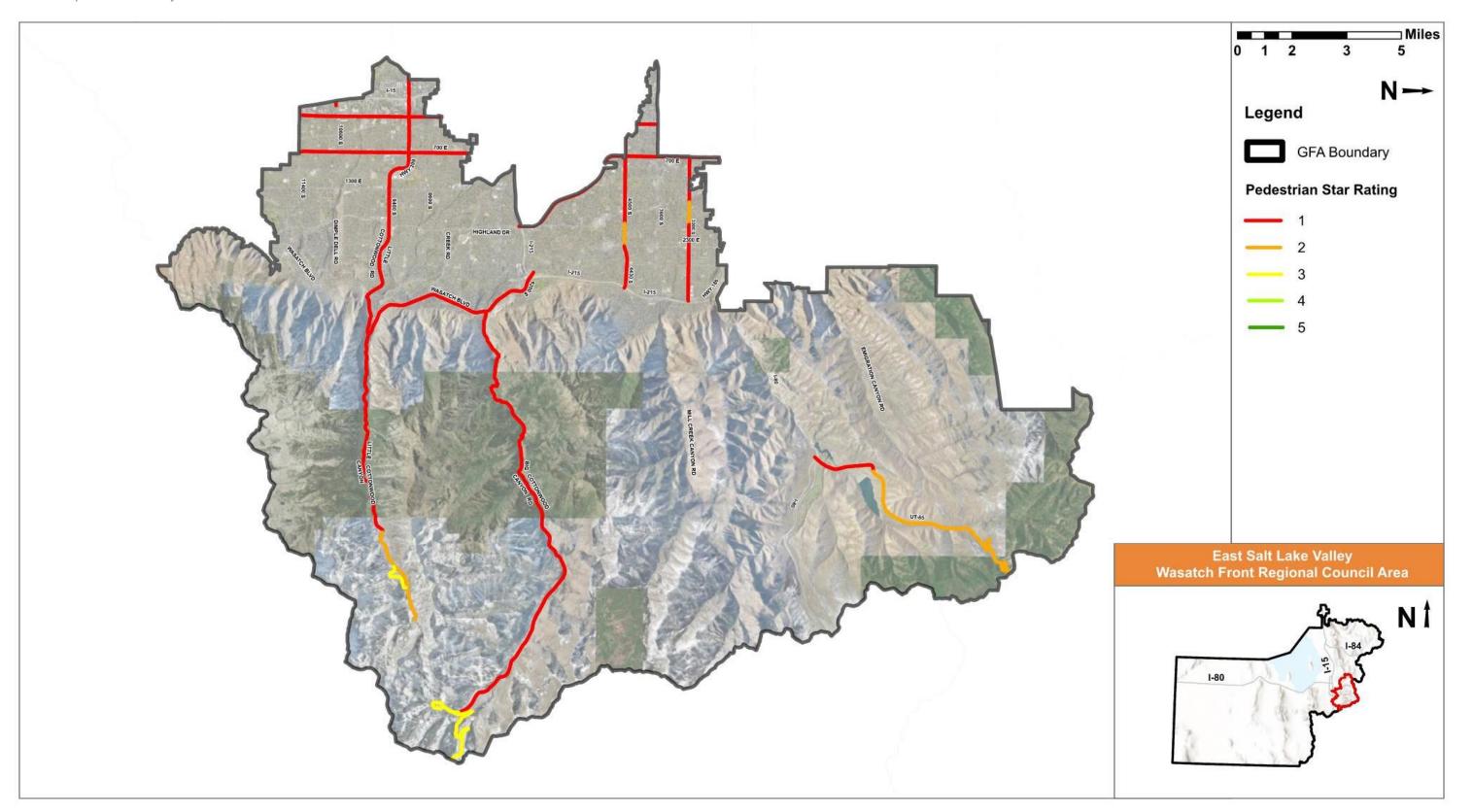


Figure 6.5 – Pedestrian Star Rating (State Routes)



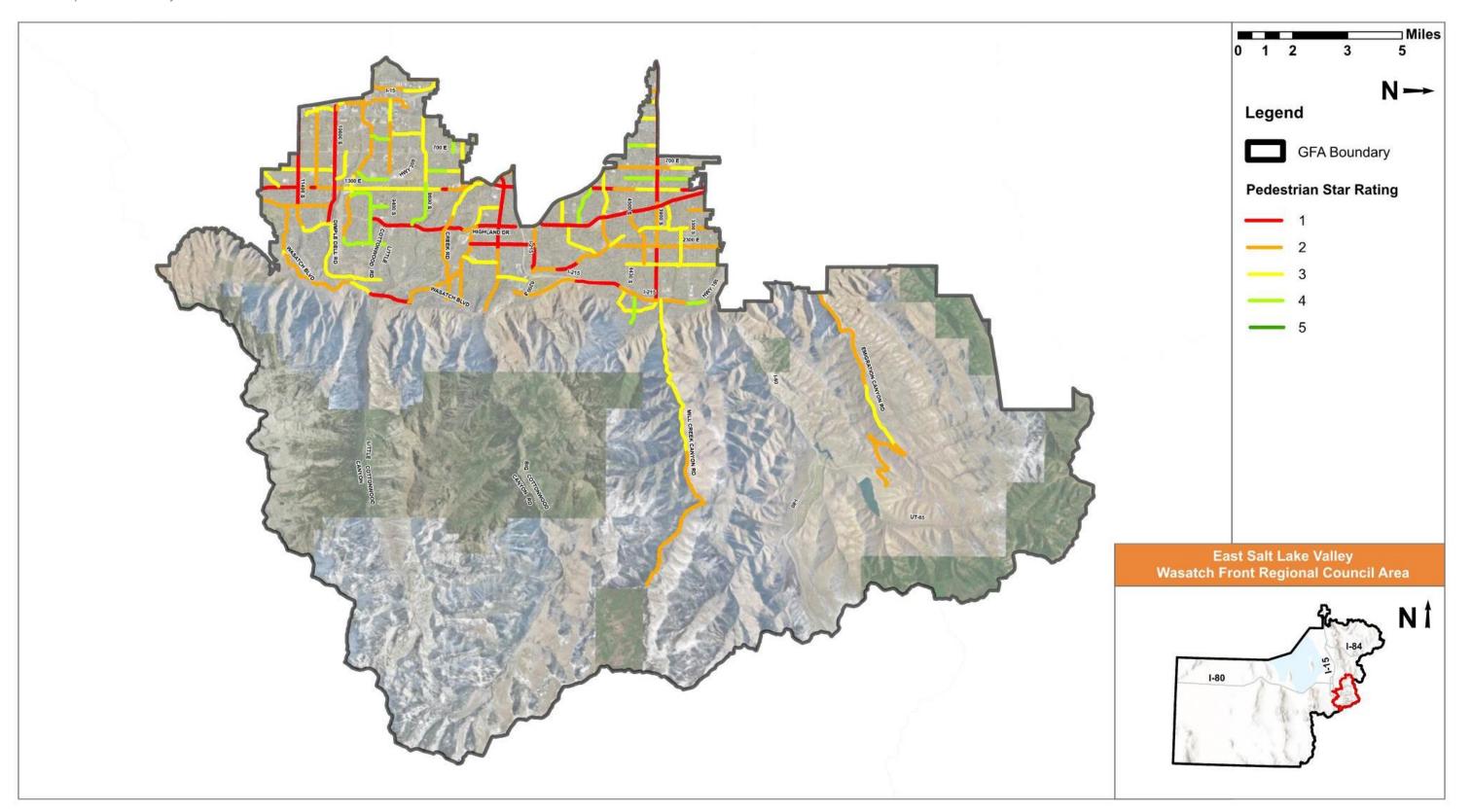


Figure 6.6 – Pedestrian Star Rating (Federal Aid Routes)



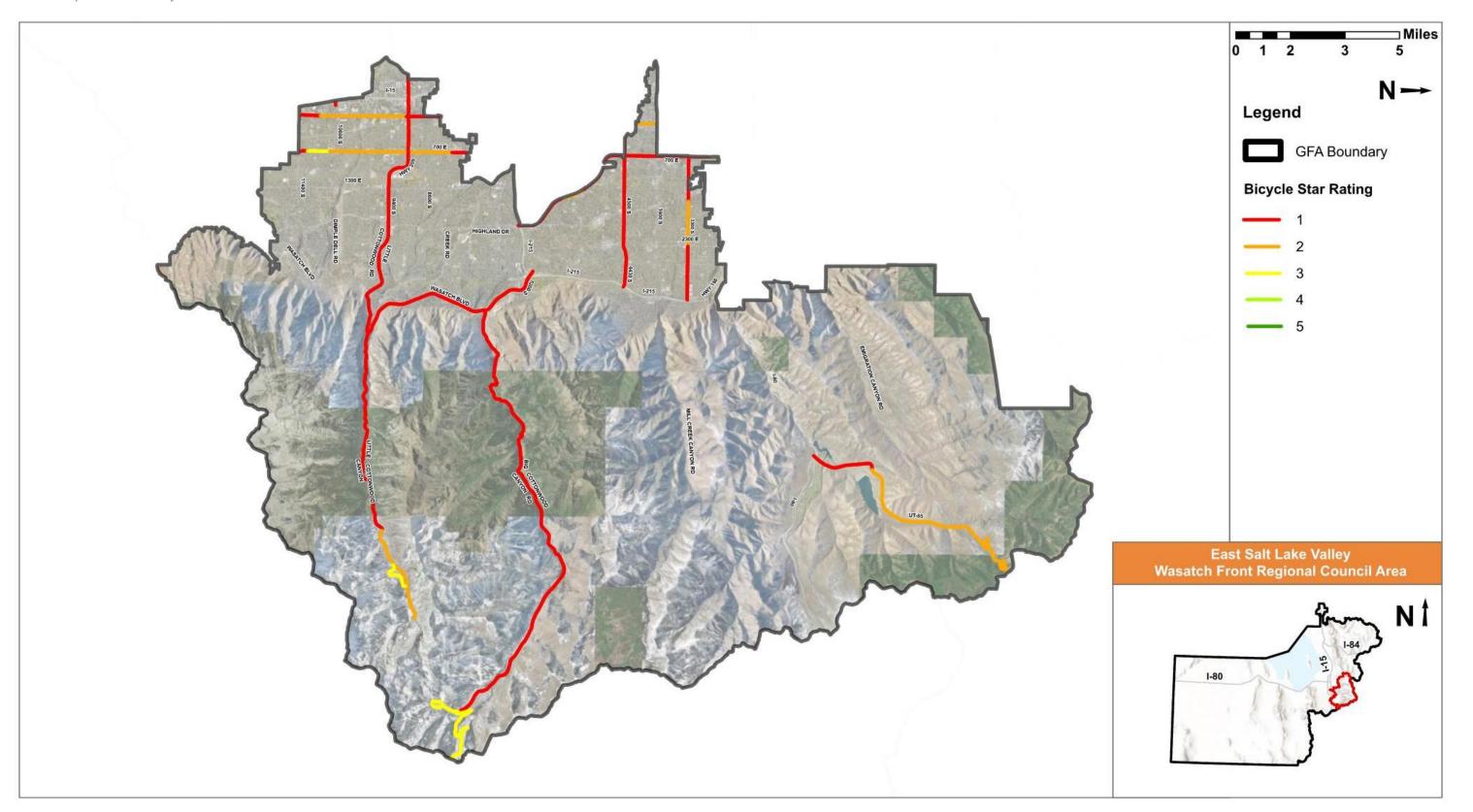


Figure 6.7 – Bicycle Star Rating (State Routes)



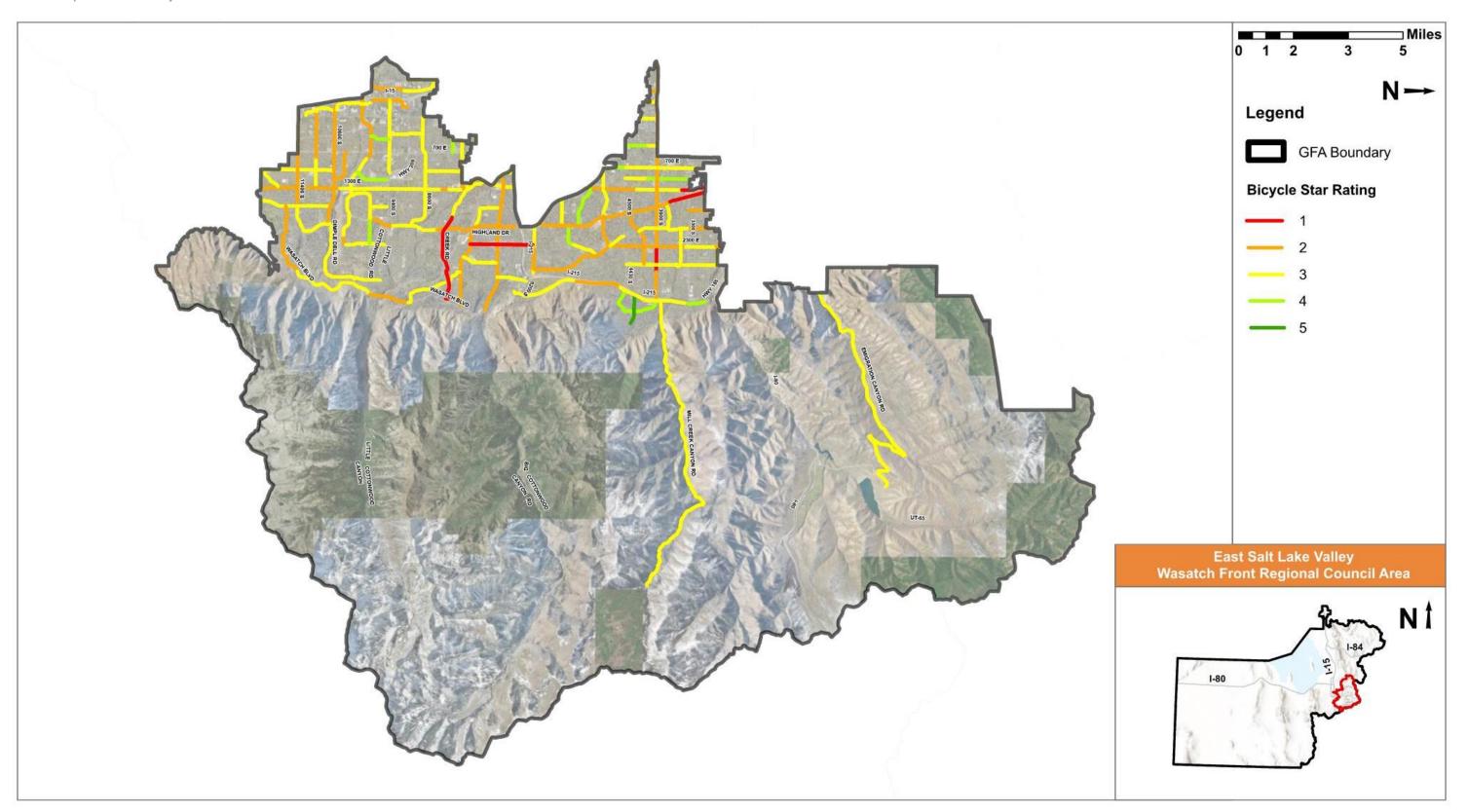


Figure 6.8 – Bicycle Star Rating (Federal Aid Routes)



## 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 East Salt Lake Valley GFA.

Road Segment	Extents
900 East:	3100 South – 3500 South
Sandy Parkway:	SR-209 – 700 West
Alta Canyon Drive:	Highland Drive – Willow Creek Drive
Riverside Drive:	SR-209 – 9600 South
900 East:	3700 South – 4000 South
Monroe Street:	8755 South – 9000 South
Jupiter Drive:	Wasatch Boulevard – 4100 South
300 East:	9800 South – 8400 South
1100 East:	3200 South – SR-266
9400 South:	Riverside Drive – I-15

#### Table 6.3 – Local Street High Priority Segments



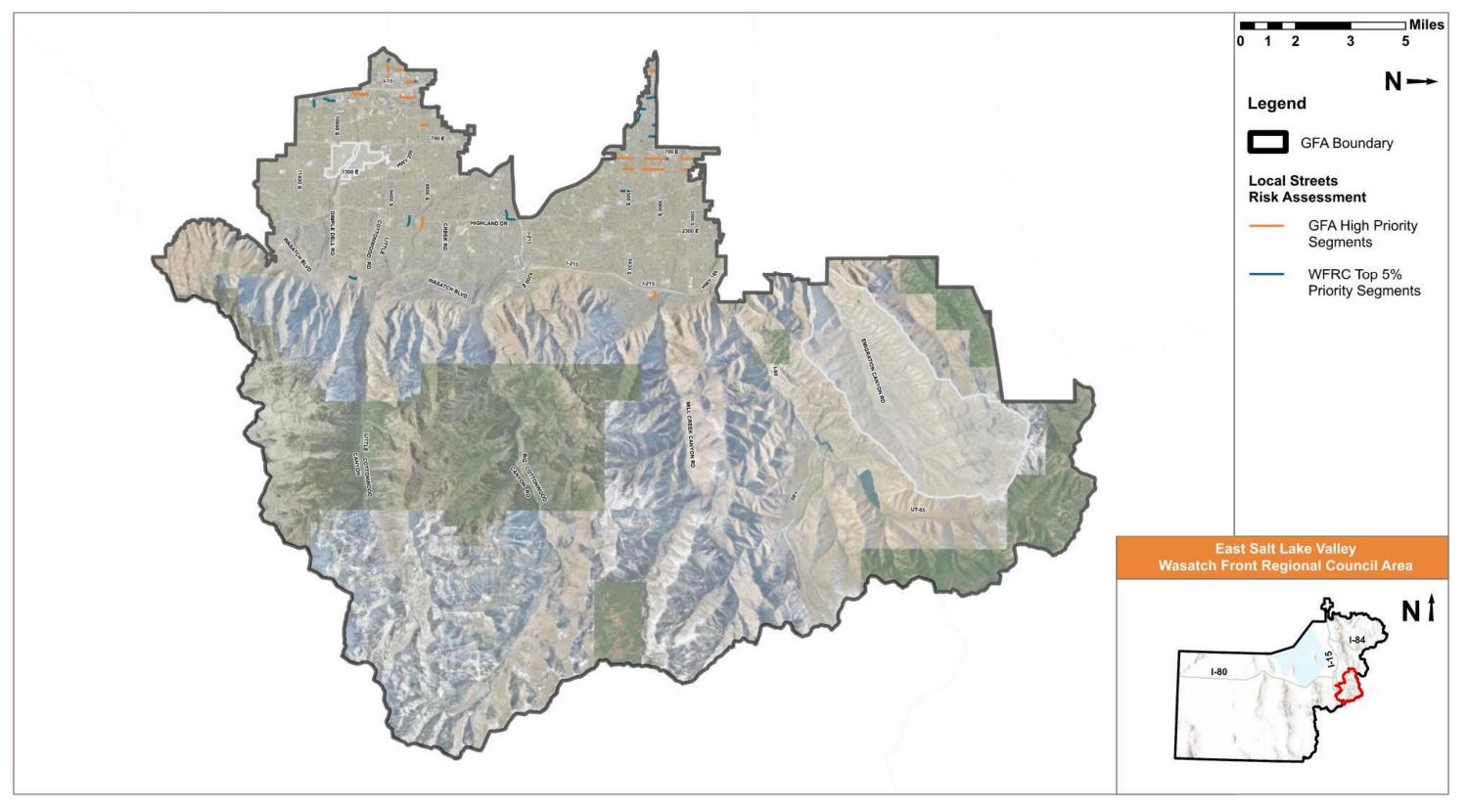


Figure 6.9 – Local Street Risk Assessment Results



# 7. Safety Analysis Summary

This section summarizes the safety analysis performed for the East Salt Lake Valley 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 East Salt Lake Valley GFA.

- Intersections
  - 43.7% of all fatal and serious injuries
- Roadway Departure
  - 25.6% of all fatal and serious injuries
  - 24.4% of all fatal and serious injury crashes
- Speed-Related
  - 20.2% of all fatal and serious injuries
- Older Driver
  - 20.2% of all fatal and serious injuries
- Motorcycle
  - 19.4% of all fatal and serious injuries
  - 9.0% of all fatal and suspected serious injury crashes
- Active Transportation
  - 18.1% of all fatal and serious injury crashes
- Left Turn at Intersection
  - 18.8% 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 East Salt Lake Valley 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	Risk Type	Value	
Historical Crash Analysis	Historical Crash Risk	Average Yearly Crash Totals ≥ 3 Crashes	1
Crash and Network Screening Analysis	Systemic Crash Risk	Positive Local CCR Differential	1
WFRC Risk Assessment	Roadway Risk	Risk Score ≥ 20	1
usRAP Risk Assessment	Vehicle Risk	Vehicle Star Rating = 1-2 Stars	1
usRAP Risk Assessment	Pedestrian Risk	Pedestrian Star Rating = 1-2 Stars	0.5
usRAP Risk Assessment	Bicycle Risk Bicycle Star Rating = 1-2 Stars		0.5
	Tot	al Possible Composite Risk Score	5

## Table 7.2 – East Salt Lake Valley 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
Federal Aid Routes						-					
Highland Dr	Hudson Ave to Van Winkle Expy	Minor Arterial	Millcreek, Holladay	5	4.8	Х	Х	Х	Х		Х
1300 E	3205 S to 3340 S	Minor Arterial	Millcreek, Holladay	4	0.2	Х	Х	Х		Х	Х
2300 E	3395 S to Phylden Dr	Minor Arterial	Millcreek, Holladay	4	2.0	Х	Х		Х	Х	Х
3900 S	700 E to Woodline Dr	Minor Arterial	Millcreek	4	1.5	Х	Х	Х	Х		Х
Lincoln Ln	Lynne Ln to Camille St	Minor Collector	Holladay	4	0.7	Х	Х	Х	Х		Х
1300 E	Pondoray Cir	Minor Arterial	Millcreek	4	0.1	Х	Х	Х		Х	Х
Holladay Blvd	Murray Holladay Rd to Le Jardin Pl	Minor Arterial	Holladay	4	1.5	Х	Х	Х	Х		Х
Murray Holladay Rd	Highland Cir to Highland Dr	Minor Arterial	Millcreek	4	0.1	Х	Х		Х	Х	Х
Fort Union Blvd	Union Park Ave to Promenade Dr	Minor Arterial	Cottonwood Heights	4	2.5	Х	Х	Х	Х		Х
Fort Union Blvd	Racquet Club Dr to Wasatch Blvd	Minor Arterial	Cottonwood Heights	5	0.1	Х	Х	Х	Х	Х	Х
Highland Dr	700 S to 7200 S	Other Principal Arterial	Cottonwoods Heights	4	0.3	Х	Х	Х		х	Х
Bengal Blvd	Butler Hills Dr to 2300 E	Minor Arterial	Cottonwoods Heights	4	0.1	х	х	х		х	х
Sego Lily Dr	Kills Ln to Kristin Dr	Minor Arterial	Cottonwoods Heights	4	0.1	х	х	х		х	х
Sandy Pkwy	9120 S to Universal Cir	Minor Arterial	Sandy	4	0.1	Х	Х		Х	Х	Х
10600 S	I-15 to 2000 E	Minor Arterial	Sandy	4	3.5	Х	Х	Х	Х		Х
11000 S	Heather Ridge Dr to Sady Ln	Major Collector	Sandy	4	0.1	Х	Х	Х		Х	Х



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
11400 S	700 E to Sandy Creek Dr	Minor Arterial	Sandy	4	0.2	Х	Х	Х		Х	Х



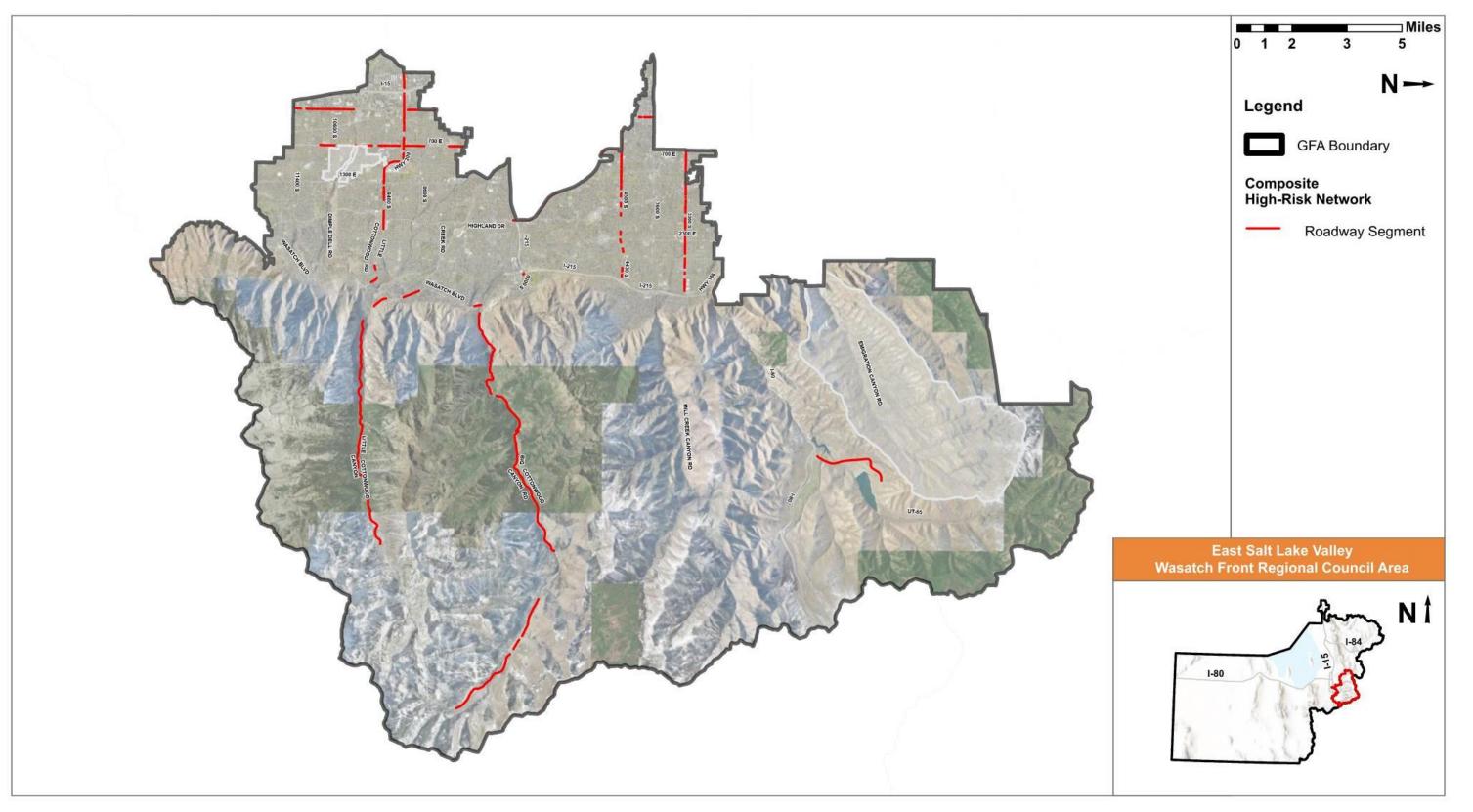


Figure 7.1 – East Salt Lake Valley High-Risk Roadway Network (State Routes)



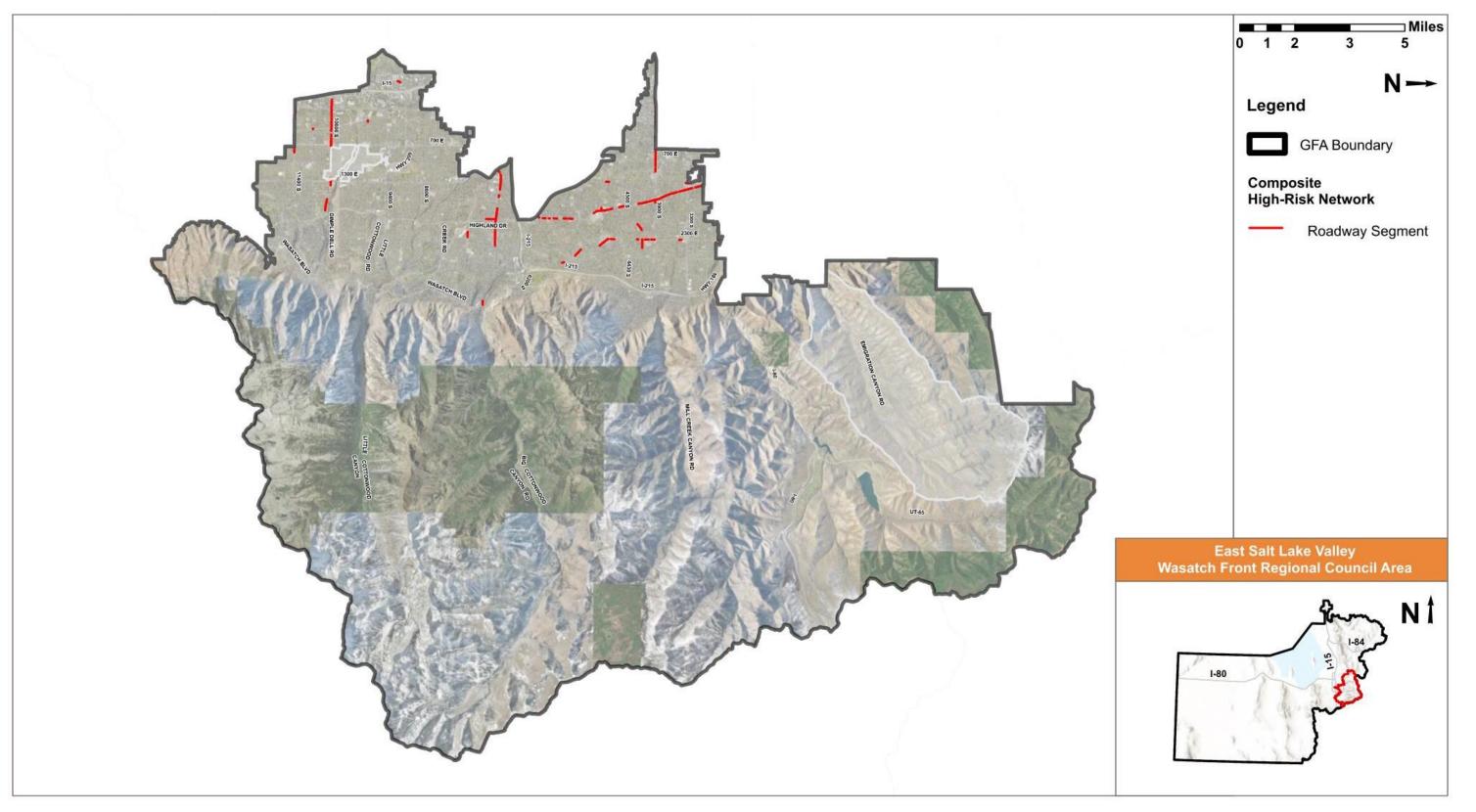


Figure 7.2 – East Salt Lake Valley High-Risk Roadway Network (Federal Aid Routes)

APPENDIX

# EAST SALT LAKE VALLEY CASE STUDY PROJECT INFORMATION SHEETS

		East Salt Lake Valley
Project ID	Jurisdictions	Project Name
8.36.1	Alta	Little Cottonwood Canyon (SR 21) Unsignalized Intersection: Bypass Road, Michigan City Road, day Lodge Road, Hellgate Road, and Collins Road
8.37.1	Brighton	Big Cottonwood Canyon (SR 190) from Cardiff Fork Road to Guardsman Pass Road
8.38.1.1	Cottonwood Heights, Holladay	Wasatch Boulevard from I-215 to Fort Union Boulevard
8.38.2	Cottonwood Heights	Fort Union Boulevard from Union Park Avenue to 3000 East
8.38.3	Cottonwood Heights	Creek Road from Union Park Avenue to 3500 East
8.39.1	Holladay	Lincoln Lane: Lynne Lane to 2700 East
8.39.2.1	Holladay, Millcreek	Highland Drive from 3000 South to SR 152
8.39.3	Holladay	2300 East from 3000 South to Lincoln Lane
8.40.1.1	Millcreek, Holladay, South Salt Lake	3900 South from I-15 to Wasatch Boulevard
8.40.2.1	Millcreek, Holladay	Highland Drive from 3000 South to SR 152
8.40.3	Millcreek	1300 East from 3300 South to Murray Holladay Road
8.41.1	Sandy	School Area Improvements from 1000 East to 11000 South
8.41.2	Sandy	Auto Mall Drive from 10600 South to State Street
8.41.3	Sandy	9400 South from Monroe Street to SR 209
8.42.1	White City	White City Trail Intersections: Lake Spur Drive, Carnation Drive, and Sego Lily Drive
8.42.2	White City	10600 South from 700 East to 1300 East
8.43.1	Emigration	Emigration Canyon Road from Crestview Drive to Pincecrest Canyon Road

8.36.1

3/13/2024

JSF

BCC

Map ID:

# WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Little Cottonwood Canyon (SR 210) Unsignalized Intersection Improvements

#### **Project Information Sheet**

GFA(s):	East Salt Lake Valley	Date Prepared:
Project Name:	Little Cottonwood Canyon (SR 210) Unsignalized Intersection Improvements	Prepared By:
Jurisdiction(s):	Alta	Checked By:
Emphasis Areas: Equity Priority:	Intersections, Roadway Departures, Impaired Driving Medium	

#### Location Description

Roadway:	NA	Key Intersection Locations:	Hellgate Road & Little Cottonwood
From:	NA	Bypass Road & Little Cottonwood	
To:	NA	Michigan City Road & Little Cottonwood	Collins Road & Little Cottonwood
Length:	NA	Day Lodge Road & Little Cottonwood	

#### **Project Location Map**



#### 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

#### In

ntersection Crash History															
										0					
Signal	К	Α	В	С	0	Total	EPDO	K/A							SS
	0			-	-										
	0	0	0	0	0										
	0	0	0	1	0	1	11				✓				
	0	0	0	0	0										
	0	0	0	0	0										
															1
															1
	Signal	0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0         0         0         0           0         0         0         0         0           0         0         0         0         1           0         0         0         0         0	0         0         0         0         0         0           0         0         0         0         0         0         0           0         0         0         0         1         0           0         0         0         0         0         0	0         0         0         0         0         0           0         0         0         0         0         0         0           0         0         0         0         1         0         1           0         0         0         0         0         0         0	0         0         0         0         0         0           0         0         0         0         0         0         0           0         0         0         1         1         11           0         0         0         0         0         0	0         0	Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike           0	Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle           0 </td <td>Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR           0</td> <td>Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR         HO           0</td> <td>Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR         HO         PV           0         <td< td=""><td>0         0</td></td<></td>	Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR           0	Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR         HO           0	Signal         K         A         B         C         O         Total         EPDO         K/A         Ped/Bike         Angle         FR         HO         PV           0 <td< td=""><td>0         0</td></td<>	0         0

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

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

WASATCH FRONT REGIONAL COUNCIL

Little Cottonwood Canyon (SR 210) Unsignalized Intersection Improvements

#### Project Description/How is safety improved?

Safety Action I

This project includes unsignalized intersection improvements at Hellgate Road, Bypass Road, and Collins Road. A right-turn lane is proposed on SR 210 at both Hellgate Road and Bypass Road. It is also recommended that a left-turn lane be added to SR 210 at Bypass Road. Lastly, it is recommended that an intersection control evaluation (ICE) be conducted and implemented at the intersection of Collins Road to determine the best configuration and control type for that intersection.

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



Dedicated Left and Right-Turn Lanes at Intersections

#### **Opinion of Probable Construction Cost**

Segment Improvements							
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Iten	n Cost
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit F	Price	l l	tem Cost
Provide Right-Turn Lanes	0.74 - 0.86	All Crashes	2.00	LANE	\$	150,000	\$	300,000
Provide Left-Turn Lanes	0.52 - 0.72	Rural	1.00	LANE	\$	300,000	\$	300,000
Perform an Intersection Control Evaluation and Implement	NA	All Crashes	1.00	INT	\$	225,000	\$	225,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovements	Subtotal:	\$	825,000
			/	Mobilizatio	n: (% +/-)*	10%	\$	75,000
			Tra	affic Contr	ol: (% +/-)	5%	\$	41,250
		Items Not E	stimated / 0	Contingend	cy: (% +/-)	30%	\$	247,500
				Estimate	d Construct	tion Cost:	\$	1,188,750
Local Match <sup>†</sup> : 20% \$ 302,000							-	
<sup>†</sup> Toward SS4A Implementation Grants		Prec	onstruction	Engineeri	na/Desian	12%	\$	142,650
					Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eering/Ma		15%	\$	178,313
			0		nated Proje	ect Total:	\$	1,510,000

\*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:	
Additional Improvements #2:	
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

#### Disclaimer:

Big Cottonwood Canyon (SR 190) from Cardiff Fork Road to Guardsman Pass Road .....

Key Intersection Locations:

#### **Project Information Sheet**

GFA(s):	East Salt Lake Valley	Da
Project Name:	Big Cottonwood Canyon (SR 190) from Cardiff Fork Road to Guardsman Pass Road	I
Jurisdiction(s):	Brighton	
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving	
Equity Priority:	Medium	

#### **Location Description**

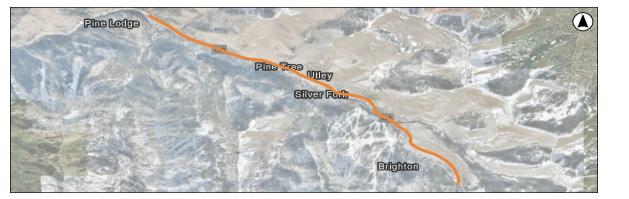
Roadway:	Big Cottonwo	od Canyon (SR 190)
From:	Cardiff Fork F	Road
To:	Guardsman F	Pass Road
Length:	4.91	miles

#### **Project Location Map**

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

Map ID:

8.37.1



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	4.91
Average Daily Traffic (vehicles per day)	4,255
Functional Classification	Minor Arterial
Roadway Ownership	State
Urban/Rural Designation	Rural
Number of Key Intersections	0

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	4
Suspected Minor Injury Crashes (B)	7
Possible Injury Crashes (C)	15
No Injury/PDO Crashes (O)	82
Total Crashes	108
Total EPDO Crashes	783

#### In

Intersection Crash Histo	ry															ĺ
								What	Crach T	vnos ar	e Over-l	Ponrosa	onted?			
Intersections Signal K A B C O Total EPDO								K/A	Ped/Bike		FR	HO	PV	RR/RS	SS	
					-	-		-			<u> </u>					
															· · · · ·	
											-					
															<u> </u>	

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	1	Parked Vehicle (PV)	✓						
Pedestrian (Ped)		Single Vehicle	1						
Bicycle (Bike)		Rear to Rear (RR)							
Motorcycle		Rear to Side (RS)							
Angle	✓	Sideswipe (SS)	✓						
Front to Rear (FR)		Other/Unknown							

and all a state that the

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan Big Cottonwood Canyon (SR 190) from Cardiff Fork Road to Guardsman Pass Road

#### Project Description/How is safety improved?

This project includes shoulder widening and paving to allow for rumble strips and to provide more space for bicyclists. Paved shoulders will also address crashes with parked vehicles. Improvements to reduce head on collisions includes wider edge line and centerline rumble strips. A Safety Edge is proposed to reduce lane departure crashes. Higher quantities for shoulder paving were given to ensure that proper width can be provided to improve the available width for bicyclists. Also included is upgraded curve waring signage with enhanced delineation.

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



Wider Edge Lines

#### **Opinion of Probable Construction Cost**

Segment Improvements										
Item Description	CMF	Applicable Crashes	Quantity	Unit		Unit Price		Unit Price		Item Cost
Provide 2-Ft Paved Shoulder on Rural 2-Lane Roadways	0.66 - 0.89	All Crashes	7.37	MILE	\$	298,000	\$	2,196,260		
Shoulder Widening on Rural Roads	0.771	All Crashes	4.91	MILE	\$	32,000	\$	157,120		
Install 6" Edge line (Both Sides of Road)	0.64 - 0.88	All Crashes	4.91	MILE	\$	7,000	\$	34,370		
Install Safety Edge with Repaving Projects	0.79 - 0.892	All Crashes	4.91	MILE	\$	121,000	\$	594,110		
Install Edge line Rumble Strips	0.49 - 0.87	Fatal & Injury	4.91	MILE	\$	9,000	\$	44,190		
Install Centerline Rumble Strips	0.36 - 0.56	lead-on Fatal & Injur	4.91	MILE	\$	5,000	\$	24,550		
Install and/or Upgrade Curve Signage to Enhanced Delineations	0.4 - 0.852	All Crashes	6.00	CURVE	\$	2,000	\$	12,000		
							\$	-		
							\$	-		
							\$	-		
							\$	-		

Intersection Improve	ements									
	Item Descripti	ion	CMF	Applicable Crashes	Quantity	Unit	Unit Prie	се	lte	em Cost
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
									\$	-
							rovements Su		\$	3,062,600
						/lobilizatior		10%		75,000
						affic Contr		5%		153,130
				Items Not Es	stimated / C			30%		918,780
						Estimate	d Construction	ו Cost:	\$	4,209,510
Local Match <sup>†</sup> :	20%	\$ 1,069,400						_		
<sup>†</sup> Toward SS4A Implei	mentation Grants			Prece	onstruction	Engineerii	ng/Design	12%	\$	505,141
							Utilities**		\$	-
							ROW**		\$	-

Construction Engineering/Management 15% \$

Estimated Project Total: \$

631,427

5,347,000

\*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:

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan Wasatch Boulevard from I-215 to Fort Union Boulevard

## Project Information Sheet

Lake Valley
Boulevard from I-215 to Fort Union Boulevard
ood Heights, Holladay
ons, Roadway Departures, Impaired Driving
Low

#### **Location Description**

Roadway:	Wasatch	Boulevard
From:	I-215	
To:	Fort Unio	n Boulevard
Length:	1.93	miles

#### **Project Location Map**

Key Intersection Locations: Millrock Drive 3000 East I-215 Off Ramp

#### GreekRd Be B S 3000 E $(\blacktriangleright)$ Was Mountain View Memorial Estates Dentsbeen Old Mill Colf Course Wasatch Elvé S 3500 E Wagateb Blvd Prospector Dr

#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	1.93
Average Daily Traffic (vehicles per day)	19,120
Functional Classification	Other Principal Arteria
Roadway Ownership	State
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)	4
Suspected Minor Injury Crashes (B)	3
Possible Injury Crashes (C)	6
No Injury/PDO Crashes (O)	46
Total Crashes	59
Total EPDO Crashes	556

#### Intersection Crash History

intersection ordsh history																(
										What	Crash T	vpes 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
Millrock Drive & Wasatch Bouleva	1	0	0	6	11	6	23	265								~
3000 East & Wasatch Boulevard	✓	0	0	4	15	5	24	265				✓				
I-215 Off Ramp & Wasatch Boule	1	0	0	2	4	1	7	91				✓				

Why Was This Location Identified?		
Composite Safety Score	1	
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			

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

Map ID: 8.38.1.1 Martin Martin

WASATCH FRONT REGIONAL COUNCIL Wasatch Boulevard from I-215 to Fort Union Boulevard Comprehensive Safety Action Plan

#### Project Description/How is safety improved?

This project implements systemic corridor safety improvements on Wasatch Boulevard from Fort Union Boulevard to 3000 East. These improvements include installation of a raised median and lane narrowing from 12' lanes to 11' lanes (Millrock Drive - Fort Union Boulevard) to promote traffic calming and providing a larger buffer for the existing bicycle lane.

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 Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	1.52	MILE	\$ 928,000	\$ 1,410,560
Traffic Calming - Lane Narrowing	0.68	All Crashes	0.99	MILE	\$ 39,000	\$ 38,610
Install Buffered Bicycle Lane	NA	Bicycle	0.99	MILE	\$ 26,000	\$ 25,740
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	e It	em Cost
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
					rovements Sub		1,474,91
				Mobilizatio		10% \$	75,00
		Hama Nat E		affic Contr		5% \$	73,74
		Items Not Es	sumated / (		d Construction	30% \$	442,47
ocal Match <sup>†</sup> : 20% \$	524,800			Estimate	Construction	COSI. p	2,066,12
Toward SS4A Implementation Grants		Proc	onstruction	Enginoori	na/Desian	12% \$	247,93
Toward 664A Implementation Grants		1100	onstruction	Linginocini	Utilities**	\$	- 247,00
					ROW**	\$	-
		Constru	ction Engin	eerina/Ma		15% \$	309,91
		2 5/10/14			ated Project T		2,624,00
	*Mobilization is 10% -	+/- of the subtotal with a	minimum o				
	**To be evaluated du	ring feasibility study/desi	ian				

#### 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:

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan Fort Union Boulevard from Union Park Avenue to 3000 East

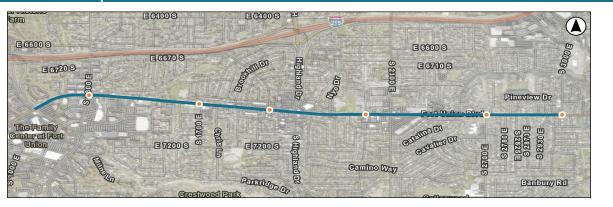
## Project Information Sheet

East Salt Lake Valley
Fort Union Boulevard from Union Park Avenue to 3000 East
Cottonwood Heights
Intersections, Roadway Departures, Impaired Driving
Medium, Low

#### **Location Description**

Roadway:	Fort Union Boulevard	Key Intersection Locations:
From:	Union Park Avenue	2700 East 1300 East
To:	3000 East	Greenfield Way Whitemore Way
Length:	2.80 miles	1700 East 3000 East

#### **Project Location Map**



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.80
Average Daily Traffic (vehicles per day)	21,849
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	6

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	2
Suspected Minor Injury Crashes (B)	16
Possible Injury Crashes (C)	23
No Injury/PDO Crashes (O)	156
Total Crashes	197
Total EPDO Crashes	961

#### Intersection Crash History

										What (	Crash T	ypes ar	e Over-	Represe	ented?	
Intersections	Signal	K	Α	в	C	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
2700 East & Fort Union Boulevard	~	1	1	3	10	7	22	1,170	~	✓			1			~
Greenfield Way & Fort Union Bou		0	1	0	7	5	13	178	✓		✓					
1700 East & Fort Union Boulevard	~	0	0	4	12	3	19	228					~			~
1300 East & Fort Union Boulevard	✓	0	2	19	60	28	109	1,321		<ul><li>✓</li></ul>			✓			✓
Whitemore Way & Fort Union Bou	~	0	1	2	7	7	17	225	✓	✓	✓		1			
3000 East & Fort Union Boulevard	✓	0	0	1	12	5	18	164				1			✓	~

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

Map ID:

8.38.2

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	1			
Bicycle (Bike)		Rear to Rear (RR)				
Motorcycle	✓	Rear to Side (RS)				
Angle		Sideswipe (SS)	<ul><li>✓</li></ul>			
Front to Rear (FR)	<ul><li>✓</li></ul>	Other/Unknown	✓			

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Fort Union Boulevard from Union Park Avenue to 3000 East WASATCH FRONT REGIONAL COUNCIL Safety Action I

#### Project Description/How is safety improved?

This project installs a raised median and manages access at driveways and minor intersection. Right-in/right-out and 3/4 access should be considered at all unsignalized intersections. Lane narrowing is recommended to facilitate a bicycle lane and promote traffic calming. Crosswalk improvements are needed at Mtn. View Park and 2115 E, to include high-visibility markings, pedestrian refuge islands, and a HAWK signal (2115 E.). Several signalized intersections should be upgraded to have flashing yellow arrow (FYA) signal heads (1300 E., Park Centre Drive, Whitmore Way, 1700 E., 2300 E., 2700 E., 3000 E.).

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
Traffic Calming - Lane Narrowing	0.68	All Crashes	2.80	MILE	\$ 39,000	\$ 109,200
Install Bicycle Lane	0.51 - 0.694	4 Bicycle	2.80	MILE	\$ 21,000	\$ 58,800
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	2.80	MILE	\$ 928,000	\$ 2,598,400
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

intersection improvement					-		-		 
	Item Description		CMF	Applicable Crashes	Quantity	Unit	ι	Init Price	Item Cost
Change a 5-section "Doghouse" to Flashing Yellow Arrow			0.75 - 0.93	Left-Turn	6.00	INT	\$	8,000	\$ 48,000
Install High Visibility Crossv	valk Markings		0.6	Pedestrian	1.00	XING	\$	2,500	\$ 2,500
Install Pedestrian Refuge Is	land		0.54	Pedestrian	2.00	EACH	\$	30,000	\$ 60,000
Change a permissive only t	o Flashing Yellow	Arrow	0.5 - 0.6	Left-Turn	1.00	INT	\$	8,000	\$ 8,000
Upgrade Existing Crosswall	k to High-Visibility	Crosswalk	0.6 - 0.75	Pedestrian	1.00	XING	\$	37,000	\$ 37,000
Install Pedestrian Hybrid Be	eacons (PHB) or H	AWK	0.453	Pedestrian	1.00	EACH	\$	200,000	\$ 200,000
Perform an Intersection Co	ntrol Evaluation ar	nd Implement	NA	All Crashes	2.00	INT	\$	225,000	\$ 450,000
Convert Existing Intersection	on to Modern Rour	ndabout	0.18 - 0.59	All Crashes	2.00	INT	\$	2,500,000	\$ 5,000,000
									\$ -
									\$ -
									\$ -
						Imp	rovem	ents Subtotal:	\$ 8,571,900
					/	Nobilizatior	n: (% +	-/-)* 10%	\$ 75,000
					Tra	affic Contr	ol: (%	+/-) 5%	\$ 428,595
				Items Not E	stimated / 0	Contingend	:y: (%	+/-) 30%	\$ 2,571,570
						Estimate	d Cons	struction Cost:	\$ 11,647,065
Local Match <sup>†</sup> :	20%	\$ 2,958,400							
<sup>†</sup> Toward SS4A Implementa	ation Grants			Prec	onstruction	Engineerii	ng/Des	sign 12%	\$ 1,397,648
						0	Utilitie	es**	\$ -
							ROW	**	\$ -
				Constru	ction Engin	eering/Mai	nagem	ent 15%	\$ 1,747,060

Estimated Project Total: \$

14,792,000

\*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**

Intersection 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:

Creek Road from Union Park Avenue to 3500 East

3/13/2024

MA

EMF

Date Prepared:

Prepared By:

Checked By:

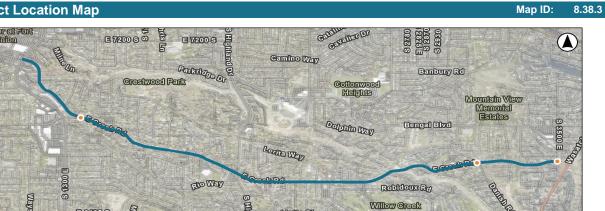
#### Project Information Sheet

GFA(s): Project Name:	East Salt Lake Valley Creek Road from Union Park Avenue to 3500 East
Jurisdiction(s):	Cottonwood Heights
Emphasis Areas: Equity Priority:	Intersections, Roadway Departures, Impaired Driving Medium, Low

#### **Location Description**

Roadway: From:	Creek Road Union Park Avenue	Key Intersection Locations: 7800 South
FIOIII.		
To:	3500 East	Danish Road
Length:	3.84 miles	3500 East

#### **Project Location Map**



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	3.84
Average Daily Traffic (vehicles per day)	9,317
Functional Classification	Major Collector
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)	6
Possible Injury Crashes (C)	5
No Injury/PDO Crashes (O)	24
Total Crashes	36
Total EPDO Crashes	308

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

What Crash T	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	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
7800 South & Creek Road		0	0	4	4	16	24	151			~		~			~
Danish Road & Creek Road		0	0	0	0	5	5	5				✓				
3500 East & Creek Road		0	0	0	0	4	4	4			~					

3,809,778

17,219,001

Creek Road from Union Park Avenue to 3500 East

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WASATCH FRONT REGIONAL COUNCIL Safety Action

Project Description/How is safety improved?

This project recommends improvements along Creek Rd to address an overrepresentation of serious injury and parked vehicle collisions: reduce posted speed limit from 30 or 35 mph to 25 mph; narrow travel lanes by widening lane and edge line pavement markings, replace on-street parking with bicycle lane; transition TWLTL to raised median; install RRFB's and high-visibility improvements at all unsignalized marked crosswalks along the corridor. The following intersection improvements are recommended to address an overrepresentation of angle, rear-end and sideswipe collisions: 7800 S/Creek Rd, Danish Rd/Creek Rd and 3500 E/Creek Rd, perform intersection control evaluations to evaluate potential roundabouts; sight distance improvements.

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**

Install a Rectangular Rapid Flashing Beacons (RRFB)         0.526         Pedestrian         6.00         XING (2)         \$         15,000         \$         90,00           Jpgrade Crosswalk to High-Visibility Crosswalk at Midblock         0.6         0.75         Pedestrian         6.00         XING (2)         \$         15,000         \$         90,00         \$         222,00         Traffic Calming - Lane Narrowing         0.68         All Crashes         2.00         MILE         \$         39,000         \$         78,000         \$         78,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         39,000         \$         33,563,55         \$         \$         -         \$         \$         -         \$         \$         1,000         \$         21,000         \$         3,563,55         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         -         \$         \$         >         \$         \$	Segment Improvements								
Install a Rectangular Rapid Flashing Beacons (RRFB)         0.526         Pedestrian         6.00         XING (2)         \$         15,000         \$         90,00           Ingrade Crosswalk to High-Visibility Crosswalk at Midblock         0.6         0.75         Pedestrian         6.00         XING (2)         \$         15,000         \$         90,00           raffic Calming - Lane Narrowing         0.68         All Crashes         2.00         MILE         \$         39,000         \$         78,000         \$         78,000         \$         27,000         \$         22,00         Fraffic Calming - Lane Narrowing         0.68         All Crashes         2.00         MILE         \$         39,000         \$         78,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         21,000         \$         31,000         \$         31,000         \$         31,000         \$         31,000         \$         31,000         \$         31,000         \$         31,000         \$         31,000         \$         \$         -         -         \$         -         \$ <td< th=""><th>Item Description</th><th>CMF</th><th>Applicable Crashes</th><th>Quantity</th><th>Unit</th><th></th><th>Unit Price</th><th></th><th>Item Cost</th></td<>	Item Description	CMF	Applicable Crashes	Quantity	Unit		Unit Price		Item Cost
Jpgrade Crosswalk to High-Visibility Crosswalk at Midblock         0.6 - 0.75         Pedestrian         6.00         XING         \$ 37,000         \$ 222,00           Iraffic Calming - Lane Narrowing         0.68         All Crashes         2.00         MILE         \$ 39,000         \$ 78,00           Install Bicycle Lane         0.51 - 0.69         Bicycle         1.00         MILE         \$ 292,000         \$ 78,00           Install Bicycle Lane         0.65         MILE         \$ 292,000         \$ 3,563,50           Install Bicycle Lane         0.65         MILE         \$ 928,000         \$ 3,563,50           Install Bicycle Lane         0.65         MILE         \$ 634,000         \$ 412,10           Install Bicycle Lane         0.65         MILE         \$ 634,000         \$ 412,10           Install Bicycle Lane         0.65         MILE         \$ 634,000         \$ 412,10           Install Bicycle Lane         0.65         MILE         \$ 634,000         \$ 412,10           Intersection Improvements         Intersection Control Evaluation and Implement         NA         All Crashes         3.00         INT         \$ 225,000         \$ 675,00           Convert Existing Intersection to Modern Roundabout         0.18 - 0.59         All Crashes         3.00         INT <td>Traffic Calming - Wider Lane Lines</td> <td>0.68</td> <td>All Crashes</td> <td>3.84</td> <td>MILE</td> <td>\$</td> <td>21,000</td> <td>\$</td> <td>80,640</td>	Traffic Calming - Wider Lane Lines	0.68	All Crashes	3.84	MILE	\$	21,000	\$	80,640
Traffic Calming - Lane Narrowing         0.68         All Crashes         2.00         MILE         \$ 39,000         \$ 78,00           nstall Bicycle Lane         0.51 - 0.69         Bicycle         1.00         MILE         \$ 21,000         \$ 21,000         \$ 21,000         \$ 3,563,55           nstall Raised Medians on Roadways with Existing TWLTL         0.29         All Crashes         3.84         MILE         \$ 928,000         \$ 3,563,55           nstall Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 3,563,55           nstall Ridewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 3,563,55           nstall Ridewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 3,563,55           nstall Ridewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 3,563,55           nstall Ridewalk or Walkways         Item Description         CMF         Applicable Crashes         Quantity         Unit         Unit Price         Item Cost           Peform an Intersection Control Evaluation and Implement         NA         All Crashes         3.00         INT         \$ 2,500,000         \$ 7,500,00 </td <td>Install a Rectangular Rapid Flashing Beacons (RRFB)</td> <td>0.526</td> <td>Pedestrian</td> <td>6.00</td> <td>XING (2)</td> <td>\$</td> <td>15,000</td> <td>\$</td> <td>90,000</td>	Install a Rectangular Rapid Flashing Beacons (RRFB)	0.526	Pedestrian	6.00	XING (2)	\$	15,000	\$	90,000
Install Bicycle Lane         0.51 - 0.69         Bicycle         1.00         MILE         \$ 21,000         \$ 21,00           Install Raised Medians on Roadways with Existing TWLTL         0.29         All Crashes         3.84         MILE         \$ 928,000         \$ 3,563,50           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,10           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,10           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,10           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,10           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 5,63,50           Intersection Improvements         Intersection Control Evaluation and Implement         NA         All Crashes         3.00         INT         \$ 250,000         \$ 7,500,000         \$ 7,500,000         \$ 7,500,000         \$ 7,500,000         \$ 7,500,000         \$ 5,700         \$ 5,700         \$ 5,700         \$ 5,700         \$ 5,700         \$ 5,700         \$ 5,700         \$ 5,700	Upgrade Crosswalk to High-Visibility Crosswalk at Midblock	0.6 - 0.75	Pedestrian	6.00	XING	\$	37,000	\$	222,000
Install Raised Medians on Roadways with Existing TWLTL         0.29         All Crashes         3.84         MILE         \$ 928,000         \$ 3,563,52           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,11           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,11           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,11           Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$ 634,000         \$ 412,11           Install Sidewalk or Walkways         Install Crashes         Insta	Traffic Calming - Lane Narrowing	0.68	All Crashes	2.00	MILE	\$	39,000	\$	78,000
Install Sidewalk or Walkways         NA         Pedestrian         0.65         MILE         \$         634,000         \$         412,10           Install Sidewalk or Walkways         Install Sidewalk or Walkways <td>Install Bicycle Lane</td> <td>0.51 - 0.69</td> <td>Bicycle</td> <td>1.00</td> <td>==</td> <td>\$</td> <td>21,000</td> <td>\$</td> <td>21,000</td>	Install Bicycle Lane	0.51 - 0.69	Bicycle	1.00	==	\$	21,000	\$	21,000
Item Description       CMF       Applicable Crashes       Quantity       Unit       Unit Price       Item Cost         Perform an Intersection Control Evaluation and Implement       NA       All Crashes       3.00       INT       \$ 225,000       \$ 675,00         Convert Existing Intersection to Modern Roundabout       0.18 - 0.59       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 2,500,000       \$ 5,000         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT	Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	3.84	MILE	\$	928,000	\$	3,563,520
Image: Second	Install Sidewalk or Walkways	NA	Pedestrian	0.65	MILE	\$	634,000	\$	412,100
Item Description       CMF       Applicable Crashes       Quantity       Unit       Unit       Unit Price       Item Cost         Perform an Intersection Control Evaluation and Implement       NA       All Crashes       3.00       INT       \$ 225,000       \$ 675,00         Convert Existing Intersection to Modern Roundabout       0.18 - 0.59       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 5,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 5,00								\$	-
Item Description       CMF       Applicable Crashes       Quantity       Unit       Unit       Unit Price       Item Cost         Perform an Intersection Control Evaluation and Implement       NA       All Crashes       3.00       INT       \$ 225,000       \$ 675,00         Convert Existing Intersection to Modern Roundabout       0.18 - 0.59       All Crashes       3.00       INT       \$ 2,500,000       \$ 7,500,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 19,000       \$ 57,00         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       \$ 5,00       \$ -         Systemic Low-Cost Countermeasures at Stop-Control Intersection       0.73 - 0.9       All Crashes       3.00       INT       <								\$	-
Item Description         CMF         Applicable Crashes         Quantity         Unit         View Cost           Perform an Intersection Control Evaluation and Implement         NA         All Crashes         3.00         INT         \$         225,000         \$         675,00           Convert Existing Intersection to Modern Roundabout         0.18 - 0.59         All Crashes         3.00         INT         \$         2,500,000         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$         7,500,00         \$								\$	-
Item DescriptionCMFApplicable CrashesQuantityUnitUnitUnit PriceItem CostPerform an Intersection Control Evaluation and ImplementNAAll Crashes3.00INT\$ 225,000\$ 675,00Convert Existing Intersection to Modern Roundabout0.18 - 0.59All Crashes3.00INT\$ 2,500,000\$ 7,500,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes\$ 0\$ 10,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control IntersectionS-\$ 10,000\$ 57,000Sys								\$	-
Item DescriptionCMFApplicable CrashesQuantityUnitUnitUnit PriceItem CostPerform an Intersection Control Evaluation and ImplementNAAll Crashes3.00INT\$ 225,000\$ 675,00Convert Existing Intersection to Modern Roundabout0.18 - 0.59All Crashes3.00INT\$ 2,500,000\$ 7,500,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes3.00INT\$ 19,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control Intersection0.73 - 0.9All Crashes\$ 0\$ 10,000\$ 57,00Systemic Low-Cost Countermeasures at Stop-Control IntersectionS-\$ 10,000\$ 57,000Sys	Intersection Improvements								
Convert Existing Intersection to Modern Roundabout         0.18 - 0.59         All Crashes         3.00         INT         \$ 2,500,000         \$ 7,500,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 19,000         \$ 57,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 19,000         \$ 57,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 9,000         \$ 57,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 9,000         \$ 57,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 9,000         \$ 57,00           Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 9,000         \$ 57,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000         \$ 9,000		CMF	Applicable Crashes	Quantity	Unit		Unit Price		Item Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection         0.73 - 0.9         All Crashes         3.00         INT         \$ 19,000         \$ 57,00           All Crashes         3.00         INT         \$ 19,000         \$ 57,00	Perform an Intersection Control Evaluation and Implement	NA	All Crashes	3.00	INT	\$	225,000	\$	675,000
Improvements Subtotal:       \$       -       \$       \$       -       \$       \$       -       \$       \$       -       \$       \$       -       \$       \$       -       \$       \$       \$       -       \$ <td>Convert Existing Intersection to Modern Roundabout</td> <td>0.18 - 0.59</td> <td>All Crashes</td> <td>3.00</td> <td>INT</td> <td>\$</td> <td>2,500,000</td> <td>\$</td> <td>7,500,000</td>	Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	3.00	INT	\$	2,500,000	\$	7,500,000
Image: Second	Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	3.00	INT	\$	19,000	\$	57,000
Image: Second								\$	-
Image: Second								\$	-
Image: Second								\$	-
Image: Second									-
Improvements         Subtoal:         \$         -           Improvements         Subtoal:         \$         12,699,20           Mobilization:         (% +/-)*         10%         \$         75,00									-
Improvements         \$         -           Mobilization:         (% +/-)*         10%         \$         75,00									-
Improvements Subtotal: \$ 12,699,20 Mobilization: (% +/-)* 10% \$ 75,00								\$	-
Improvements Subtotal: \$ 12,699,20 Mobilization: (% +/-)* 10% \$ 75,00								\$	-
Mobilization: (% +/-)* 10% \$ 75,00			1		Imp	rove	ments Subtotal:		12,699,260
				1					75.000
								+	634,963

Traffic Control: (% +/-) 5% Items Not Estimated / Contingency: (% +/-) 30%

Estimated Construction Cost: \$

Local Match<sup>†</sup>: 20% <sup>†</sup> Toward SS4A Implementation Grants

\$

4,373,800

Preconstruction Engineering/Design 12% 2,066,280 Utilities\*' - \$ ROW\*\* ¢ Construction Engineering/Management 15% 2,582,850 21 869 000 Estimated Project Total: \$

\*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
Safe Routes to School
Update or Add Curb Ramps at Marked Crosswalks

#### Disclaimer:

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Creek Road from Union Park Avenue to 3500 East

#### ADDITIONAL INFORMATION

This project recommends the following segment improvements along Creek Rd to address an overrepresentation of serious injury and parked vehicle collisions:

-Lower speed limit from 30 or 35 mph to 25 mph

-Narrow the travelled way by widening lane and edge lines along the full segment and removing the on-street parking between 3500 E and Highland Dr, repurposing that space for bicycle lanes. -TWLTL to Median

- Twich to integrate
 - To lower speed of vehicles, add RRFB's and high-visibility improvements at all unsignalized marked crosswalks along the corridor.
 The following intersection improvements are also recommended to address an overrepresentation of angle, rear-end and sideswipe collisions:
 -7800 S/Creek Rd: Intersection control evaluation to evaluate options for addressing intersection offset, including potential roundabout; Sight distance improvements.
 -Danish Rd/Creek Rd: Intersection control evaluation to evaluate options for addressing intersection offset, including potential roundabout; Sight distance improvements.
 -3500 E/Creek Rd: Intersection control evaluation to evaluate potential roundabout; Sight distance improvements.

#### **Project Information Sheet**

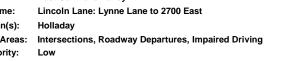
GFA(s):	East Salt Lake Valley
Project Name:	Lincoln Lane: Lynne Lane to 2700 East
Jurisdiction(s):	Holladay
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Low

#### **Location Description**

Roadway: From: To: Length:

Lincoln Ln Lynne Ln 2700 E 0.96 miles

#### **Project Location Map**



# Key Intersection Locations:

2300 East

## Olympus Senier High School $(\mathbf{A})$ Suada Dr 10 Olympus Dr Saliara Dr Melony Dr Panotama Way

#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	0.96
Average Daily Traffic (vehicles per day)	4,172
Functional Classification	Minor Collector
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	1

#### 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)	0
No Injury/PDO Crashes (O)	7
Total Crashes	9
Total EPDO Crashes	123

#### 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
2300 East & Lincoln Lane		0	0	0	0	4	4	4				1				✓
	_															L
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	_															<u> </u>
	_															┝───
	_															
																-
																<b></b>

Lincoln Lane: Lynne Lane to 2700 East

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

Map ID:

8.39.1

	1
Why Was This Location Identified?	
Composite Safety Score	✓
Historic Crashes	- ✓

	L
Critical Crash Rate Differential	Ī
Crash Profile Risk Score	I
usRAP - Star Rating (Veh, Ped, Bike)	I
Local Street Assessment	I

What Crash Types are Over-Represented?							
Fatal Head On (HO)							
Serious Injury	1	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					

Lincoln Lane: Lynne Lane to 2700 East

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved?

This project recommends the following segment improvements along Lincoln Ln to address an overrepresentation of serious injury and parked vehicle collisions: driver speed feedback signs at multiple locations along the segment; wider lane pavement marking lines; RRFB's, high visibility improvements and raised crossings at existing unsignalized marked crosswalks. It is also recommended that high visibility crossing improvements be added to the Lincoln Ln/2300 E intersection to further encourage slower speeds and pedestrian visibility.

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	4.00	EACH	\$ 10,000	\$ 40,000
Install a Rectangular Rapid Flashing Beacons (RRFB)	0.526	Pedestrian	2.00	XING (2)	\$ 15,000	\$ 30,000
Upgrade Crosswalk to High-Visibility Crosswalk at Midblock	0.6 - 0.75	Pedestrian	2.00	XING	\$ 37,000	\$ 74,000
Traffic Calming - Wider Lane Lines	0.68	All Crashes	0.96	MILE	\$ 21,000	\$ 20,160
Install Raised Crosswalk	NA	Pedestrian	2.00	EACH	\$ 71,000	\$ 142,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Uni	t Price		Item Cost
Install High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	2.00	XING	\$	36,000	\$	72,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovemen	ts Subtotal:	\$	378,160
				Mobilizatior				37,820
				affic Contr				18,908
		Items Not E	stimated / 0	Contingend	:y: (% +/-	) 30%	\$	113,448
	_			Estimate	d Constru	ction Cost:	\$	548,336
Local Match <sup>†</sup> : 20% \$ 139,400								
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Engineerii	ng/Desigr	ז 12%	\$	65,800
				-	Utilities*	*	\$	-
					ROW**		\$	-
		Constru	ction Engin	eering/Mai	nagemen	t 15%	\$	82,250
			-	Estim	ated Pro	ject Total:	\$	697,000
*Mobi	lization is 10% +/-	of the subtotal with a	minimum o	of \$2,500 a	ind a max	kimum of \$7	75,000	)
**To b	be evaluated during	g feasibility study/desi	ign					

#### Additional Potential Improvements

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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:

Use Restricted 23 U.S.C. § 407

#### Lincoln Lane: Lynne Lane to 2700 East

#### ADDITIONAL INFORMATION

This project recommends the following segment improvements along Lincoln Ln to address an overrepresentation of serious injury and parked vehicle

collisions (slow speeds): -Driver speed feedback signs at multiple locations along the segment

-Wider lane lines

-RRFB's, high visibility improvements and raised crossings at existing unsignalized marked crosswalks.

The following intersection improvements are recommended at Lincoln Ln/2300 E: -High visibility pedestrian crossing (collisions are too low to be indicative of specific issue)

#### Use Restricted 23 U.S.C. § 407

8.39.2.1

Highland Drive from 3000 South to SR 152

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	Highland Drive from 3000 South to SR 152
Jurisdiction(s):	Holladay, Millcreek
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium, Low

#### **Location Description**

Roadway: From: To: Length:

Highland Drive 3000 South SR 152 4.72 miles

Key Intersection Locations: Walker Lane Spring Lane Murray Hollday Boulevard

Siggard Drive Crescent Drive 3010 South

#### **Project Location Map**



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	4.72
Average Daily Traffic (vehicles per day)	21,190
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	6

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	4
Suspected Serious Injury Crashes (A)	6
Suspected Minor Injury Crashes (B)	16
Possible Injury Crashes (C)	41
No Injury/PDO Crashes (O)	130
Total Crashes	197
Total EPDO Crashes	5,068

#### Intersection Crash History

								1		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
Walker Lane & Highland Drive	~	0	1	0	10	1	12	208	1			1				~
Spring Lane & Highland Drive	~	0	0	3	11	4	18	196				1				√
Murray Hollday Boulevard & Highl		0	1	11	22	14	48	603				~				
Siggard Drive & Highland Drive	~	0	0	2	8	4	14	139		✓		1				
Crescent Drive & Highland Drive	✓	0	0	0	9	2	11	104				1				
3010 South & Highland Drive		0	0	2	5	2	9	103				✓				

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	1	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)	1	Other/Unknown				

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

Map ID:

Highland Drive from 3000 South to SR 152

#### Marchine,

WASATCH FRONT REGIONAL COUNCIL Safety Action I

#### Project Description/How is safety improved?

This project installs a raised median and manages access at driveways and minor intersections. Right-in/right-out and 3/4 access should be considered at all unsignalized locations. Crosswalk improvements are needed at Siggard Drive and Oakwood Elementary to include pedestrian refuge islands and a HAWK signal (Oakwood Elementary). Several signalized intersections should be upgraded to flashing yellow arrow (FYA) signal heads (3300 S., 3440 S., Siggard Dr., 3900 S., Holladay Blvd, 4500 S., 4830 S., 5600 S., Van Winkle) and retroreflective backplates (Murray Holladay Dr., 4830 S., Meadowmoor Dr.).

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**







Medians and Pedestrian Refuge Islands in Urban & Suburban Areas

Pedestrian Hybrid Beacons

#### **Opinion of Probable Construction Cost**

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Traffic Calming - Medians (Back-To-Back Curb)	0.68	All Crashes	0.75	MILE	\$ 264,000	\$ 198,000
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	3.97	MILE	\$ 928,000	\$ 3,684,160
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit F	rice	ľ	tem Cost
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	B Left-Turn	9.00	INT	\$	8,000	\$	72,000
Install Pedestrian Refuge Island	0.54	Pedestrian	2.00	EACH	\$	30,000	\$	60,000
Install Retroreflective Backplates/Boarders	0.85	All Crashes	27.00	EACH	\$	275	\$	7,425
Install Pedestrian Hybrid Beacons (PHB) or HAWK	0.453	Pedestrian	1.00	EACH	\$	200,000	\$	200,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovements	Subtotal:	\$	4,221,585
					n: (% +/-)*	10%	\$	75,000
			Tra	affic Contr	ol: (% +/-)	5%	\$	211,079
		Items Not E	stimated / 0	Contingend	:y: (% +/-)	30%	\$	1,266,476
				Estimate	d Construct	ion Cost:	\$	5,774,140
Local Match <sup>†</sup> : 20% \$ 1,466,800								
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Engineeri	ng/Design	12%	\$	692,897
					Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eering/Ma	nagement	15%	\$	866,121

Estimated Project Total: \$ 7,334,000 \*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:

#### Use Restricted 23 U.S.C. § 407

2300 East from 3000 South to Lincoln Lane

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	2300 East from 3900 South to Lincoln Lane
Jurisdiction(s):	Holladay
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Low

#### **Location Description**

Roadway: From: To: Length:

2300 East 3900 South Lincoln Lane 0.34 miles

**Project Location Map** 

Key Intersection Locations: Suada Drive Lincoln Lane 3900 South

> 8.39.3 Map ID:



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	0.34
Average Daily Traffic (vehicles per day)	12,719
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)	0
Suspected Minor Injury Crashes (B)	1
Possible Injury Crashes (C)	2
No Injury/PDO Crashes (O)	14
Total Crashes	17
Total EPDO Crashes	59

#### Intersection Crash History

	,															
									What Crash Types are Over-Represe						ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
Suada Drive & 2300 East		0	0	0	3	0	3	34		<ul><li>✓</li></ul>		✓		✓		
incoln Lane & 2300 East	<ul> <li>✓</li> </ul>	0	0	5	8	2	15	204		<ul><li>✓</li></ul>		✓		✓		
3900 South & 2300 East	1	0	0	6	23	10	39	405		<ul><li>✓</li></ul>		✓	✓	✓		
																L

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						

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

2300 East from 3000 South to Lincoln Lane

have a the second

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved? This project is focused on systemic bicycle and pedestrian improvements near Olympus High School. These improvements include driver feedback speed limit signs,

traffic calming through lane narrowing and wider pavement marking lines, striping a bicycle lane, and high-visibility crosswalk markings. Also included in this project is signal upgrades at Lincoln Lane to have flashing yellow arrows and retroreflective backplates.

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**



notion Imp





Crosswalk Visibility Enhancements

#### **Opinion of Probable Construction Cost**

Segment Improvements							
Item Description		CMF Applicable Crashes		Unit	Unit Price		Item Cost
Install Bicycle Lane	0.51 - 0.694	Bicycle	0.34	MILE	\$	21,000	\$ 7,140
Traffic Calming - Lane Narrowing	0.68	All Crashes	0.34	MILE	\$	39,000	\$ 13,260
Install Driver Feedback Speed Limit Signs	NA	All Crashes	2.00	EACH	\$	10,000	\$ 20,000
Traffic Calming - Wider Lane Lines	0.68	All Crashes	0.34	MILE	\$	21,000	\$ 7,140
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -

Intersection Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Pri	се		Item Cost
Install High Visibility Crosswalk Markings	0.6	Pedestrian	4.00	XING	\$	2,500	\$	10,000
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	1.00	INT	\$	8,000	\$	8,000
Install Retroreflective Backplates/Boarders	0.85	All Crashes	8.00	EACH	\$	275	\$	2,200
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovements Su	ubtotal:	\$	67,740
			1	Mobilization	n: (% +/-)*	10%	\$	6,780
			Tr	affic Contr	ol: (% +/-)	5%	\$	3,387
		Items Not E	stimated / 0	Contingend	sy: (% +/-)	30%	\$	20,322
				Estimate	d Construction	n Cost:	\$	98,229
Local Match <sup>†</sup> : 20% \$ 25,000								
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Engineeri	ng/Design	12%	\$	11,787
				-	Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eering/Ma	nagement	15%	\$	14,734
				Ēstin	nated Project	Total:	\$	125,000
*Mobilizatio	on is 10% +/-	of the subtotal with a	minimum o	of \$2,500 a	and a maximu	m of \$7	5,000	)
**To be eva	aluated during	g feasibility study/desi	ign					
		-						

#### 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:	Consider Green Bicycle Lanes
Additional Improvements #4:	
Additional Improvements #5:	

#### Disclaimer:

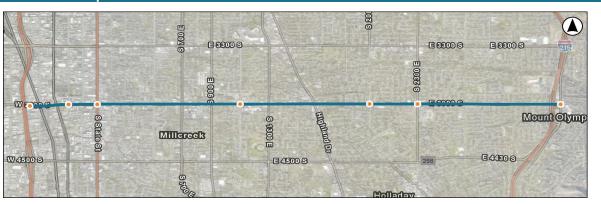
#### **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	3900 South from I-15 to Wasatch Boulevard
Jurisdiction(s):	Millcreek, Holladay, South Salt Lake
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	High, Medium

#### **Location Description**

Roadway:	3900 Sou	uth		
From:	I-15			
To:	Wasatch	Boulevard		
Length:	5.55	miles		

#### **Project Location Map**



Key Intersection Locations:

2300 East

State Street 1100 East

300 West

West Temple Wasatch Boulevard

#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	5.55
Average Daily Traffic (vehicles per day)	20,168
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
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)	5
Suspected Minor Injury Crashes (B)	17
Possible Injury Crashes (C)	29
No Injury/PDO Crashes (O)	183
Total Crashes	235
Total EPDO Crashes	2,248

#### Intersection Crash History

								What	Crash T	vpes ar	e Over-	Represe	ented?			
Intersections	Signal	К	Α	В	С	0	Total	EPDO	K/A			FR	HO	PV	RR/RS	SS
300 West & 3900 South		0	0	2	7	4	13	128								
West Temple & 3900 South	✓	0	0	7	19	15	41	387			✓	✓				
Wasatch Boulevard & 3900 South	~	0	2	6	34	23	65	731	~		~					
2300 East & 3900 South	✓	0	0	6	23	10	39	405		✓		1	✓	<b>√</b>		
State Street & 3900 South	~	0	3	37	110	106	256	2,461			✓		✓			
1100 East & 3900 South	✓	0	0	5	18	17	40	333			1					1
2000 East & 3900 South	~	0	0	6	5	5	16	195				~				

3900 South from I-15 to Wasatch Boulevard

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

2000 East

Map ID:

8.40.1.1

Why Was This Location Identified?	
Composite Safety Score	✓
Historic Crashes	<ul> <li>✓</li> </ul>
Critical Crash Rate Differential	✓
Crash Profile Risk Score	<ul> <li>✓</li> </ul>
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	1			
Bicycle (Bike)		Rear to Rear (RR)				
Motorcycle		Rear to Side (RS)				
Angle	✓	Sideswipe (SS)	✓			
Front to Rear (FR)	1	Other/Unknown	1			

3900 South from I-15 to Wasatch Boulevard

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Project Description/How is safety improved?

This project systemically mitigates active transportation, angled, and left-turn crashes. The project installs medians with pedestrian refuge islands where no median is currently present. All unsignalized intersections and accesses should be considered for right-in/right-out or 3/4 access. Bicycle lanes are proposed from Arroyo Road to 2300 East with additional bicycle treatments at Wasatch Blvd. & 2300 East. High visibility crosswalks (Hillside Ln, 2250 E.) and leading pedestrian intervals (Highland Dr., 1100 E., 900 E.) are also proposed. Additional intersection are recommended for upgrades to include flashing yellow arrow signal heads (Wasatch Blvd., Highland Dr., 1300 E., 1100 E., 900 E.) State St., Main St., West Temple, 210 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**











Crosswalk Visibility Enhancements

15% \$

Estimated Project Total: \$

962,858

8,153,000

Construction Engineering/Management

#### **Opinion of Probable Construction Cost**

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Medians and Pedestrian Refuge Islands in Urban Areas	0.44	Pedestrian	4.84	LE (URBA	\$ 958,000	\$ 4,636,720
Install Bicycle Lane	0.51 - 0.694	Bicycle	0.98	MILE	\$ 21,000	\$ 20,580
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improver	ments								
	Item Descripti	on	CMF	Applicable Crashes	Quantity	Unit	Unit P	rice	tem Cost
Change a 5-section "D	a 5-section "Doghouse" to Flashing Yellow Arrow 0.75 - 0.93 Left-Turn 1.00 INT \$ 8,000						8,000	\$ 8,000	
Add Bicycle Treatment	ts at Intersections		NA	All Crashes	2.00	INT	\$	9,000	\$ 18,000
Install High Visibility Cr	rosswalk Markings		0.6	Pedestrian	2.00	XING	\$	2,500	\$ 5,000
Include a Leading Pede	estrian Interval (LPI		0.87	Pedestrian	1.00	INT	\$	3,000	\$ 3,000
Change a permissive of	only to Flashing Yell	ow Arrow	0.5 - 0.6	Left-Turn	1.00	INT	\$	8,000	\$ 8,000
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
						Imp	rovements S	Subtotal:	\$ 4,699,300
							n: (% +/-)*	10%	\$ 75,000
					Tra	affic Contro	ol: (% +/-)	5%	\$ 234,965
				Items Not E	stimated / C	Contingenc	:y: (% +/-)	30%	\$ 1,409,790
						Estimated	d Construction	on Cost:	\$ 6,419,055
Local Match <sup>†</sup> :	20%	\$ 1,630,600							 
<sup>†</sup> Toward SS4A Implen	nentation Grants		Preconstruction Engineering/Design 12%					\$ 770,287	
							Utilities**		\$ -
							ROW**		\$ -

\*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:

#### Use Restricted 23 U.S.C. § 407

Highland Drive from 3000 South to SR 152

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

## **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	Highland Drive from 3000 South to SR 152
Jurisdiction(s):	Millcreek, Holladay
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium, Low

#### **Location Description**

Roadway: From: To: Length:

Highland Drive 3000 South SR 152 4.72 miles

#### Key Intersection Locations: Walker Lane Spring Lane Murray Hollday Boulevard

Siggard Drive Crescent Drive 3010 Sc

#### **Project Location Map**



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	4.72
Average Daily Traffic (vehicles per day)	21,190
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	6

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	4
Suspected Serious Injury Crashes (A)	6
Suspected Minor Injury Crashes (B)	16
Possible Injury Crashes (C)	41
No Injury/PDO Crashes (O)	130
Total Crashes	197
Total EPDO Crashes	5,068

#### Intersection Crash History

intersection crash history																
										What	Crash T	vpes ar	e Over-	Represe	ented?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
Walker Lane & Highland Drive	~	0	1	0	10	1	12	208	~			1				√
Spring Lane & Highland Drive	✓	0	0	3	11	4	18	196				✓				√
Murray Hollday Boulevard & Highl	~	0	1	11	22	14	48	603				✓				
Siggard Drive & Highland Drive	✓	0	0	2	8	4	14	139		✓		1				
Crescent Drive & Highland Drive	~	0	0	0	9	2	11	104				~				
3010 South & Highland Drive		0	0	2	5	2	9	103				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)	1
Local Street Assessment	

What Crash Types are Over-Represented?					
Fatal	>	Head On (HO)			
Serious Injury	1	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)	1	Other/Unknown			

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

Map ID:

8.40.2.1

Highland Drive from 3000 South to SR 152

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved?

This project installs a raised median and manages access at driveways and minor intersections. Right-in/right-out and 3/4 access should be considered at all unsignalized locations. Crosswalk improvements are needed at Siggard Drive and Oakwood Elementary to include pedestrian refuge islands and a HAWK signal (Oakwood Elementary). Several signalized intersections should be upgraded to flashing yellow arrow (FYA) signal heads (3300 S., 3440 S., Siggard Dr., 3900 S., Holladay Blvd, 4500 S., 4830 S., 5600 S., Van Winkle) and retroreflective backplates (Murray Holladay Dr., 4830 S., Meadowmoor Dr.).

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.

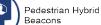
#### **Proposed Proven Safety Countermeasures**







Medians and Pedestrian Refuge Islands in Urban & Suburban Areas



#### **Opinion of Probable Construction Cost**

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Traffic Calming - Medians (Back-To-Back Curb)	0.68	All Crashes	0.75	MILE	\$ 264,000	\$ 198,000
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	3.97	MILE	\$ 928,000	\$ 3,684,160
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improve	ements								
	Item Descript	ion	CMF	Applicable Crashes	Quantity	Unit	Unit	Price	Item Cost
Change a 5-section "Doghouse" to Flashing Yellow Arrow			0.75 - 0.93	B Left-Turn	9.00	INT	\$	8,000	\$ 72,000
Install Pedestrian Ref	uge Island		0.54	Pedestrian	2.00	EACH	\$	30,000	\$ 60,000
Install Retroreflective	Backplates/Boarder	S	0.85	All Crashes	27.00	EACH	\$	275	\$ 7,425
Install Pedestrian Hyb	rid Beacons (PHB)	or HAWK	0.453	Pedestrian	1.00	EACH	\$	200,000	\$ 200,000
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
						Imp	rovement	s Subtotal:	\$ 4,221,585
					٨	/lobilizatior	1: (% +/-)*	10%	\$ 75,000
					Tra	affic Contr	ol: (% +/-)	5%	\$ 211,079
				Items Not E	stimated / C	Contingend	:y: (% +/-)	30%	\$ 1,266,476
						Estimate	d Construe	ction Cost:	\$ 5,774,140
Local Match <sup>†</sup> :	20%	\$ 1,466,800							
<sup>†</sup> Toward SS4A Imple	mentation Grants			Prece	onstruction	Engineeri	ng/Design	12%	\$ 692,897
						-	Utilities**		\$ -
							ROW**		\$ -

Construction Engineering/Management 15% \$

Estimated Project Total: \$

866,121

7,334,000

\*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:

1300 East from 3300 South to Murray Holladay Road

Map ID:

Date Prepared: Prepared By:

Checked By:

3/13/2024

MA EMF

8.40.3

#### **Project Information Sheet**

GFA(s): Project Name:	East Salt Lake Valley 1300 East from 3300 South to Murray Holladay Road
Jurisdiction(s):	Millcreek
Emphasis Areas: Equity Priority:	Intersections, Roadway Departures, Impaired Driving High, Medium

#### **Location Description**

Roadway:	1300 East						
From:	3300 South						
То:	Murray Holladay Road						
Length:	2.31 miles						

# Key Intersection Locations: Murray Holladay

#### **Project Location Map**



#### Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.31
Average Daily Traffic (vehicles per day)	16,016
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	1

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	5
Suspected Minor Injury Crashes (B)	5
Possible Injury Crashes (C)	20
No Injury/PDO Crashes (O)	62
Total Crashes	92
Total EPDO Crashes	869

#### Why Was This Location Identified? Composite Safety Score 1 Historic Crashes 1 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)	1	Other/Unknown					

#### Intersection Crash History

									What Crash Types are Over-Represented?							
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
Murray Holladay Road & 1300 East		1	1	4	18	17	41	1,293	✓		1			1	1	

1300 East from 3300 South to Murray Holladay Road

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Project Description/How is safety improved?

This project recommends the following improvements on 1300 E to address an overrepresentation of serious injury, angle, rear-end, parked vehicle and single vehicle collisions: TWLTL to median with pedestrian islands; reduce speed limit; install RRFB's with high visibility and raised crossings at key locations including near parks and bus stops; driver feedback speed signs; driveway consolidation where feasible. The following intersection improvements are recommended at 1300 E/Murray Holladay Road: upgrade east/west left-turn phasing heads to FYA; north/south left-turn to protected permitted (FYA); east/west right-turn lanes; advanced warning signage on west approach; on-street parking 50 ft away from intersection; curb extension to narrow north leg.

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		Unit	Unit Pri			Item Cost
Install Driver Feedback Speed Limit Signs	NA	All Crashes	6.00	EACH		10,000		60,000
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	2.31	MILE	\$ 92	28,000	\$	2,143,680
Install a Rectangular Rapid Flashing Beacons (RRFB)	0.526	Pedestrian	8.00	XING (2)	\$ 1	15,000	\$	120,000
Install Raised Crosswalk	NA	Pedestrian	8.00	EACH	\$ 7	71,000	\$	568,000
Install High-Visibility Crosswalk at Midblock Locations	0.6 - 0.75	Pedestrian	8.00	XING		36,000	\$	288,000
Corridor Access Management-Driveway Consolidation (Urban)	0.69 - 0.75	Fatal & Injury	8.00	DRIVEW	\$	7,000	\$	56,000
Traffic Calming - Bulbouts	0.68	All Crashes	1.00	EACH	\$ 3	36,000	\$	36,000
							\$	-
							\$	-
							\$	-
							\$	-
Intersection Improvements	•	•	•	•				
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Pri	ce	-	Item Cost
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93		2.00	INT	\$	8,000		16,000
Change a permissive only to Flashing Yellow Arrow	0.5 - 0.6	Left-Turn	2.00	INT	\$	,	\$	16,000
Provide Right-Turn Lanes	0.74 - 0.86		2.00	LANE			\$	300,000
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9		1.00	INT		,	\$	19,000
-)	0.10 0.0				Ŷ	-,	\$	-
							\$	
							φ \$	-
							ֆ \$	<u> </u>
							-	-
	_	-					\$	
							\$	-
							\$	-
					rovements Si		\$	3,622,680
				Mobilization		10%		75,000
				affic Contro		5%		181,134
		Items Not E	stimated / 0	0		30%	<u> </u>	1,086,804
				Estimated	d Constructio	n Cost:	\$	4,965,618
Local Match <sup>†</sup> : 20% \$ 1,261,400						_		
<sup>†</sup> Toward SS4A Implementation Grants		Prec	onstruction	Enaineerir	na/Desian	12%	\$	595,874
,				5	Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eerina/Mar		15%	-	744,843
		Constru	sasii Liigiii		ated Project			6,307,000
*Mohiliza	tion is 10% +/-	of the subtotal with a	minimum					, ,
		g feasibility study/des		, ψ <b>∠</b> ,300 a		Π ΟΙ Φ/ Ο	,000	,
Additional Potential Improvements		y reasibility study/des	iyii					
Additional Fotential 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:

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan 1300 East from 3300 South to Murray Holladay Road

#### ADDITIONAL INFORMATION

This project recommends the following segment improvements along 1300 E to address an overrepresentation of serious injury, angle, rear-end, parked vehicle and single vehicle collisions:
-TWLTL to Median
-Reduce speed limit from 40 mph to 30 mph
-Installation of RRFB's with high visibility and raised crossings at key locations across corridor, including near parks and in coordination with bus stop locations
-Driver feedback speed signs at multiple locations along the corridor
-Driveway consolidation/access management

The following intersection improvements are recommended at 1300 E/Murray Holladay Road: -Upgrade east/west left-turn phasing heads to FYA -Upgrade north/south left-turn to protected permitted (FYA) -Construct east/west right-turn lanes -Ensure on-street parking is at least 50 ft away from the intersection. -Advanced warning signage for west approach

-Curb extension to narrow north leg.

A STATISTICS AND A STATISTICS

School Area Improvements from 1000 East to 11000 South WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

# Project Information Sheet

East Salt Lake Valley
School Area Improvemnts from 1000 East to 11000 South
Sandy
Intersections, Roadway Departures, Impaired Driving
Medium

#### Location Description

Roadway: From: To: Length:

School Area Improvemnts 1000 East 11000 South 1.98 miles

#### Key Intersection Locations: 1000 East & 11000 South 1000 East & 11400 South 1300 East & 11400 South

1300 East & 11000 South

Map ID:

8.41.1

# **Project Location Map**



# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	1.98
Average Daily Traffic (vehicles per day)	11,686
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	4

# Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	2
Suspected Minor Injury Crashes (B)	2
Possible Injury Crashes (C)	3
No Injury/PDO Crashes (O)	30
Total Crashes	37
Total EPDO Crashes	296

#### Intersection Crash History

										What (	Crash T	ypes ar	e Over-	Represe	ented?	
Intersections	Signal	K	Α	в	C	0	Total	EPDO	K/A	Ped/Bike	Angle	FR	HO	PV	RR/RS	SS
1000 East & 11000 South		0	1	4	12	11	28	330	✓	✓	~					1
1000 East & 11400 South	✓	0	2	7	24	19	52	635	1	✓	✓					
1300 East & 11400 South	✓	0	2	18	38	39	97	1,059			~		✓		✓	
1300 East & 11000 South	<ul> <li>✓</li> </ul>	0	0	5	6	9	20	189			1		<ul> <li>✓</li> </ul>			
																L
																ļ

#### Date Prepared: 3/13/2024 Prepared By: JSF

Checked By: BCC

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?						
	Head On (HO)					
✓	Parked Vehicle (PV)	✓				
	Single Vehicle					
	Rear to Rear (RR)					
	Rear to Side (RS)					
✓	Sideswipe (SS)					
	Other/Unknown					
	ypes arv ✓	Head On (HO) Parked Vehicle (PV) Single Vehicle Rear to Rear (RR) Rear to Side (RS) Sideswipe (SS)				

Marchine, WASATCH FRONT REGIONAL COUNCIL

School Area Improvements from 1000 East to 11000 South

#### Project Description/How is safety improved?

Safety Action

This project includes systemic active transportation, traffic calming, and intersection improvements. Proposed with this project are median with pedestrian refuge islands, lane narrowing, and bicycle lanes in locations where currently not present. The project includes driver feedback speed limit signs, if warranted, on all four roadways. The crosswalk at Alta High School will be improved to include bulbouts and high visibility crosswalk pavement markings. Stop-controlled intersection improvements are proposed at the intersection of 11000 South/1000 East. Signalized intersection will be upgraded to included flashing yellow arrow signal heads (11400 S./1000 E., 14000 S./1300 E.).

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**







Medians and Pedestrian Refuge Islands in Urban & Suburban Areas

# **Opinion of Probable Construction Cost**

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
Install Medians and Pedestrian Refuge Islands in Urban Areas	0.44	Pedestrian	1.76	LE (URBA	\$ 958,000	\$ 1,686,080
Traffic Calming - Lane Narrowing	0.68	All Crashes	1.49	MILE	\$ 39,000	\$ 58,110
Install Bicycle Lane	0.51 - 0.694	Bicycle	1.49	MILE	\$ 21,000	\$ 31,290
Install Driver Feedback Speed Limit Signs	NA	All Crashes	8.00	EACH	\$ 10,000	\$ 80,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements							
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price		tem Cost
Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	1.00	INT	\$ 2,500,000	\$	2,500,000
Traffic Calming - Bulbouts	0.68	All Crashes	2.00	EACH	\$ 36,000	\$	72,000
Install High Visibility Crosswalk Markings	0.6	Pedestrian	1.00	XING	\$ 2,500	\$	2,500
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	2.00	INT	\$ 8,000	\$	16,000
Upgrade pedestrian push buttons to Audible Pedestrian Signals (APS)	NA	Pedestrian	3.00	INT	\$ 4,000	\$	12,000
Convert Existing Intersection to Modern Roundabout	0.18 - 0.59	All Crashes	1.00	INT	\$ 2,500,000	\$	2,500,000
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
				Imp	rovements Subtotal	\$	6,957,980
					n: (% +/-)* 10%	\$	75,000
					ol: (% +/-) 5%	-	347,899
		Items Not E	stimated / C	Contingend	cy: (% +/-) 30%	\$	2,087,394
· · · · · · · · · · · · · · · · · · ·				Estimate	d Construction Cost	\$	9,468,273
Local Match <sup>†</sup> : 20% \$ 2,405,000							
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Engineeri	ng/Design 12%	\$	1,136,193
					Utilities**	\$	-
					ROW**	\$	-
		Constru	ction Engin				1,420,241
		<b>1 1 1 1 1 1</b>			nated Project Total:		12,025,000

\*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:	Consider Installing Interactive Pedestrian Signal (IPS)
Additional Improvements #3:	
Additional Improvements #4:	
Additional Improvements #5:	

# Additional Imp 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):	East Salt Lake Valley
Project Name:	Auto Mall Drive from 10600 South to State Street
Jurisdiction(s):	Sandy
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium

## **Location Description**

Roadway: From: To: Length:

Auto Mall Drive 10600 South State Street miles 0.91

# Project Location Map

Key Intersection Locations: 10600 South Motor Park Aven 11000 South

Looation	map					
-		Costeo	A Real Provide State		Lake City Sandy	
icels		Concentro .	M 11000 8	Riverten Southts Hyundai Maad	wne le Best Western Flus Octionirce Inn Starbuck	
Buffelo V ild Wings	Quick Quack Gar Wash	Valley High School		Rational Active		Olive
- hunder fanne		S State	961		Contraction of the second s	22.

# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	0.91
Average Daily Traffic (vehicles per day)	1,000
Functional Classification	Major Collector
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)	0
Suspected Minor Injury Crashes (B)	1
Possible Injury Crashes (C)	9
No Injury/PDO Crashes (O)	26
Total Crashes	36
Total EPDO Crashes	151

# Intersection Crash History

								1	What Crash Types are Over-Represented?							
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
10600 South & Auto Mall Drive	✓	0	3	13	70	26	112	1,392								1
Motor Park Avenue & Auto Mall D		0	0	0	3	1	4	35						1		✓
11000 South & Auto Mall Drive	✓	0	0	1	4	4	9	72			~					
																<u> </u>
																<u> </u>
																L

Auto Mall Drive from 10600 South to State Street

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

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

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

Other/Unknown

Map ID: 8.41.2

Local Street Assessment

Front to Rear (FR)

Auto Mall Drive from 10600 South to State Street

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WASATCH FRONT REGIONAL COUNCIL

Safety Action Plan

#### Project Description/How is safety improved? This project recommends improvements along Auto Mall Drive to address an overrepresentation of rear-end collisions: TWLTL to raised median; reduce speed limit from 30 mph to 25 mph; driver feedback speed signs at multiple locations. The following intersection improvements are recommended to address an overrepresentation of angle, parked vehicle and sideswipe collisions: 10600 S/Auto Mall Dr, high visibility crossing improvements; Motor Park Ave/Auto Mall Dr, bulbouts on east approach, parking not allowed within 50 feet of the intersection, high visibility crossings and stop bars where needed; 11000 S/Auto Mall Dr, flashing yellow arrow left turn phasing for all approaches, high visibility crossing improvements, and left-turn lane on west approach.

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 Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	0.91	MILE	\$ 928,000	\$ 841,690
Traffic Calming - Bulbouts	0.68	All Crashes	6.00	EACH	\$ 36,000	\$ 216,000
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements												
Item Description	CMF	Applicable Crashes	Quantity	Unit	U	nit Price		Item Cost				
Change a permissive only to Flashing Yellow Arrow	0.5 - 0.6	Left-Turn	1.00	INT	\$	8,000	\$	8,000				
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	3.00	INT	\$	8,000	\$	24,000				
Provide Left-Turn Lanes	0.52 - 0.72	Rural	1.00	LANE	\$	300,000	\$	300,000				
Install High-Visibility Crosswalk	0.6 - 0.75	Pedestrian	12.00	XING	\$	36,000	\$	432,000				
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	1.00	INT	\$	19,000	\$	19,000				
							\$	-				
							\$	-				
							\$	-				
							\$	-				
							\$	-				
							\$	-				
				Imp	roveme	ents Subtotal:	\$	1,840,690				
				Mobilizatio				75,000				
				affic Contr	•	/	-	92,034				
		Items Not Es	stimated / 0	Contingena	;y: (% +	-/-) 30%	\$	552,207				
				Estimate	d Cons	truction Cost:	\$	2,559,931				
Local Match <sup>†</sup> : 20% \$ 650,400												
<sup>†</sup> Toward SS4A Implementation Grants		\$	307,192									
					Utilities	S**	\$	-				
					ROW*	*	\$	-				
		Constru	ction Engin	0	0			383,990				
	Estimated Project Total: \$ 3,252,000											
		of the subtotal with a		of \$2,500 a	ind a m	aximum of \$7	′5,00	00				
**To be e	valuated during	g feasibility study/desi	gn									

#### **Additional Potential Improvements**

Intersection 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.

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Auto Mall Drive from 10600 South to State Street

#### ADDITIONAL INFORMATION

This project recommends the following segment improvements along Auto Mall Drive to address an overrepresentation of rear-end collisions:

-TWLTL to Median

-Reduce speed limit from 30 mph to 25 mph

-Driver feedback speed signs at multiple locations along the corridor

The following intersection improvements are also recommended to address an overrepresentation of angle, parked vehicle and sideswipe collisions: -10600 S/Auto Mall Dr: Improve striping visibility, particularly for north and south approaches. Add high visibility crossing improvements on all approaches. -Motor Park Ave/Auto Mall Dr: Implement bulbouts on east approach and ensure parking is not allowed within 50 feet of the intersection. Add stop bars on minor approaches. Add high visibility crossing improvements on all approaches.

-11000 S/Auto Mall Dr: Transition to flashing Yellow Arrow for north/south/east approaches, add protected permitted for west approach. Add high visibility crossing improvements on all approaches.

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

# Project Information Sheet

GFA(s):	East Salt Lake Valley
Project Name:	9400 South from Monroe Street to SR 209
Jurisdiction(s):	Sandy
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	High, Medium

#### Location Description

Roadway:
From:
To:
Lenath:

\_ \_ . . .

9400 South Monroe Street SR 209 2.01 miles

#### Key Intersection Locations: Monroe Street 300 East State Street 700 East

Composite Safety Score Historic Crashes

Crash Profile Risk Score usRAP - Star Rating (Veh, Ped, Bike)

Local Street Assessment

Fatal

Angle Front to Rear (FR)

Serious Injury Pedestrian (Ped)

Bicycle (Bike) Motorcycle

Critical Crash Rate Differential

#### Project Location Map



# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	2.01
Average Daily Traffic (vehicles per day)	11,537
Functional Classification	Minor Arterial
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Urban
Number of Key Intersections	4

#### Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	1
Suspected Minor Injury Crashes (B)	8
Possible Injury Crashes (C)	10
No Injury/PDO Crashes (O)	57
Total Crashes	76
Total EPDO Crashes	443

#### 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
Monroe Street & 9400 South		0	0	0	4	0	4	45				1				✓
State Street & 9400 South	1	0	0	11	25	14	50	543				✓				✓
700 East & 9400 South	1	0	3	19	53	53	128	1,360			~					
300 East & 9400 South	- ✓	0	0	4	5	5	14	151		✓				✓		
																1
																l

#### 9400 South from Monroe Street to SR 209

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

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

Map ID: 8.41.3

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9400 South from Monroe Street to SR 209

No all all and the wall of the

WASATCH FRONT REGIONAL COUNCIL Safety Action I

Project Description/How is safety improved? This project installs raised medians with pedestrian refuge islands, narrows travel lanes, and installs bicycle lanes from 1700 East to SR 209. It also improves midblock

crossings at Mountain America Expo Center and Deseret Industries to include high-visibility pavement markings. The intersection at 300 East will be upgraded to include a leading pedestrian interval and flashing yellow arrow signal heads.

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**









Enhancements

# **Opinion of Probable Construction Cost**

Segment Improvements								
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price		Item Cost	
Install Medians and Pedestrian Refuge Islands in Urban Areas	0.44	Pedestrian	1.26	LE (URBA	\$	958,000	\$ 1,207,080	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	
							\$ -	

Intersection Improvements Item Description	CMF	Applicable Crashes	Quantity	Unit		Unit Price		Item Cost
Install High Visibility Crosswalk Markings	0.6	Pedestrian	1.00	XING	\$	2,500	\$	2,500
Include a Leading Pedestrian Interval (LPI)	0.87	Pedestrian	1.00	INT	\$	3,000	\$	3,000
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	1.00	INT	\$	8,000	\$	8,000
Upgrade pedestrian push buttons to Audible Pedestrian Signals (APS)	NA	Pedestrian	3.00	INT	\$	4,000	\$	12,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rover	ments Subtotal:	\$	1,232,580
				Mobilizatio			\$	75,000
				affic Contr				61,629
		Items Not E	stimated / (				•	369,774
· · · · · · · · · · · · · · · · · · ·				Estimate	d Con	nstruction Cost:	\$	1,738,983
Local Match <sup>†</sup> : 20% \$ 441,800								
<sup>†</sup> Toward SS4A Implementation Grants		Prec	onstruction	Engineeri	ng/De	esign 12%	\$	208,678
					Utiliti	ies**	\$	-
					ROV	V**	\$	-
		Constru	ction Engin	0	•			260,847
						Project Total:		2,209,000
		of the subtotal with a		of \$2,500 a	and a	maximum of \$7	5,00	0
**To be eva	aluated during	g feasibility study/desi	ign					

#### **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:	Consider Installing Interactive Pedestrian Signal (IPS)
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

10600 South from 700 East to 1300 East

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

# **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	10600 South from 700 East to 1300 East
Jurisdiction(s):	Sandy, White City
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium

# **Location Description**

Roadway: From: To: Length:

10600 South 700 East 1300 East 1.00 miles

# **Project Location Map**

Key Intersection Locations: Carnation Drive

700 East

ALLER AND DP a nerota e Statice Ave amation Dr CHILLS IN GIOGUS SI Buddlea Dr E Violet Dr S (1225 E E 0000 E 8 700 E 0 Lafayette St Lafayette St

# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	1.00
Average Daily Traffic (vehicles per day)	23,118
Functional Classification	Minor Arterial
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)	1
Possible Injury Crashes (C)	9
No Injury/PDO Crashes (O)	29
Total Crashes	40
Total EPDO Crashes	247

# 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
Carnation Drive & 10600 South	✓	0	0	1	7	2	10	104								
700 East & 10600 South	✓	1	4	24	54	49	132	2,460	1		-√		✓			
																<b></b>
																L

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	1	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)	1	Other/Unknown			

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

JSF

Map ID:

8.41.4.1

10600 South from 700 East to 1300 East

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Project Description/How is safety improved?

This project installs a raised median along the length of the corridor and manages access at driveways and unsignalized intersections to reduce head on collisions and front to rear crashes. Right-in/right-out or 3/4 access should be considered at all unsignalized driveways and unsignalized intersections. The project also upgrades signalized intersections to have flashing yellow arrow signal heads (700 East, Carnation Drive) to reduce front to rear crashes.

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**

Item Description	CMF	Applicable Crashes	Quantity	Unit	U 1	Unit Price	lt	em Cost
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	1.00	MILE	\$	928,000	\$	928,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-

Intersection Improvements	CMF	Annihashis Crashes	Oursestitut	11	lloit	Price	1	tem Cost
Item Description	-	Applicable Crashes						
Change a 5-section "Doghouse" to Flashing Yellow Arrow	0.75 - 0.93	Left-Turn	2.00	INT	\$	8,000	\$	16,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovement	s Subtotal:		944,000
				Mobilizatio				75,000
			Tr	affic Contr	ol: (% +/-)	5%	\$	47,200
		Items Not E	stimated / (	Contingend	cy: (% +/-)	30%	\$	283,200
				Estimate	d Constru	ction Cost:	\$	1,349,400
Local Match <sup>†</sup> : 20% \$ 342,8	00							
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Enaineeri	na/Desian	12%	\$	161,928
P P P P P P P P P P P P P P P P P P P				0	Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eerina/Ma		15%	\$	202,410
						ject Total:		1,714,000
*N	obilization is 10% +/-	of the subtotal with a	minimum o					
		g feasibility study/desi					2,500	
· · · · · · · · · · · · · · · · · · ·		g , otaa j, aco.	.9					

#### 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**

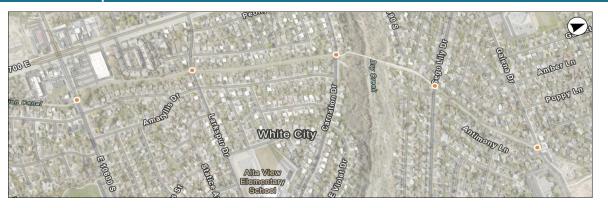
GFA(s):	East Salt Lake Valley
Project Name:	White City Trail Intersection
Jurisdiction(s):	White City
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium
Project Name: Jurisdiction(s): Emphasis Areas:	White City Trail Intersection White City Intersections, Roadway Departures, Impaired Driving

#### **Location Description**

# **Project Location Map**

Key Intersection Locations: Galena Drive Carnation Drive 10600 South Sego Lily Drive Lake Spur Drive

> Map ID: 8.42.1



# Segment Information and Safety Analysis Areas Summary

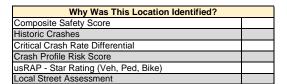
Roadway Characteristics	Value
Length (miles)	NA
Average Daily Traffic (vehicles per day)	NA
Functional Classification	NA
Roadway Ownership	NA
Urban/Rural Designation	NA
Number of Key Intersections	NA

# 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	vnes ar	e Over-	Ronros	anted?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
Galena Drive & White City Trail		0	0	0	0	1	1	1								
10600 South & White City Trail		0	0	0	0	1	1	1								
Lake Spur Drive & White City Tra		0	0	0	0	1	0	1								
Carnation Drive & White City Trai		0	0	0	0	0										
Sego Lily Drive & White City Trail		0	0	0	0	1	1	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						

#### White City Trail Intersection

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

White City Trail Intersection

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Project Description/How is safety improved?

This project includes improvements to encourage safe pedestrian crossings at various crossings of the White City Trail, including: installation of raised pedestrian crossings and high visibility crosswalk improvements at all crossings; installation of a pedestrian hybrid beacon at the crossing with 10600 S; relocation of the RRFB at the crossing with Larkspur Dr; install RRFB at the north-south crossing with Galena Dr.

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	ltem	Cost
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-
						\$	-

Intersection Improvements										
Item Description	CMF	Applicable Crashes	Quantity	Unit	Un	it Price		Item Cost		
Install Pedestrian Hybrid Beacons (PHB) or HAWK	0.453	Pedestrian	1.00	EACH	\$	200,000	\$	200,000		
Install Raised Crosswalk	NA	Pedestrian	5.00	EACH	\$	71,000	\$	355,000		
Install a Rectangular Rapid Flashing Beacons (RRFB)	0.526	Pedestrian	2.00	XING (2)	\$	15,000	\$	30,000		
Upgrade Crosswalk to High-Visibility Crosswalk at Midblock	0.6 - 0.75	Pedestrian	3.00	XING	\$	37,000	\$	111,000		
Install High-Visibility Crosswalk at Midblock Locations	0.6 - 0.75	Pedestrian	2.00	XING	\$	36,000	\$	72,000		
							\$	-		
							\$	-		
							\$	-		
							\$	-		
							\$	-		
							\$	-		
				Imp	rovemer	nts Subtotal:	\$	768,000		
			1	Nobilization	n: (% +/-,	)* 10%	\$	75,000		
Traffic Control: (% +/-) 5%								38,400		
Items Not Estimated / Contingency: (% +/-) 30%								230,400		
	Estimated Construction Cost: \$ 1,11									
Local Match <sup>†</sup> : 20% \$ 282,400										
<sup>†</sup> Toward SS4A Implementation Grants		Prece	onstruction	Engineeri	ng/Desig	n 12%	\$	133,416		
					<b>Utilities</b>	**	\$	-		
					ROW**		\$	-		
		Constru	ction Engin	eering/Ma	nagemer	nt 15%	\$	166,770		
	Estimated Project Total: \$ 1,412,00									
*Mobilizatio	*Mobilization is 10% +/- of the subtotal with a minimum of \$2,500 and a maximum of \$75,000									
**To be ev	aluated during	g feasibility study/desi	gn							
Additional Detential Improvements										

#### 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:	

#### 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

10600 South from 700 East to 1300 East

# WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

Comprehensive Safety Action Plan

# **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	10600 South from 700 East to 1300 East
Jurisdiction(s):	White City, Sandy
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Medium

# **Location Description**

Roadway: From: To: Length: 10600 South 700 East 1300 East 1.00 miles

# **Project Location Map**

Key Intersection Locations: Carnation Drive 700 East

Map ID: 8.42.2.1



# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	1.00
Average Daily Traffic (vehicles per day)	23,118
Functional Classification	Minor Arterial
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)	1
Possible Injury Crashes (C)	9
No Injury/PDO Crashes (O)	29
Total Crashes	40
Total EPDO Crashes	247

# Intersection Crash History

Composite Safety Score	- ✓	
Historic Crashes	✓	
Critical Crash Rate Differential	~	
Crash Profile Risk Score	1	
usRAP - Star Rating (Veh, Ped, Bike)	✓	
Local Street Assessment		

Why Was This Location Identified?

What Crash Types are Over-Represented?					
Fatal		Head On (HO)			
Serious Injury	1	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)	1	Other/Unknown			

										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
Carnation Drive & 10600 South	<ul> <li>✓</li> </ul>	0	0	1	7	2	10	104								
700 East & 10600 South	1	1	4	24	54	49	132	2,460	1		✓		✓			
																-

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

10600 South from 700 East to 1300 East

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WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

#### Project Description/How is safety improved?

This project installs a raised median along the length of the corridor and manages access at driveways and unsignalized intersections to reduce head on collisions and front to rear crashes. Right-in/right-out or 3/4 access should be considered at all unsignalized driveways and unsignalized intersections. The project also upgrades signalized intersections to have flashing yellow arrow signal heads (700 East, Carnation Drive) to reduce front to rear crashes.

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		it Unit Price		Item Cost
Install Raised Medians on Roadways with Existing TWLTL	0.29	All Crashes	1.00	MILE	\$	928,000	\$ 928,000		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		

Intersection Improvements Item Description	CMF	Appliachia Crashas	Quantity	Unit	Lin	it Price	1	Item Cost
		Applicable Crashes		INT			\$	
Change a 5-section "Doghouse" to Flashing Yellow Arr	ow 0.75 - 0.93	3 Left-Turn	2.00	INI	\$	8,000	ð	16,000
							¢ ¢	-
							φ	
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovemer	nts Subtotal:	\$	944,000
			1	Mobilization	n: (% +/-	)* 10%	\$	75,000
			Tr	affic Contr	ol: (% +/	<sup>(</sup> -) 5%	\$	47,200
		Items Not E	stimated / (	Contingend	:y: (% +/	-) 30%	\$	283,200
				Estimate	d Constr	uction Cost:	\$	1,349,400
Local Match <sup>†</sup> : 20% \$	342,800							
<sup>†</sup> Toward SS4A Implementation Grants		Prec	onstruction	Enaineeri	na/Desia	ın 12%	\$	161,928
,				5	Utilities		\$	-
					ROW**		\$	-
		Constru	ction Engin	eerina/Ma			\$	202,410
		00110110	<u>-</u> g			oject Total:		1,714,000
	*Mobilization is 10% +/-	of the subtotal with a	minimum o					
	**To be evaluated durin						0,00	-
		.g. cabionity cracy/aco	·					

#### 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:

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8.43.1

Emigration Canyon Road from Crestview Drive to Pinecrest Canyon Road

WASATCH FRONT REGIONAL COUNCIL Comprehensive Safety Action Plan

# **Project Information Sheet**

GFA(s):	East Salt Lake Valley
Project Name:	Emigration Canyon Road from Crestview Drive to Pincecrest Canyon Road
Jurisdiction(s):	Emigration
Emphasis Areas:	Intersections, Roadway Departures, Impaired Driving
Equity Priority:	Low

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

Map ID:

# **Location Description**

Emigration Canyon Road				
Crestview Drive				
Pincecrest Canyon Road				
5.96 miles				

#### Key Intersection Locations:

# **Project Location Map**



# Segment Information and Safety Analysis Areas Summary

Roadway Characteristics	Value
Length (miles)	5.96
Average Daily Traffic (vehicles per day)	3,901
Functional Classification	Major Collector
Roadway Ownership	Federal Aid - Local
Urban/Rural Designation	Rural
Number of Key Intersections	0

# Segment Crash History

Crash History (2018 - 2022)	# of crashes
Fatal Crashes (K)	0
Suspected Serious Injury Crashes (A)	6
Suspected Minor Injury Crashes (B)	13
Possible Injury Crashes (C)	10
No Injury/PDO Crashes (O)	46
Total Crashes	75
Total EPDO Crashes	1,012

# 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	1	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			

								1		What	Crach T	vnes ar	e Over-	Ponrosa	onted?	
Intersections	Signal	K	Α	В	С	0	Total	EPDO	K/A	Ped/Bike		FR	HO	PV	RR/RS	SS
	- g			_	-	-					<del>.</del>					
																<u> </u>
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WASATCH FRONT REGIONAL COUNCIL

Emigration Canyon Road from Crestview Drive to Pinecrest Canyon Road

# Project Description/How is safety improved?

Safety Action Plan

This project recommends improvements along Emigration Canyon Road between Crestview Drive and Pinecrest Canyon Road: center-line rumble strips; improvements to curves including upgraded curve signage, high-friction surface treatment at horizontal curve, and in-lane curve warning markings; and various visibility, sight distance, and advance warning improvements at all minor roadways intersecting with Emigration Canyon Road along this segment.

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



Roadside Design Improvements at Curves

# **Opinion of Probable Construction Cost**

Segment Improvements						
Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit Price	Item Cost
			5.96			\$ -
Install and/or Upgrade Curve Signage to Enhanced Delineations	0.4 - 0.852	All Crashes	4.00	CURVE	\$ 2,000	\$ 8,000
Install High Friction Surface Treatment (HFST) on Curve	0.515	Fatal & Injury	4.00	CURVE	\$ 53,000	\$ 212,000
Install In-Lane Curve Warning Pavement Markings	0.616 - 0.65	All Crashes	4.00	CURVE	\$ 3,000	\$ 12,000
Install Centerline Rumble Strips	0.36 - 0.56	Head-on (FI)	5.96	MILE	\$ 5,000	\$ 29,800
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -

Intersection Improvements

Item Description	CMF	Applicable Crashes	Quantity	Unit	Unit	Price	lte	m Cost
Systemic Low-Cost Countermeasures at Stop-Control Intersection	0.73 - 0.9	All Crashes	10.00	INT	\$	19,000	\$	190,000
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
							\$	-
				Imp	rovements	Subtotal:	\$	451,800
			1	Nobilizatior	n: (% +/-)*	10%	\$	45,180 22,590
	Traffic Control: (% +/-) 5%							
		Items Not E	stimated / 0	Contingenc	y: (% +/-)	30%	\$	135,540
				Estimated	d Construc	tion Cost:	\$	655,110
Local Match <sup>†</sup> : 20% \$ 166,400								
<sup>t</sup> Toward SS4A Implementation Grants		Prece	onstruction	Enaineerii	na/Desian	12%	\$	78,613
,				<b>J</b>	Utilities**		\$	-
					ROW**		\$	-
		Constru	ction Engin	eering/Mai		15%	\$	98,267
			0		ated Proje	ect Total:	\$	832,000
*Mohilizati	on is 10% +/-	of the subtotal with a	minimum c					

\*\*To be evaluated during feasibility study/design

#### Additional Potential Improvements

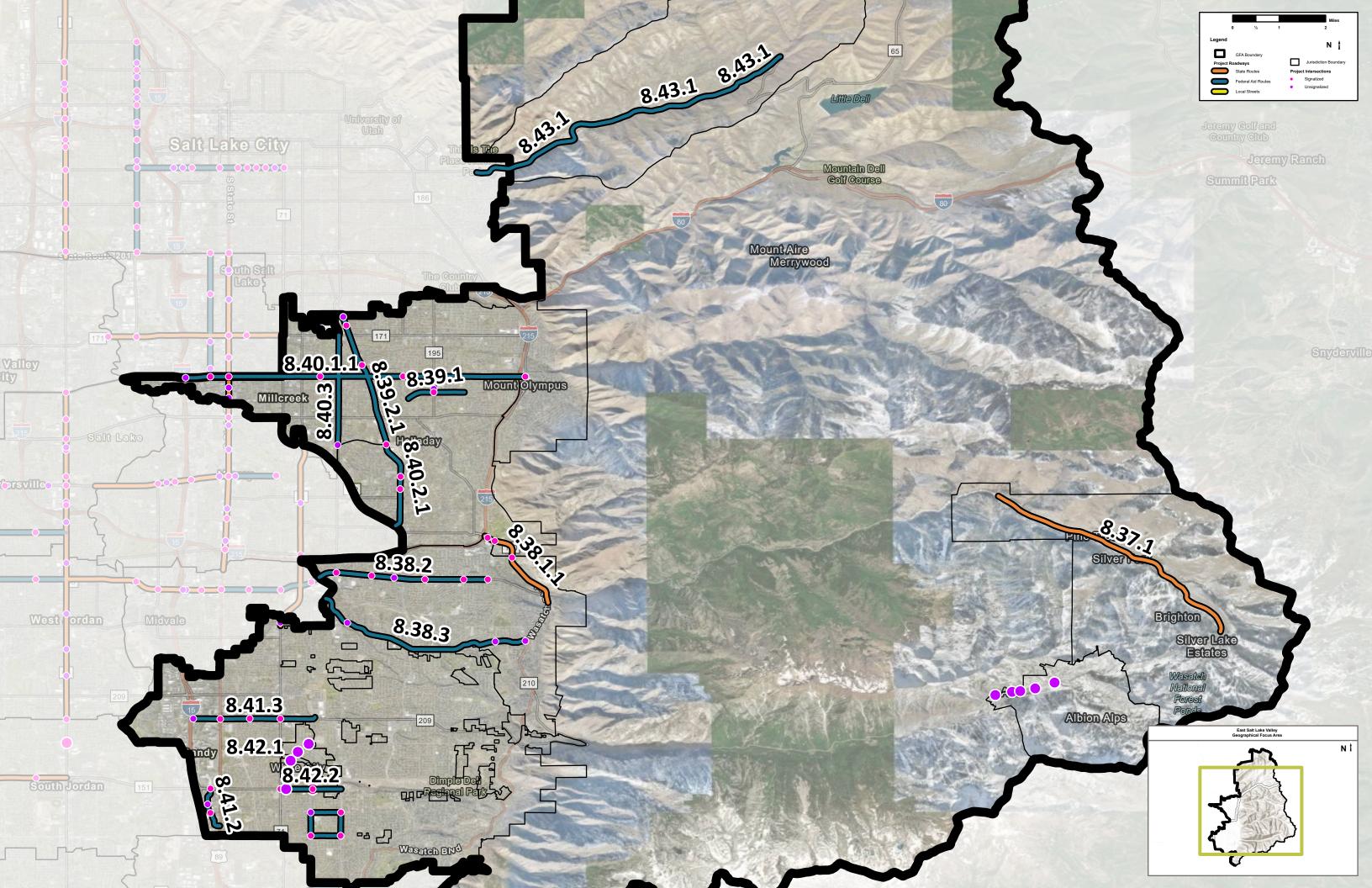
Additional safety improvements could be considered that were not included due to availability of data, need for site-specific information, and/or agency/jurisdiction input. Potential additional countermeasures are listed below. Refer to the *Countermeasure Toolbox* for a complete list of safety countermeasures.

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

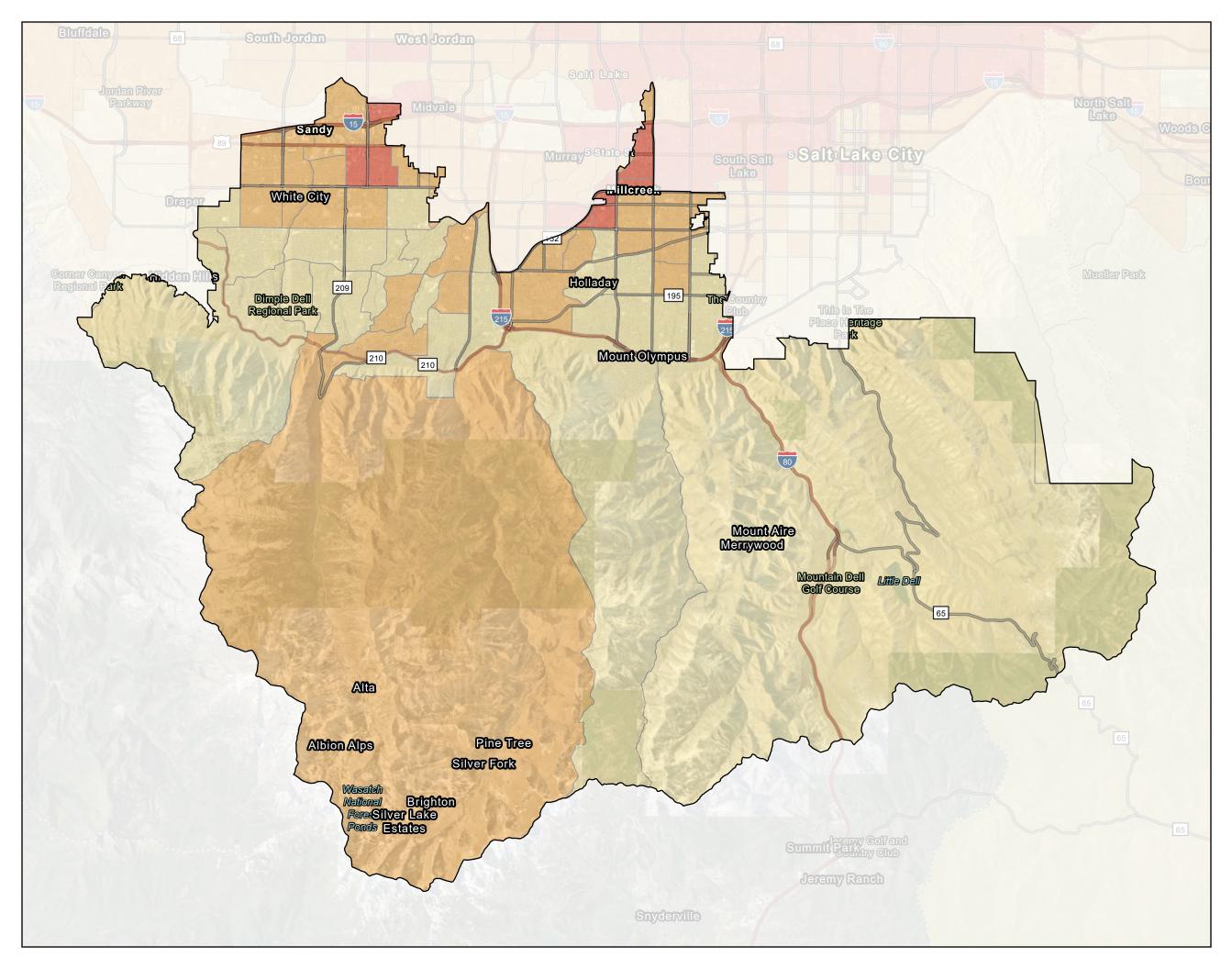
#### Disclaimer:

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# EAST SALT LAKE VALLEY CASE STUDY PROJECT LOCATION MAP



# EAST SALT LAKE VALLEY EQUITY INDEX MAP



# East Salt Lake Valley Equity Need Areas High Medium Low