

11000 South & 1000 East Intersection Study

August 18, 2026



Study Overview

- Existing Conditions
- The Safe System Approach
- Safety Analysis
- Signal Warrant Analysis
- Traffic & Emissions Analysis
- Alternatives Comparison
- Supplemental Treatments
- Conclusions and Recommendations



Existing Conditions

- All-Way Stop Control
- 35 mph Speed Limit
- Major Collectors

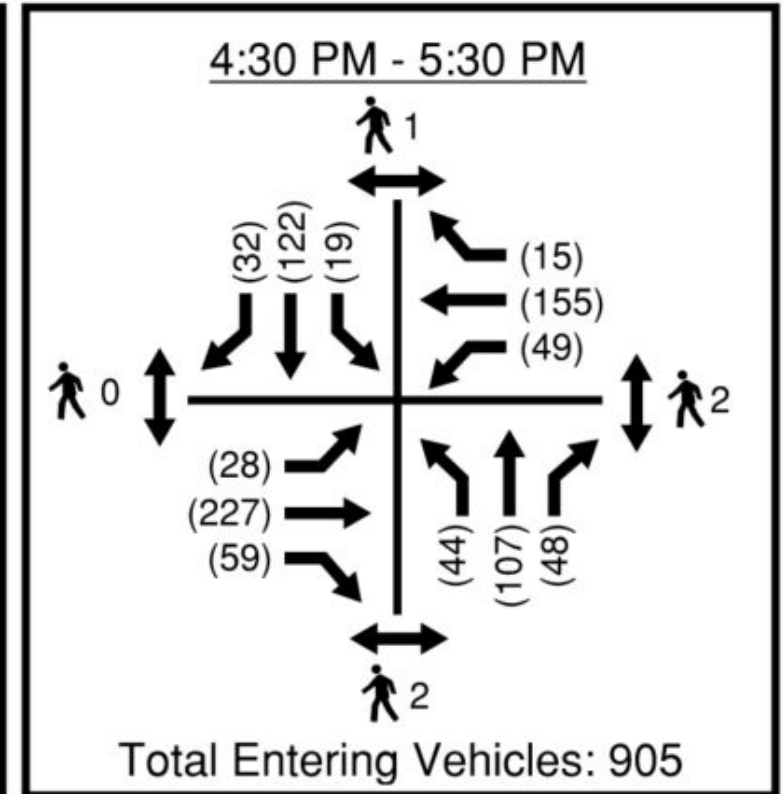
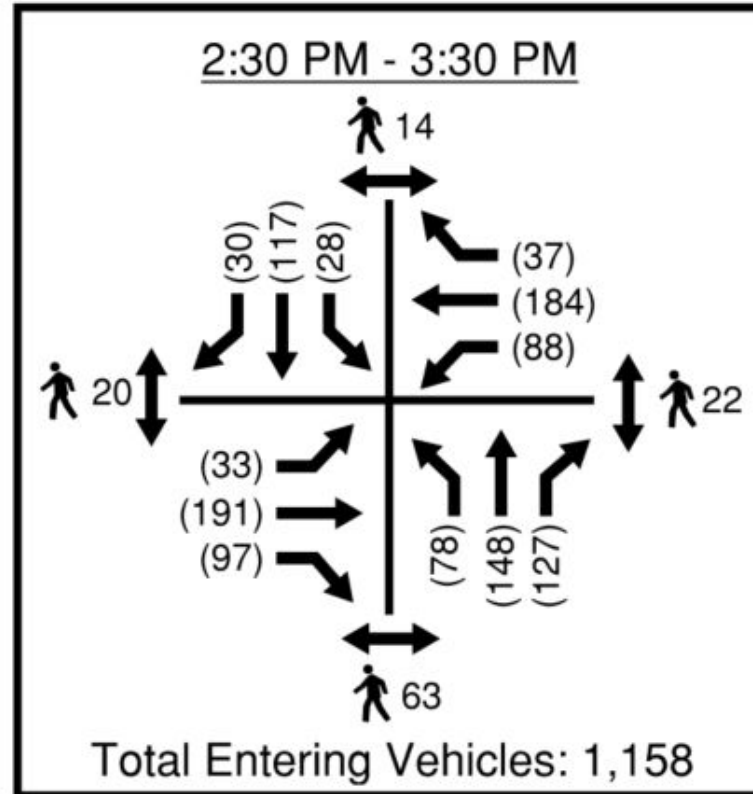
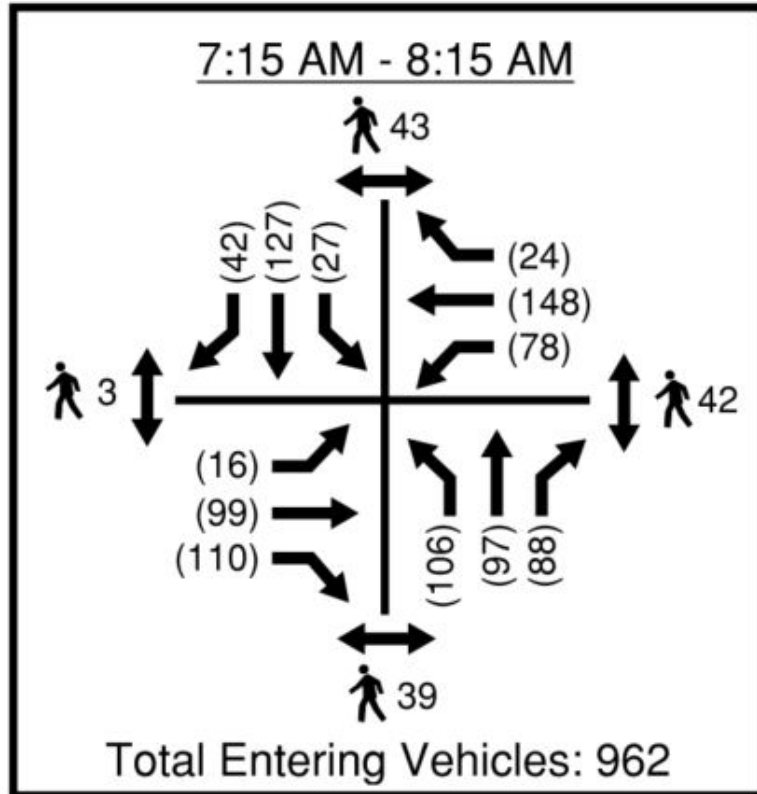


Existing Conditions

- Turning Movement Count Data Collection
 - Thursday, March 12, 2026
 - School Day
 - Good Weather
 - 7:00 AM to 7:00 PM
 - Peak Hours
 - 7:15-8:15 AM
 - 2:30-3:30 PM
 - 4:30-5:30 PM



Existing Conditions



Existing Conditions

- Crash History

Year	All Crashes		Pedestrian Crashes		Correctable by Signal or Roundabout (Angle Crashes)	
	Total	Severe	Total	Severe	Total	Severe
2020	3	0	0	0	2	0
2021	2	0	0	0	1	0
2022	3	0	1	0	1	0
2023	7	0	0	0	3	0
2024	4	0	0	0	4	0
2025*	2	0	0	0	1	0
2026*	1	1	1	1	0	0
Total:	22	1	2	1	12	0

*2025 and 2026 data may not be fully validated

Safe System Approach



Safe System Approach

Traditional approach

Safe System approach

Prevent crashes	→	Prevent death and serious injuries
Improve human behavior	→	Design for human mistakes/limitations
Control speeding	→	Reduce system kinetic energy
Individuals are responsible	→	Share responsibility
React based on crash history	→	Proactively identify and address risks

Safe System Approach

Safe System Roadway Design Hierarchy

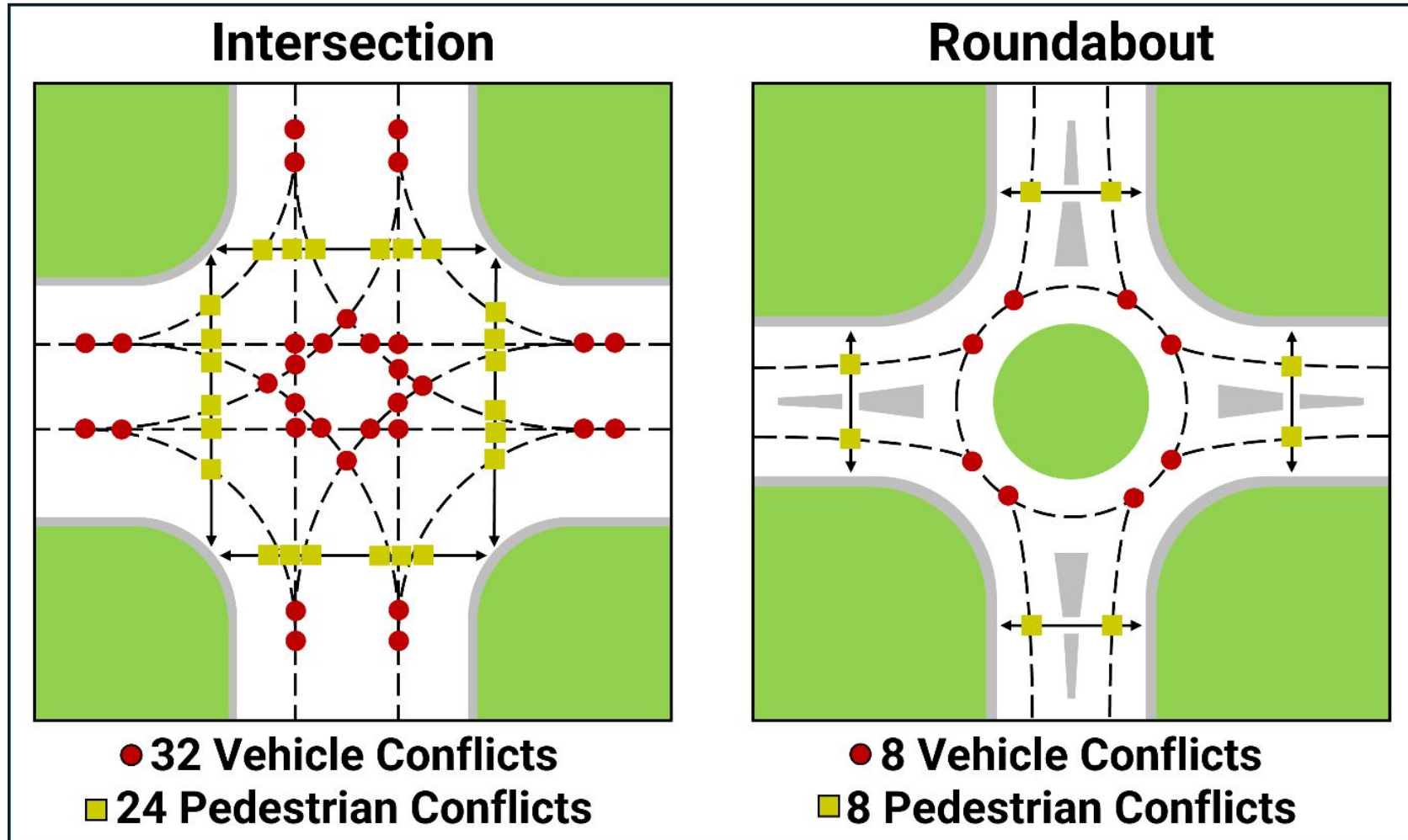
Remove Severe Conflict Points

Reduce Vehicle Speeds

Manage Conflicts in Time

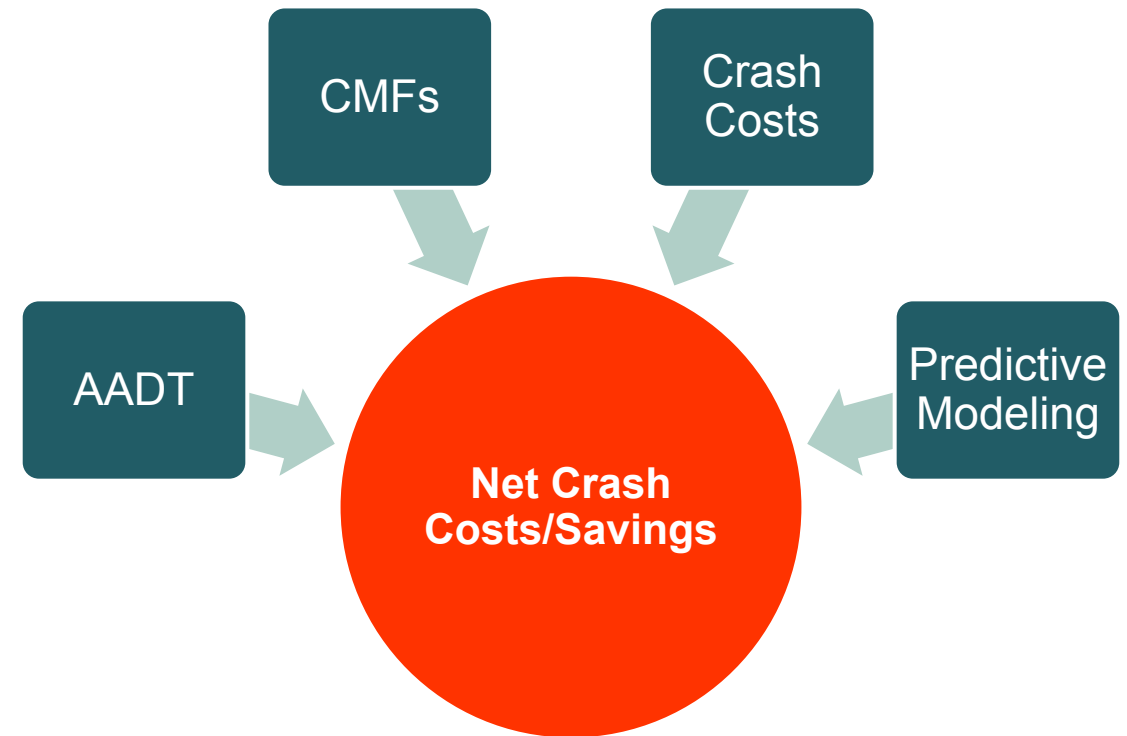
Increase Attentiveness and
Awareness

Safe System Approach



Safety Analysis

- To Understand the Potential Safety Implications of Any Intersection Modifications
- Scenarios
 - All-Way Stop Control (Base Condition)
 - Roundabout Control
 - Traffic Signal Control
- Data
 - AADT
 - Crash Modification Factors (CMF)
 - Weighted Crash Costs
- Predictive Modeling



Safety Analysis

20-Year Safety Costs

All-way Stop	Roundabout	Traffic Signal
\$9,300,000	\$2,600,000	\$10,800,000

Safety Analysis

20-Year Net Safety Benefit

Roundabout

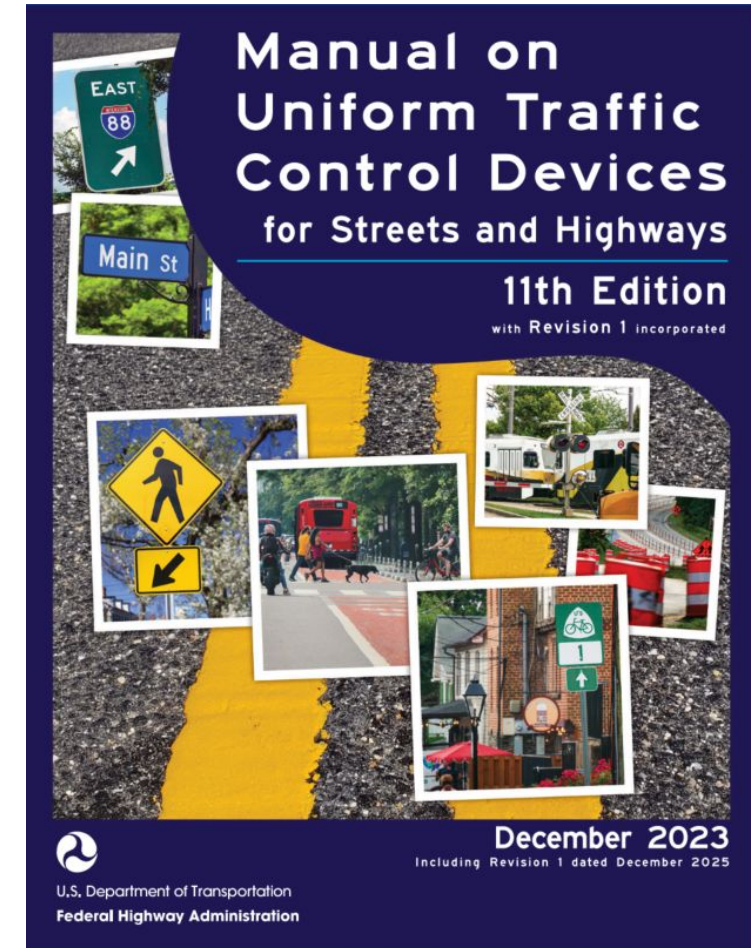
+\$6.7 million

Traffic Signal

-\$1.5 million

Traffic Signal Warrant Analysis

- Manual on Uniform Traffic Control Devices
 - Vehicular Volume
 - Peak Hour
 - Four Hour
 - Eight Hour
 - Pedestrian Volume
 - School Crossing
 - Crash Experience
 - Roadway Network



Traffic Signal Warrant Analysis

■ Results

- Vehicular Volume
 - Peak Hour – Not Met
 - Four Hour – Not Met
 - Eight Hour – Not Met
- Pedestrian Volume – Not Met
- School Crossing – Not Met
- Crash Experience – Not Met
- Roadway Network – Not Met

11000 South and 1000 East Sandy, Utah	
Study Name: 11000 South and 1000 East Study Date : 3/31/2026	
Signal Warrants - Summary	
Major Street Approaches	Minor Street Approaches
Eastbound: 11000 South Number of Lanes : 1 Total Approach Volume: 2,013	Northbound: 1000 East Number of Lanes : 1 Total Approach Volume: 1,553
Westbound: 11000 South Number of Lanes : 1 Total Approach Volume: 2,515	Southbound: 1000 East Number of Lanes : 1 Total Approach Volume: 1,582
Warrant Summary (Urban Values Apply)	
Warrant 1 - Eight Hour Vehicular Volumes.....	Not Satisfied
Warrant 1A - Minimum Vehicular Volume..... Required volumes reached for 1 hours, 8 are needed	Not Satisfied
Warrant 1B - Interruption Of Continuous Traffic..... Required volumes reached for 0 hours, 8 are needed	Not Satisfied
Warrant 1C - Combination Of Warrants..... Required 1A volumes reached for 5 hours, 8 are needed Required 1B volumes reached for 0 hours, 8 are needed	Not Satisfied
Warrant 2 - Four Hour Volumes..... Number of hours (0) volumes exceed minimum < minimum required (4).	Not Satisfied
Warrant 3 - Peak Hour.....	Not Satisfied
Warrant 3A - Peak Hour Delay..... Total approach volumes and delays on minor street do not exceed minimums for any one hour period.	Not Satisfied
Warrant 3B - Peak Hour Volumes..... Volumes do not exceed minimums for any one hour period.	Not Satisfied
Warrant 4 - Pedestrian Volumes..... Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)	Not Satisfied
Warrant 5 - School Crossing..... Number of gaps > 19.0 seconds (0) exceeds the number of minutes in the crossing period (540).	Not Satisfied
Warrant 6 - Coordinated Signal System.....	Not Evaluated
Warrant 7 - Crash Experience..... Number Of accidents (1) is less than minimum (6). Volume minimums are Not met.	Not Satisfied
Warrant 8 - Roadway Network..... Major Route conditions Not met. No volume requirement met.	Not Satisfied
Warrant 9 - Intersection Near a Grade Crossing.....	Not Evaluated

PC-Warrants Report: Page 1 of 13 Report Date: 04/24/26

Traffic Operations & Emissions Analysis

- Level of Service (LOS)
 - Synchro/SimTraffic
 - Highway Capacity Manual (HCM) 7th Edition, 2022 Methodology
 - LOS D or Better is Acceptable (Sandy City TMP)
- Emissions (kg/year)
 - WFRC Emissions Analysis Form

Level of Service Definition for Intersections			
LOS	Signalized Delay (sec/vehicle)	Unsignalized Delay (sec/vehicle)	Description
A	≤10	≤10	Favorable progression
B	>10 and ≤20	>10 and ≤15	Good progression
C	>20 and ≤35	>15 and ≤25	Fair progression
D	>35 and ≤55	>25 and ≤35	Noticeable congestion
E	>55 and ≤80	>35 and ≤50	Considerable delay
F	>80	>50	Significant delay

Source: Highway Capacity Manual, Transportation Research Board, 2022

Traffic Operations Analysis

Level of Service Summary			
Intersection	Level of Service (sec/vehicle) ¹		
	All-way Stop	Traffic Signal	Roundabout
AM Peak Hour (7:15 AM – 8:15 AM)			
11000 South & 1000 East	B (12.3)	B (14.2)	A (6.6)
Afternoon Peak Hour (2:30 PM – 3:30 PM)			
11000 South & 1000 East	B (13.7)	B (10.5)	A (8.1)
PM Peak Hour (4:30 PM – 5:30 PM)			
11000 South & 1000 East	A (8.9)	A (7.5)	A (5.7)
¹ Intersection LOS and delay (seconds/vehicle) values represent the overall intersection average for signalized intersections/roundabouts and the worst movement for unsignalized intersections.			

Emissions Analysis

Emissions Analysis Summary			
Intersection	11000 South & 1000 East		
	All-Way Stop (Existing)	Traffic Signal	Roundabout
Emissions Output (kg/year) ¹	9.47	8.30	5.97
Emissions Reduction (kg/year) ¹	-	1.17	3.50
Percent Reduction	-	12.4%	37.0%
¹ Emissions values (kg/year) are calculated using the WFRC Emissions Analysis Form 2027-2032, which is used to evaluate CMAQ applications.			

Alternatives Comparison

Alternative	Benefits	Disadvantages
All-way Stop	• Low cost • Easily recognized by drivers	• Fatality has already occurred with this control • Role of Stop signs is to identify Right-of-way, not slow vehicles
Traffic Signal	• Easily recognized by drivers • Separates conflicts in time	• Higher maintenance costs • Signals can increase angle crashes • Role of traffic signals is to identify Right-of-way, not slow vehicles
Roundabout	• Fewest conflict points • Deflection forces drivers to reduce speed when entering intersection	• High initial cost • May require property acquisition

Alternatives Comparison

Criteria	All-way Stop	Traffic Signal	Roundabout
Crash Severity			
Vehicle Safety			
Cyclist Safety			
Pedestrian Safety			
Traffic Operations			
Suitability for New Drivers			
Emissions			
Sight Distance			

Conclusions and Recommendations

- METHODS Recommends a Roundabout
 - Projected \$6.7M Safety Benefit Over 20 Years
 - Improved LOS/Delay
 - Lower Vehicle Emissions
 - Intersection Does Not Meet Signal Warrants
 - History of Successful Roundabout Installations Near Schools

Roundabout t Additional Safety Measures

Pedestrian Scale Lighting



**Entering and Existing Vehicle
Deflection**



Pedestrian Fencing



**Rectangular Rapid
Flashing Beacon**



Clearly Visible Center Island



Large Pedestrian Island & Z-crossing



Questions?