

US-20/SH-75 (Timmerman Jct.) Intersection Study

Community Advisory Committee (CAC) Meeting #1

April 7th, 2016

Blaine County Courthouse

Commissioners Large Conference Room

US 20 & SH 75
TIMMERMAN JUNCTION
Intersection Study



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Study Website:

http://itd.idaho.gov/projects/D4/US20_ID75_IntersectionStudy

Welcome

Thank you for your commitment to participating with the Idaho Transportation Department (ITD) in this important study!

Who is involved?

- Idaho Transportation Department
- Blaine County & Local City Representatives
- Local Community Representatives:
 - Emergency Responders
 - Agriculture & Trucking Services
 - Commerce & Tourism
 - Transportation Providers
 - Major Employers
 - Residents/Citizens

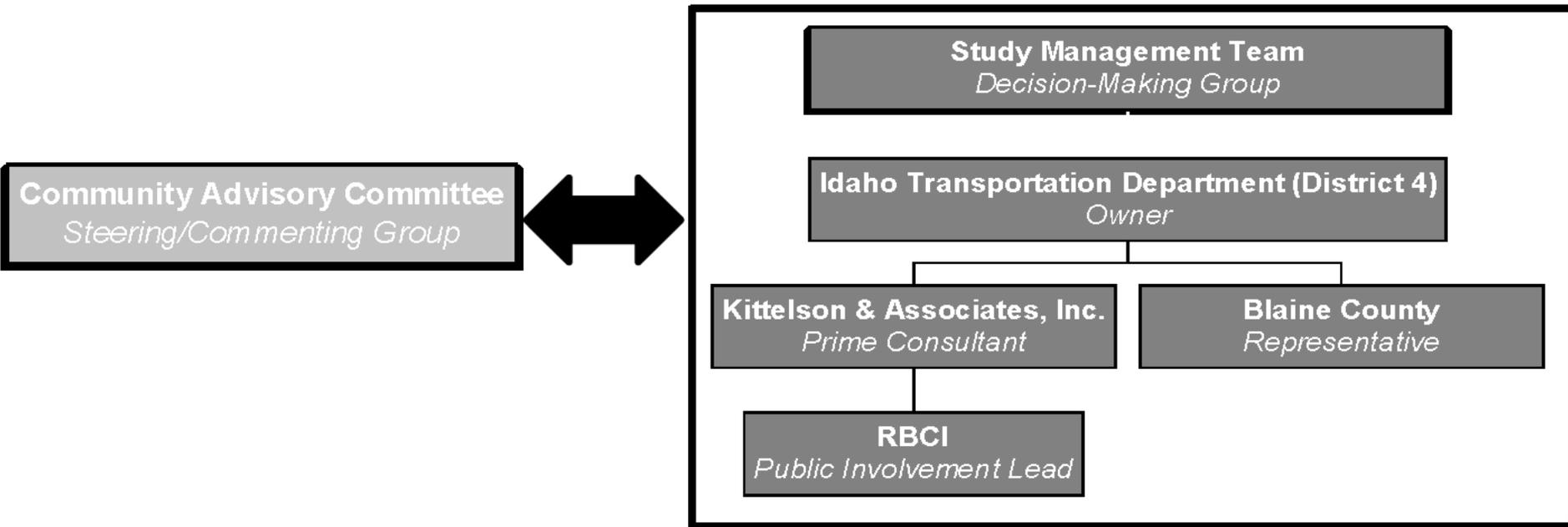


Community Advisory Committee (CAC) Roles & Responsibilities

- **Roles:** Provide a wide range of perspectives and bring valuable information to the Study Management Team (SMT) through the alternatives development, evaluation, and selection process.
- **Responsibilities:**
 - Understand the intersection, the study context, the range of alternatives, and the implications of decisions
 - Share facts and decisions on the study with your organization and the community
 - Maintain a commitment to the study process. Provide open, honest, and continuous communication during the study

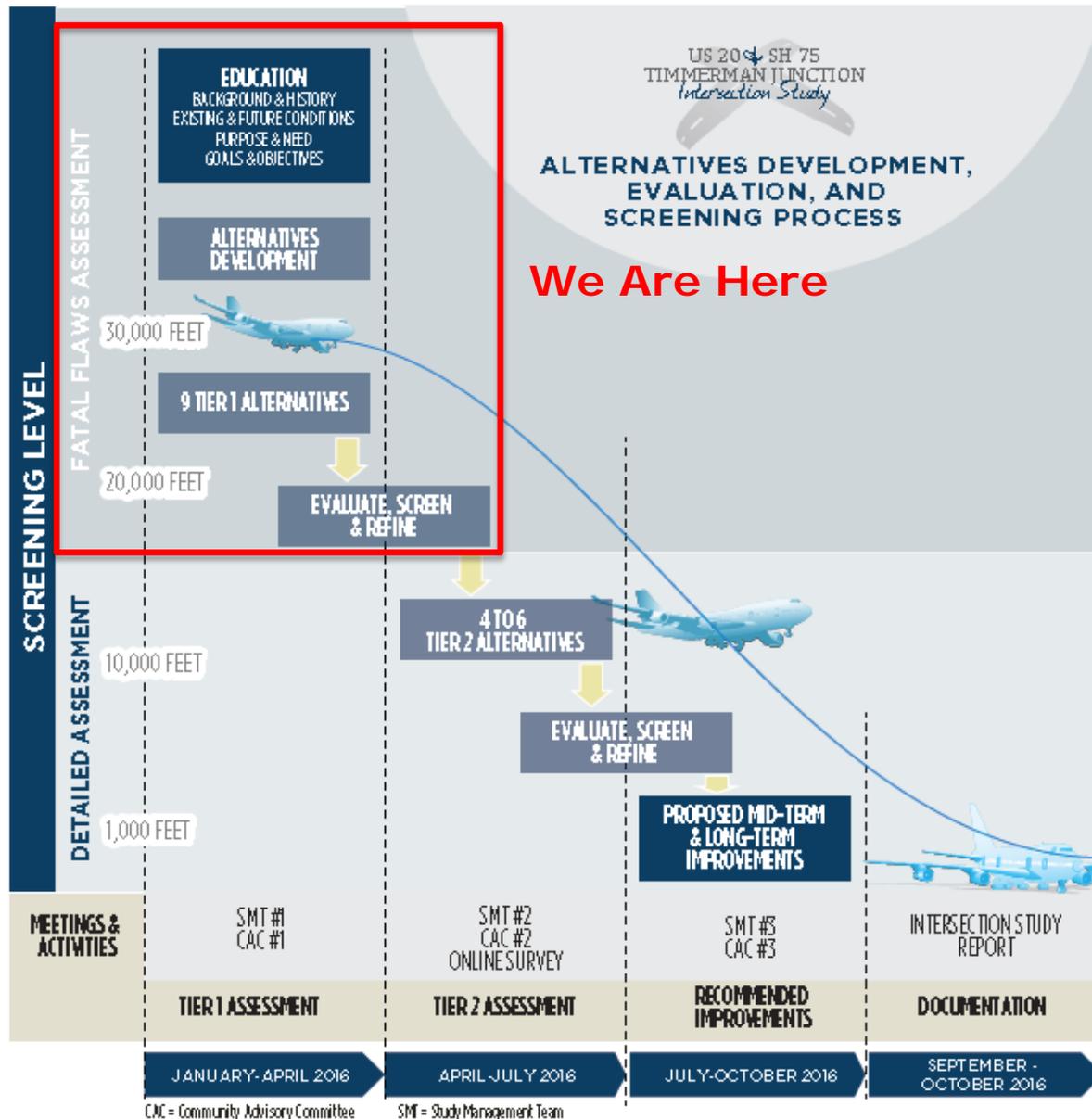


Community Advisory Committee (CAC) Roles & Responsibilities



Study Overview

Tiered Alternatives Evaluation Process



Study Overview

Background & History

> Safety Treatments Installed in the Past 25 Years

- Larger/more visible stop signs and warning signs
- In-lane rumble strips on US-20
- Shoulder and centerline rumble strips on SH-75
- Advance intersection warning signs, flashers, and lane markings
- Overhead flashing light at the intersection
- Reduced speed limit on SH-75 (45 mph)
- Narrowed SH-75 lanes to 11 feet

> Other Relevant Studies

- 2008 SH-75 Timmerman to Ketchum Environmental Impact Statement (EIS) and Record of Decision (ROD)
- Blaine County Comprehensive Plan and Transportation Plan
- 2011 Road Safety Audit (RSA) for the intersection



Photo Courtesy: Rosemary Curtin



Study Overview

Study Purpose & Need

- **Study Purpose:** ITD is continuing its commitment to improve safety at the US-20/SH-75 intersection (Timmerman Junction), while providing reliable and efficient mobility.
 - Collaborate with local community leaders and representatives
 - Evaluate a wide range of intersection alternatives
 - Identify proposed mid-term and long-term improvements
 - Provide direction to pursue funding for future implementation

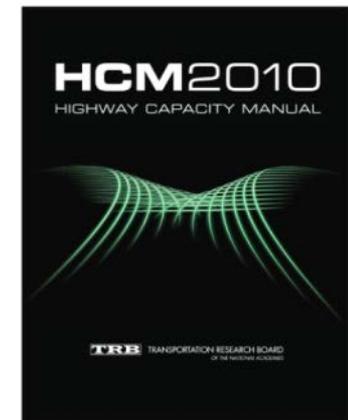
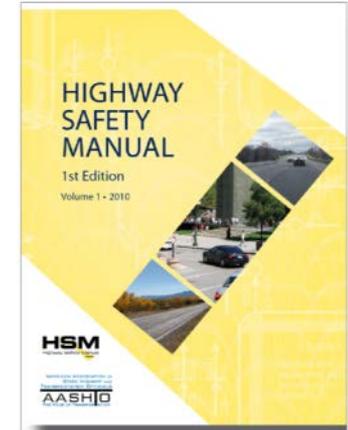
- **Study Need**
 - #16 on ITD's High Accident Location (HAL) list for District 4 and #321 statewide
 - Several serious injury crashes in recent history
 - Need to investigate treatments to further improve safety
 - Continue to ensure adequate mobility through the intersection



Study Overview

Study Goals & Objectives

- **Goal #1: Improve safety performance**
 - Quantitative and qualitative predictive safety evaluation to **estimate crash reduction potential**
- **Goal #2: Maintain acceptable mobility**
 - Quantitative traffic operations analysis and qualitative mobility evaluation to **estimate operational performance**
- **Goal #3: Collaborate with community representatives**
 - **Listen** to the community to understand concerns and identify opportunities and constraints
 - **Involve** the community in the alternative development, evaluation, and selection process
- **Goal #4: Establish a prioritized implementation plan**
 - **Develop** mid-term and long-term **improvement recommendations** and define relative timeframes for implementation



Study Overview

Study Schedule

STUDY SCHEDULE



Evaluation Criteria

For Tier 2 Alternatives Evaluation

> Safety Performance

- Expected influence on the type, frequency, and severity of crashes (especially angle type crashes)

> Mobility

- Expected influence on the movement of all types of traffic through the intersection

> Physical and Environmental Impacts

- Physical impact on the landscape, environment (e.g., wetlands), and properties in the vicinity of the intersection

> Implementation & Maintenance

- Constructability, the level of maintenance effort, and the feasibility of phasing an alternative (i.e., interim improvements to a long-term solution)

> Cost

- Construction and right-of-way costs



Intersection Alternatives Evaluation Meeting Packets

➤ Comment Sheet

- PLEASE TURN IN YOUR COMMENT SHEET BEFORE YOU LEAVE TODAY.
- If you are unable to do so, please email your comment sheet to Yuri Mereszczak at yuri@kittelson.com or mail to 101 S Capitol Blvd, Ste 301, Boise, ID 83702 by no later than April 14th.

➤ Tier 1 Alternatives Assessment Packet

➤ Meeting Evaluation Form

COMMENT SHEET

CAC MEETING #1 - APRIL 7TH, 2016



Name: _____ Email: _____

Organization: _____

****PLEASE TURN IN YOUR FORM PRIOR TO LEAVING TODAY'S MEETING.****
 If you are unable to do so, please email your comment sheet to Yuri Mereszczak at yuri@kittelson.com or mail to 101 S Capitol Blvd, Suite 301, Boise, ID 83702 by no later than April 14th.

Intersection Alternatives (Tier 1) Evaluation

Please identify whether you would like to see the alternative carried forward for Tier 2 evaluation or whether you think the alternative should be eliminated from further consideration. Please explain your choice.

Alt. No.	Intersection Alternative	Desired Action (Circle One)	Please Explain Your Choice
1	No Build	Carry Forward Eliminate	
2A	Remove Skew (Shift North)	Carry Forward Eliminate	
2B	Remove Skew (Shift East)	Carry Forward Eliminate	
2C	Remove Skew (Centered)	Carry Forward Eliminate	
3A	Add a Northbound Right-Turn Lane on SH-75	Carry Forward Eliminate	
3B	Add Northbound and Southbound Right- and Left-Turn Lanes on SH-75	Carry Forward Eliminate	
4A	All-Way Stop-Controlled Intersection	Carry Forward Eliminate	
4B	All-Way Stop-Controlled Intersection with Removal of Southbound Right-Turn Lane	Carry Forward Eliminate	
5	Traffic Signal with Addition of Turn Lanes	Carry Forward Eliminate	
6	Single-Lane Roundabout with Approach Curvature	Carry Forward Eliminate	
7	Restricted Crossing U-Turn (RCUT) Intersection	Carry Forward Eliminate	
8	Quadrant Intersection with Partial Restricted Crossing U-Turn (RCUT)	Carry Forward Eliminate	
9A	Grade-Separated Diamond Interchange	Carry Forward Eliminate	
9B	Grade-Separated Diamond Interchange with a Loop Ramp	Carry Forward Eliminate	

--OVER--



Intersection Alternatives Evaluation

Existing Conditions

> Key Characteristics

- Arterial roadways; Scenic byways
- Two-way stop control
- High speeds



Photo Courtesy: Rosemary Curtin

> Traffic Volumes

- SH-75 volumes much higher than US-20 volumes
- Seasonal variation. Evaluated summer conditions.
- Some trucks on SH-75; higher percentage on US-20



> Crash History (2011-2015)

- Observed number of crashes higher than expected
- All crashes angle type
- Severity



Intersection Alternatives Evaluation

Tier 1 Alternatives Development

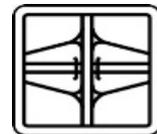
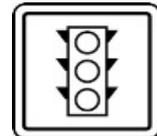
- What are the key problems and how can engineering solutions help address them?
 - High proportion of angle crashes due to failure to stop
 - Increase driver awareness of and attention to the conflicts
 - Reduce the number of crossing conflicts
 - High proportion of injury crashes
 - Reduce vehicle speeds through the intersection
 - Reduce the number of conflicts
 - Maintain adequate mobility
 - Minimize delay, stops, and travel time
 - Effectively allocate the use of space through infrastructure improvements and/or traffic control measures



Intersection Alternatives Evaluation

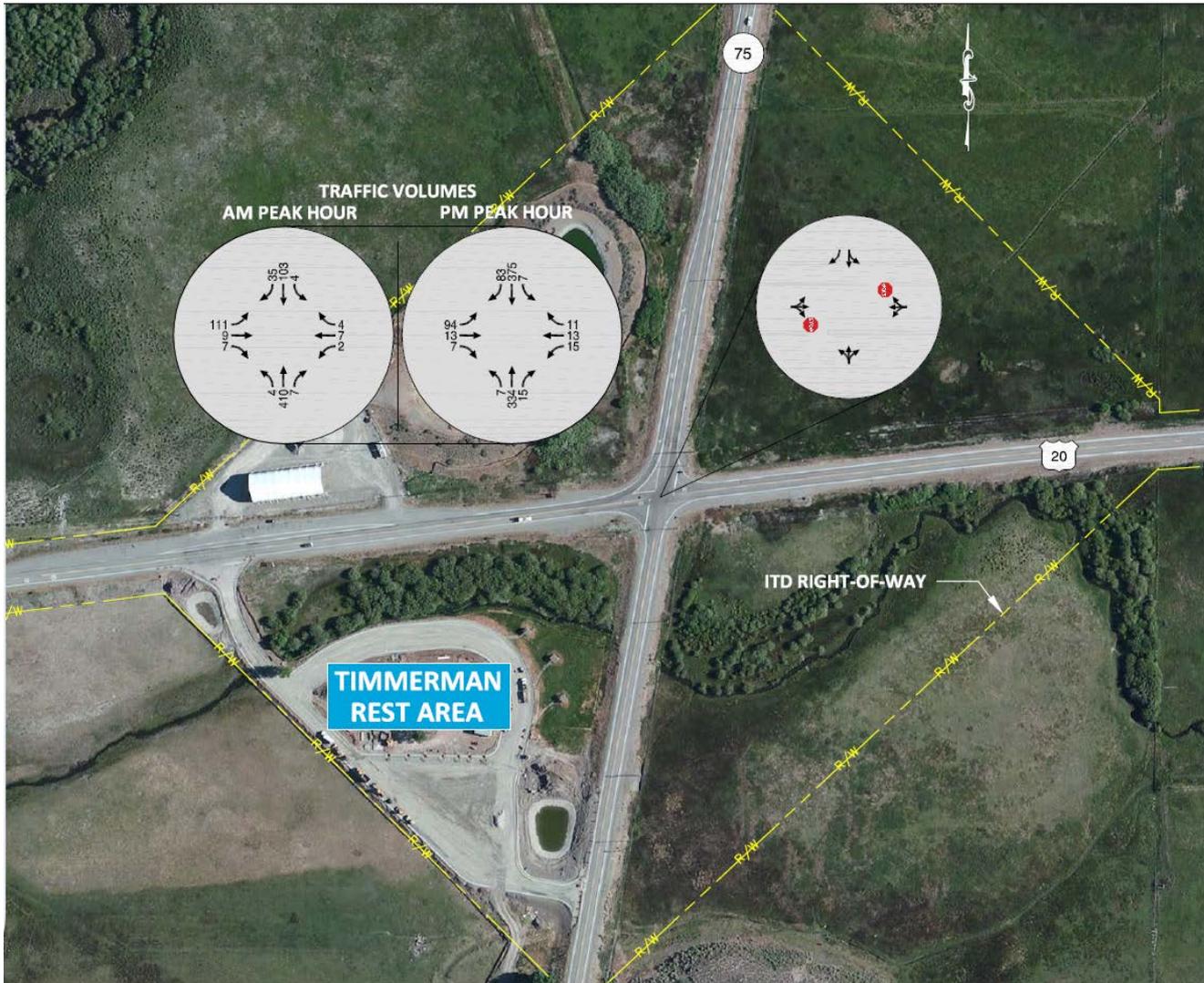
Tier 1 Alternatives

- **Nine (9) Tier 1 Alternatives (Several with Variations)**
- 1: No Build
- 2A-2C: Removal of Intersection Skew
- 3A-3B: Addition of Turn Lanes on SH-75
- 4A-4B: All-Way Stop-Controlled Intersection
- 5: Traffic Signal with Addition of Turn Lanes
- 6: Single-Lane Roundabout with Approach Curvature
- 7: Restricted Crossing U-Turn (RCUT) Intersection
- 8: Quadrant Intersection with Partial RCUT
- 9A-9B: Grade-Separated Interchange



Intersection Alternatives Evaluation

No Build (Alternative 1)



Intersection Alternatives Evaluation

Removal of Intersection Skew (Alternatives 2A-2C)



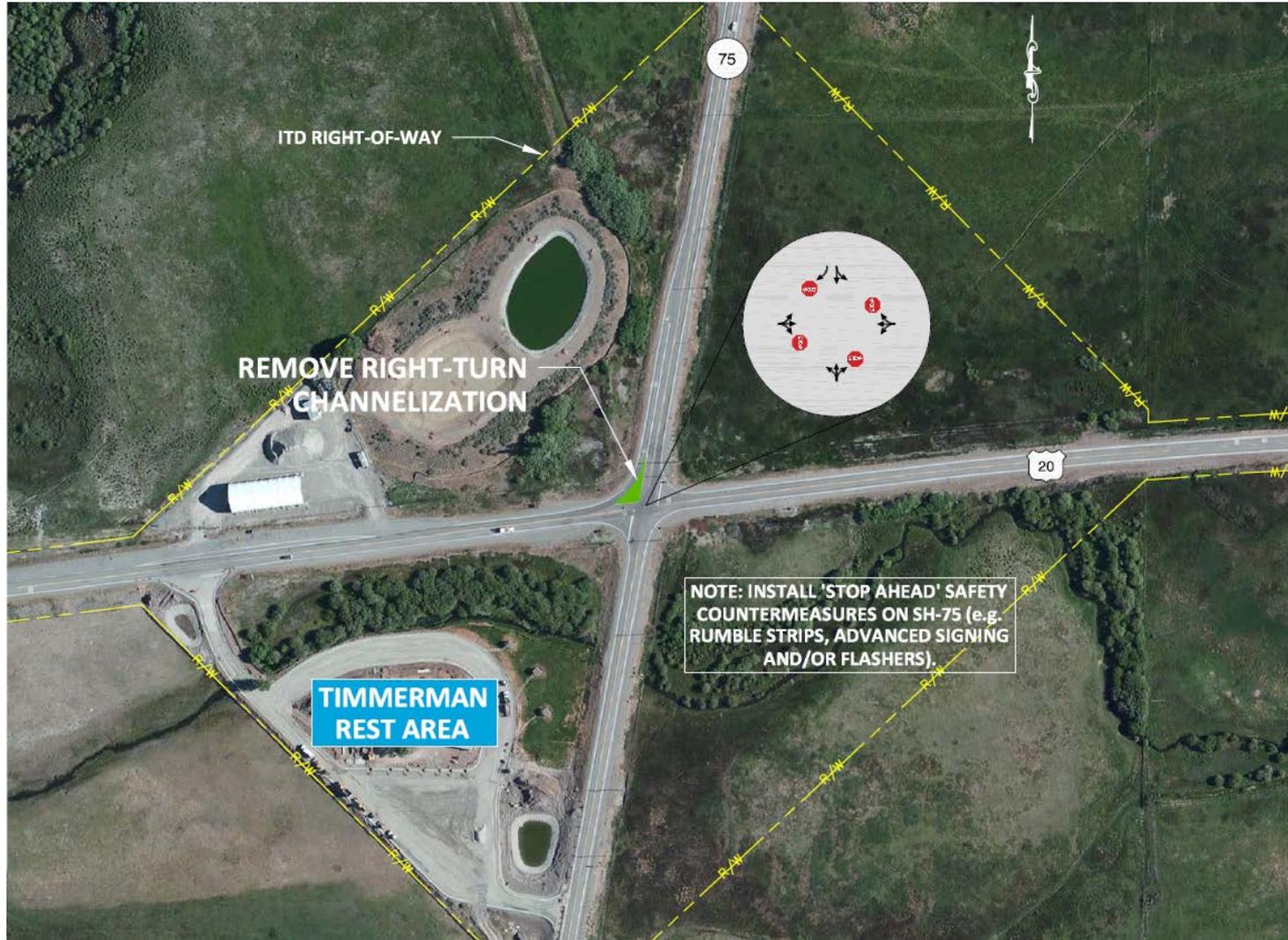
Intersection Alternatives Evaluation

Addition of Turn Lanes (Alternatives 3A-3B)



Intersection Alternatives Evaluation

All-Way Stop-Controlled Intersection (Alternatives 4A-4B)



Intersection Alternatives Evaluation

Traffic Signal with Turn Lanes (Alternative 5)



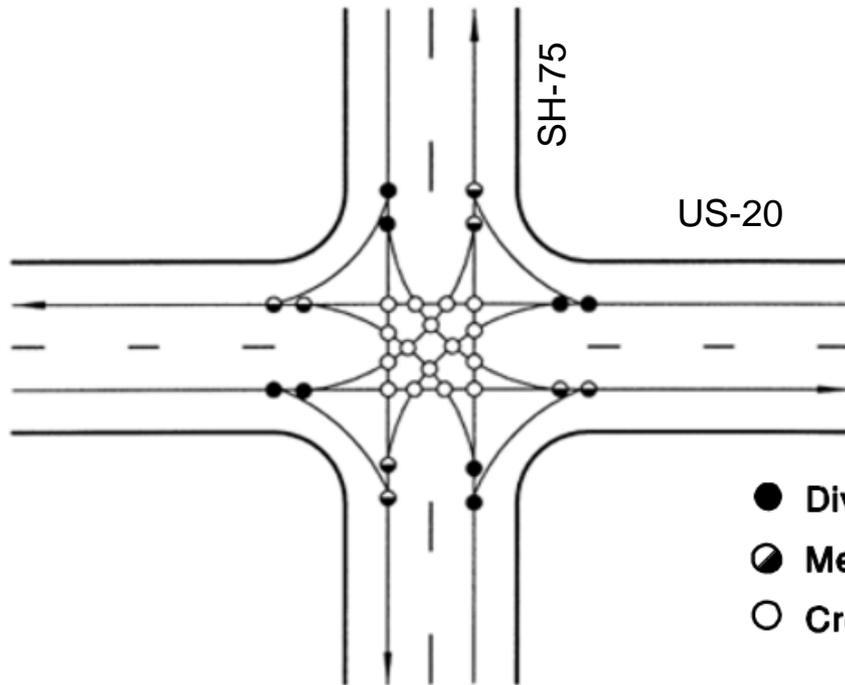
Intersection Alternatives Evaluation

Single-Lane Roundabout with Approach Curves (Alternative 6)



Roundabout Safety Performance – Conflict Point Comparison

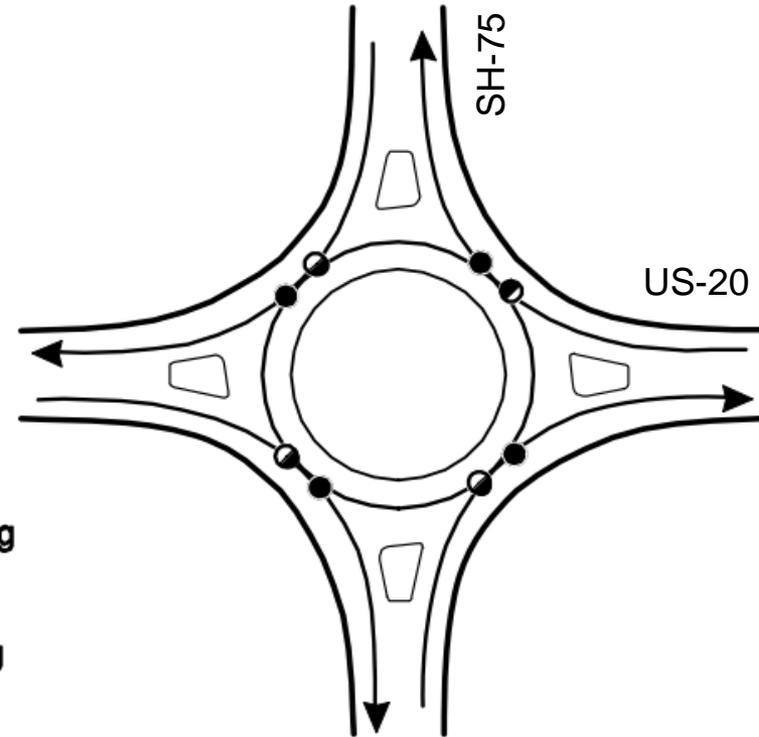
Traditional Four-Leg Intersection



32 Conflict Points

From FHWA Signalized Intersection: Informational Guide (August 2004); <https://www.fhwa.dot.gov/publications/research/safety/04091/10.cfm#c1024>

Single-Lane Roundabout



8 Conflict Points

From NCHRP 672: Roundabouts: An Informational Guide, 2nd Edition (2010); http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_672.pdf

Intersection Alternatives Evaluation

Restricted Crossing U-Turn (RCUT) Intersection (Alternative 7)

U.S. Department of Transportation
Federal Highway
Administration

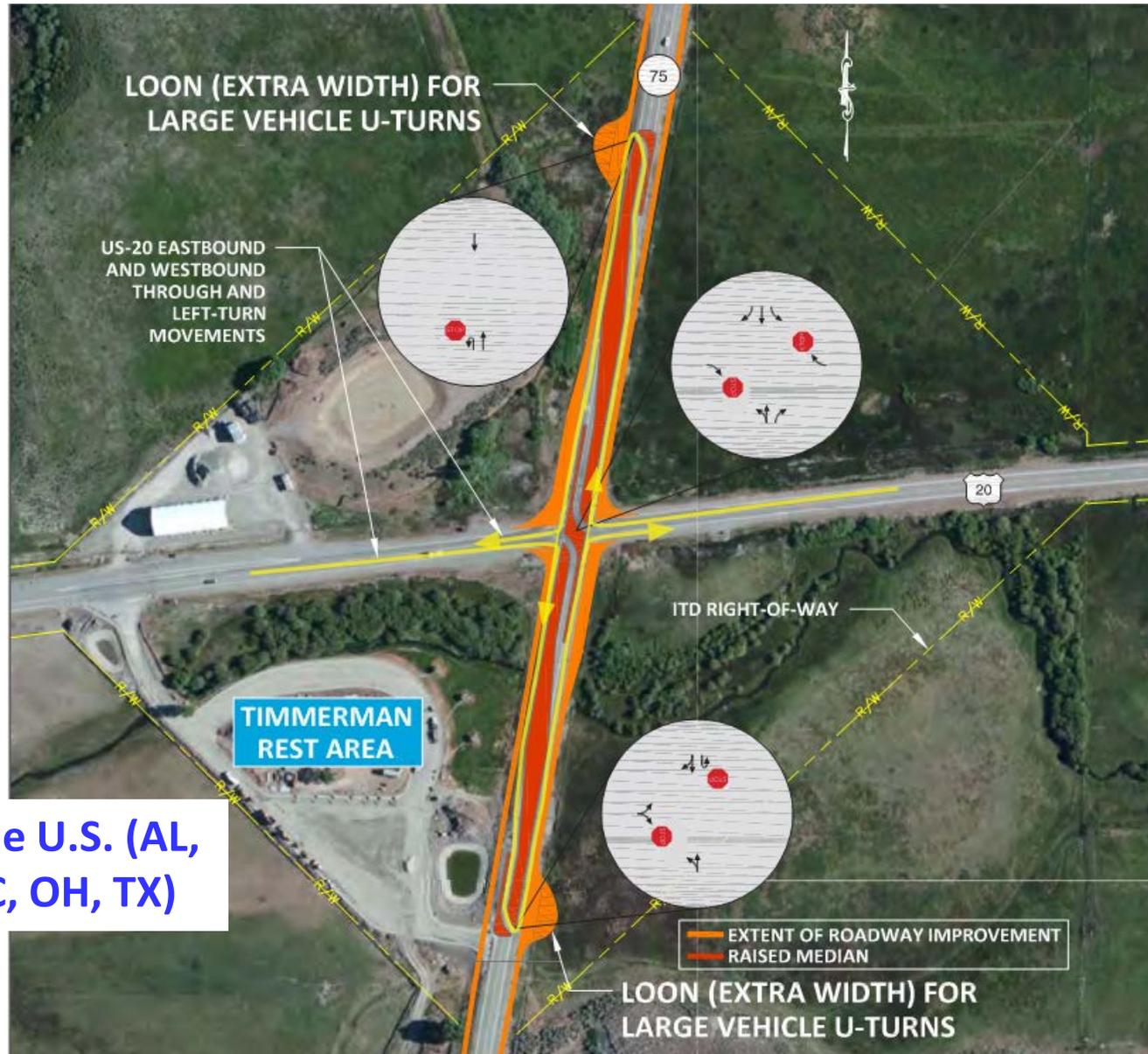


RESTRICTED CROSSING U-TURN INTERSECTION Informational Guide

August 2014

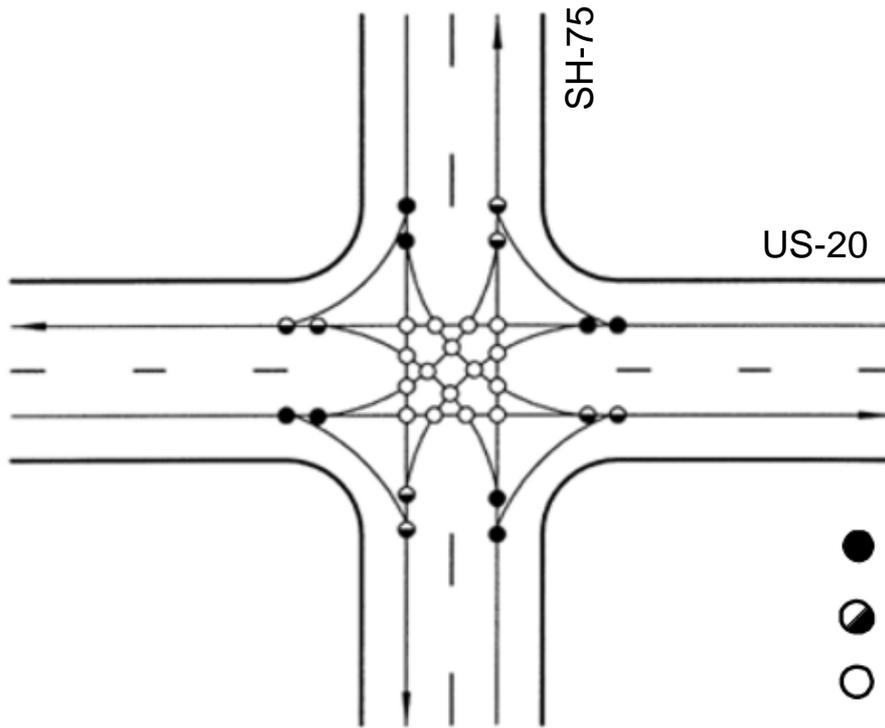
<https://www.youtube.com/watch?v=BLwI01NCp9I>
(2:30-4:10)

50+ RCUTs installed in the U.S. (AL,
LA, MD, MI, MN, MO, NC, OH, TX)



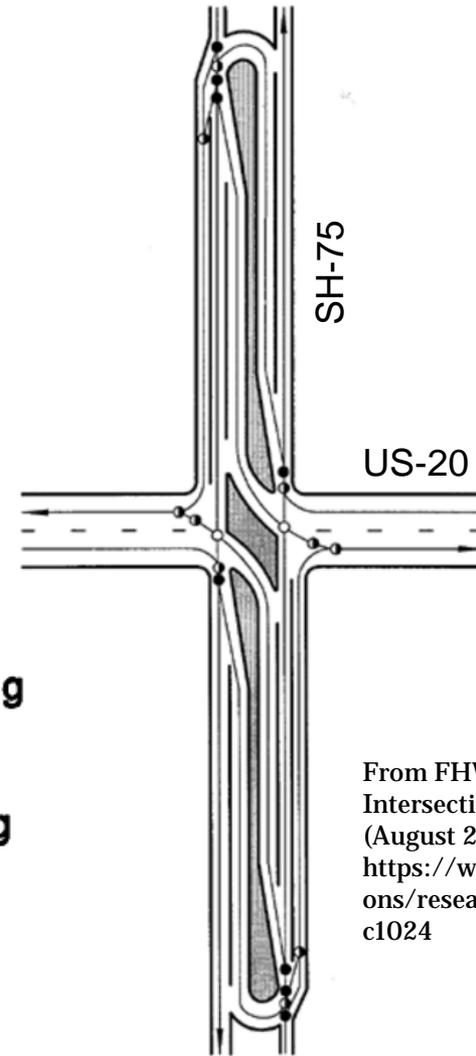
RCUT Safety Performance – Conflict Point Comparison

Traditional Four-Leg Intersection



32 Conflict Points

Restricted Crossing U-Turn Intersection



- Diverging
- ◐ Merging
- Crossing

From FHWA Signalized Intersection: Informational Guide (August 2004; <https://www.fhwa.dot.gov/publications/research/safety/04091/10.cfm#c1024>)

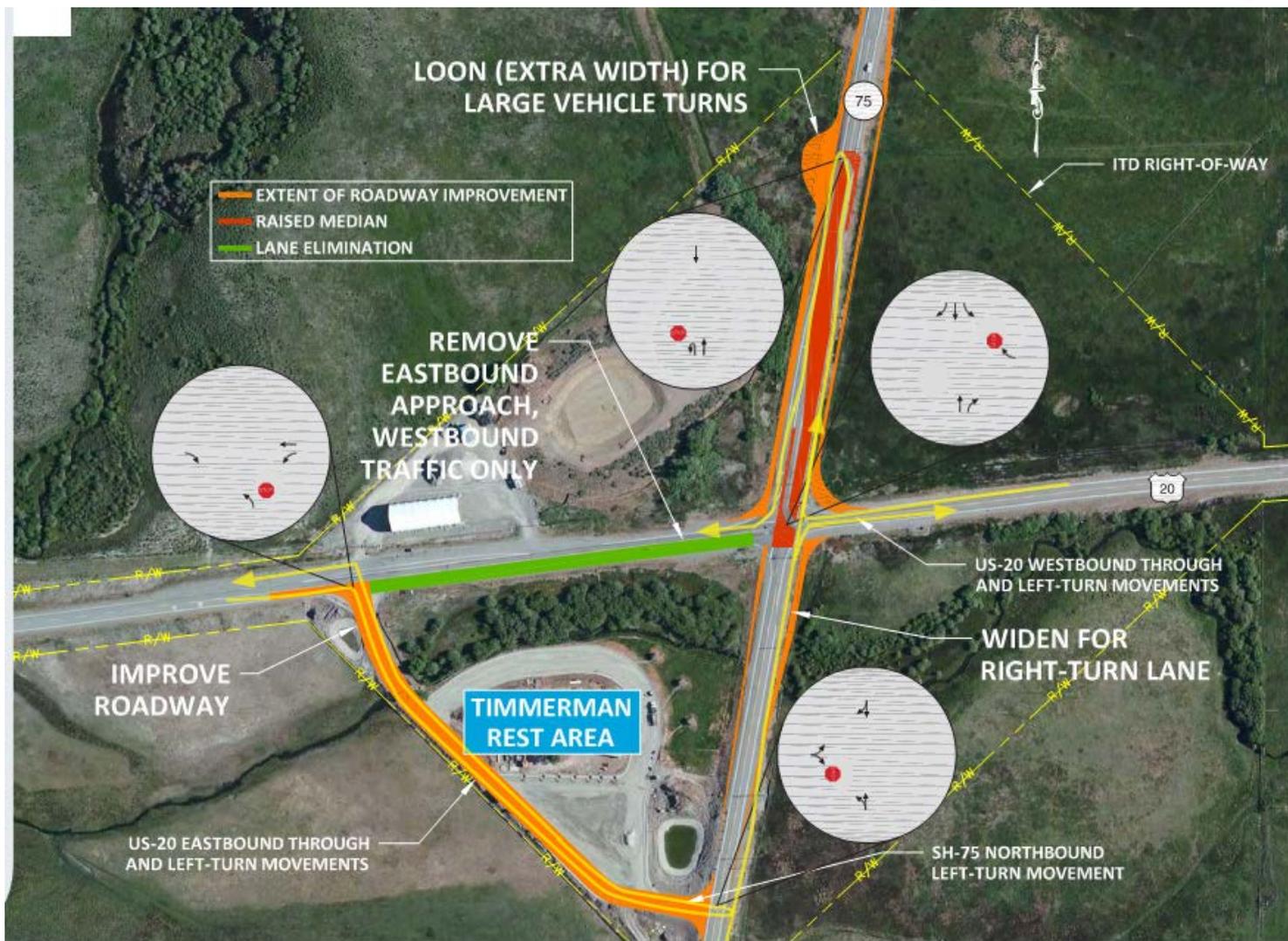
23

20 Conflict Points



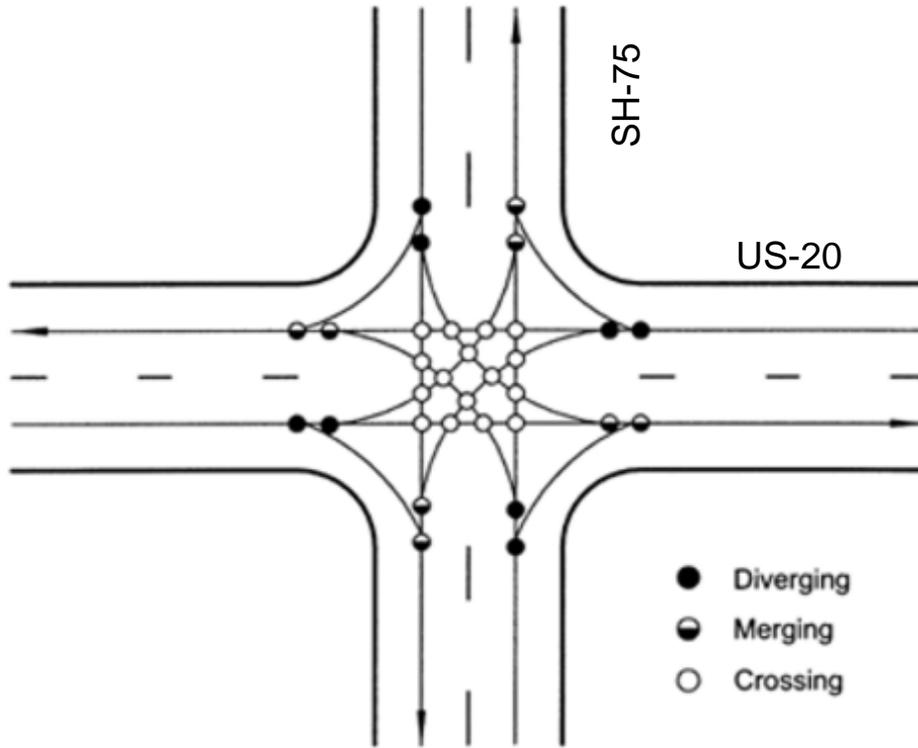
Intersection Alternatives Evaluation

Quadrant Intersection with Partial RCUT (Alternative 8)



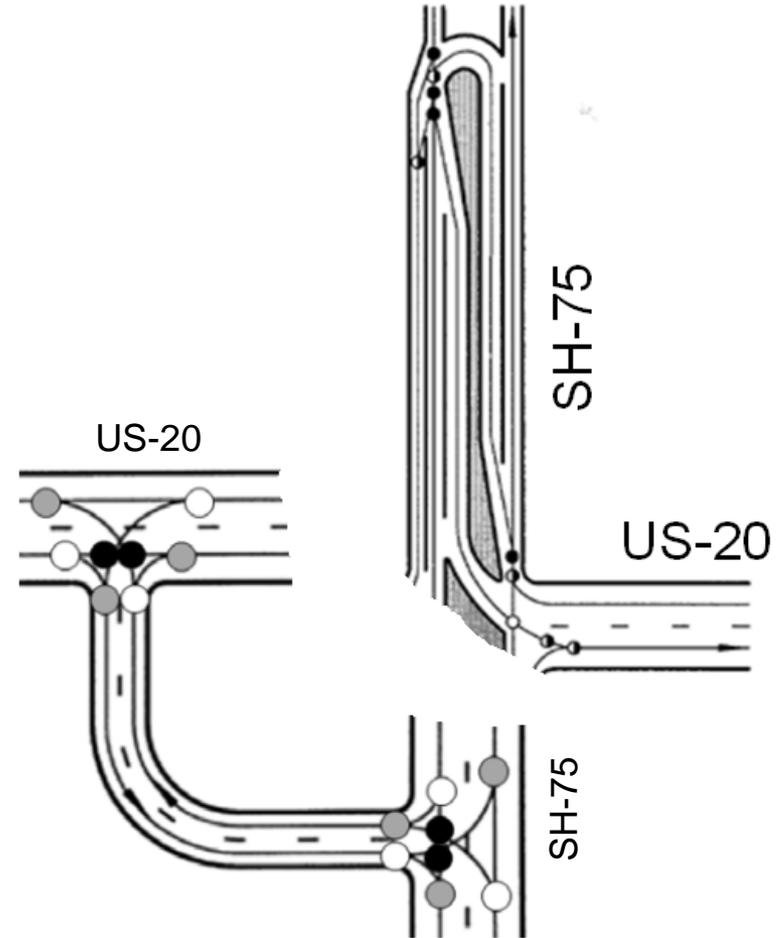
Quadrant with Partial RCUT Safety Performance – Conflict Point Comparison

Traditional Four-Leg Intersection



32 Conflict Points

Quadrant with Partial RCUT Intersection



26 Conflict Points

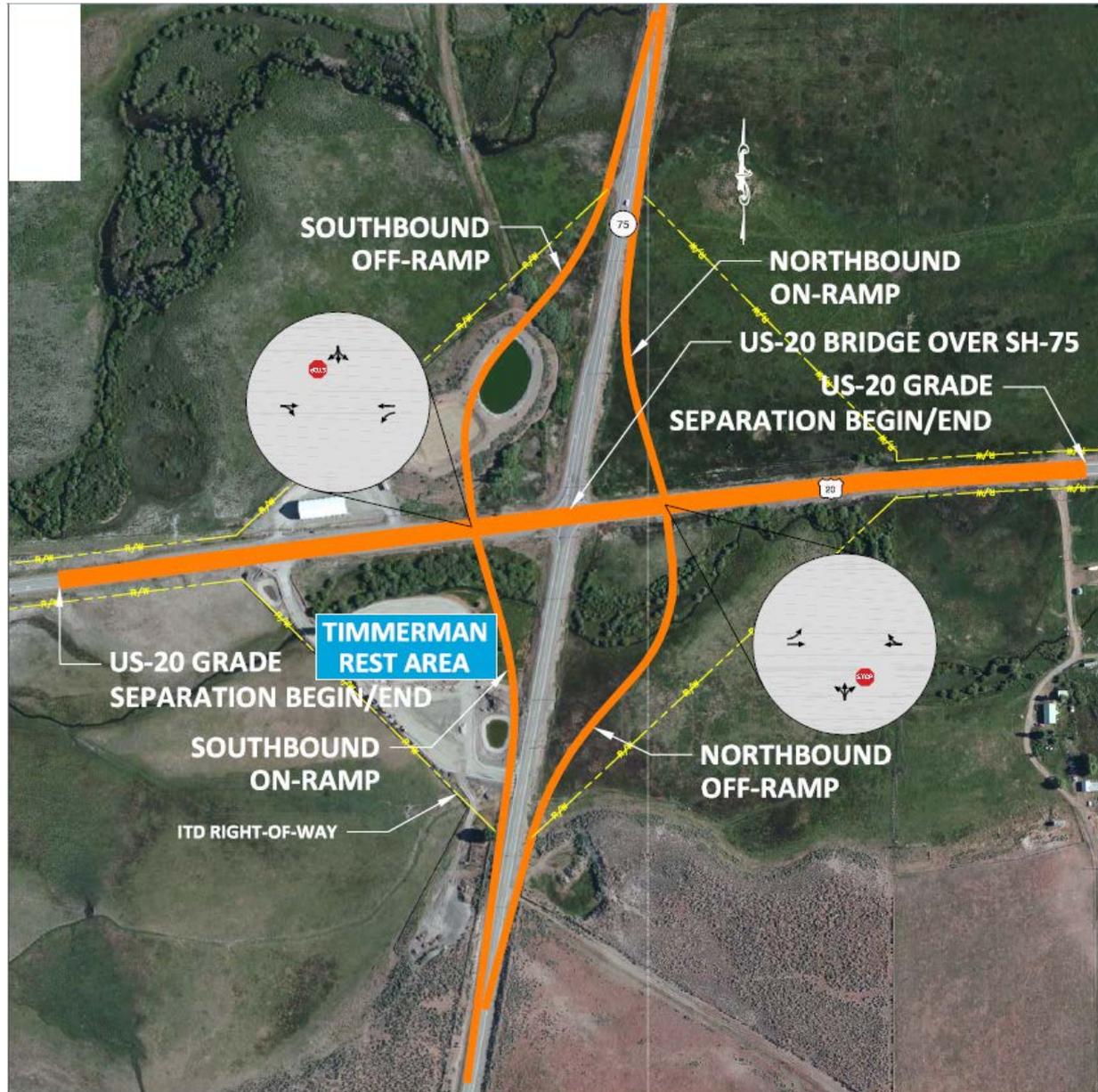


From FHWA Signalized Intersection: Informational Guide (August 2004); <https://www.fhwa.dot.gov/publications/research/safety/04091/10.cfm#c1024>



Intersection Alternatives Evaluation

Grade-Separated Interchange (Alternatives 9A-9B)

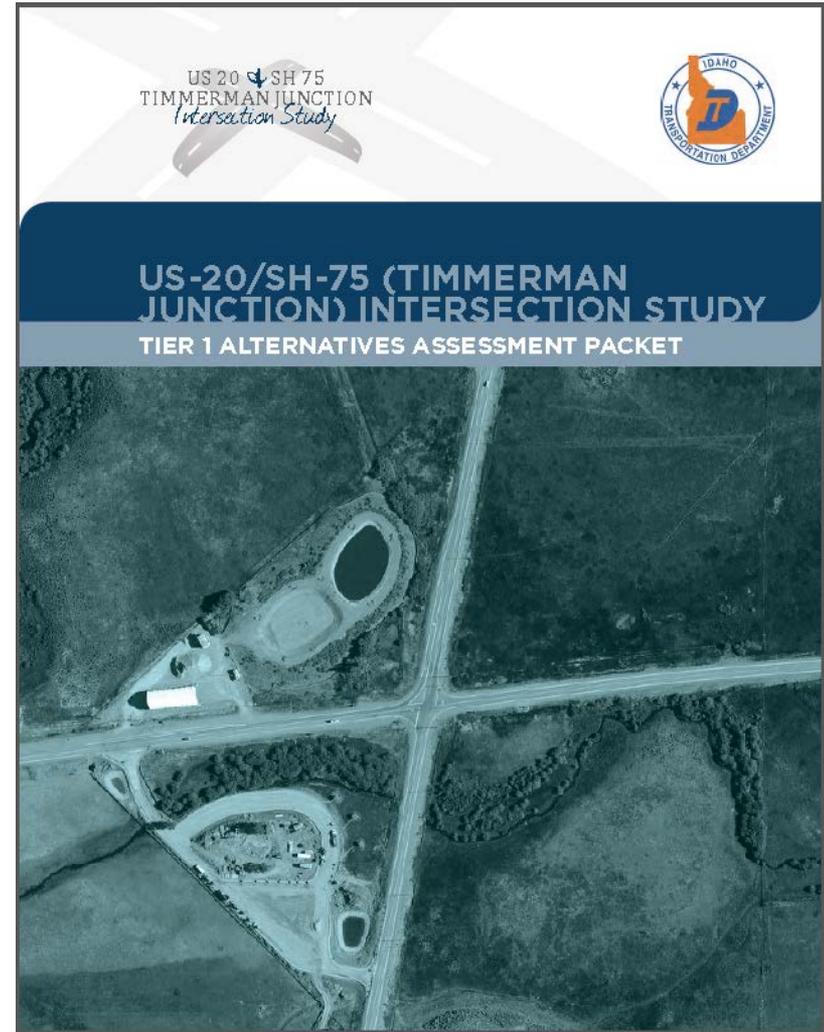


Intersection Alternatives Evaluation

Tier 1 Alternatives Assessment

- Fatal Flaws Assessment with Your Take on the Following:
- Do the costs outweigh or justify the potential benefits of the alternative?
 - Does the alternative have the potential to satisfy the goals of improving safety performance (Goal #1) and maintaining acceptable mobility (Goal #2)?
 - What is your reaction to the physical impacts of the alternative on the surrounding area?
 - Are there other aspects of the alternative that do or do not satisfy the interest(s) you represent?

Please consider these questions when completing the “Please Explain Your Choice” column on the Comment Sheet.



Intersection Alternatives Evaluation

Alternatives Assessment Snapshot

Alternative	Assessment Item				
	Improve Safety Performance (Goal #1)	Maintain Acceptable Mobility (Goal #2)	Physical Impacts	Relative Cost	SMT Recommendation
1 No Build				\$	Carry Forward
2A Remove Skew (Shift North)				\$\$\$\$	Eliminate
2B Remove Skew (Shift East)				\$\$\$\$	Eliminate
2C Remove Skew (Centered)				\$\$\$	Carry Forward
3A Add Northbound Right-Turn Lane				\$	Eliminate
3B Add SH-75 Left- & Right-Turn Lanes				\$\$	Carry Forward
4A All-Way Stop Control				\$	Eliminate
4B All-Way Stop Control (Remove Southbound Right-Turn Lane)				\$	Eliminate
5 Traffic Signal with Turn Lanes				\$\$\$	Carry Forward
6 Single-Lane Roundabout with Approach Curves				\$\$\$\$	Carry Forward
7 Restricted Crossing U-Turn (RCUT)				\$\$\$\$	Carry Forward
8 Quadrant with Partial RCUT				\$\$\$\$	Eliminate
9A Grade-Separated Diamond IC				\$\$\$\$\$	Carry Forward
9B Grade-Separated Diamond IC with Loop Ramp				\$\$\$\$\$	Eliminate



Evaluation Criteria

For Tier 2 Alternatives Evaluation

> Safety Performance

- Expected influence on the type, frequency, and severity of crashes (especially angle type crashes)

> Mobility

- Expected influence on the movement of all types of traffic through the intersection

> Physical and Environmental Impacts

- Physical impact on the landscape, environment (e.g., wetlands), and properties in the vicinity of the intersection

> Implementation & Maintenance

- Constructability, the level of maintenance effort, and the feasibility of phasing an alternative (i.e., interim improvements to a long-term solution)

> Cost

- Construction and right-of-way costs



Closeout & Next Steps

> Comment Sheet & Meeting Evaluation Form

- PLEASE TURN IN YOUR COMMENT SHEET & MEETING EVALUATION FORM BEFORE YOU LEAVE TODAY.
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> Next Community Advisory Committee (CAC) Meeting

- Evaluation and Screening of Tier 2 Alternatives
- When: Thursday, July 14th, 10:00am-12:00pm (tentative)
- Where: Right back here! (tentative)

Study Website:

[http://itd.idaho.gov/projects/D4/
US20 ID75 IntersectionStudy](http://itd.idaho.gov/projects/D4/US20_ID75_IntersectionStudy)

Thank You!

