

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

Community Advisory Committee (CAC) Meeting #2

July 14<sup>th</sup>, 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](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:
  - Legislative 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



# Recap

## Study Purpose & Goals

- **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 potential mid-term and long-term improvements
  - Provide direction to pursue funding for future implementation
- **Goal #1: Improve safety performance**
- **Goal #2: Maintain acceptable mobility**
- **Goal #3: Collaborate with community representatives**
- **Goal #4: Establish a prioritized implementation plan**



# Recap

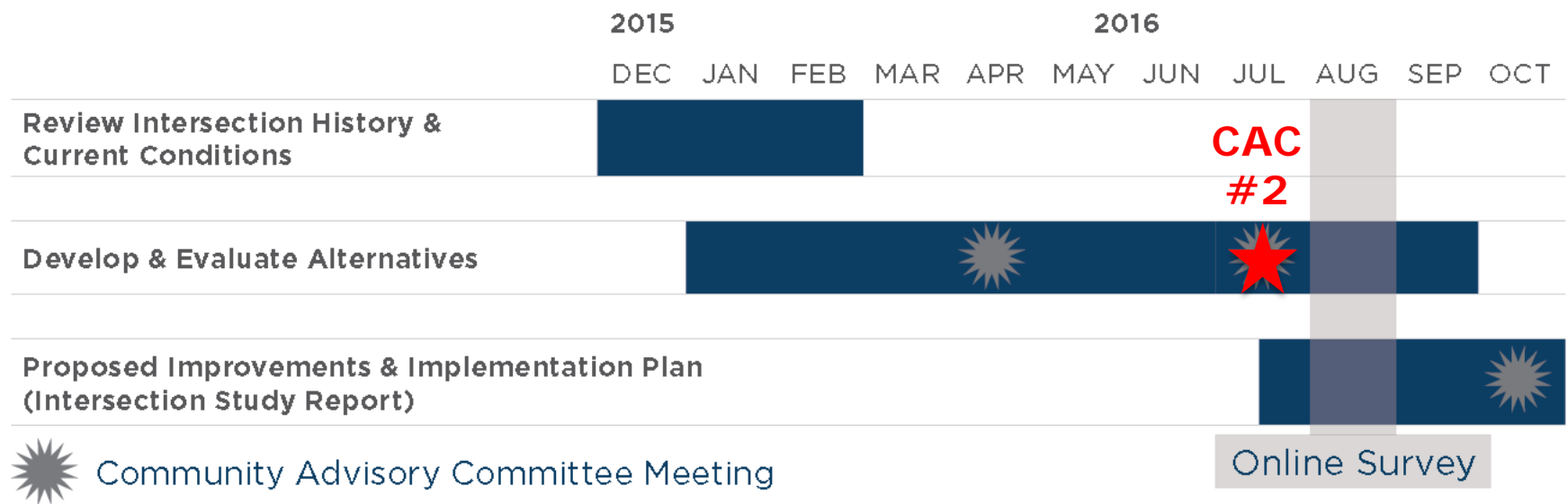
## Tiered Alternatives Evaluation Process



# Recap

## Study Schedule

### STUDY SCHEDULE



# CAC Meeting #1 Follow-Up Items

## Proposed ITD Responses to Short-Term Treatment Ideas

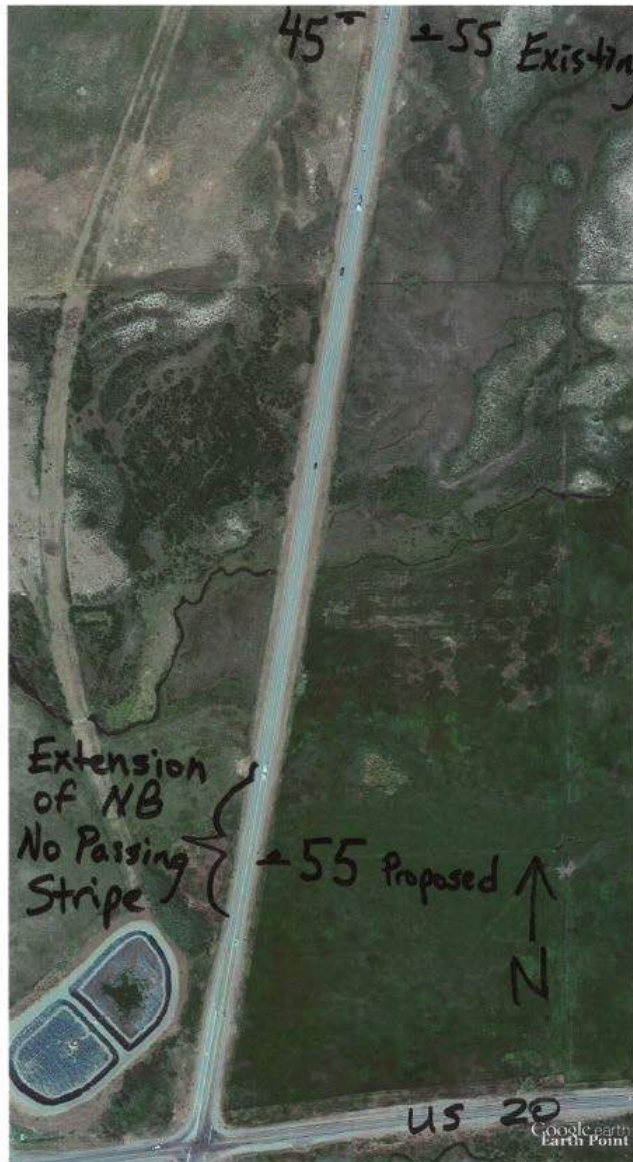
1. Trim trees and shrubbery on all corners of the intersection to increase visibility
2. Improvements to signage and other warning measures on US-20
  - a. Lower the speed limits on US-20
  - b. Increase signage and flashing lights east and west of the intersection
  - c. Use larger flashing lights
3. Install rumble strips on SH-75 prior to the intersection
4. Implement speed feedback signs in advance of intersection
5. Provide lighting at the intersection for better nighttime visibility
6. Request Idaho State Patrol be regularly stationed at the intersection for a while



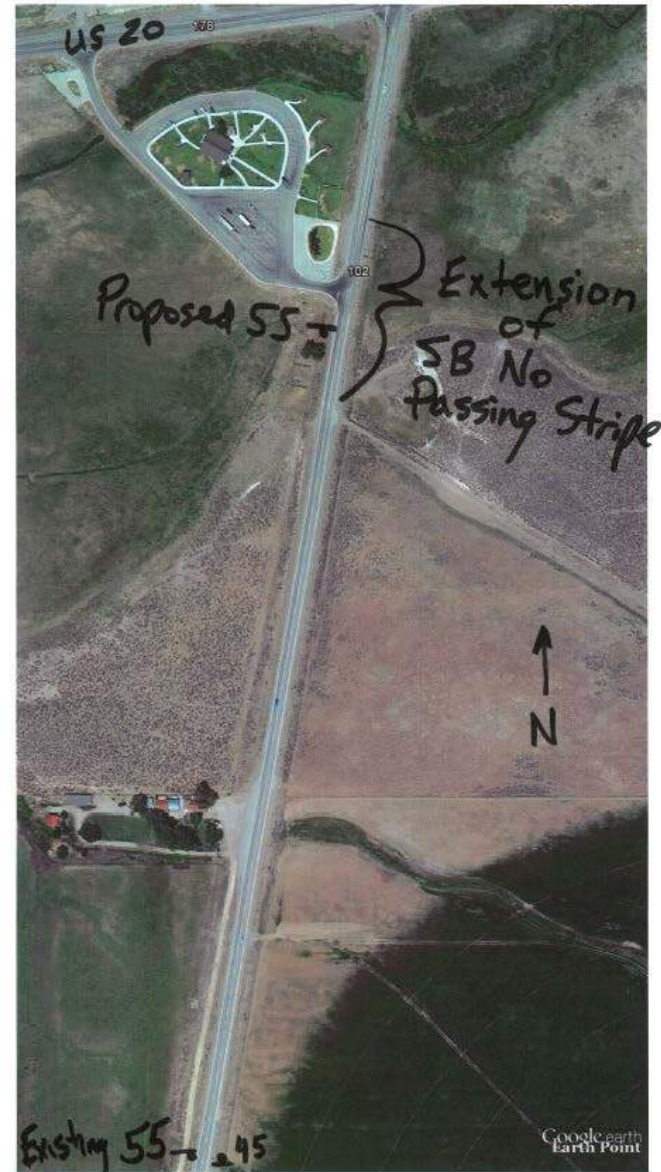


# CAC Meeting #1 Follow-Up Items

## Proposed ITD Responses to Short-Term Treatment Ideas



8



SH 75  
JUNCTION  
Study



# CAC Meeting #1 Follow-Up Items

## Acceleration of Trucks Towards Timmerman Hill

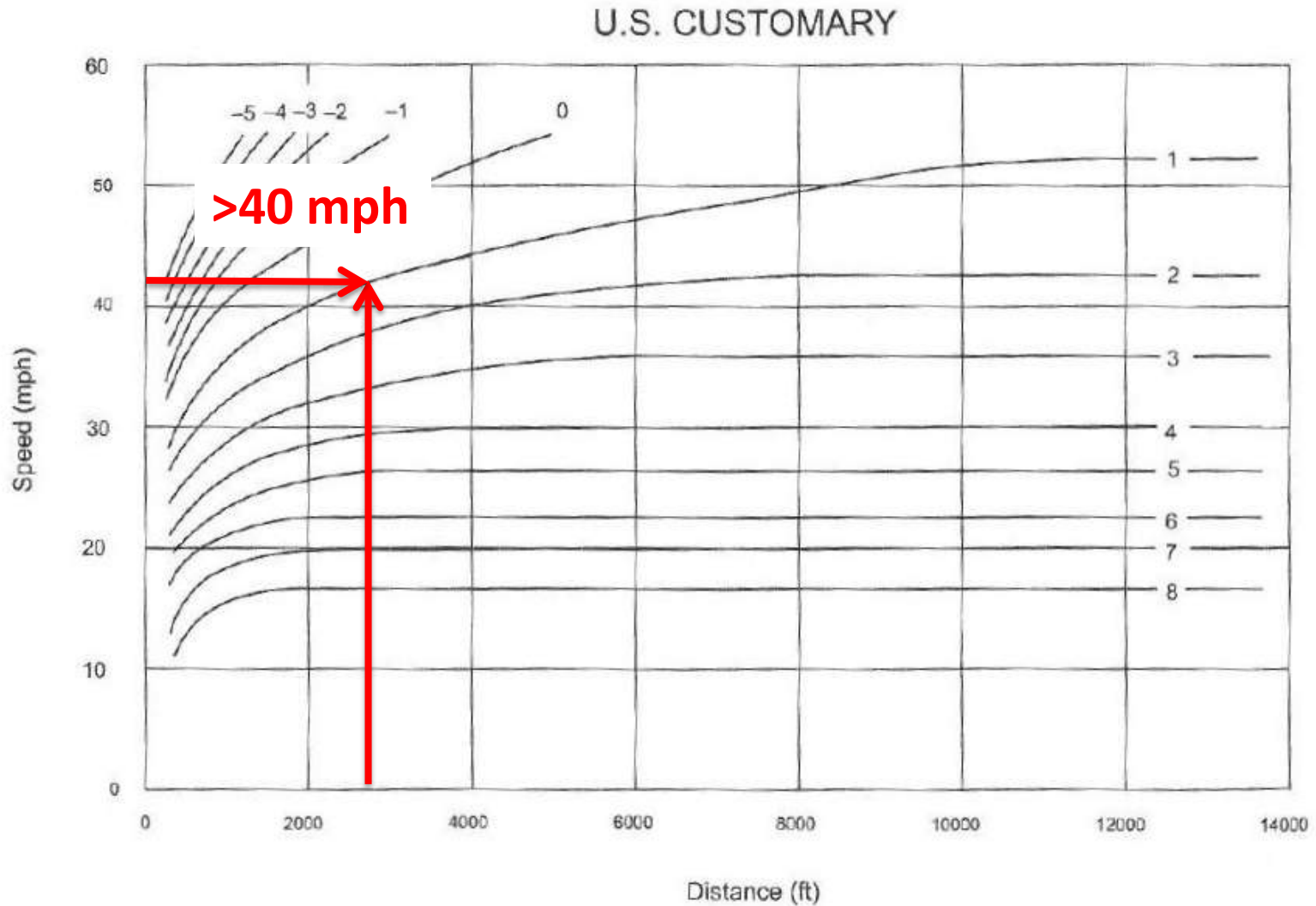


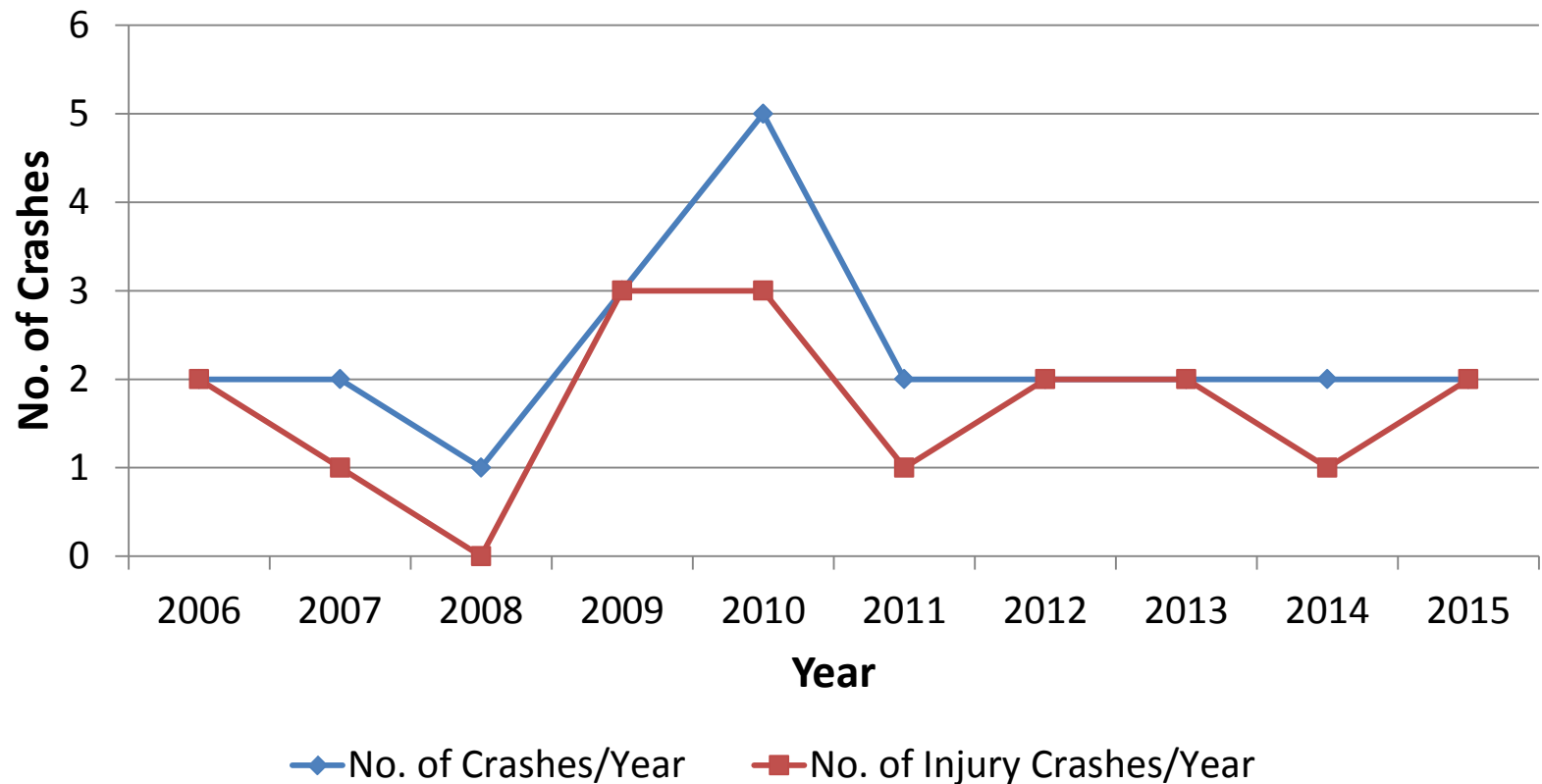
Figure 3-25. Speed-Distance Curves for Acceleration of a Typical Heavy Truck of 120 kg/kW [200 lb/hp] on Upgrades and Downgrades

# CAC Meeting #1 Follow-Up Items

## Questions on Historical Safety Data

- Have crashes gone down with the recent safety treatments that have been implemented?

US-20/SH-75 Crashes by Year



# CAC Meeting #1 Follow-Up Items

## Questions on Historical Safety Data

### ➤ Are there more crashes involving trucks than would be expected?

- 2006-2015: ~20% (5 of 23) involved a vehicle with 3+ axles
  - 2006-2009: 50% (4 of 8) involved a vehicle with 3+ axles
  - 2010-2015: 7% (1 of 15) involved a vehicle with 3+ axles
- Percent of trucks through intersection ~5%-6%
- Percent of trucks involved in crashes (20%) over past 10 years is higher than expected, but has dropped off to more normal levels over the past 6 years.

### ➤ Is there any trend with the angle crashes? (2011-2015 Crash Data Only)

- Contributing cause of all crashes was “failure to yield” on US-20
- US-20 driver believed intersection was 4-way stop – documented with 2 crashes
- 7 of the 11 crashes involved motorists from out of state
- 8 of the 11 crashes potentially influenced by the intersection skew angle

# Overview of Tier 2 Alternatives

## Packet Organization

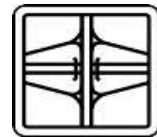
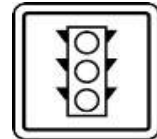
- Existing Conditions
  - Information same as CAC Meeting #1
  
- Intersection Alternatives
  - Front Side of First Page
    - Information largely the same as CAC Meeting #1
    - Exceptions: Concept Graphic, Cost Assessment, & SMT Feedback
  - Back Side of First Page
    - Evaluation Summary and Key Considerations
    - Summary of Feedback from SMT & CAC Meeting #1
    - Ground-Level Rendering (Looking North Toward Wood River Valley)

# Overview of Tier 2 Alternatives

## Alternatives Carried Forward from Tier 1 Evaluation

- Nine (9) Tier 1 Alternatives (Several with Variations) screened to seven (7) Tier 2 Alternatives

- 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



# Alt 1: No Build



**SMT: 100% Carry Forward (6 of 6)**

**CAC: 60% Carry Forward (9 of 15)**

**14**





# Alt 2C: Remove Skew (Centered)



**SMT: 50% Carry Forward (3 of 6)**

**CAC: 44% Carry Forward (7 of 16)**

**15**



# Alt 3B: Add Left- and Right-Turn Lanes on SH-75



**SMT: 60% Carry Forward (3 of 5)**

**CAC: 44% Carry Forward (7 of 16)**

**16**





# Alt 5: Traffic Signal with Turn Lanes



**SMT: 100% Carry Forward (6 of 6)**

**CAC: 69% Carry Forward (11 of 16)**

# Alt 6: Single-Lane Roundabout



**SMT: 100% Carry Forward (6 of 6)**

**CAC: 88% Carry Forward (14 of 16)**



# Alt 7: Restricted Crossing U-Turn Intersection



**SMT: 50% Carry Forward (3 of 6)**

**CAC: 60% Carry Forward (9 of 15)**

# Alt 9A: Grade-Separated Diamond Interchange



**SMT: 67% Carry Forward (4 of 6)**

**CAC: 25% Carry Forward (4 of 16)**

**20**





# Overview of Tier 2 Alternatives

## Cost Assessment

### » Benefit/Cost Ratios

- Costs:
  - Planning & Construction Costs
  - Maintenance (Post-Opening) Costs
- “Benefits” - Compared to No-Build:
  - Auto Passenger & Truck Time Saved (or Not Saved)
    - Disbenefit for all alternatives except Alts 3B & 9A
  - Economic Cost of Crashes

# Overview of Tier 2 Alternatives

## Cost Assessment

Alternative	Construction Cost	B/C Ratio
1: No Build	N/A	N/A
2C: Remove Skew (Centered)	\$1.6M	0.13
3B: Add NB & SB RT & LT Lanes	\$1.3M	0.44
5: Traffic Signal w/ Turn Lanes	\$2.5M	-0.01
6: Single-Lane Roundabout	\$2.8M	0.34
7: RCUT Intersection	\$4.1	0.00
9A: Grade-Separated Diamond IC	\$10.3M	0.20

Benefit/Cost Ratio < 1.0 → Cost is more than overall anticipated benefit

Benefit/Cost Ratio < 0.0 → More anticipated disbenefit than benefit

- **SH-75 LT & RT Turn Lanes: Lowest cost & highest overall B/C ratio**
- **Roundabout: Highest potential safety benefit (~\$2.5M in crash savings)**
- **Traffic Signal: Operational disbenefit slightly outweighs safety benefits**



# Overview of Tier 2 Alternatives

## Evaluation Criteria & Subcriteria

Avg. Rank from  
CAC Mtg. #1



### Safety Performance

- Expected change in crashes per year (all types and severities)
- Expected change in injury crashes per year
- Influence on angle type crashes
- Change in the number of vehicle-vehicle conflict points

**1.1**



### Mobility

- Average delay/level-of-service (by roadway approach)
- Expected residual capacity of the intersection
- Change in number of stops (by roadway approach)
- Travel time through the intersection
- Impact on the movement of freight and agricultural vehicles

**2.3**

# Overview of Tier 2 Alternatives

## Evaluation Criteria & Subcriteria

Avg. Rank from  
CAC Mtg. #1

### ➤ Physical and Environmental Impacts

- Impact to the physical landscape
- Impact to adjacent properties and/or access to adjacent properties
- Impacts to sensitive and/or protected environmental features (e.g., wetlands)
- Impervious surface added to the intersection area
- Impact to the “view shed” into the Wood River Valley

**2.8**

### ➤ Implementation & Maintenance

- Ease of construction
- Level of effort and ability to effectively maintain an alternative
- Capability of phasing an alternative

**3.9**

### ➤ Cost

- Construction costs
- Benefit/Cost ratio

**4.7**



Safety Performance	1.1
Mobility	2.3
Physical & Environmental Impacts	2.8
Implementation & Maintenance	3.9
Cost	4.7

Safety Performance	1.1
Mobility	2.3
Physical & Environmental Impacts	2.8
Implementation & Maintenance	3.9
Cost	4.7

Average Rank of Criteria from CAC Meeting #1		Safety Performance	Mobility	Physical & Environmental Impacts	Implementation & Maintenance	Cost
Criterion	Average Rank					
Safety Performance	1.1					
Mobility	2.3					
Physical & Environmental Impacts	2.8					
Implementation & Maintenance	3.9					
Cost	4.7					

Alternative	Safety Performance	Mobility	Physical & Environmental Impacts	Implementation & Maintenance	Cost
Alt #1: No Build					
Alt #2C: Removal of Intersection Skew (Centered)					
Alt #3B: Add Northbound and Southbound Right- and Left-Turn Lanes on SH-75					
Alt #5: Traffic Signal with Addition of Turn Lanes					
Alt #6: Single-Lane Roundabout with Approach Curvature					
Alt #7: Restricted Crossing U-Turn Intersection (RCUT)					
Alt #9A: Grade-Separated Diamond Interchange					



# Next Steps

- **Online Survey for General Public – First Few Weeks of August**
  - Link will be emailed and we'll look to you to distribute to your organization and contacts
- **Community Advisory Committee (CAC) Meeting #3 (*Last CAC Meeting*)**
  - Review Draft Intersection Study Report and Implementation Plan
  - When: Thursday, October 6<sup>th</sup>, 10:00am-12:00pm (tentative)
  - Where: Right back here!
- **Comment Sheet & Meeting Evaluation Form**
  - **PLEASE TURN IN YOUR COMMENT SHEET & MEETING EVALUATION FORM BEFORE YOU LEAVE TODAY.**

Study Website:

[http://itd.idaho.gov/projects/D4/US20ID75\\_IntersectionStudy](http://itd.idaho.gov/projects/D4/US20ID75_IntersectionStudy)

*Thank You!*

