

US 20 & SH 75
TIMMERMAN JUNCTION
Intersection Study



US-20/SH-75 (TIMMERMAN JUNCTION) INTERSECTION STUDY

TIER 2 ALTERNATIVES ASSESSMENT PACKET



The Idaho Transportation Department (ITD), in collaboration with local community leaders and representatives, is evaluating a wide range of alternatives for potential future improvements to the US-20/SH-75 (Timmerman Junction) intersection. This study is applying a tiered approach to evaluating alternatives and determining intersection improvement recommendations. This approach will involve three stages - Tier 1 Alternatives, Tier 2 Alternatives, Recommended Intersection Improvements.

This packet provides information on the existing conditions of the intersection, along with information on seven Tier 2 Alternatives for the intersection. The Tier 2 Alternatives are the those selected by the Study Management Team (SMT) out of the Tier 1 assessment for further evaluation by ITD.

ITD welcomes your feedback and appreciates your time in completing the comment sheet provided at the back of this packet. Your comments will be considered to help determine the alternatives carried forward as the Recommended Intersection Improvements.

For more information please contact:
Bruce Christensen
ITD Study Manager
208-886-7860
Bruce.Christensen@itd.idaho.gov

or visit
http://itd.idaho.gov/projects/d4/US20_ID75_IntersectionStudy/

EXISTING CONDITIONS

INTERSECTION CHARACTERISTICS

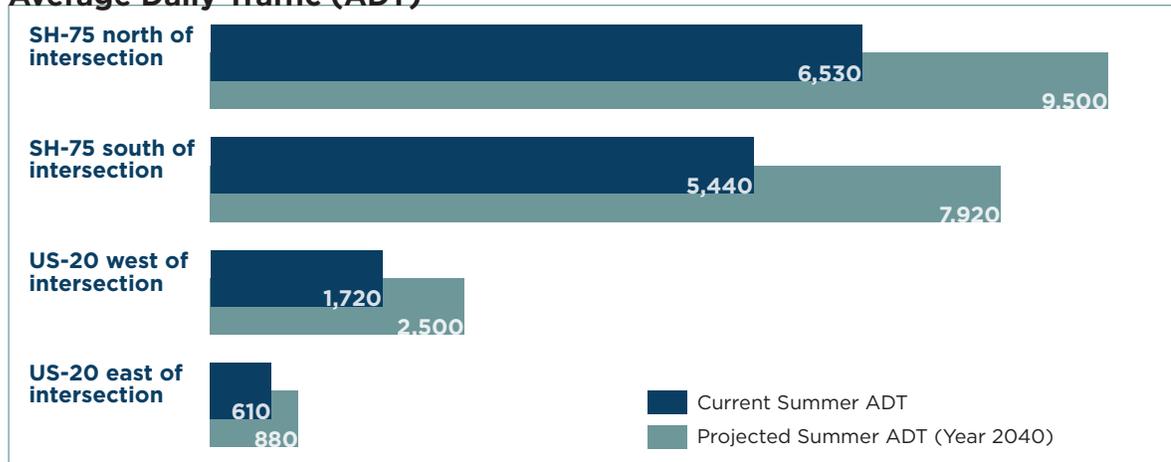


The US-20/SH-75 intersection is currently two-way, stop-controlled with eastbound and westbound US-20 being the stop-controlled approaches and northbound and southbound SH-75 being uncontrolled approaches. Each approach entry has a single left-through-right lane with the exception of the southbound entry, which has a left-through lane and a separate right-turn lane.

EXISTING CONDITIONS CONTINUED

	SH-75	US-20
Posted Speeds	45 MPH within 1/2 mile of intersection 55 MPH beyond 1/2 mile of intersection	65 MPH
Functional Classification	Minor Arterial	Principal Arterial (National Highway System Route)
Scenic Byways	 Sawtooth Scenic Byway	 Peaks to Craters Scenic Byway east of the intersection

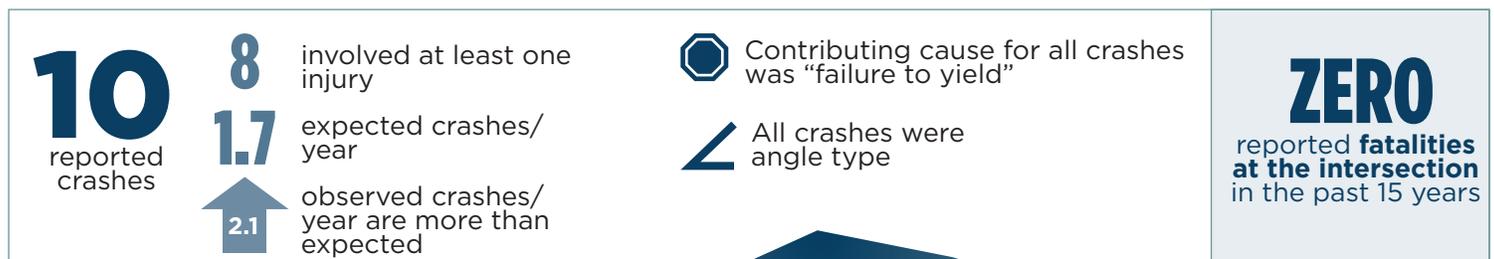
Average Daily Traffic (ADT)



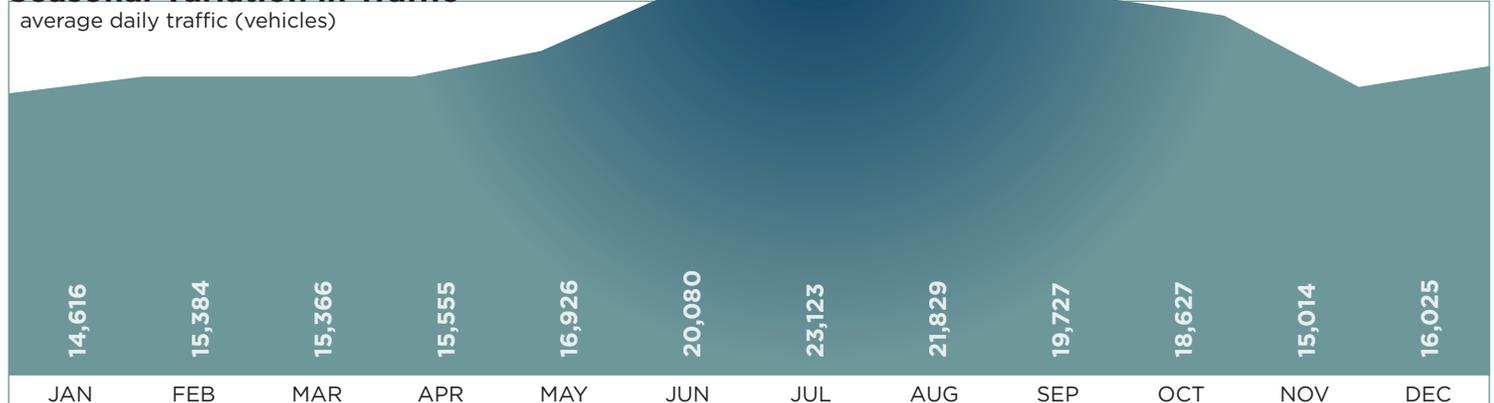
Trucks in ADT

4%
4%
8%
8%

Crash Data (2011-2015)



Seasonal Variation in Traffic



ALTERNATIVE 1

NO BUILD

The existing lane configurations and two-way, stop control remain in place at the intersection.



ASSESSMENT OF FUTURE CONDITIONS

Cost Assessment

Benefit/Cost Ratio	Construction	Maintenance
None	None	Low

Safety Performance

2.4 expected crashes/year

With the no-build condition...
 ↑ proportion of injury crashes expected to remain high
 ⬡ 'failure to yield' crashes expected to continue to be an issue

Future Traffic Operations (Year 2040)

SH-75	US-20	Expected Residual Capacity
A Level of Service	D Level of Service	56%
<1 Average Delay (sec/veh)	27 Average Delay (sec/veh)	

Study Management Team (SMT) Feedback from Meeting #2

- Reasonable short- to mid-term alternative.
- Plan for a build alternative for the long-term.
- Hard to justify cost given the low B/C ratios for the build alternatives.

SMT Average Rank:

1.2

ALTERNATIVE 2C

REMOVE SKEW (CENTERED)

US-20 is realigned to intersect perpendicular to SH-75 at approximately the same intersection location. All lane configurations remain unchanged. The existing two-way, stop control remains in place at the intersection.

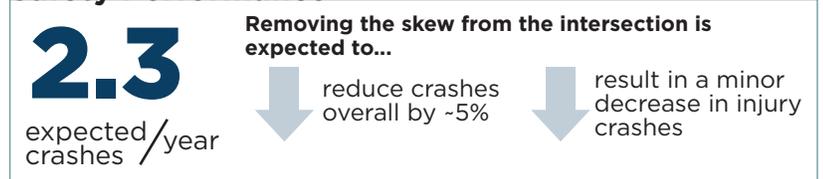


ASSESSMENT OF FUTURE CONDITIONS

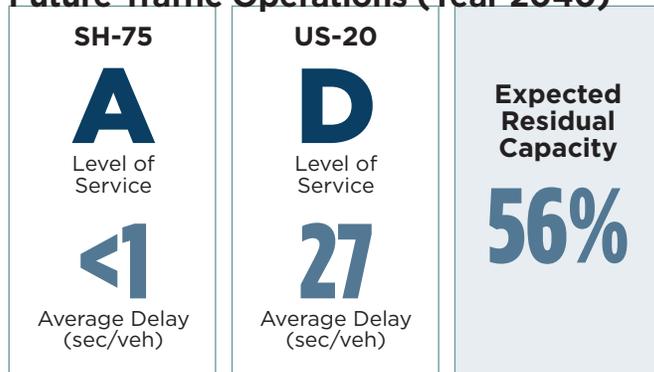
Cost Assessment



Safety Performance



Future Traffic Operations (Year 2040)



Mobility Compared to No Build



Study Management Team (SMT) Feedback from Meeting #2

- Potential “first phase” improvement for roundabout or other build alternatives.
- Recent crash history shows the majority of crashes occurring on the acute skew angles. Not clear if removal of skew would help reduce crashes.

SMT Average Rank:
3.3

ALTERNATIVE 3B

ADD NORTHBOUND AND SOUTHBOUND LEFT- AND RIGHT-TURN LANES ON SH-75

Northbound left- and right-turn lanes are added on SH-75. A southbound left-turn lane is added on SH-75. All other lane configurations remain unchanged. The existing two-way, stop control remains in place at the intersection. Widening occurs on the north and south legs of the intersection.

Note that left-turn lanes are generally not warranted according to ITD Turn Lane Warrant Guidance

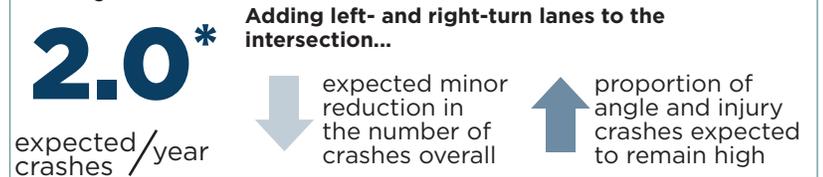


ASSESSMENT OF FUTURE CONDITIONS

Cost Assessment

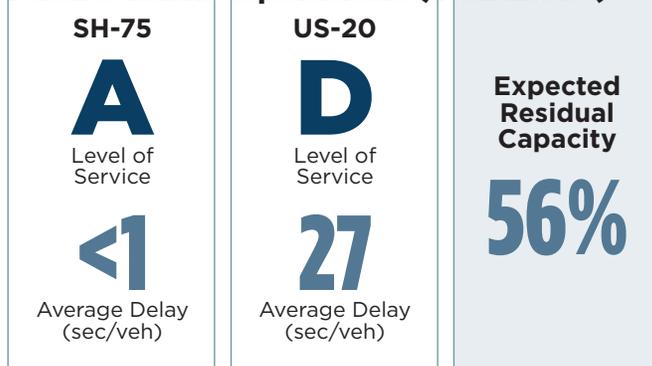


Safety Performance



*Given historical crashes are primarily angle type, actual crashes/year may be higher than estimated.

Future Traffic Operations (Year 2040)



Mobility Compared to No Build



Study Management Team (SMT) Feedback from Meeting #2

- Concerns about additional intersection width and potential for additional blind spots.
- Capability to reduce crashes is not clear.
- Consider as short- to mid-term improvement and not implementing the northbound right-turn lane (low volume).

SMT Average Rank:

4.0

ALTERNATIVE 5

TRAFFIC SIGNAL WITH ADDITION OF TURN LANES

Install a traffic signal control with separate left-turn and right-turn lanes on all approaches. Installation of the turn lanes requires widening of all four legs of the intersection. The traffic signal is not expected to be warranted for at least 15 years.



ASSESSMENT OF FUTURE CONDITIONS

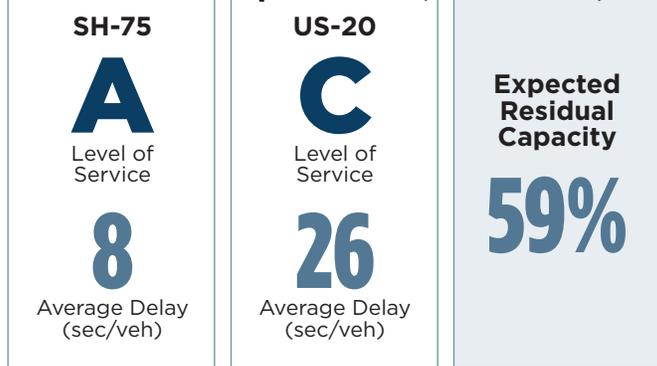
Cost Assessment



Safety Performance



Future Traffic Operations (Year 2040)



Mobility Compared to No Build



Study Management Team (SMT) Feedback from Meeting #2

- Visual impact is a consideration.
- Most significant mobility impact and no physical geometry to prevent angle crashes.

SMT Average Rank:

4.2

ALTERNATIVE 6

SINGLE-LANE ROUNDABOUT WITH APPROACH CURVATURE

Install an approximately 160-foot diameter roundabout with single-lane entries and exits and a truck apron to allow large and oversized vehicles to negotiate the roundabout.

Successive approach curves are used in advance of each roundabout entry to improve speed consistency and visibility approaching the roundabout.

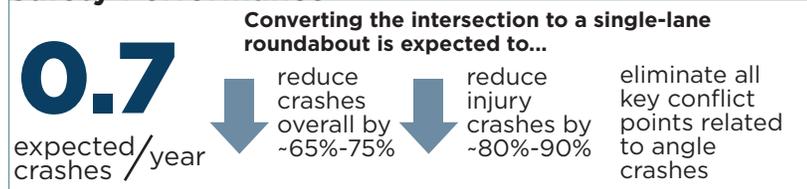


ASSESSMENT OF FUTURE CONDITIONS

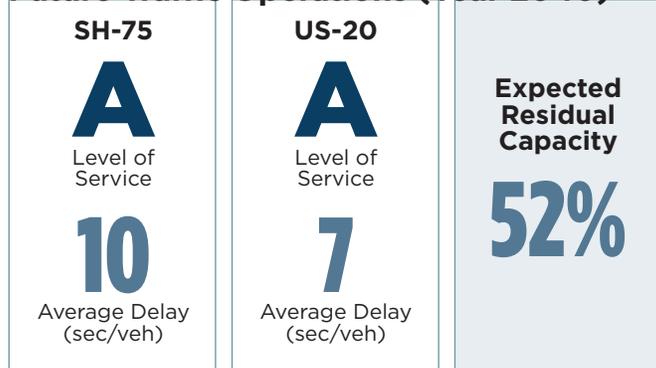
Cost Assessment



Safety Performance



Future Traffic Operations (Year 2040)



Mobility Compared to No Build



Study Management Team (SMT) Feedback from Meeting #2

- Roundabout provides the most safety benefit and is a good long-term option.
- Expensive and has a mobility disbenefit.

SMT Average Rank:
2.3

ALTERNATIVE 7

RESTRICTED CROSSING U-TURN (RCUT) INTERSECTION

Installation of a restricted crossing u-turn (RCUT) intersection eliminates the left-turn and through movements from the US-20 approaches. Instead, drivers turn right from US-20 onto SH-75 and then make a U-turn maneuver at a one-way median opening to then proceed through on SH-75 or right on US-20. Movements on SH-75 remain free flow. The RCUT requires widening on SH-75 to accommodate the raised medians and the loons that allow for large trucks to make the U-turn maneuvers.

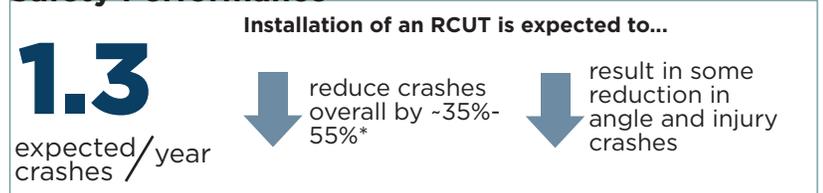


ASSESSMENT OF FUTURE CONDITIONS

Cost Assessment

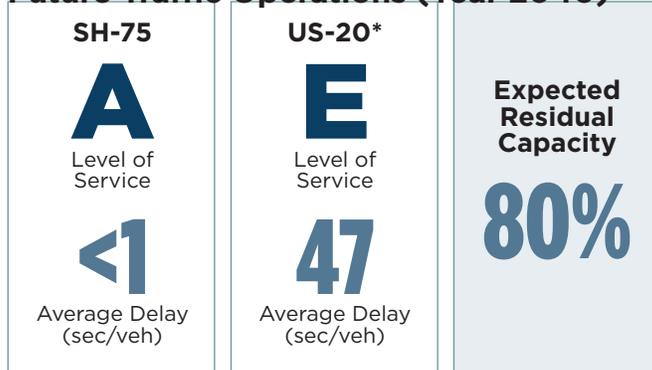


Safety Performance



*Actual crash reduction percentage could vary widely as crash reduction data for RCUT intersections is limited.

Future Traffic Operations (Year 2040)



*LOS and average delay are reported for the combination of right-turn and u-turn movements required for eastbound and westbound traffic.

Mobility Compared to No Build



*Increase in stops is due to more than one stop now required for eastbound and westbound through and left-turn movements.

Study Management Team (SMT) Feedback from Meeting #2

- Not enough benefit for the cost, especially compared to other build alternatives.
- Significant out-of-direction travel and mobility disbenefit to US-20 traffic.

SMT Average Rank:
6.0

ALTERNATIVE 9A

GRADE-SEPARATED DIAMOND INTERCHANGE

Convert the existing at-grade intersection to a grade-separated diamond interchange with US-20 elevated above SH-75. Two unsignalized, stop-controlled intersections would be installed at the ramp terminal intersections with US-20.

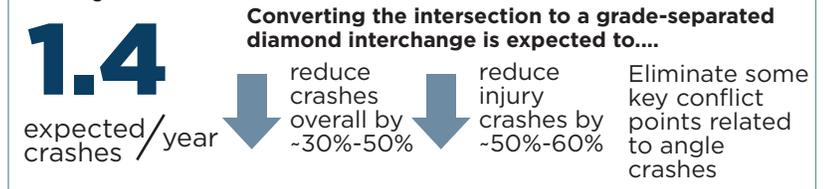


ASSESSMENT OF FUTURE CONDITIONS

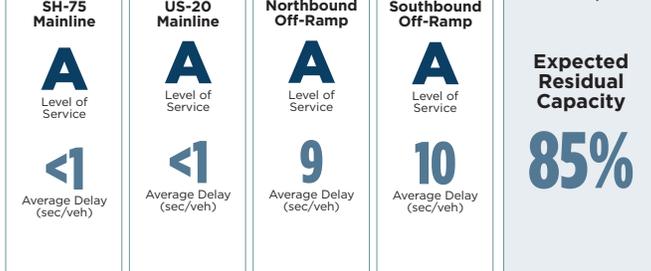
Cost Assessment



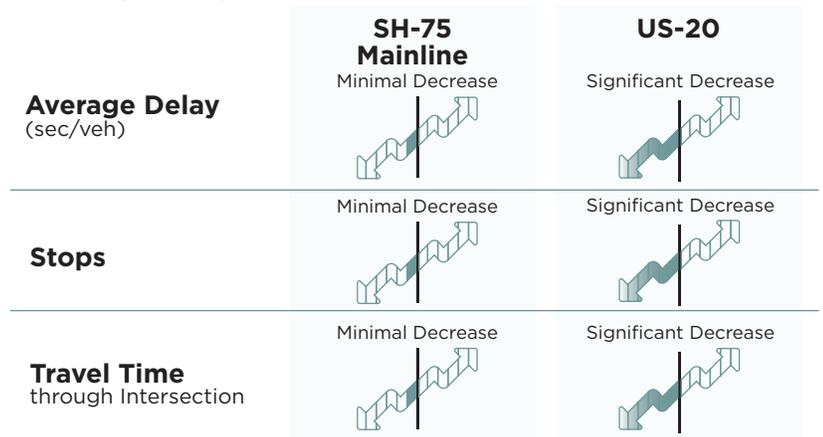
Safety Performance



Future Traffic Operations (Year 2040)



Mobility Compared to No Build



Study Management Team (SMT) Feedback from Meeting #2

- The volumes and safety history do not warrant this level of expenditure.
- Not visually acceptable.

SMT Average Rank:

7.0

COMMENT SHEET

CAC MEETING #2 - JULY 14TH, 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 July 21st.

Intersection Alternatives (Tier 2) Evaluation

- > Please rank the alternatives from 1 through 7 in order of preference (1 being your most preferred alternative)
- > Circle the best timeframe for implementation of alternatives or chose "never"

Alternative	Rank	Best Timeframe (circle one)		Please explain your rankings and provide any other comments on the alternatives
1: No Build		Short-Term	Mid-Term	
		Long-Term	Never	
2C: Remove Skew (Centered)		Short-Term	Mid-Term	
		Long-Term	Never	
3B: Add Northbound and Southbound Left- and Right-Turn Lanes on SH-75		Short-Term	Mid-Term	
		Long-Term	Never	
5: Traffic Signal with Additional Turn Lanes		Short-Term	Mid-Term	
		Long-Term	Never	
6: Single-Lane Roundabout with Approach Curvature		Short-Term	Mid-Term	
		Long-Term	Never	
7: Restricted Crossing U-Turn (RCUT) Intersection		Short-Term	Mid-Term	
		Long-Term	Never	
9A: Grade-Separated Diamond Interchange		Short-Term	Mid-Term	
		Long-Term	Never	

Short-Term = 0-10 years; Mid-Term = 10-20 years; Long-Term = 20+ years

Please provide any general comments or comments on the alternatives evaluation process

MEETING EVALUATION

CAC MEETING #2 - JULY 14TH, 2016



Please provide feedback regarding today's meeting.

What worked well for this meeting?

What did not work so well?

What suggestions do you have for our next CAC meeting?

Other comments
