

US 95 and SR 117 Intersection - Safety Evaluation

Project Number:	Unknown	Project Name:	US95/SR117 Roundabout	District:	2
Project Location: (Length)	Intersection of US95 & SR117	County:	Churchill	Design Stage:	Preliminary
Type of Analysis:	Pred. - IHSDM	Type of Facility:	2 Lane Rural – Intersection	Analysis years:	2013-2033

SUMMARY

1.1 Project

The intersection of US 95 and SR117 and the intersection of South Maine Street and Wildes Road near Fallon in Churchill County have experienced 12 crashes over the previous five years with a relatively low AADT. Since these intersections are so close to one another they could be consolidated to a single intersection for installation of a single lane roundabout. For the purposes of this evaluation they have been analyzed for crashes separately and compared as a single intersection for the Benefit Cost Analysis.

1.2 Alternative

Replace the two, two lane rural intersections with a single one lane roundabout.

1.3 Crash Prediction Analysis and Benefit Cost Ratio

Crash prediction analysis was performed using the IHSDM Site Set data model to incorporate Empirical Bays. A crash modification factor of 0.29 for roundabouts on all types and severities of crashes was applied to calculate the expected crashes for 2013 to 2033 on the alternative. A potential crash reduction table and corresponding Benefit Cost Ratio table are provided below:

	2013-2033 Expected Total Number of Crashes	
	Existing Conditions	Alt. 1
		Roundabout
<i>Total</i>	47.1	27.0
<i>Reduction in Total Crashes over Existing Conditions</i>	N/A	20.1
<i>Crash Reduction Factor (CRF)</i>	N/A	43%
<i>Total Alternative Cost</i>	N/A	\$4,378,865
<i>Total Annual Benefit including 2% Growth per year</i>	N/A	\$114,092
<i>Total Annualized Cost</i>	N/A	\$301,173
<i>Benefit-Cost Ratio</i>	N/A	0.37
<i>Average Annual Net Return</i>	N/A	(\$192,081)

1.4 Results

Consolidating the two intersections by building a single roundabout is estimated to reduce crashes by 43% annually with a Benefit Cost Ratio of 0.37. The cost of implementing the roundabout at this location exceeds the safety improvement benefits due to site constraints.