

I-580 and U.S. 395 Alternative - Safety Evaluation

Project No.:	Unknown	Project Name:	I-580	District:	2
Project Location: (Length)	Southern End of Reno (9.5 Miles)	County:	Washoe	Design Stage:	Built
Type of Analysis:	Pred. - IHSDM	Type of Facility:	Freeway	Analysis years:	2014-2034

SUMMARY

1.1 Project

Predict the safety benefit of the new section of I-580 and U.S. 395A compared to the old U.S. Route 395 considering no-build of I-580. The new section of I-580 opened in August 24, 2012 and is 9.5 miles long, spanning from Washoe City to Mt. Rose Junction. After the opening U.S. 395 changed its name to U.S. 395A. The AADT for U.S. 395 in 2013 was approximately 33,000 vpd.

1.2 Alternatives

Evaluate the new section of I-580 and U.S. 395A compared to the old U.S. Route 395.

1.3 Crash Prediction, Reduction and Benefit Cost Ratio

Utilizing the Interactive Highway Safety Design Model (IHSDM) software, the Freeway Predictive Method was applied to the I-580, U.S. 395 and U.S. 395A segments to calculate the predicted total number of crashes for the study period. Crash reduction table and corresponding Benefits-Cost Ratio (BCR) information are provided below:

Predicted and Expected Number of Crashes in 2014	Existing Condition		Comparison Scenario
	I-580	U.S. 395A	Old U.S. 395
Total Number of Crashes	38.06	15.12	62.84
Fatal and Injury Crashes	13.05	8.68	22.56
Reduction in Total Crashes over Existing Conditions	-	-	9.66
Reduction in Fatal and Injury Crashes over Existing Conditions	-	-	0.83
Predicted and Expected Number of Crashes in 20 Years	Existing Condition		Comparison Scenario
	I-580	U.S. 395A	Old U.S. 395
Total Number of Crashes	799.22	317.34	1319.69
Fatal and Injury Crashes	273.97	304.33	602.04
Reduction in Total Crashes over Existing Conditions	-	-	203.13
Reduction in Fatal and Injury Crashes over Existing Conditions	-	-	23.74

- The net present value of the benefits, assuming a discount rate of 7%, will be about \$946.02 million and the net present value of the implementation costs will be about \$535.66 million. The BCR is 1.76.
- The payback period is 12 years at a discount rate of 7% after the project opens.

1.4 Results

The safety of the old U.S. 395/U.S. 395A will be improved significantly given the historical crash records involved approximately 70 crashes per year from 2007 to 2011. A BCR of 1.76 was obtained for the I-580 Expansion Project. The project has more benefits to cost and will produce economic benefits in crash reduction.