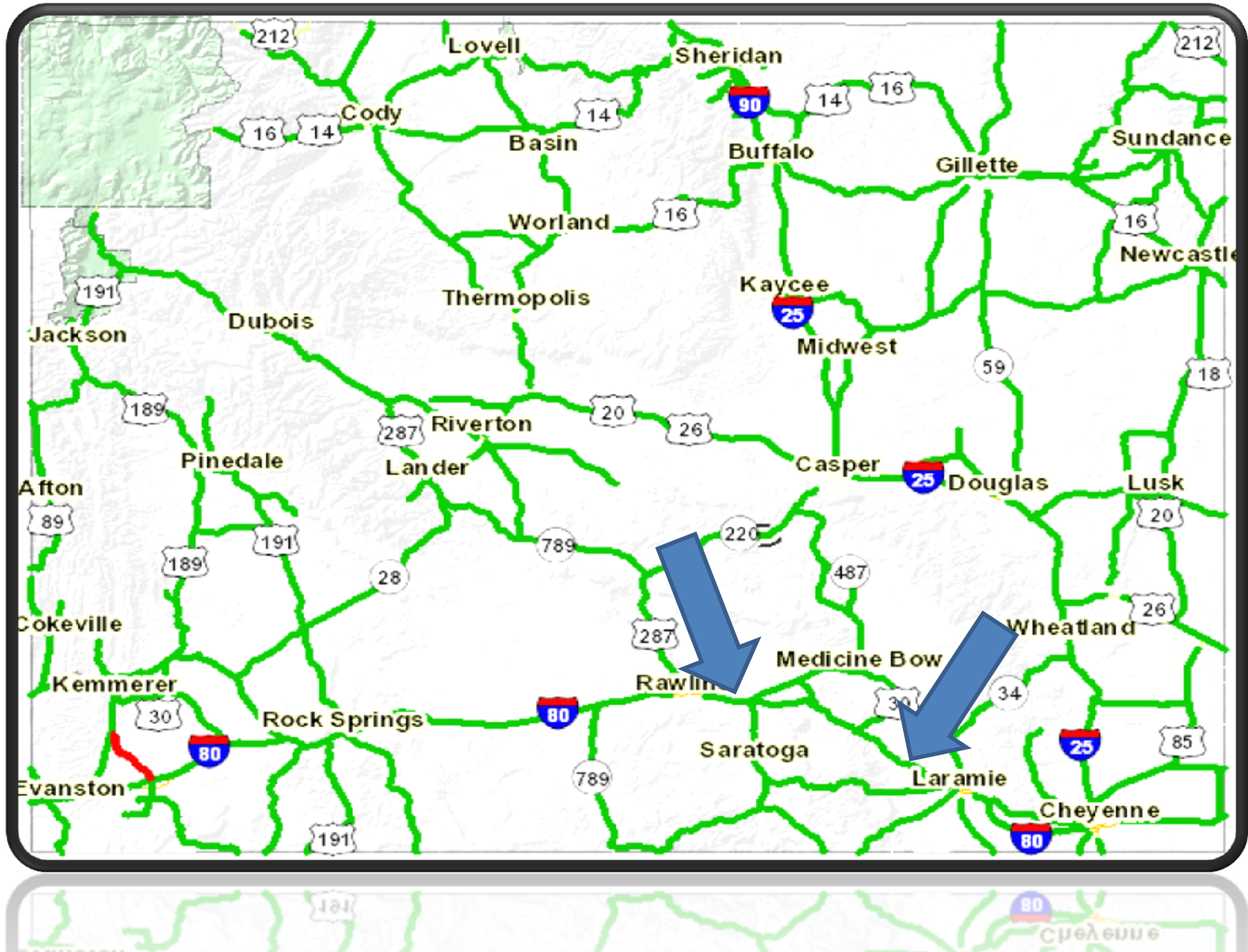


I-80 Variable Speed Limit



I-80 Variable Speed Limit



I-80 Variable Speed Limit

- The main objectives of this research project were to:
 - Implement a Variable Speed Limit (VSL) system to improve safety and reduce closure frequency and durations on the I-80 Elk Mountain corridor.
 - Create a decision support system to implement the VSL system. The decision support system is to be created to reduce the speed variability in the corridor during adverse weather conditions.
 - Reduce crashes and shorten road closures over the long term.

I-80 Variable Speed Limit

- Results:
 - Variable speed limit signs reduced observed speeds by 3.4 to 6.4 mph for every 10 mph of speed reduction on the VSL signs beyond the slowing attributed to weather conditions.
 - The winter after variable speed limit system implementation had the lowest reported crash frequency and crash rates compared with the 10 prior winters.
 - Higher speed compliance was observed during winter periods when the variable speed limit system was used when compared to the seasonal speed limit reduction from 75 to 65 mph.

I-80 Variable Speed Limit

- **Elk Mountain Corridor Crash Data from Feb 18, 2004 - Feb 17, 2010**

	Total Crashes	Total Injury	Total Fatal
	Crashes	Crashes	Crashes
Feb 18, 2004- Feb 17, 2005	237	67	6
Feb 18, 2005- Feb 17, 2006	292	72	2
Feb 18, 2006- Feb 17, 2007	329	87	4
Feb 18, 2007- Feb 17, 2008	353	84	2
Feb 18, 2008- Feb 17, 2009	284	72	1
Feb 18, 2009- Feb 17, 2010	197	38	3



I-80 Variable Speed Limit

- Updates:
 - **Four new** VSL corridors have been implemented. Three on I-80 and one on WYO 28.
 - A before and after model of crash frequency on the VSL corridors was created that accounted for the weather severity of the different years.
 - The model found that crashes were reduced by 0.67 crashes per week per 100 miles of VSL corridors, which given the 143 miles of VSL corridors on I-80 equates to **50.1 crashes per year avoided** through use of the VSL system.
 - Using *Highway Safety Manual* values for crash costs and crash severity distributions, it is estimated that the VSL systems generates \$4.7 million dollars in safety benefits per year.
 - Given the average cost of \$1 million per VSL corridor to install sensing and sign technology, the four VSL corridor safety benefits exceeded the capital costs after just one year.

I-80 Variable Speed Limit

- Now there a total of 5 corridors: 4 on I-80 and 1 on WYO 28.
- I-80 Corridor:

VSL Corridor	Begin MP	End MP	Length (Miles)
Laramie Cheyenne	315	357	42
Elk Mountain	238	291	53
Green River	87	112	25
Evanston	6	29	23
		Total =	143

I-80 Variable Speed Limit

- To get a copy of the report go to:
 - http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Research/WYDOT_ElkMtn_VSL_FinalReport.pdf