

Montana Department of Transportation
Research Programs
July 2011

EXPERIMENTAL PROJECT WORK PLAN

EVALUATION SMART CUSHION INNOVATIONS (SCI) 100GM CRASH ATTENUATOR

Project selection will be dependent upon locations available. Two projects being considered are as follows:

<u>Project Name</u>	<u>Project Number</u>	<u>Project Location</u>	<u>Project Length</u>
Taft - West	IM 90-1(84)0	Taft	N/A
Custer Interchange	M-MT 15-4(107)19	Helena	N/A

FHWA Project Number: Pending

Project Type: Evaluation of SCI100GM speed-dependent crash attenuator

Principal Investigators: Craig Abernathy, Experimental Program Manager

Objective

Determine the effectiveness of the SCI100GM in a mainline application. The SCI100GM is a fully redirective, non-gating, bi-directional crash attenuator with a reverse-tapered design to eliminate side panel stress during a collapse. In addition it has a low angle of exit on side impacts (<1°) to keep vehicles from rebounding back into traffic. The hydraulic porting of the attenuator ensures that the proper resistance is used to stop the vehicle before it reaches the end of the cushion's usable length. Per the manufactures information, this device, based on a frontal impact, may be reset and back in service under an hour with minimum cost.

Goals:

- Document all processes pertaining to the installation procedures.
- Install the device at strategic locations with high impact rates in an effort to:

- Determine performance during an impact,
- Repair procedures following impacts,
- The cost of repair and time required to fully repair product,
- Maintenance feedback following the repairs,
- Any adverse effects of sanding and anti-icing agents on the cables, cylinder system, side guides, or front rollers.

Experimental Design

This experimental project is currently based with the installation at two sites listed above. Additional sites centered on the objectives stated may be added at a later date.

Evaluation Procedures

Research will document the installation practice and schedule site visits biannually to record the physical condition of the devices. When the attenuators have been involved in an active traffic event (collapse by vehicle impact), Research will document the condition of the unit and all steps involved to put in back in service. Cost of repair and time required will be included.

Evaluation Schedule

Research will monitor performance for a period of five years annually, with every year up to *ten years (informally/optional). This is in accordance with the Department’s “Experimental Project Procedures.” Delivery of a construction/installation report, interim, annual or semi-annual reports is required as well as a final project report (responsibility of Research). All products will be distributed internally to appropriate staff and posted to the Departments intra/internet site.

2011:	Research Installation/Construction Report
2011-2015:	Biannual Evaluation/Annual Reports
2016:	Final Evaluation/Final Report (annual if elected to continue the evaluation)
*2016-2021:	Annual Evaluation/Reports (Informal)

Key Contacts

People involved with the development of this experimental project:
Joe Nye – Inspection Operations Supervisor