

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Central Region Traffic, Safety & Utilities Section

FFY14 Highway Safety Improvement Program
Candidate Description and Cost Estimate

Candidate Name

14CR06 Sterling Highway Shoulder Widening with Rumble Strips and Safety Edge-Soldotna to Clam Gulch

Candidate Location

This candidate proposes to widen the shoulders from 4' to 8' for approximately 20 miles (north and south directions), install shoulder rumble strips and include a safety edge. The candidate is located along Sterling Highway (CDS # 110000) on the Kenai Peninsula between the communities of Soldotna MP 97 (mile point 58.6) and Clam Gulch MP 118 (mile point 78.9).

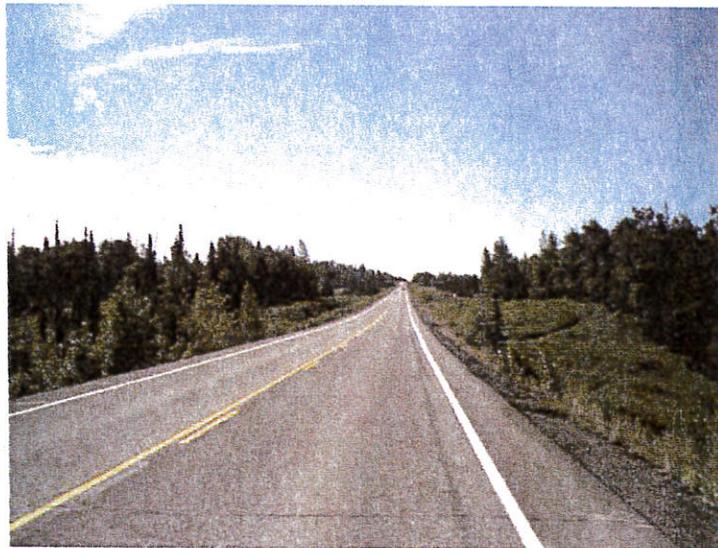
2006-2010 Screening List Rates

Two segments within this candidate's project limits are listed on the High Accident Screening List for the 2006-2010 study period. The first segment is approximately 2.5 miles and ranks 14th out of 191 segments with an accident rate of 1.53/MVM and a severity indicator of 2.005. The second segment is approximately 3 miles long and ranks 184th with an accident rate of 0.91/MVM and a severity indicator of 0.002. These rates are lower than the current statewide average rate (2.00/MVM) for this type of highway; however the accident history and severity indicators show fatal and major injury crashes occurring within this project's limits, making these segments eligible for HSIP consideration.

Location Description

Sterling Highway is a two-lane Principal Arterial roadway with an existing typical section that includes (2) 12' lanes with 4' paved shoulders. The candidate's limits spans approximately 20 miles of highway. The mid-year's 2007 ADTs range from 3,454 to 6,400 (weighted average 4,677) within this project's limits. The posted speed is 55 MPH throughout the project limits.

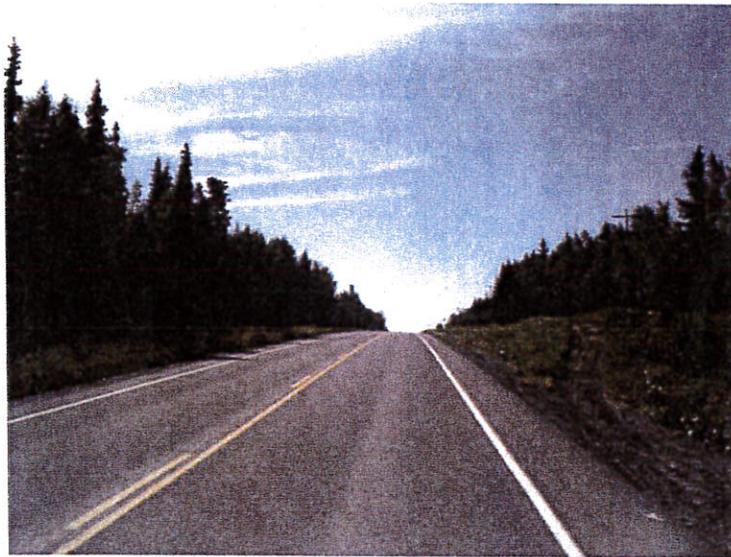
Site visits to the area by DOT staff report frequent and recurring pavement edge drops up to 4 inches in some locations where the gravel edge line has worn away. A nearby ATV trail may be contributing to the deterioration of the gravel foreslope in some locations.



MPt. 77.5, Sterling Highway, DOT&PF Road Viewer 2011



Mpt. 59.7, Sterling Highway, DOT&PF Road Viewer 2011



Mpt. 62.7, Sterling Highway, DOT&PF Road Viewer 2011

Existing Accident Patterns

There was a total of 266 collisions within the project limits during the 2006-2010 study period. Of these crashes, 91 (34%) were categorized as Run off the Road type crashes. 93 crashes were analyzed as susceptible to correction by the proposed improvements. The breakdown of these targeted crashes is: one fatal crash, 6 major injury crashes, 24 minor injury crashes, and 62 property-damage-only crashes.

Proposed Mitigation

No future 3R or 4R projects are programmed in the STIP for this candidate's mile point range for the next 3-5 years indicating this highway will remain with the existing 32' top width without rumble strips for the foreseeable future. This nomination proposes to widen the shoulders an additional 4' for a total shoulder width of 8' in both travel directions for a uniform highway upgrade. This nomination also includes adding a 30 degree safety edge and shoulder rumble strips.

As outlined in the 2013 HSIP Handbook, widened shoulders for the segment would provide significant safety improvements and reduce SVROR, same and opposite direction sideswipe, and head-on type crashes.

These improvements will resolve the “Inadequate shoulder width” shown on the Alaska Highways Rumble Strips and Cross Centerline Crashes Map (March 2010) included with this nomination and again support a more uniform treatment of the Sterling Highway.

A safety edge may help drivers who have left the roadway and are trying to correct by offering a sloped surface for a smoother transition. This nomination uses a Crash Reduction Factor of -5% for all crashes provided in the 2013 HSIP Handbook.

The project limits may be split into two smaller projects (phased) and funding apportioned for ease of project delivery and to reduce construction impacts to the communities along the corridor.

Scope Details Include:

- Removal 2' existing shoulder to provide a contiguous shoulder subgrade;
- Guardrail replacement with upgraded end terminals;
- Transitioning approaches and driveways;
- Select highway lighting near Soldotna may need to be relocated;
- Safety edge is not suggested where guardrail is being replaced;
- Existing HSIP roadside delineation at select horizontal curves installed in 2010 will need to be relocated/adjusted.

Existing Projects in the Area

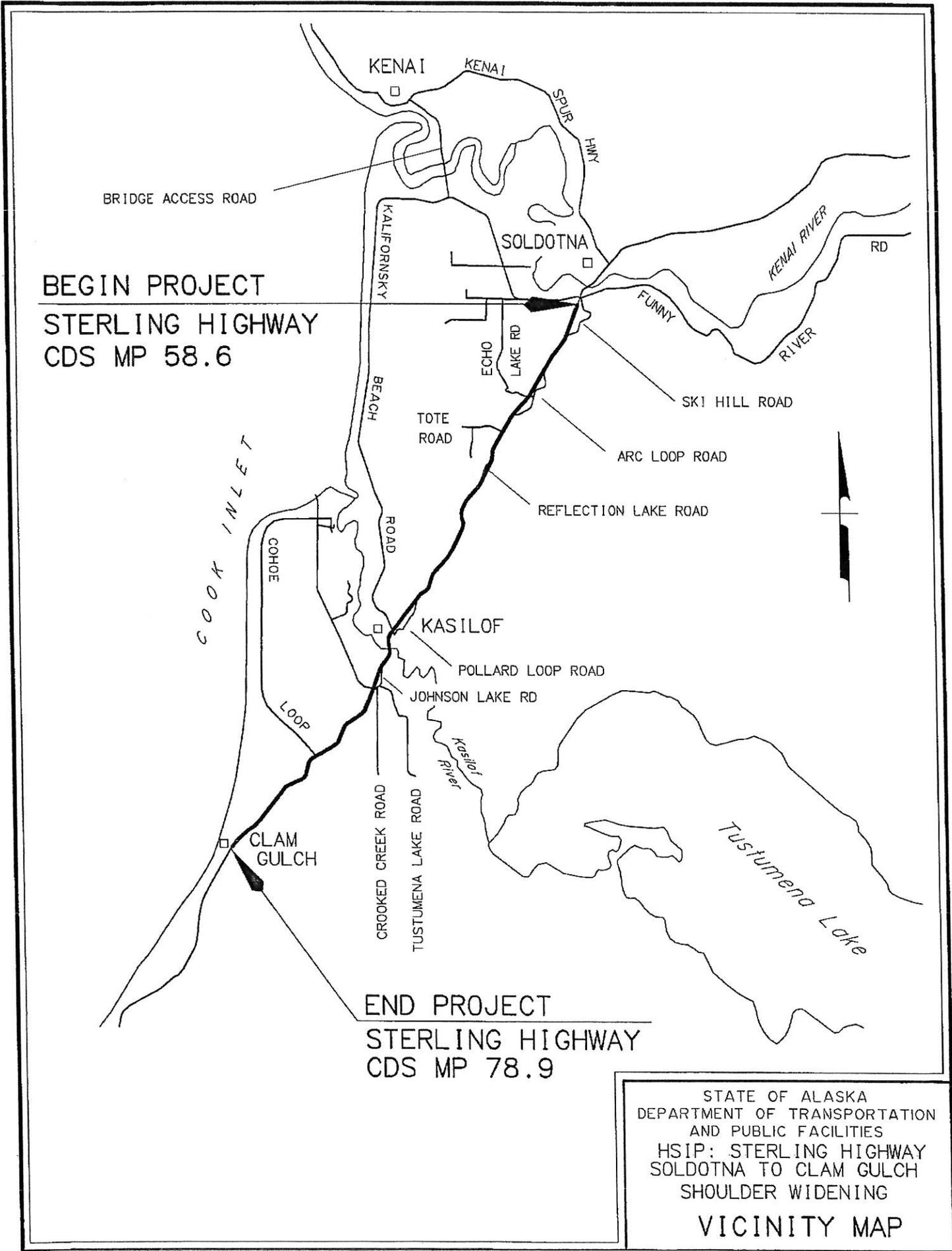
An existing FFY12 HSIP project proposes to install slow vehicle turnouts (SVTs) systemically on the Sterling Highway between Mileposts 102-160. There are 5 SVTs designed within this nomination's project limits. 2006-2010 crashes within the 5,900 ft. influence areas of the designed HSIP SVTs were removed from consideration for this candidate so as to not duplicate targeted crashes.

SHSP Conformance

This project conforms with the Strategic Highway Safety Plan by constructing safety improvements that address SVROR and head-on type crashes.

Benefit/Cost Ratio

This candidate has a benefit/cost ratio of **0.23:1**, meeting the current minimum nomination requirement. This was determined by evaluating crashes and combining the three proposed improvements (Shoulder widening, safety edge and rumble strips) into 1 Accident Reduction Factor (ARF) over the project length where crashes susceptible to correction by multiple treatments occurred. In addition, the HSIP Handbook's required Crash Reduction Factor (CRF) Shoulder Widening Calculation specified in FHWA RD-99-207 was used to calculate the CRF for 4'-8' shoulder widening. No crashes were credited as susceptible to correction for more than one ARF or CRF.



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HSIP: STERLING HIGHWAY
SOLDOTNA TO CLAM GULCH
SHOULDER WIDENING
VICINITY MAP