



## Value Engineering Study Report



### **Seward Highway – Windy Corner MP 105 to 107 Alaska Dept. of Transportation and Public Facilities Anchorage, AK**

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## 1.0 Executive Summary

URS Corp. was selected by the Alaska Dept. of Transportation and Public Facilities (ADOT) to conduct a value engineering (VE) study for improvement options to the Windy Corner reach, milepost (MP) 105 to 107, of the Seward Highway south of Anchorage, AK. The study was facilitated by OAC Services, Inc., and completed from January 24-28, 2011. Representatives from ADOT, Alaska State Parks/ Dept. of Natural Resources, and the VE team participated in the January 24, 2011 informational meeting and site visit for the study.

### 1.1 Background

The Seward Highway is the main north-south link between Anchorage and Seward, AK. Recognized for its scenic, natural, historical and recreational values, the 127-mile Seward Highway holds triple designation: USDA Forest Service Scenic Byway, Alaska Scenic Byway, and All-American Road. The first 50 miles of the Seward Highway skirts the base of the Chugach Mountains and the shore of Turnagain Arm, where it's common to see beluga whales, Dall sheep, waterfalls and eagles. The remainder of the drive courses through the mountains, offering dramatic views.

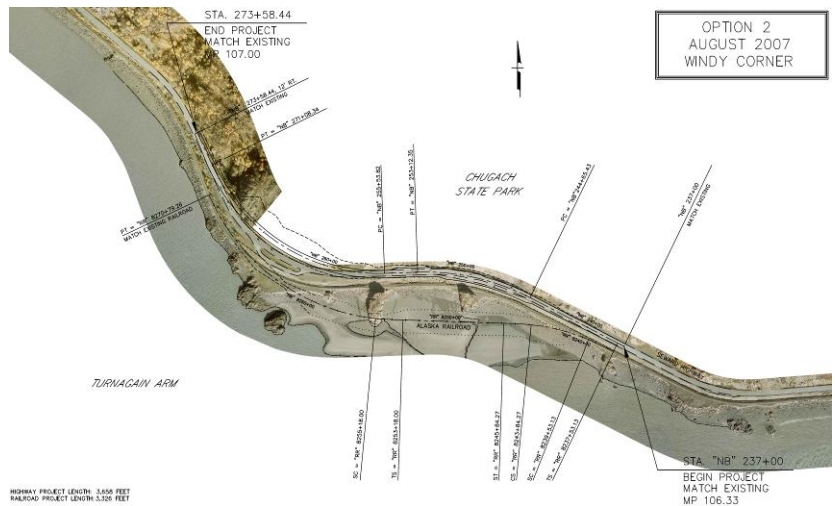
The Windy Corner reach, between milepost (MP) 105 to 107, is approximately 20 miles south of Anchorage. Between the spring and fall, Dall sheep are commonly seen on the slopes of the mountains. As the sheep come within view, motorists, typically visitors to the State, pull off on existing designated turnouts or off on the shoulder. The vehicles slowing and parking have an adverse effect on the flow of traffic in this reach and create safety hazards. Area residents see this reach of the Highway as an area where safety improvements are warranted.

In 2006, while design was progressing with federal funds, the Alaska legislature appropriated \$12 million dollars for construction of the Windy Corner project. In 2008, the Alaskan voters approved an additional \$20 million dollars in general obligation bonds for the project. The Department has developed ten design options for review and analysis. These have been narrowed to three project options available for review as part of the VE study scope.

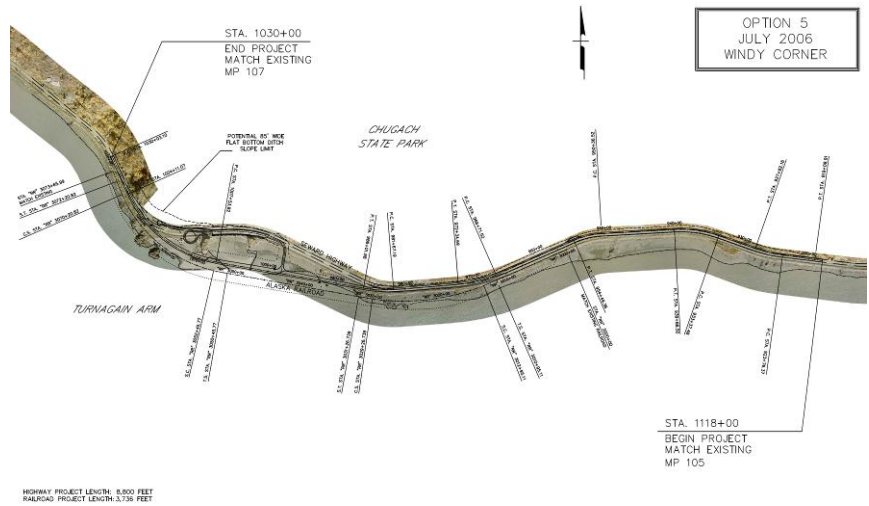
### 1.2 Project Description

The three options studied are as follows:

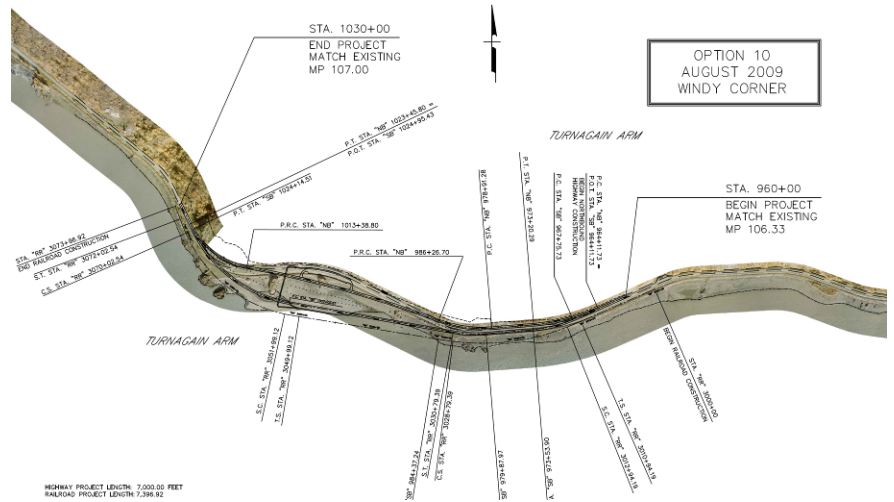
Option 2 - This option is the least extensive option at 3,700 feet in length. The option revises the horizontal alignment at Windy Corner by removing the rock point at that location, provides two small pullouts, one on each side of the highway, and the revises 3,600 lineal feet of railroad track near Windy Corner. Two curves would be revised to meet a design speed of 60 MPH and a southbound passing lane would be added for the length of the alignment. Rock excavation, including areas within the sheep habitat, is called for in this option.



Option 5 - This option most closely matches the preferred alternative from the Environmental Document. This option upgrades the design speed in two curves, removes one curve, and has a design speed of 65 MPH. It includes a southbound passing lane approximately 6,200 feet in length and a 30 vehicle parking/viewing area. There is approximately 7,350 feet of railroad realignment that would move tracks out to the furthest extent feasible into Turnagain Arm. There is no rock excavation within Chugach State Park with this alternative.



Option 10 – This is the most extensive of the three options. The revised alignment has a divided four-lane highway section approximately 6,100 feet long, two pullouts, one with capacity for 30 vehicles, and pedestrian tunnels under the highway. Rock excavation would be required within Chugach State Park with this option. The railroad realignment in this alternative is the same as option 5 at 7,350 feet long and the furthest displacement into Turnagain Arm.



**1.3 Project Goals**

The project team described the project goals as:

- Improve safety for motorist and pedestrians
- Provide safe access to viewing areas
- Accommodate critical whale habitat
- Address cultural resources
- Sculpt rock cuts for safety and aesthetics
- Optimize right of way and compensation issues
- Separate pedestrians and motor vehicles
- Maintain the scenic viewshed
- Maintain sheep habitat
- Mitigate rock falls
- Address public perceptions
- Create a corridor for the ultimate four-lane build-out

#### **1.4 VE Study Objectives**

The VE study objectives were defined by the project team as:

- Identify options and opportunities to meet safety goals within the construction budget
- Identify options and opportunities to enhance scenic value
- Maintain design criteria in identified alternatives
- Maintain the existing level of service (LOS) in identified alternatives

#### **1.5 Key Recommendations**

The VE team recommends several key ideas that emerged in response to the study objectives, project goals, identified issues, and major opportunities for project improvement. It should be noted that ideas presented below are, for the most part, mutually exclusive in implementation. The full text and discussion of each alternative is presented in Section 2 of this report.

##### Enhance Safety

- ES-13 Create a compact section for Options 5 and 10
- ES-28 Relocate the railroad in Option 2 closer inland and extend road improvements further south
- ES-46 Revise rail and roadway alignments in Options 5 and 10 to reduce earthwork
- MI-43 Start communication with the Corps of Engineers, Coast Guard, National Marine Fisheries Service (NMFS) and other regulatory agencies on the impacts of beluga whale critical habitat

#### **1.6 Description of the Study**

The study was conducted in accordance with the Value Engineering Job Plan found in Section 3 of this report. The Value Improvement Matrix, found in Section 2, summarizes the ideas selected for further development by the VE team during the study that are areas of opportunity for improving the value or function of the project. Presentation of the VE study findings and recommendations were given to the representatives of ADOT and State Parks/DNR on Friday, January 28, 2011. The Value Improvement Matrix lists the implementation decision of the project team for each idea. Details of the value analysis workbooks can be found in Section 2 of the final report.

#### **1.7 VE Study Team**

Facilitator – Randy Barber, PE, CVS, OAC Services, Inc.

Project Manager/Transportation Engineer – Julee Trudeau, PE, URS Corporation

Transportation Engineer – Peter Crews, PE, URS Corporation

Geotechnical Engineer – Rick Mitchells, PE, Golder Associates

Rail Engineer – David McCourtney, PE, Hanson Alaska

Environmental Scientist – Rich Kleinleder, URS Corporation

Traffic Engineer – Randy Kinney, PE, Kinney Engineering

Construction Engineer – Frank Narusch, PE, URS Corporation

Cost Estimator – Jay Lavoie, Estimations, Inc.