



2006 – Grayling Creek Bridge

Description

Meta Fields

Specifications 0 Spec File : 2102

Abc Construction Equipment : Conventional

Miscellaneous Prefabricated : Grouted key closure joint, Grouted blockout w/shear connectors

Prefabricated Bridge Elements : Full-depth precast deck panel w/o PT

Project Delivery : Design-bid-build

Longitude : -160.070

Latitude : 62.900

Nbi # : 1298

State Id # : 1298

Construction Equipment : Conventional

Total Bridge Length Ft : 148

Max Span Length Ft : 148

Beam Material : Steel

Spans : One-span

Location : Rural

Owner : State

State : AK

Year Abc Built : 2006

Contract Plans : 1

Funding Source : Federal and State

Costs : The engineer's estimate for the project was \$2.33 million. The low bid was \$3.08 million. There were six bidders. The cost per square foot of bridge was about \$335 including all bridge items and riprap bank protection.

Contacts : **Owner:** Leslie Daugherty, P.E., S.E. Chief Bridge Engineer Alaska Department of Transportation and Public Facilities leslie.daugherty@alaska.gov 907-465-8891

Stakeholder Feedback : This bridge, constructed in approximately three months, represents the state of practice for this style bridge built in the remote regions of Alaska.

Construction Method : The deck panels were fabricated at a precast plant and barged to the site. The contractor drove the steel H-piles and constructed the cast-in-place abutments. The girders were erected with a truck crane onto elastomeric bearing pads. The panels were erected on the girders and positioned with leveling screws. Grout was placed in the shear stud pockets, haunches, and transverse

shear keys. The panels were not post-tensioned. The curbs were cast in place, and steel railing was installed. Other work included upgrade and realignment of 1,400 feet of roadway to match the new bridge location, removal of the existing bridge, and blending the area to original condition. The deck was designed to accommodate a future overlay but no wearing surface was provided as part of the initial construction.

Replacement Or New Bridge : The replacement bridge is located 100 feet upstream from the original bridge alignment. It has two 10-ft-wide traffic lanes (one lane in each direction) and 2-ft-wide outside shoulders. The cross-section consists of four plate-girders at 6.75-ft spacing and 9.25-inch-thick precast deck, for a total superstructure depth of 6.33 ft. The cast-in-place concrete abutments are founded on steel H-piles. The 9.25-inch-thick full-depth, full-width precast deck panels are 27 ft wide and approximately 5 ft long. They were fabricated with curb and railing reinforcement extending from the top surface at the edges.

Existing Bridge Description : The existing single-span bridge was 92-ft-long and consisted of steel girders with timber plank deck and timber cribbing substructure. Grayling is not accessible by road – only by river barge and plane. The bridge provides the only access between Grayling and the airstrip. The bridge was deteriorated and required replacement.

Traffic Management : Traffic management alternative, if constructed conventionally: ABC is conventional construction in Alaska due to climate and terrain.

Average Daily Traffic At Time Of Construction : 250

Dimensions : 148-ft long and 27-ft wide single-span steel girder bridge

Primary Drivers : improved site constructability; reduced onsite construction time; minimized environmental impacts; reduced traffic impacts; improved work-zone safety; improved material quality and product durability; reduced life-cycle cost

Impact Category : Tier 5 (within 3 months)

Mobility Impact Time : ABC: 70-day bridge construction; no traffic impacts – new alignment
Conventional: ABC is conventional construction in Alaska

Project Location : on Airport Road in the city of Grayling in the Yukon-Koyukuk Borough in southwestern Alaska

Project Summary : 70-day construction of steel girder replacement bridge on new alignment to connect city of Grayling and airport