Environmental

Ecosystems Management

Client
Alaska Department of
Transportation and Public Facilities

Location
Whittier, AK, USA

"The entire project is a study in reduced-impact planning, design, and construction. The public agencies, consultants, and organizations involved in the project used a variety of innovative approaches and enhancements to protect the environment and reduce the impact of the facilities on the natural landscape."

Tom Moses, ADOT&PF,
Project Manager

Whittier Access Project

- An Award of Excellence in the Portland Cement Association's 2000 Concrete Bridge Awards recognizes creativity and imagination in the structural, functional, aesthetic, and economic design of concrete bridges
- The American Road and Transportation Builders Association, Transportation Development Foundation's 2000 Globe Award for an outstanding job in protecting and/or enhancing the natural environment in the planning, design, and construction of U.S. transportation infrastructure projects
- Awarded the American Society of Civil Engineers prestigious 2001 Outstanding Civil Engineering Achievement Award
- Two of Northwest Construction Magazine's Best of 2000 Awards in the Outstanding Engineering Design Project and Outstanding Heavy/Highway Project categories

The Whittier Access Project is a study in reduced-impact planning, design, and construction. Completed in June 2000, the Whittier Access project helps provide—for the first time—highway access from the New Seward Highway outside of Anchorage to the city of Whittier and the magnificent Prince William Sound. The project was implemented to meet the transportation needs of residents and visitors while respecting and protecting the environment. It included construction of bridges, tunnels, roadway connecting components, and portal buildings.

The Portage Creek Bridge is an integral component of the project, providing highway access to beautiful Prince William Sound. The bridge was designed to be aesthetically pleasing within a pristine natural setting, to accommodate high ground motions in one of the world's most seismically active areas, to functionally serve project needs both during and after construction, and to do all of this in a cost-effective manner.

Throughout construction of this mega-project in pristine land, environmental protection measures were implemented to minimize impacts on fish and selection of routes to avoid sensitive plants. CH2M HILL designed a major portion of the Whittier Access project. Project solutions incorporated many new technologies and cost saving approaches that protect and enhance the environment.

In its "small footprint" approach, the CH2M HILL design team conducted a computer-based visual impact analysis to determine the route alternative and bridge type that would least affect the direct view from a nearby visitor center. The result is a design that uses topography and landforms, including a new highway tunnel, to hide the roadway from view as much as possible. The final route selection also avoided disturbing sensitive plants and salmon spawning beds.

Public involvement and extensive agency interaction were significant project components. Efforts to minimize impacts to national forest land, fish

passage, and salmon spawning grounds require that all roadway, bridge, and tunnel plans be modeled, reviewed, and approved by the U.S. Forest Service (USFS) before final design.

CH2M HILL worked closely with the USFS to provide a bridge structure that would enhance the environment rather than detract from it. Single-column piers with rigid frame connections to the superstructure were used to minimize the “far-view” visual impact of the piers. A combination of aesthetics, hydraulics, and high seismic demands all contributed to the selection of the single-column “hammerhead” piers.