



NATIONAL AWARD MEDIUM SPAN MOUNT SI BRIDGE REPLACEMENT KING COUNTY, WASH.

Using built-up box members and HSS sections created a neat and clean appearance for the new Mount Si Bridge. Built-up members in the top and bottom chords are connected with minimally-obstructive, slender hollow structural section tube web members.

The Mount Si Bridge serves as a vital link across the Snoqualmie River for local residents and as a gateway to regional outdoor activities within the Mount Si Natural Resources Conservation Area, southwest of Seattle.

For more than half a century, the original bridge provided the only access to the community and recreation areas north of the Snoqualmie River. As the second-oldest bridge in King County, and one of its few remaining steel Pratt truss bridges, the Mount Si bridge symbolized the rural community and was designated a county landmark. It also was on the National Register of Historic Places for its engineering and architectural significance.

The structure had severely deteriorated over the years and was listed as a high priority for replacement in the county's 2001 annual bridge report. The structural design team presented eight bridge alternatives for evaluation. Ultimately, another steel Pratt truss bridge was chosen based on cost, ease of construction, and maintenance requirements.

Located in one of the state's most popular outdoor recreation areas, the new bridge had to blend with the natural environment and not be an eyesore, while keeping the scenic attraction of Mount Si in the background. To accomplish this, the design had to be as open as possible.

The design team used built-up box members and HSS sections to create a neat and clean appearance. These built-up members, with top and bottom chords, are connected with minimally-obstructive, slender hollow structural section tube web members.

Other innovations included using rigid moment sway frames with slip-critical type bolt connections and optimizing panel spans at 30 ft, rather than the usual 20 ft to 25 ft, which resulted in using less steel and reducing fabrication requirements.

The new Mount Si Bridge also incorporates art in many bridge elements, including:

- Ornamental in-fill panels on the approach span railings
- Landscaping elements surrounding the bridge
- Decorative bronze plates attached to the bridge structure
- Bridge and railing paint colors
- Special finish and color applied to the bridge's sidewalk

Owner

King County Department of Transportation, Seattle

Designer

Andersen Bjornstad Kane Jacobs (ABKJ), Seattle

General Contractor

Mowat Construction Company, Woodinville, Wash.

Fabricator

Jesse Engineering Company, Tacoma, Wash. (AISC Member)

Detailer

MKE Detailing Service, Seattle (AISC Member)

Consulting Firm

3 Ring Services, Seattle



Art elements, such as the decorative bronze plates attached to the bridge structure, combine with the bolt connections to make the Mount Si Bridge a distinctive and aesthetically pleasing structure.