

**Yoho Bridge and Approaches – Kicking Horse Canyon,
Golden, BC**
Ministry of Transportation

PERSONNEL

Tom Lowe, P.Eng., Project Manager, Senior Highway Design Engineer
 Tim Blackburn, P.Eng., Highway Design Engineer
 Mel DeCook, C.Tech., Senior Highway Design Technician
 Steve Power, P.Eng., Senior Traffic Engineer
 Mike Kitamura, C.Tech., Highway Design Technician, CADD
 Trevor Towers, A.Sc.T., Highway Design Technician, CADD

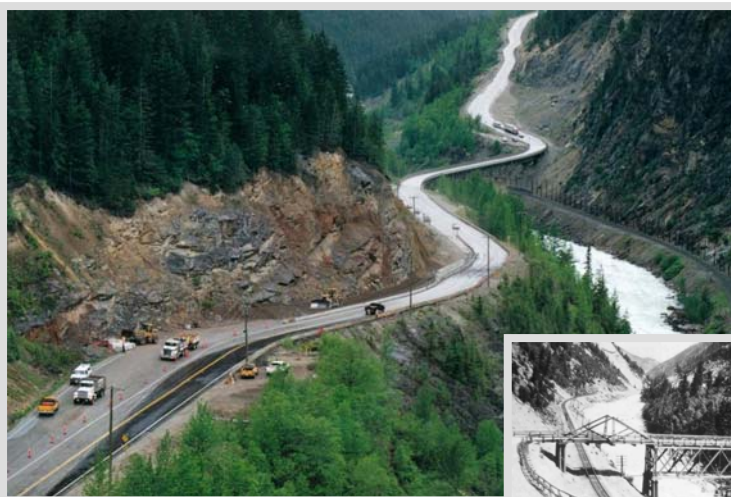
SCHEDULE: Design Services Schedule: February 2000 to July 2002
 Construction Services Schedule: April 2001 to Date (Ongoing)

CONSTRUCTION VALUE \$50,000,000 (Estimate)

The Yoho Bridge and Approaches Project is located approximately 7 km east of the Town of Golden where the Trans-Canada Highway (TCH) crosses the CP Railway line and the Kicking Horse River. This segment of the TCH is acknowledged to be the most difficult terrain along the entire Cache Creek to Alberta corridor. The project involves design for the re-alignment and widening to four lanes of approximately 3.4 km of the TCH and for the replacement of the existing Yoho (5 Mile) Bridge.

The Design Team is headed by Urban Systems Ltd. as Project Manager and Highway Design Engineer, and is supported by Sandwell Engineering Inc. as Structural Engineer for the steel bridge option, Brybil Projects Ltd. as Structural Engineer for the concrete bridge option, Golder Associates Ltd. as geotechnical Engineer for the structural foundation design, MoT Region 3 as Geotechnical Engineer for the highway approaches, and Northwest Hydraulic Consultants Ltd. as River Hydraulics Specialist.

The project was divided into 3 contracts for construction. The first contract, for rock excavation east of the bridge is complete. The second contract, the main bridge and immediate approaches is currently under construction scheduled for completion in fall 2004. The final contract, completing the four laning and including two more short span bridge crossings of the Kicking Horse River is still to be tendered.



Current Conditions 2001



Circa 1948

client
 Ministry of Transportation
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project
 Yoho Bridge and
 Approaches - Kicking Horse
 Canyon, Golden, BC

services
 Alternative Alignment
 Assessment and Costing;
 Highway Design;
 Realignment; Bridge
 Replacement, Project
 Management

year
 2000/2001/2002

file
 7.1961.0010.01

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PROJECT BRIEF

The Yoho Bridge and Approaches project represents the first of what is expected to be a series of high profile detailed design assignments evolving out the the Cache Creek to the Rockies Functional Planning program. This 3 km section of the Trans-Canada Highway through the Kicking Horse Canyon is acknowledged to be the most challenging terrain along the entire Cache Creek to Alberta corridor. The narrow and deep canyon combined with severe landslide, avalanche and rockfall hazards present an overwhelming environment in which to construct a 4-lane, 100 km/h freeway.

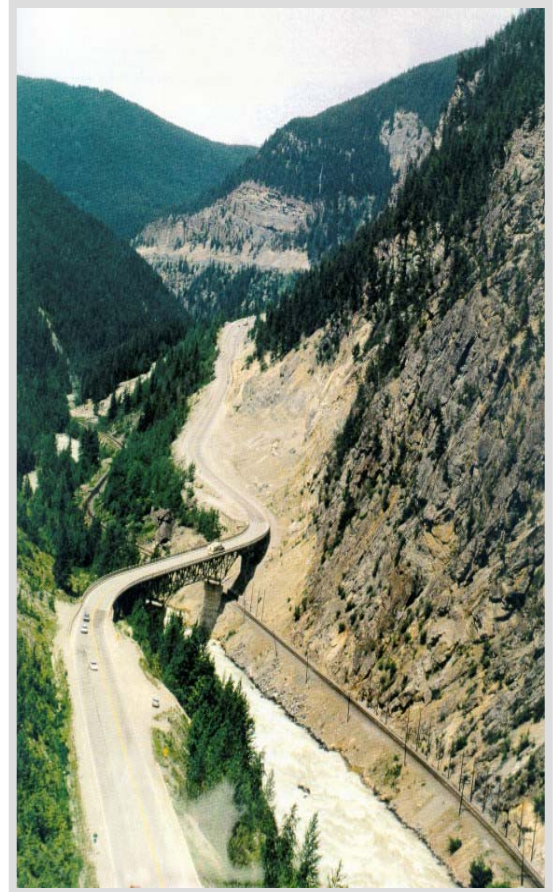
In addition to overcoming the imposing topographic constraints, construction of the proposed improvements must be completed without significant disruption to the 9,200 vehicles per day (SADT) that travel through the canyon. Accommodating tourist and commercial truck traffic with little delay over the anticipated three year construction period will require a comprehensive traffic management plan and the cooperation of multiple jurisdictions (BC, Alberta and Parks Canada).

PROJECT PHILOSOPHY AND APPROACH

At Urban Systems Ltd. we emphasize a “practical” rather than “theoretical” approach to problem solving. We appreciate the need to achieve or exceed minimum design standards and adhere to fundamentals of safe and aesthetically pleasing highway design but recognize that each project is unique and that we must challenge convention if we are to arrive at the best possible solution. Our approach is to review the specifics and prioritize the design objectives for each assignment in collaboration with the Client to ensure that the resulting product meets the initial expectations. This design philosophy was applied to the Yoho Bridge and Approaches project and resulted in a 30% reduction of the original construction cost estimate.

Constant communication is the key to Client satisfaction. Our project management approach is to invite, engage and consider the Client as a member of the design team, allowing participation to the extent desired. Progress Meetings are scheduled to suit the project scope and scale and meeting notes are distributed within hours of adjournment to maintain momentum.

For rural highway projects, particularly those in remote locations, our designs attempt to achieve the most earthworks design possible, resorting to borrow or waste only when cost beneficial. Pavement structure designs are developed to account for site specific climactic, subgrade and traffic volume conditions. Roadway drainage and its effect on the environmental sensitivity of receiving watercourses is identified and addressed early in the design process to allow timely submissions to environmental agencies.



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