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**BA BLACKTOP**

*The 204th Street overpass in Langley, B.C. faced time-line challenges with a 22-month design-to-construction deadline.*

## Infrastructure

### Design-build provides room for innovation

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A design-build contract needn't be a straitjacket for teams tackling difficult projects.

Take the example of the 204th Street overpass in Langley, which opened May 12.

The Langley City followed a standard procurement process to select a team for the design and construction of the project, but the winning bidder, Langley Road and Bridge Ltd. (a joint-venture of B.A. Blacktop Ltd. and Vancouver Pile Driving Ltd.), had leeway to adapt its original, winning proposal in response to on-site circumstances.

"This is a great example of the potential of design-build for innovation," said Chris Mealing, design manager with Hatch Mott MacDonald in Vancouver which was on contract to the joint-venture.

Submission of a design proposal shouldn't mark the end of innovation and optimization, Mealing added. While a team should be aware of what a project entails and submit a proposal that best addresses its requirements, it shouldn't rule out variations to address site conditions and challenges that arise in the course of construction.

The 204th Street overpass, for example, faced challenges from a relatively short, 22-month timeline from design to completion. Construction had to take place while adjacent roads and railways remained in use, and BC Hydro infrastructure had to be relocated.

The project itself required the design and construction of a four-lane roadway with approach roads as well as the widening of 204th Street and modifications to the Langley Bypass. Spans measured 31 to 40 metres each. Relatively steep grades of approximately eight per cent were designed for both ends of the structure. While soil conditions were not ideal, the short schedule meant there was no time to stabilize the site with preload. This led to variability in configuration of piers for the overpass' 20 spans, complicating bridge design.

Mealing said that parallel design processes allowed the project to proceed faster than it might have otherwise done. For example, seismic pins intended to act as hinges in the event of an earthquake and reduce the seismic demands on the structure allowed the design of the superstructure to proceed independent of substructure design.

The approach to design also allowed smoother scheduling because more work was taking place simultaneously rather than in sequence, Mealing explained. The challenge for the design team was anticipating the needs on site and ensuring designs could be implemented smoothly.

Despite the difficulties, the \$36.9 million project finished four months ahead of schedule.

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