

Inspiring sustainable thinking



CANADIAN CONSULTING ENGINEERING AWARDS 2011

Okotoks 32 Street Crossing

Category:	Water Resources
Client/Owner:	Town of Okotoks
Subconsultants:	David C. Woodall Structural Engineering Ltd. EBA Engineering Ltd. K-3 Project Management Ltd. Matrix Solutions Inc. New Vision Arts Co.
Contractors:	Bow Mark Paving Ltd. Chief Construction Ltd. Graham Infrastructure Ltd. Mesken Contracting Ltd.

May 2011







Okotoks 32 Street Crossing PROJECT BACKGROUND

Planned since the early 1990s, the 32 Street Crossing is the largest infrastructure initiative ever undertaken by the Town of Okotoks, a community of about 24,000 people south of Calgary. The new arterial roadway connects the eastside of the Town with a second river crossing, providing an important new link in the regional transportation network and alternative to Highway 2A for commercial truck traffic.

The new two-lane roadway curves through the valley and crosses the Sheep River on a 140 m long three-span bridge. Via a comprehensive Preliminary Engineering study, ISL Engineering and Land Services, with our sub-consultant partners Golder Associates, arrived at a solution that ultimately saw construction of the new bridge occur “in the dry” over a formerly active area of the river valley, with the Sheep River diverted under the bridge through a new channel. The project also included a grade-separated overpass of the CPR, the only such crossing in the Foothills region west of Highway 2.

The project scope included addressing such challenges as: negotiating cost-sharing with CPR on the rail overpass structure; obtaining the necessary Federal and Provincial permits for the river crossing; and supporting the Town on the funding request for the \$33 million project under Infrastructure Canada’s economic stimulus program. Designed and built-on a fast-track basis in order to meet the firm schedule requirements of the federal stimulus fund, the roadway will be opened to traffic by November 2010, one year after construction began. Having worked to minimize the construction footprint and preserve much of the existing natural environment in the river valley, the bridge will leave a lasting legacy of sustainable transportation design the Town of Okotoks.

ROADWAY PLANNING AND DESIGN

ISL Engineering and Land Services (ISL) was first engaged by the Town of Okotoks in mid-2008 to complete preliminary design for their new 32 Street crossing over Sheep River. On review of previous functional planning for the corridor dating from 1991 and 2005, numerous deficiencies were identified including: provision for an at-grade crossing of the CPR tracks; crossing the Sheep River on a short, single-span bridge; and a roadway alignment with a relatively tight horizontal curve and steep vertical profile.

Building on the previous plan, ISL and our design team brought a fresh approach to the project that sought to optimize and improve the design while meeting the key technical objectives of providing a safe, high-capacity road connection that effectively crosses the Sheep River and accommodates the 1:100 year design flood. Working with Golder Associates, who provided key expertise in river hydraulics and flood management, an early innovation in the preliminary design process was to recommend that the Sheep River be relocated to an historic channel approximately 150 m south of the then-current alignment. This would straighten a meander in the river, reduce the potential for further migration and mitigate the possibility of future flood damage on downstream lands.

With the relocated Sheep River as an overarching theme, additional optimization of the functional planning could follow. This included revising the roadway alignment to a single, large radius curve over both the CPR and Sheep River crossings, with a vertical profile that gradually “falls” through the river valley from south to north. This final alignment significantly improved roadway safety by moving its design domain well beyond “minimum” parameters and through improving sightlines by eliminating crest curves on the Sheep River Bridge. The modified alignment also enhanced roadway aesthetics by adapting more naturally to the contours and vegetation of the river valley and by providing roadway users with sweeping vistas of the valley and hills beyond. A pathway adjacent to the roadway was included to provide a means for pedestrians and cyclists to cross and access the river valley, enjoying these same vistas.



Embankment Construction



Recommended Corridor Route

STRUCTURAL DESIGN

The 32 Street Crossing includes two major bridge structures, carrying the roadway over the CPR tracks and the Sheep River, respectively. The inclusion of the CPR overpass in the project was a particularly important strategic achievement for the Town of Okotoks. The three existing CPR crossings within the Town are all located in the downtown area and are often blocked by trains, impeding emergency service operations and the flow of commercial goods. The new CPR overpass ensures unimpeded flow for this traffic, and has played into the Town's future planning for EMS stations and other emergency facilities. 32 Street will also be the Town's only river crossing with the surface of the roadway entirely above the 1:100 year flood level, further ensuring emergency access during major flood events.

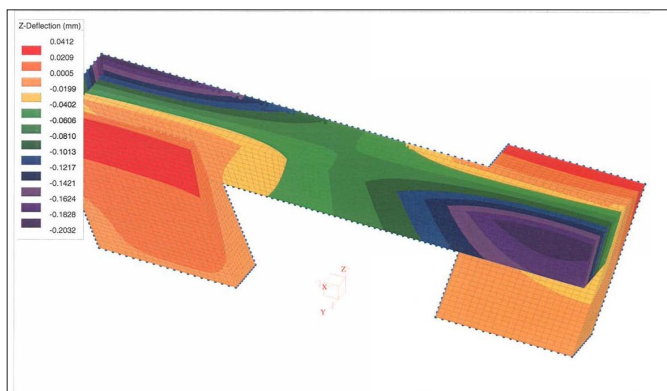
Prior functional planning envisioned the Sheep River Bridge as a single span bridge, with a bridge-sized culvert to supplement flood passage and wildlife movement. During preliminary design, ISL instead recommended a 140 m, three-span bridge arrangement that would accommodate valley users, wildlife movement, and flood passage through three spacious openings. The clear spans help maximize the ongoing use and enjoyment of the river valley and its natural features.

Bridge aesthetics were of great interest to the Town, with an objective to build a cost-effective but visually pleasing structure. Working with ISL, early bridge concepts were developed by David C. Woodall, P. Eng. It includes such features as pier foundations cast and finished to imitate local river rock boulders, thus evoking a forgotten approach to bridge building, topped by modern concrete arms splayed in different directions and carrying a crosshead that supports a superstructure on four pre-cast, pre-stressed and post-tensioned NU girders. The spacing of the girders was optimized for both economy and effect, with wide overhangs that look light and minimize the depth to span ratio.

In effect, the design brings a human scale and understanding of an increasingly complex structure rising out of the river bridging the river, pathways and wildlife corridor. Detailed analysis and design by ISL addressed significant complexities arising from the aesthetic choices, particularly the complex torsional forces inherent in the splayed pier design.



Finished, Splayed-Arm Bridge Pier



Pier Deflection Analysis



Pier Foundation Cast and Finished to Imitate Local Rock Boulders





SHEEP RIVER DESIGN

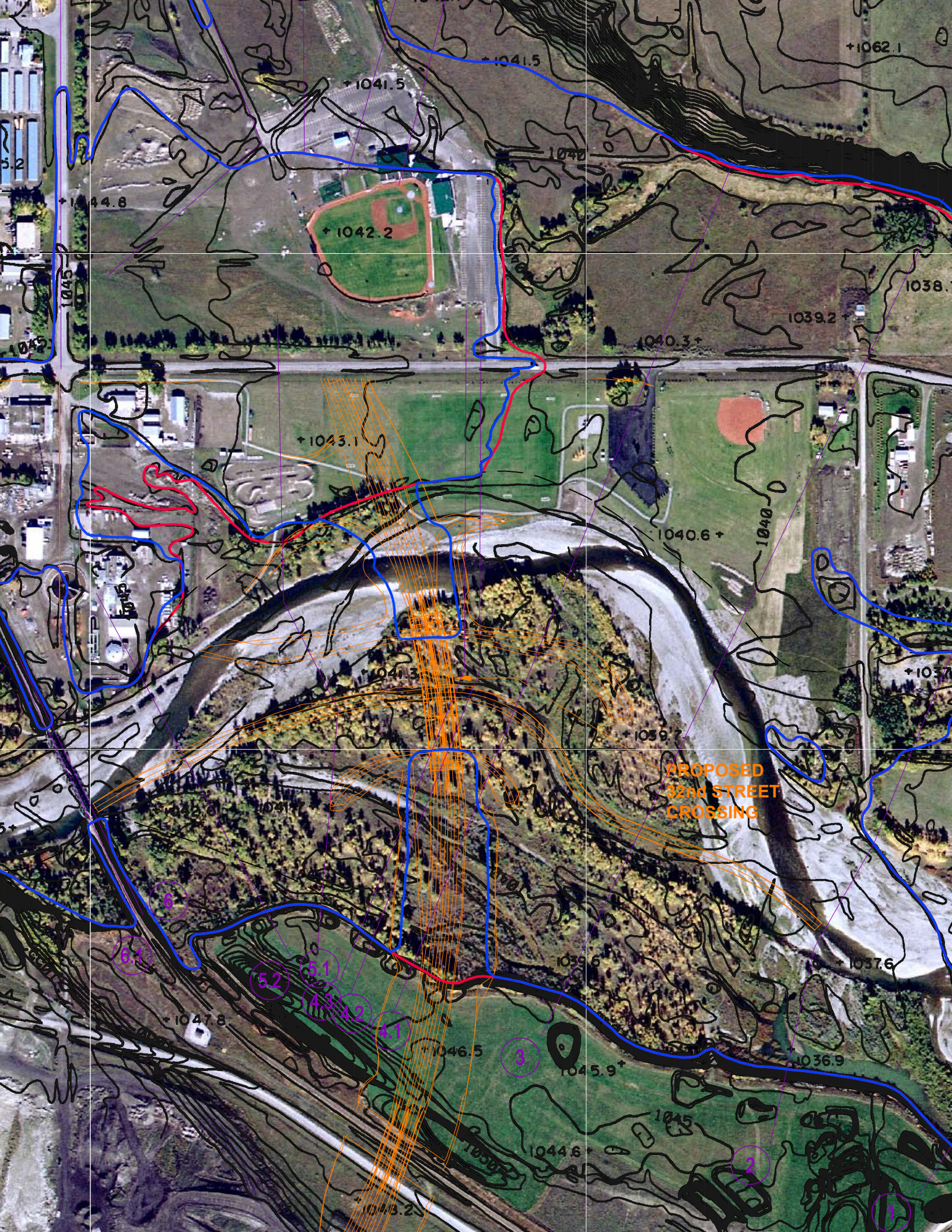
The key project innovation of relocating the Sheep River was initially conceived through air photo review of the river and its history. Records indicated that river migration near the 32 Street crossing location had progressed more than 300 m over the past century, developing a major meander in this particular reach. While the prevailing flow is in a south-easterly direction, constructing a new bridge at the 2008 location, just downstream from another fixed constraint where the CPR crosses the Sheep River, would have in effect permanently directed the flow of the river in the north-easterly direction. This, in turn, would have significantly increased erosion around the downstream meander, and put an adjacent quarter section of land at great risk of being cut off by a new river channel during a future major flood event. Fixing the bridge at a more southerly location would instead better direct the river in the prevailing direction while reducing the risk of downstream erosion and isolation. Through air photo interpretation, a historic river course that was active from the 1950s to the 1970s was confirmed and selected for the crossing location.

River engineering included design of a 750 m diversion channel that accommodates a 1:2 year flood event within its banks. It is anticipated that natural flood forces will realign the channel to a natural course over time, as has occurred in the past, within the confines of guide-banks installed along and downstream of the diversion channel. The rip-rap guide-banks are heavily armored and built up to the 1:100 year flood level plus additional freeboard, to ensure effectiveness while passing the design flood flow of 954 m³/s at significant velocities.

Construction of a new bridge crossing and realignment of the river had a significant potential impact on flood management for the Town of Okotoks. Major floods are not an uncommon occurrence in this reach of the river, with the most recent memorable events occurring in 1995 and 2005. Flood mapping for the Town had been updated by Alberta Environment following the 2005 event, and required revision as part of the Sheep River approvals process. Golder re-visited and updated work done in a previous Provincial study that predicted the flood limits in areas adjacent to the river throughout Okotoks, confirming that the new crossing would have no additional adverse impact.

“Project entailed an innovative solution to a complex problem involving a multitude of stakeholders operating in a highly regulated environment coupled with significant delivery challenges.”

Judge's Comment, 2011 Showcase Awards, *Alberta Innovators*, Spring 2011, Consulting Engineers of Alberta. The Okotoks 32 Street Crossing project won an Award of Excellence for Water Resources & Energy Production and an Award of Merit for Transportation Infrastructure.



PROPOSED
32nd STREET
CROSSING



ENVIRONMENTAL PERMITTING

New construction of the magnitude of the Sheep River bridge is of significant interest to regulatory authorities at all levels of government. Realizing the complexity of the issues involved and recognizing the need to secure preliminary approval of the river relocation concept prior to advancing design on that basis, ISL and the Town engaged the responsible provincial and federal agencies early in the preliminary design process, more than a year ahead of expected construction. Agencies with jurisdiction included Fisheries & Oceans Canada (for protection of fisheries) and Transport Canada (for protection of navigable waters) at the federal level, and Alberta Environment (for protection of the Sheep River as a water resource, and flood management), Alberta Sustainable Resource Development

(for protection of the Sheep River shoreline and terrestrial habitat) and Alberta Culture and Community Spirit (for protection of historic resources) at the provincial level. The initial meetings held in late 2008 were effective in raising awareness of the project with permitting authorities, and in obtaining their early and ongoing buy-in to the proposed engineering solutions as they evolved through preliminary design, detail design and construction phases.

Formal permit applications for the project were made in March 2009, initiating processes that culminated in project approvals through 2009 and 2010. Due to schedule constraints, the Town carried acknowledged risk in proceeding with portions of the project design prior to obtaining final approvals for the remaining portions, but the strategy of early engagement and continuous communication with the permitting agencies helped mitigate the risk and provide reasonable assurance of the final outcome well in advance. This preliminary work was especially valuable in accelerating a mandatory review by the Canadian Environmental Assessment Agency (CEAA), and made federal infrastructure funding possible.



Sheep River Diversion



Fish Habitat Enhancements Along New Channel



December 2009



April 2010



June 2010



July 2010

PROJECT FUNDING AND SCHEDULE

With a budget of \$33 million, the 32 Street Crossing is the largest infrastructure project ever undertaken by the Town of Okotoks, or by any comparable municipality of its size in Alberta. Efforts to obtain funding and initiate this key transportation project were unsuccessful in prior years, with major funding requests rejected by the Province as recently as 2008 due to differing priorities and a focus on larger cities. A new opportunity arose early in 2009, when the Federal Government announced that they would fund “shovel ready” infrastructure projects as part of the economic stimulus plan. The preliminary work already completed by ISL in 2008, including the active engagement of permitting agencies, provided senior levels of government with the necessary assurance that the Town could manage and complete the project within the mandated timeframe, with a firm funding deadline of March 31, 2011.

The funding application, including the parallel CEAA and permit approvals processes, carried through Spring 2009. At the time, ISL devised a project schedule that would allow for design and construction

through Summer and Fall 2009 to allow for substantial completion by the end of 2010 to meet the March 2011 deadline. Funding, however, was not confirmed until September 2, 2009, compressing the schedule and requiring an accelerated design / construction process.

To meet the new schedule, ISL proceeded with a fast-track design and construction approach. A preliminary construction schedule was developed for the entire project, recognizing the need to complete the Sheep River diversion within the mandated “fish window” between July 15 and August 31, 2010 and to complete the balance of the project before winter freeze-up at the end of 2010. By laying out the full project sequence, design efforts could focus on critical path items and allow construction to commence in parallel with the balance of the design. By doing so, the first contract to rough grade the bridge approach fills in the Sheep River Valley was tendered and underway by mid-October, within six weeks of the funding announcement.



Project Staging and Environmental Stewardship Plan



Paving 32 Street

PROJECT DELIVERY AND PARTNERING

Construction of the 32 Street Crossing was split into four separate contracts that were publicly tendered between September 2009 and May 2010. In addition to accelerating the project delivery schedule, the division of contracts into Rough Grading, Bridge Structures, Road Works, and River Works had the additional benefit of allowing a wider variety of general contractors to bid on the work, focusing on their areas of specialization. The separate contracts also allowed smaller local contractors to participate in the project, with Okotoks firms securing two of the four contracts and helping to support the Federal stimulus objective of local job creation.

Successful coordination and delivery of the project with separate general contractors was aided through project Partnering sessions facilitated by Dr. George Jergeas (K-3 Project Management). The initial sessions developed a Project Vision and confirmed team buy-in to the milestone dates necessary to achieve the overall schedule. After each contract award, partnering encouraged new project team members to bring forward risks best understood by them in an atmosphere of mutual cooperation and positive communication. A risk-sharing approach by the Town significantly contributed to an atmosphere of trust among all parties.

The engagement of external stakeholders was also a key to successful project delivery. Working through ISL with CPR, the Town agreed to front-end a longer railway overpass structure to accommodate future expansion of rail infrastructure for possible Regional Commuter Rail use. Coordination with CPR also allowed for provision of safe, temporary at-grade rail crossings to facilitate equipment and material movement on site.

Another key external stakeholder was the Town's River Valley Committee, who contributed to the project by making suggestions with respect to pathway access and other amenities for the use and enjoyment of the Sheep River Valley. The project enjoyed broad community support for its efforts to ensure the protection of the Town's valued natural environment.



Constructing the River Guide Bank

“A multi-faceted project that has shown very high results in key elements of technical excellence, value, innovation and environmental protection. An impressive project of significant benefit to the Town of Okotoks.”

Judge's Comment, 2011 Showcase Awards, *Alberta Innovators*, Spring 2011, Consulting Engineers of Alberta. The Okotoks 32 Street Crossing project won an Award of Excellence for Water Resources & Energy Production and an Award of Merit for Transportation Infrastructure.



CPR Overpass Girder Erection

ROADWAY AND BRIDGE CONSTRUCTION

A key benefit of the river relocation was that the Sheep River Bridge could be constructed “in the dry” — that is, construction occurred entirely on an inactive part of the valley floor, while the existing river flowed around the construction site. This significantly mitigated the environmental and safety risks normally associated with working over open water, and provided for faster construction, especially on the foundation, abutments and piers. By the time the river channel was diverted under it in August 2010, the bridge was substantially complete and ready to be used by the road contractor to continue construction work in the former channel area. Having the structure available for the remaining road construction allowed borrow material to be sourced from the opposite side of the river, and for the entire project to be constructed without ever crossing through the active river channel.



Careful attention to staging the work and limiting its footprint helped preserve the existing natural features, ensuring that the valley remains a natural, accessible and visually pleasing setting post-construction. Barren gravel areas adjacent to the old channel have been re-naturalized with loam salvaged from the river valley, and planted with native local plants salvaged from the anticipated future river migration areas. Roadway embankments were seeded with native grasses on recycled loam early in the construction process, with much of the vegetation already having grown in and contributing to a “green” look for the project. Viewpoints have been constructed on both ends of the Sheep River bridge structure, allowing pathway users to pause and enjoy vistas of the river valley. The bridge itself also contributes to the overall aesthetics of the valley, with river-rock architectural treatments, and a distinctive art feature in the pedestrian railing — designed by ISL’s Ron Loeppky and New Vision Arts’ Dan Laba — that replicates a blue water wave, the symbol of the Town of Okotoks.



Sheep River Bridge Railing Feature



This project summary said it best: “It is a testament to the (innovation and) consultation process that a project of such potential impact on a valued natural environment proceeded through design, approval and construction with no complaints or opposition.

Judge’s Comment, 2011 Showcase Awards, *Alberta Innovators*, Spring 2011, Consulting Engineers of Alberta. The Okotoks 32 Street Crossing project won an Award of Excellence for Water Resources & Energy Production and an Award of Merit for Transportation Infrastructure.



SHEEP RIVER RELOCATION

Executing the Sheep River relocation was a critical task for the project, and involved active participation and planning by the Town, ISL, Golder and the contractor, Chief Construction. The new Sheep River channel began receiving measured flows on August 5 and was fully diverted by August 9, 2010. This followed a two month preparatory period to construct the new channel and complete all necessary habitat compensation work.

The Sheep River provides valuable habitat for Bull Trout, Westslope Cutthroat Trout, Mountain Whitefish and other native and non-native species. Given that an active portion of the river would be replaced with a shorter constructed facility, Fisheries and Oceans Canada (DFO) needed to be assured that no net loss would occur with respect to fish habitat. Golder facilitated discussions between the project team, DFO and Transport Canada to establish acceptable means of improving fish habitat within the newly constructed channel. This included the installation of rocks, root wads, sidebars and riffles, situated to improve fish habitat while maintaining channel navigability. These mitigation measures were also installed in areas surrounding the channel, anticipating future migration of the river. The Sheep River project thus became one of the few major river projects in Canada where fisheries compensation for a shorter channel was successfully addressed on-site.

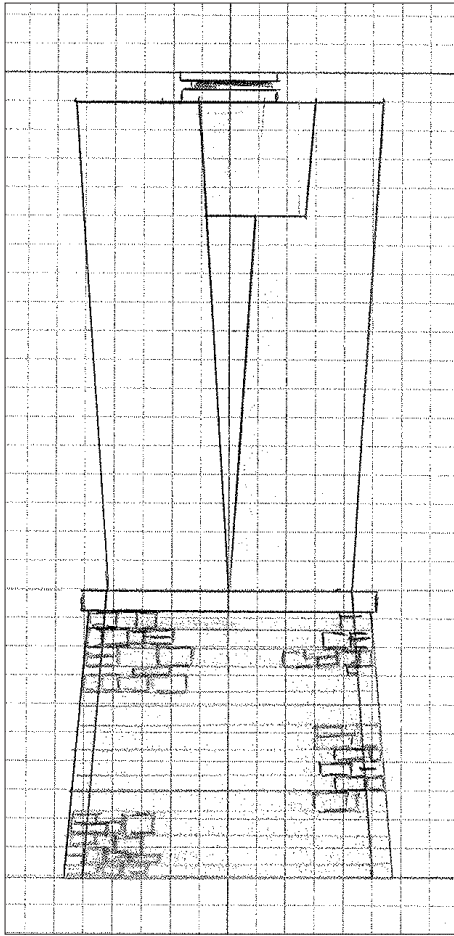
In preparation for the relocation itself, a careful literature search revealed no prior examples of this size of diversion for meandering alluvial mountain rivers. Without prior specific examples, the environmental protection and best practice processes used for re-aligning other river types were analyzed and adapted to the meandering alluvial nature of the Sheep River. Flow was introduced gradually into the channel and the river was continually monitored for the presence of turbidity and other deleterious conditions. Test records of the diversion confirm that no oils or other contaminants were discharged to the river and that, except for a small, brief spike when the channel was first fully opened, turbidity levels did not exceed regulatory guidelines. Following the diversion, contractor crews salvaged all fish from locations where they were stranded by the disappearing river. All told, more than 11,000 fish were successfully moved to the new channel. As the diversion was so unique, a record of the approaches taken will be presented in various industry forums so that future river diversions can benefit from the knowledge gained on the 32 Street Crossing project.

The project also rehabilitated degraded riparian environment to a natural state providing greater passage of wildlife to ensure ecological diversity is maintained along the river. The Town enhanced citizens' enjoyment of the environment by constructing controlled nature trails and pathways along river valley.



Fish Relocation Program





Early Pier Sketch



Sheep River Bridge Pier Construction "in the Dry"



Sheep River Bridge

OKOTOKS 32 STREET CROSSING AT A GLANCE

New Application of Existing Techniques/ Originality/ Innovation	<ul style="list-style-type: none"> • Relocation of the Sheep River was recommended after close study of historical air photos and identification of an river course active from the 1950 to 1970. • No prior examples of this size of diversion for meandering alluvial mountain rivers. • The only major river project in Canada where fisheries compensation for a shorter channel was successfully addressed on site. • Bridge was built “in the dry” in the valley floor, with the river later diverted under the finished structure • Construction was “fast-tracked” into four contracts to accelerate the schedule, allow contractors to focus on their specialty and allow smaller firms to compete.
Complexity	<ul style="list-style-type: none"> • Designed and built on a fast track basis to meet the schedule requirements of Infrastructure Canada’s federal economic stimulus program. • The size of river diversion required team to analyze and adapt best practices and processes used for realigning other river types and apply them on a larger scale. • The river diversion had to be completed within a mandated ‘fish window’ between July 15 and August 31, 2010 and not adversely affect the environment. • Scope included negotiation of cost sharing and crossing agreement with CP Rail • The provincial and federal approval processes for the Sheep River relocation were extensive, and the team engaged the responsible agencies early in the preliminary design process, more than a year ahead of expected construction.
Environmental Impact	<ul style="list-style-type: none"> • Building the bridge ‘in the dry’ significantly mitigated the risks normally associated with working over open water. The entire project was constructed without ever crossing through the active river channel. • 11,000 fish were successfully moved into the new channel with enhanced habitat • A detailed process to move the river, and then the fish in it, was completed to the satisfaction of all stakeholders including DFO and Alberta Environment.
Social and Economic Benefits	<ul style="list-style-type: none"> • River relocation and bridge design included consideration of 1:100 year flood. • Contracts were divided into smaller segments, allowing smaller local contractors to bid on the project. • Valuable Stakeholder input from CPR and the Town’s River Valley Committee helped ensure broad community support.
Meeting/ Exceeding Client Needs	<ul style="list-style-type: none"> • The inclusion of the new CPR overpass in the project was a strategic achievement for the Town of Okotoks and has played into the Town’s future planning for EMS stations and other emergency facilities. • This was the largest infrastructure project ever undertaken by the Town of Okotoks and funding approvals compressed the schedule and required an accelerated design/construction process. • The project has been widely celebrated in the community and local media as a landmark achievement for the Town of Okotoks.

OKOTOKS 32 STREET CROSSING GRAND OPENING



The 32 Street crossing was officially opened to traffic on November 27, 2010, with hundreds of Okotokian families coming out to celebrate the completion of this landmark project in their community.

In February 2011, Okotoks Town Council voted to name the bridge McAlpine Crossing, honoring the Town's former longtime mayor Bill McAlpine, whose vision and determination in working with every level of government was instrumental in seeing the project become a reality.

The Town of Okotoks and project team made commendable, innovative plans and executed project decisions to best protect and enhance the environment, despite the enormous challenges inherent in "doing the right thing" for the Sheep River Valley for the benefit of nature and its' citizens' enjoyment.





Okotoks 32 Street Crossing

2 PAGE SUMMARY

Okotoks 32 Street Crossing: The Project

Planned since the early 1990s, the 32 Street Crossing is the largest infrastructure initiative ever undertaken by the Town of Okotoks, a community of about 24,000 people located just south of Calgary. The new arterial roadway provides the Town with a second river crossing, the Town's only grade separated rail crossing, a critical new link in the regional transportation network.

The project scope was complex from the beginning with challenges involving negotiating cost-sharing with Canadian Pacific Railway (CPR) on a rail overpass structure, obtaining the necessary permits for the river crossing, moving a river channel and supporting the Town's application for project funding under the federal infrastructure stimulus program.

The complexity of the project scope allowed the project team, which included ISL Engineering and Land Services Ltd. as prime consultant and Golder Associates as a key team member in the key hydrological and environmental disciplines, to recommend some unique solutions to ensure success. From compressing the project schedule, to diverting a major river, to building a bridge 'in the dry', this project represents excellence in transportation engineering planning, design and construction.

Taking Advantage of Funding

Preliminary design for the crossing had been completed by ISL in 2008. Requests for funds to build the bridge were previously unsuccessful but the launch of the Federal Government's support for 'shovel ready' infrastructure projects through the economic stimulus plan provided an opportunity for the Town to move this project forward. Projects that qualified for this funding had to be completed by March 31, 2011 and ISL put together a project plan and schedule to work within these tight deadlines. When funding was not approved until September 2009, an even more compressed schedule was necessary requiring a further accelerated design and construction process.

Stakeholder Input

Stakeholders were engaged early in the process and actively helped shape the project. ISL worked with one stakeholder, CPR, and the Town to agree on a longer railway overpass structure to accommodate future track expansion for regional commuter rail service. Coordinating with CPR also had the benefit of allowing provision for safe, temporary at-grade rail crossings for construction equipment and materials on site.

Another important stakeholder was the town's River Valley Committee who contributed suggestions with respect to pathway access and other amenities for the use and enjoyment of the river valley. It is a testament to the consultation process that a project of such potential impact on a valued natural environment proceeded through the design, approval and construction phases with no public complaints or opposition.

Relocating the Sheep River

The key project innovation was the successful relocation of a 750m stretch of the Sheep River, which had the joint benefits of reducing long-term flood risk, reducing the risk of downstream erosion, and allowing the bridge to be built efficiently over dry land. When planning for this major undertaking, the team could find no prior examples of this size of diversion for a meandering alluvial mountain river, so had to advance and adapt the current state of technical knowledge and best practices to the unique situation.

Approvals from permitting authorities were identified as a potential holdup in the tight detail design/construction phase of the project and the required provincial and federal departments were involved very early in the project, one year prior to expected construction. By engaging them early, approval-in-principle for the major river relocation was assured before the Town invested major resources in the design details.

Innovative techniques were employed to minimize the environmental impacts of moving the river channels. The river diversion had to be completed within a mandated 'fish window' between July 15 and August 31, 2010 and the team laid out the full project sequence to focus on critical path items. Techniques included addressing the compensation requirements for a shorter river channel on site, one of the few major river projects in Canada where this has been done. Rocks, root wads, sidebars and riffles were installed to improve fish habitat, and with careful attention to detail to maintain channel navigability.

Once the river was diverted, contractor crews salvaged fish from locations where they were stranded by the disappearing river, transferring more than 11,000 fish to the new channel.

An Island of Innovation

A benefit to relocating the river was the team's ability to build the bridge 'in the dry'; with construction occurring on an inactive part of the valley floor prior to diverting the river under the newly constructed, almost complete bridge. The river flowed around the construction site, which allowed for faster construction. Further, it mitigated the safety risks of working over open water and further minimized environmental impacts on the site. The entire project was constructed with no equipment ever crossing through the active river channel.

Benefits to the Community

The 32 Street project is a major enhancement of the regional transportation network in the Okotoks area. Incorporation of a new CPR overpass was an important strategic achievement for the Town; and the Sheep River bridge provides the community with its only river crossing with a road surface entirely above the 1:100 year flood level.

In 2011, Town Council voted to name the bridge McAlpine Crossing, in recognition of the former longtime mayor Bill McAlpine who played an instrumental role in moving the project approvals forward.

Closure

ISL Engineering and Land Services was involved the 32 Street Crossing - Sheep River Re-Alignment as project manager and prime consultant from the start of updating the Functional Planning Study all the way through project completion. During this time we observed the Town of Okotoks repeatedly champion sustainable solutions and demonstrate their enduring commitment to the environment.

Okotoks is recognized as one of Canada's most sustainable communities. This recognition combined with a continued dedication to make the right project decision for the environment, facilitated dialogue needed amongst the many regulatory agencies. This in turn made a bold solution possible for a new crossing of the Sheep River Valley that completed a much needed link in their transportation network.

This project solution met all the needs for the protection of the environment, and will serve long-term needs of the citizens of the Town in perpetuity. The construction effort recognized and respected the needs of the environment, as supported by the Town, and were achieved through careful planning and staging. The effects of the significantly long river diversion were effectively mitigated by re-using an old historic channel and applying state of the art water and environmental engineering practices.