



PARSONS INTERCHANGE EFFICIENT TRANSPORTATION – MANAGING DEMAND

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ABSTRACT

Up until the most recent collapse in oil prices Fort Mac Murray was one of the fastest growing communities in Alberta. This rapid growth created challenges in providing new areas for residential development and overtaxed transportation infrastructure.

Highway 63 is the main artery to and through the City providing access from residential areas to downtown as well as connecting the City to the oil sands production centre to the north. The movement of all goods, services and personnel must funnel on-to as well as off-of this major thoroughfare.

In response to the demand for residential development, Alberta Infrastructure initiated the development of the Parsons Subdivision located at the north edge of the City. The proposed subdivision will eventually accommodate 25,000 people along with the related services and amenities. Alberta Transportation accepted the challenge of providing access from the area on to Highway 63.

Calling on the lessons learned while playing a similar role on similar projects immediately south, and taking advantage of the opportunity to address anticipated transportation demands both east and west of the City, Alberta Transportation undertook the development of a major systems interchange that would immediately access the proposed residential area and have the capacity to extend to the resource areas and communities west of the City as well as to provide connectivity across the Athabasca River to the east with accessibility to alternative routes to the east and south.

This Paper will discuss the planning that went into the project to ensure that it provided the capacity and service anticipated in the long term while acknowledging budget restraints through staged development.

The paper will also discuss the challenges faced during construction in terms terrain and the difference in elevation between Highway 63 and the proposed subdivision; the placement of significant fills on wet alluvial and colluvial soils with resulting pore pressure dissipation problems; the movement of several million cubic metres of material across Highway 63 and the construction of a major bridge structure all in a short construction duration.

The paper will look at lessons learned and present recommendations for consideration on similar projects in the future.

1.0 Introduction

ISL made a presentation at the 2014 conference that discussed the early development of this project and how it evolved from a facility providing access to a new residential community into a project with much wider implications for the surrounding community where the project would in the future evolve into a complex system facilitating the development of new residential and industrial areas. A system that would expedite the movement of goods, services and people around the community, into the surrounding industrial areas and eventually extend the Provincial Highway network into the more remote areas of the Province.

This paper will continue the discussion providing insight into how financial constraints resulted in creative staging scenarios, how Regional requests were addressed and how the interface with adjacent projects was accommodated. The discussion will conclude with an overview of how the challenges that arose during construction were met and how effective project management, combined with the changing economic climate resulted in the successful completion of the project.

1.1 BACKGROUND

Decades of high oil prices resulted in the expansion of the oil sands industry. This in turn triggered rapid growth in the City of Fort McMurray and the need for expanded residential areas. Consequently, the Parsons Subdivision, with a target population in the order of 25,000 residents was approved for development.

Earlier rapid growth of the City resulted in development taking advantage of easily developed land. The physical constraints imposed on the City by topography such as the Athabasca River and the river valley resulted in the city evolving around a single transportation corridor, Highway 63. While this facility is a four lane divided highway, it is the only route between the City and the Oil Sands, between the north residential areas and downtown. Existing residential developments immediately south of the Proposed Parsons area access Highway 63 through a series of interchanges and service roads that provide all direction access and egress to the residents of those areas.

As the City extended northward, the need for transportation options was recognized. Broad concepts were envisioned for a transportation network that would extending a roadway west to access other potential resource areas between Fort McMurray and Highway 88 and east across the Athabasca River to connect to Highway 881 opening an optional route south as well as north to provide another optional route to the oil sands extraction areas. This concept, combined with development of the proposed Parsons Subdivision resulted in a plan to broaden the interchange concept from simply providing access to a residential area to combining that access with an expanded roadway network.

The subsequent functional planning exercise led to the development of a concept for a multi-function systems interchange that would be staged to provide immediate access to the newly developing residential area and expanded to provide the interconnections made necessary by future growth.

The functional plan that was developed took full advantage of the undeveloped space that was available in the lower valley resulting in the need for the reconstruction of approximately seven kilometres of four lane divided highway and sterilizing a considerable area of potentially developable land. A design was produced and tendered but as the resulting cost was over budget, the tender was cancelled. In the interim a new concept was developed whereby the location of the interchange would be shifted allowing for a significantly reduced length of highway relocation there-by increasing the amount of commercially developable land adjacent to the interchange and in relatively close proximity to a significant population base. The cancellation of the tender provided the hiatus needed to redesign the interchange, to refine staging options that would reduce the initial cost and while it produced geometric challenges, it provided the opportunity for the development of a project that was significantly more affordable.

2.0 Geometric Lay-out

2.1 Geometric Lay-out – Initial Design

The original interchange was tendered with two options in anticipation of budgetary limitations. The first option included the full interchange with directional ramps, seven bridge structures, three bridge pipes along with a re-alignment of 6.4 kilometres of Highway 63 and a westward extension of Highway 686 for 4.5 kilometres. The second option (Stage 1) deferred the construction of the directional ramps along with the four structures that were required by the ramps. As the tenders received for both of the options exceeded the budget available, both tenders were rejected. It must be noted however that the tender for Stage 1 contained a significant error in the unit price for a major bid item. Given that the amount extensions for bids received had to be based on the unit price noted, the extension and subsequent total tender amount had to be recalculated based on the erroneous unit price. Without the Contractors error, the tender amount would have fit the budget and would likely have been accepted. As this was not the case, the process of rethinking the project began.

2.2 Geometric Lay-out – Revised Design

Design Development

At this stage of the project it was very evident that the project had evolved well beyond the simple expectations of providing access to a major residential development. As pressure was applied by outside stakeholders for added functionality in terms of the provision for access to commercially developable areas, the inclusion of accommodation for transit and the potential to provide greater connectivity around the City and beyond, the entire project team realized the need for a much larger role in expectation management while providing feedback on the feasibility, constructability and costs associated with addressing the various demands. It was fortunate that the basic interchange layout was not significantly altered by the approved positional shift. As a result, progress toward an ultimate stage design configuration was allowed proceed on the assumption that any construction staging would be based on some variation of that final configuration.

In order to facilitate the development of the first stage design, a planning team, comprised of members from both the Owner (AT) and the Consultant (ISL) prepared options, evaluated options, costed options and eventually selected options that could be recommended to the owner for detailed development. The final design configuration of the initial stage was a result of options developed during this process taking into consideration stakeholder input and remembering that budget was the ultimate deciding factor.

Final Layout

The option development process described above resulted in a number of innovative ideas that achieved the required objectives in the short term within the established budget requirements. The caveat understood in the advancement of these options was that they would not necessarily provide the most cost effective approach in the development of future stages. It was

understood in fact that some of these options may result in cost increases during future stage construction.

Deferred works

As described above, the layout proposed for the ultimate project provided a layout similar to that put forward in the original design with the major change being positional with the interchange being shifted substantially westward into the escarpment. This shift allowed for a much shorter realignment on Highway 63. Other revisions included the construction of a shorter section of Highway 686, 2.2 kilometres instead of the originally proposed 4.5 kilometres. In combination with these configuration changes noted above, several components of the interchange were deferred for future construction to a time when the increased traffic demands resulting from subdivision development necessitated the additional capacity.

It was determined that the northbound to westbound and eastbound to northbound directional ramps could be deferred for a considerable period of time at least until the construction of both the planned residential area and commercial areas were substantially further advanced. It was also determined that as there were no immediate plans for development to the east of Highway 63, there was no demand for either the southbound to eastbound or westbound to southbound loop ramps or the service road that had been proposed for east side of highway 63 between the Taiganova Commercial area and Highway 686. These actions enabled the design team to reduce the earthworks required for embankment construction by 40% which in turn gave the design team the freedom to design Highway 686 as an urban roadway for staged construction in the interim rather than the four lane rural cross section that was required for the ultimate design. Deferring these elements reduced the number of bridge structures required for Stage 1 from seven to one.

Innovation

There is an old adage that reads “Necessity is the Mother of Invention”. The effort to provide the most cost effective design for the interchange certainly fit into that mold. The option consideration process required the team to break each element of the interchange that was under consideration for deferment into its basic parts so that the impact of the deferment on the remaining elements could be assessed. A prime example of this process was in determining if one particular underpass could be deferred. This action required redistribution of a significant traffic volume, retaining a signalized at-grade intersection and determining how the underpass could be constructed in the future. Final determination required an examination of the impact of the redistributed traffic; the impact of the signalized intersection of traffic movement and queuing; the impact of the signalized intersection on traffic accessing Highway 63 from adjacent service roads and the extent of earthworks construction required at this stage for the future construction of the underpass. A similar process was followed in determining the impact of deferring the westbound to southbound and southbound to eastbound loop ramps. In both instances the final action was not necessarily innovative but the process of involving a broader cross section of the stakeholders in the final decision was.

As previously discussed, the staged construction resulted in a significant reduction of the material needed to construct the remaining elements. The challenge was how to reduce the

volume produced as a result of the construction of Highway 686 through the escarpment. Slope stability issues as a result of the depth of cut combined with the presence of groundwater precluded a steeper side slope. It was recognized that a single bridge structure at the Highway 686 crossing of Highway 63 would satisfy traffic demands for the eastbound and westbound movements in the first stage. Extending a modified cross-section west of the bridge structure satisfied the traffic demands of the initial development while reducing excavation requirements to a point where an earthworks balance was achieved. As the reduced section was based on an urban model as opposed to the standard rural model required by the Owner, their approval was mandatory.

A third innovation was a result of a request by the Municipality for the accommodation of transit. There are a significant number of buses that serve the residential areas. These are in the form of local transit buses running between residential areas and the downtown core as well as highway type charter buses that run between the residential areas and the various plant sites outside of the City. As current legislation does not allow for the designation of specific lane use on provincial highways a “dedicated bus lane” could not be identified. After considerable study and research it was determined that “Bus-on-Shoulder” operations would not contravene existing legislation. The provision for and designation of the lanes required the development of recommendations for the operation of the lanes including the identification of conditions where bus on shoulder operations would apply, signing of bus-on-shoulder lane limits along with the operational responsibilities at lane merge and diverge points. The design required minor geometric adjustments at lane merge and diverge points, barrier locations and other minor areas in order to accommodate the wider shoulders.

3.0 Budget Constraints and Cost Implications

The total project budget did not vary significantly over the course of the project with ancillary work including pipeline and other utility relocations, land acquisition and environmental work remaining constant as a requirement throughout. The cost of this work had a significant impact on the determination of roadway construction staging options. The final project budget was set at \$310 million. After all of the fixed ancillary work was accounted for a construction budget of \$160 million was set. Construction staging costs were aimed at meeting that target which was achieved.

4.0 Project Construction Development

Despite the early uncertainty with respect to the interchange layout and construction staging, site preparation works including the pipeline relocation and Stormwater management facility were completed in anticipation of the final roadway tender. It was important to have these works concluded so that there would be no delays to the main roadway contract. As the final design and tender preparation progressed, other works were also completed as described below.

4.1 Staged Construction

Pipeline Relocations

There were two pipeline companies within the project area. Enbridge and Suncor had pipelines that were located in their right-of-way (ROW) adjacent to the project limits. Fills for the new highway were up to 22m and averaged 10m and were going to be above the pipelines. ISL had many discussions with Enbridge and Suncor and the option of placing large amounts of fill above the pipelines would not be allowed. Under large fills, the pipeline companies would not have access to their pipelines. And they decided it would be better to relocate their pipelines away from the Highway 63 alignment. The pipeline corridor relocation can be seen in Figure 1.0. The pipeline relocation coordination was difficult because of the time restriction. Enbridge and Suncor intended to have the pipeline adjustments on Highway 63 and Highway 686 commence in December 2010 with completion scheduled by December 2012 at the latest because of other project commitments. Enbridge and Suncor encountered many obstacles during their pipeline relocations:

- The original 2011 tender had some work that would be completed for the pipeline Enbridge and Suncor. However due to a lack of funding the 2011 tender was delayed and not awarded which in turn delayed the pipeline relocations.
- Difficulty in scheduling as Enbridge had to coordinate the new pipeline connections with a plant shutdown. To get a plant shutdown a request had to be put in a year in advance.
- The project area has unfavorable wet conditions in the spring and summer. In order to complete the pipeline relocations Enbridge and Suncor would have to complete the work during the winter.
- During the pipeline relocations, Enbridge and Suncor had to drill through more limestone rock than they anticipated. The additional drilling through the rock slowed down the progress of the pipeline companies as they required different equipment.

After all the delays, scheduling and construction problems Enbridge and Suncor were able to complete the pipeline relocations prior to the road construction and within their estimated budget. Fortunately the highway construction was not yet underway and there were no utility conflicts.

Test Fill

The bridge abutments for Hwy 63 would need large fills. Alberta Transportation advertised Contract 10907 for preloading the bridge abutments which would assist with the settling. Contract 10907 was completed May 31, 2011, 2 years before the main highway contract was

released. Included in Contract 10907 were tree clearing for the proposed highway alignment and strategic installation of erosion and sediment control (ESC) measures.

For Contract 10907, AT put a request for proposal for providing the construction administration. ISL was not successful and Stantec was awarded the construction administration. ISL and Stantec worked together

Stormwater Management Facility, Wick Drain Installation, Pre-Grading

With all the previous Contract sand utility relocations, the project area became susceptible to erosion and sedimentation. In 2011 there were signs that sediments were released in the creeks and wetlands within the project limits. It would be a couple of years before the main contract would be advertised and AT decided to advance some work in areas that would assist with the control of erosion and sedimentation. In the summer of 2012, a tender was issued for the construction of a stormwater management facility (SWMF). The contract included the following and was completed on schedule by January 31, 2013:

- Construction of interchange storm water management facility and river outfall
- Grading for service road
- Grading for interchange bridge abutment and wick drain pad
- Supply and installation of vertical wick drains and horizontal strip drains

Final Tender/Contract

The Tender for the project was Contract 14301 and was for the construction of the hybrid design and Figure 2 shows the alignment. Contract 14301 was awarded to Sureway on October 2013 and is currently under construction. The Contract has a July 1, 2016 completion date and construction work included:

- Construction of two bridge culverts
- Construction of 1 structural girder bridge
- Realignment of Highway
- Illumination installation
- Erosion and sediment control installation

To date Highway 63 has been realigned and the Highway 686 interchange is open to the public. Figure 3 and 4 shows the constructed area in June 2015. All that remains for the 2016 construction season is the final lift of asphalt, the installation of erosion and sediment control devices, top soiling, and minor cleanup.

Construction Challenges

A project the size of the Parson Creek Interchange does not come without any construction challenges. Since 2013 there have been a few construction issues and are discussed in the sections following.

Weather

2013

Construction started on October 31, 2013 and the average overnight temperature was below 0C. As the work in 2013 construction work was mainly stripping, clearing and site preparation the weather did not slow down the construction progress. There were 5 days lost to inclement weather and construction shut down on December 17, 2013.

2014

In 2014 construction resumed on January 6 and Sureway focused on the Highway 686 embankment cut and the Highway 63 fill placement. From January to March the daily temperature highs were below 0C and Sureway had 4 days lost to inclement weather. To keep the fill material from freezing, Sureway set up a night shift and kept the material moving. The spring of 2014 (April to June) was very dry and Sureway had 5 days lost to poor weather. However, the summer of 2014 was wet and Sureway lost 17days.

Sureway had an interim completion date of October 1, 2014 to get the Highway 63 northbound and southbound lanes open. To make up for the lost time Sureway resumed their night shift and kept their operations 24 hours until November. Sureway's paving subcontractor used two (2) paving crews to get the Highway 63 lanes open and all paving was completed November 7, 2014. Construction for 2014 ended on December 15 and the total days lost to inclement weather was 39days. Figure 5 shows the paving operations in 2014.

2015

Construction commenced on January 11 and Sureway continued with the wick drain installations and topsoil placement. The winter weather was decent and from January to May Sureway lost 4 days to inclement weather.

In 2015 Sureway had another interim completion date of October 1, 2015 to open Highway 686 and the interchange alignments. The summer weather did not cooperate with the road construction. From June 1 to September 5, there were 26 days lost to weather and which put the pressure on Sureway to meet the interim date.

Fortunately for Sureway, the fall of 2015 was an exceptional year. There were 0 weather days between September 6 and November and paving was completed October 24. The Highway 686 interchange was officially opened November 20, 2015. The Contractor was able to continue working till December 4, 2015. Highway 63 and the Parson interchange was opened to the public on October 31, 2015 and met the interim date.

Traffic Accommodation

Heavy haul crossing

A signalized heavy haul crossing was constructed to allow the Contractor to haul material from the borrow pit (located on the west side of the Highway 63) to the project new Highway 63 alignment. Figure 6 displays the haul crossing.

The haul crossing was to be used to move approximately 4.8 Million cubic metres of earth material. In the Contract, the Contractor was advised that haul across Highway 63 will not be permitted during the peak traffic hours of 5:00a.m. to 8:00a.m. and 4:30p.m. to 8:30p.m., on weekdays, and during any other heavy traffic periods, or when in the opinion of the Consultant, traffic is being unduly hindered. The restricted hours of the haul crossing were fully enforced, but Sureway pushed the limits to work as long as possible.

Steel plates were installed across the highway to limit the damage by the crossing scrapers. The steel plates held up well, but from time to time would require adjustments and cleanup. Figure 7 shows the typical steel plate adjustment that Sureway had to complete. Sureway did a good job of maintaining the haul crossing and for the most part traffic flowed well through the crossing without delays.

Fatality

Between 2013 and May 2016, there were several third party accidents and one (1) fatal accident (with two deaths) on the project. On March 11, 2014 at approximately 10:00pm, a third-party passenger vehicle was heading southbound on Highway 63 and was approaching the signalized haul road crossing. The traffic lights was red and the scrapers were crossing Highway 63. The third-party vehicle ran the red light and was hit by the scraper crossing the highway. Both vehicles continued to West edge of Hwy 63 where they came to a stop. Emergency services contacted, contractor work stopped, and traffic stopped in both directions.

Traffic was held in both directions until about 1:00 am and then traffic was restored to alternating one way, with the RCMP piloting, on the northbound from the crossover to the Taiganova Intersection. The alternating traffic continued until about 2:00 am at which point traffic was fully back to normal flow. Sureway canceled dayshift haul for the day following the incident.

From this fatal accident the Sureway implemented the installed the following measures:

- a camera facing southbound
- milled rumble strips prior to the traffic signals
- second set of message boards

Since the new safety items installed there were no further fatal accidents.

Detour roads

Detour roads were constructed and used for the project to stage the construction of the Northbound and southbound lanes. The detour roads had to provide unimpeded access for businesses, be signalized, have overhead illumination, and have pavement markings. The detour roads were posted at 50km/hr. and traffic was able to flow freely.

Complaints

The most common traffic complaints for the project were related to the heavy haul crossing. Many motorist complained that the red light phase was too long. They thought that the scrapers

had too much time to cross the highway. The motorist who really got frustrated at the haul crossing would take their chances and run the red light. After the fatal accident, many motorists realized that the risk of running the red light was too great and patiently waited at the crossing.

Safety (on the construction site)

There were numerous safety incidents during the three years of construction. In 2013 there were 18 incidents, 2014 – 108 incidents and in 2015 - 52 incidents. Most of the safety incidents were property damages and involved Sureway's equipment. Sureway learned from the incidents and cut the number by half in 2015.

5.0 Other Contractors

Highway 686 East Interchange Contractor

For the 2013 Contract, the Parsons Creek projects limits on Highway 686 were reduced by approximately 2.20 km because of funding limits which meant the east interchange would not be constructed. Development of the Parsons Creek Subdivision was progressing at the same time as highway construction and required the Highway 686 east interchange to be constructed and the project limits extended too km 47.500.

In order to continue with the Subdivision development INFRA funded and administered the construction of the Highway 686 East Interchange. The East Interchange on Highway 686 construction contract was awarded to Innovative Civil Constructors Inc. (ICI2). The east interchange prime contractor was ICI who was also the sub-contractor on the Highway 63 Parsons Project which meant ICI had to coordinate with Sureway the highway contractor.

Even though there was a working relationship between ICCI and Sureway there were challenges in defining the work limits as the project were so close together. This lead to disputes over construction working space and how to handle surface water management.

Once of the biggest conflict during construction was surface water management. ICI kept the east interchange dry by having draining the water drain from their site. Unfortunately for Sureway, their construction site was below ICI's and all the water from ICI's site would drain into Sureway's. The additional water meant Sureway would have to spend more time dealing with a wet construction site.

Thickwood and Confederation Interchange Contractors

Furthermore to the East Interchange Contractors, Sureway had to coordinate their work with the Thickwood and Confederation Interchange Contractors. As borrow sources are limited in the area, all the Contractors ended up using the same borrow pit but in different sections. There were many disputes among the contractors about site responsibilities and work areas. Some contractor's maintained the borrow pit area cleaner than others.

In the 2013-2014 winter one of the other Contractors were to install the proper ESC measures prior to the spring run-off. However, for unknown reasons the other Contractors did not complete the work before they left for the winter. Sureway became very concerned they would be responsible for additional ESC measures and would be the found liable for any sediment release as their construction site is closest to the Athabasca river. To limit the erosion and sedimentation, Sureway took it upon themselves to install the proper ESC measures. However, the cost of the esc measures were borne by AT.

6.0 Pore Pressures

The stability of the high embankments was a concern prior to the construction. ISL was worried that the contractor would place the highway fill quickly and there would be high pore pressures. Tetra Tech recommended to improve the embankment slope stability of fills greater than 5m in height be constructed in a structured manner. In the Contract, ISL indicated fill placement cannot exceed 1m vertically per week and that geotechnical instrumentation be installed to further reduce the potential for developing embankment instability. Also in the Contract there was a 120 day wait time prior to paving so that the fill will have time to settle and to reduce the pore pressures.

The specifications of the contract for the fill placement and wait time were a big challenge to Sureway. The project had an interim completion date of October 1, 2015 on which the highway was to be fully opened to the public. Sureway decided to forgo the wait time and put the first lift of asphalt on the fill. ISL and AT clearly warned Sureway that by ignoring the 120 day wait time, Sureway will be responsible for correcting any and all deficiencies that may occur prior to the final acceptance of the work.

7.0 Lesson Learned

Early engagement of the utility companies

Existing utilities had to be relocated to accommodate the highway construction. Utilities within the project area included an Enbridge underground pipeline, ATCO Electric overhead power lines and underground lines of Shaw Cable (Shaw), Suncor Pipeline, and TELUS Communications (TELUS). During the project, ISL tried to get the utility companies to relocate their facilities before the main highway tender was released. AT desires that the utility relocations are finished prior to construction to avoid delays and any claims from the Contractor.

ISL held monthly meetings with the pipeline companies to ensure that the relocations were going to happen on time. The weekly meeting helped ISL keep track of the progress and see where we could assist the pipeline companies. At the meetings, ISL and the pipeline companies were also able to determine ways to make the relocation go more efficiently such as AT releasing a material replacement contract to remove incompetent material in the pipeline corridor. The materials replacement contract also helped keep the relocation costs down.

With the pipelines and overhead powerlines relocated ahead of time the Contractor had access to most of the site and were not delayed. As accidents with pipelines and overhead power lines are usually fatal, the contractor was at ease that the pipeline and powerline were outside the project limits.

The relocations of the communication facilities did not start until the pre-construction meeting was held in 2013. ISL had to constantly keep in touch with the communication companies to ensure that do not delay their relocations and in turn delay the highway contractor.

ISL had informed TELUS and Shaw of the construction years in advance of the construction. However, since the relocations costs were the responsibility of TELUS and Shaw, they did not want to relocate until the construction date was known. TELUS and Shaw began their relocations in the fall of 2013 and were completed in February 2014. The Contractor was able to work around the TELUS and Shaw lines and did not experience any delays.

Regular Meetings

By having regular bi-weekly meetings all three parties were able to voice their project concerns. This allowed each party to see the other parties' issues and come up with solutions together. The regular meetings allowed the parties to work together as opposed to against each other. Many construction concerns were solved in timely manners. The meetings also helped with prioritizing the construction issues.

Also at the regular meetings we invited the other stakeholders which included the utility companies, other contractors, and the Regional Municipality of Wood Buffalo. By inviting the other stakeholders we gave them an opportunity to voice their concerns and update them on the construction schedule. This led to the project team to be more proactive the other stakeholder concerns rather than be reactive.

Traffic Accommodation Bid Item

On most Alberta Transportation projects traffic accommodation is incidental to the project and there is a \$2,000 bonus if there are no written warning. As a result, some contractors put minimal effort in accommodating the traffic as the cost to maintain the traffic accommodation is worth more than the \$2,000. Based on the traffic volumes and the fact there is only one road in to and out of Fort McMurray, ISL recommended a bid item for traffic accommodation be included in the contract.

Site specific requirements for the traffic accommodation were listed in the contract and included a speed limit of 70km/h, accommodate high loads, supply and installation of construction signs, maintaining the signs, and cleaning the highway. Also included in the bid item was payment for Sureway to develop a traffic accommodation strategy plan. Payment for traffic accommodation was prorated and paid out over the first twenty (20) monthly progress estimates.

By having the bid item it gave Sureway an incentive to take the time to develop a site specific strategy that would be easy to implement and maintain. The payment also encouraged Sureway to actively monitor their traffic accommodation strategy. Over the duration of the project, Sureway did a great job of accommodating the traffic and reducing the number of delays.

Documentation is important (for claims)

A project the size of Highway 63 Parsons Creek interchange, there is bound to be contractor claims. ISL's experience in dealing with the claims is to have the proper documentation throughout the construction duration. Proper documentation will help with stating the facts and in preparing a response with the contractor. Without documentation claims will become a game of he said she said. Usually the person with the best documentation will win the claims.

Report any Environmental Incidents Immediately

In 2014, when Alberta Environment were cracking down on poorly maintained construction site, Sureway was monitoring the downstream end of the project limits to ensure they are not releasing anything detrimental to the environment. Other Contractors were not monitoring their construction site properly and were being fined and in some cases being shut down.

Sureway took the proper measures to monitor their site and installed the appropriate ESC measures. Sureway would contact Alberta Environment if they thought they had an environmental release. They took the approach that it is better to report an incident and be wrong than to not report an incident and be caught by the environmental authorities.

8.0 Conclusions

With all the challenges encountered during the design and construction, the Parsons Creek Interchange was opened in 2015. The newly opened interchange significantly improved the traffic congestion and allowed the Parson Creek Subdivision development to continue and. Alberta Transportation has an interchange that can be used for years to come and can be upgraded as necessary. Early engagement of stakeholders, regular meetings, proper documentation are key to project success.

9.0 Figures

Figure 1: Highway 63 2013 Alignment

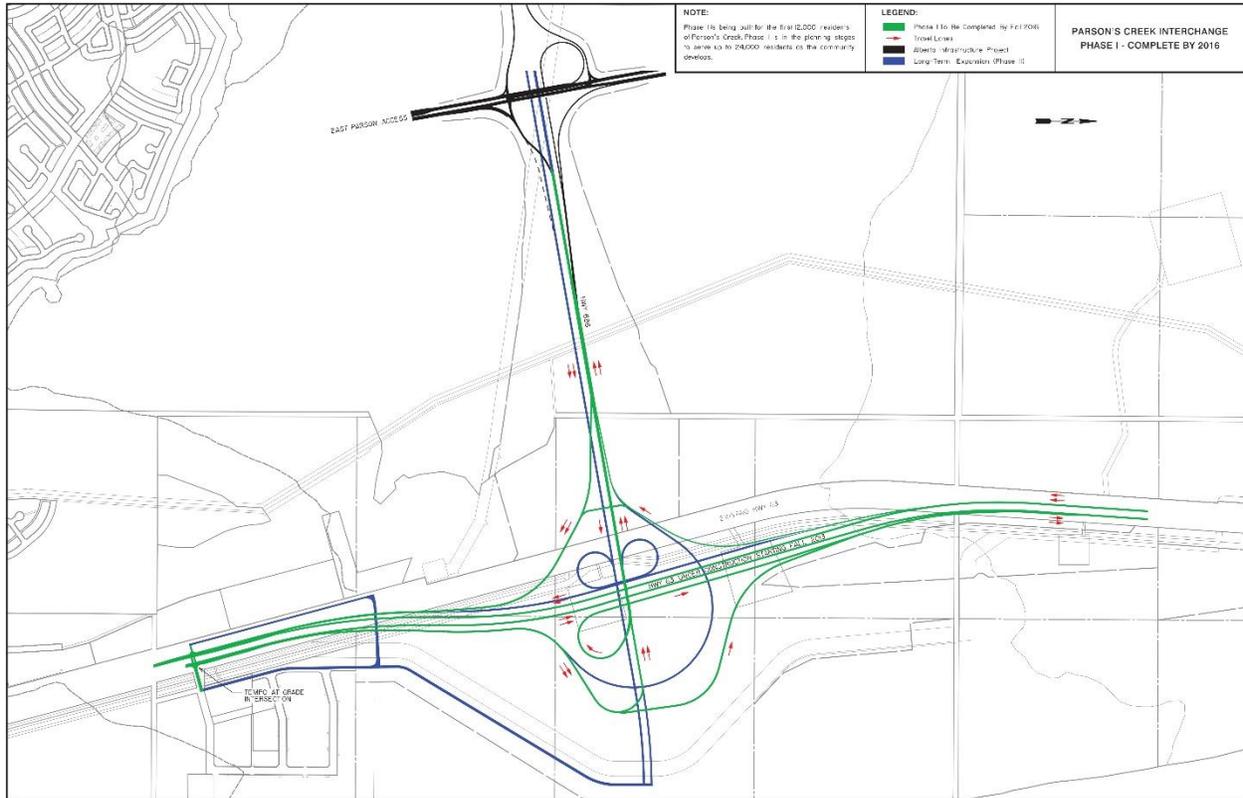


Figure 2: 3D Rendering of the Highway 63 Alignment



Figure 3: Aerial View of Parsons Creek Interchange as of July 2015



Figure 4: Highway 686 Bridge over Highway 63 as of July 2015



Figure 5: 2014 Paving



Figure 6: Heavy Haul Crossing



Figure 7: Heavy Haul Crossing Repair

