Stantec

GLOBAL TRANSPORTATION HUB

Canadian Consulting Engineering Awards

Global Transportation Hub

Category: Special Projects

April 21, 2016

The 75-Word Project Summary

The Global Transportation Hub (GTH) is a huge and exciting economic initiative for the Province of Saskatchewan. The GTH has assembled approximately 800 ha of land west of Regina to create a transportation and logistics centre. The GTH is being developed by the Global Transportation Hub Authority with support from Stantec as Owner's Engineer, Community Planner and Project Manager. The GTH is committed to developing supply chain infrastructure to support growing Saskatchewan and Canadian economies.

Innovation

A very large component of our work on this project involved developing regulatory processes and documents for an interim development control bylaw, a building and occupancy permit bylaw, development plan (GTH Official Community Plan) and zoning bylaw. This work involved a comprehensive consultative process with stakeholders, landowners, servicing agencies, and other relevant agencies, First Nations, and governments. Other key areas of our project work required more technical and innovative solutions, including:

- The GTH stormwater management system was designed to meet the established predevelopment flows for the 100 year 24 hour design storm event. An innovative combination of dry bottom detentions, drainage channels and site storage was used to provide the required stormwater storage volume. The overall impact of the GTH detention facilities on the peak flows in the GTH Main Drainage Channel is one of flow attenuation. This effect is due to the overall delay in conveying the storm runoff to the GTH Main Drainage Channel since stormwater is sequentially stored and released from one form of storage to the next: on-lot storage, ditch and storm channel storage and pond storage. Our design provides an overall improvement from the existing pre-development peak flow conditions.
- The earthworks program was completed in 2015 providing rough graded land for some 325 hectares. The massive earth moving operation has seen more than a million cubic metres of material moved since 2013. Emphasis was placed on achieving a net earth balance and phasing work to minimize the material haul distances throughout project development to manage project cost and reduce fuel consumption. Significant effort was placed on salvaging topsoil stripping for future use on the West Regina Bypass project.
- Stantec established standards for roadway, intersection and driveway geometry to accommodate double and even triple trailer long combination vehicles. Custom templates were created with AutoTURN software. With the assistance of local Loblaw Warehouse truck drivers we supported our custom templates by measuring turning radii in the field for both double and triple trailer long combination vehicles.
- As capital program manager and Owner's Engineer we are involved in all aspects of scheduling for GTH infrastructure delivery. We coordinate regular meetings between contractors, owners, consultants, utility companies, government agencies and stakeholders providing a forum for noting issues and formulating solutions with a collaborative approach. Design conflicts, construction issues and competing interests are discussed with an overall integrated approach to ensure a high level of productivity and to minimize delays.

Complexity

The overall complexity of the project is largely due to the size and magnitude of the development and GTH's desire to maintain flexibility to address marketplace needs. Other details include:

- Completed updates to the GTH concept plans, including serviceability analysis for all municipal infrastructure.
- Stormwater analysis to improve channel performance, identify the of 1:500 flood event elevations, modelling for adequately sizing roadway ditches, culverts, storm channels and stormwater ponds to meet flood protection and release rates.
- Analysis using WaterCAD software to determine potable water serviceability to meet standards for flow and pressure.
- Sanitary sewer designs for servicing the GTH lands and provided added depth and capacity to service a development located to the east of the GTH.

- Coordination of all shallow utility distribution services to the GTH lands, street lighting, service connections and the relocation of numerous buried facilities to address development conflicts.
- Through the GTH's zoning requirements we address the aesthetic considerations for the GTH including placement, design of site elements, lot configuration, buildings, landscaping standards, open space, signage, lighting, fencing, parking and outdoor storage areas.
- Asset classifications, amortization periods, budgeting, forecasting, lifecycle analysis, and records management.
- Review of all permitting, including development permits, building permits, excavation permits, and land subdivision. Field locates for GTH owned infrastructure.
- Prepared the processes and documents for an interim development control bylaw, a building and occupancy permits bylaw, development plan and zoning bylaw. These documents were prepared through a consultative process with stakeholders, landowners, servicing agencies, First Nations, and governments.

Social and/or Economic Benefits

The purpose of the GTH is to develop a major North American distribution centre, giving Saskatchewan state-of-the-art access to export markets, enhance the province's role in both the Asia-Pacific Gateway and Corridor Initiative and the Western Canadian Transportation Network, provide new jobs, investment and opportunities for local entrepreneurs, and expand the tax base. Until 2013, Stantec's work in helping the GTH fulfill their purpose fell within the City of Regina's approval processes. But, in 2013, the Province adopted The Global Transportation Hub Authority Act (the GTH Act) which outlined responsibilities for planning, developing, constructing, managing, regulating, operating, marketing and promoting a competitive, economic, integrated and efficient transportation logistics hub. In addition, the GTH Act outlines the powers of the GTH to design, develop, coordinate, direct, and control the use of development, conservation, maintenance and improvement of land, facilities, buildings and premises in the logistics hub.

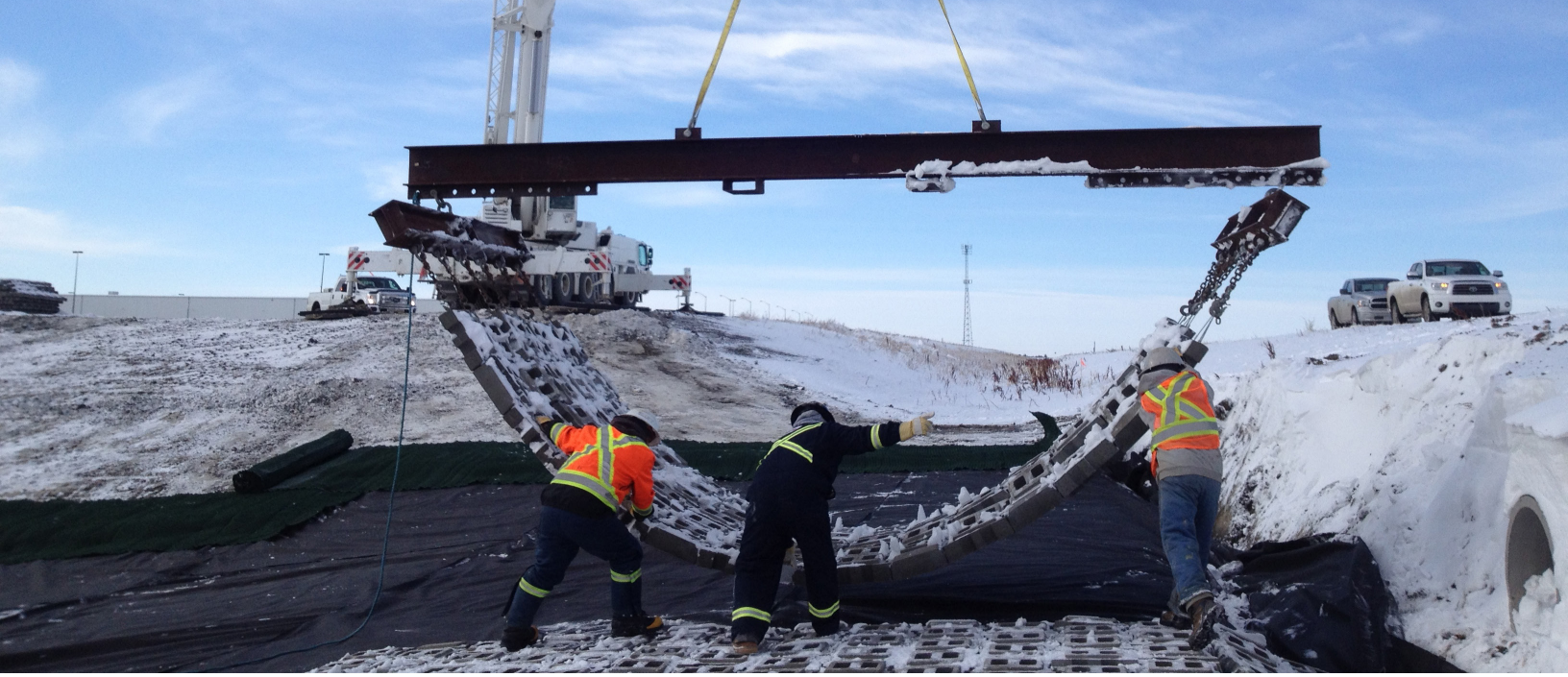
The Development Plan is built on the GTH's vision to develop an innovative and integrated global transportation and logistics hub that provides a positive investment and operating environment for the logistics industry, facilitates community building, and fosters economic

prosperity for the people of Saskatchewan. Our work provides land use policies for the intermodal facility, the logistics business area (designated for a variety of transportation-related, warehouse, cargo, distribution and logistics uses) and the commercial service centre (a welcoming service-focused environment designed to address the needs of drivers, employees and the traveling public in one convenient location).

Environmental Benefits

The Development Plan includes a broad description of plan implementation including the need to coordinate with other parties. Approvals are managed through the zoning, subdivision, and building permitting processes to ensure that transportation, servicing and environmental policies are implemented. Development should be consistent with the GTH's objectives for sustainability and address best practices, recycling and composting. For example: services for truck traffic will encourage reduced idling; the project is to be designed with CPTED (Crime Prevention through Environmental Design) principles for the safety and security of users, equipment and materials as well as risk management; explore opportunities for public transit to and within the site to facilitate employee access to the GTH; and dark sky lighting that concentrates light downward is strongly encouraged. Stantec plays an important role in providing advisory planning and engineering services to the GTH at all stages of the design and approval process.

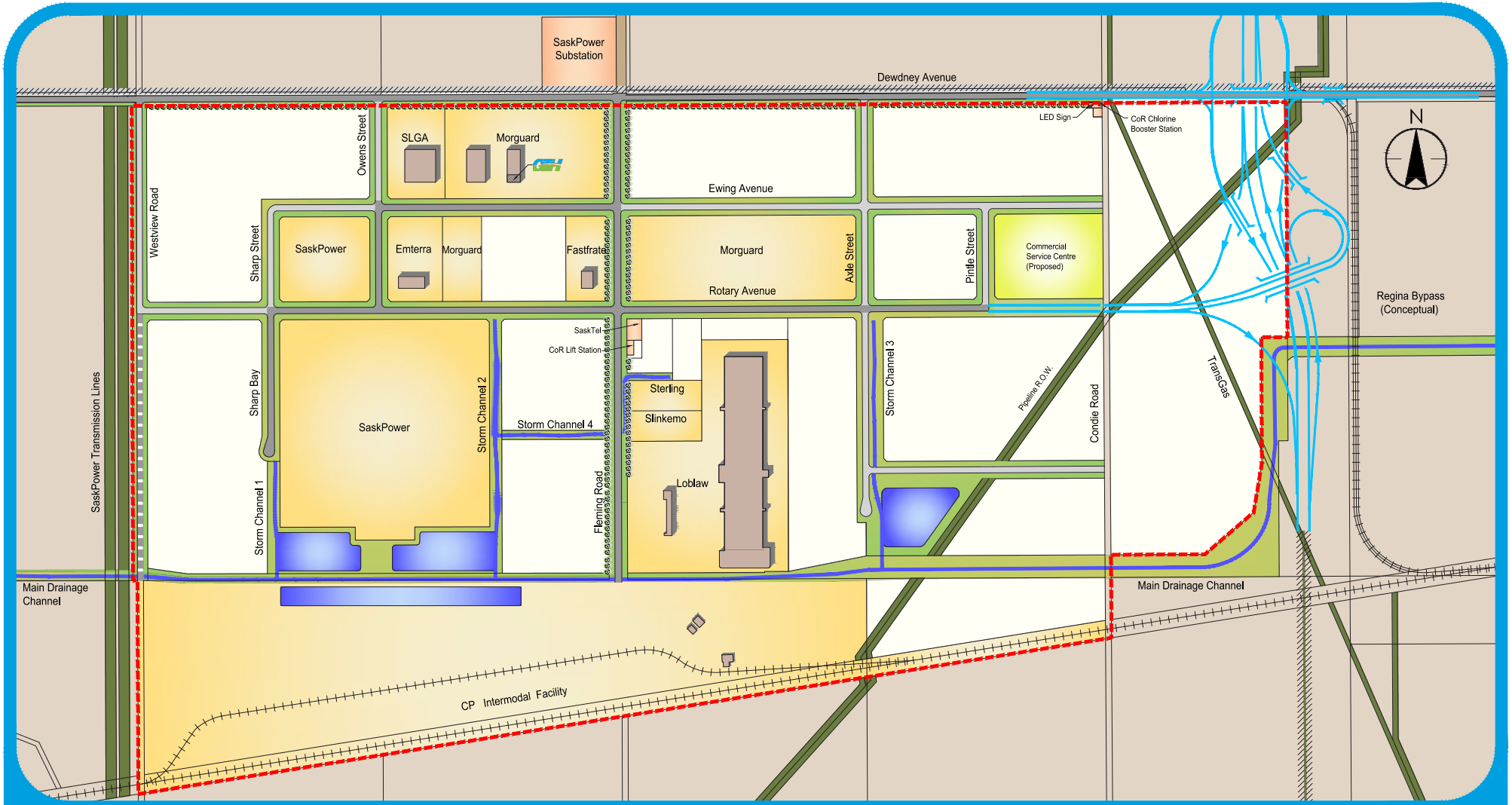
The zoning requirements address the placement, form and design of site elements (lot configuration, buildings, landscaping standards and materials, open space, signage, lighting, fencing, parking, outdoor storage areas, etc.). Designs are intended to maximize site coverage and efficient use of utility infrastructure to promote a more sustainable land-use pattern, enhance quality-of-life through building design, landscaping, tree planting and the provision of amenity space, minimize of off-site impacts from noise, odour, light spillage, etc., and the screening of parking areas, outdoor storage areas and utility structures from Dewdney Avenue and the West Regina Bypass.



Meeting Client's Needs

The vision of the project was to develop a transportation and logistics centre that would become a major economic engine for Saskatchewan and Canada. To do this, we:

- Developed a concept plan that would align with the growth strategy of the City of Regina and surrounding region, while remaining flexible to accommodate the changing marketplace and the needs of prospective users/locators.
- Provided a transportation network to achieve safe and efficient movement of large numbers of long combination vehicles as well as employee traffic.
- Designed a stormwater management and grading scheme to achieve a high standard of flood protection, recognizing the extremely flat terrain and the limited outlet capacity that is available.
- Provided a safe, high capacity potable water network for domestic use, for fire protection purposes and for potential high consumption process uses.
- Developed a sanitary sewerage system with the flexibility to accommodate potential high volume process uses and future development.
- Coordinated the work of the utility corporations in order to address relocations of existing lines and implementation of new facilities.
- Assessed and addressed environmental issues, both known and unforeseen, such as rare species, hazardous spills, abandoned underground facilities or wells.
- Developed landscaping and aesthetic considerations for the development.
- Considered long term maintenance and operations in the planning, design and construction of GTH infrastructure.
- Assisted the GTH in coordinating maintenance and operations activities.
- Prepared development standards for private site development and reviewed development applications for compliance.
- Developed and participated in a comprehensive approval and permitting process.



LEGEND

- SOLD OR ANTICIPATED DEVELOPMENT
- FUTURE DEVELOPMENT
- EXISTING ROADWAY
- FUTURE ROADWAY

NOTES

GLOBAL TRANSPORTATION HUB

CONCEPT PLAN
DETAILS MAY VARY
SEPTEMBER 23, 2015

Stantec