

# Saskatoon Rail Line Relocation – Phase 2

City of Saskatoon

March 30, 2020

*Final Memorandum*



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## **Financial Information**

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## Contents

1	Introduction .....	1
2	Background and Conceptual Corridor Design .....	4
3	CN/CP Railway Engagement.....	5
4	Conceptual Corridor Review with City of Saskatoon and Next Steps.....	8

## Appendices

Rail Relocation Option 1C Plan View .....	Appendix A
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# 1 Introduction

The City of Saskatoon faces a problem not without precedent; it is a desirable place to live, visit, and do business, yet one that is bisected by a legacy railway network that today generates unintended consequences in terms of safety, quality of life, productivity losses, and environmental impacts. In the future, as railway and vehicle traffic grows and trains become longer, these “externalities” will only compound.

Saskatoon’s residents and visitors are increasingly delayed by Canadian Pacific Railway (CP) and Canadian National Railway (CN) freight trains that pass through level crossings throughout the city. This delays motorists and pedestrians, increases the risk of accidents, causes congestion at adjoining intersections, restricts access to businesses and residences, increases vehicle emissions and operating cost, and may delay emergency services response times.

Through its work with the Railway Working Group (RWG), the City initially identified nine locations where grade separation was deemed a priority. However, it was also recognized that other options may prove more favourable such as the full relocation of CP and/or CN mainline and yard infrastructure outside of city limits. In order to determine the most viable and cost effective means of mitigating railway impacts on its citizens, the City requested a cost-benefit analysis (CBA) be conducted on viable options.

The following options were identified for consideration in a CBA in the initial Rail Relocation versus Grade Separation Report that was delivered to the City in 2018:

- Base (no-build) case: Existing at-grade crossings remain at-grade, mainline tracks and yards remain at their current alignment and locations;
- Alternative 1: Grade separate one or more of the existing CP or CN at-grade crossings;
- Alternative 2: Elevate the CP mainline over the existing roadway network (CP Elevation);
- Alternative 3: Lower the CP mainline below the existing roadway network (CP Trench); or,
- Alternative 4: Relocation of the CP mainline and Sutherland rail yard outside of city limits (CP Mainline Relocation).

In mid-2018, the City of Saskatoon decided to further explore CP Mainline Relocation (Alternative 4) in Phase 2 of the study. At the recommendation of city council, this phase of the study would focus on the relocation of the CP mainline and Sutherland Yard, which would include a portion of the new CP mainline occupying a shared corridor with the existing CN mainline that operates through the south side of the City. Phase 2 of the Saskatoon Rail Relocation study would expand upon the conceptual plans developed in Phase 1 and further engage both CN and CP in the concept of sharing a rail corridor through the City of Saskatoon to determine their level of support going forward. The updating of the conceptual rail relocation plan and engagement with the railways were organized into the following tasks:

## 1. Background and Conceptual Corridor Design

With CP already heavily engaged during the first phase of the project, this initial task looked to engage CN in the project and provide new conceptual corridor designs to share with both railways through the engagement process. Specific activities include:

- Initial outreach to CN on the next phase of the project including background and information regarding the status of the Rail Relocation study to date. Initial engagement with CN also included preliminary discussions about the possibility of sharing their right of way (ROW) through the City with a relocated CP mainline as part of the project. This initial engagement was critical as without CN's participation, the option of exploring a shared corridor of both CN and CP mainlines would not be possible.
- A site visit of the proposed shared corridor to visually inspect structures, topography, and clearance for additional trackage.
- The development of a conceptual corridor plan including infrastructure requirements and a high level rail operating concept that is acceptable to both railways. Included within this corridor concept are the following drawings:
  - Concept plan for presentation of overall track layout, identify all crossing conflicts that require future review
  - CP track and CN industrial track connection
  - South Saskatchewan River Bridge Cross section
  - CP track and CN Warman Wye Connection
  - CP track along CN Chappell Yard
  - CN Chappell yard modification (if any)

## 2. CN/CP Railway Engagement

The goal of this task was to engage and receive feedback from both railways regarding the concepts developed in the task above. Several meetings would be held with both CP and CN in order to present initial and refined concepts based upon feedback received. Specific activities include:

- Updates provided to each railway on the project including high level cost estimates for both grade separations and the rail line relocation, the City's current position, etc.
- Review conceptual corridor design of a shared corridor with CP on CN's right-of-way.
- Determine CN and CP willingness to discuss the concept of a shared use corridor and progression of refined concepts through future engagement sessions.
- Determine if each railway is willing to pursue this relocation concept further which would allow the City to seek funding opportunities and the further development of a functional plan.

## 3. Conceptual Corridor Review with City of Saskatoon and Next Steps

This task includes presenting the refined conceptual rail relocation plan developed through the engagement process with the railways to the City for review and comment. It also included developing next steps for the project based on engagement with the railways. This included the proposal of a formal memorandum of understanding between all parties to further work on the rail relocation study, including additional engineering work, cost estimates and the development of a plan for funding the project.

Contingent on the tasks above the following provisional tasks were initially proposed as part of Phase 2 of the study. However, as of the date of this memorandum, no provisional tasks have been completed.

#### **4. Joint CN-CP Session**

Facilitate an open discussion between CN and CP in regards to infrastructure and operating concepts while limiting discussion on legal/contract specifics (agreements, compensation, etc.). This session will help determine if CN and CP are agreeable to an operational and infrastructure concept that can be brought back to the City of Saskatoon for review.

#### **5. Functional Plan for Corridor Design**

Refine the conceptual corridor design including infrastructure requirements and an updated operating plan that is agreeable to by all parties. The following drawings and deliverables were anticipated as part of this refined functional plan:

- Concept plan for presentation of overall track layout, identify all crossing conflicts that require future review
- CP track tie in at the east
- HWY 16 grade separation crossing
- HWY 11 grade separation crossing (Existing & Modification)
- Clarence Ave S grade separation crossing (Existing & Modification)
- CP track and CN industrial track connection
- HWY 219 grade separation crossing
- South Saskatchewan River Bridge/Cross section
- Valley Road grade separation crossing (Existing & Modification)
- CP track and CN Warman Subdivision Wye Connection
- CP track along CN Chappell Yard
- CN Chappell yard modifications
- CP and Viterra Grain terminal track tie in
- Proposed CP Yard
- High level CN/CP operation plan
- High level Signal and Communication plan
- Land requirements and suggested right-of-way requirements

#### **6. Develop Conceptual Cost Estimate**

Should CN and CP be amenable to a commercial agreement, develop a conceptual construction cost estimate. This estimate may be used to further strategy with the City as to possible funding options or funding sources.

#### **7. Corridor Functional Plan Review with City of Saskatoon and Next Steps**

Present CN/CP joint working concept to the City for review/comment. Develop next steps including a report summarizing the project to date and a recommended plan. This includes supporting documentation that would be suitable for inclusion in senior government funding requests.

## 2 Background and Conceptual Corridor Design

During Phase 1 of the project, CP had voiced a preference for a relocation route that went around the southern limits of the City. A southerly option not only provided a new dedicated route for CP's mainline relocation, but would also be shorter in route miles versus the northern alignment proposed along the City's future ring road freeway corridor. Through the process, the City voiced concerns over land acquisition for the southern routes, primarily as a result of the Province of Saskatchewan's struggles to acquire a corridor through the same area for the Saskatoon Freeway project. As a result, it was requested that further analysis be done on the feasibility of a jointly shared corridor for CP's mainline along the existing CN mainline corridor that runs east-west through the south side of the city limits.

With a desire to develop a refined conceptual corridor that focused on the majority of the CP mainline relocation occurring within CN's right of way through the city limits, initial outreach and discussions with CN were crucial. Initial engagement with CN provided the background on the project and why a CN-CP shared corridor was now being progressed as the primary option for consideration. It was acknowledged that CN's corridor capacity and railway operations would need to be protected for in the process and those would be the driving principals of any conceptual plan put forward to both railways for review. With CN's agreement to participate in the study, HDR started refinement of a relocation concept that placed a new CP mainline within CN's corridor while also allowing for a replacement rail yard for CP's Sutherland Yard which would also need to be relocated as part of the concept.

In order to inform the conceptual design process, especially the segment to be shared between CN and CP, a site visit was performed on November 5<sup>th</sup> and 6<sup>th</sup> 2018. This site visit allowed for a visual inspection of the proposed CP mainline relocation alignment as well as the existing CN right of way.

Feedback received from both the railways and the City throughout the railway engagement process refined the conceptual corridor plan further. Rail Relocation Option 1C, which followed along the south side of the CN corridor throughout the study limits was the final concept developed (Appendix A) through discussions with all stakeholders.

### 3 CN/CP Railway Engagement

Both Class I Railways (CN and CP) were approached by the City to inform them of the objectives and desired outcomes of the study as well as to request their participation throughout the duration of the study. Both railways agreed to participate and have been involved in several engagement sessions throughout the study. Engagement sessions included the railways individually reviewing the Rail Relocation options that were developed, providing feedback on existing rail operations (both mainline and industrial) in their corridors, as well as their desired long term infrastructure requirements. Feedback from the Railways and the City were incorporated into adjustments in various options and ultimately helped influence the preferred Rail Relocation Option 1C (Appendix A).

The primary consideration of the railway engagement task was to ensure that realistic options were developed, especially those that required rail relocation or shared corridors/operations, and that those developed options aligned with the operating and strategic infrastructure objectives of both railways while also eliminating the road/rail conflicts of the existing CP corridor through Saskatoon. The participation of the railways in the engagement process was critical, as the ultimate goal of the process was to secure a Memorandum of Understanding (MOU) from the railways indicating overall support of the feasibility of the proposed relocation concept and associated rail operations changes. The letter of support would allow the City to further refine the preferred concept design, evaluate real estate and permitting implications along the corridor and develop a more refined cost estimate for the proposed rail relocation option. This refinement and support for the overall concept from both CP and CN would also enable the City to seek potential funding mechanisms for the project including support from various levels of government.

Various departments and internal stakeholders of each railway were involved in the engagement process including Capacity Planning, Strategy, Government Affairs, and Public Works. With various stakeholders collaborating in the engagement sessions, many aspects of the project were considered including railway operations, engineering and maintenance, infrastructure and corridor capacity, industrial development and commercial strategy, government affairs, and safety.

In addition to numerous phone calls and email dialogue, each railway participated in two formal engagement sessions on the following dates:

1. CN Engagement Session 1 – Wednesday February 13<sup>th</sup> 2019
  - Provide initial project overview to CN
  - Discuss concept of CN and CP sharing a corridor through the City
  - Discussed operating and infrastructure requirements
  - Discussed potential benefits and funding mechanisms
  - Discussed potential CN operational impacts and mitigation strategies
2. CP Engagement Session 1 – Thursday February 21<sup>st</sup> 2019
  - Provide project update to CP including CN engagement



- Discuss concept of CN and CP sharing a corridor through the City
  - Discussed operating and infrastructure requirements, including CP's requirements for a new rail yard to replace Sutherland Yard
  - Discussed potential benefits and funding mechanisms
  - Discussed potential CP operational impacts and mitigation strategies
3. CN Engagement Session 2 – Tuesday April 30<sup>th</sup> 2019
- Provide project overview and updates to CN Operations stakeholders
  - Review updated corridor concept and operational impacts based on feedback from initial session
  - Discussed intent to develop MOU between City, CN, and CP to further conceptual planning and cost estimates
  - CN provided additional feedback on the updated corridor concept and infrastructure requirements for the project to protect corridor capacity and future growth
4. CP Engagement Session 2 – Tuesday May 14<sup>th</sup> 2019
- Provide updated conceptual corridor plan, incorporating all comments and recommendations from CN, CP, and the City of Saskatoon to date
  - Discuss outstanding operating and infrastructure concerns with new concept
  - Discuss potential funding options and potential implications of such a large project
  - Discussed intent to develop MOU between City, CN, and CP to further conceptual planning and cost estimates
  - CP provided additional feedback on the updated corridor concept and infrastructure requirements, including a provision to protect a route through the City for CP permanently

To help assist the railways in evaluating the operating characteristics of each option reviewed, drawings and diagrams were produced to assist in outlining the various components and functions of each option proposed. The potential benefits of rail relocation were also reviewed with each railway and included the following items for discussion:

### **Saskatoon Rail Relocation – Potential Railway Benefits**

#### **Canadian Pacific Railway (CP) Potential Benefits:**

- Shorter route miles through the City of Saskatoon versus current route
- Increased overall track speeds versus current route
- Reduced grade crossings versus current route
- Additional industrial development opportunity in the Saskatoon Transportation Link area
- Reduce or eliminate corridor interference with the CN Warman Sub diamond at Gibb over Circle Drive (depending on customer activity remaining on the former CP mainline)
- New rail yard and transload replacing facilities in Sutherland Yard
- Potential real estate sale / development (former main line corridor and Sutherland Yard)
- Potential new CN/CP connection at CN Chappel Yard (may facilitate more efficient interchange operations between the railways)

**Canadian National Railway (CN) Potential Benefits:**

- New double track bridge over the South Saskatchewan River (single track today). A new structure would accommodate 3 tracks with 2 dedicated to CN and 1 track dedicated to CP.
- Potential grade separation of Lorne Avenue
- Replacement of the Highway 11 Grade Separations. Will facilitate the straightening of the CN double track main lines under the new structures.
- Reduce or eliminate corridor interference with the CP Wilkie Sub / CN Warman Sub diamond at Gibb over Circle Drive (depending on customer activity remaining on the former CP main line)
- Potential alternate rail access to the Viterra (AgPro) Grain Terminal via the new CP connection. This would eliminate CN grain train switching movements over the 11<sup>th</sup> Street / Dundonald Ave intersection to service the grain terminal.
- Potential new CN/CP connection at CN Chappel Yard (may facilitate more efficient interchange operations between the railways)

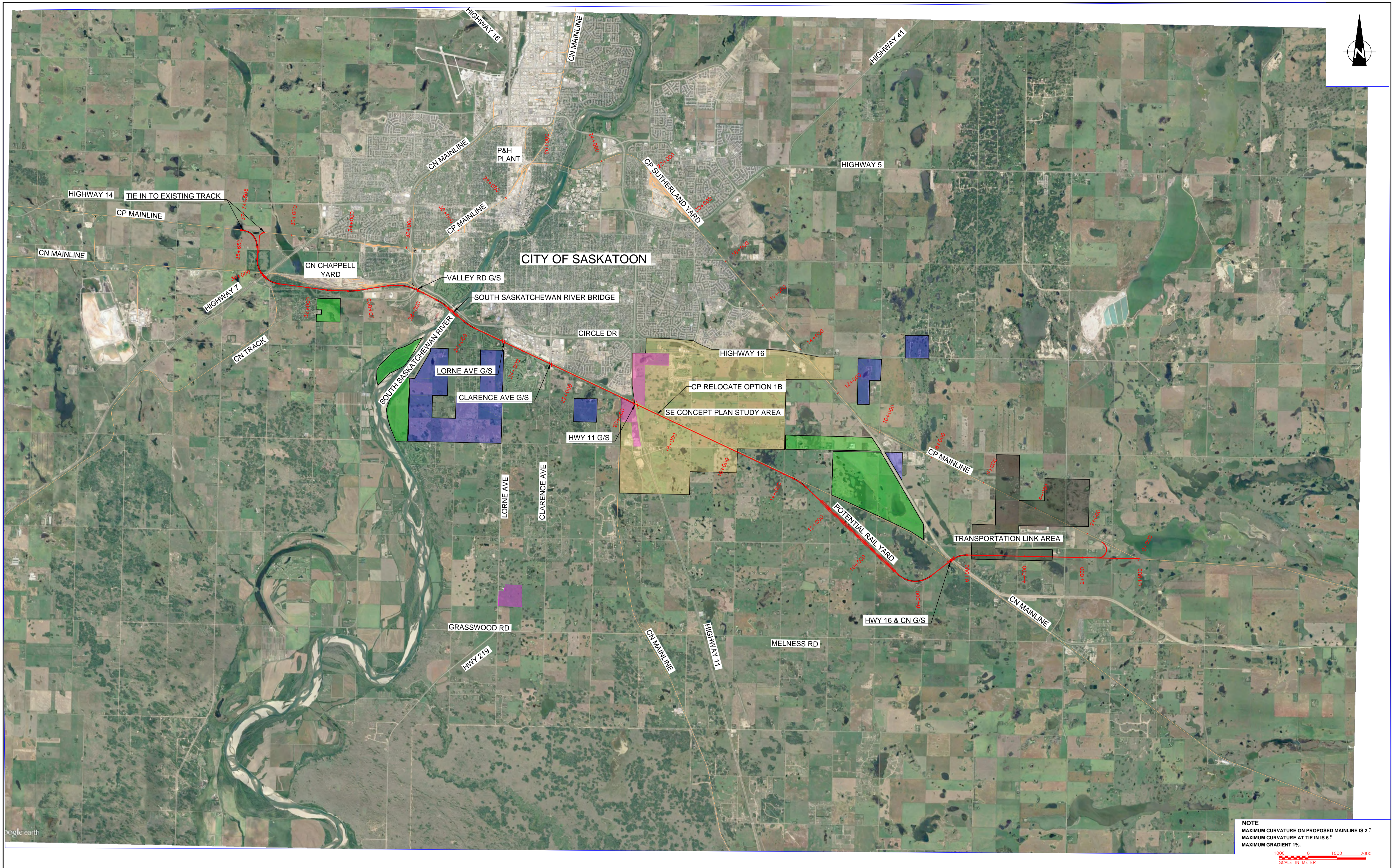
Although both railways have actively participated in the study engagement sessions, including review and comment on the conceptual rail relocation plans, neither railway has yet responded to the request for a formal agreement between parties (both railways and the City of Saskatoon) to progress development of the project to the next stage of functional planning and engineering. No additional provisional tasks are anticipated to be performed until agreement and support has been received from the railways.

## 4 Conceptual Corridor Review with City of Saskatoon and Next Steps

Throughout the development of the conceptual corridor plan and railway engagement, the City of Saskatoon was involved to provide constant feedback on changes suggested, new options to explore with the railways and providing overall strategic guidance as the study progressed. The City also worked to find solutions for issues encountered through the individual engagement sessions with CN and CP. One of those issues included CN's concern with the southern alignment of the relocated CP mainline abutting their Chappel Yard. CN was concerned that the close proximity of the CP mainline would inhibit their future expansion of Chappel Yard – a major regional yard and crew change on their transcontinental mainline. An alignment of the relocated CP mainline on the north side of CN's mainline and Chappel Yard was not desirable due to operational concerns voiced by CP of crossing the CN Warman Subdivision. It was also hindered by technical issues with trying to connect the relocated mainline back to CP's existing mainline on the west side of the City without impacting road access to the CN Chappel Yard and the adjoining Montgomery Place neighborhood. Upon discussion with the City, it was agreed that a provision could likely be made to utilize a portion of City landholdings to the south of the CN Chappel Yard to further the distance between CN's yard and CP's relocated mainline through this section of the corridor. At a high level, this appeased the concerns of all parties, and the relocated CP mainline was moved further south through these limits and incorporated into Rail Relocation Option 1C (Appendix A).

As discussions progressed through the railway engagement process, letters were drafted by the City to both railways looking for their further support and engagement in the project. A formal Memorandum of Understanding (MOU) between CN, CP and the City was sought to continue development of the project including further engineering and the creation of costs estimates that would ultimately support the progression of funding requests to various levels of government. As of the date of this memorandum, no formal response has been received from either railway to progress the MOU and continue progress on the project. The furtherance of the project to future phases of development will be dependent on support from both CN, CP, and the City of Saskatoon.

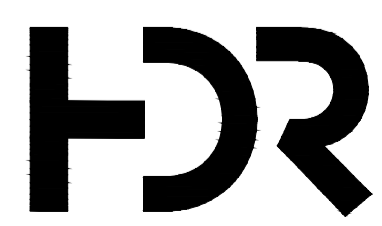
**Appendix A**  
**Rail Relocation Option 1C**



NOTE  
 MAXIMUM CURVATURE ON PROPOSED MAINLINE IS 2.7°  
 MAXIMUM CURVATURE AT TIE IN IS 6.7°  
 MAXIMUM GRADIENT 1%  
 1000 0 1000 2000  
 SCALE IN METERS

**LEGEND**

- OPTION 1C
- OTHER JURISDICTIONS
- PROPOSED DEVELOPMENT
- FIRST NATION RESERVE



ISSUE	DATE	DESCRIPTION
A	20180630	ISSUED FOR DISCUSSION

PROJECT MANAGER	FRED KRAMER
PROJECT NUMBER	

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FOR DISCUSSION ONLY

**City of Saskatoon**  
 THE CITY OF SASKATOON  
 RAIL RELOCATION VS GRADE SEPARATION  
 CP RAIL RELOCATION OPTION 1C  
 PLAN