



The City of Calgary

FINAL Executive Summary

Country Hills Boulevard Widening
Functional Planning Study

March 2023





ISL Engineering and Land Services Ltd. is an award-winning full-service consulting firm dedicated to working with all levels of government and the private sector to deliver planning and design solutions for transportation, water, and land projects.





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ES 1 Introduction

The Country Hills Boulevard (CHB) Widening Functional Planning Study was undertaken to provide a staged multi-modal corridor plan for CHB between Barlow Trail N.E. and Harvest Hills Gate N.E. The recommended plan will improve mobility for existing facility users, area residents and support future growth.

CHB is an essential east-west connection in north Calgary, establishing a vital link to and across Deerfoot Trail and access route to the Calgary International Airport. CHB directly services previously approved commercial, industrial, and residential development areas and is identified as a six-lane Arterial Street in the 2020 Calgary Transportation Plan (CTP). The three existing bridge crossings along CHB at the Canadian Pacific Railway (CP) tracks, Nose Creek, and Deerfoot Trail, highlighted in **Exhibit ES-01**, were reviewed to determine options to enhance multi-modal connections and rehabilitate existing roadway infrastructure so that past City investment in these bridges can be extended well in the future.

In 2000, Alberta Infrastructure completed the Deerfoot Trail / CHB Functional Planning Study (FPS) which provided long-term and Ultimate stage planning for the Deerfoot Trail / CHB interchange, including upgrading CHB to a six-lane divided Arterial Street west of the Deerfoot Trail interchange. Changes to CHB have also been planned and completed by area developers in conjunction with recent subdivisions. From these past plans, road right-of-way (ROW) has been previously protected by The City of Calgary (The City) and dedicated by area developers for this plan.

The need for a long-term plan along CHB arose from anticipated growth identified in both the Stoney Industrial Area Structure Plan (ASP) approved by City Council in 2004 (amended in 2014), and the Northeast Industrial ASP approved by City Council in 2007. Both plans acknowledged that upgrading CHB will strengthen the Always Available for All Ages and Abilities (5A) Network and support future growth including goods movement in Calgary's northeast industrial areas – a key growth area supporting Calgary's Industrial Growth Strategy to enhance the industrial land base within Calgary city limits. The City retained ISL Engineering and Land Services (ISL) to provide a comprehensive plan to fully address active modes, transit, and transportation objectives.

The key objectives of the FPS were to:

- Better accommodate and improve safety for people walking, wheeling, taking transit, and driving in the Study Area;
- Examine strategies for upgrading existing bridges over CP, Nose Creek and Deerfoot Trail in order to leverage past City investment in this key infrastructure;
- Develop a staged upgrading plan along CHB between Deerfoot Trail and Coventry Boulevard to progressively accommodate long-term needs of all users including continuous multi-use pathways and potential future High Occupancy Vehicle (HOV) lanes; and
- Deliver a coherent transportation plan that fulfils the needs of all modes of travel well into the future.

ES 2 Existing Conditions

A comprehensive review of existing conditions on the corridor was completed for the CHB FPS. Key information and findings are provided below:

- The transportation ROW available for the CHB upgrades including new multi-use pathways was previously protected by The City and varies in width along the corridor.
- **Existing posted speed limit** is set at 70 km/h within the Study Area.
- **Existing pedestrian and cycling connectivity** was reviewed based on existing infrastructure, and missing links were found along the existing corridor. Existing pathways / sidewalks are not continuous on both sides of CHB within the Study Area. Sections with missing pathways, and identified on the 5A network include:
 - North side of CHB between Harvest Hills Gate N.E. and Coventry Boulevard N.E.
 - North side of CHB between Coventry Boulevard and 14 Street N.E.
 - South side of CHB between 15 Street N.E. cul-de-sac and Deerfoot Trail east junction.
- Key routes for **existing transit service** relevant in the Study Area include regular / express Routes 100, 157, and 161 with service along CHB, to the Stoney Industrial Area, and connecting to the North Pointe MAX Station and Bus Rapid Transit (BRT) Route 301.
- Review of current **traffic operations** along the corridor showed that the majority of intersections are within an acceptable level of service (LOS). With existing lane configurations, westbound (WB) traffic experiences long through queues. The long WB queues may potentially create weaving issues for traffic exiting from southbound (SB) Deerfoot Trail and accessing the South District Development south of the CHB / 14 Street N.E. intersection.
- Area Structure Plans (ASP) including the Stoney Industrial ASP and Northeast Industrial ASP approved by Council identifies a combined total of **33,600 jobs** supported by the recommended plan.
- Three bridge crossings are within the Study Area:
 - **CP Bridge Crossing** – Consists of two separate bridges spanning 20.0 m, constructed in 1991. Currently has substandard shoulders and narrow pathways.
 - **Nose Creek Bridge Crossing** – Consists of two separate bridges spanning 31.0 m, constructed in 1990. Currently has narrow pathways on north and south bridges.
 - **Deerfoot Trail Bridge Crossing** – Consists of two separate bridges: south bridge constructed in 1975 with rehabilitation in 1998, and north bridge constructed in 2002. Currently has narrow pathways on the north bridge, and no pedestrian facilities on the south bridge.
- A planning-level **safety review** for CHB was completed in the Study Area. This included a formal In-Service Safety Review (ISSR) at all intersections in the Study Area. Several improvement opportunities were identified that can be implemented in the short-term and with the plans developed as part of this study.

ES 3 Biophysical, Environmental and Historical Considerations

ES 3.1 Biophysical Impact Assessment

A Level 1 Biophysical Impact Assessment (BIA) and identified biological and physical features on or adjacent to the project. Further biophysical analysis (i.e., a Level 3 BIA) is required for detail design, particularly along Nose Creek valley and/or wetlands areas along the northern portion of the Deerfoot Trail interchange. The full Level 1 BIA is included in **Related Report 2** of the main report.

ES 3.2 Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was completed and identified actual and potential site contamination caused by current or historical land uses. The Areas of Potential Environmental Concern (APEC) presented are conservative in nature and future design consultants should reassess them based on their proximity to excavation areas and depth of excavation. The full report is included in **Related Report 1** of the main report.

ES 3.3 Historical Resources Overview

A Historical Resources Overview (HRO) was completed and determined that there will be limited potential for the presence of buried intact cultural materials. However, undisturbed areas near Nose Creek, including areas with previously recorded archaeology sites, have the potential for buried intact cultural materials. A Historical Resources Act Approval with Conditions is recommended for this project, and a more detailed Historical Resources Impact Assessment (HRIA) be conducted for any undisturbed areas. The full HRO is included in **Related Report 3** of the main report.

ES 3.4 Greenhouse Gas (GHG) Emissions

In alignment with the Calgary Climate Strategy (2022), this recommended plan reduces negative impacts of climate change while minimizing disruption to City services and infrastructure. High Occupancy Vehicles, transit lanes, and greenhouse gas emissions were examined as part of this FPS.

Greenhouse gas (GHG) emissions data was obtained from The City using the 2048 RTM. Emission data was gathered for the Study Area only, along CHB between Harvest Hills Gate and Barlow Trail. A comparison between a “do nothing” scenario using the existing four travel lanes and the future proposed six travel lanes was completed to understand the GHG impacts of the network improvements.

Table ES-01: 2048 Horizon GHG Emissions Comparison

2048 GHG Emissions (kg)				
Scenario	Peak	Auto	Truck	Auto + Truck
Do Nothing (Existing 4 Lane CHB) 46,360 AADT	Daily (24 hrs)	22,234	4,254	26,488
Future Road (Proposed 6 Lane CHB) 48,990 AADT (5.70% increase from Do Nothing Scenario)	Daily (24 hrs)	23,373	4,402	27,775
	Daily Change	1,139	148	1,287
	Daily Change %	5.12%	3.48%	4.86%

Table ES-01 indicates that there will be a net total daily increase of 4.86% of GHG in the Study Area once the corridor is developed. The increase is primarily attributed to the forecasted 5.70% increase in vehicle traffic volumes with the additional travel lanes. When examined on a per-car basis, each vehicle is more efficient as delays, stops, and travel time through the Study Area is reduced by 0.77% per vehicle.

ES 4 Recommended Transportation Plan

The recommended Ultimate transportation plan provides a fully urbanized corridor that accommodates all modes of travel including wide multi-use pathways on both sides of CHB with many connections to surrounding pathway networks, upgraded intersection treatments, and six core lanes with the option to implement a special HOV / transit lane designation on the outer lanes. Recommendations in the Ultimate plan include network connectivity, mobility, and safety improvements for all modes of travel within the Study Area. The recommended Ultimate transportation plan for the Study Area is shown on **Exhibits ES-02**.

ES 4.1 Active Modes Connectivity

There are multiple existing and planned pathways within and adjacent to the CHB Study Area, with several gaps or missing links, including:

- North side of CHB between Harvest Hills Gate N.E. and Coventry Boulevard N.E.
- North side of CHB between Coventry Boulevard and 14 Street N.E.
- South side of CHB between 15 Street N.E. cul-de-sac and Deerfoot Trail East Junction.

Exhibit ES-03 shows the existing pathways in solid green linework and proposed pathways in dashed green linework. The proposed pathways fully connect to the 5A network along the corridor and varies in width between 3.0 m and 4.2 m on the north and south sides of CHB. Connections to the Rotary Mattamy Greenway and The Trans Canada Trail are provided between Harvest Hills Way N.E. and 14 Street N.E. New regional pathways along Nose Creek will be provided to complete connectivity for active mode users in the surrounding area.

To accomplish the proposed active mode connectivity, the three existing bridge crossings were enhanced:

CP Bridge

A separate multi-use pathway (MUP) on a new separate bridge north of CHB is proposed to create a more user-friendly environment for active mode users. Changes will be required to the existing MSE wall on the CP Bridge and a new alignment for the pathway will need to be considered.

Nose Creek Bridge

Preserve existing structure and rehabilitate bridge structure to accommodate wider multi-use pathways and complete roadway infrastructure improvements.

Deerfoot Trail Interchange

Construct a new separate bridge to accommodate a 4.0 m MUP north of the existing bridge. The entire existing deck would be used to accommodate the westbound lanes.

ES 4.2 Calgary Transit Connectivity

With improved road capacity through road upgrades and intersection improvements, CHB can provide more efficient trips for Calgary Transit to and from the Stoney Transit Facility located on 14 Street N.E., north of CHB. Additional future transit routes can be accommodated on CHB as a result of increased capacity at intersections. Future transit routes will be dependent on ridership in future communities, funding availability, and surrounding road network improvements. The CTP also identifies CHB within the Study Area as part of the Primary Transit Network and Primary HOV network.

Modifications to existing transit stops and new stops are proposed throughout the Study Area, with new continuous multi-use pathways on both sides of CHB providing improved access for transit users. A summary of the nine transit stops in the Study Area is provided in **Table ES-02**.

Table ES-02: Transit Stops

Stop ID	Direction	Location	Recommended Plan
4454	EB CHB	East of Harvest Hills Gate N.E.	Existing In-Lane Maintained
4455	EB CHB	East of Harvest Hills Way N.E.	Existing In-Lane Maintained
NEW	EB CHB	East of 11 Street N.E.	New Proposed In-Lane
2274	EB CHB	East of 14 Street N.E.	Existing Revised to In-Lane
9676	EB CHB	East of Freeport Dr N.E.	Existing Pull-Out Maintained
4713	WB CHB	West of Coventry Blvd N.E.	Existing Revised to In-Lane
2275	WB CHB	West of 14 Street N.E.	Existing In-Lane Maintained
2294	WB CHB	West of Freeport Dr N.E.	Existing Pull-Out Maintained
2860	NB 14 ST	North of CHB	Existing Stop Maintained

Options for transit queue jumps to bypass future anticipated vehicle queues at 11 Street N.E. and 14 Street N.E. intersections were not possible as property throughout the corridor had been previously negotiated and set with adjacent landowners. The City did not want to pursue land acquisition for transit queue jumps.

ES 4.3 High Occupancy Vehicle Lane

Once six core lanes are constructed, a special use HOV and transit lane in the outside travel lanes can be considered for the CHB corridor in both directions. Two general purpose traffic lanes in each direction would remain closest to the median while HOV and transit vehicles would have exclusive use of the outside lanes. Based on the preliminary queue length and delay analysis completed, HOV / transit lanes may be feasible for the Study Area.

The City can encourage higher transit / HOV usage through policy changes and by improving the frequency, efficiency and reliability of the City transit network. Long range planning policies were referenced including the updated 2020 CTP and the 2048 Calgary Regional Transportation Model (RTM) to determine future transit and HOV percentages.

Exhibit ES-05 illustrates the location of the potential transit / HOV lane. Due to previously negotiated road ROW widths and Calgary Transit input, the majority of bus stops in the transit / HOV lane are proposed to be in lane bus stops; therefore, transit only lanes might have better functionality.

ES 4.4 Goods Movement Strategy

The Calgary Goods Movement Strategy approved by Council in 2018 identifies CHB to be a prioritized corridor for improvement. The report further identifies CHB west of Deerfoot Trail to be an emerging Main Goods Movement Corridor and CHB east of Deerfoot Trail to be a Main Goods Movement Corridor. The Goods Movement Strategy recognizes that efficient goods movement is essential to Calgary's wellbeing and quality of life while complementing other City transportation plans, such as the development of the transit network (Route Ahead), the pedestrian network (Step Forward), and the bicycle network (Cycling Strategy).

The recommended plan will support the Goods Movement Strategy by accommodating future anticipated growth and improving traffic operations throughout the Study Area.

ES 4.5 Business and Industry

The expansion of CHB will support the anticipated employment and growth from surrounding approved developments. Letters of support have been received from adjacent landowners including Melcor Developments.

Stoney Industrial Area Structure Plan

The Stoney Industrial Area Structure Plan (ASP) approved by City Council in 2004 (amended in 2014) identifies an estimated 32,000 commercial and industrial jobs in the area and identified rehabilitation of CHB to six lanes would provide increased capacity for accessing the airport and Deerfoot Trail.

Northeast Industrial Area Structural Plan

The Northeast Industrial ASP approved by City Council in 2007 plans for the development of approximately 560 hectares of land, supporting business/industrial/commercial employment of about 1,600 people.

ES 5 Project Implementation

The project implementation scope included an initial review of construction staging, development of project capital construction costs, and definition of property requirements. It is expected that the proposed initial phase of construction be further reviewed and modified as the project progresses in future design stages.

Proposed Stage 1

Stage 1 is focused on providing a continuous multi-use pathway system throughout the Study Area for those who walk and wheel. Gaps in the existing pathway systems are connected, and continuous pathway facilities are provided on both sides of CHB, except on the south Deerfoot Bridge. Multiple new connections from the Study Area pathways will be provided to the Rotary Mattamy Greenway and The Trans Canada Trail.

A new separate pedestrian bridge is proposed in Stage 1 over CP Rail and Deerfoot Trail, and bridge expansion is proposed over Nose Creek to provide a more consistent and comfortable experience for pathway users.

Minor modifications to the roadway are proposed to provide access to developments on the north side of CHB, near 11 Street N.E. and 14 Street N.E. This cost estimate does not include new roadways north and south of the CHB road ROW, which were assumed to be solely developer funded.

Stage 1 upgrades are shown in **Exhibit ES-04**, and the estimated cost to complete Stage 1 improvements is **\$27.0 million**.

Stage 2 / Recommended Ultimate Plan Cost Estimate

The Ultimate stage of CHB includes a combination of rehabilitating existing bridges and constructing new bridges to accommodate six travel lanes along the complete corridor including multi-use pathways at each of the crossing locations. It is noted that the cost estimate does not include additional costs when upgrading from Stage 1 to Stage 2.

The estimated Stage 2 / Ultimate improvements is **\$97.9 million**.

Potential Cost Sharing

- CHB from Harvest Hills to Nose Creek and Nose Creek to 14 Street N.E. sections is solely within the jurisdiction of The City and does not require collaboration with other stakeholders. These sections could be upgraded independently from the Deerfoot Trail Interchange to their ultimate cross sections depending on funding strategy.

- Nose Creek to 14 Street N.E. may have cost share opportunities with adjacent landowners and/or could be covered by existing levies. Potential cost to develop access lanes to developer sites could cost approximately \$3 million, including removals, earthworks, pavement, and concrete work.
- The Deerfoot Trail interchange section will require collaboration with Alberta Transportation to finalize the bridge designs and contract specifications. Therefore, it is recommended to complete this work independent from the other corridor upgrades from both a funding and approvals perspective.

ES 5.1 Property Requirements

ROW dedication from adjacent developer was completed to maintain a buffer between the roadway and pathway on the northeast corner of the intersection of 14 Street N.E. and CHB. Several grading easements are required to constructed standard slopes along pathways. No further property acquisition is required for the recommended plan.

ES 6 Engagement

The project team engaged with stakeholders and the public throughout 2019, 2020 and 2021 to gather feedback to develop design concepts, evaluation criteria and a recommended plan for the CHB Study Area. Engagement was organized into three phases, each tied to key milestones in the development of the FPS.

1. **Discover:** Discover opportunities, challenges, priorities, and evaluation criteria for the Study Area with stakeholders and the public
2. **Explore:** Explore design concepts and evaluation results with stakeholders and the public
3. **Reveal:** Present preferred plan to stakeholders and the public

Common themes from all three engagement sessions include:

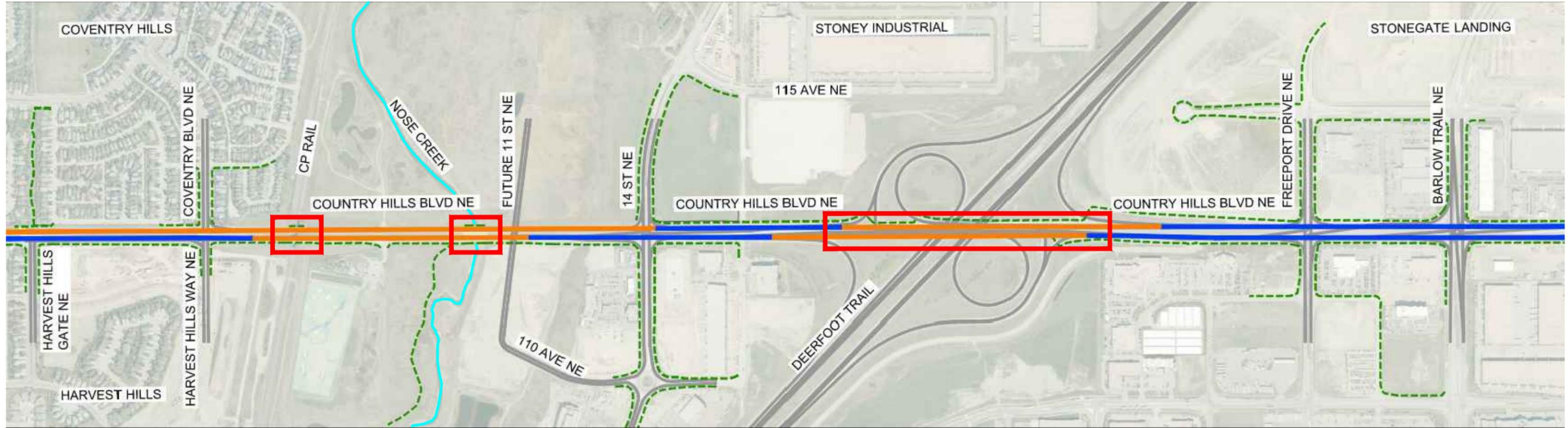
- Participants felt that it is important to accommodate pedestrians and cyclists along the study corridor and connections within communities and to existing pathways, and to improve or create this infrastructure with the safety of users in mind.
- Participants felt the long-term corridor would decrease congestion and improve traffic flow in the area.
- Participants carefully weighed costs for perceived benefits when considering the options presented – looking for a balance of lower cost options that still achieved meaningful improvements.

ES 7 Closure

The Country Hills Boulevard Widening Functional Planning Study was undertaken to provide a staged multi-modal corridor plan for Country Hills Boulevard between Barlow Trail N.E. and Harvest Hills Gate N.E. The recommended plan will improve mobility for existing facility users, area residents and support future growth. Key objectives of the study have been met including:

- Providing two continuous multi-use pathways that will connect to existing pathways and sidewalks, as well as, to the future pathways along Nose Creek;
- The existing bus stops will be upgraded. Future transit routing and potential HOV lanes to be evaluated as part of future HOV/Transit implementation studies;
- The existing bridge structures were reviewed and upgrade strategies for the three existing bridge crossing locations were developed;
- 6 core lanes and intersection upgrades will reasonably accommodate future vehicular volume requirements;
- The cost for the corridor improvement objectives is estimated to be **\$124.9 Million**; and
- The proposed stage 1 active modes improvements alone are estimated to be **\$27.0 Million**.

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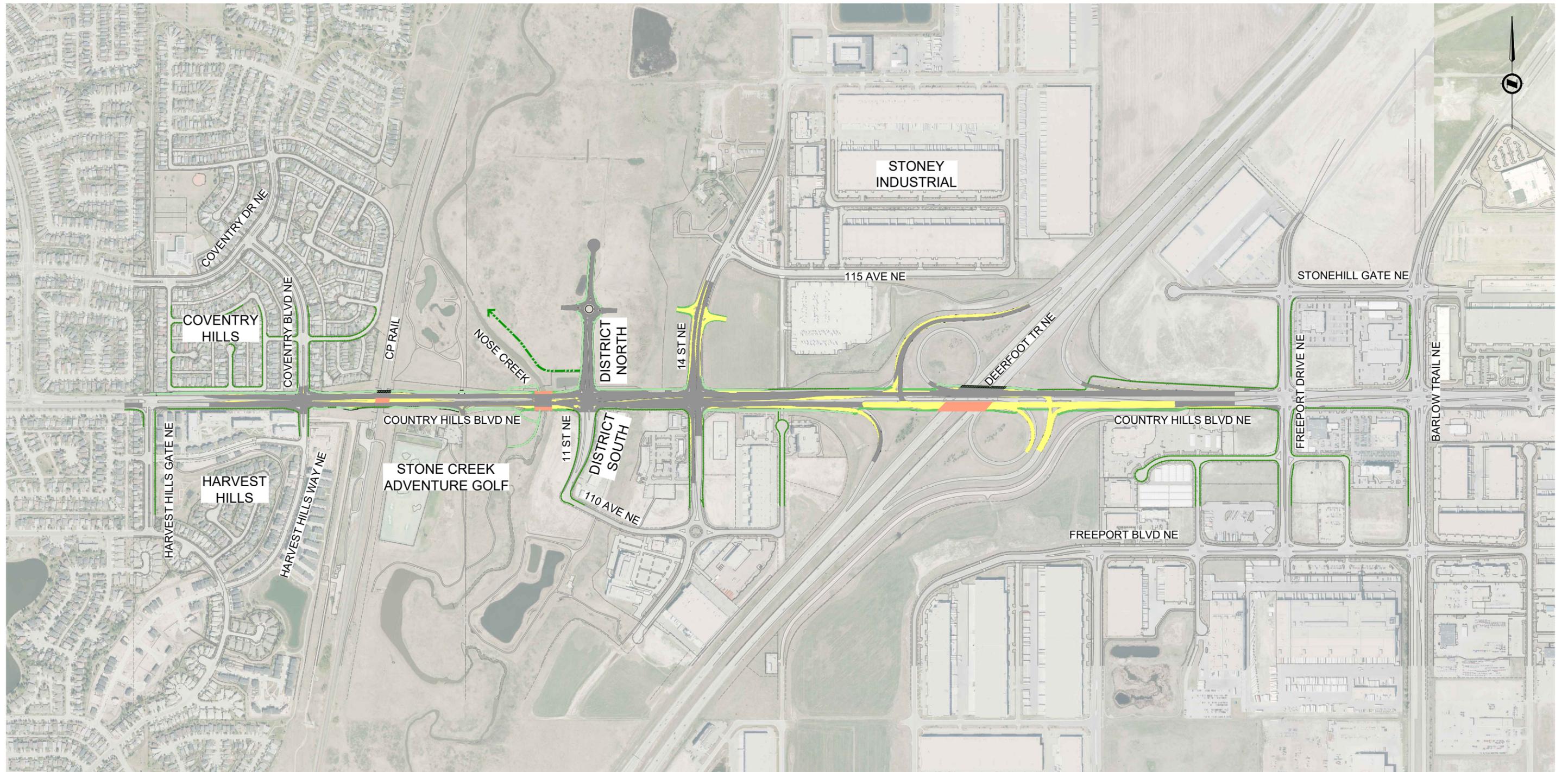


NOT TO SCALE

PRELIMINARY
FOR DISCUSSION ONLY
SUBJECT TO REVISION

<p>LEGEND</p> <ul style="list-style-type: none"> — Existing 2 Lane Section — Existing 3 Lane Section — Existing Pathway / Sidewalk — Intersecting Roadways — Water Course 				
<p>PROJECT</p> <p>THE CITY OF CALGARY COUNTRY HILLS BOULEVARD N.E. FUNCTIONAL PLANNING STUDY</p>				
<p>FIGURE TITLE</p> <p>BRIDGE LOCATIONS</p>				
FILE No.	SCALE	FIGURE No.		
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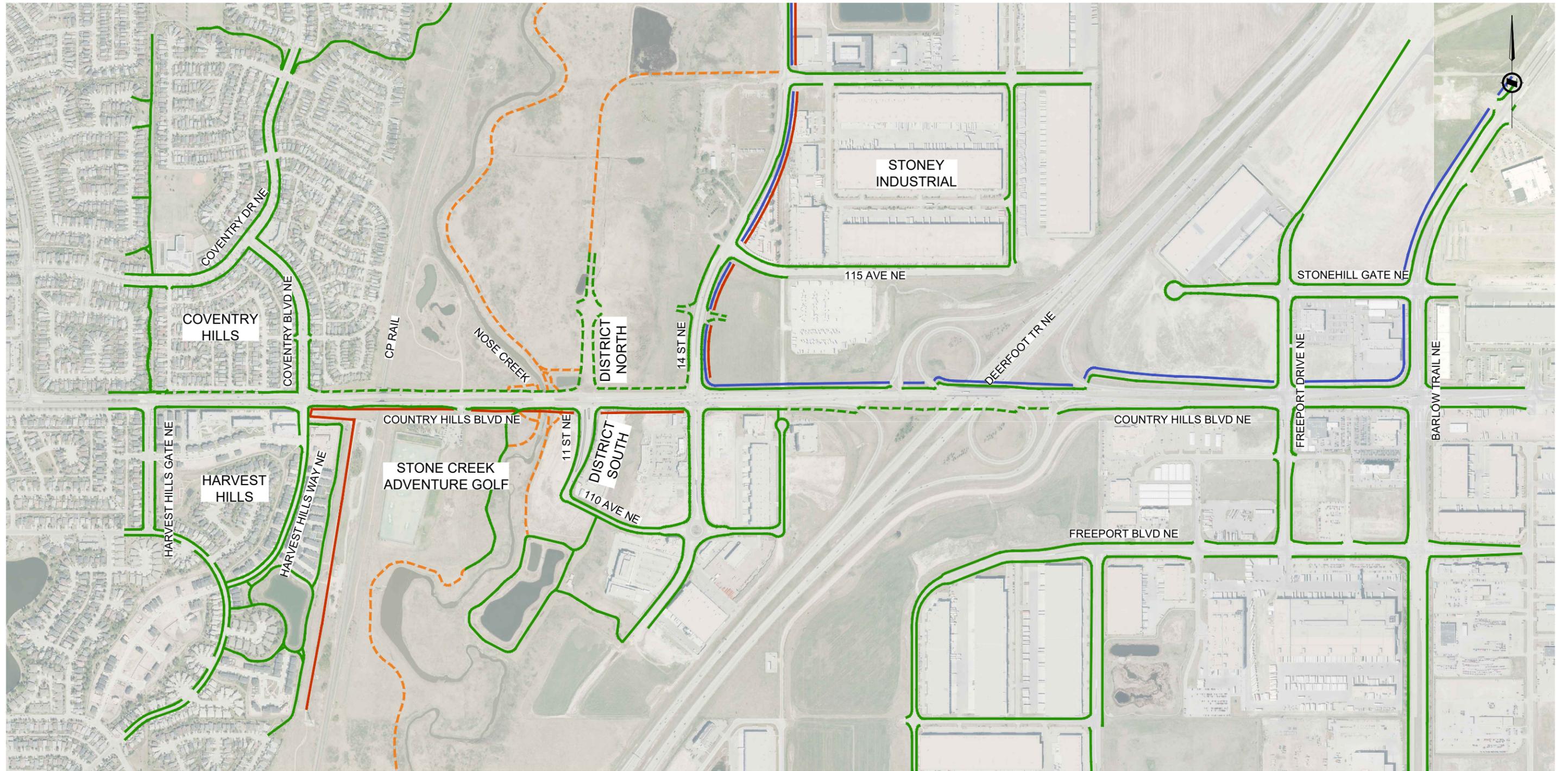


PRELIMINARY
FOR DISCUSSION ONLY
SUBJECT TO REVISION

LEGEND	
	PROPOSED ROAD
	PROPOSED BRIDGE
	PROPOSED PATHWAY / SIDEWALK
	PATHWAY BUILT IN STAGE 1
	POTENTIAL FUTURE PATHWAY CONNECTION
	PROPOSED PEDESTRIAN BRIDGE
	POTENTIAL HOV / TRANSIT LANE
	EXISTING BRIDGE / ROAD
	EXISTING PATHWAY / SIDEWALK
	RIGHT OF WAY

PROJECT THE CITY OF CALGARY COUNTRY HILLS BOULEVARD N.E. FUNCTIONAL PLANNING STUDY		
FIGURE TITLE RECOMMENDED TRANSPORTATION PLAN ULTIMATE		
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PRELIMINARY
FOR DISCUSSION ONLY
SUBJECT TO REVISION

LEGEND	
	EXISTING SIDEWALK / PATHWAY
	PROPOSED SIDEWALK / PATHWAY
	FUTURE PATHWAY CONNECTIONS
	ROTARY MATTAMY GREENWAY
	THE GREAT TRAIL



PROJECT
**THE CITY OF CALGARY
COUNTRY HILLS BOULEVARD N.E.
FUNCTIONAL PLANNING STUDY**

FIGURE TITLE
**RECOMMENDED TRANSPORTATION PLAN
AREA PATHWAY CONNECTIVITY**

FILE No. 27422_CHB_FPS_ES_Path_Ovrw.dwg	SCALE 1:10000	FIGURE No. ES-03
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