100 Street Pedestrian Bridge

Concept Design Overview

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Edmonton

Spring 2022 | **edmonton.ca/100StreetPedBridge**

About the Project

Project Description

The 100 Street Pedestrian Bridge will connect the energy of downtown Edmonton with the vibrancy of the river valley! This new iconic bridge will become the latest addition to Edmonton's skyline and build a continuous circuit along the edge of downtown.

Located at the crest of McDougall Hill Road and 100 Street NW, the proposed pedestrian bridge will connect the future MacDonald Drive Promenade to the 100 Street Funicular Upper Plaza. Sitting above McDougall Hill Road, the pedestrian bridge will provide a safe passageway for active modes and creates a new public place for Edmontonians and visitors alike to enjoy the river valley edge.

The pedestrian bridge will meet its functional purpose, but will push beyond function to reflect design excellence that complements the unique site context and that creates a distinct experience. This bridge project is a critical investment in catalyzing the urban redevelopment and activating the adjacent public spaces.

Instantly recognizable as a public landmark on the skyline, the 100 Street Pedestrian Bridge will be a destination in itself. By improving access through downtown and into the park network, the pedestrian bridge and public spaces around it will provide diverse opportunities for commuting, recreation, and gathering currently lacking in the downtown vicinity. Connecting Edmonton's downtown and its river valley, the bridge provides a much needed pedestrian connection along the top-of bank, and celebrates the expansive view of the river valley and its special place in Edmonton's civic history. The pedestrian bridge will also be an inviting and inclusive place for users of all abilities to stroll and sit – a contemplative space that instills a unique sense of place in Canada's northernmost major city.

Project Area

The bridge spans across McDougall Hill Road from MacDonald Drive to the Funicular.

The overall project boundary includes portions of McDougall Hill Road and MacDonald Drive as well as the vegetated slopes.

Project Objectives

- To provide a critical connection
- To become a signature destination
- To promote activation and placemaking
- To maximize user experience and aesthetics

Alignment with City Plans

This bridge was strategically identified in the Capital City Downtown Plan, Capital City Downtown Community Revitalization Levy Plan and Bike Plan. The concept for this bridge was further developed in the Downtown Public Places Plan, which calls for space improvements to create a greener, healthier and more family friendly downtown. The Downtown Public Places Plan plan also provides recommendations for a network of interconnected spaces that enhance downtown's vibrancy and accessibility.

Project Timeline

Currently in the Concept Design stage, public engagement will be open until **April 24, 2022**.

To learn more and share your thoughts through an online survey, visit **edmonton.ca/100StreetPedBridge**

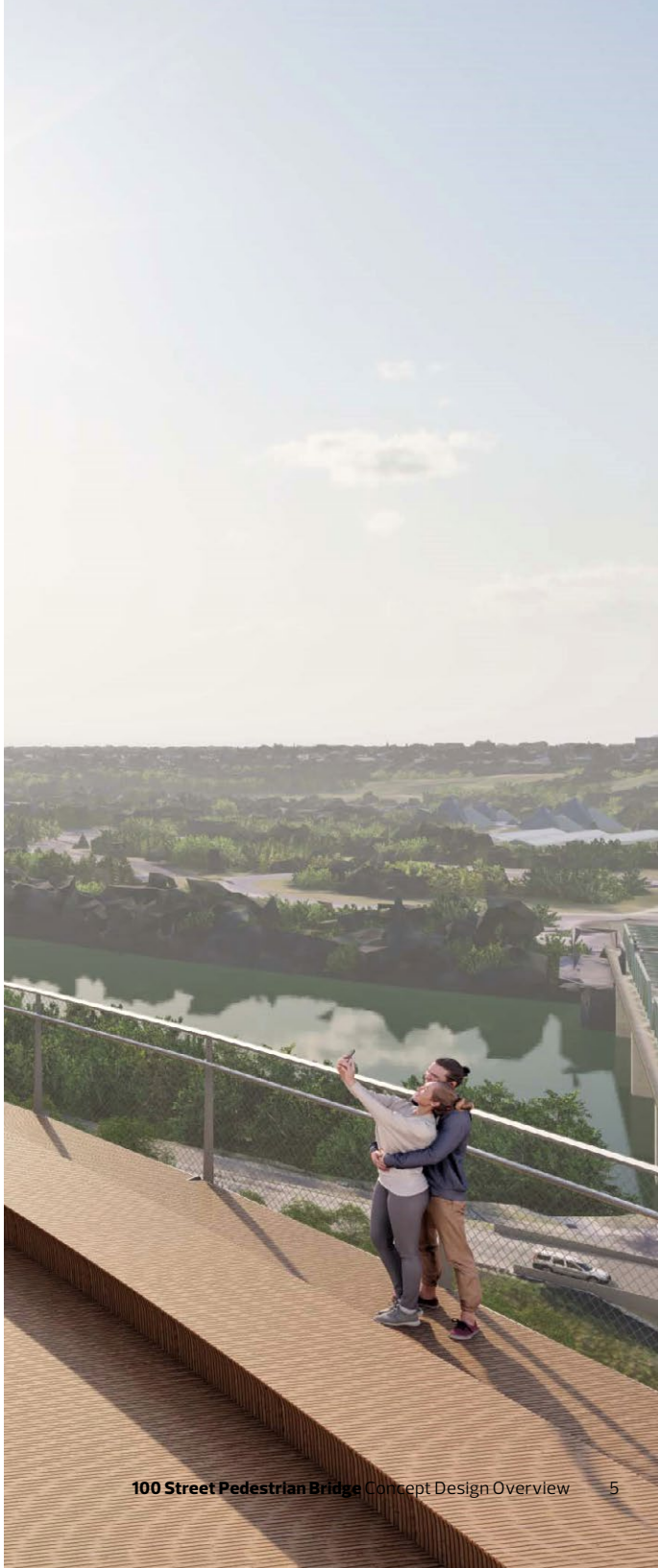
Proposed Bridge Concepts

The vision for this iconic bridge is to respectfully respond to the site and surrounding area. The design considers the site's sloping topography, key views, and the ecological impacts of construction.

Lighting and other design elements will create a dynamic downtown destination throughout the seasons. A strong public realm that prioritizes the user experience is central to ensuring a lasting and appealing outcome. This new attraction for residents and visitors will help to revitalize the edge of downtown and signal further investments in our public spaces.

Using the guiding principles of Universal Design, age-friendly and child friendly cities, the City of Edmonton is committed to building a more accessible city for everyone. The City of Edmonton has also adopted a Gender-Based Analysis Plus (GBA+) process to improve inclusion and equitable outcomes for projects and services. Design features will be developed in tandem with the City of Edmonton's Access Design Guide.

Explore the three concept options on the following pages!



Option 1: Timber Bridge

Made of low-carbon timber construction, this bridge spans over McDougall Hill Road, extending over the hillside.

The sculptural shape of the bridge creates a large social space and lookout point over the central structural support.

Key features:

- \+ Bridge is built with low-carbon construction
- \+ Sculptural and expressive beams
- \+ Timber bench seating at lookout
- \+ Bridge alignment minimizes its overall length

Scan the QR code with the camera on your phone to see 360° views of the proposed bridge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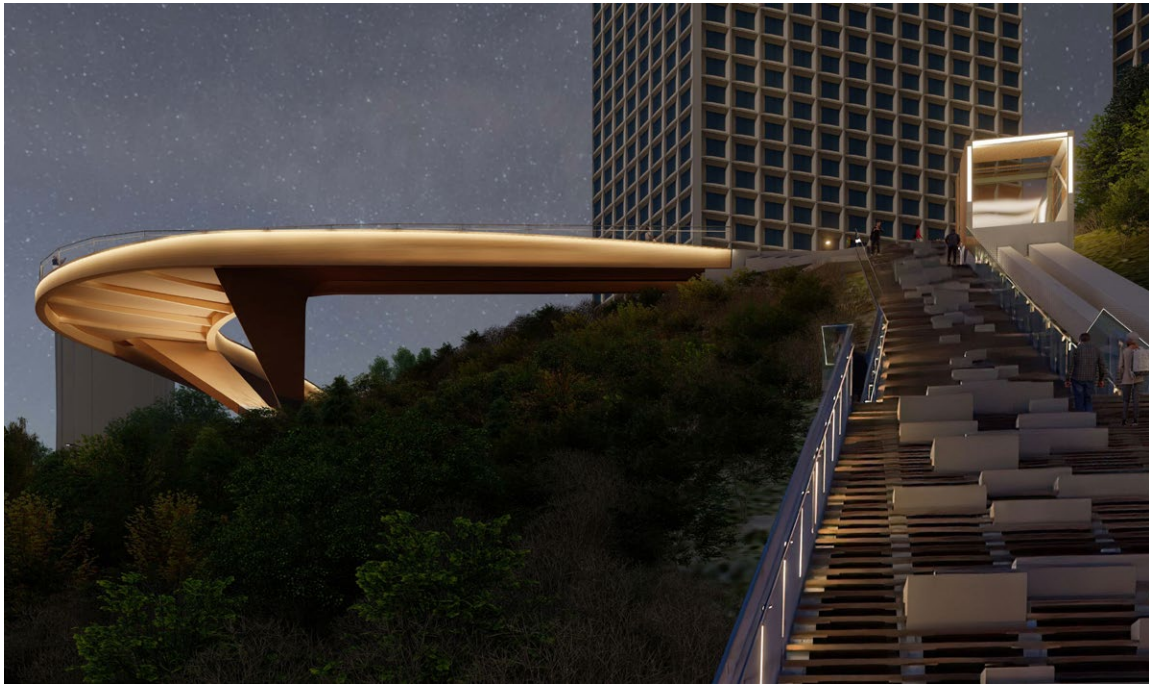
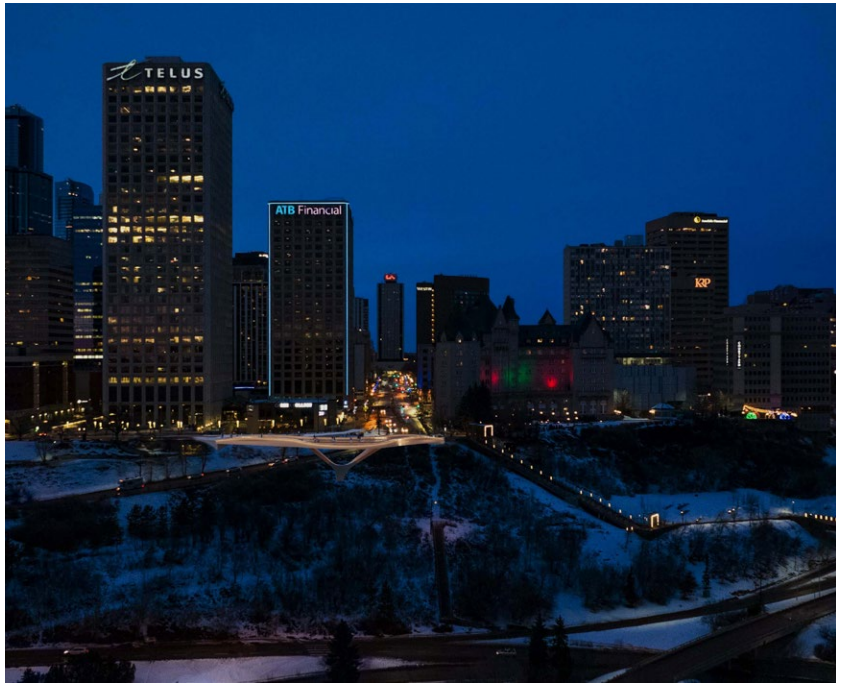


This bridge design focuses on the creation of a placemaking moment along the edge of downtown. In order to accommodate a large deck area on the bridge, at least one foundation on the southern side of the road would be required.

This option was also identified as the most appropriate scheme to explore the opportunity to make use of mass timber construction, resulting in the lowest-carbon bridge.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Option 1: Timber Bridge

Option 2: Cable Stayed Bridge

The Cable Stayed Bridge is a suspension-like structure with a central mast on the north side of the road.

The bridge deck is made as thin as possible and the supporting cables extend over McDougall Hill Road. The configuration of the cables provides unobstructed views to the south and a gateway experience emerging from river valley to downtown.

Key Features:

+ Mast is centered for structural loading
+ Elliptical shape of bridge deck
+ No structural support on south side of road
+ Panoramic and unobstructed views

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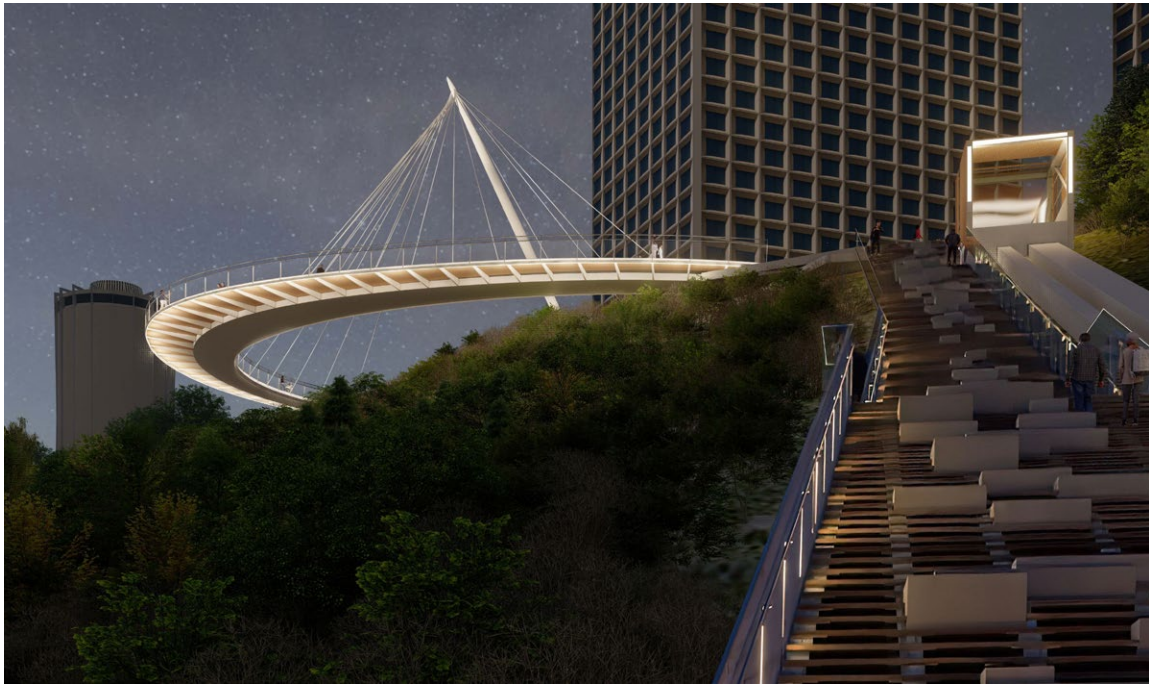
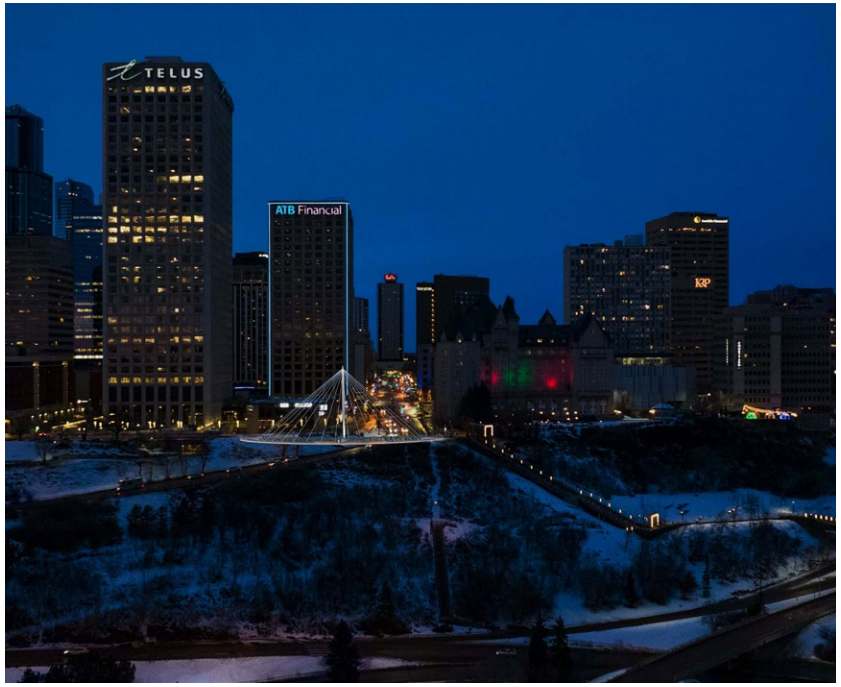


The design approach of this bridge is to avoid touching the slope on the south side of McDougall Hill Road, preventing potentially costly foundations required on unstable site conditions. The deck alignment is optimized due to the tight site constraints between McDougall Hill Road and MacDonald Drive. In order to minimize the structural load on the mast and back-stays, the deck structure is designed to be as lightweight as possible. The deck geometry also increases in width around the central area of the span to create a placemaking moment.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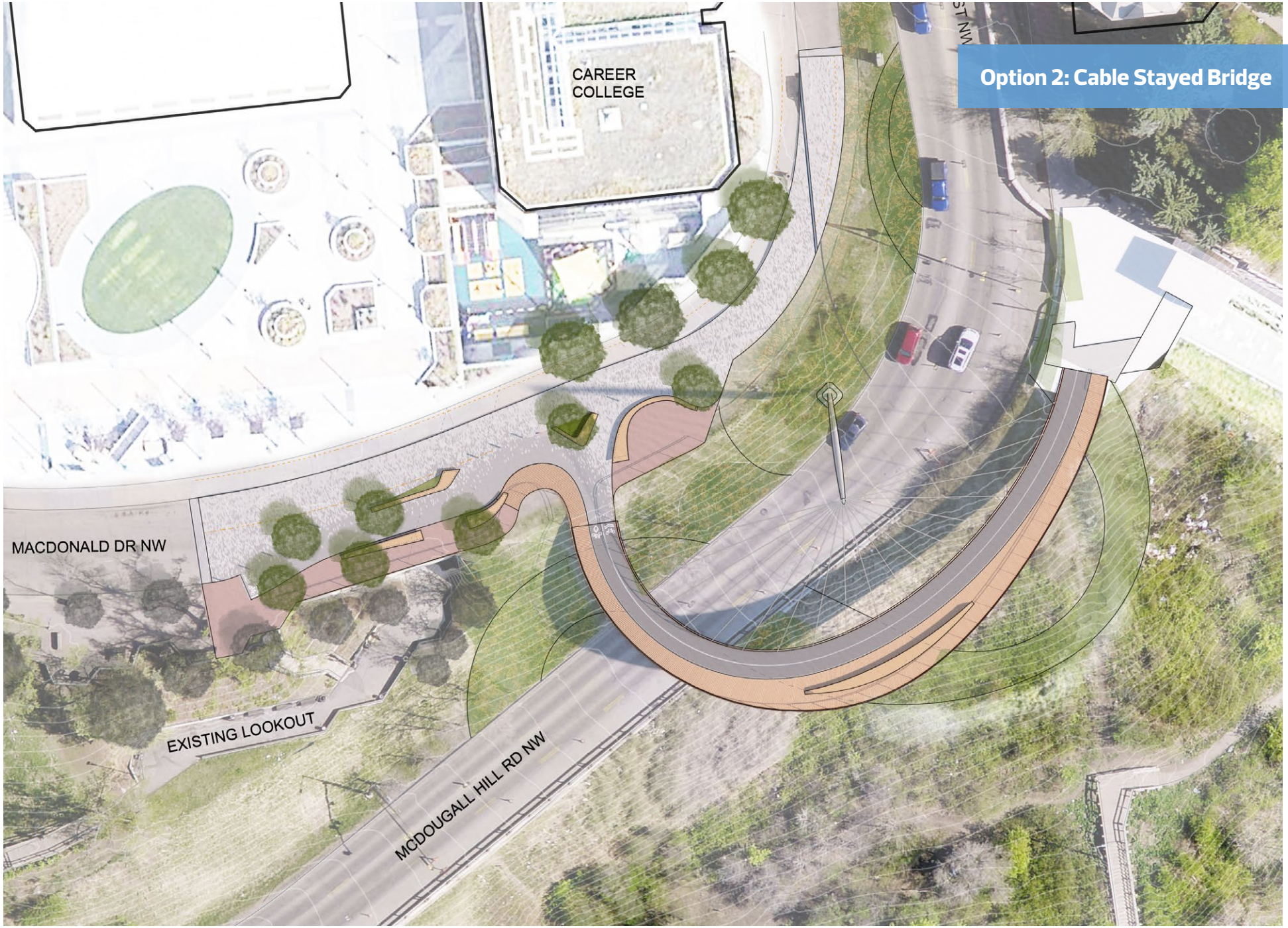
Option 2: Cable Stayed Bridge



Option 3: Suspended Bridge

The Suspended Bridge also uses a mast, but with tension cables that wrap under the bridge on the south side of McDougall Hill Road.

The bridge deck extends further out over the riverbank with unobstructed views north and south to create a unique sense of levitation.

Key features:

+ Asymmetrical mast on north side of road
+ An "underslung" cable curves above and below bridge deck
+ Counter-intuitive and dynamic structural mast and cable support system

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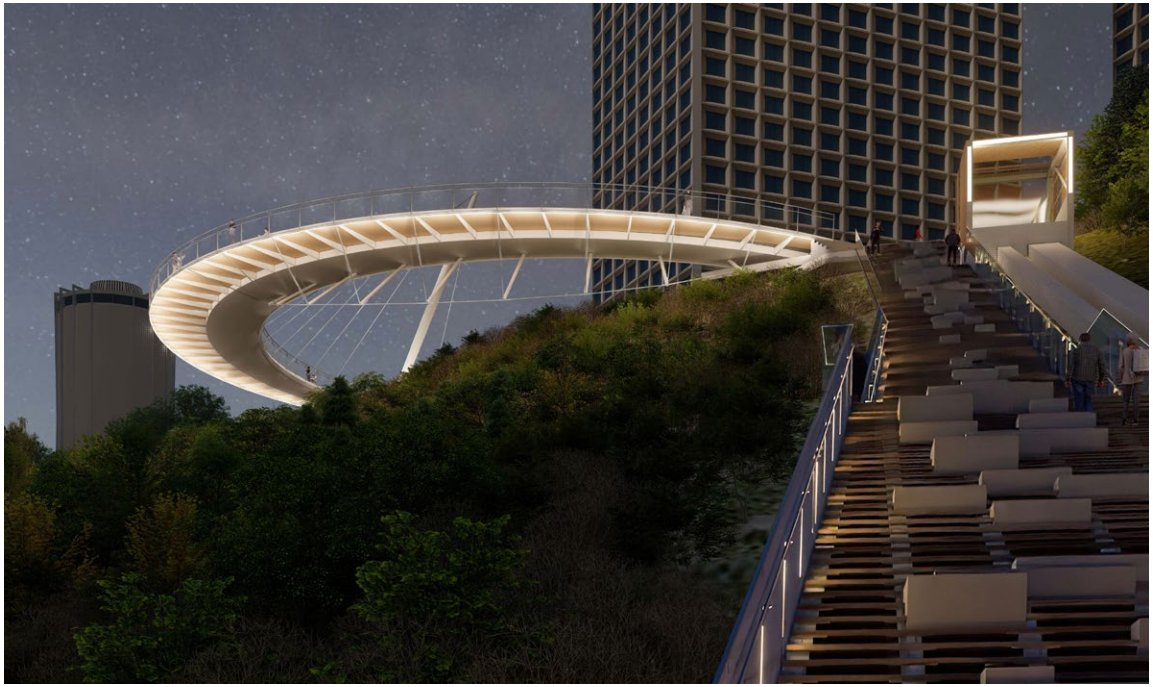
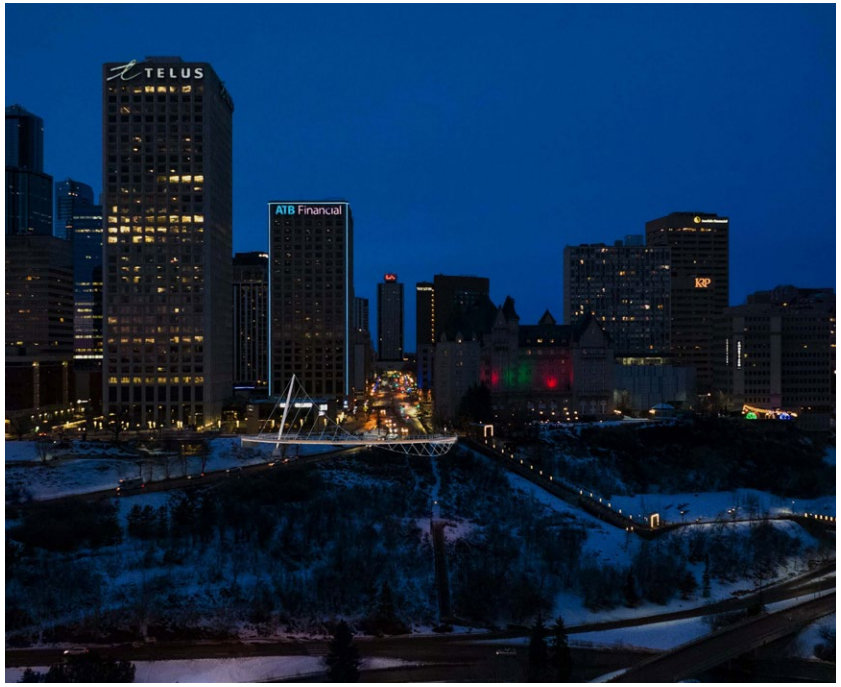


The design approach of this bridge seeks to maximize the structural forces efficiently on the north side of MacDonald Drive, with lesser loads touching down at the Funicular. As the mast is located at one end of the bridge, an "underslung" structural solution efficiently carries the loads back to the mast. In order to minimize the load on the mast, the deck structure is designed to be as lightweight as possible. The bridge deck also increases in width around the central area of the span to create a placemaking moment with long benches.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Option 3: Suspended Bridge