

144 Avenue NW (Sage Hill Drive to 24 Street NW) and bridge over West Nose Creek

RECOMMENDATION:

That Calgary Planning Commission receive this report for the Corporate Record.

HIGHLIGHTS

- This report presents for information, the 144 Avenue NW (Sage Hill Drive NW to 24 Street NW) road and bridge over West Nose Creek project.
- What does this mean to Calgarians? The 144 Avenue NW road and bridge project supports existing growth in Symons Valley and planned growth in the Glacier Ridge, Keystone, and Nose Creek Area Structure Plans, providing an essential link in the transportation network for existing and future residents.
- Why does this matter? The 144 Avenue NW road and bridge project provides an important new transportation link for Calgarians, will improve access and connections for all modes of travel, and enhance recreational opportunities along West Nose Creek by providing expanded pathways for pedestrian and cyclist use.
- This report provides information on the project including bridge structural design and aesthetics, creek realignment, pathways and accessibility, noise attenuation, landscaping and public engagement.
- Previous Council Direction: Council previously approved the Transportation Infrastructure Investment Plan, Investing in Mobility 2015-2024 in December 2012, and accepted the updated report in May 2014. Subsequently the 144 Avenue NW project was approved under C2018-1158 One Calgary 2019-2022 Service Plans and Budgets on 2018 November 14.
- Strategic Alignment to Council's Citizen Priorities: A city that moves
 - Sustainability Principle 9: Connect people, goods and services locally, regionally, and globally by enhancing east-west connections between high-growth communities.
 - Key Direction for Land Use Mobility 1: Achieve a balance of growth between established and greenfield communities by allowing for continued growth in a greenfield area.
 - Transportation Goal 1: Align transportation planning and infrastructure investment with city and regional land use direction and implementation strategies by supporting an identified growth management area.
 - Transportation Goal 5: Promote economic development by ensuring the efficient movement of workers and goods by providing enhanced network links.

DISCUSSION

This project will provide a new arterial roadway and related infrastructure connecting Symons Valley Road NW with 24 Street NW (*see Figure 1 below*). It is planned as a continuous east-west connection north of Stoney Trail, and will provide an important link for all modes of transportation, including a connection between the communities of Evanston, Sage Hill and communities to the north in various stages of development. This project supports the Glacier Ridge, Keystone and Nose Creek Area Structure Plan areas, and also supports the development and growth management needs of various City business units, such as Water

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Resources and Parks. The project scope includes 1.2 kilometres of a new three-lane arterial roadway (interim stage of an ultimate six-lane roadway) from Symons Valley Road NW to 24 Street NW with a full intersection buildout at Symons Valley Road NW and a road transition to Sage Hill Drive NW. It also includes a new single-span bridge over West Nose Creek (relocated approximately 60 metres west), and expanded connectivity to The City's 5A Network.

Figure 1: 144 Avenue NW project location



Pathways and Accessibility

The bridge and pathway network have been designed to meet current City of Calgary accessibility design standards. New pathway connections are provided on both sides of 144 Avenue NW and along the west side of West Nose Creek, with two accessible connections (maximum grades of 5 percent) linking the “upper” roadway level to the “lower” creek level. A new trail connection with a higher allowable maximum grade of 10 percent will also be provided up the escarpment to the southeast of the bridge crossing, supplementing other similar trail connections in the area.

Several future pathway connections have also been planned but will not be constructed as part of this initial stage. These include: a pedestrian bridge across West Nose Creek, a pathway connection on the east side of the creek, and a staircase in the northeast corner of the bridge.

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These are planned to be constructed when the roadway is twinned and/or when the overall pathway network is extended to the north by area developers (see *Attachment 1, Figure 7*).

Bridge Structural Design & Aesthetics

An extensive bridge planning, evaluation, and value management process was undertaken to determine the optimal configuration of the bridge on 144 Avenue NW. In particular, The City evaluated options that both maintained and relocated the alignment of West Nose Creek. The selected bridge configuration includes the realignment of West Nose Creek which provided significant cost reductions, allowed for use of open abutments (instead of massive retaining walls), and improved the overall pathway experience and wildlife passage.

The ultimate roadway will feature two parallel bridges with a total of six lanes carrying the eastbound and westbound carriageways of 144 Avenue NW. The current project will construct the southerly bridge only, carrying two lanes eastbound (up the hill) and one lane westbound. However, the full bridge earth embankment fills are being constructed during this interim stage to readily allow for twinning in the future without additional impacts to the creek.

The West Nose Creek Bridge will be a 51 metre single-span concrete girder structure carrying 144 Avenue NW over West Nose Creek (see *Figure 2 below*). The bridge draws architectural inspiration from the surrounding natural area which features natural sandstone outcroppings; Bridge wingwalls feature a sandstone façade which frame the structure as it extends over the creek.

In addition to lighting under the bridge, the open span arrangement and high bridge clearance provide a large opening which will allow for ample natural light under the bridge.

Figure 2: 144 Avenue NW bridge over West Nose Creek



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Noise Attenuation Walls

Noise attenuation walls are required on 144 Avenue NW east of West Nose Creek, bordering the community of Evanston (see *Figure 3 below*). The noise walls feature a painted bullrush scene on the side facing the roadway boulevard, which has been integrated with feature landscaping interspersed along the length of the wall. The side of the wall facing Evanston residents will have a simple ashlar/block stone appearance.

Figure 3: Noise attenuation wall along Evanston homes backing onto 144 Avenue NW



Landscaping and Creek Realignment

Proposed landscaping for the project will provide a natural transition from the West Nose Creek valley onto 144 Avenue NW. Feature landscaping, including planting clusters and benches, will be provided periodically along the pathway connections and boulevard areas to create visual interest and passive wayfinding.

A comprehensive restoration plan has been developed for the realigned segment of West Nose Creek, featuring the riparian planting of native vegetation and fish enhancements such as root wads and riffle-pool sequences; A smaller pilot channel meanders within the realigned creek. Natural rock generated by this project will be re-used in the creek as boulder clusters and for bank protection.

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STAKEHOLDER ENGAGEMENT AND COMMUNICATION (EXTERNAL)

- ☒ Public Engagement was undertaken
- ☐ Public Communication or Engagement was not required
- ☐ Public/Stakeholders were informed
- ☐ Stakeholder dialogue/relations were undertaken

Three phases of public engagement occurred in 2018 and 2019 as part of the 144 Avenue NW Functional Planning Study. Public input informed the study in the development and selection of roadway alignment and profile options, creek crossing options, and evaluation criteria, as follows:

- Phase 1 – Discover ideas, opportunities, challenges, and evaluation criteria for the study area with stakeholders and the public;
- Phase 2 – Explore design concepts and evaluation results with stakeholders and the public; and
- Phase 3 – Reveal creek crossing options and recommended plans.

During the design stage, contact was made with the developers adjacent to 144 Avenue NW who are in various stages of planning and development. Discussions with these developers occurred and related to the following:

- Land dedication and access agreements;
- Design coordination including site interfaces, site servicing, and the connection of existing and future pathways; and
- Construction coordination including simultaneous operations.

In advance of construction (Fall 2021), communication with area residents has occurred through a project overview video available on the project website, and through a social media campaign. Homeowners who are adjacent to the proposed noise attenuation wall have been individually contacted to provide details about the wall and information about expected construction impacts. The project team has provided opportunities for specific meetings with homeowners who expressed further interest.

IMPLICATIONS

The 144 Avenue NW road and bridge project aligns with The City's sustainability policies, and will result in long-term social, environmental, and economic benefits. Completion of this connection supports residential and employment growth throughout north Calgary and provides an essential link in the transportation network for existing and future residents. Users of the West Nose Creek pathway system will benefit from improved connectivity, aesthetics, and recreational amenities.

The bridge is designed for a 100-year lifespan, and incorporates the use of durable, low maintenance materials to minimize lifecycle costs. The project team has worked closely with environmental regulators to minimize and mitigate impacts of the creek realignment, and

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provide natural replacement vegetation and habitat for the portion of the realigned West Nose Creek.

The total project (current interim stage) is estimated to cost \$49.8 million.

Ongoing annual operating budgets needed to maintain the new infrastructure are estimated at \$16,000 for the bridge structure and \$34,000 for the roadway (based on \$9,500 per lane - kilometer).

ATTACHMENT(S)

1. Renderings of the completed bridge and roadway

Department Circulation

General Manager/Director	Department	Approve/Consult/Inform
Doug Morgan	Transportation Department	Approve