

WELCOME!

Mill Creek Daylighting Technical Feasibility Study

Open House
December 2016

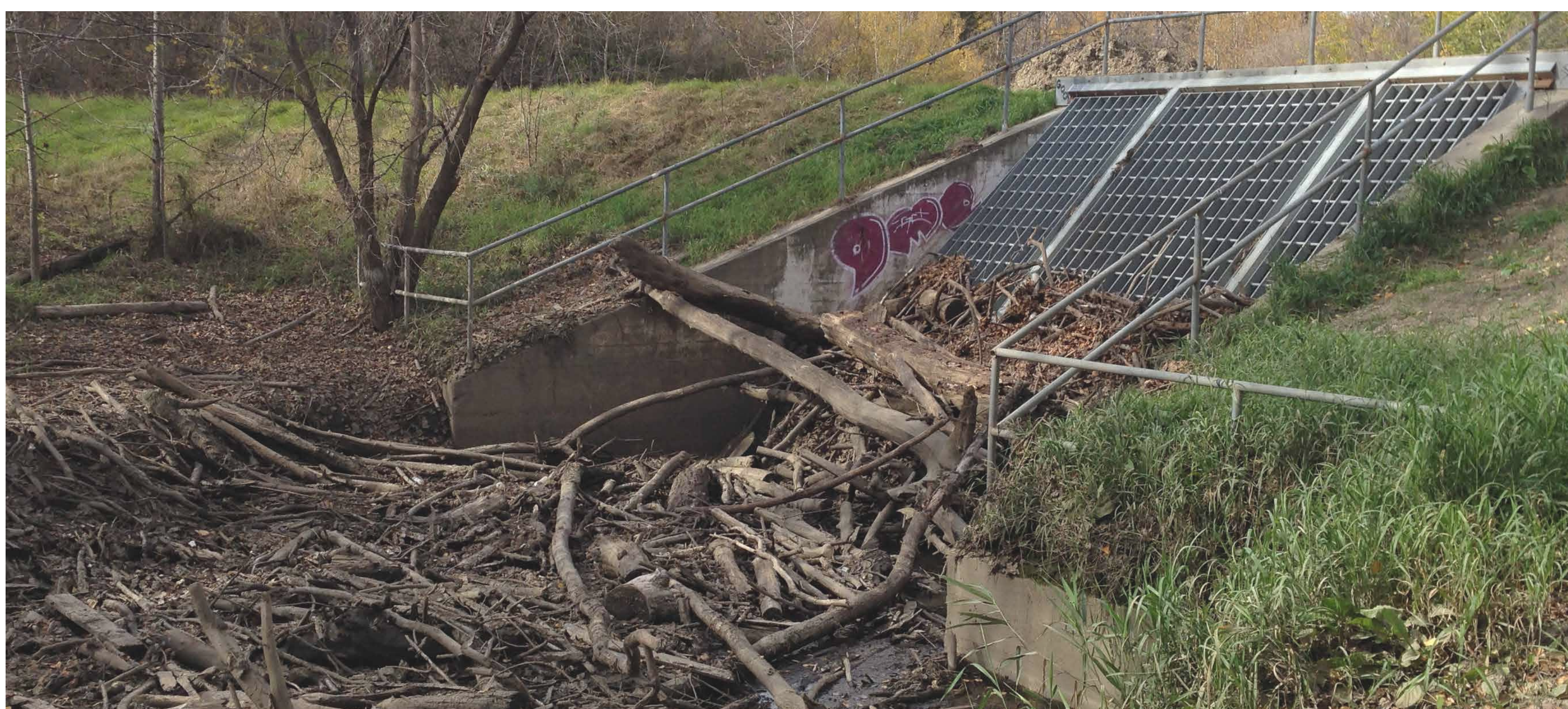
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Thank you!



WHAT IS DAYLIGHTING?

- “Daylighting” refers to the process of re-establishing creeks and streams that have been altered to concrete channels or diverted to pipes.
- Many jurisdictions around the world have undertaken daylighting projects to restore their creek and ravine systems.



BACKGROUND

- Mill Creek is one of 12 ravines within Edmonton contributing flow to the North Saskatchewan River.
- Mill Creek is a prominent feature of Edmonton's river valley and ravine system, and provides key ecosystem services such as biodiversity, aquatic and upland wildlife habitat, and regional ecological connectivity.
- Prior to development activities dating back to the early 20th century, Mill Creek was a free-flowing stream connected to the North Saskatchewan River about 500m downriver of the Low Level Bridge.



1924 Air Photo with approximate creek alignment shown



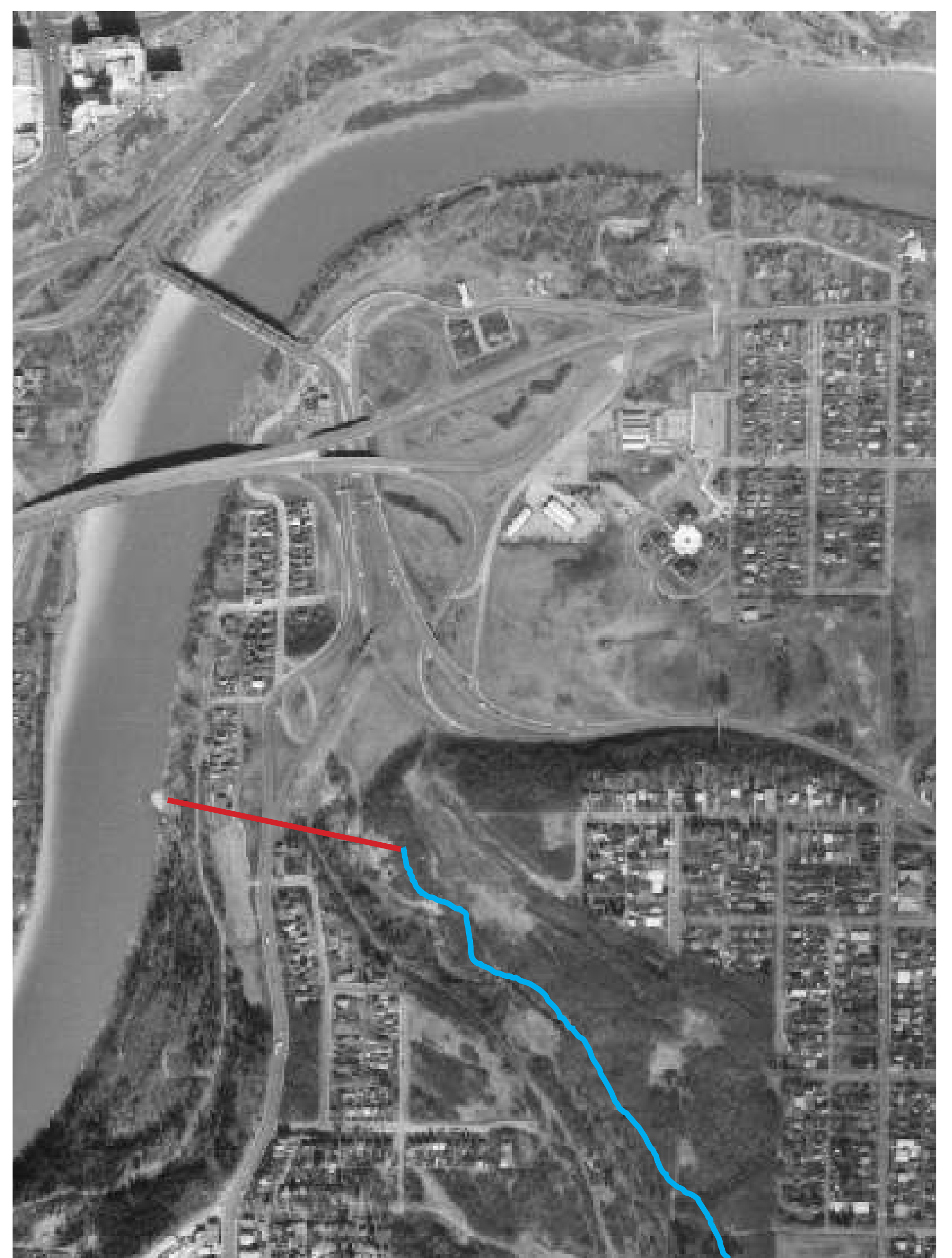
1967 Air Photo with approximate creek alignment shown

BACKGROUND CONTINUED

- In the 1960's Mill Creek was permanently diverted through a tunnel to the North Saskatchewan River to facilitate development of a freeway system.
- In 1972, the James MacDonald Bridge and connecting ramps to Connors Road and 98 Avenue were completed, and the Mill Creek channel was filled in.
- Due to public opposition, the proposed freeway in Mill Creek Ravine was never completed.



Early transportation plan showing the diversion of Mill Creek



1978 Air Photo with approximate creek alignment (blue) and diversion tunnel (red) shown

VISION

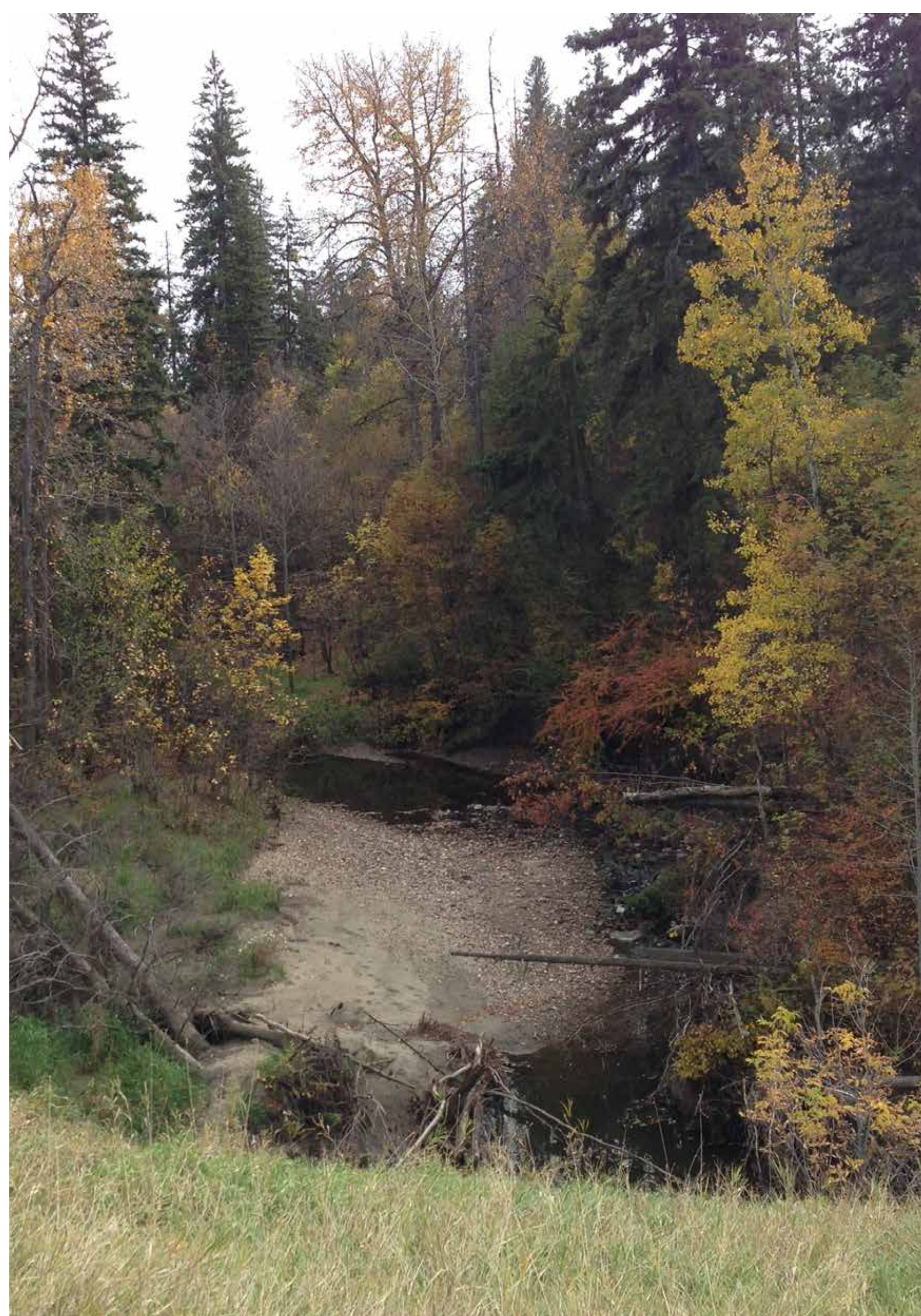
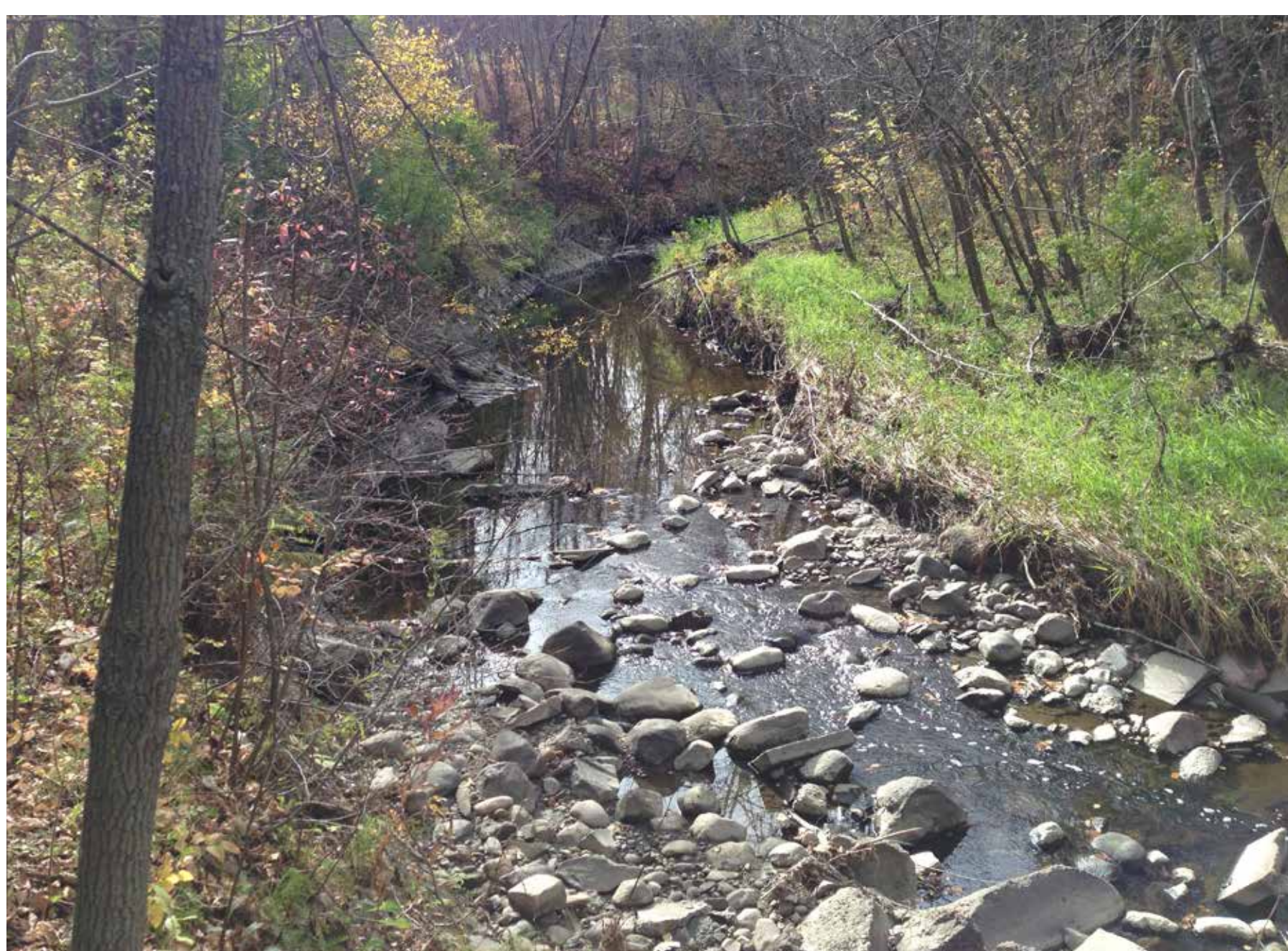
- Restoration of the connectivity between Mill Creek and the North Saskatchewan River is a key priority of the City of Edmonton for enhancing Edmonton's ecological network. It is also a priority for Alberta Environment and Parks due to the potential for re-establishing spawning habitat for native fish species.
- Restoration of the Mill Creek channel will:
 - Re-establish the natural hydrologic and hydraulic regimes that connect Mill Creek to the North Saskatchewan River
 - Improve water quality
 - Support biodiversity
 - Provide recreation and cultural opportunities



TECHNICAL FEASIBILITY STUDY

As part of its 2016 budget, City Council authorized a Technical Feasibility Study to:

- Determine the technical feasibility for daylighting this reach of Mill Creek
- Identify constraints to daylighting, including existing transportation and utility infrastructure
- Determine possible routes for daylighting
- Explore options for aquatic and terrestrial wildlife passage
- Explore options for pedestrian and cycling along the restored creek
- Develop three conceptual design options for daylighting
- Prepare cost estimates
- Identify funding sources and options for staging.





EXISTING CONDITIONS



Existing Mill Creek channel at 90 Avenue

Mill Creek inlet to tunnel at 94 Avenue



Mill Creek Ravine Park north of tunnel diversion



EXISTING CONDITIONS



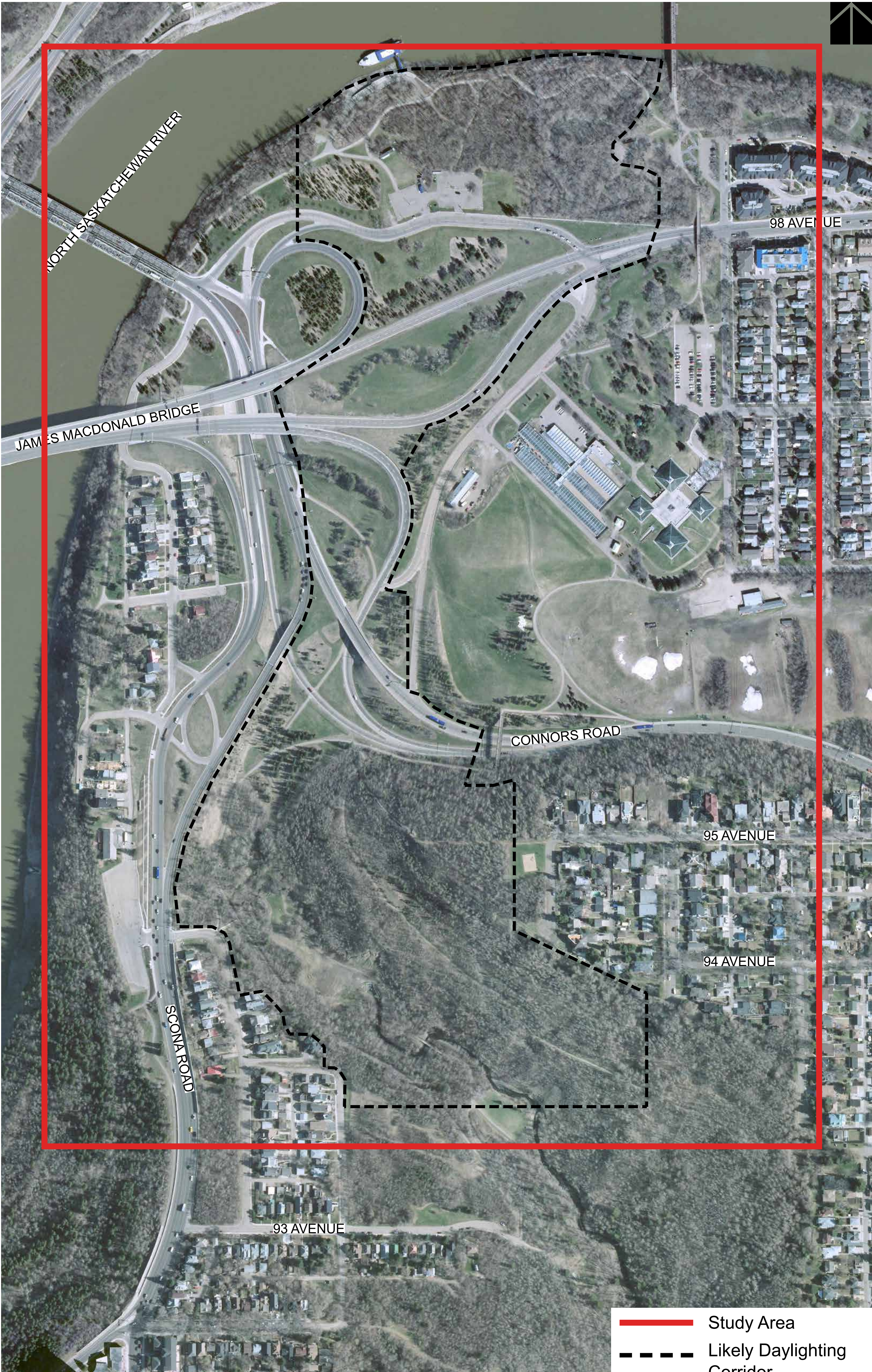
Mill Creek Ravine Park
at Connors Road

Connors Road bridge at
approximate alignment
of original Mill Creek



Existing original Mill Creek
channel north of 98 Avenue

STUDY AREA



EXISTING TRAILS AND WALKWAYS



TECHNICAL FEASIBILITY

The study has determined that it is technically feasible to daylight the lower reach of Mill Creek. The key technical findings include:

- The roadways are the most significant and costly constraint
- The size of the roadway crossings will have the greatest ecologic and recreational impact
- Buried utility conflicts are manageable
- Several retaining walls will be required to create space for the creek
- The creek slope is moderately steep and erosion protection measures are required
- Very high creek flows need to be diverted to the existing tunnel
- Fish spawning habitat gains will be greatest near the creek mouth but fish passage and spawning further upstream will be possible
- To provide spawning habitat, it will be necessary to remove some trees from Henrietta Muir Edwards Park



DEVELOPMENT OF DAYLIGHTING CONCEPTS

Three daylighting concepts were developed based on engineering constraints and consideration of ecological and recreational opportunities.

The three daylighting concepts proposed are:

- Concept 1: Ecological Focus
- Concept 2: Trail Connectivity Focus
- Concept 3: Destination Park Focus



DEVELOPMENT OF DAYLIGHTING CONCEPTS – WHAT WE HEARD

Feedback from the November 16 open house assisted in identifying guiding principles and design priorities for concept development. You told us that you valued the following:

- Accessibility, walking along creek
- Trail connectivity to the greater River Valley trail system
- Connection to nature or habitat that encourages wildlife use
- Recreational, dog walking and picnic opportunities
- Balance of naturalized areas and of man-made elements
- Access points from adjacent neighbourhoods
- No traffic noise
- Educational opportunities
- Urban park connected to the Muttart LRT station





WHAT WE HEARD – WHAT WE DID

What We Heard

What We Did

Plan for the future, think long-term and don’t rush

- All concepts account for known parks, transportation and utility infrastructure plans including the Valley Line LRT
- All concepts can be staged based on funding availability

Save mature trees / include many trees in final design

- All concepts retain as many of the existing trees as possible
- All concepts include large areas with new treed areas

Ensure high functioning trail system

- All concepts have at least one trail that ties into existing system
- Where trails are lost, replacement paths will provide equivalent or improved connectivity

Historical recognition of past uses

- All concepts include the potential to incorporate various interpretive values through signage and other educational material

Consider winter usage

- Each concept has a trail or space that could be used for cross-country skiing and snowshoeing

Improve sense of safety around road network, ensure paths go under roads

- All concepts include trails with road underpasses
- Vegetation will screen traffic from view, further increasing sense of security

Make creek swimmable and allow for canoe access

- As an urban creek, the water quality cannot be made suitable for swimming
- Water depths are not expected to be conducive to canoeing or kayaking

Consider alignment through Gallagher Park and Muttart

- Significant technical constraints and conflicts exist with this option and thus it was not selected as one of the three concepts

Consider flooding

- High flows will be diverted through the existing tunnel to river
- Creek to be well below existing infrastructure



FISH SPAWNING HABITAT AND WETLANDS

A key project objective is to create new Mill Creek fish spawning habitat in the daylighted Mill Creek. The biggest habitat gains would be near the creek's confluence with the river. The targeted fish species would be Northern Pike.

Northern pike spawning habitat could be created through the development of small “in-stream” and “off-stream” wetlands. All three of these concepts include wetlands within Henrietta Muir Edwards Park, and involve some tree removals.

Other species, such as white sucker and walleye may spawn in creek reaches having gravelly substrate.



Examples of fish spawning habitat.

HINTERLAND WHO'S WHO

Species that can be expected within a daylighted Mill Creek

Bird Species



(left to right, top to bottom) Belted Kingfisher, Black-capped Chickadee, Downy Woodpecker, Great Blue Heron, Least Flycatcher, Yellow Warbler, Mallard, Northern Saw-whet Owl, Ruffed Grouse, Sharp-skinned Hawk, Song Sparrow

Mammal Species



(left to right) Mule Deer, Porcupine, Coyote, Least Chipmunk, Red Squirrel, Snowshoe Hare

Fish Species

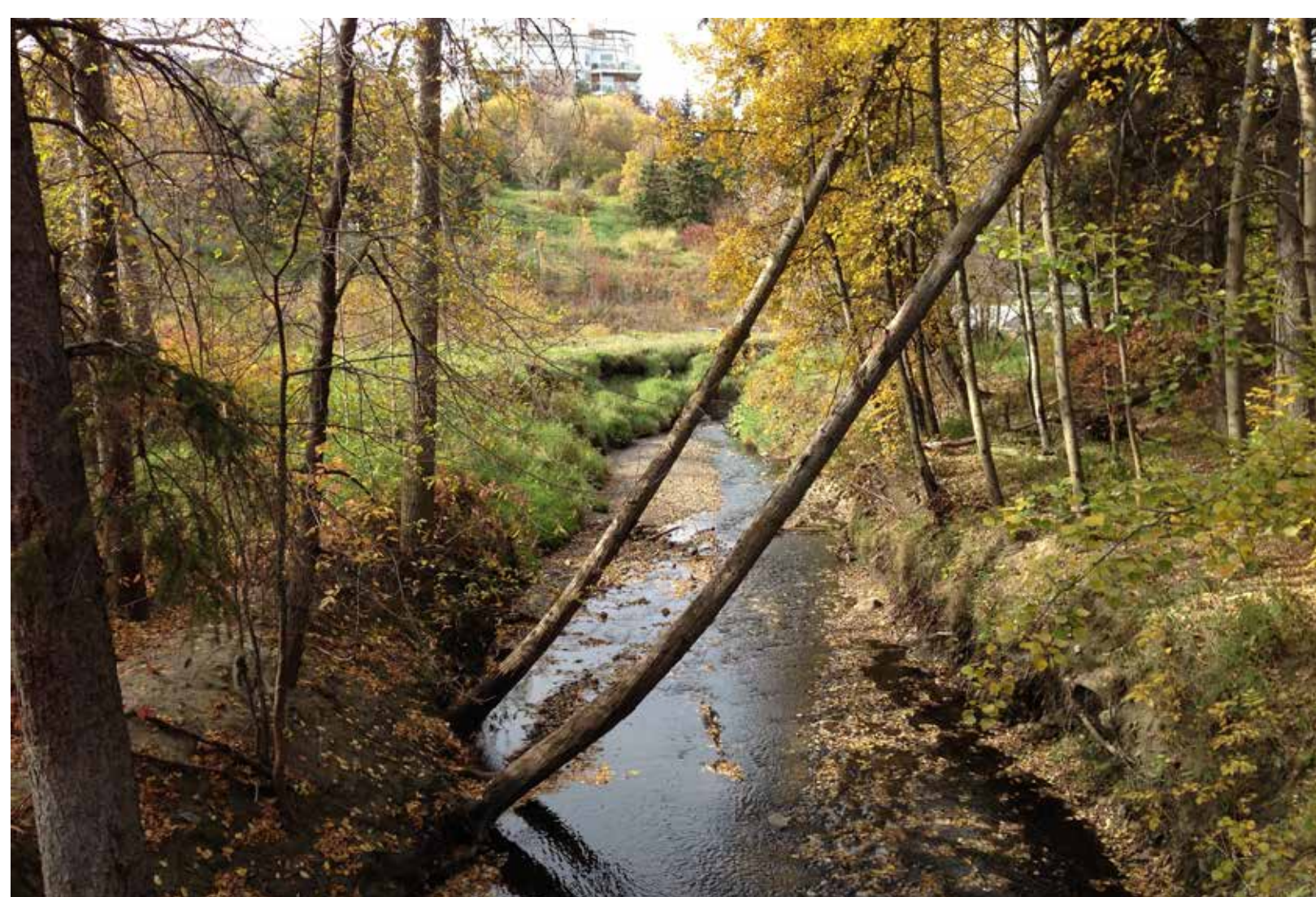


(left to right, top to bottom) Long Nose Sucker, Brook Stickleback, Northern Pike, Spottail Shiner, Trout-perch, Flathead Minnow, Walleye, White Sucker

WHAT WOULD YOU LIKE TO SEE?

Maps are available on adjacent tables. Please provide your comments on the following topics:

- Memorable Experiences / Favourite Places
- Key Issues and Concerns
- Idea Map



NEXT STEPS

The three daylighting concepts will be refined based on input from tonight's open house.

The final report will be presented to City Council in early 2017. Council will then provide guidance regarding next steps.

If the daylighting initiative proceeds, the City of Edmonton will work with other levels of government to identify funding opportunities for the design and construction stages of the project.