

Valley Line (SE to West) LRT Preliminary Design

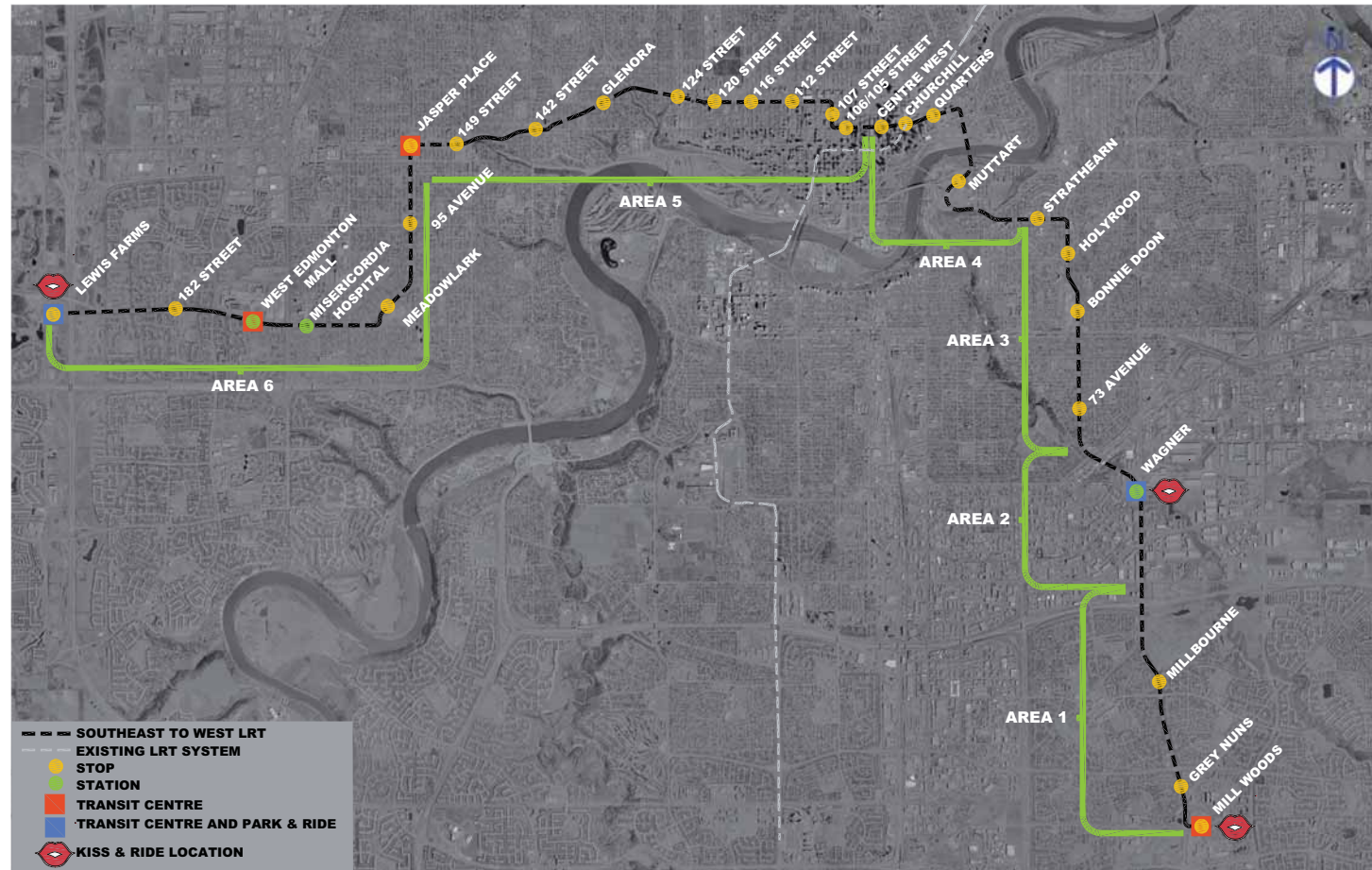


Valley Line LRT Corridor



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- Council approved
- 27 km line with 3 stations, 25 stops
- 6 bridges
 - Over North Saskatchewan River from Muttart Conservatory to Louise McKinney Park
 - Over Groat Road at 104 Avenue
 - Over 170 Street at 87 Avenue
 - Over Anthony Henday at Webber Greens Drive
 - Over Whitemud Drive at 75 Street
 - Over CN/CP rail lines along 75 Street
- 1 pedestrian bridge at Connors Hill
- 1 tunnel between Louise McKinney Park and 102 Avenue
- 2 Park 'n' Ride sites
- 3 Kiss 'n' Ride sites (other sites being considered)
- Integration with 5 transit centres
- 1 Operation and Maintenance Facility



PARK 'N' RIDE

Car park connected to transit station that allows commuters to leave vehicles and transfer to bus or LRT.

KISS 'N' RIDE

A place where commuters are driven and dropped off at a bus or LRT stop/station. Other Kiss 'N' Ride locations are being determined.

TRANSIT CENTRE

A stopping point for bus and LRT where commuters can move from one transit mode to the other.

Welcome!



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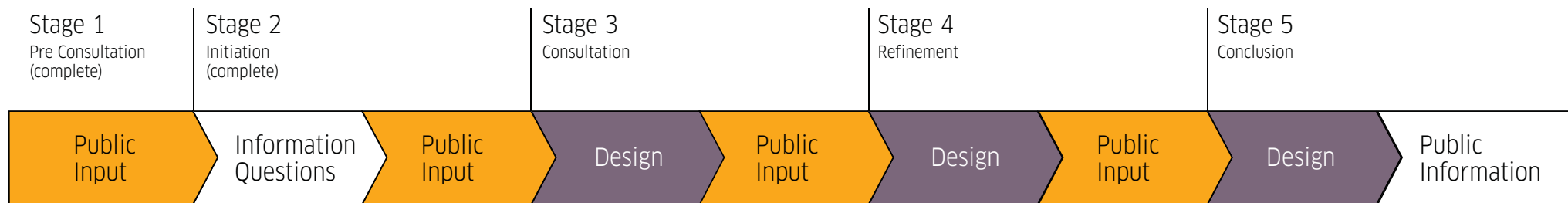
Public Involvement for Preliminary Design of the Valley Line (SE to West) LRT



PROJECT PURPOSE: To develop and finalize the Preliminary Design for a 27 km urban style, low-floor light rail system along the approved corridor from Mill Woods to Lewis Farms.

MEETING PURPOSE: To provide you with the recommended preliminary design for Mill Woods to Centre West of the Valley Line LRT.

WE ARE HERE





- Council's direction is to construct the southeast portion of the Valley Line first and expand incrementally to the West as funding becomes available.
- The southeast portion of the Valley Line has an estimated capital cost of \$1.8 billion.
- The funding source for approximately two thirds of the capital cost for the southeast portion has been determined.
- Council continues to work with its provincial and federal partners to secure the balance of funding.
- Utility relocation construction for the southeast portion is underway.
- **If the balance of the funding can be secured by Spring 2014**, then [construction on the southeast portion](#) could begin as early as [Spring 2016](#), with a projected [opening date in 2020](#).

Valley Line LRT

- Trains run on approx. 5 minute intervals during peak hours
- Trains share traffic signals with other road users
- A complementary bus network will be developed—some existing bus stops may be relocated to work better with LRT



Urban Style LRT

- Improves connection between LRT and community
- Smaller scale stops, spaced closer together
- Less impact in community
 - Stops at street level
 - Reduced right-of-way
- Encourages pedestrian access
- Fewer barriers, gates and bells
- Strong bus, pedestrian and bicycle connections
- Reduced speeds in congested areas

- Investment in landscaping and architectural features
- Maximizes openness of space to create safe environment
- Does not share right of way with other road users but does share traffic signals
- City Council direction for extensions to existing and all new LRT lines

Low Floor Technology

- Stops are similar to bus stops—at street level
- Passengers board at street level
- Industry standard for LRT systems worldwide



Integrated Urban Style

roadways



sidewalks



Integrated Urban Style

catenary

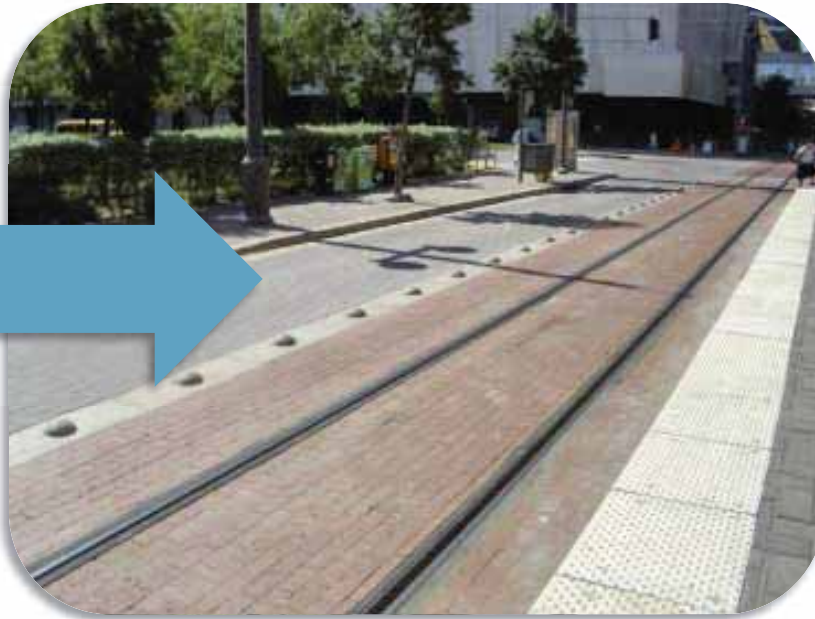


public art



Integrated Urban Style

track



stops & stations



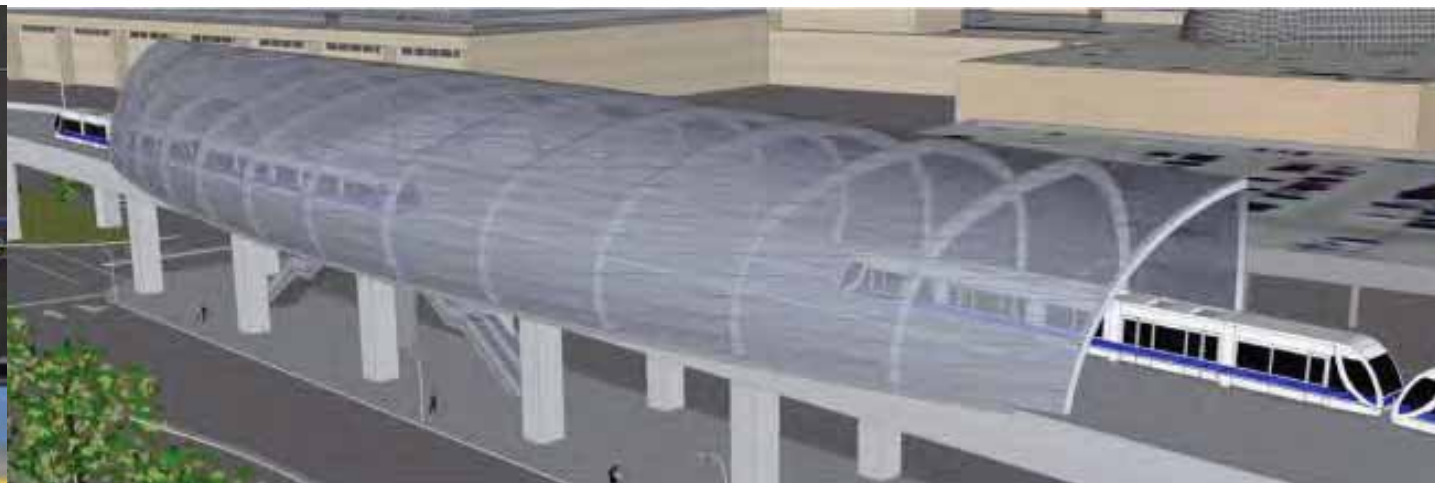
Stops and Stations

What is a stop?

A stop is similar to bus stops in terms of scale. It contains basic amenities and is accessed at street level.

What is a station?

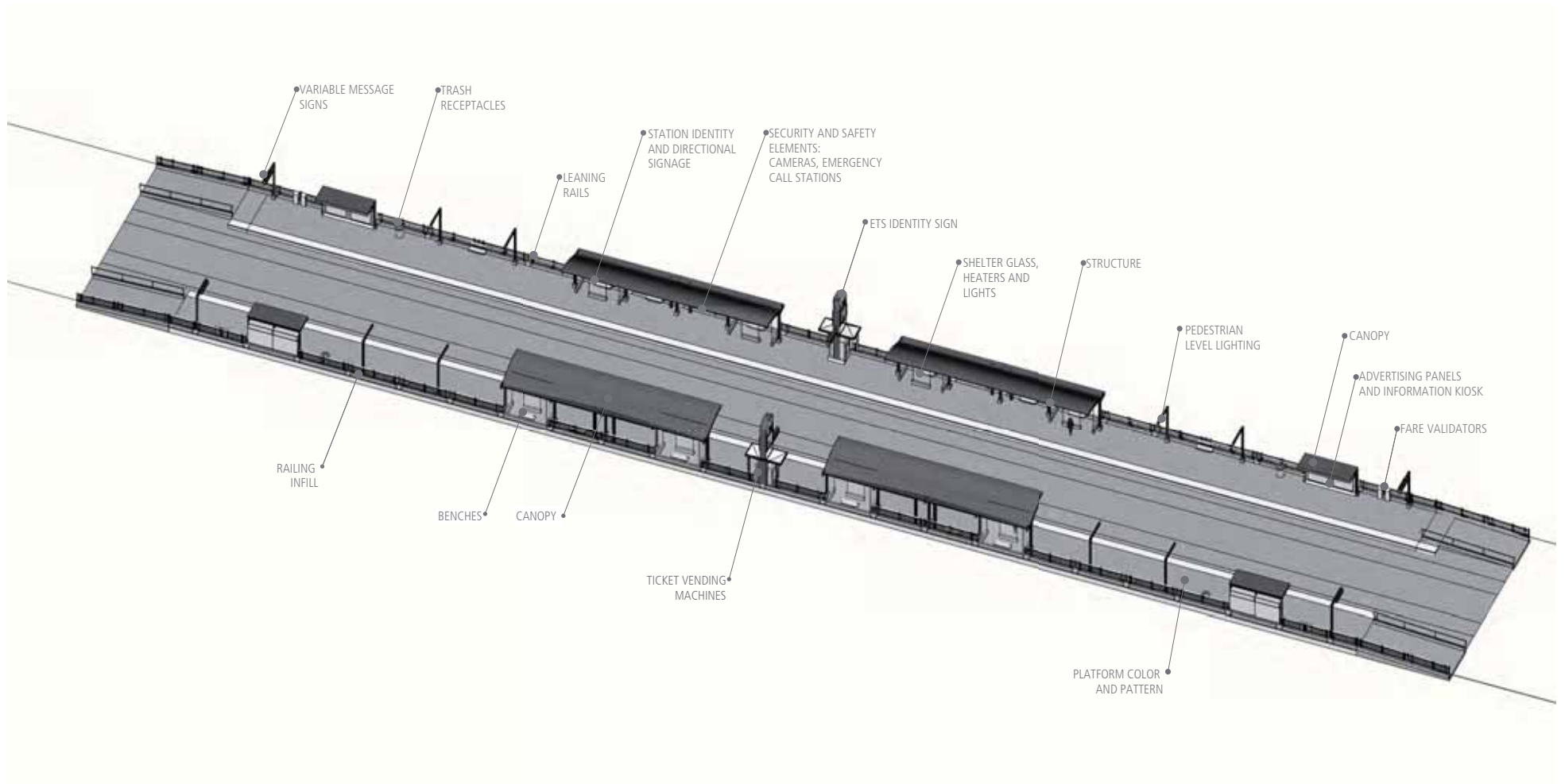
A station is an elevated stop. It contains basic amenities and is accessed using stairs or elevators.



Stop Elements



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- All layouts and scale to be confirmed as design progresses, based on ridership projections

Preferred Stop Canopy – Organic

- Steel Structure
- Metal and wood canopy
- Glass shelters
- Unique concrete finishing



What We Heard from Stage 4



What We Heard

Stops

- Stakeholders confirmed themes for a variety of stop/station elements, such as benches and paving.

Shelter Canopies

- Of three shelter canopy options, stakeholders preferred the organic shaped canopy.

Pedestrian Crossings

- Stakeholders value pedestrian access and want information on how they will navigate the LRT corridor.

Bicycles

- Stakeholders indicated they want bicycle lanes on major roadways.

Vehicular Movements and Access

- Stakeholders voiced concerns about impacts to vehicle accesses into neighbourhoods, businesses, schools and residences along the LRT corridor.

Parking

- Stakeholders voiced concerns about the loss of parking along the corridor.

Noise

- Stakeholders voiced concerns about noise from the operation of the LRT.

Vibration

- Stakeholders voiced concerns about vibration during construction and operations.

178 Street Overpass

- Stakeholders have identified that traffic congestion will be an issue if the LRT crosses 178 Street at grade.

Shortcutting and Parking in Neighbourhoods

- Stakeholders voiced concerns about people parking in residential neighbourhoods to access the LRT or shortcutting through neighbourhoods.

Park 'n' Ride

- Stakeholders identified that Park 'n' Rides needed to be increased in size and/or other locations should be added.

How the Information is being used

- The preferred themes for stop/station elements are shown on the Corridor and Access Plans adjacent to the stop plans. These are not final selections but provide direction to the design team.

- The “organic” shaped shelter canopy will be used at most LRT stops, with the exception of some downtown stops.

- New, retained and relocated pedestrian crossings are illustrated on the Corridor and Access Plans. Accommodating pedestrians and creating ease of access for pedestrians to the LRT is a priority.

- Bicycle lanes are included along the corridor as per the Concept Plan approved by City Council. Local connections to the City of Edmonton cycling network will be refined as the cycling network grows and as preliminary design continues.

- New, retained and relocated vehicle movements and accesses are illustrated on the Corridor and Access Plans.

- New and retained vehicle parking is illustrated on the Corridor and Access Plans.

- Noise impact assessments are ongoing. Current information has been added to Corridor/Access Plans. See Noise Impact Board.

- General vibration screening is ongoing. Pre-construction assessment of structures and houses abutting the LRT route may be completed. See Vibration Impact Assessment board.

- An LRT overpass or guideway over 178 Street is not in the approved Concept Plan. This may be revisited closer to implementation.

- The City will assess these potential issues after construction to determine their impact and strategies to avoid them.

- The design of Park 'n' Rides is currently ongoing.

Public Art



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- Public art is considered to be a key component to attractiveness and identity of city
- Public art strengthens local economy
- Support for arts is a reflection of a progressive municipality
- The City dedicates 1% of qualifying construction budgets to public art
- Approved public art will be displayed within or in close proximity to the LRT corridor
- Art will be created by a wide range of artists, including those with Aboriginal and multicultural backgrounds. There will be opportunities for local artists
- Selected art will suit the scale and reflect the diversity of the neighbourhoods
- Art pieces may be functional, integrated and/or stand alone
- The Edmonton Arts Council will develop a Public Art Plan outlining potential public art projects along the LRT corridor



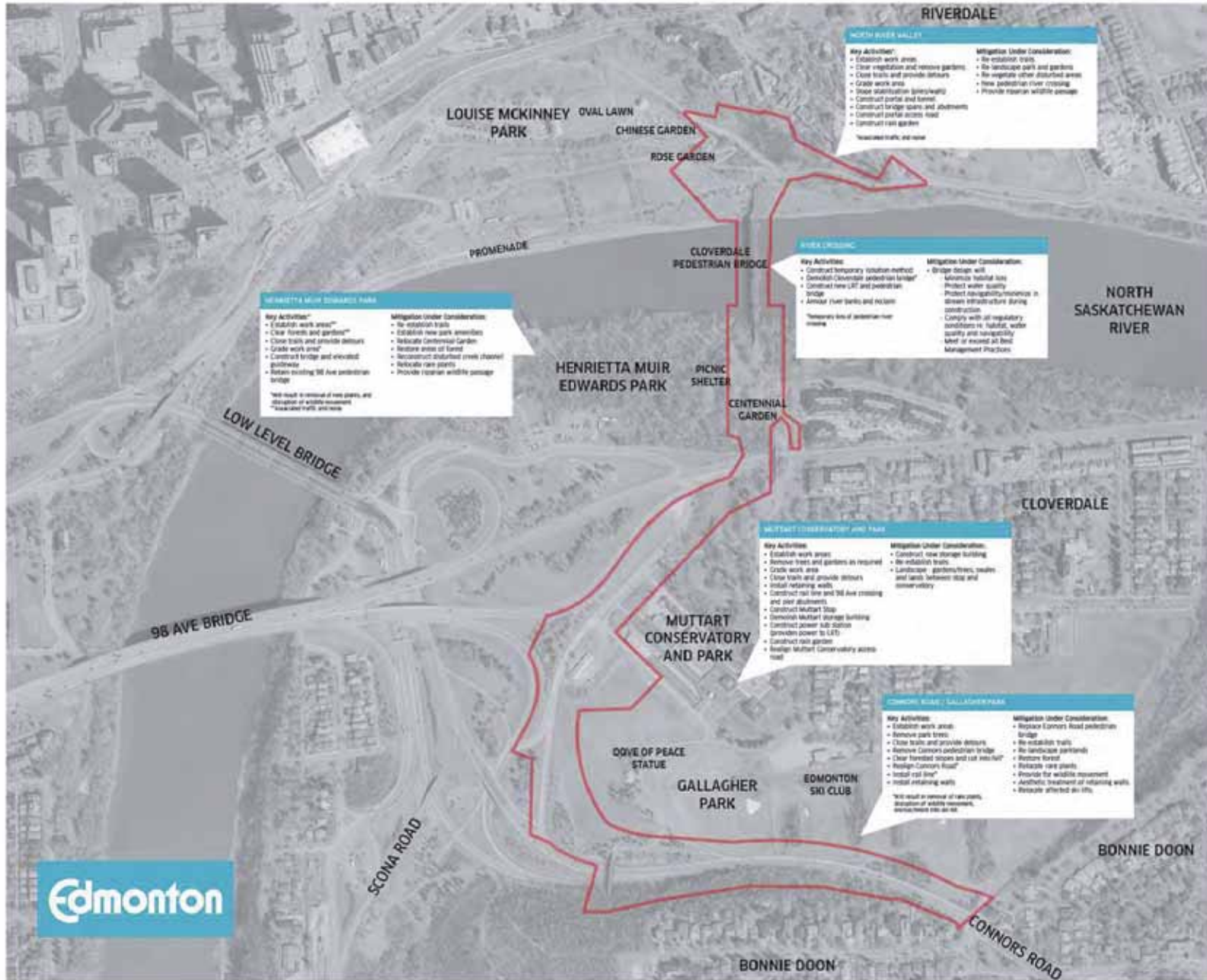
Integrated public art at transit stops.



An Environmental Impact Assessment (EIA) document is being prepared to meet the requirements of the City of Edmonton's North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188).

The EIA:

- Describes existing environmental conditions
- Assesses potential impacts
- Describes mitigation measures intended to eliminate or reduce impacts to each Valued Environmental Component (VEC)
- The following VECs are being assessed to identify ways in which the proposed project could affect biophysical and socio-economic resources:
 - **geology and geomorphology (including slope stability)**
 - **soils**
 - **surface water and groundwater**
 - **vegetation**
 - **wildlife**
 - **habitat connectivity**
 - **fish and aquatic resources**
 - **land disposition and zoning**
 - **residential land use**
 - **recreational land use**
 - **utilities**
 - **worker and public safety**
 - **visual resources**
 - **historical resources**
- The EIA may also be submitted to Fisheries and Oceans Canada and Transport Canada as supporting information for **Fisheries Act** and **Navigable Waters Protection Act** approvals, respectively.



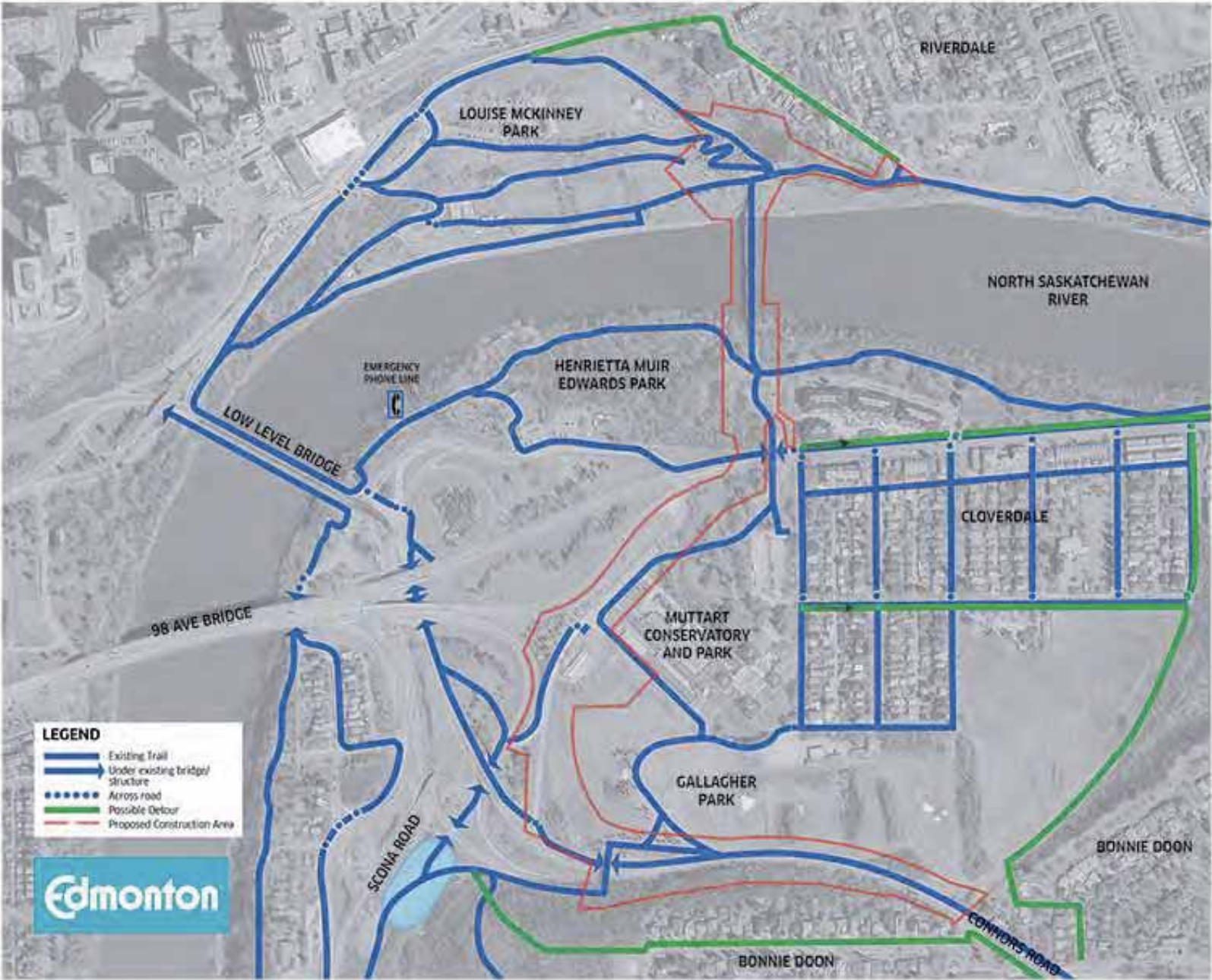
ENVIRONMENTAL IMPACT ASSESSMENT

Existing Trails, Possible Detours and
Proposed Construction Areas



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ENVIRONMENTAL RESOURCES IN WAGNER PARK (NATURAL AREA 402)



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GREEN PROJECT INITIATIVES

- Landscaping at Wagner Station will emphasize green space with intent to create a stepping stone linkage between the Natural Area and upstream reaches of Mill Creek.
- Guideway drainage has been designed to provide additional inputs of water to the ravine, enhancing amphibian habitat and riparian community sustainability.

EXAMPLES OF SPECIES OBSERVED IN THE NATURAL AREA

Amphibians

- Boreal chorus frog
- Wood frog

Birds

- Swainson's hawk
- Tree swallow
- Clay-coloured sparrow
- White-throated sparrow
- Black-billed magpie
- Yellow warbler

Mammals

- Porcupine
- Coyote

POTENTIAL IMPACTS AND MITIGATION MEASURES

Loss of vegetation and habitat resulting from clearing

- Restore temporary working space within the Natural Area; restore some manicured lands north of the Natural Area (area yet to be determined).
- Compensate for tree/shrub loss as required by City's Corporate Tree Policy.
- Locate access road within Manitoba Maple community to extent possible.

Disturbance to rare plants

- Transplant and monitor rare plants found within the project area.

Habitat fragmentation

- Landscape to close gaps created during construction.
- Ensure that the new access road culvert is wildlife friendly.

Disturbance to nesting Swainson's hawks

- Undertake required vegetation clearing between 01 September and 15 March.
- If active nest is present in year of construction, avoid significant construction at Wagner Park until young are independent, approximately August - have biologist confirm.



Aerial Photograph Date: May 2012

Noise Impact Assessment



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FAMILIAR NOISES	dB(A)
Inside average urban home	50
Quiet street	50
Normal conversation at 1 m	60
Noisy restaurant	70
Highway traffic at 15 m	75
Busy traffic intersection	80
Bus or heavy truck at 15 m	88-94
Jackhammer	88-98
Freight train at 15 m	95
Jet taking off at 600 m	100
Amplified rock music	110

- **The City of Edmonton Urban Traffic Noise Policy (UTNP)** states that existing residential locations backing onto transportation facilities that experience noise levels in **excess of 65 dB(A) Leq(24) will require noise attenuation.**
- **Noise modeling** has been conducted along the Valley Line (SE to West) LRT route.
- Based on modeling, **noise attenuation may be required in specific locations along the West segment.**
- Noise attenuation will be constructed at the same time as the LRT.


Vibration Impact Assessment

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- Vibration could occur during LRT construction and operation
- LRT runs on a continuous welded rail, a technology that minimizes vibration during operation
- A complete vibration screening of the SE to West corridor (route) is being conducted as part of Preliminary Design
- Vibration screening is based on the US Federal Transit Administration (FTA) screening process
- Corridor Wide Assessment is ongoing
 - Screening based on general vibration assessment
 - Accounts for train type, speed, distance from track
 - Screens out residences not affected by vibration
 - Identifies areas that may be affected
- Detailed Vibration Assessment
 - Includes site specific vibration measurements
 - Conducted at Winspear Centre for Music and Citadel Theatre areas (acoustic sensitivities)
 - Recommendations to reduce vibration during LRT operations will be provided if warranted
- Pre-construction assessments of structures and houses abutting the LRT route may be completed



- Land requirements were initially identified in the Concept Plan.
- Engineering completed through preliminary design has confirmed land requirements.
- Land requirements are identified on the corridor maps in purple. 
- The City is actively pursuing property purchases between Mill Woods and Centre West but is not actively pursuing properties between Centre West and Lewis Farms.

City Process to Acquire Land

- The City prefers to purchase land that is up for sale.
- Once the City begins to actively acquire properties for the project and a property is not up for sale, the City will contact the property owners.
- The City will negotiate in good faith to reach an agreement to purchase the property for fair compensation.
- If the property owners and the City cannot reach an agreement, the City may proceed with expropriation.

North Saskatchewan River Bridge

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- The new LRT bridge to be built on the existing pedestrian bridge alignment.
- New LRT bridge to incorporate new pedestrian and bicycle facilities under the bridge deck.
- Existing pedestrian bridge to be demolished prior to new LRT bridge construction.
- During construction, pedestrians and bicyclists will be detoured to Low Level Bridge.
- The project team assessed the feasibility of maintaining the existing pedestrian bridge during construction. Due to increased environmental impact on the River and proximity to existing residential development, this option is not being pursued.
- The Extradosed Bridge, as shown here, was approved by Council on February 20, 2013.



Extradosed bridge looking Northwest



Extradosed bridge looking Southeast

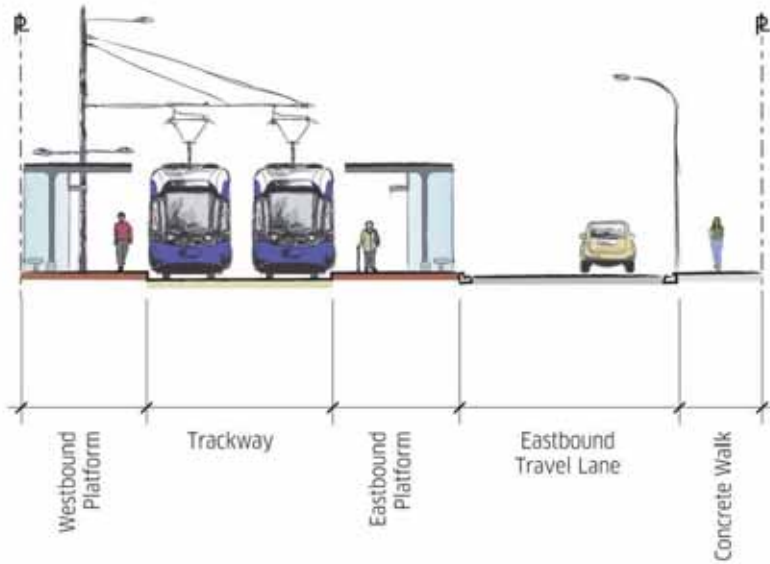


Thank you

www.edmonton.ca/setowestlrt

105/106 Street Stop

Theme: "Contemporary"



Existing Conditions

Cross Section A (Looking east)



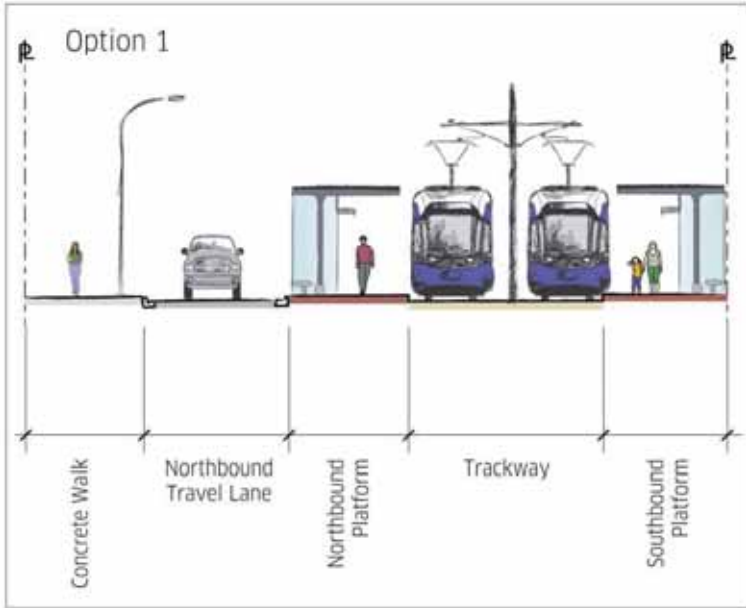
Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)

View above looks east along 102 Avenue towards 106 Street. (See •< symbol on plan.)

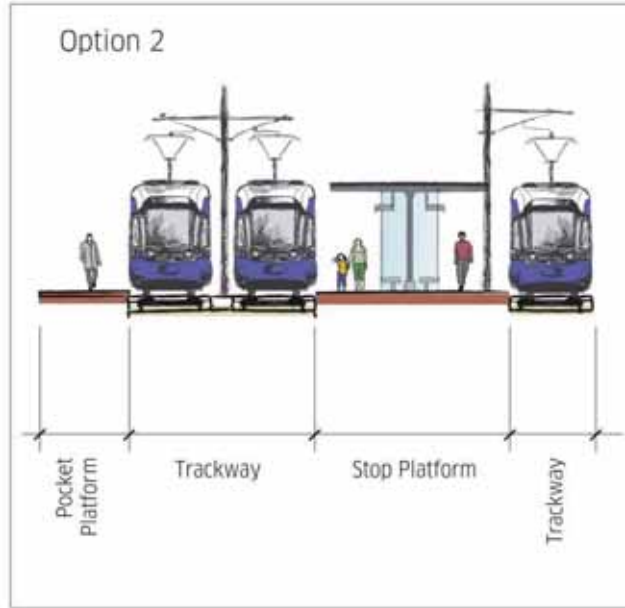
Stop Images View 1

107 Street Stop

Theme: "Contemporary"



Cross Section B (Looking south)



Cross Section C (Looking Southeast)



Existing Conditions



Concept Rendering

Views above look south along 107 Street from the 104 Avenue intersection. (See ◀ symbol on plan.)



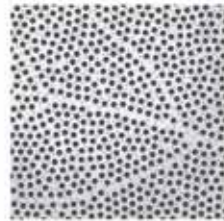
Bench



Recycling Bin



Paving



Column Wrap



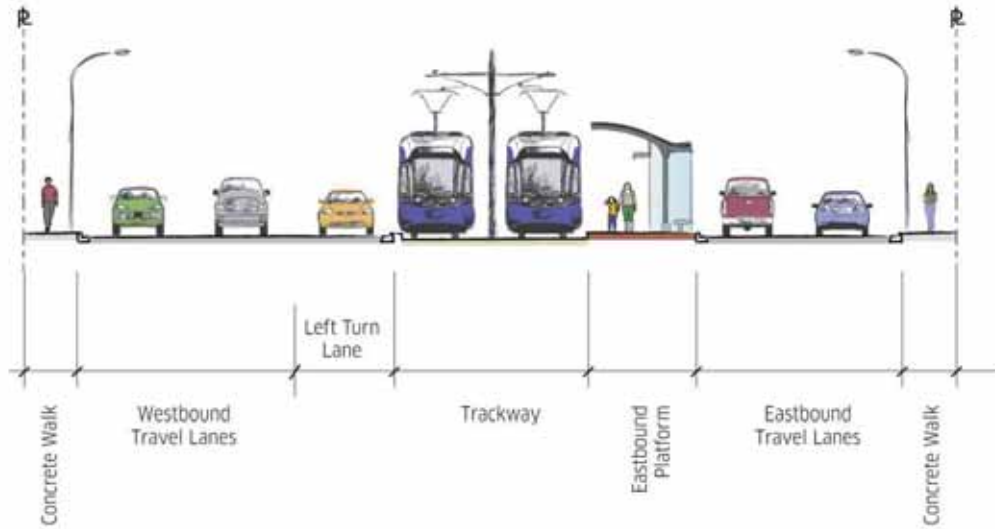
Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)

Stop Images View 2

112 Street Stop

Theme: "Contemporary"



Cross Section D (Looking east)



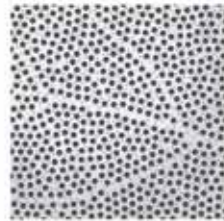
Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



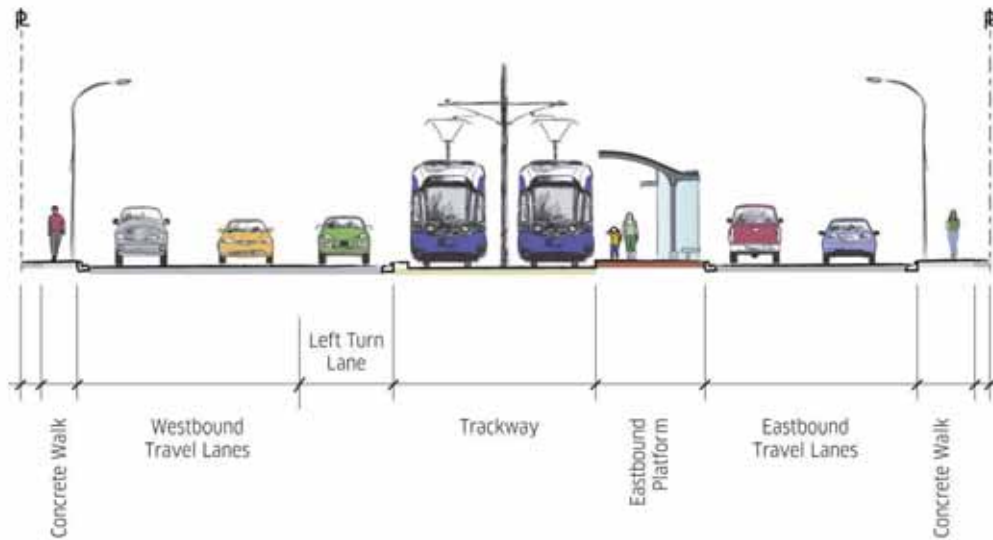
Concept Rendering

Views above look east along 104 Avenue towards 112 Street. (See ◀ symbol on plan.)

Stop Images View 3

116 Street Stop

Theme: "Historic"



Cross Section E (Looking east)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



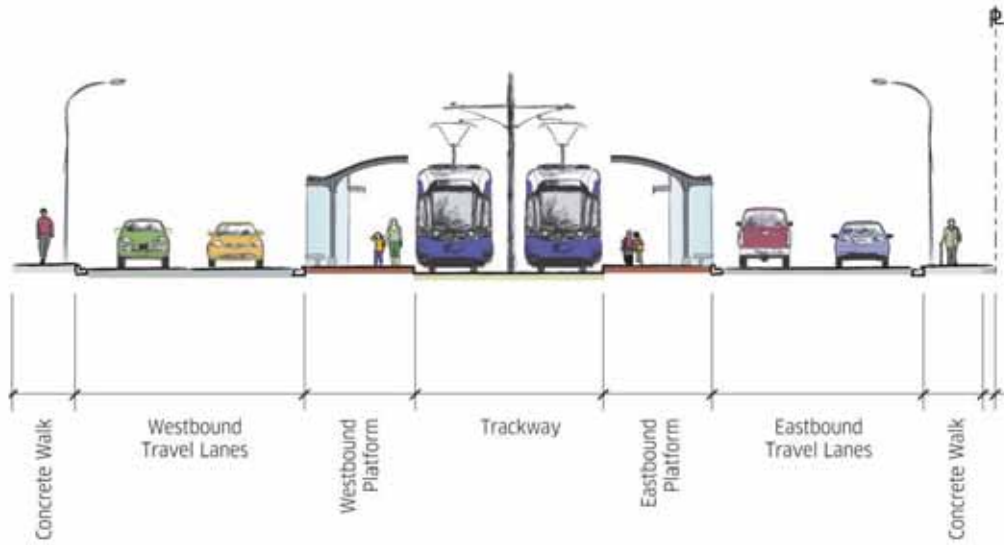
Concept Rendering

Views above look west along 104 Avenue to 116 Street.
(See ◀ symbol on plan.)

Stop Images View 4

120 Street Stop

Theme: "Historic"



Cross Section F (Looking East)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



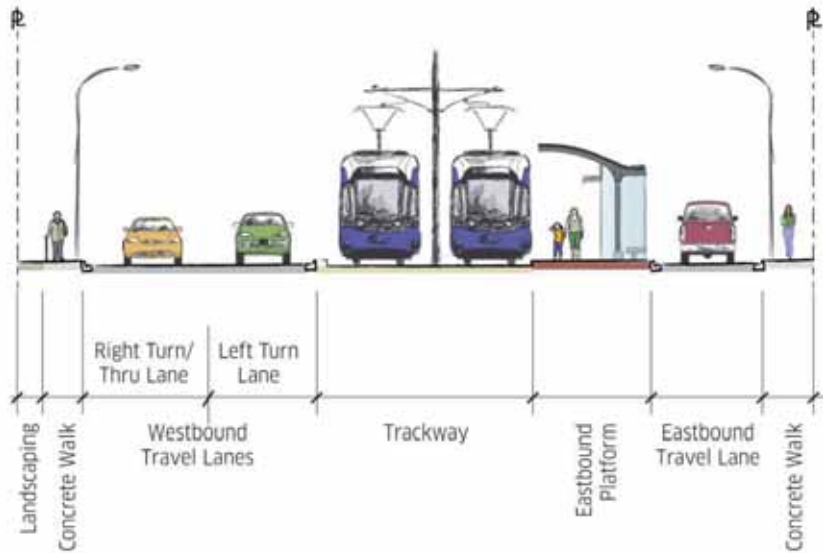
Concept Rendering

Views above look east along 104 Avenue towards 120 Street. (See •< symbol on plan.)

Stop Images View 5

124 Street Stop

Theme: "Contemporary"



Cross Section G (Looking East)



Existing Conditions



Concept Rendering

Views above look east along Stony Plain Road towards 124 Street. (See ◀ symbol on plan.)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)

Stop Images View 6

Bridge Over Groat Road

- Existing Groat Road Bridge is not wide enough to accommodate the addition of the LRT.
- Existing bridge to be demolished and replaced with a new bridge. Stony Plain Road between 129 Street and Connaught Drive to be closed during construction.
- New bridge will include improved pedestrian connections.
- Recommended Bridge Option:
 - Single Span Haunched Steel Girder
- Preliminary design is ongoing.



Existing Conditions



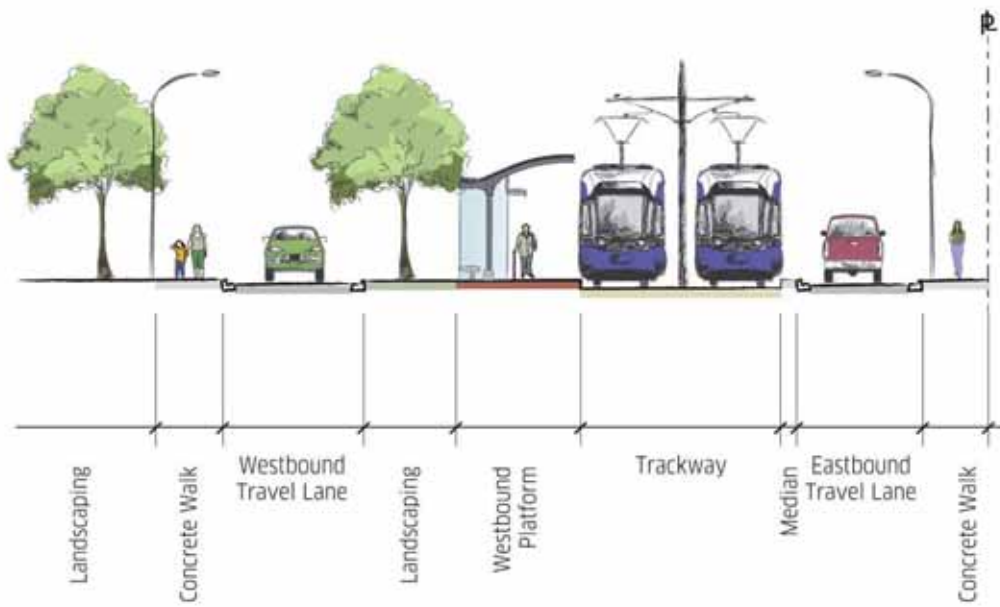
Concept Rendering

Views above north along Groat Road towards Stony Plain Road bridge structure.

Bridge Option Images View 7

Glenora Stop

Theme: "Historic"



Cross Section H (Looking East)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



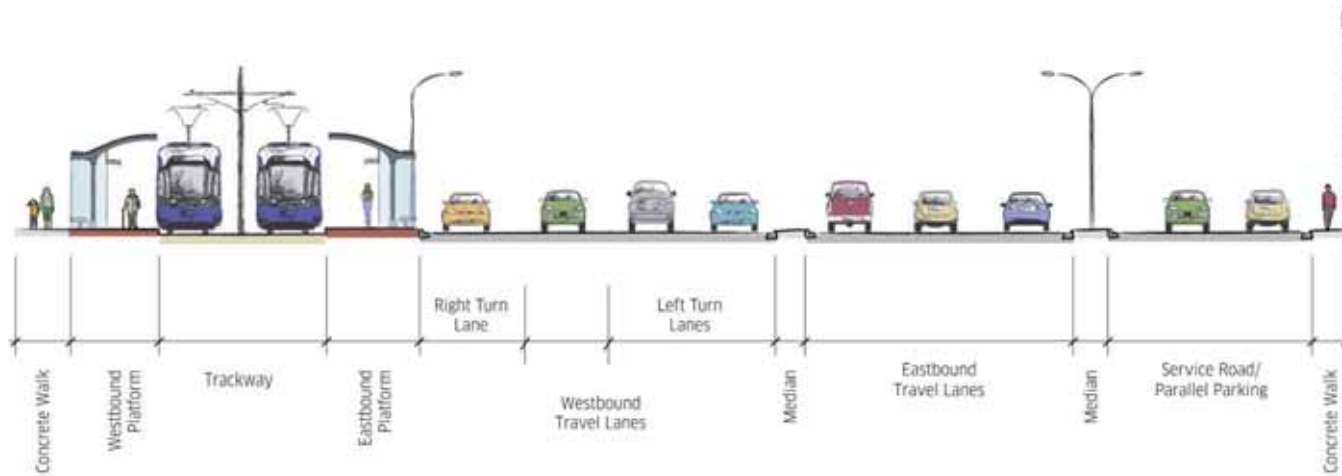
Concept Rendering

Views above look east along Stony Plain Road towards 133 Street. (See ◀ symbol on plan.)

Stop Images View 8

142 Street Stop

Theme: "Park-Like"



Cross Section J (Looking East)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

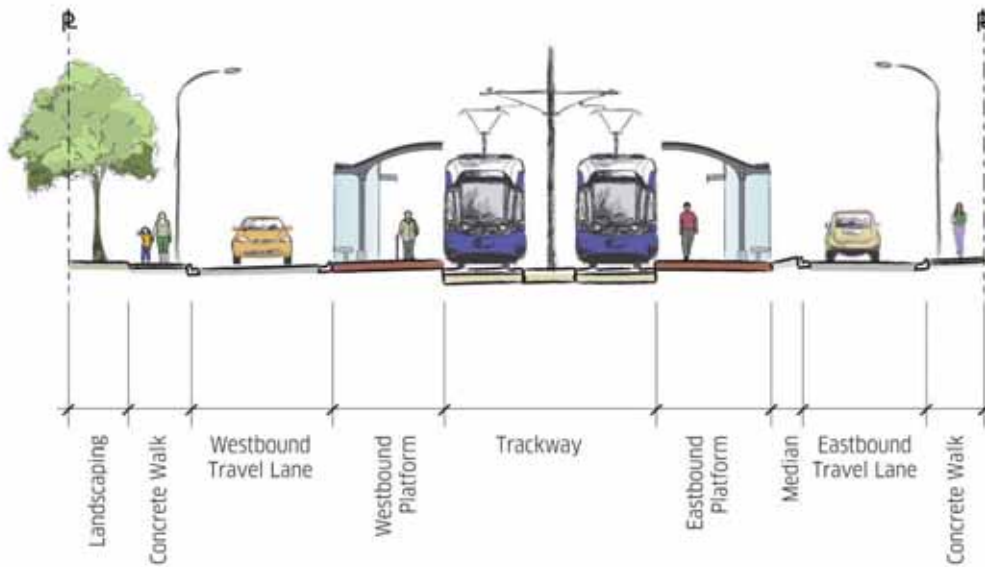
Views above look east along Stony Plain Road from 142 Street intersection. (See ◀ symbol on plan.)

Stop Images View 9

149 Street Stop

Theme: "Park-Like"

Notes: Design coordinated with Stony Plain Road Streetscape Initiative.



Cross Section K (Looking East)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

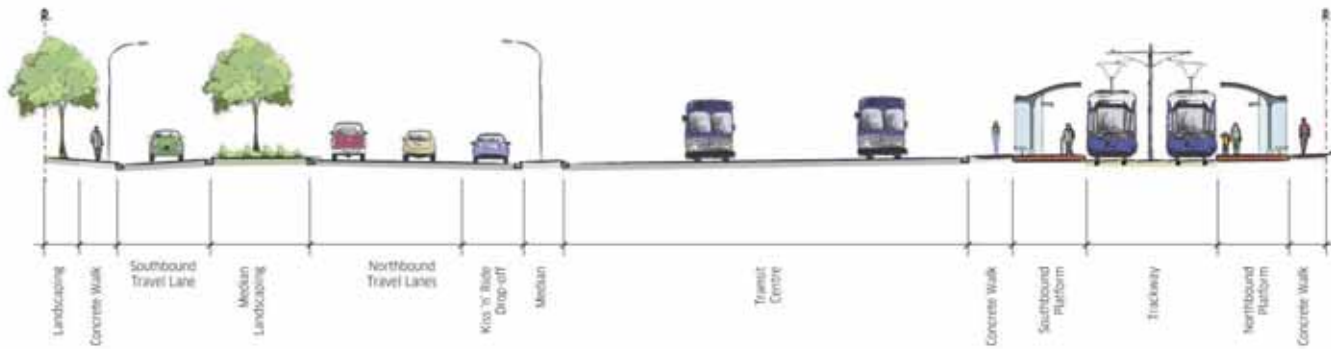
Views above look east along Stony Plain Road towards 151 Street. (See ◀ symbol on plan.)

Stop Images View 10

156 Street Stop

Theme: "Park-Like"

Notes: Design coordinated with Stony Plain Road Streetscape Initiative.
 Layout of Transit Centre and Transit Oriented Development subject to a separate planning exercise.
 156 Street Stop is currently under review.



Cross Section A (Looking North)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



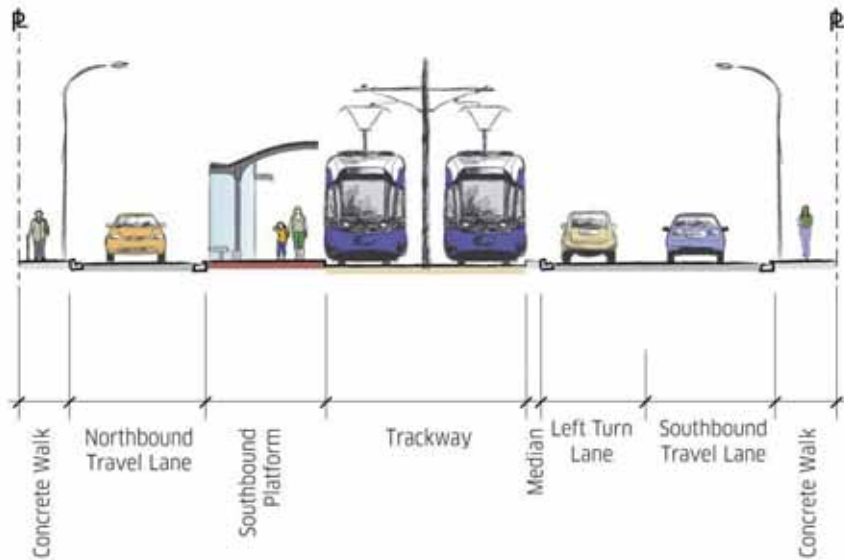
Concept Rendering

Views above look east along 100A Avenue to 156 Street intersection.
 (See ◀ symbol on plan.)

Stop Images View 1

95 Avenue Stop

Theme: "Park-Like"



Cross Section B (Looking south)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements

(Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



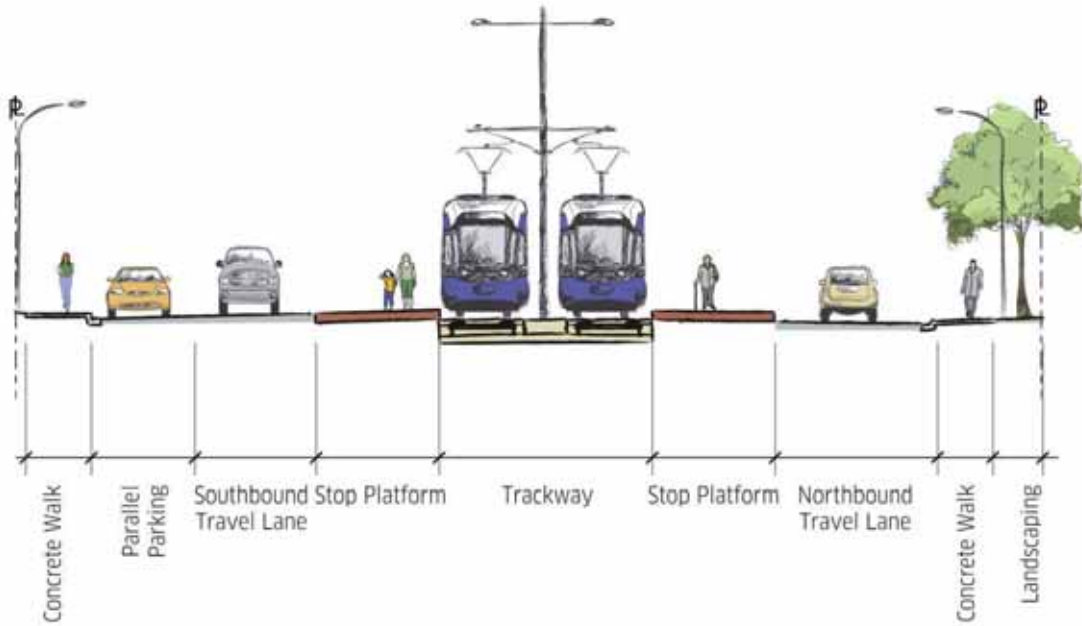
Concept Rendering

Views above look north along 156 Street towards 95 Avenue.
(See ◀ symbol on plan.)

Stop Images View 2

Meadowlark Stop

Theme: "Park-Like"



Cross Section C (Looking northeast)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements

(Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

Views above look northeast along Meadowlark Road towards 88A Avenue.
(See ◀ symbol on plan.)

Stop Images View 3

Misericordia Station

Theme: "Park-Like"

- Notes:
- Cross section to be confirmed through Preliminary Design.
 - Elevated stations are required at Misericordia Hospital and West Edmonton Mall.
 - The Misericordia Hospital station will provide barrier-free access to Misericordia Hospital and surrounding community.



Existing Conditions



Concept Rendering

Views above look northeast along 87 Avenue towards Misericordia Hospital.
(See ◀ symbol on plan.)

Cross Section D (Looking east)



Bench

Recycling Bin

Paving

Column Wrap

Railing

Stop Design Elements

(Based on your feedback, elements selected for project will be similar to images above.)

Station Option Images View 4

Bridge Over 170 Street

- LRT bridge connects Misericordia Hospital and West Edmonton Mall elevated stations.
- LRT bridge required to clear 170th Street, which is part of the City's Interior Ring Road.
- Bridge is for LRT only; pedestrian connections are at street level.
- Approximately 1.6km in length.
- Preliminary design is ongoing.



Existing Conditions



Existing Conditions



Concept Rendering

Views above look northeast along 87th Avenue from 165 Street intersection. (See ◀ symbol on plan.)

Bridge Images View 5



Concept Rendering

Views above look north along 170 Street towards 87th Avenue Intersection. (See ◀ symbol on plan.)

Bridge Images View 6

West Edmonton Mall Station

Theme: "Contemporary"

- Notes:
- Cross section to be confirmed through Preliminary Design.
 - Elevated stations are required at Misericordia Hospital and West Edmonton Mall.
 - The West Edmonton Mall station will be integrated with the existing transit centre and will provide barrier-free access.



Cross Section E (Looking east)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements

(Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

Views above look northeast along 87 Avenue towards West Edmonton Mall Transit Centre. (See ◀ symbol on plan.)

Station Option Images View 7

182 Street Stop

Theme: "Park-Like"



Cross Section F (Looking East)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

Views above look east along 87 Avenue towards 182 Street (See ◀ symbol on plan.)

Stop Images View 8

Bridge Over Anthony Henday Drive

- Only one structure is being considered to integrate with the existing 87 Avenue structure over Anthony Henday.
- Preliminary design is ongoing.



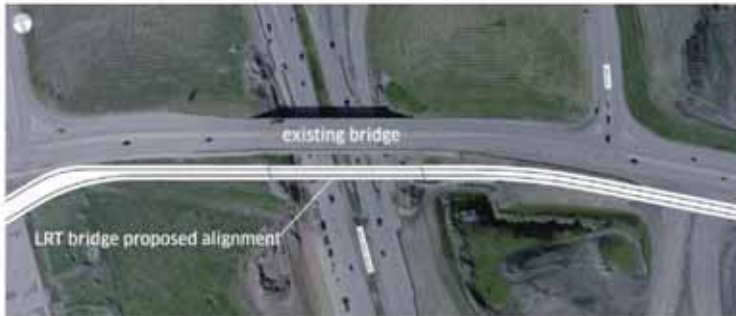
Existing Conditions



Concept Rendering

View above looks north along Anthony Henday Drive towards 87 Avenue.
(See ◦◀ symbol on plan.)

Anthony Henday Drive Bridge View 9



Proposed Bridge Alignment

Lewis Farms Stop

Theme: "Park-Like"



Cross Section G (Looking east)



Bench



Recycling Bin



Paving



Column Wrap



Railing

Stop Design Elements (Based on your feedback, elements selected for project will be similar to images above.)



Existing Conditions



Concept Rendering

Views above look north from existing Park 'n' Ride lot towards the existing Transit Centre. (See ◀ symbol on plan.)

Stop Images View 10