### Wecome! TRANSFORMING EDMONTON BRINGING OUR CITY VISION TO LIFE

### Public Involvement for Preliminary Design of SE to West LRT

Build

Strategy

Concept

HAVE YOUR SAY

#### Have Your Say!

Where we are today

PHASE

ESIGN

Look for the colour **orange** and provide your input on how the LRT can best integrate into your community.



Operate

### SE to West LRT Preliminary Design



DESIGN

PHASE

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#### **PROJECT PURPOSE:** To develop

and finalize the Preliminary Design for a 27 km urban style, low-floor light rail system along the approved corridor (route) from Mill Woods to Lewis Farms.

2009 - 2011:	Development of Concept Plan	
2011 - 2012:	Concept Plan Approved by City Council	
2011 - 2013:	Preliminary Design and Public Involvement to	
	Support Preliminary Design	
FUTURE:	Detailed Design, Construction and Operation	

#### Concept

Approved by City Council during **Concept** phase:

- Corridor (route) location
- Track alignment (where track fits in the road right-of-way)
- Stop/station/transit centre locations
- Low floor urban-style LRT



Preliminary Design includes:

- Structural aesthetics (visual integration of the system into the existing landscape and adjacent communities)
- LRT stop/station aesthetics
- Landscape architecture aesthetics
- Public art opportunities
- Connectivity to the existing transportation network across all modes of transportation
- Understanding the impacts to stakeholders and working together to mitigate issues where possible



### SE to West LRT Approved Corridor

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#### Urban Style LRT and Low Floor Technology



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#### Low Floor Urban LRT







Low floor urban style LRT

#### **Urban Style LRT System**

- City Council's direction for existing LRT system and new lines (June 2009)
- Improves connections between LRT and community:
  - Smaller scale stations/stops spaced closer together
  - Less impact in community
  - Increased pedestrian access
  - Reduced right-of-way
  - Fewer barriers (bells and whistles)
  - Links to destinations with strong bus, pedestrian and cyclist connections
  - Reduced speeds in congested areas to support safe pedestrian-oriented communities
  - Investment in landscaping, streetscaping and architectural features to improve visual appeal
  - Maximize openness of space to create safe environment
  - Does not share right-of-way with other road users, but does share traffic signals
  - Passengers board at street level
  - Stops are similar to bus stops (at street level)



### Public Involvement Process

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### 5 Stages of Public Involvement

Feb. 2012	<b>Pre-Consultation:</b> Developing the public involvement process	
Mar May 2012	<b>Initiation:</b> Envisioning the look, feel and integration of LRT in your community	Stage 2:
May - Nov. 2012	<b>Consultation:</b> Developing the look, feel and integration of LRT in your community	Stage 3:
Sept June	<b>Refinement:</b> Refining the look, feel and integration of LRT in your community	Stage 4:
Jan Dec. 2013	<b>Conclusion:</b> Presenting the final recommended Preliminary Design—the look, feel and integration of LRT in your community	Stage 5:



### Thanks for Getting Involved!



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Thousands of comments were received during public involvement Stage 2: (March to May 2012):

- Public meeting discussions
- Comment forms
- Online survey

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Letters and emails

Input is being used to inform Preliminary Design and has been incorporated into materials presented tonight

### How your input is used:



Your input is valuable and used along with other information to inform the project.



### Thanks for Getting Involved!

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#### What kind of feedback are we looking for?

- Look/feel of stop/station (landscape architecture, colours, treatment, public art)
- Important connections/access points
- Confirmation of how amenities will look

#### What kind of feedback are we unable to use?

- Comments about decisions made in Concept Planning (route, stop/station locations, vehicle technology)
- Comments about elements that cannot be addressed until later stages of project
- Comments regarding elements outside of the scope of project



#### WE ARE HERE



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## SE to West LRT Facts



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- February 2012 Entire SE to West LRT corridor (route) approved by City Council
- 27 km route runs from Mill Woods (southeast) to Lewis Farms (west)
- Connects with existing LRT at Churchill Station downtown
- Trains are low floor technology stops at street level, minimizes impact to community, less infrastructure required at stops/ stations
- Trains run on 5 minute intervals during peak hours
- Trains do not share a right-of-way with other road users, but do share traffic signals
- A complementary bus network is being reviewed some existing bus stops may be relocated to better integrate with LRT
- Preliminary Design scheduled to be complete by end of 2013–Detailed Design and Construction would follow
- Timing of construction to be determined by City Council
- Construction of the entire 27 km SE to West LRT will begin in southeast due to location of Operations and Maintenance Facility
- City Council priorities for LRT construction:
  - Downtown to NAIT (opening 2014)
  - SE to West LRT

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- The 27 km line includes:
- 2 stations
- 27 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 CP rail lines along 75 Street
- 1 pedestrian bridge at Connors Hill
- 1 tunnel
- 2 Park and Ride sites
- 3 Kiss and Rides sites
- 3 Transit Centres
- 1 Operation and Maintenance Facility

### Did You Know? Interesting Facts



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- All major building structures related to SE to West LRT will be built to Leadership in Energy and Environmental Design (LEED) silver standard per the City of Edmonton's Green Building Plan and Policy C532, resulting in reduced energy use and signi Øcant cost savings. LEED is most recognized and accepted North American standard for rating environmental friendliness of design, construction, operation and sustainability of buildings.
- As of the 2006 Federal Census, more than 75% of journey to work trips in the Edmonton Region are made by driving alone
- Signi 🛛 cantenvironmental studies being conducted and include assessment sofrare plants, bird and wild life habitats, animal corridor s, ground water and the North Saskatchewan River
- Noise and vibration studies conducted in potentially affected areas along route including residential, commercial, and indust rial areas as well as in the Winspear Cente for Music and Citadel Theatre areas.
- The City of Edmonton's Corporate Tree Management policy is referenced to aid in determining value of trees and how value is r eplaced, if required.



- 32 individual disciplines bring LRT expertise from around the world to the Preliminary Design project, including:
- Civil, structural, electrical, rail and geotechnical engineers
- Landscape architects
- Environmental scientists
- Biologists
- Botanists
- Wildlife experts
- Urban designers
- Transportation planners
- Architects
- Urban Planners
- Finance experts



## Stop Elements



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Standardized Elements: These elements are a part of every stop.



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## Side Stop



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- Number of shelters to be determined by anticipated ridership numbers.
- Stop types

   (i.e. Centre or Side)
   were determined
   in the approved
   Concept Plan.



## Centre Stop



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- Number of shelters to be determined by anticipated ridership numbers.
- Stop types

   (i.e. Centre or Side) were determined in the approved Concept Plan.



## Shelter Canopies



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Organic form that recalls the river and natural history of the area.

#### Materials:

- Steel structure
- Copper and wood canopy
- Glass shelters
- Colored concrete platform



Angular form found throughout Edmonton that is compatible with both residential and commercial buildings.

#### Materials:

- Steel structure
- Copper and wood or glass canopy
- Glass shelters
- Colored concrete platform



Simple, light, form that will blend into all character zones by with its transparency and lightness.

#### Materials:

- Steel structure
- Translucent glass or wood canopy
- Glass shelters
- Colored concrete platform



Have Your Say: Which canopy style best integrates with your community theme?



## Park 'n' Ride, Kiss 'n' Ride & **Transit Centres**



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#### PARK 'N' RIDE

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



A place where commuters are driven and dropped off at a bus or LRT stop/station.

#### **TRANSIT CENTRE**

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



#### Neighbourhood Parking

Mitigation of LRT commuter parking demand in residential or business areas will be assessed throughout Preliminary Design.



### Traction Power Substations (TPSS)

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Priority is to locate substations on City property



SE to West LRT Alignment and TPSS Locations

- The purpose of the traction power substation is to convert and regulate power to the LRT vehicle
- TPSS must be located approximately every 1.6km (1 mile) along the corridor (route)
- Locations are approximate and can be located within 200 metres of general area indicated
- Final locations will be confirmed through Preliminary Engineering
- Some locations will receive pre-manufactured units, other locations may require traction power substations to be built in place





## Traction Power Substations (TPSS)

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Sunnyside Park Screening Strategy, Calgary











Stampede Park Screening Strategy, Calgary Urban Neighbourhood Treatment with Screening



Suburban Roadway Treatment with Screening







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#### **Typical Pole**

#### **Typical Multi-Use Pole**



OCS provides power to the LRT vehicle. They are either located in the centre or on the side of the route. This location is determined by the space available and technical requirements.



DECORATIVE



### Noise Impact Assessment

Noise modeling is being conducted in keeping with **the City's Urban Traffic Noise** Policy along the LRT corridor (route) and results will be shared upon completion (Fall 2012).

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



#### 

#### City of Edmonton Urban Traffic Noise Policy (UTNP)

- City seeks to achieve a projected attenuated noise level below 65 dBA Leq24 (traffic noise over a 24 hour period)
- If predicted noise level is 65 dBA Leq24 or greater, a noise barrier may be provided

#### **Traffic Noise Measurement**

- Traffic noise levels are measured in decibels (dBA) over several days and assessed over a 24 hour period (Leq24)
- · Commonly used by major Canadian municipalities

#### Noise Modeling

- Projected volumes based on proposed lane configurations, addition of LRT and future traffic growth
  - Assess projected noise levels against the UTNP
  - Based on 2044 figures-a horizon year used throughout the project
- In Stage 4 of the Public Involvement Process, if noise modeling (2044 figures) determines noise attenuation is required and construction is feasible:
- A survey is provided to property owners immediately adjacent to proposed barrier
- At least 60% of impacted property owners must support noise attenuation project for it to proceed
- Impacted property owners then have an opportunity to provide feedback on the type of noise
   attenuation and what it may look like



### Vibration Impact Assessment



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- Vibration may occur during LRT construction and operation
- Vibration impacts during construction can be mitigated by timing heavy construction during off-peak periods
- 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
- FTA vibration screening consists of 3 Stages:
- Stage 1 Screening based on distance away from LRT
- Stage 2
  - 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
- Stage 3 Detailed Vibration Assessment
  - Includes site specific vibration measurements
  - Conducted at Winspear Centre for Music and Citadel Theatre areas (acoustic sensitivities)
  - Considered for areas that may be affected by vibration, as identified in Stages 1 and 2 of testing
- Pre-construction assessments of structures abutting the LRT route will be completed





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• Mitigating environmental

Environmental and

impacts is significant throughout all phases of the project

 Environmental impact assessments are being conducted by a team that includes soil, water quality and air quality scientists; biologists; archaeologists; socio-economists and noise/vibration specialists



#### **Environmental Site Assessments**

- Determine if contaminated sites or potentially hazardous materials will be encountered during construction
- Includes soil and groundwater studies
- Assist in providing for safety of construction workers, public and environment

#### **Environmental Impact Assessment**

- Required by Edmonton's North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188) and Canadian Environmental Assessment Act (CEA Act)
- Includes describing soils, water quality, water courses, wildlife, vegetation, rare species, natural areas, ecological connectivity, archaeological, paleontological and socioeconomic resources in the vicinity of LRT and assessing impacts of construction and operation
- Investigations will include effects of noise, dust and vibrations on local community assets.
- Information will be used to:
  - Inform design and construction
  - Obtain required approvals from other jurisdictions such as Fisheries and Oceans Canada and Transport Canada

#### Natural Area Assessment and Management Plan

• For all natural areas impacted by the project

#### **Geotechnical Studies**

- Assess ground conditions to determine suitability for construction
- Provide design advice on stability of slopes for foundations, tunnels, chambers and other structures



### 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.
- 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.
- Final bridge selection will be based on a number of parameters including technical requirements.















### **Public Art**



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- Public art is considered to be a key component to attractiveness and identity of city
- Public art demonstrates:
  - Character of communities
  - Investment in the arts
- 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
  - Program operated by Edmonton Arts Council
- Approved public art will be displayed within or in close proximity to publicly accessible municipal property
- Input received during Preliminary Design regarding public art will be provided to the Edmonton Arts Council
- Through the Edmonton Arts Council, the public has an opportunity to:
  - Help select an artist to provide art along LRT corridor (route)—typically at stations





Integrated public art at a transit stop.



## Thank You

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### Thank you for your input!

Your input from tonight's session will be provided to Preliminary Design team and available online at **www.edmonton.ca/LRTprojects.ca** 



We hope to see you during Stage 4 - Refinement

Areas 1-4 Sept 2012

Areas 5-6 June 2013



## What We Heard Area 1 - Key Themes

## Infrastructure, Overall Design and Art

- Anti-noise walls are important and consider incorporating art
- Prefer trees as noise mitigation over anti-noise walls
- Prefer minimalist design aesthetics • Consider materials that are easy to maintain
- Allow art to reflect ethnic diversity of community
- Prefer decorative coloured concrete for paving
- Prefer natural materials (wood) and colours
- Prefer mural-type walls
- Prefer solid materials (metal) anti vandalism
- Stand alone or decorative public art components

## **Stops/Stations**

- Provide enclosed or semi-enclosed shelters
- Incorporate way-finding to key community locations
- Safety and security are crucial
- Consider solar/natural lighting
- Avoid light pollution into neighbourhoods
- Consider wheelchair access
- Adequate and comfortable seating is important

## Other

- Good bus connections to Mill Woods LRT stop are essential
- Retain current excellent connectivity of all modes of transportation
- Maintain connectivity to all neighbourhood amenities
- Green spaces, shared-use paths and natural areas are important



• Prefer a modern, simple, ageless design with a natural theme – reflects nature and green space

• Consider integrating artwork into stop/station infrastructure rather than stand alone or decorative public art components

• Prefer stops/stations to look unique from each other to complement diversity of neighbourhood

• Concern about emergency vehicle access to neighbourhoods with one entry/exit

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# Mill Woods Stop Plan





**Cross-section** Note: Cross-section to be confirmed through Preliminary Design.





View A - Existing Condition



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## View A - Concept Rendering



# Mill Woods Stop Analysis







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Proposed Bike Route

Existing Pedestrian Crossing



## Mill WOOds Stop: Theme



"Trees go with the name Mill Woods – big and small trees and lots of them."

"Simple, minimalist theme – contemporary."

Design Theme: What We Heard from Stage 2



BENCHES







**GARBAGE BINS** 



**RETAINING WALLS** 

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**COLUMN WRAPS** 

## PAVING



RAILING



## Mill Woods Stop Options





BENCHES



















# Have Your Say: This design theme is based on your input from Stage 2. Which elements best reflect your neighbourhood?

## GARBAGE BINS



## **RETAINING WALLS**

















PAVING



## **COLUMN WRAPS**







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RAILING

## Grey Nuns Stop Plan





**Cross-section** Note: Cross-section to be confirmed through Preliminary Design.





View A - Existing Condition

## TRANSFORMING **EDMONTON** BRINGING OUR CITY VISION TO LIFE





View A - Concept Rendering



# Grey Nuns Stop Analysis

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## Grey Nuns Stop: Theme



Marguerite d'Youville Sister of Charity (Grey Nuns)

"Statue of a nun." "Colours could be used to designate locations – colour themes in each station." "Sign of H to indicate hospital station."

Design Theme: What We Heard from Stage 2



**BENCHES** 











**GARBAGE BINS** 



**RETAINING WALLS** 

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**COLUMN WRAPS** 

PAVING



RAILING



# Grey Nuns Stop Options





BENCHES

















## GARBAGE BINS

## **RETAINING WALLS**

















# Have Your Say: This design theme is based on your input from Stage 2. Which elements best reflect your neighbourhood?

PAVING







## **COLUMN WRAPS**









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RAILING

# Millbourne Stop Plan





**Cross-section** Note: Cross-section to be confirmed through Preliminary Design.



View A - Existing Condition



View A - Concept Rendering



# Millbourne Stop Analysis







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## LEGEND

Platform

LRT Line

Roadway

**Existing Bus Route** 

Existing Bus Stop

Median

Sidewalk Existing Bike Route

Proposed Bike Route

Proposed Pedestrian Connection Destination/ Origin

400m Radius/ 5 minute walk

Existing Pedestrian Crossing







## Milbourne Stop: Theme



"Asian theme." "Lots of trees – forest, park."

## Design Theme: What We Heard from Stage 2









**GARBAGE BINS** 



**RETAINING WALLS** 

## PAVING

## **COLUMN WRAPS**







## TRANSFORMING EDMONTON BRINGING OUR CITY VISION TO LIFE



RAILING



## Milbourne Stop Options





BENCHES













# Have Your Say: This design theme is based on your input from Stage 2. Which elements best reflect your neighbourhood?

## GARBAGE BINS

## **RETAINING WALLS**

















PAVING







## **COLUMN WRAPS**









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## RAILING

## Proposed Alignment Changes

What are the changes being proposed?

HOW will this affect me as a transit user in the area?

HOW will this affect me as a property owner in the area?

What are the resulting traffic impacts of the amendment?

The future bus transit centre will potentially be located at the Wagner Station instead of the Whitemud Stop. If approved, and as part of the Preliminary Design, the project team will review how complementary bus transit service will operate when the LRT opens. This will be completed in 2013.

This change will reduce the amount of land to be purchased by the City as compared to the existing Concept Plan.

The change will have a reduced impact on traffic on 75 Street north of Whitemud Drive compared to the existing Concept Plan.

• Relocation of Operations and Maintenance Facility, Transit Centre, and Park 'n' Ride.

• Change in type of grade separation will reduce costs and improve constructability.

• Change in alignment to better accommodate future redevelopment of the Osman Auction site and to improve the crossing angle of CNR/75 Street.

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## Proposed Alignment Changes

## Approved Concept Plan (2011)



## **Recommended Amendment** to Concept Plan (Mar. 2012)



The proposed amendment to the Concept Plan recommends relocating:

- Transit Centre
- Park 'n' Ride
- This amendment could result in:
- Cost savings
- Improve constructability
- Reduce traffic impacts on 75 Street

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Operations and Maintenance Facility (OMF)



## Proposed Alignment Changes

## Public Involvement Process Concerns

- Stakeholders/public invited to provide feedback on proposed amendment over one month period
- On April 3 at public consultation meeting in Wagner area, participants learned about/ discussed proposed amendment and provided input
- From April 3 to May 2, stakeholders/public could provide feedback through online survey

## What We Heard

- Overall, stakeholders support proposed amendment
- Positive feedback
  - Overall cost savings for project
  - Transit integration/service to Wagner area
  - Elevated grade separation over 75 Street  $\bullet$ minimizes traffic impacts
  - Minimized impact to industrial business operations in Wagner Industrial Area



- Traffic impacts in Wagner

If proposed amendment is supported by Council, access and transit integration issues will be addressed through Preliminary Design

## **Public Input Process**

- Committee (TIC)
- June 12
  - Phone 780-496-8178

• www.edmonton.ca/city\_government/council-committee-meetings.aspx For more information: www.edmonton.ca/LRTprojects 780.496.4874

• Access to Park 'n' Ride and Transit Centre from southeast

• Transit integration and service to other areas

• May 8, 2012 - Administration proposed amendment to Transportation and Infrastructure

• TIC referred recommendation to Non-Statutory Public Hearing on June 12, 2012 • Stakeholders and interested members of the public can register to speak in person on

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# Whitemud Drive Bridge

- A new bridge is proposed to carry the LRT over Whitemud Drive at 75 Street
- Bridge will be located on the east side of the existing 75 Street bridge over Whitemud Drive
- LRT bridge will be similar to existing South LRT bridge over Whitemud Drive at 111 Street
- Pedestrians and cyclists will not be accommodated on LRT bridge, rather they will continue to cross Whitemud Drive on the west side of the existing 75 Street Bridge



Site overview





**Existing South LRT bridge over Whitemud Drive at 111 Street** 

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