Today’s Topics

- Outreach Update
- TI #2 and 3: TH 55/Olson Memorial Highway
- Bass Lake Road Station Configuration
- Transmission Line Update
- Systems Introduction
- Municipal Consent Process Overview and Roadmap
Outreach Update
July 28 Robbinsdale Open House
Upcoming Open Houses

• August 11: Brooklyn Park (at North Hennepin Community College)
  ▪ Includes EAW West Broadway Avenue
• August 12: Golden Valley
Upcoming Committee Meetings

• August 3: Community Advisory Committee
• August 4: Business Advisory Committee
• August 13: Corridor Management Committee
Technical Issues Update
Technical Issues

Legend
- METRO Blue Line Extension Stations
- METRO Blue Line Extension Alignment
- Technical Issues
- Relevant City Boundaries

Segments
- BP 1: Brooklyn Park 1
- BP 2: Brooklyn Park 2
- C: Crystal
- R: Robbinsdale
- GV: Golden Valley
- M: Minneapolis

Technical Issues
Segmented Issues
1. Target Field Station Area
2. Olson Memorial Highway
3. Olson Memorial Highway Crossing
4. Plymouth Avenue/Golden Valley Road Station
5. Golden Valley Alignment
6. Robbinsdale Station
7. Bass Lake Road Station
8. 63rd Avenue Station
9. Brooklyn Boulevard Station
10. CSAH 103 Reconstruction Project
11. 93rd Avenue/Oak Grove Parkway Station
12. Operations and Maintenance Facility

System-Wide Issues
13. Freight Rail
14. Transmission Line Coordination
15. Traction Power Substation Locations
16. Parks and Trails
Technical Issue #2:
TH 55/Olson Memorial Highway
Technical Issue #2: TH 55/Olson Memorial Highway

4 lane and 6 lane locations along Olson Memorial Highway
TH 55/Olson Memorial Highway
Van White Station
TH 55/Olson Memorial Highway
Humboldt Ave
TH 55/Olson Memorial Highway
Morgan Ave
TH 55/Olson Memorial Highway
Penn Ave
TH 55/Olson Memorial Highway: Key Issues

- Designated principal arterial
- Posted 40 MPH speed limit
- 3 lanes eastbound and westbound (6 total)
- Reliever route for I-394
- Existing lanes are 12’-17’
- Alignment is continuous and straight
- Pedestrian crossings are in poor condition
- No bicycle facilities
Technical Issue #2: TH 55/Olson Memorial Highway

Penn Avenue and Olson Memorial Highway – Looking Northeast
TH 55/Olson Memorial Highway: Proposed Improved Conditions

• Continue as a principal arterial and reliever
• 3 lanes eastbound and westbound (6 total)
• Design and post for 35 MPH speed limit
• Provide for pedestrian connections and safety
• Accommodate for two-way cycle track
• Reduce lane widths to 11’
• Introduce lane shifts
• Enhance lighting along corridor
Technical Issue #2: TH 55/Olson Memorial Highway
Technical Issue #2: TH 55/Olson Memorial Highway

Penn Avenue and Olson Memorial Highway - View from Southeast corner looking north
Technical Issue #2:
TH 55/Olson Memorial Highway

Penn Avenue and Olson Memorial Highway - View from Southeast corner looking north
Technical Issue #2:
TH 55/Olson Memorial Highway

Penn Avenue and Olson Memorial Highway - View from existing crosswalk looking north
Technical Issue #2:
TH 55/Olson Memorial Highway

Penn Avenue and Olson Memorial Highway - View from crosswalk looking north
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway between Newton Avenue and Oliver Avenue – Looking Northwest
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway between Newton Avenue and Oliver Avenue – Looking Northwest
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway between Newton Avenue and Oliver Avenue – Mid-block view looking North
Technical Issue #2:
TH 55/Olson Memorial Highway
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway between Newton Avenue and Oliver Avenue – View from existing median looking East
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway between Newton Avenue and Oliver Avenue – View from platform ramp looking East
Technical Issue #2: TH 55/Olson Memorial Highway

Olson Memorial Highway with 2-Way Cycle Track
Technical Issue #2: TH 55/Olson Memorial Highway Recommendations

- Advance design for 6-lane principal arterial
- Center running LRT
- 10’ boulevards
- 6’ sidewalk on south side
- 3 mid-block pedestrian crossings
- Accommodate for 12’ cycle track and 6’ sidewalk on north side
- Continue design coordination with MnDOT, Hennepin County and Minneapolis
Technical Issue #3:
Olson Memorial Highway Crossing
Technical Issue #3: Olson Memorial Highway Crossing Key issues

- LRT is center running on OMH
- Need to connect to freight rail corridor
- Existing OMH bridge structure
Technical Issue #3 OMH Crossing

Cross section at center of bridges, looking west
Technical Issue #3: Olson Memorial Highway Crossing

Aerial view looking West along Olson Memorial Highway
Technical Issue #3: Olson Memorial Highway Crossing
Technical Issue #3: Olson Memorial Highway Crossing

Northwest view at Olson Memorial Highway Bridge
Technical Issue #3: Olson Memorial Highway Crossing
Technical Issue #3: Olson Memorial Highway Crossing
Technical Issue #3: Olson Memorial Highway Crossing Recommendations

- LRT center running on OMH
- Reconstruct westbound OMH span
- Eastbound OMH span remains in place
- Connect to freight rail corridor north of OMH bridge
- Continue to work with MnDOT, Hennepin County and Minneapolis on design
Bass Lake Road Station Configuration
Issues to be Resolved

• Bass Lake Road station park and ride
  - Community input from May and July open houses: support addition of park and ride

• Traffic Operations at Bass Lake Rd
  - Conduct traffic modeling
  - Analyze grade separation at Bass Lake Rd
Station Park and Ride

Bass Lake Road Station

Cedarwood Apts.

Becker Park

Freight

LRT

Benches and bicycle facilities

Existing tower and utilities

Potential subsurface stormwater facilities

Maintenance vehicle access

Passenger drop-off

Traction power substation

Existing city monument sign

Emergency vehicle turnaround

Lakeland Ave

Bottineau Blvd (CR 81)

Bass Lake Rd

Park and Ride - Surface Lot

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<tr>
<th>Site Area</th>
<th>City of Crystal</th>
<th>Hennepin County</th>
<th>Office Parcel</th>
<th>Total</th>
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<tr>
<td>Parking:</td>
<td>167 Spaces</td>
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<tr>
<td>Lot Design:</td>
<td>8.5' Stall Width</td>
<td>18' Length</td>
<td>24' Aisle</td>
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DRAFT WORK IN PROGRESS
Traffic Operations at Bass Lake Rd

- Conduct traffic modeling
- Analyze grade separation at Bass Lake Rd
Bass Lake Road Analysis

• At-grade LRT crossing
• 170-space park-and-ride
  • 94 trips in AM peak, 87 trips in PM peak
• CSAH 81/Bass Lake Road AM/PM Peak Hour Operations
  • Existing intersection operates with 25-35 seconds of average intersection delay
  • 2040 without LRT and park-and-ride operates with 30-40 seconds of average intersection delay
  • 2040 with LRT and park-and-ride operations with 35-45 seconds of average intersection delay
• No significant change in intersection delay due to LRT and park-and-ride
Bass Lake Road Station Recommendation

• Station
  ▪ Advance park and ride of 167 spaces
  ▪ Property acquisition and construction costs not included in DEIS cost estimate

• Traffic Operations at Bass Lake Rd
  ▪ Acceptable intersection operations in 2040 with LRT
  ▪ At-grade intersection at Bass Lake Rd
Transmission Line Coordination Update
Xcel Energy Transmission Line Corridor

• BPO has held regular meetings with Xcel Energy

• Xcel feedback to BPO:
  ▪ Xcel intends to own and maintain a transmission line in this corridor
  ▪ Protect Xcel’s ability to access and maintain transmission line structures as necessary
  ▪ Accommodate Xcel’s ability to replace transmission line structures in the future if not replaced at this time
Xcel Energy Transmission Line Corridor

- 115 kV transmission line on BNSF ROW by permit
- Existing transmission line feeds Xcel’s Indiana Substation at 33rd Ave North & Indiana Ave North
- Transmission line characteristics:
  - Double circuit steel lattice structures (4)
  - Single circuit steel lattice structures (35)
  - Single circuit wood poles (36)
Xcel Energy Transmission Line:
Double circuit 115 kV steel lattice structures
Xcel Energy Transmission Line:
Single circuit 115 kV steel lattice structures
Existing Xcel Energy Transmission Line:
Single circuit 115 kV wood poles
Xcel Energy Transmission Corridor

• Potential Xcel Energy transmission line accommodations:
  ▪ Remain in current location
  ▪ Steel poles east of LRT tracks
  ▪ Steel poles west of BNSF tracks
  ▪ Steel poles between LRT tracks

• Other issues:
  ▪ Compatibility with freight rail improvements
  ▪ Constructability
  ▪ Electrical clearances
Potential Xcel Energy Accommodation: Steel Poles East of LRT Tracks
Potential Xcel Energy Accommodation: Steel Poles West of BNSF Track
Potential Xcel Energy Accommodation: Steel Poles Between LRT Tracks
Transmission Line Coordination Next Steps

• Continue regular coordination meetings with Xcel
• Advance improvements necessary for BLRT
• Ensure improvements covered in FEIS
• Ensure improvements are compatible with BNSF freight rail improvements and any necessary ground improvements or structures
Systems Introduction
Traction Power Sub Station (TPSS)

- Converts electrical power (AC to DC) to operate trains
- Requires climate controlled environment
- Placement criteria
  - Located within 500’ of track preferred
  - Spacing of approximately 5000’ between substations preferred to maintain continuous power to trains
  - Requires closer spacing for steeper track grades
  - Located at-grade to minimize cost and provide adequate access for maintenance
TPSS Site Features

• Requires 40’ by 80’ footprint
  ▪ TPSS enclosure
  ▪ 10’ minimum clear zone around TPSS enclosure
  ▪ Maintenance vehicle parking space

• Requires fencing and access gate
  ▪ Grounded architectural or chain link

• Includes porous asphalt pavement
  ▪ Electrical safety
  ▪ Stormwater management
  ▪ Maintain moisture content of soil (assists with conductivity)
Standard TPSS: Blue Line
TPSS Example: Green Line

TPSS – CC03 at 25th and U of M Transitway
Signal Bungalows

- Contains communications, signal and switching controls
- Requires climate controlled environment
- Placement criteria:
  - Located near special trackwork
  - Located within line of sight of special trackwork and equipment testing
  - Requires access for maintenance
  - Located at-grade
Signal Bungalow
Signal Bungalow: Interior View
Overhead Contact System (OCS)

• Transmits electrical power from TPSS to the Light Rail Vehicle via pantograph
• Divided into sections, one per TPSS
• Pole and assembly details:
  ▪ Two wires: contact wire and messenger wire
  ▪ Brackets
  ▪ Insulators
  ▪ Tensioning weights
Standard OCS Pole and Assembly
Rail Signals

• Interlocking Signals
  ▪ Located at LRT interlockings
  ▪ Convey route direction and authority to LRT trains

• Bar Signals
  ▪ Integrated into traffic signals
  ▪ Operate as an independent or concurrent phase of the traffic signal
Rail Signals

Interlocking Signal

Bar Signal
Municipal Consent Process Overview and Roadmap
Municipal Consent Process

• Minnesota Statute 473.3994
• Local jurisdictional review and approval of physical design component of preliminary design plans
Physical Design Components

- LRT track location
- Station location and layout
- Roadway features
  - Turn lanes
  - Lane widths
  - Traffic signals
- Sidewalks
- Pedestrian crossings
- Operations and Maintenance Facility (OMF) location
- Freight track location
- System elements
CCLRT Municipal Consent Examples
Municipal Consent

Met Council Submits Municipal Consent Plans to Cities and County

At least 30 days

Met Council/Hennepin County Regional Railroad Authority Hold Joint Open House and Public Hearing

Within 45 days

Cities/County Approve Plans within 45 Days of the Met Council/Hennepin County Regional Railroad Authority Joint Open House and Public Hearing

Cities Hold Public Hearings
Next Steps After Municipal Consent

• Station design and public art
• Streetscape design
• Utility relocation design
• Design advancement:
  ▪ LRT track features
  ▪ Roadway details
  ▪ OMF features
  ▪ Bridges and tunnels
  ▪ System elements
  ▪ Freight rail features
### Roadmap to Municipal Consent: Schedule of Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
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<tr>
<td>CMC Recommendation on Project Scope</td>
<td>Nov 2015</td>
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<tr>
<td>Met Council Approves Project Scope and Issues Municipal Consent Packages</td>
<td>Dec 2015</td>
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<tr>
<td>Met Council &amp; Hennepin County Regional Railroad Authority Joint Public Hearing</td>
<td>Jan 2016</td>
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<tr>
<td>Individual City Public Hearings</td>
<td>Feb/Mar 2016</td>
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<tr>
<td>Municipal Consent Completion</td>
<td>Mar 2016</td>
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<tr>
<td>30% Plan Completion</td>
<td>Q3 2016</td>
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<tr>
<td>Publish FEIS/ROD</td>
<td>Q3 2016</td>
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<tr>
<td>For Entry to Engineering Applications to the FTA</td>
<td>Q3 2016</td>
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Next Meeting: September 8, 2015
More Information

Website: BlueLineExt.org
Email: BlueLineExt@metrotransit.org
Twitter: @BlueLineExt