

## **Corridor Management Committee**

#### August 13, 2015





The Metro Transit





BROOKLYN PARK | CRYSTAL | ROBBINSDALE | GOLDEN VALLEY | MINNEAPOLIS

# **Today's Topics**

- Outreach Update
- Olson Memorial Highway: Technical Issues #2 & #3
- Bass Lake Road Station: Technical Issue #7
- Transmission Line Update: Technical Issue #14
- Systems Introduction



#### **Outreach Update**



# **July 27 Crystal Open House**





#### **July 28 Robbinsdale Open House**





#### **July 29 Minneapolis Open House**





### August 11 Brooklyn Park Open House





#### August 12 Golden Valley Open House





#### **Technical Issues Update**



## Technical Issues



IE LINE



#### Olson Memorial Highway: Technical Issues #2 & #3







## TH 55/Olson Memorial Highway From I-94





### 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 Thomas 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





WELLE LINE CHARMEN

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 on north side
- Reduce lane widths to 11'
- Introduce lane shifts
- Enhance lighting along corridor



Draft - Work in Process



Penn Avenue and Olson Memorial Highway: Looking northeast





Penn Avenue and Olson Memorial Highway: View from southeast corner looking north





Penn Avenue and Olson Memorial Highway: View from southeast corner looking north





Penn Avenue and Olson Memorial Highway: View from existing crosswalk looking north





Penn Avenue and Olson Memorial Highway: View from crosswalk looking north





Olson Memorial Highway between Newton Avenue and Oliver Avenue: Looking northwest



Olson Memorial Highway between Newton Avenue and Oliver Avenue: Looking northwest





Olson Memorial Highway between Newton Avenue and Oliver Avenue: Mid-block view looking north





Olson Memorial Highway between Newton Avenue and Oliver Avenue: Mid-block view looking north





Olson Memorial Highway between Newton Avenue and Oliver Avenue: View from existing median looking east





Olson Memorial Highway between Newton Avenue and Oliver Avenue: View from platform ramp looking east







Olson Memorial Highway with 2-Way Cycle Track



## TH 55/Olson Memorial Highway Public Involvement

- Open House June 4, 2015 comments:
  - § Force cars to follow the posted speed limits or do something to slow the traffic down
  - **§** Pedestrian safety in crossing to stations
  - S Walkability, to and from Penn Station
  - § 6 lanes is less backup of traffic
  - § Add bike lanes to Olson
- Open House July 29, 2015 comments:
  - S Rethink intersection at Humboldt. Congestion point AM & PM peaks.
  - Signage for the mid-block crossing
- Community Advisory Committee 5/4, 8/3
- Business Advisory Committee 5/5, 8/4
- Meetings/communication with property owners, neighborhood organizations, and individuals



## 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


- 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





Aerial view looking West along Olson Memorial Highway





DRAFT-WORK IN PROCESS

View West at Thomas Ave

Northwest view at Olson Memorial Highway Bridge





View from LRT vehicle looking South

![](_page_41_Picture_3.jpeg)

![](_page_42_Picture_1.jpeg)

View looking South from Eastbound LRT vehicle

![](_page_42_Picture_3.jpeg)

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# 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

![](_page_43_Picture_6.jpeg)

### Bass Lake Road Station: Technical Issue #7

![](_page_44_Picture_1.jpeg)

### **Issues to be Resolved**

Bass Lake Rd station park and ride

S Community input from May and July open houses: support addition of park and ride

![](_page_45_Picture_3.jpeg)

Photo: Crystal Open House May 28, 2015

Traffic operations at Bass Lake Rd
 § Conduct traffic modeling
 § Analyze grade separation at Bass Lake Rd

![](_page_45_Picture_6.jpeg)

### **Station Park and Ride**

![](_page_46_Picture_1.jpeg)

![](_page_46_Picture_2.jpeg)

# **Traffic Operations at Bass Lake Rd**

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

![](_page_47_Picture_3.jpeg)

# **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 Rd AM/PM peak hour operations
  - 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

![](_page_48_Picture_8.jpeg)

### **Bass Lake Road Station Recommendation**

### Station

- § Advance park and ride of 167 spaces
- Service 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

![](_page_49_Picture_5.jpeg)

### Transmission Line Coordination Update: Technical Issue #14

![](_page_50_Picture_1.jpeg)

### **Xcel Energy Transmission Line Corridor**

![](_page_51_Figure_1.jpeg)

![](_page_51_Picture_2.jpeg)

# **Xcel Energy Transmission Line Corridor**

- BPO has held regular meetings with Xcel Energy
- Xcel feedback to BPO:
  - Stel intends to own and maintain a transmission line in this corridor
  - Second Protect Xcel's ability to access and maintain transmission line structures as necessary
  - Second Accommodate Control and Control

![](_page_52_Picture_6.jpeg)

# **Xcel Energy Transmission Line Corridor**

- 115 kV transmission line on BNSF ROW by permit
- Existing transmission line feeds Xcel's Indiana
   Substation at 33<sup>rd</sup> 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)

![](_page_53_Picture_4.jpeg)

# Xcel Energy Transmission Line: Double Circuit 115 kV Steel Lattice Structures

![](_page_54_Figure_1.jpeg)

UE LINE

# **Xcel Energy Transmission Line: Single Circuit 115 kV Steel Lattice Structures**

![](_page_55_Figure_1.jpeg)

![](_page_55_Picture_2.jpeg)

# Existing Xcel Energy Transmission Line: Single Circuit 115 kV Wood Poles

![](_page_56_Figure_1.jpeg)

![](_page_56_Picture_2.jpeg)

# **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

![](_page_57_Picture_10.jpeg)

![](_page_58_Figure_0.jpeg)

![](_page_58_Picture_1.jpeg)

### Potential Xcel Energy Accommodation: Steel Poles West of BNSF Track

![](_page_59_Figure_1.jpeg)

![](_page_59_Picture_2.jpeg)

### Potential Xcel Energy Accommodation: Steel Poles Between LRT Tracks

![](_page_60_Figure_1.jpeg)

# **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

![](_page_61_Picture_5.jpeg)

### **Systems Introduction**

![](_page_62_Picture_1.jpeg)

# **Traction Power Substation (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
  - S Located at-grade to minimize cost and provide adequate access for maintenance

![](_page_63_Picture_8.jpeg)

# **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)

![](_page_64_Picture_8.jpeg)

### **Standard TPSS: Blue Line**

![](_page_65_Picture_1.jpeg)

![](_page_65_Picture_2.jpeg)

### **TPSS Example: Green Line**

![](_page_66_Picture_1.jpeg)

![](_page_66_Picture_2.jpeg)

# **Signal Bungalows**

- Contains communications, signal and switching controls
- Requires climate controlled environment
- Placement criteria:
  - § Located near special trackwork
  - S Located within line of sight of special trackwork and equipment testing
  - **§** Requires access for maintenance
  - § Located at-grade

![](_page_67_Picture_8.jpeg)

# **Signal Bungalow**

![](_page_68_Picture_1.jpeg)

![](_page_68_Picture_2.jpeg)

# **Signal Bungalow: Interior View**

![](_page_69_Picture_1.jpeg)

![](_page_69_Picture_2.jpeg)

![](_page_69_Picture_3.jpeg)

![](_page_69_Picture_4.jpeg)

# **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

![](_page_70_Picture_8.jpeg)

### **Standard OCS Pole and Assembly**

![](_page_71_Picture_1.jpeg)

![](_page_71_Picture_2.jpeg)
# **Rail Signals**

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

- Bar Signals
  - § Integrated into traffic signals
  - Solution Operate as an independent or concurrent phase of the traffic signal





# **Rail Signals**



**Interlocking Signal** 



#### **Bar Signal**



# Next Meeting: Sept 10, 2015



## **More Information**



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

