Corridor Management Committee

October 15, 2015

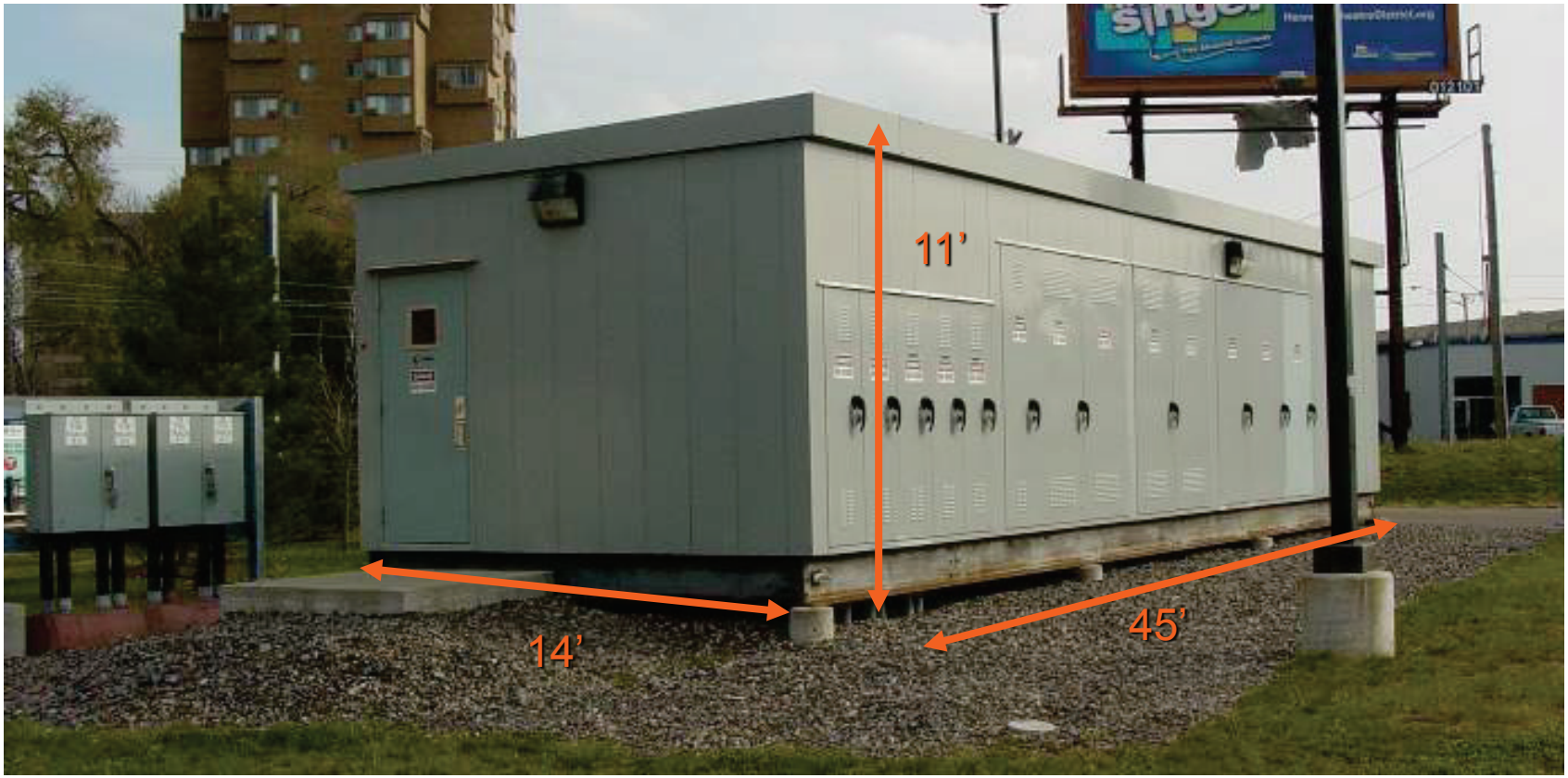
BROOKLYN PARK | CRYSTAL | ROBBINSDALE | GOLDEN VALLEY | MINNEAPOLIS

Today's Topics

- Technical Issue #15: Traction Power Substations
- Technical Issue #13: Freight Rail
- Technical Issue #14: Transmission Line Coordination
- Technical Issue #2: TH 55 Recap

Technical Issue #15
Traction Power Substation (TPSS) Locations

Standard TPSS: Blue Line



TPSS Example: Green Line

TPSS at 25th and U of M Transitway

TPSS Locations

- 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

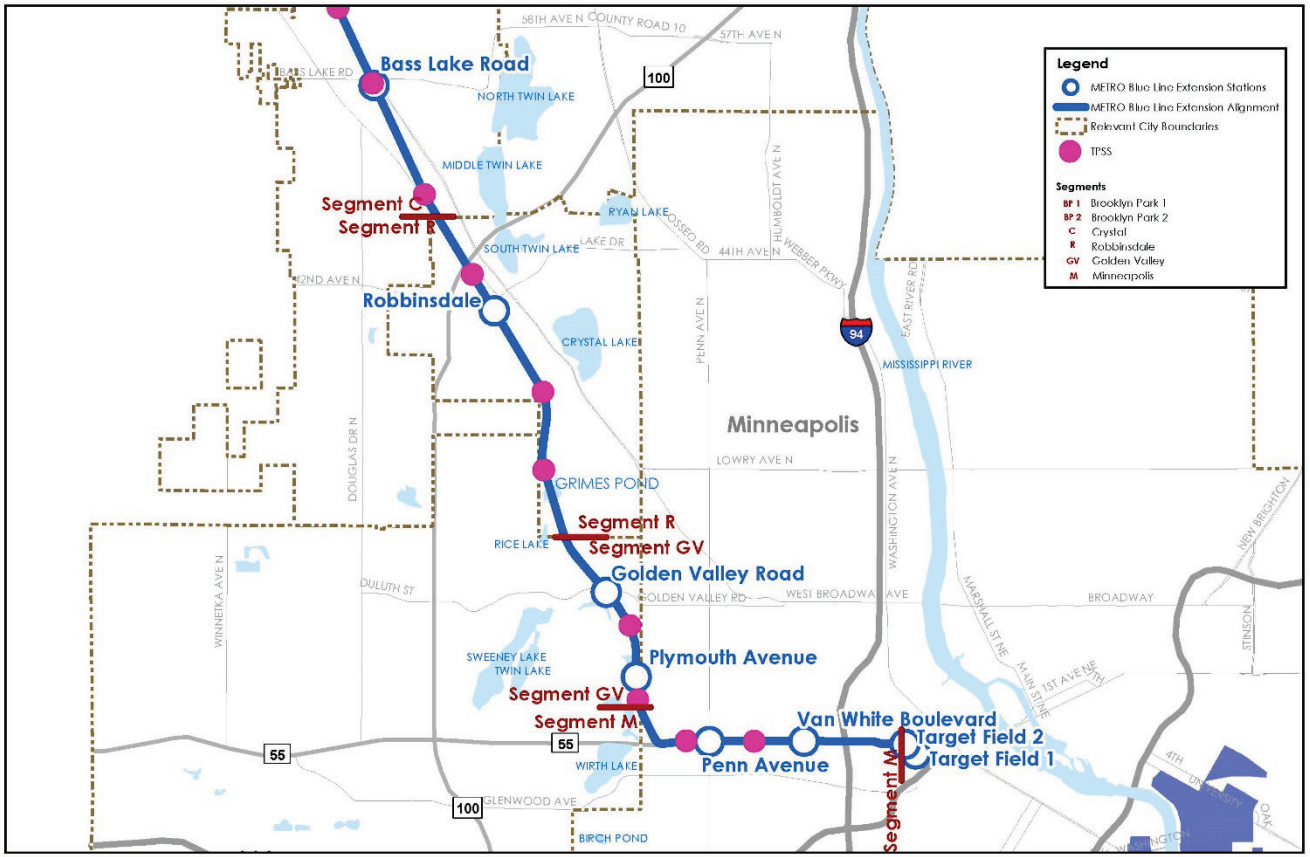
TPSS Locations

- Location determined by a load flow study
  - 17 TPSS locations identified
  - Initial location review and refinement by BPO staff
  - Additional location review with project partners as part of the IRT process

TPSS Locations

- Location review looked at parcel ownership and followed the following order in determination of the optimal sites
  1. Met Council property
  2. Hennepin County Railroad Authority property
  3. Other public agency property (MnDOT, County, City)
  4. Private property acquired as part of the LRT project
  5. Vacant private property

TPSS Locations: Minneapolis, Golden Valley, Robbinsdale and Crystal



METRO Blue Line LRT Extension TPSS

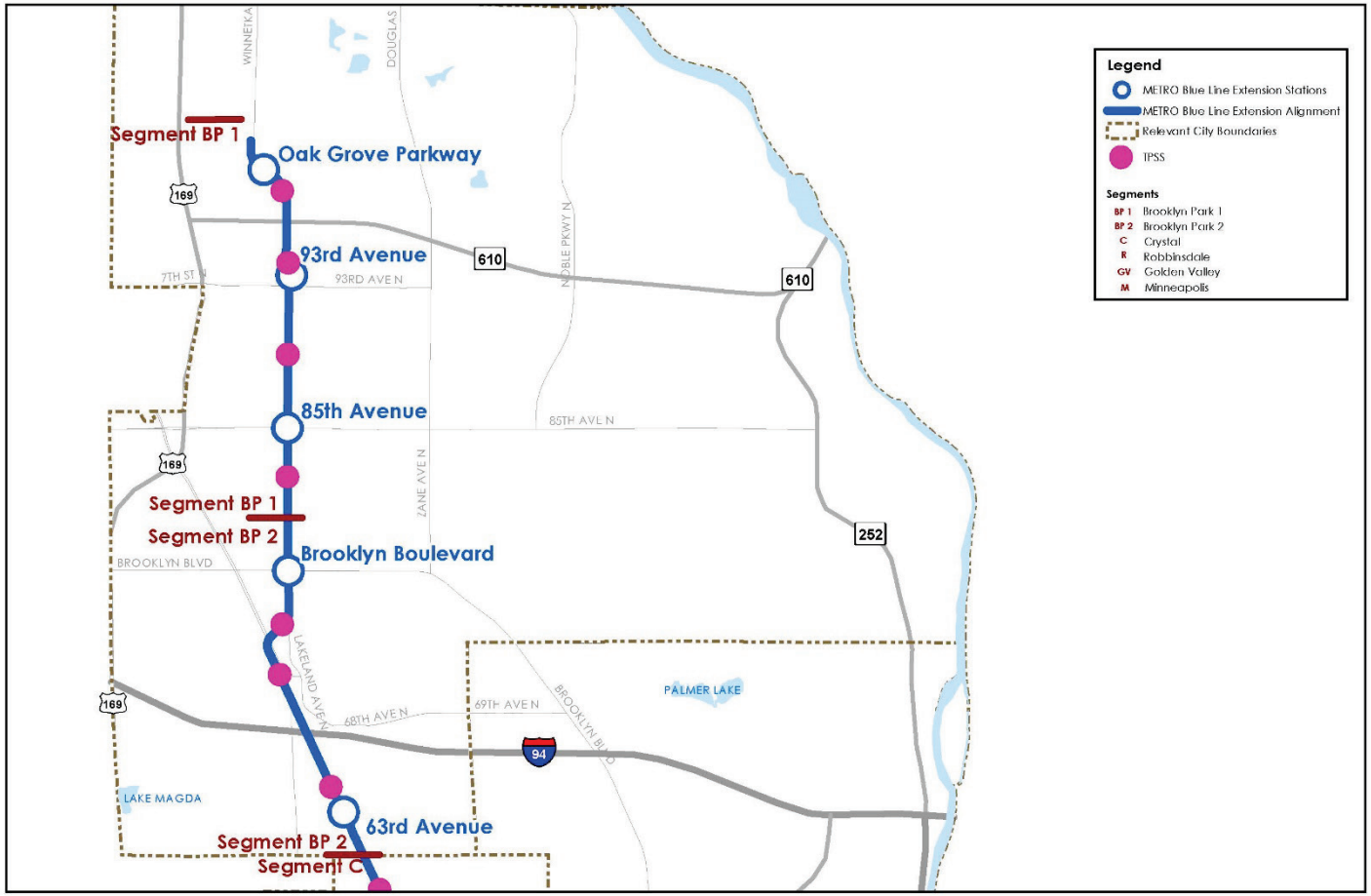
0 0.5 1 Miles

Kimley»Horn

METROPOLITAN COUNCIL

METRO BLUE LINE EXTENSION Bottineau LRT

TPSS Locations: Brooklyn Park



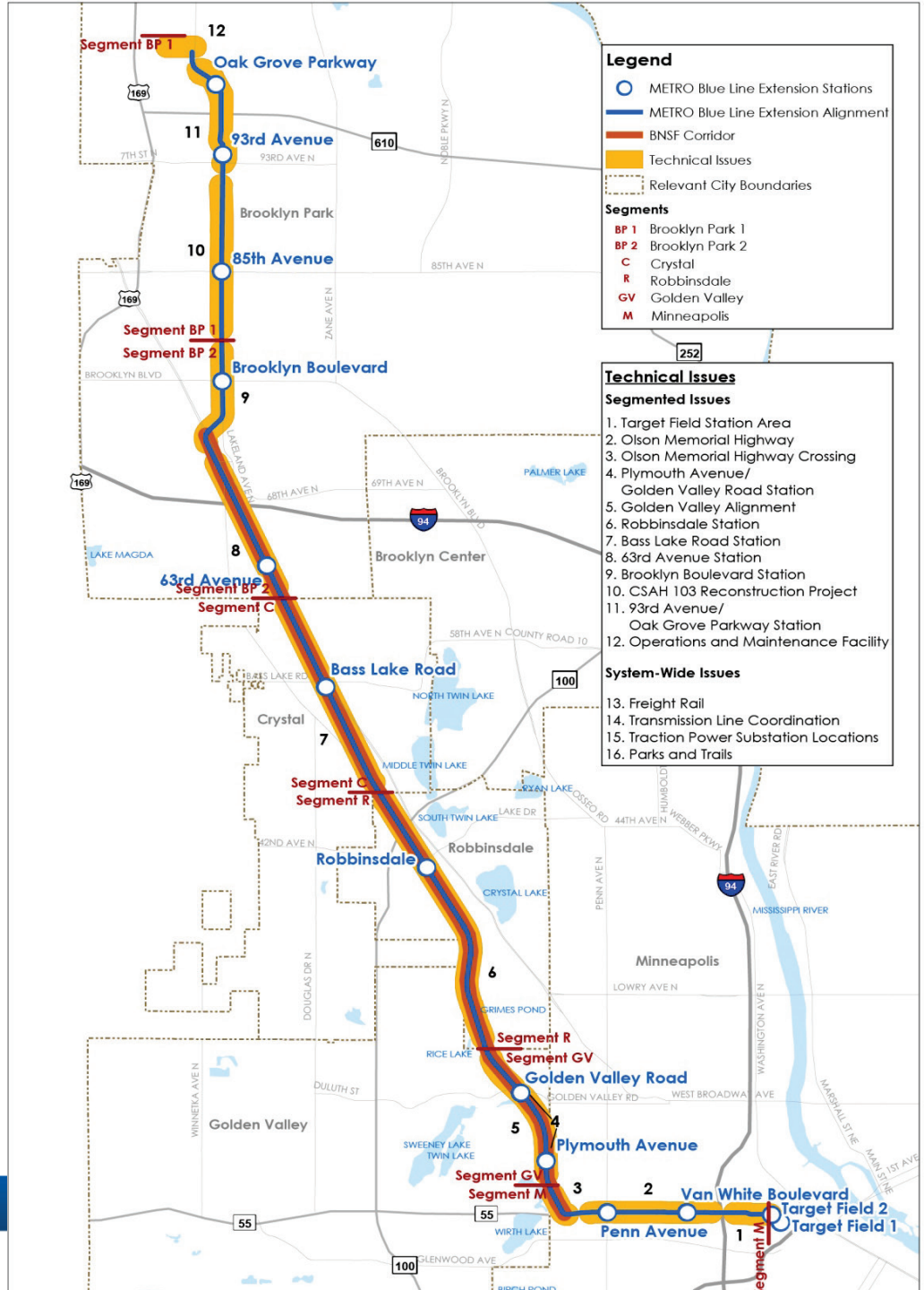
METRO Blue Line LRT Extension TPSS

TPSS Locations Recommendation

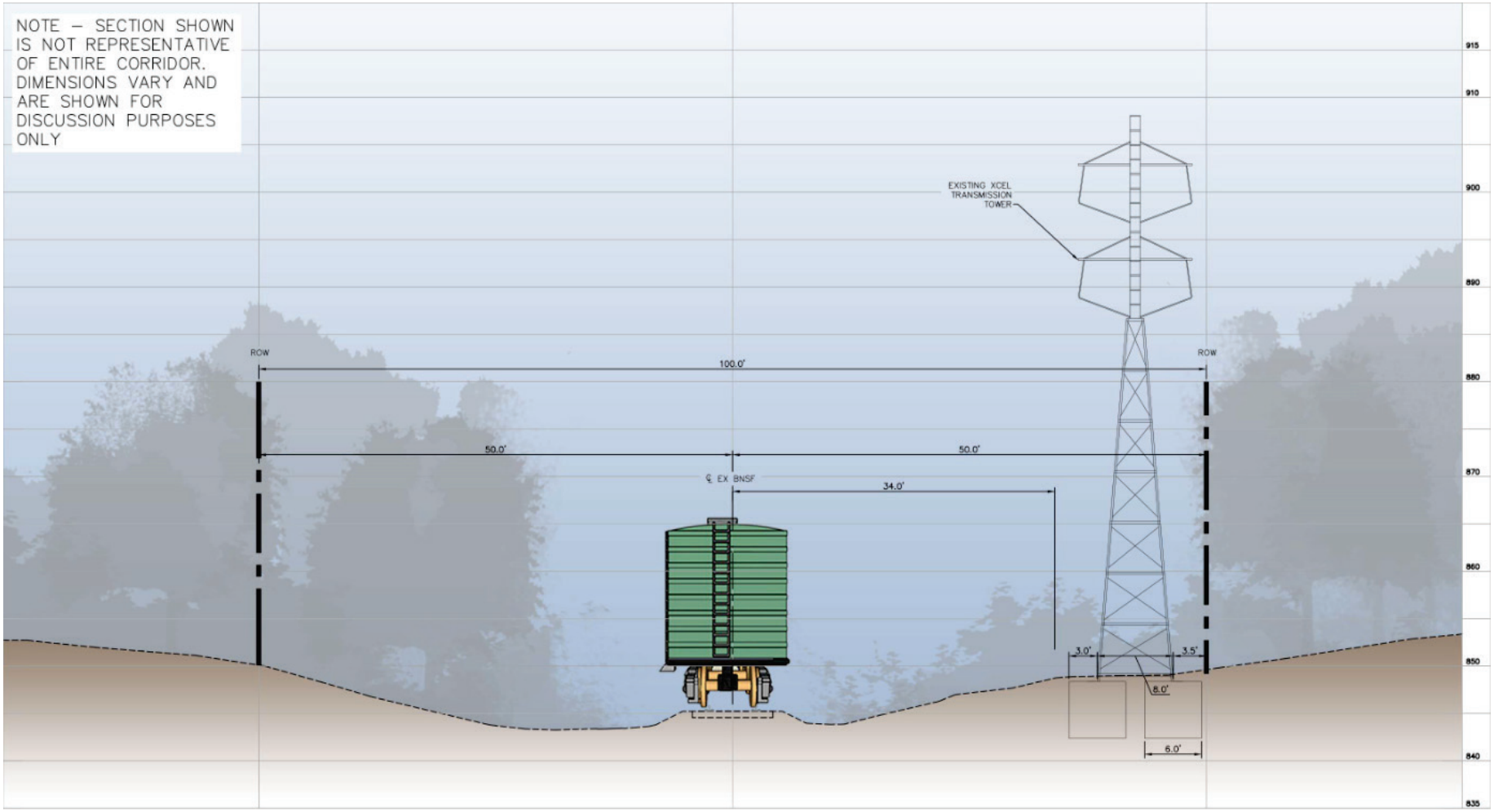
- Continue working with project stakeholders to finalize locations as identified

Technical Issue #13
Freight Rail

Freight Rail: BNSF Railway Corridor



Freight Rail: Existing Typical Section



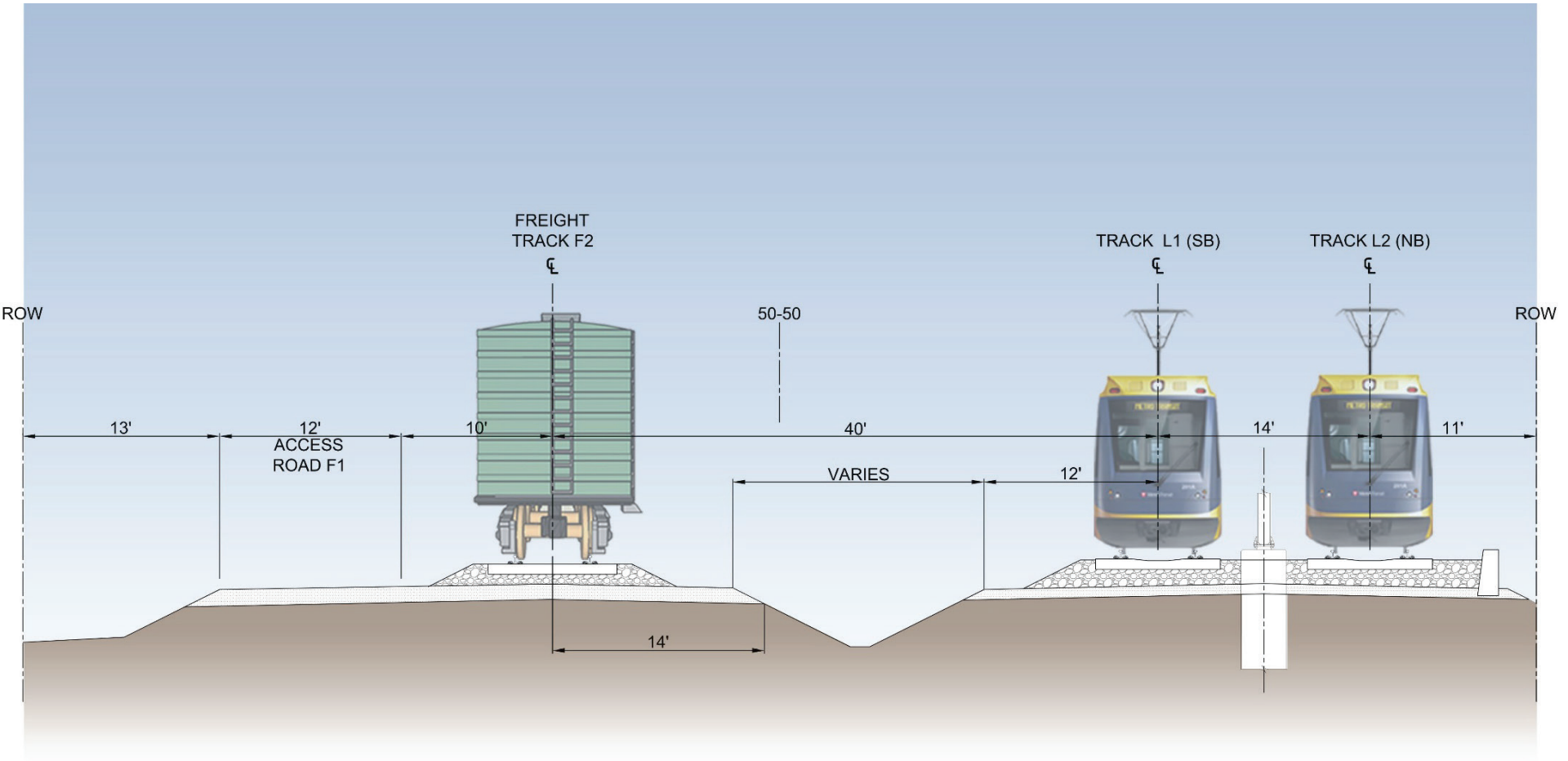
Freight Rail

- Issues to be resolved:
  - Location of shifted freight rail track
  - Location of LRT tracks
  - Design appropriate corridor protection treatments
  - Bridges and other structures
  - Soil stabilization
  - Accommodate Xcel Transmission Line (TI #14)
  - Constructability

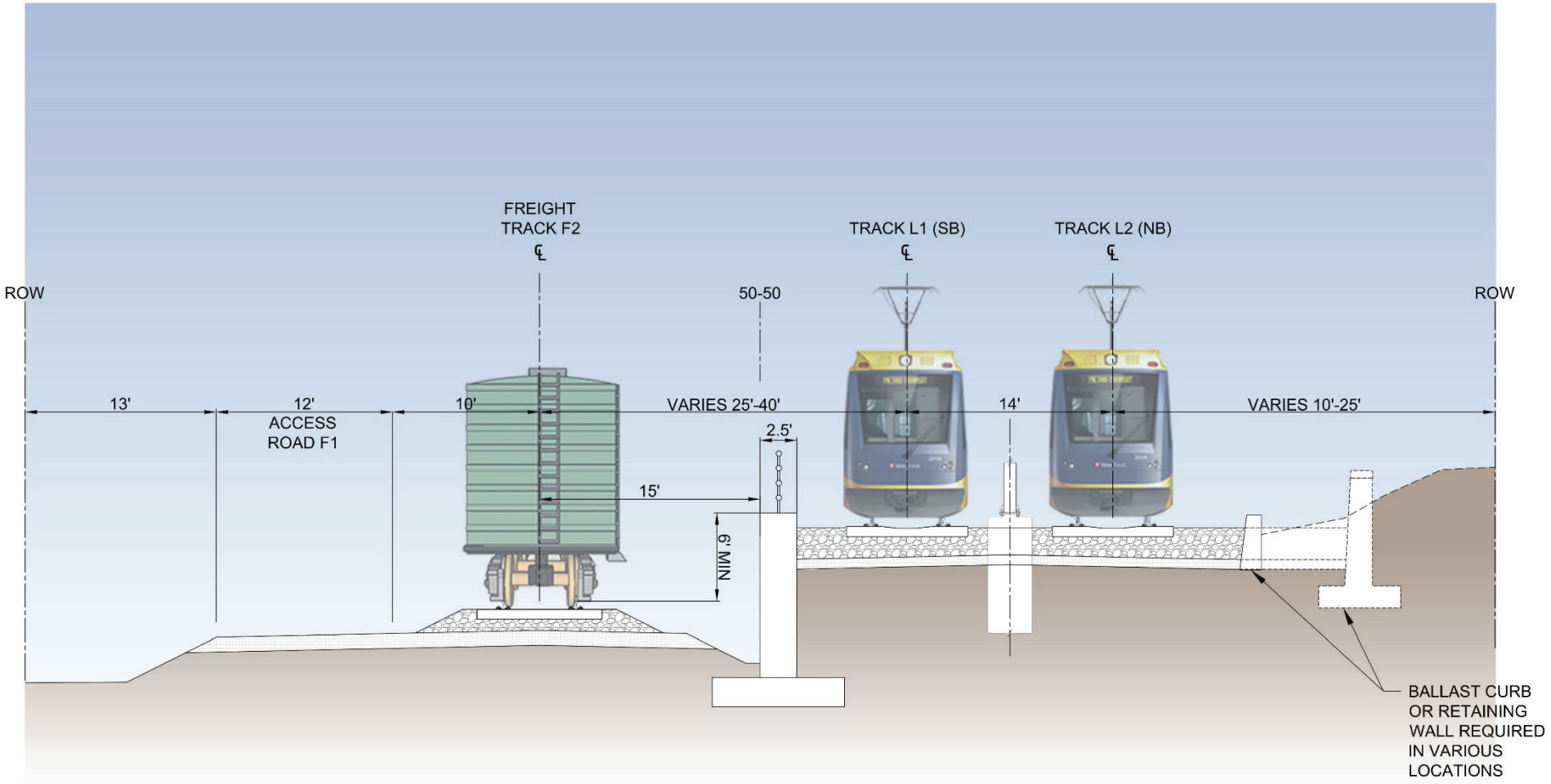
Recommendation: Typical Sections

- BNSF owns, operates on the approximate western 50 ft
- LRT operates on the approximate eastern 50 ft
- Preserve BNSF's ability to make future capacity improvements within the western 50 ft
- Design appropriate corridor protection treatments to ensure safe operations
  - Ditch (moat)
  - Retained embankment
  - Wall

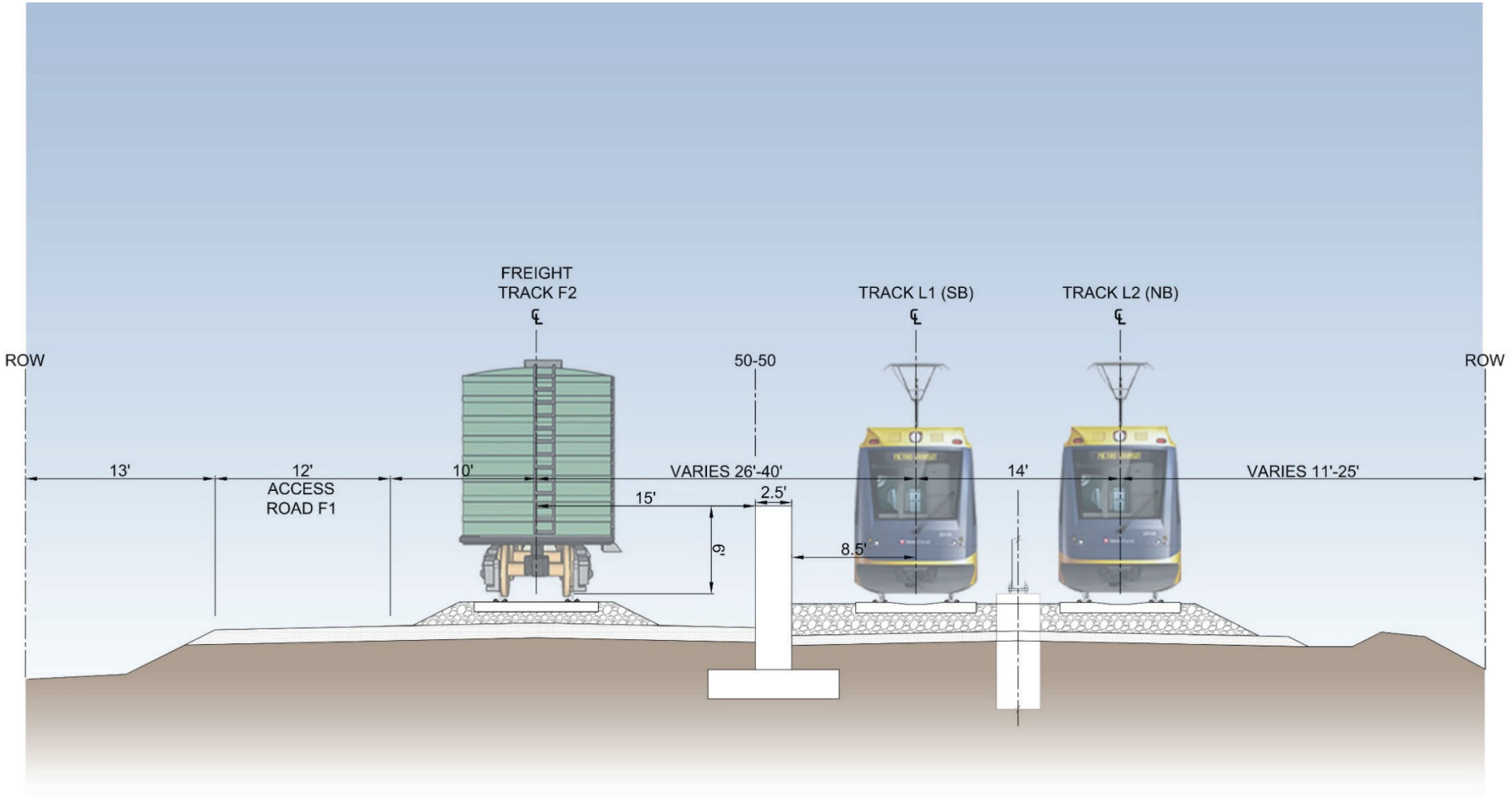
Typical Section: Ditch (Moat)



Typical Section: Retained Embankment



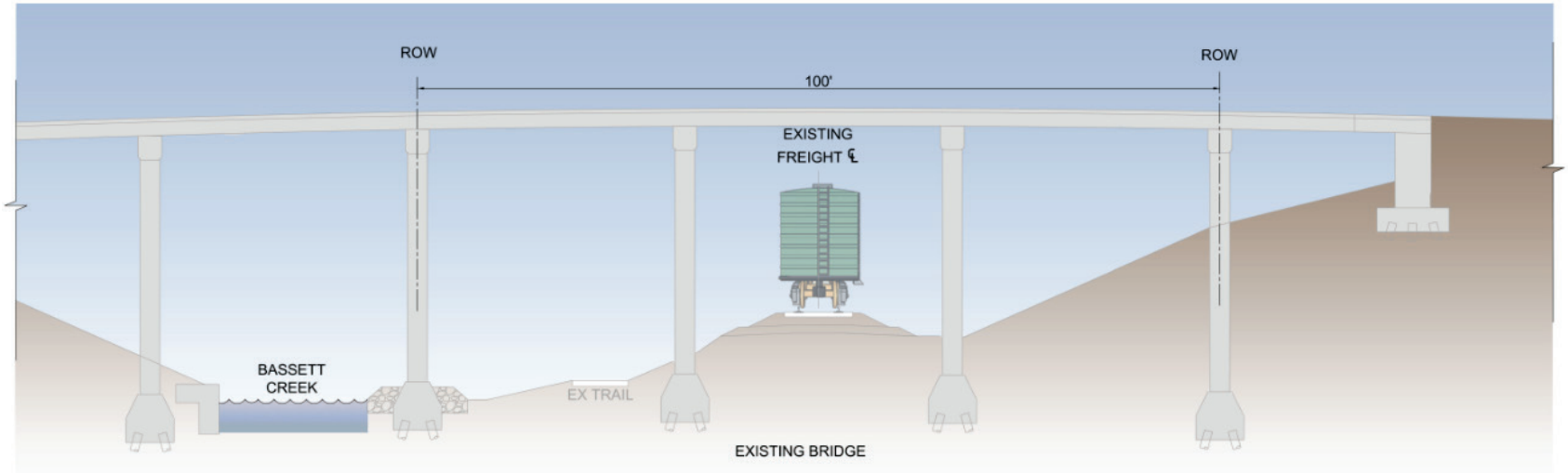
Typical Section: Wall

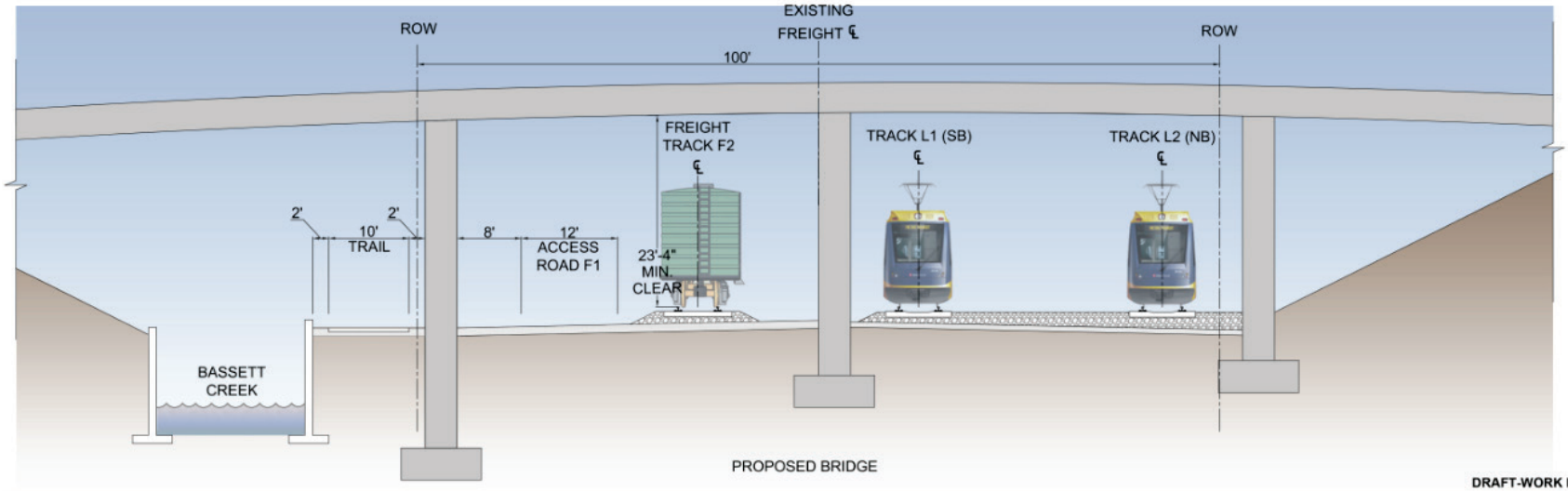


Recommendation: Bridge Overpasses

- Managing potential impacts to current/future BNSF freight service
  - Preserve BNSF's ability to make a future capacity improvement within the approximate western 50 ft
- Reconstruct four bridges over the BNSF corridor at Plymouth Ave, Theodore Wirth Pkwy, Golden Valley Rd, 36th Ave

Plymouth Avenue

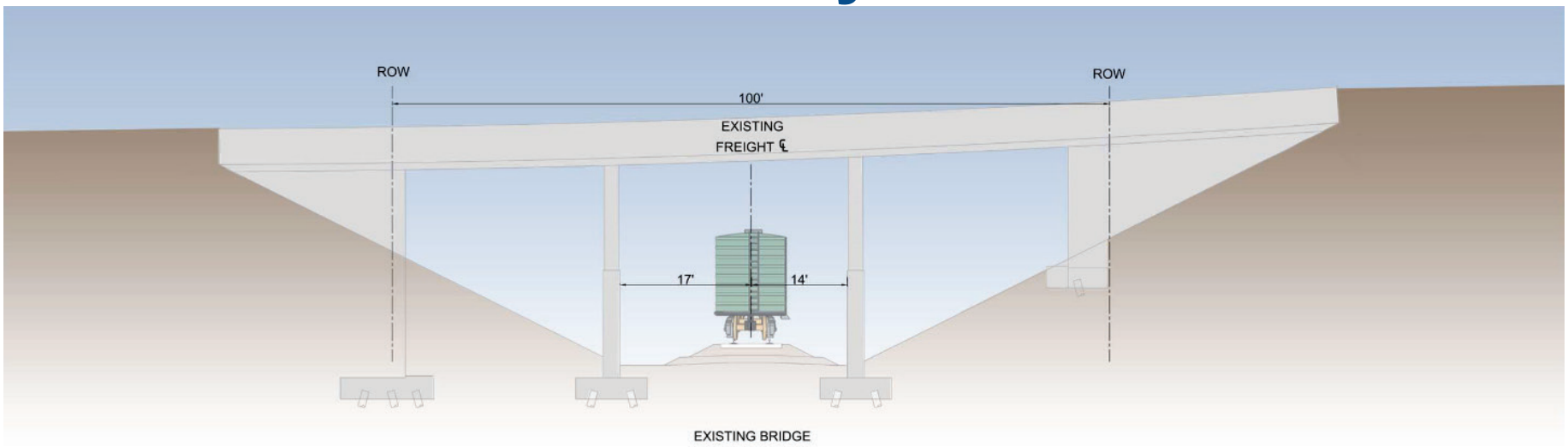




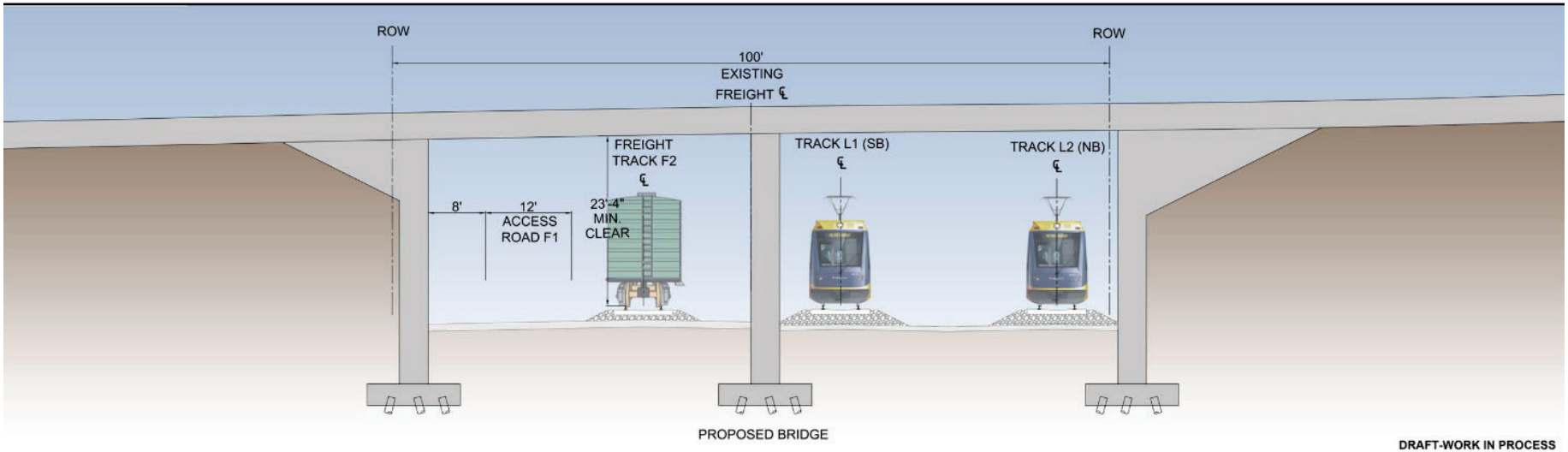
DRAFT-WORK IN PROCESS

METRO BLUE LINE EXTENSION
Bottineau LRT

Theodore Wirth Parkway



EXISTING BRIDGE



PROPOSED BRIDGE

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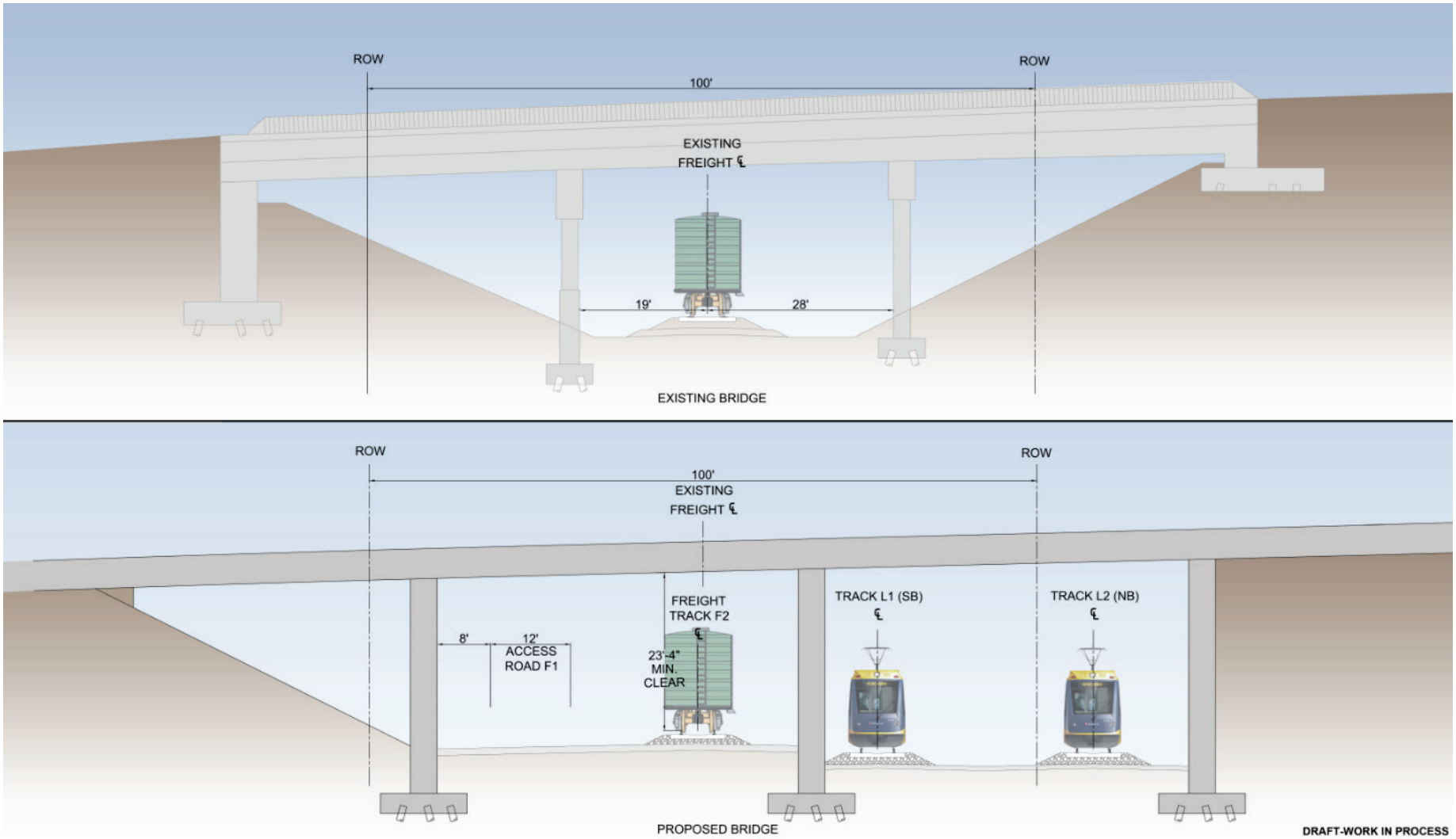
METRO BLUE LINE EXTENSION
Bottineau LRT

Golden Valley Road



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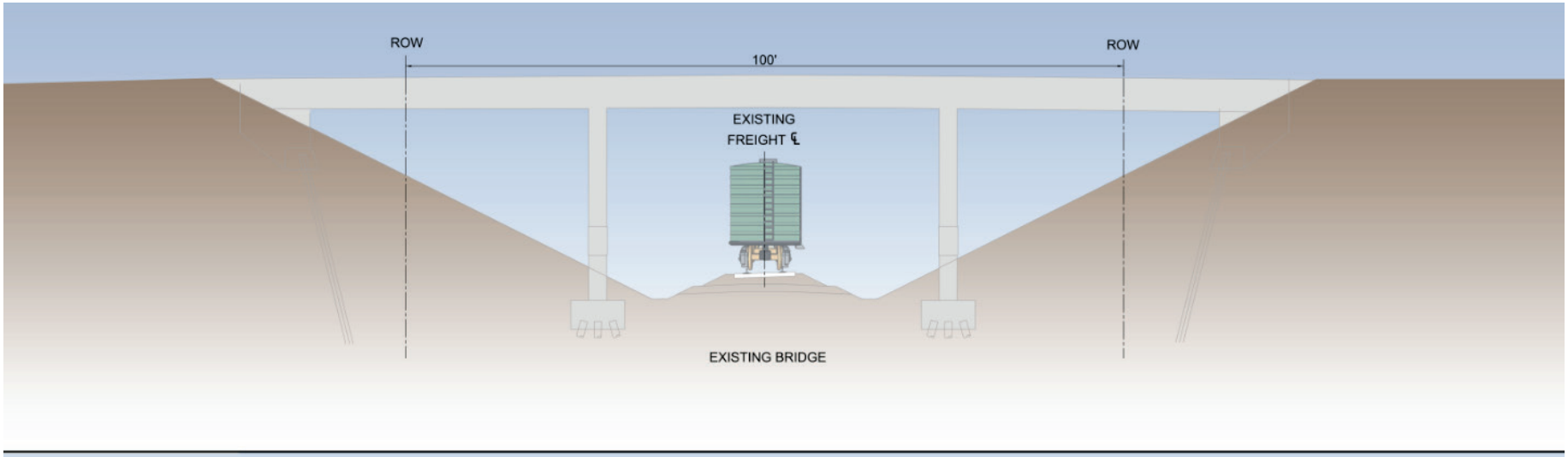
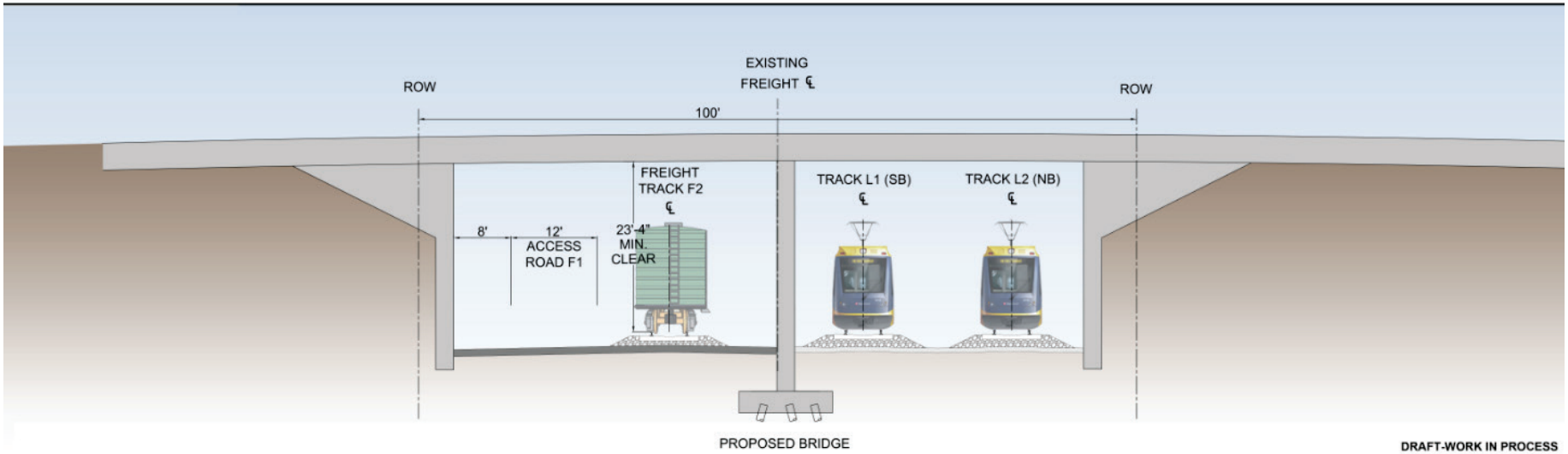
METRO BLUE LINE EXTENSION
Bottineau LRT

36th Avenue





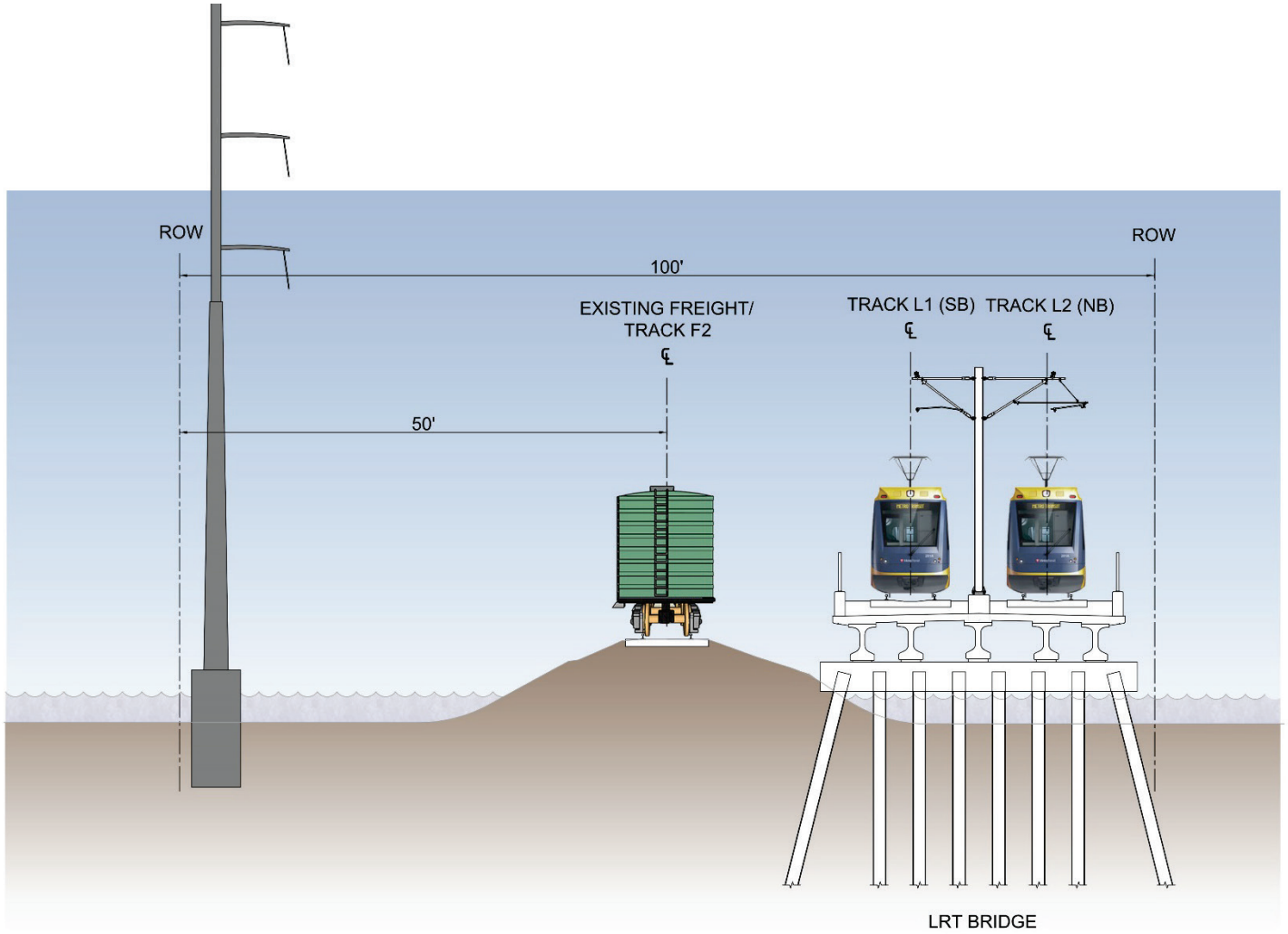
DRAFT-WORK IN PROCESS

METRO BLUE LINE EXTENSION
Bottineau LRT

Recommendation: Other Structures

- Geotechnical explorations found peat, organic clay, and soft clay, often at significant depth
- Use range of soil stabilization techniques necessary to support LRT and freight in some locations
  - Load transfer platform over controlled modulus columns, or similar methods, for freight and LRT as necessary south of 36th Ave
  - Conventional bridges for LRT over Grimes and Golden Valley Ponds

Typical Section: Grimes Pond



Recommendation: Right of Way along BNSF Railway Corridor

- BNSF owns, operates on approximate western 50 ft
- LRT operates on a permanent easement on approximate eastern 50 ft
- BNSF corridor typically 100 ft wide and accommodates project needs with few exceptions
  - Steve O's Bar and Grill: parking lot
  - Sawhorse Designers & Builders: parking lot
- Right of way needs adjacent to BNSF corridor
  - Permanent acquisitions limited, focused on station areas
  - Temporary acquisitions to be determined

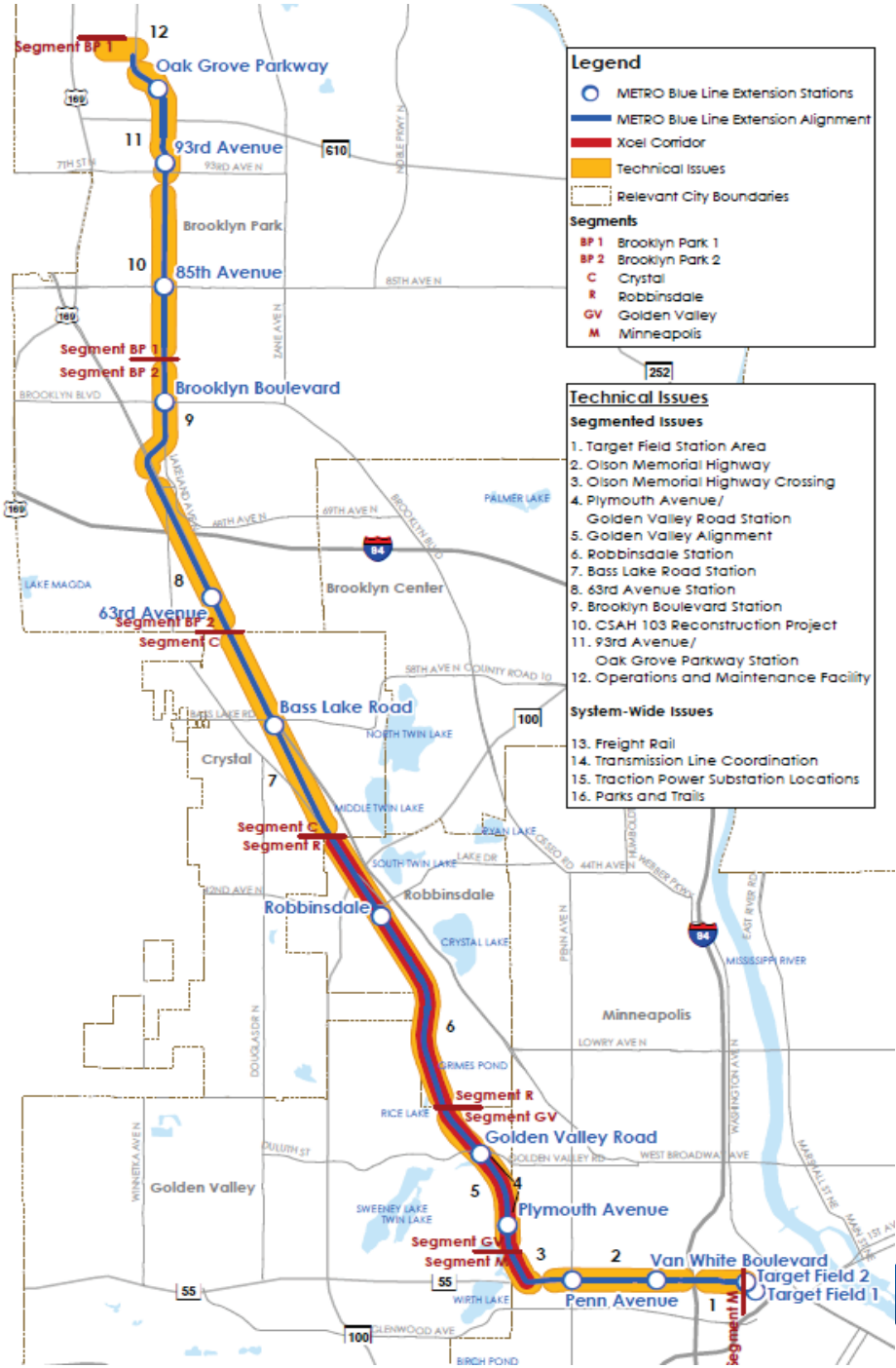
Recommendation: Grade Crossings

- Shared freight/LRT/road at-grade crossings
  - Vehicles and pedestrians at-grade
  - Quiet zone ready
- Final layout and traffic control devices to be determined as part of final design

Example: Existing Bass Lake Road Crossing

Technical Issue #14
Transmission Line Coordination

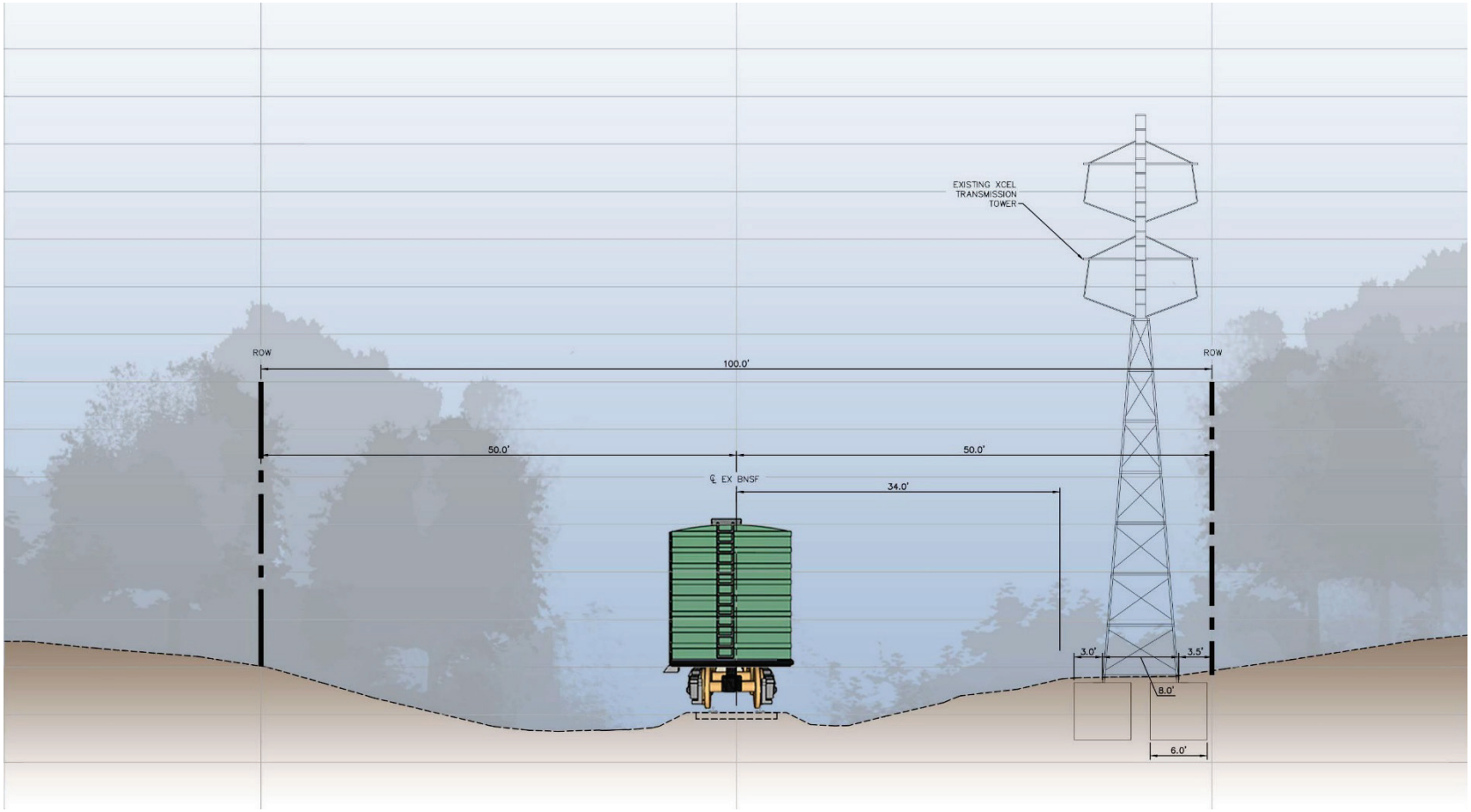
Transmission Line Coordination



Transmission Line Coordination

- Issues to be resolved:
  - Compatibility with freight rail improvements
  - Compatibility with LRT improvements
  - Constructability
  - Electrical clearances
  - Maintenance access in the future

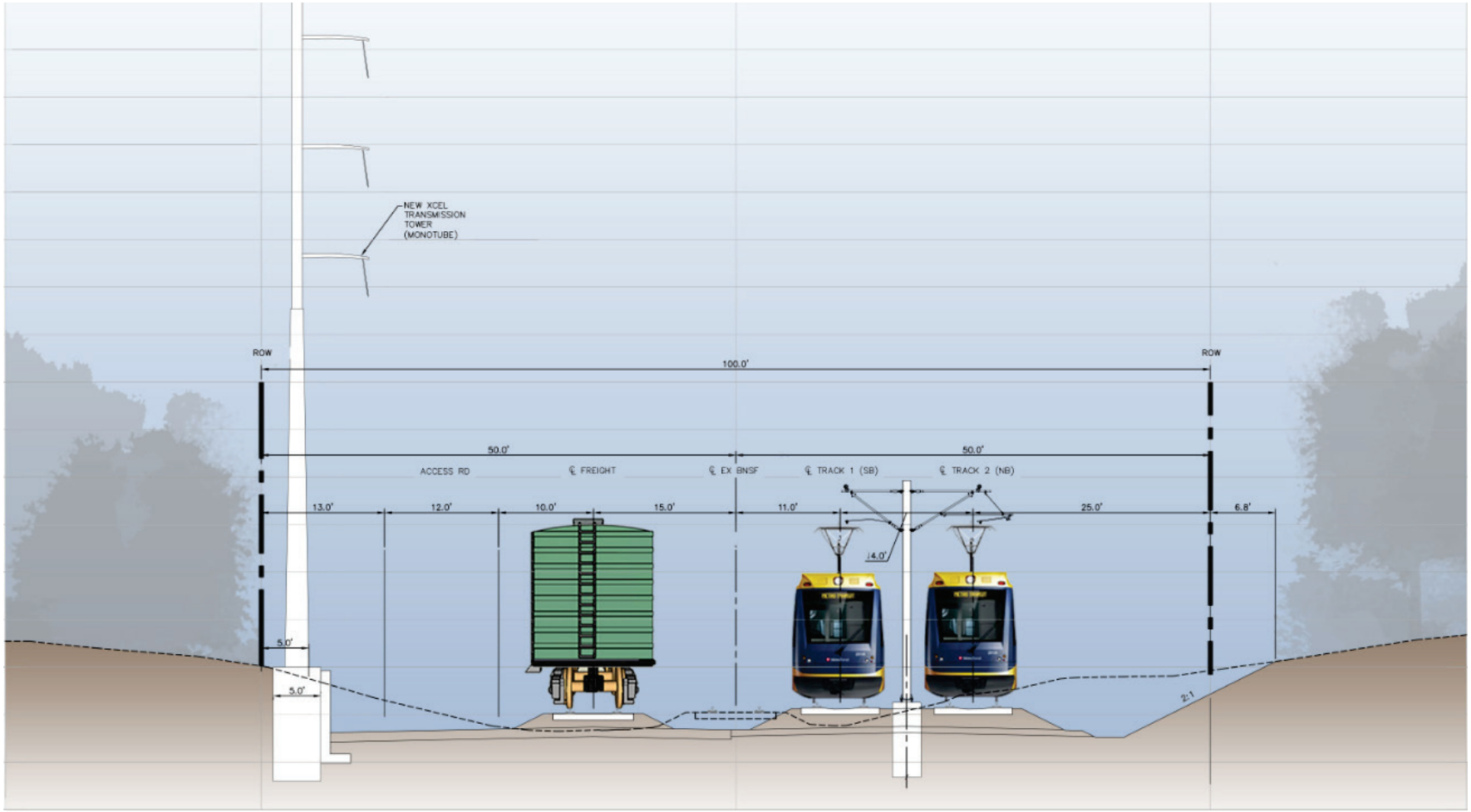
Transmission Line Coordination: Existing Steel Lattice Structures



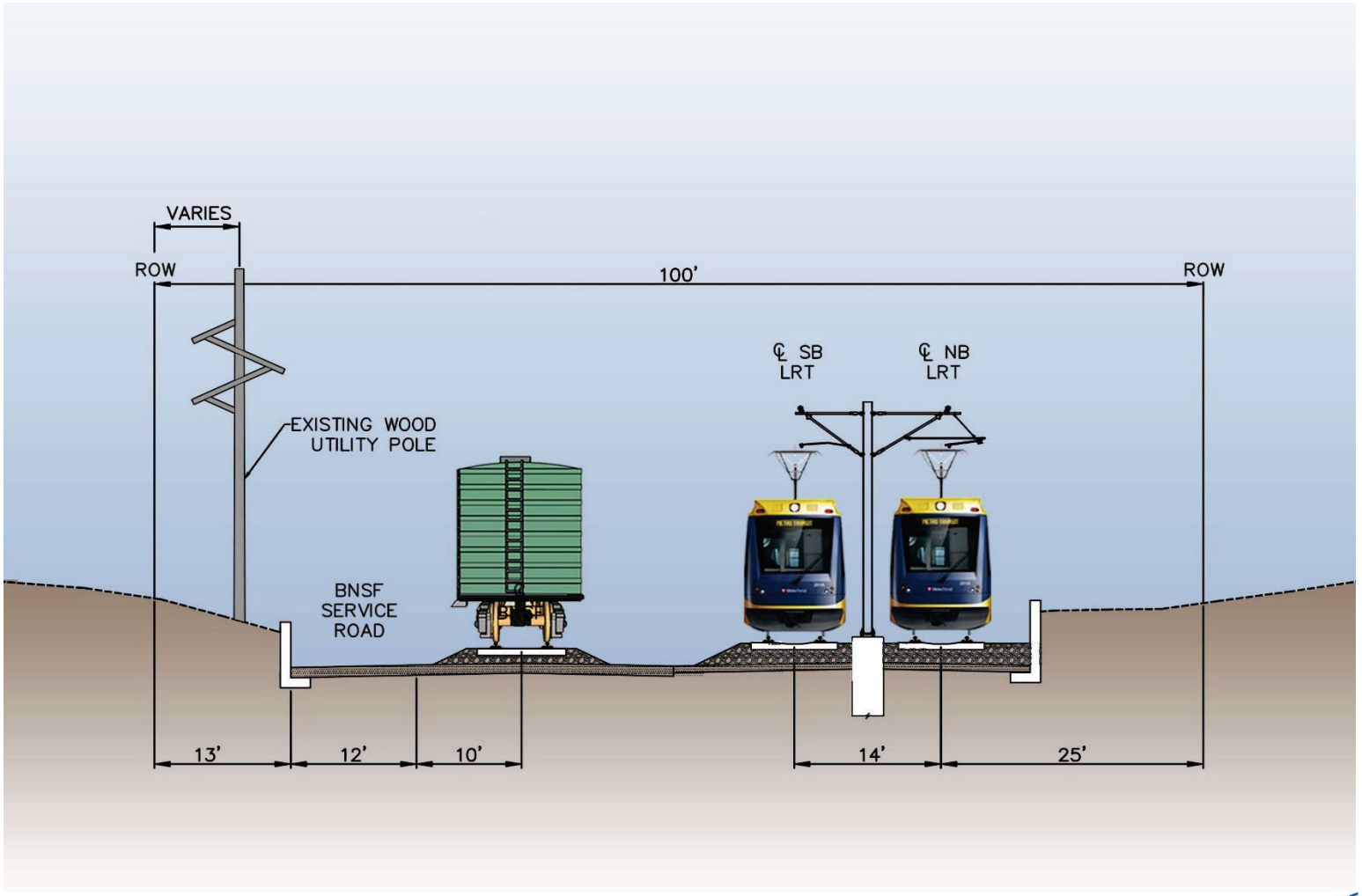
Transmission Line Coordination

- 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

Transmission Line Coordination: New Poles West of BNSF Track



Transmission Line Coordination: Existing Wood Poles West of BNSF Track



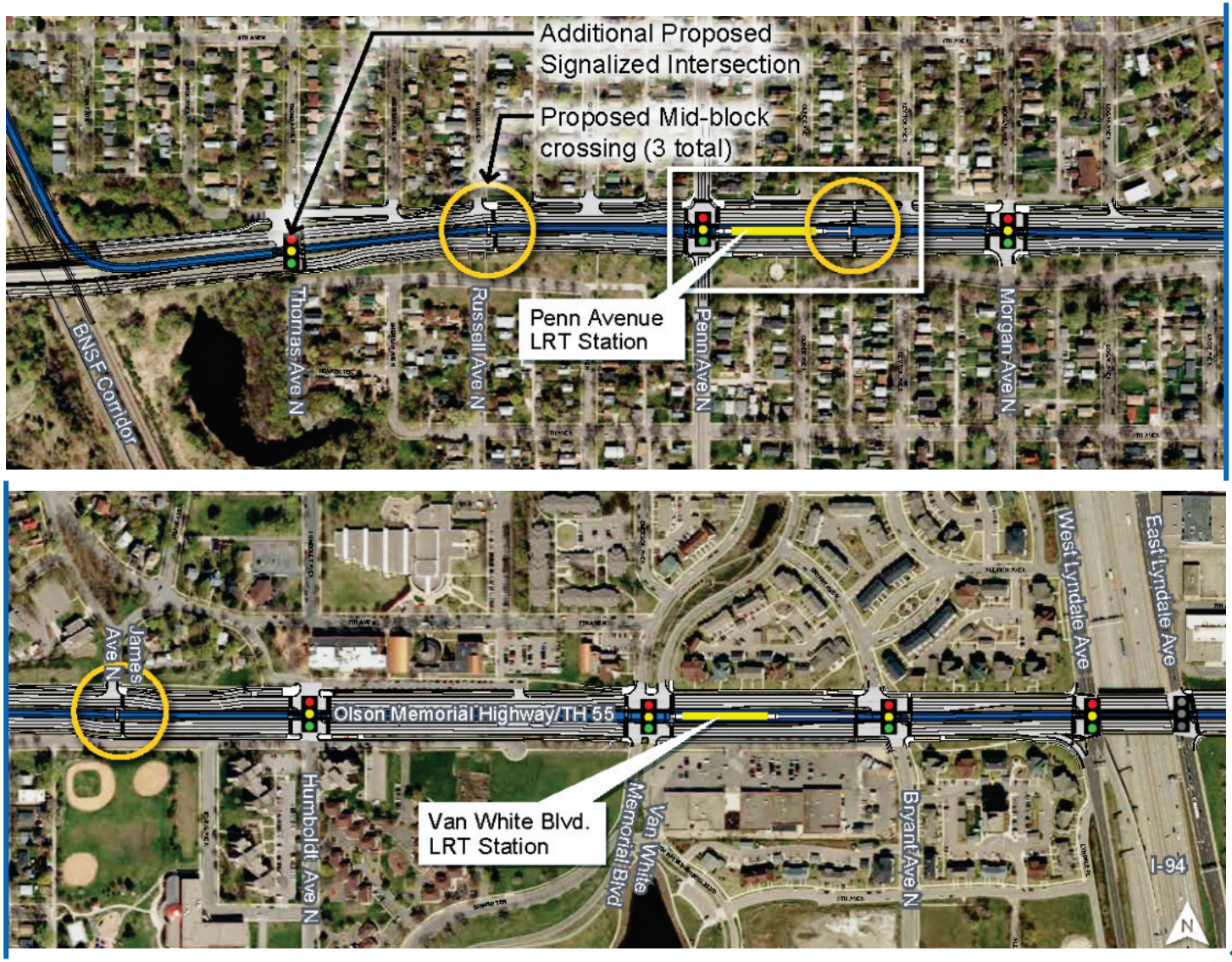
Transmission Line Coordination: Recommendation

- South of the Indiana Substation:
  - Shift the existing Xcel 115 kV transmission line to new poles west of the BNSF track

- North of the Indiana Substation:
  - Leave the existing Xcel 115 kV transmission line in-place west of the BNSF track

Technical Issue #2
TH 55 Recap

Olson Memorial Highway



Sidewalks on Olson Memorial Highway

Crossing Olson Memorial Highway

Intersection	Existing Crossing Length (ft)	Planned Crossing Length (ft)
Penn Ave N - West Side	139	138
Penn Ave N - East Side	138	141
Humboldt Ave N - West Side	121	120
Humboldt Ave N - East Side	121	120
Van White Memorial Blvd - West Side	125	135
Van White Memorial Blvd - East Side	129	143

Olson Memorial Highway

Design Parameter	Exiting Corridor	Planned Corridor
Lane Widths	Vary, 12’ - 17’	Consistent, 11’
Horizontal Alignment	Continuous and straight	Lane shifts to accommodate turn lanes and mid-block crossings
Traffic Signals	6 total – not to current standards, require maintenance	7 total (1 added at Thomas Ave) installed to current standards, new equipment
North/South Pedestrian Crossings	6 signalized and 9 unsignalized crossings – ADA compliance varies, limited refuge area	10 total at high-volume pedestrian crossings – signalized, protected median refuge and redirection
East/West Pedestrian Crossings	5’ sidewalk – poor condition, some gaps, north sidewalk offset 8’, south sidewalk at back of curb	6’ concrete sidewalk – continuous on north and south side
Bicycle Facilities	No facilities	Potential for a 10’ wide, 2-way cycle track in north boulevard from Thomas Ave to Van White Blvd
Boulevards	0’ - 8’, grass and street trees, fair condition	10’ buffer for sidewalks, new grass and street trees, additional snow storage
Lighting	Standard Minneapolis street lighting – low to adequate foot-candles and uniformity ratio	New fixtures, pedestrian lighting at stations, enhanced pedestrian lighting at crossings

Crossings at Signalized Intersections

Penn Avenue and Olson Memorial Highway - Looking Northeast

DRAFT - WORK IN PROCESS

Existing: OMH Pedestrian Crossing Time (3.5 ft/s) = 32 Sec (Min.), 43 Sec (Max.)

Proposed: OMH Pedestrian Crossing Time (3.5 ft/s) = 34 Sec (Min.), 48 Sec (Max.)

METRO BLUE LINE EXTENSION
Bottineau LRT

Crossings at Signalized Intersections

Penn Avenue and Olson Memorial Highway - View from Southeast corner

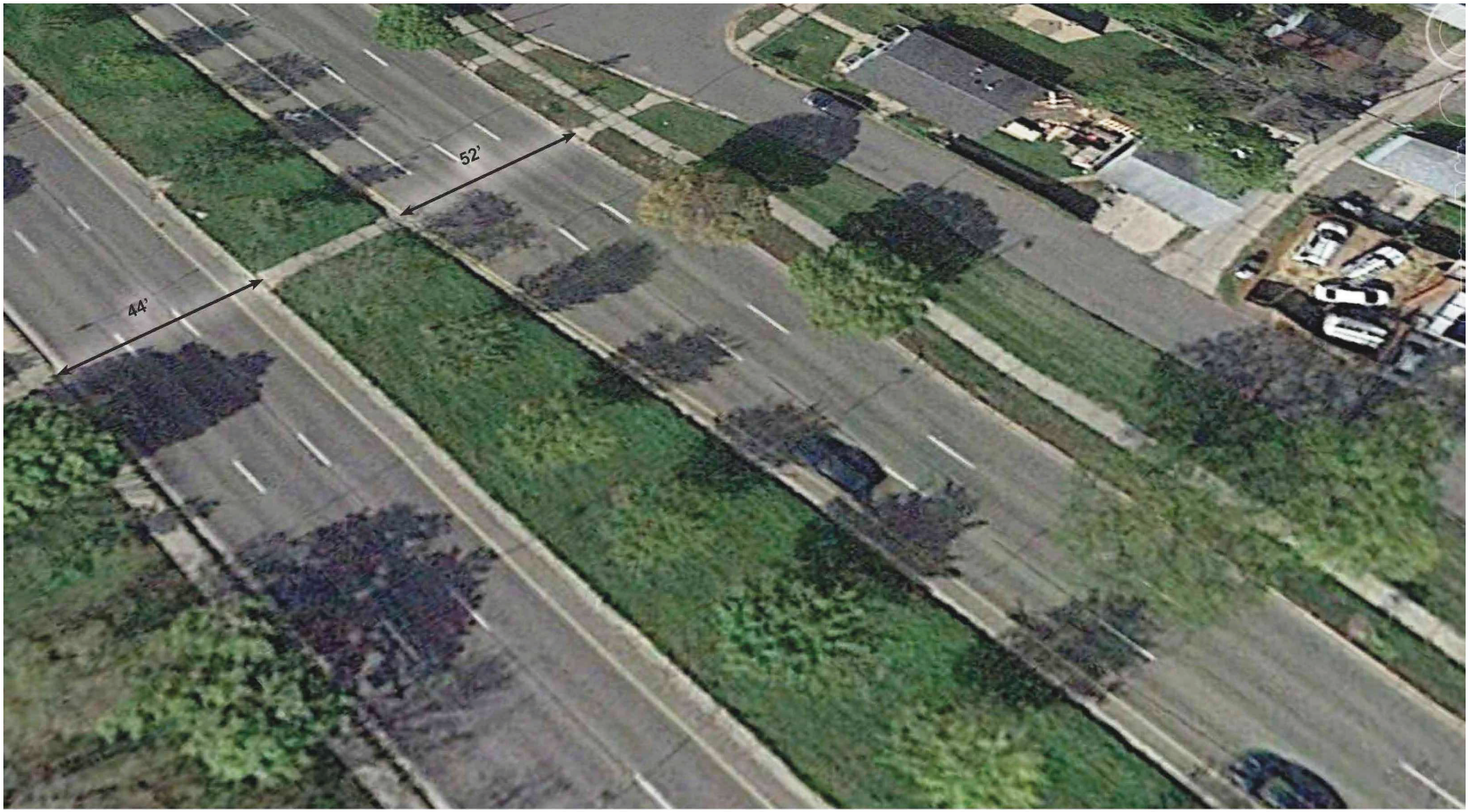
DRAFT - WORK IN PROCESS

Crossings at Signalized Intersections

Penn Avenue and Olson Memorial Highway - View from Southeast corner

DRAFT - WORK IN PROCESS

Mid-block Crossings



Olson Memorial Highway between Newton Ave and Oliver Avenue - Looking Northwest

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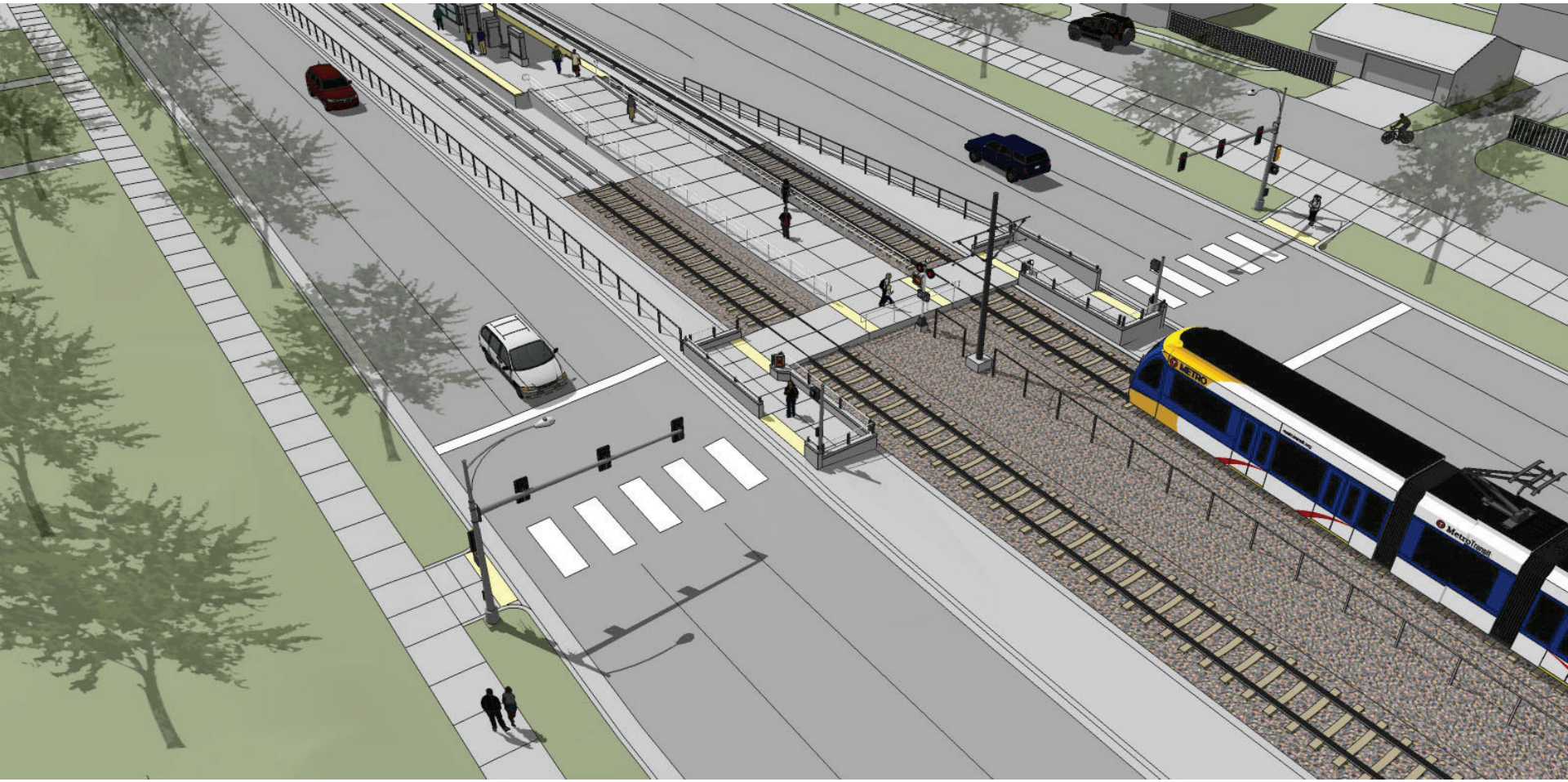
Mid-block Crossings and Sidewalks



Upcoming CMC Meeting Schedule

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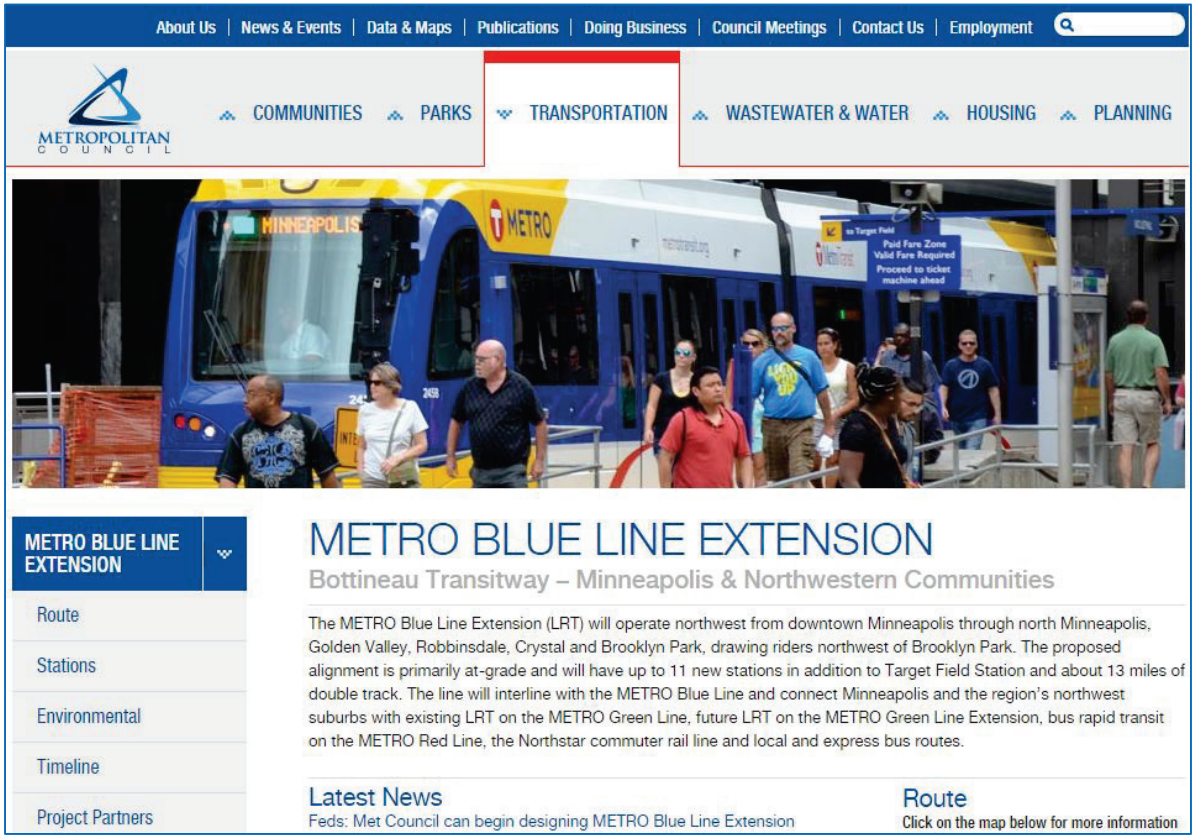
Date	Location	Time	Agenda
Oct 29	Brooklyn Park Community Activity Center Gardenview Room 5600 85th Ave N Brooklyn Park	1:00 PM – 3:00 PM	• Presentation of recommendation on revised project scope/cost estimate
Nov 12	Brooklyn Center Community Center Constitution Hall 6301 Shingle Creek Parkway Brooklyn Center	1:00 PM – 3:00 PM	• Final recommendation and CMC action on revised project scope/cost estimate
Dec 10	Brooklyn Center Community Center Constitution Hall 6301 Shingle Creek Parkway Brooklyn Center	1:00 PM – 2:30 PM	• TBD

More Information



Website: BlueLineExt.org

Email: BlueLineExt@metrotransit.org

Twitter: @BlueLineExt