



CTA's Red and Purple Modernization (RPM) Project in 2021: Progress, Challenges and Milestones

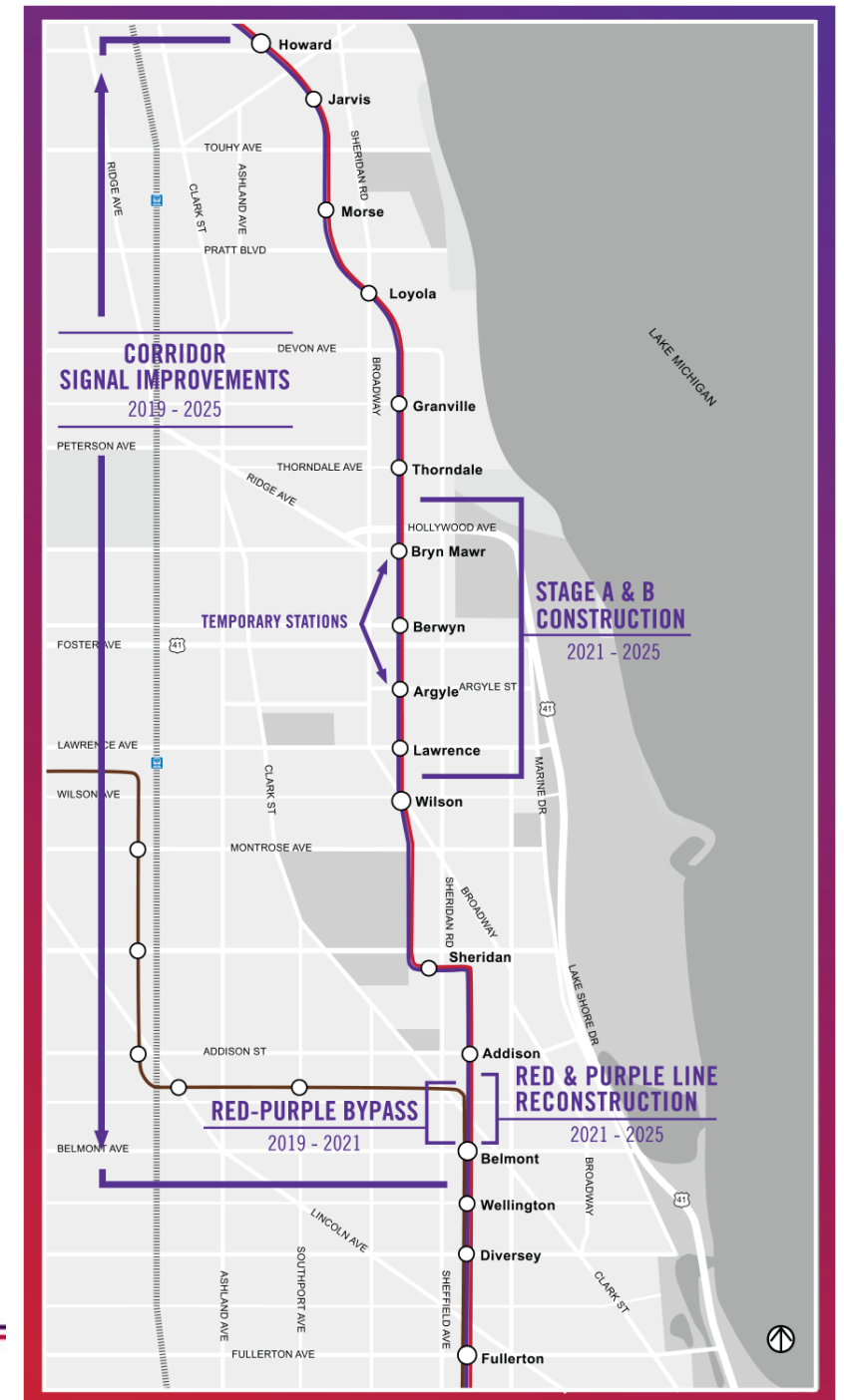
Presentation for the Sandhouse Rail Group at Northwestern University
October 26, 2021



RPM Phase One (2019-2025)

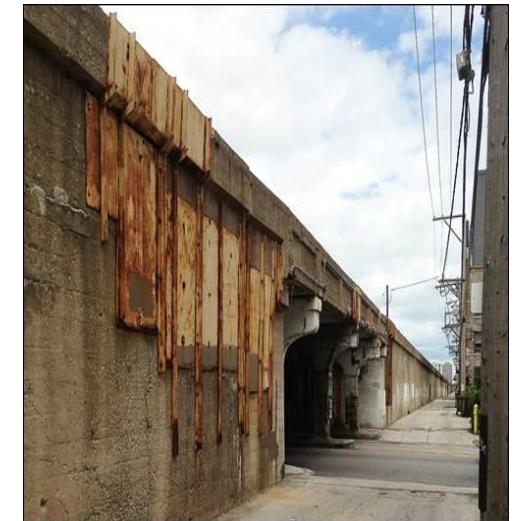
Phase One will bring maximum benefits to CTA customers across the rail system:

- **Red-Purple Bypass:** A rail bypass & track realignment to increase speed, reliability, and capacity
- **Lawrence to Bryn Mawr Modernization:** Reconstruction of six miles of track structure and four Red Line stations, including making them ADA accessible
- **Corridor Signal Improvement:** Signal improvement covering 23 miles of track, improving service reliability



RPM Phase One: Benefits to CTA riders and Chicago communities

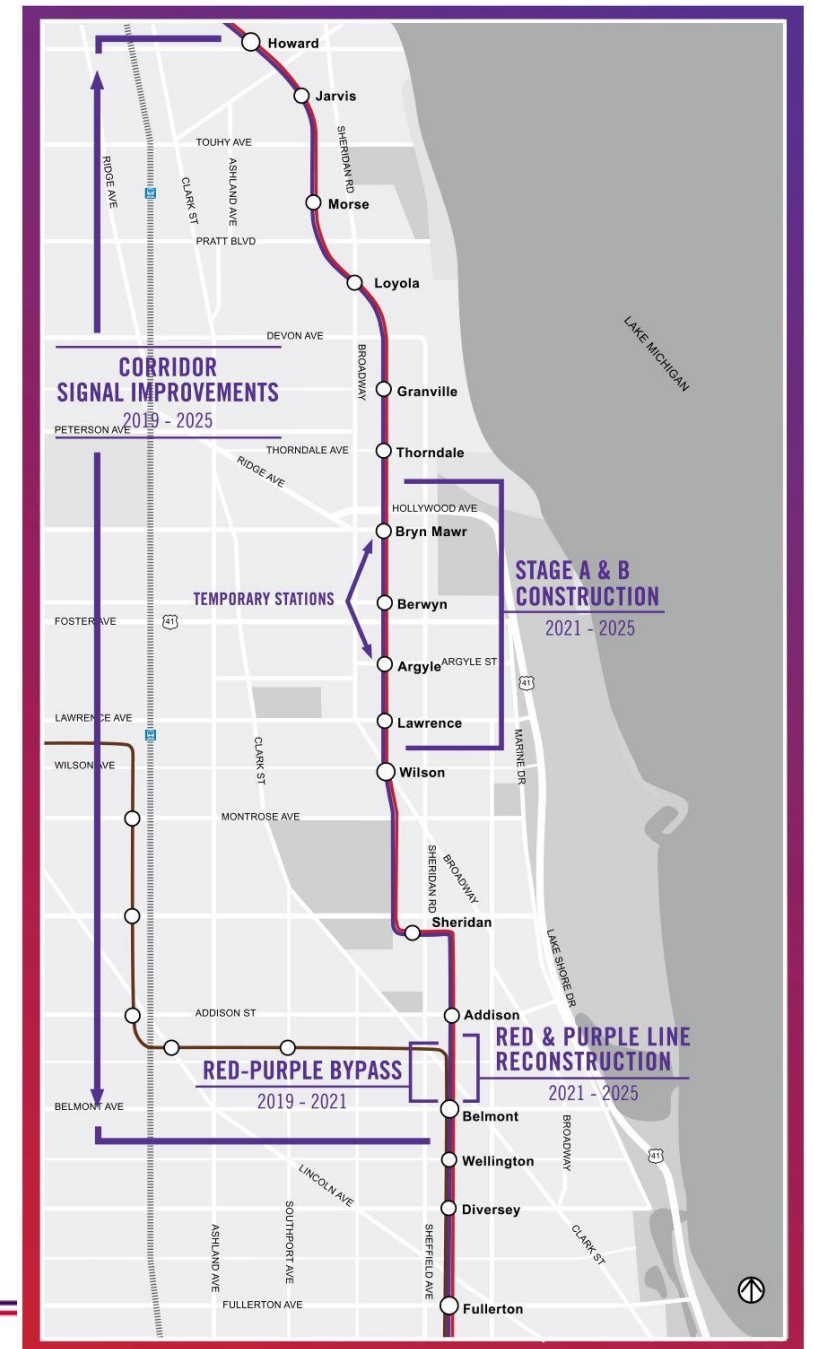
- Faster and smoother rides: New tracks, bridges, viaducts, and signal upgrades permit faster and quieter rides
- More frequent and less crowded service
- Four newly rebuilt Red Line stations that will be fully ADA accessible
- Economic growth through RPM programs for workforce development and increasing SBE/DBE participation
- Transit-oriented development post-construction



From top left, clockwise: Crumbling viaduct at Hollywood Ave. between Bryn Mawr and Thorndale Stations; crumbling retaining wall near Bryn Mawr Station; overcrowding and delays at Belmont, a major rail transfer point; and small, outdated platform at Bryn Mawr with no elevator access.

RPM: Project key dates

- 2018-2021: Advance Utility Relocation
- 2019: Project groundbreaking with Red-Purple Bypass
- 2020-2021: Lawrence to Bryn Mawr Pre-Stage work
- 2021: Red-Purple Bypass bridge to be completed
- 2021-2025: Lawrence to Bryn Mawr new station and track construction
- 2019-2025: New signal system installation
- 2021-2025: North Main (Red & Purple Line) reconstruction



RPM Project: Key issues and challenges

- Replacing a 100-year-old structural system and 50-year-old signal system
- Construction in a densely populated, urban environment and minimizing impacts to local communities
- Maintaining rail service during entire construction period (2019-2025)
- Meeting and exceeding DBE and workforce development requirements
- Preparing Transit Oriented Development for parcels post-construction



RPM Phase One: Transit Operations coordination



- Coordination with CTA Planning and Transit Operations groups helps facilitate construction around transit service, balancing critical access with maintaining sufficient service levels
- Total quantities and allowable combination of different types of service impacts were analyzed by CTA Planning and Ops
- They were woven into the RPM construction contract - - creating multi-lateral framework for planning work with acceptable impacts
- Regular weekly and semi-weekly RPM meetings with Planning and Ops keep lines of communications open, and provide advanced notice of upcoming work to facilitate coordination

Approaching RPM Project Milestone #1: Completion of the new Red-Purple Bypass

- Nearing completion of the rail bypass that will carry Kimball-bound Brown Line trains and eliminate bottleneck caused by 114-year-old rail junction (2019-2021)
- Rebuilding the Red and Purple lines underneath the bypass between Belmont and Cornelia (2021-2025) to straighten curve and increase train speeds.



Looking southeast, Kimball-bound Brown Line trains will travel on the new bypass, above, crossing over Red and Purple Line tracks.

Approaching RPM Project Milestone #1: Completion of the new Red-Purple Bypass



Left, Red-Purple Bypass will carry Kimball-bound Brown Line trains over Red, Purple Line tracks. Right, installation of the noise wall for the new closed-deck structure.



Completion of the Red-Purple Bypass

Oct. 13-27: Kenmore interlocking installation (round 1)

- What: Attach the Bypass to the Brown Line Kimball-bound tracks (track 2)
- How: A crane will hoist equipment and materials onto the ROW. A Speedswing and tie cranes will put the special trackwork into place and will secure it using hand tools.
- Service impacts
 - Oct. 15-18 and Oct. 22-25 line cuts between Belmont and Southport; Infrastructure will piggyback on part of line cut periods extended cuts to Belmont-Irving Park

Oct. 26-Nov. 9: Belmont “slide-in”

- What: Attach the Bypass just north of W Belmont Ave.
- How: New segment will be “driven” over to the existing tracks utilizing self-propelled modular transporters (SPMTs) and connected to the existing structure through bolted connections.
- Service impacts
 - The slide-in reroute will go into effect Monday 10/25 after morning rush; impact to customers is a platform boarding change only.



Bypass attachment, north end at N Kenmore Ave



New interlocking, facing west



Bypass, facing east



Bypass attachment, south end



After completion of Red-Purple Bypass bridge, North Main track (Red, Purple lines) reconstruction begins (2021-2025)



Left: Red and Purple Line track structure north of Belmont is a century old and contains an S-curve that slows train traffic and contributes to delays.

Right: A rendering of the new track over Newport Avenue that will be straightened.

The path to North Main Line reconstruction

November 2021

Micropile/shoring tower

Cut and throw installations

Bypass completed

December 2021

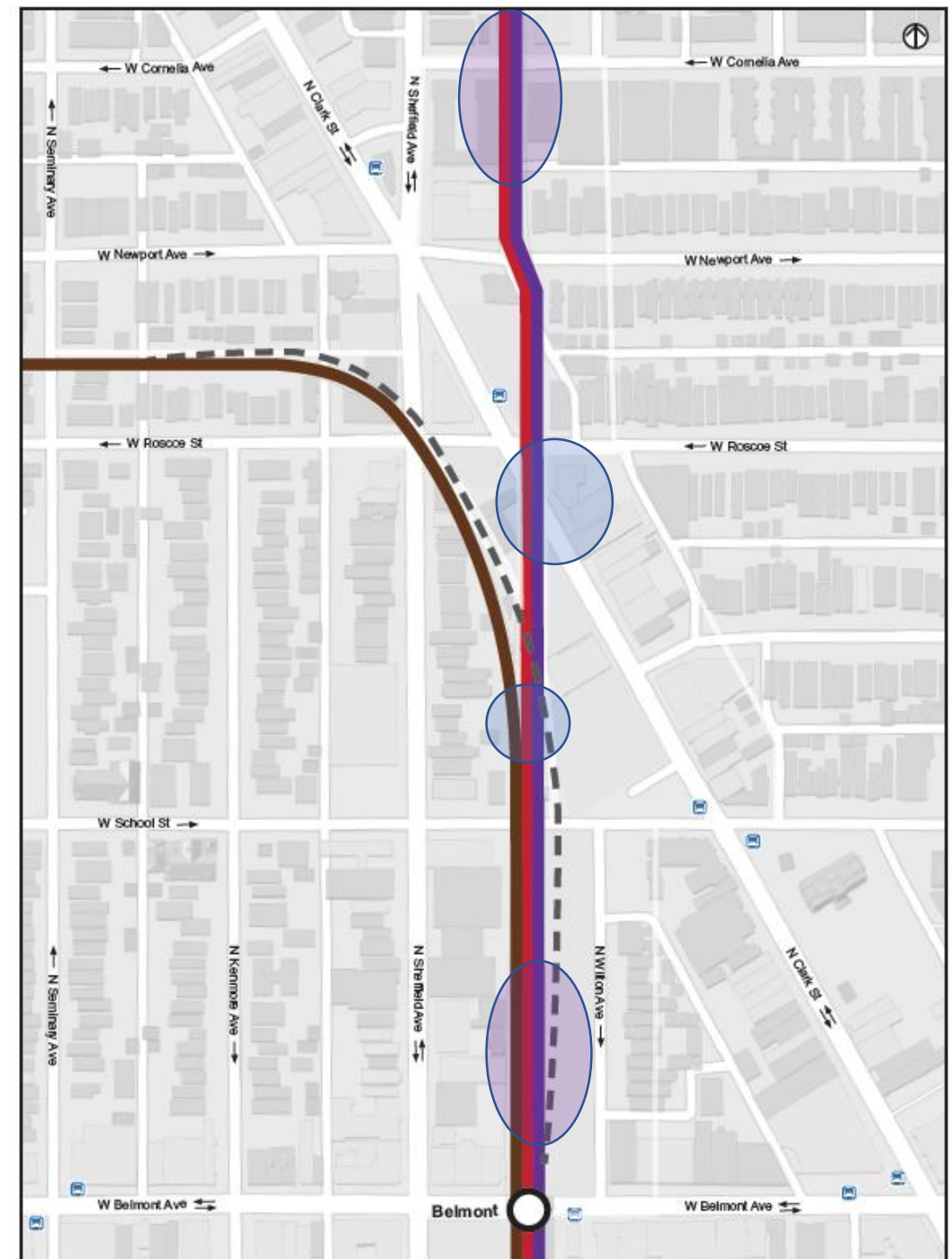
North Main track 1-2 demo and micropile work

January 2022

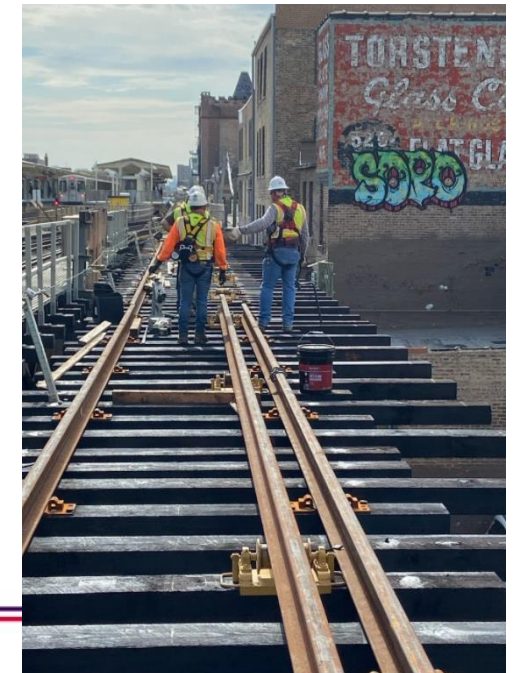
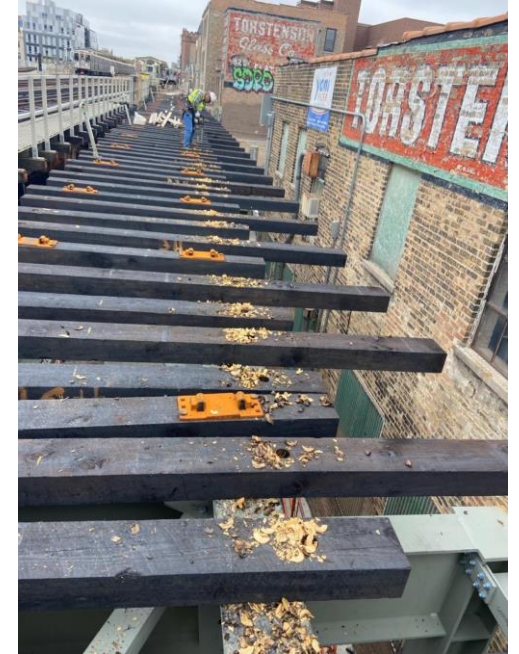
Tie-in temp track

Kenmore interlocking installation (round 2)

Relay house installation

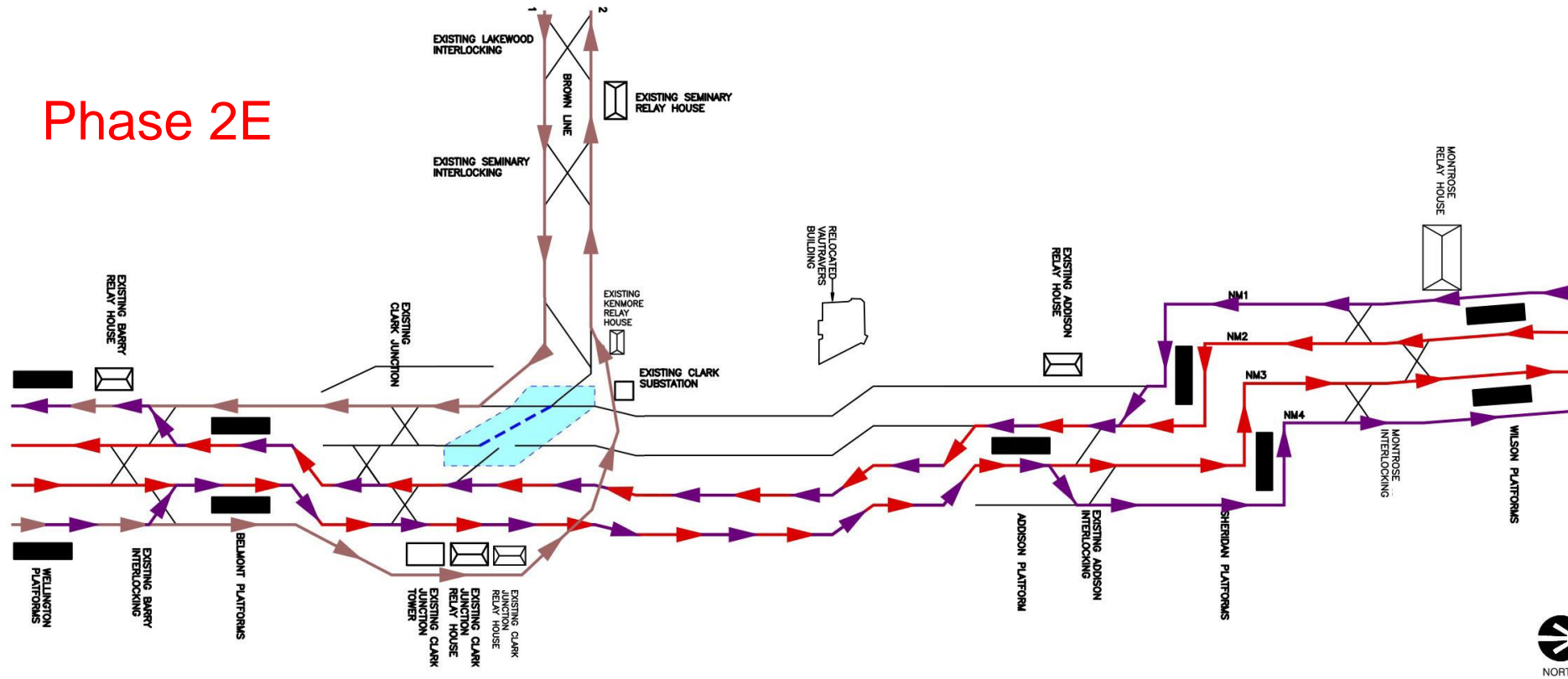


Temporary track construction



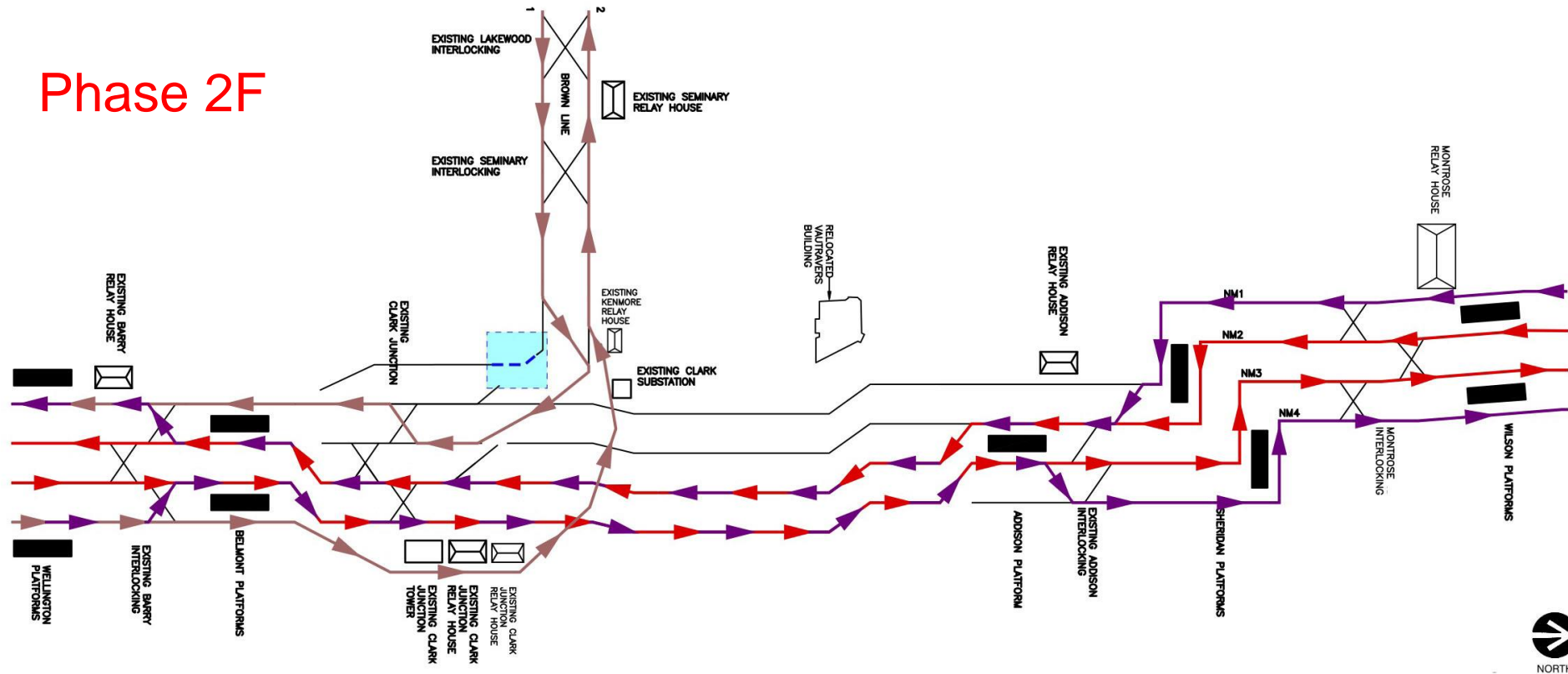
Connecting the temporary track: Phased reroutes

Phase 2E



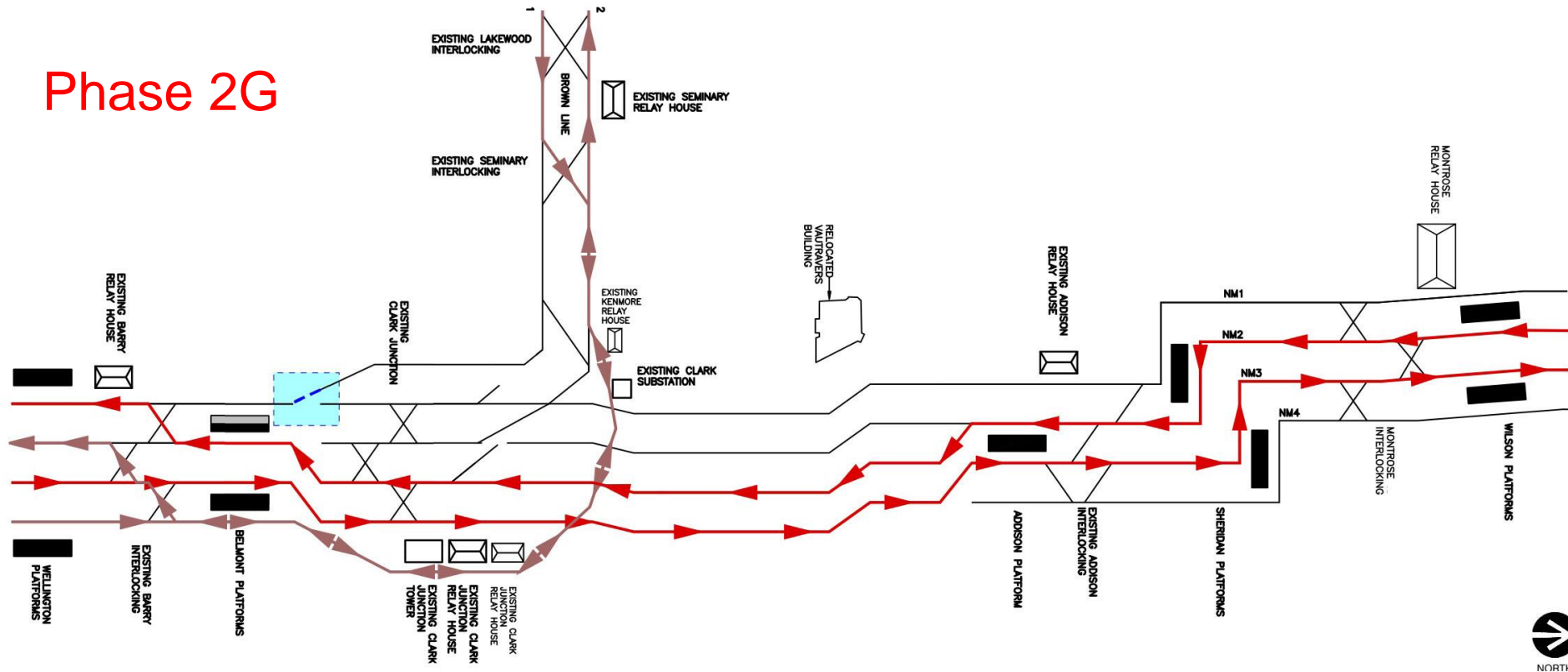
Connecting the temporary track: Phased reroutes

Phase 2F



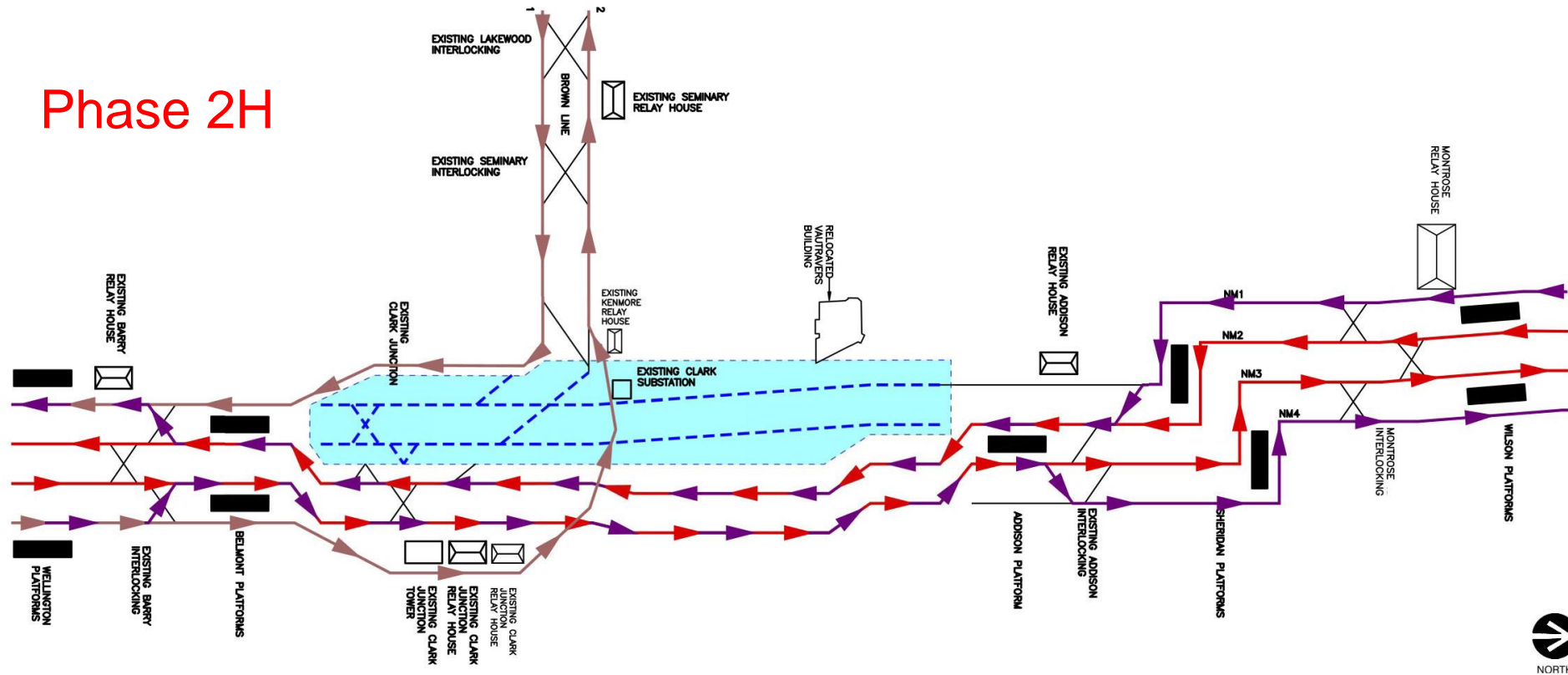
Connecting the temporary track: Phased reroutes

Phase 2G



Connecting the temporary track: Phased reroutes

Phase 2H



Lawrence to Bryn Mawr Modernization

Bryn Mawr

The Bryn Mawr station facility opened in 1922; at right, rendering of the new Bryn Mawr station



Berwyn

The Berwyn station opened in 1923; at right, rendering of the new Berwyn station



Lawrence to Bryn Mawr Modernization



Argyle

The Argyle station facility opened in 1922; at right, rendering of the new Argyle station



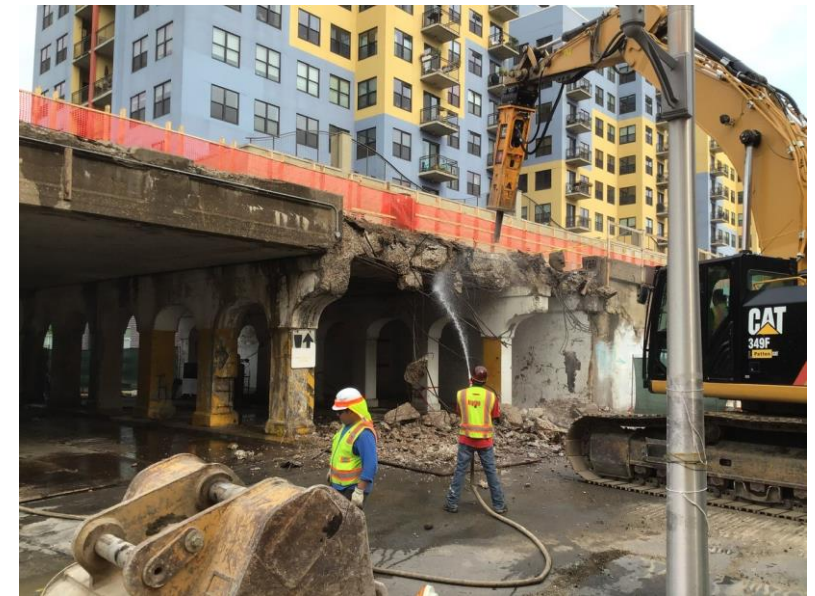
Lawrence

The stationhouse at Lawrence opened in 1923 and closed in 1995, replaced with metal fencing. Right: rendering of the new Lawrence station

Demolition work: Summer/fall 2021



W Hollywood viaduct



W Catalpa viaduct



W Bryn Mawr viaduct



Drilled shaft work: Summer/fall 2021



Drill rig incident 10/6/2021

- Walsh-Fluor, the contractor for the RPM project, was drilling a new caisson (track foundation) south of Bryn Mawr from track level when the drill rig fell onto the alley below
- Rig's crane collided with electric pole and a car.
- No injuries reported
- Drill rig was stabilized, disassembled and removed
- Investigation continues



Lawrence to Bryn Mawr: Construction approach

- Design/construction plan will result in faster construction, fewer impacts to customers and local communities and lowest cost
- New “segmental box girder” structure -- can be built more quickly via gantry system (right) with less disruption to the community
- Design requires fewer columns, providing better sightlines and spaces underneath the structure
- Reducing construction time reduces impacts to CTA service and rail customers







RPM: A project inclusive for all



Project workforce and SBE/DBE goals

- Hiring and DBE-certified businesses goals were placed on the RPM Phase One project
- We are meeting and in some cases exceeding those goals
- DBE goals: 20.64% design/20% construction
- Workforce Goals (*as percentage of labor hours*): Workforce Innovation and Opportunity Act (WIOA)- 10%; Economically Disadvantaged Areas- 35%; Union Apprentice- 15%

Innovation

- We created **innovative workforce development program**, hiring HIRE360 and Chicago Cook Workforce Partnership, to do intake and connect people to training and apprenticeships, including WIOA workers and those from zip codes with median incomes <\$40K
- RPM created the **CTA Building Small Businesses program** created in 2019 to provide financial and technical assistance
 - BSB program has helped small contractors participate in projects like RPM. When COVID hit, BSB pivoted and mobilized to help businesses apply and receive more than \$5M in PPP and CARES funding.



