Red and Purple Modernization (RPM)
A Core Capacity Expansion

Northwestern University
Transportation Center
October 13, 2016
Chicago Transit Authority

- Created in 1947
- Serves Chicago and 35 nearby suburbs
- Carries ~1.6 million trips every weekday
- Rail System
  - 145 Rail stations
  - 224 miles of Track
- Fleet
  - 1,885 buses
  - 1,400 rail cars
Growing Rail Ridership

- CTA provided 241,676,065 trips in 2015 on its eight rail lines (up 2% from 2014 to 2015)

- 2015 rail ridership was the largest since CTA began tracking ridership in 1961.

- Peer Comparisons:*
  - NYCT – 2,666,925,814 (-3%)
  - WMATA – 260,004,801 (-4%)
  - MBTA – 237,545,202 (-4%)

*Includes heavy rail, light rail and street car.
Red and Purple Modernization

BACKGROUND
RPM and the Red Ahead Program

Red Ahead is a comprehensive initiative for maintaining, modernizing, and expanding Chicago’s most traveled rail line.
Red and Purple Modernization Program

• A series of projects to improve the North Red and Purple Line Corridor:
  – Over 90 years old
  – 21 current stations
  – 9.6 miles long
  – Carries over 20% of CTA train rides
  – A multi-billion dollar program
RPM Corridor Vision Goals

• **Expand capacity**
  – more riders with less crowding

• **Speed service**
  – fewer curves and better infrastructure

• **Improve accessibility**
  – all stations accessible to people with disabilities

• **Build modern facilities**
  – New wider stations, more reliable infrastructure for the next 60-80 years

• **Support economic development**
  – more jobs and new development opportunities

• **Improve customer experience**
  – modern, quiet and smooth ride
RPM Program History

2009–2010
RPM Vision Study

2011
NEPA Scoping Process

2012
Alternatives Refinement

2013
Research and Concept Design Process

2014
RPM Phase One Definition and NEPA Reviews
Red and Purple Modernization

PHASE ONE
RPM Phase One

- **Lawrence to Bryn Mawr Modernization Project**
  - Replace 1.3 miles of 90-year-old track/embankment
  - Rebuild four stations and add ADA accessibility
    - 28,000 trips begin or end at these stations
    - 45,000 people live within ½ mile of these stations

- **Red-Purple Bypass Project**
  - Almost 150,000 rides every weekday
  - Current bottleneck precludes CTA from adding trains
  - Bypass allows CTA to run more trains that could serve 7,200 additional customers, PER HOUR

- **Corridor Signal Improvements**

- **CTA intends to seek Capital Investment Grant funding from the FTA’s Core Capacity Program**
  - Phase One is estimated to cost ~ $1.9 billion
  - Core Capacity Grant could cover ~ $900+ million
RPM Phase One – Overall Schedule

- Publish EAs
  - Host Public Hearings
  - May/June 2015

- Final FTA Environmental Finding
  - Apply for Engineering
  - Fall 2015

- Secure All Funding
  - Select Design-Builder/DBFM
  - 2016-2017

- Construction
  - As early as 2017

- Complete Phase One, bringing modern stations and faster service

Continuing dialogue with the community
Red and Purple Modernization

LAWRENCE TO BRYN MAWR MODERNIZATION
Challenge: Old Stations & Narrow Platforms

Bryn Mawr station existing photo
Solution: Modern Wider Stations
Bryn Mawr station conceptual rendering
Challenge: Antiquated Infrastructure

Bryn Mawr station existing photo
Solution: Modernize

Bryn Mawr station conceptual rendering
Challenge: Limited Right-of-Way
Existing embankment diagram

Approximately 60’ Wide Right-of-Way

Embarkment Wall
Grade
Earth-Fill
Solution: Spanning over public alley
Alley-spanning conceptual rendering and diagram
Construction Staging of Lawrence to Bryn Mawr – Start to Finish

**STAGE A**  
Approximately 18 Months

- Thorndale Station: Open Throughout Construction
- Bryn Mawr Station: Open  
  Southbound Entrance on Broadway or Hollywood
- Berwyn Station: Closed  
  Demolition
- Argyle Station: Open
- Lawrence Station: Closed  
  Demolition
- Wilson Station: Open Throughout Construction

**STAGE B**  
Approximately 18 - 24 Months

- Thorndale Station: Open Throughout Construction
- Bryn Mawr Station: Under Construction  
  Open Southbound Boarding Only
- Berwyn Station: Closed  
  Under Construction
- Foster/Winona Temporary Platform (Entrances on Foster & Winona): Open
- Argyle Station: Closed  
  Under Construction
- Lawrence Station: Closed  
  Under Construction
- Wilson Station: Open Throughout Construction

**FINAL CONFIGURATION**

- Thorndale Station (Existing)
- New Bryn Mawr Station
- New Berwyn Station
- New Argyle Station
- New Lawrence Station
- Wilson Station: All new stations will be modern and accessible with wider platforms

Not to Scale
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RED-PURPLE BYPASS
Challenge: Growing Demand

Peak hour demand has grown by 40% since 2008

- **All growth scenarios exceed Clark Junction capacity**
- **Current Clark Junction Capacity Limit (40-44 Trains Per Hour)**

Legend:
- **H**: High Growth Scenario based on average growth in peak hour train loading 2008 - 2014
- **M**: Medium Growth Scenario (average of High and Low Growth Scenarios)
- **L**: Low Growth Scenario based on annual average weekday boardings 2000 - 2014
Challenge: Flat Intersection Bottleneck
Existing Photo and diagram
Solution: New Fifth Track Bypass
Conceptual rendering looking north from Belmont
Challenge: Tight radius curves

Image of train traveling through junction
Solution: Realign curves while modernizing

Diagram of improvements

- Tracks to be replaced with modern aerial structure
- Tight curves to be straightened
Design Challenge: Sub-standard Vertical Clearance at Clark Street, property constraints for pier location

13’-8” existing vertical clearance
Design Solution: Clear Span Structure with offset substructure

Proposed 14’-9” minimum vertical clearance
Design Challenge: Avoiding Impacts to Clark Substation
Design Solution: Structural Modifications to Clark Substation

MODIFY SUBSTATION ROOF TO GAIN SUFFICIENT CLEARANCE TO TRACK STRUCTURE- NO IMPACTS TO SUBSTATION OPERATIONS
Design Challenge: Maintain Independent Red/Brown Line Service Thru Belmont

EXISTING CROSS SECTION
Design Solution: Construction of Temporary Brown Line Track

STAGE 2 CROSS SECTION - NORTH OF BELMONT STATION
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TRANSPARENCY AND RESPONSIVENESS
Addressing Impacts

• Displacements
• Noise
• Construction
• Closures
Neighborhood Redevelopment Plan

Existing Condition Photo

Conceptual Rending After Bypass Project and Before Redevelopment

Conceptual Rending with Potential Redevelopment Concept
Brown Line Capacity Expansion Project

- Constructed from 2006-2009
- $530 million investment
- Lengthened platforms to accommodate 8-car trains
- Reconstructed 16 stations and added ADA access
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WHAT’S NEW & WHAT’S NEXT
What’s New

• FTA Issued Finding of No Significant Impact for both RPM Phase One Projects
• CTA Awarded TOD Pilot Grant
• CTA Awarded $125 Million in CMAQ Funding
• Project entered FTA Engineering Phase
• CTA has begun process to apply for Federal Core Capacity Expansion Grant
• State Legislature Authorized Transit TIF
What’s Next

• TOD/Neighborhood Redevelopment Plan – Contract awarded September 2016
• Implement Transit TIF and secure FFGA
• Procure Early Construction Work
• Procure Design-Build /Design-Build-Finance-Maintain Contractor beginning in 2017
THANK YOU

Red and Purple Modernization Program

transitchicago.com/RPMproject

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