

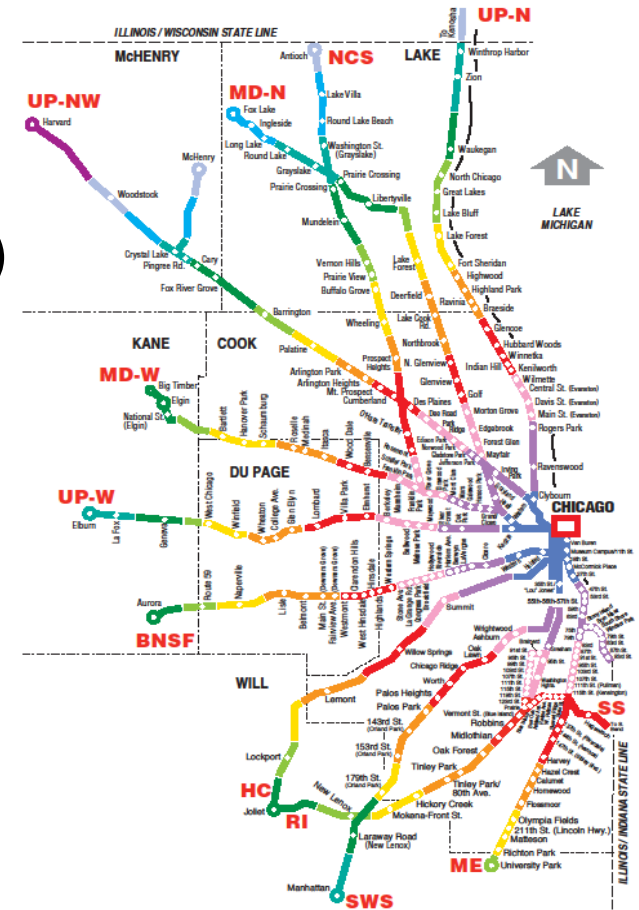


Introduction to Metra's Commuter Rail System and Types of Infrastructure

Bruce M. Marcheschi
Chief Engineering Officer

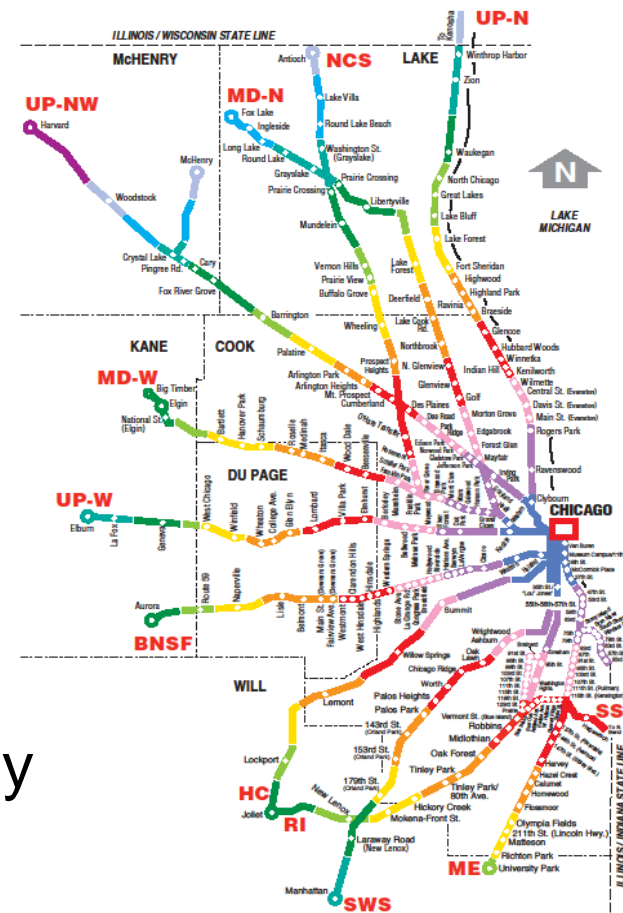
METRA OVERVIEW

- 11 Rail Lines
- 4 Metra Owned, 4 PSA (BNSF & UP), 3 Trackage Rights (CN & NS)
- 487 Route Miles
- 1,155 Track Miles
- 686 Weekday Trains
- 433 Weekend Trains
- Total Weekday Trains: 1,119



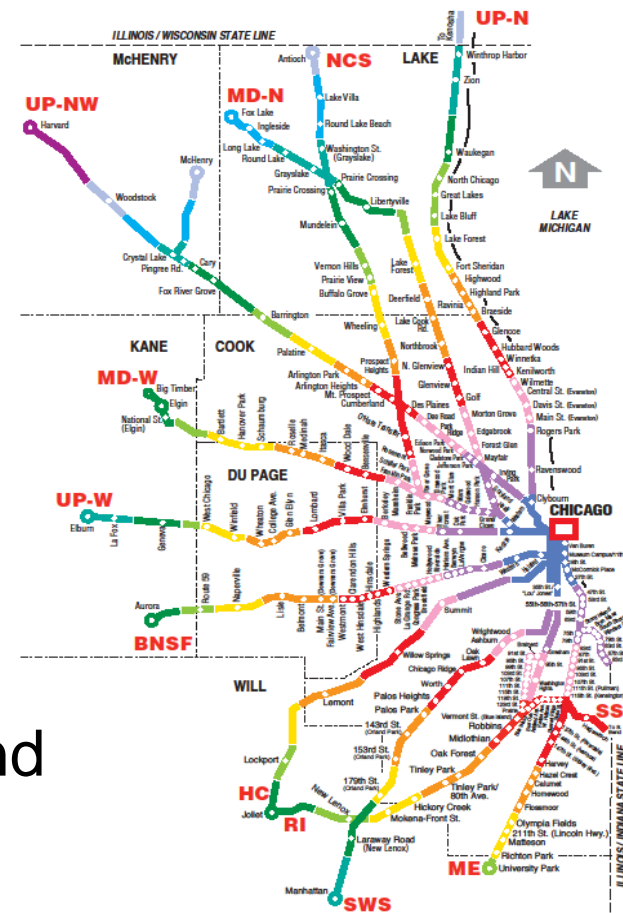
METRA OVERVIEW

- 290,000 Daily Riders
- 78.8 Million Passenger Trips a Year
- 3rd Largest U.S. Commuter Railroad
- \$1B Annual Operating Budget
- 1,300-1,400 Trains Operate Daily in Chicago Terminal District



METRA OVERVIEW

- 822 Bridges
- 571 Grade Crossings
- 237 Outlying Stations
- 5 Downtown Stations
- 24 Yard Facilities
- 150 locomotives, 840 railcars and 186 Highliners (EMU)



STATE OF GOOD REPAIR NEEDS

\$12.1 Billion investment needed

Less than one-fourth of that expected

Metra has:

- One of the oldest fleets
- Best on-time record
- Lowest fares
- Most complex system



PROPOSED 2018 CAPITAL PROGRAM

Description	In Dollars
Rolling Stock	\$ 71,782,500
Track & Structure	\$ 39,615,000
Signal, Electrical, and Communications	\$ 39,702,500
Facilities and Equipment	\$ 24,360,000
Stations and Parking	\$ 5,500,000
Support Activities	\$ 15,909,429
Grand Total	\$ 196,869,429

ENGINEERING INFRASTRUCTURE

- Bridges and Structures
- Electrical and Electrical propulsion
- Track
- Signal
- Telecommunications
- Yard Facilities and Maintenance
- Stations and Parking Lots
- Line Extensions and Expansions
- Positive Train Control
- Quality Assurance and Quality Control
- Building Operations and Administration
- Asset Management

Track Infrastructure

Track Standards

- Metra is governed by the FRA
- Metra is a Class IV Railroad
- Maintained to Class V Standards
- Track speeds vary from 60 MPH to 79 MPH depending on territory
- Rail varies in size from 90Lb. to 136Lb. depending on location

Track Inspection

- Track inspections are performed 2 times per week (Hi-Rail, Train Riding and Walking)
- Rail Detection and Geometry trains test in the Spring and Fall

Track Maintenance and Construction

- Tie Replacement
- Rail Grinding
- Surfacing
- Rail Replacement
- Switch Replacement
- Grade Crossing Renewal

Tie Replacement

- \$8M - \$10M Annual Capital Program
- 40,000 - 50,000 ties per year
- Replace 1/3 of ties per mile of chosen segment
- 500 to 2,500 ties per day depending on gang size and location
- 7 year cycle
- Ties are timber

Rail Grinding

- Expands rail life
- Eliminates surface defects
- Re-profiles the rail to a 10 degree radius
- Reduce wheel wear
- Reduce corrugations on the rail head

Surfacing

- Surfacing prevents coffee spillage
- Expands the life of the track structure: Ties and Rail
- Typically performed on a four year cycle
- Geometry train test results determine surfacing needs in the upcoming maintenance cycles

Rail Replacement

- Determined chiefly by condition
- Rail detection testing

Switch Replacement

- Determined chiefly by condition
- Proper and timely proactive maintenance

Grade Crossing Renewals

- 20 - 25 Crossings per Year
- 10 Foot Cross Ties Used to Better Distribute the Load
- Pandrol Clips Now Being Used in Crossings
- Concrete Panels in Most Instances
- Rubber Panels Used on Electric Line
- Composite Panels Being Tested

Fox Lake J-Line Tie Replacement

- 17 Miles of Single Track Territory
- \$3M Estimate; Actual \$2.4M (\$624,000 under budget)
- Estimate \$200/Tie; Actual \$151/Tie
- Approximately 16,000 ties
- Large Work Windows M-F; Total Shutdown Sat and Sun
- 3 Week Work Schedule vs. 12 Weeks

Fox Lake J-Line Tie Replacement

- 5 Switches Replaced
- 2 Bridge Panels Replaced
- 3 Private Road Crossings
- No Injuries (50 man gang)

Fox Lake J-Line Tie Replacement



Questions?