



Modeling Transit Capacity

CMAP's new activity based model

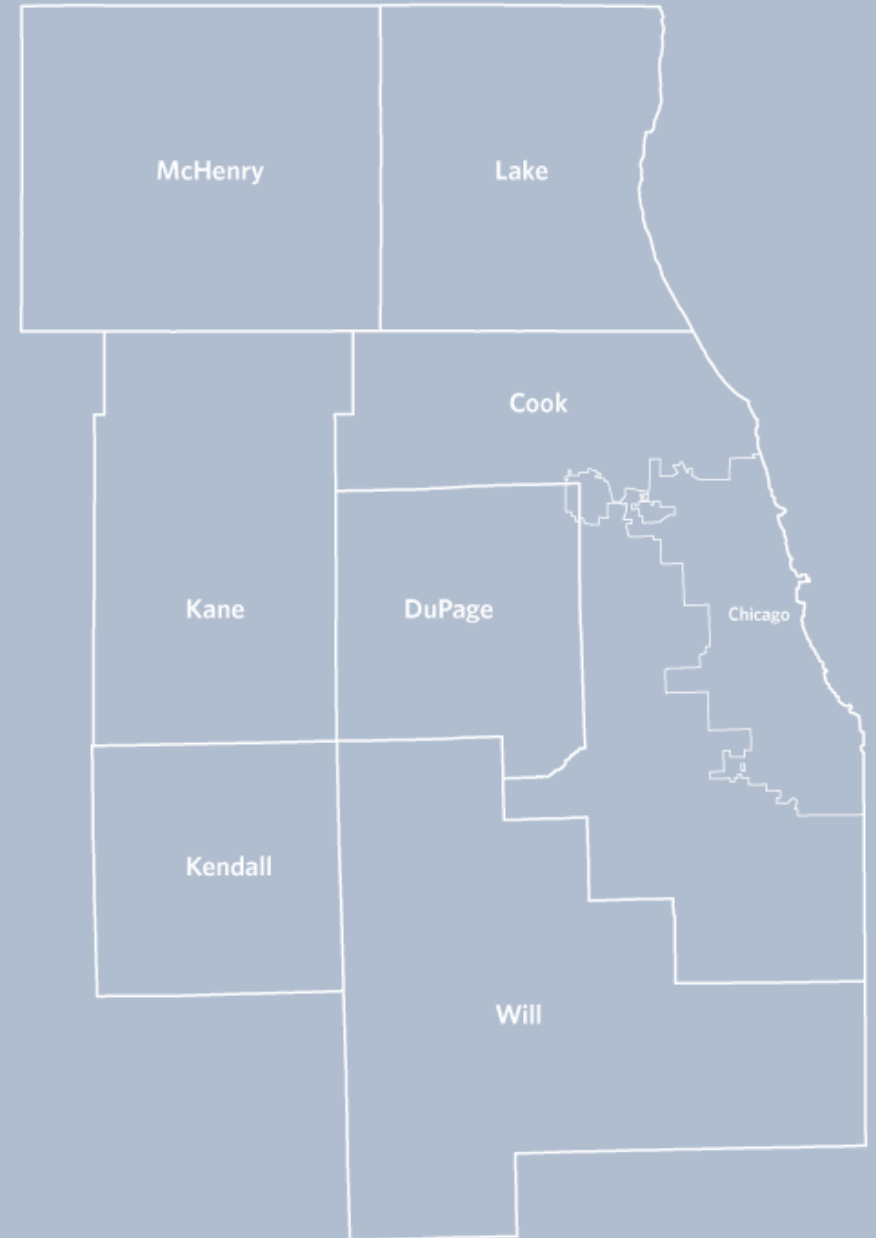
Transport Chicago Conference
June 14, 2019

Chicago Metropolitan Agency for Planning

- 7 counties, 284 municipalities, 8.5 million residents

CMAP's overarching goals

- Make Chicagoland more competitive
- Enhance quality of life
- Support local planning



ON

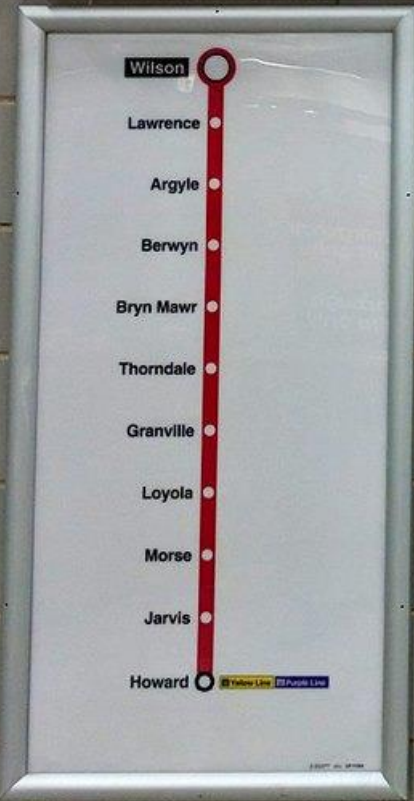
TO

2050

Why study capacity?

← **Red Line to Howard**
← **Purple Line to Linden**

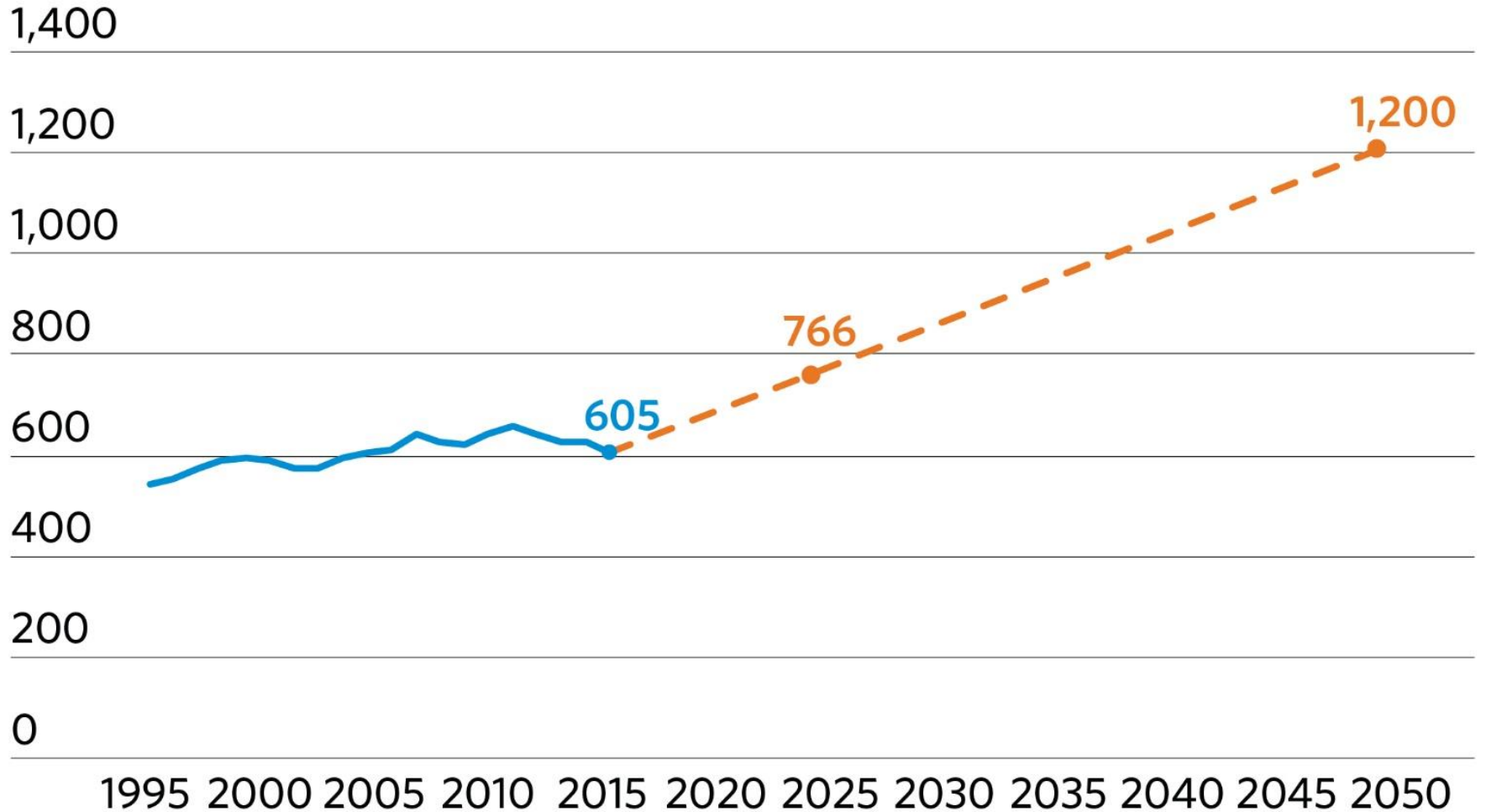
→ **Purple Line to Loop**
→ **Red Line to 95th**



Annual unlinked transit trips, in millions

● Actual ● Target

Source: The Federal Transit Administration's National Transit Database.

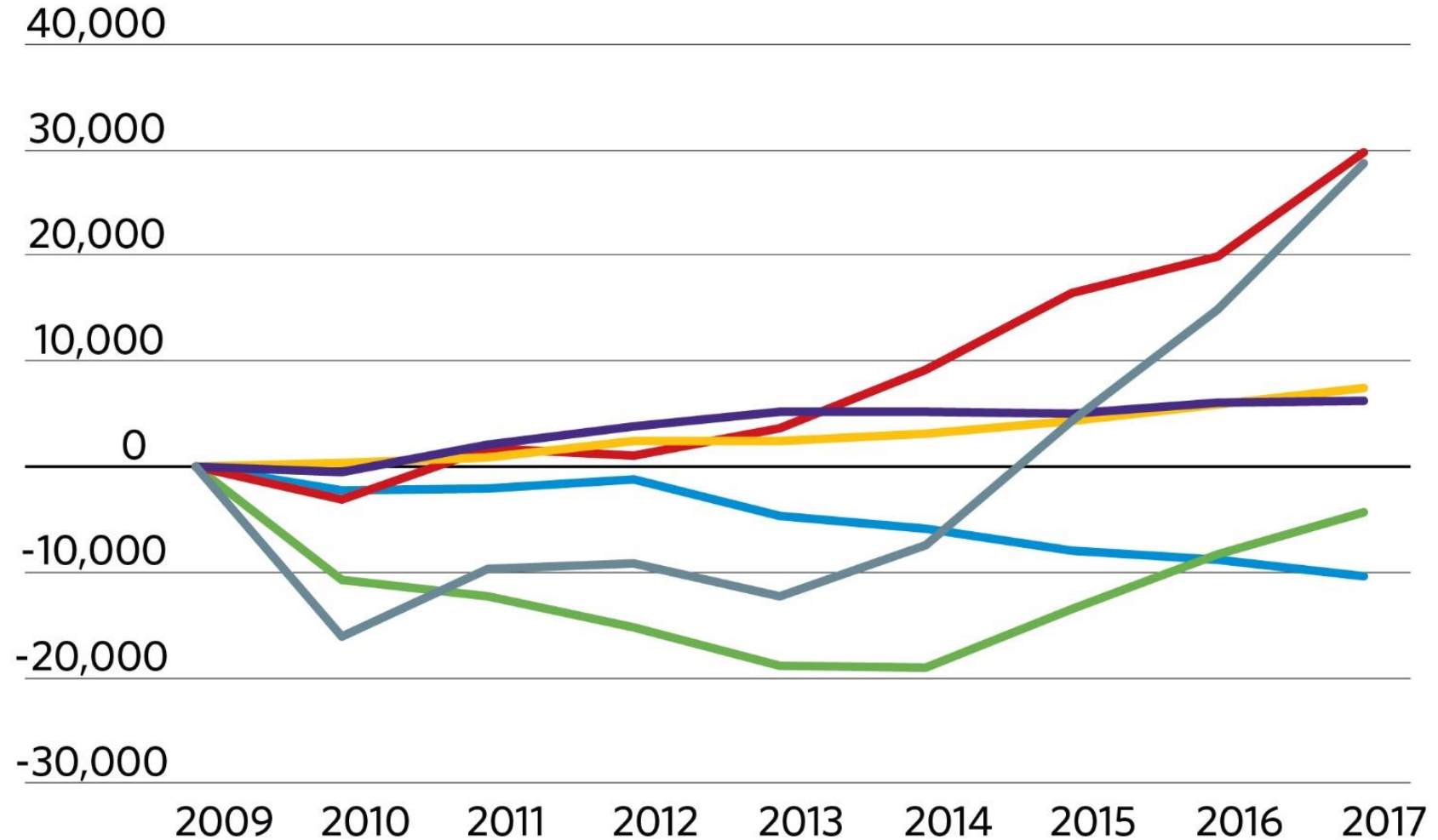


What we know

Cumulative change in number of morning peak work commuters

- Car, truck, or van - carpooled
- Public transportation
- Walked
- Car, truck, or van - drove alone
- Taxicab, motorcycle, bicycle, or other
- Total

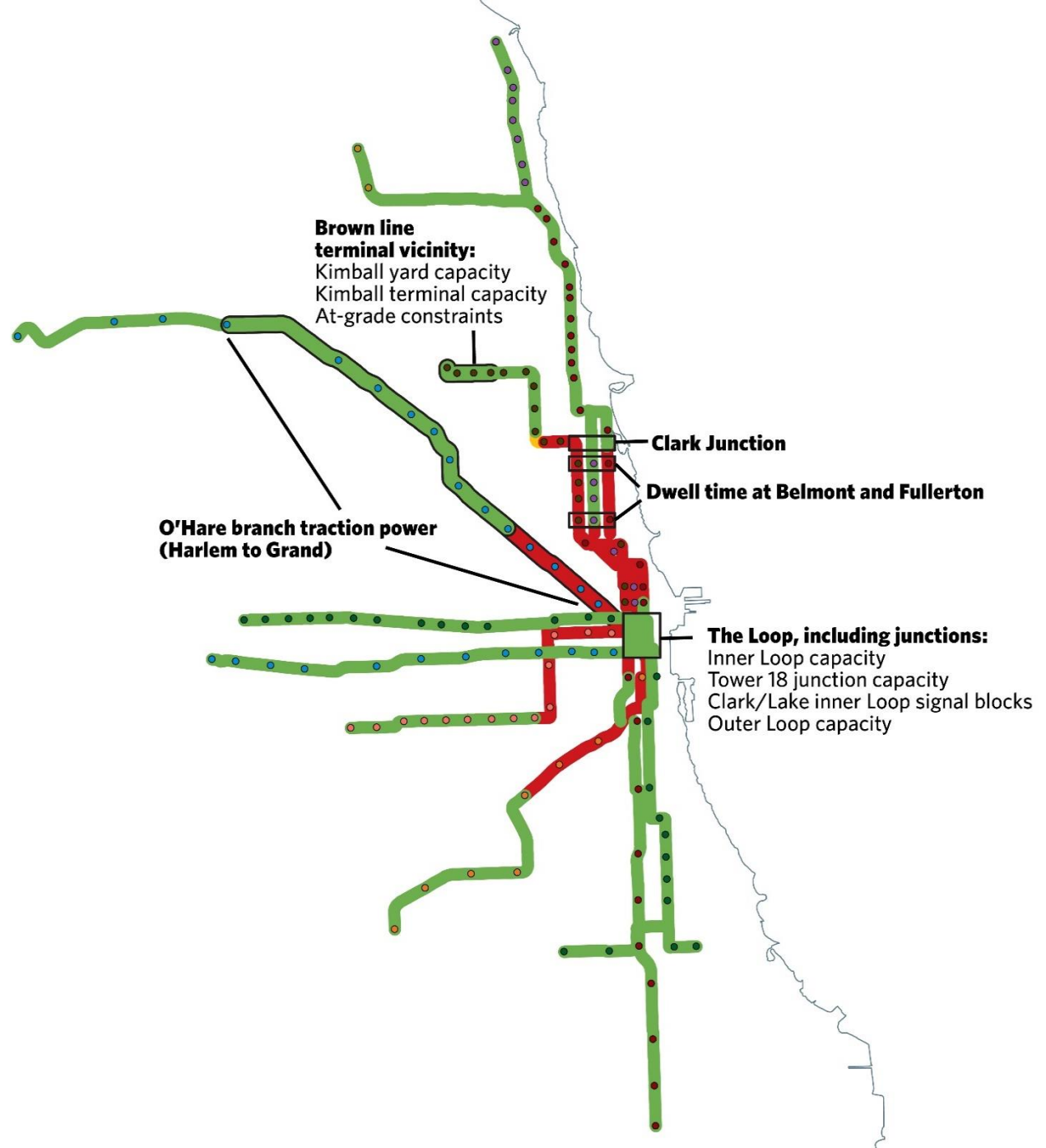
Source: 5 year American Community Survey - Cook, DuPage, Lake, Kane, Kendall, McHenry, and Will counties.



CTA rail capacity utilization, 2017

- < 5.4 square feet per passenger
- 5.4 - 5.7 square feet per passenger
- > 5.7 square feet per passenger
- CTA rail stops
- Top line capacity constraints

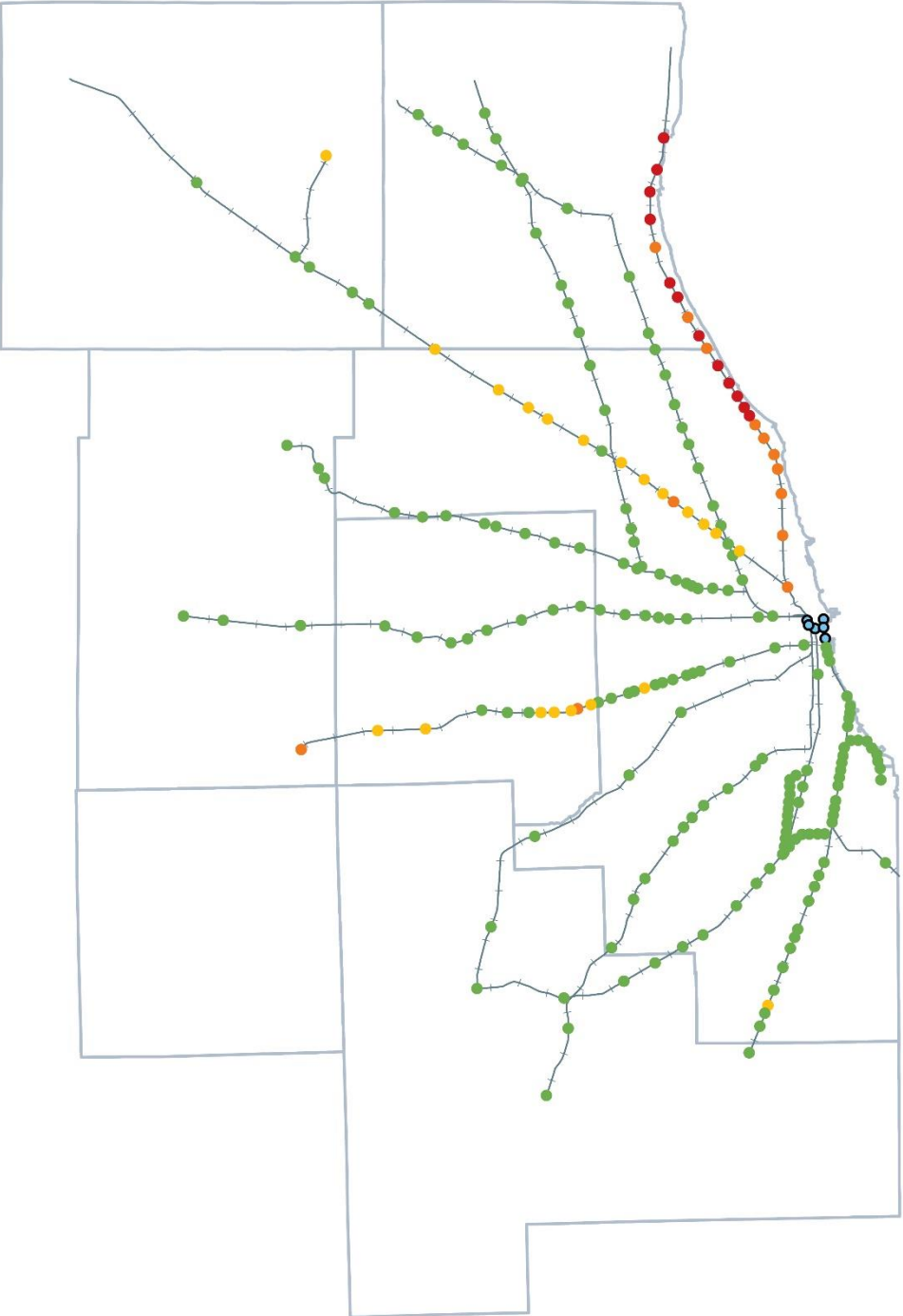
Source: CTA 2017 System-Wide Rail Capacity Study.



Metra percent of peak trains over capacity, 2017

- 0-10%
- 11-20%
- 21-30%
- >30%
- Terminal

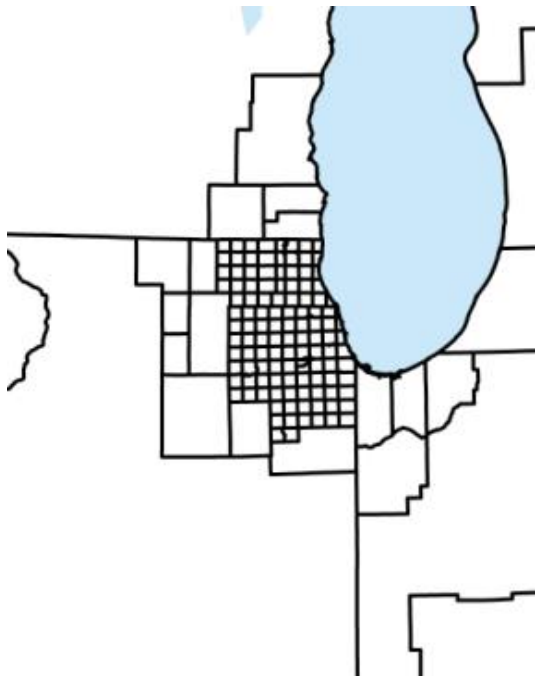
Source: Metra.



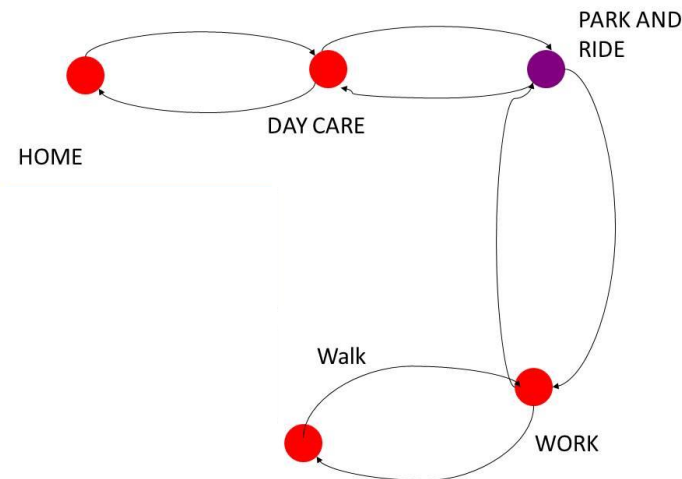
Modeling 101

CMAP Modeling

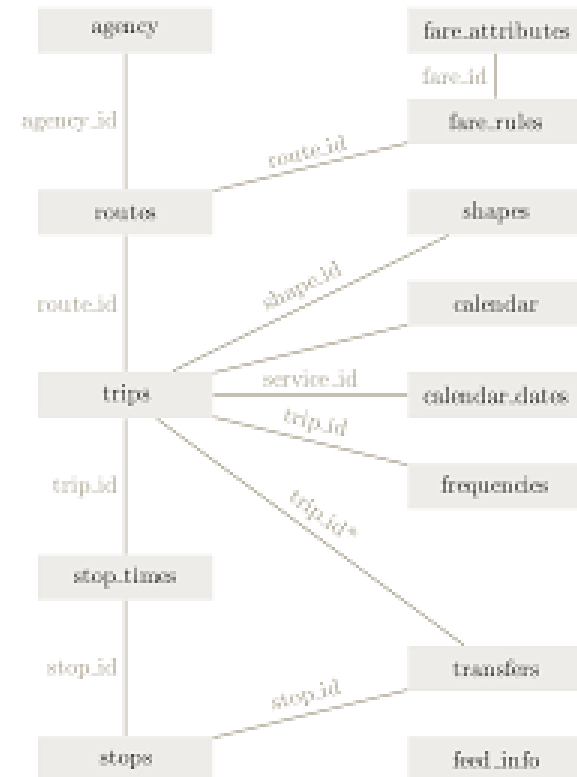
Trip Based Model



Activity Based Model



FTA STOPS



Activity Based Model

Person level trip detail

Income, household size, car ownership, employment

10 travel purposes – vs 3 in trip based

Biking and walking

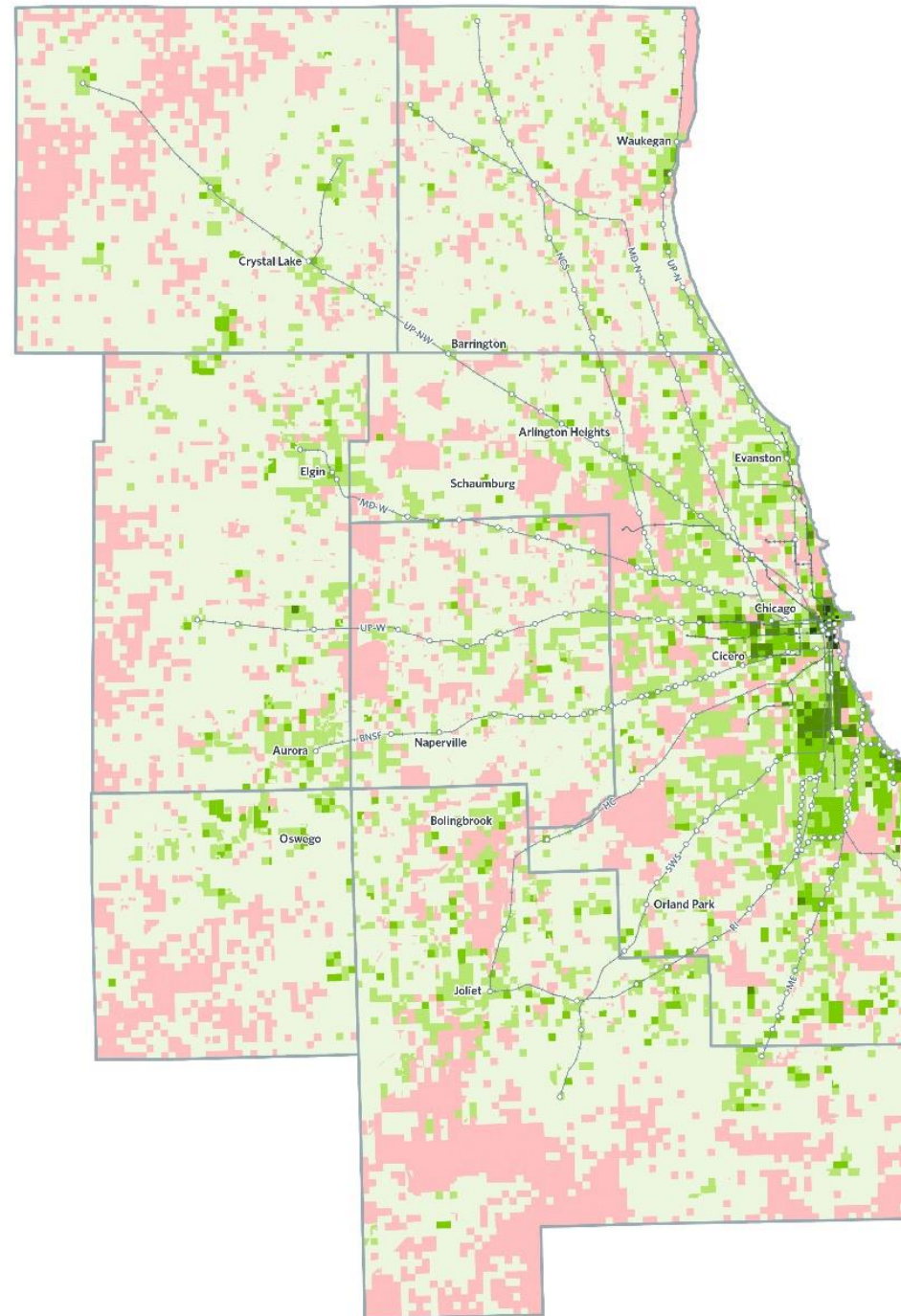
Flexible travel time

Transit congestion factor

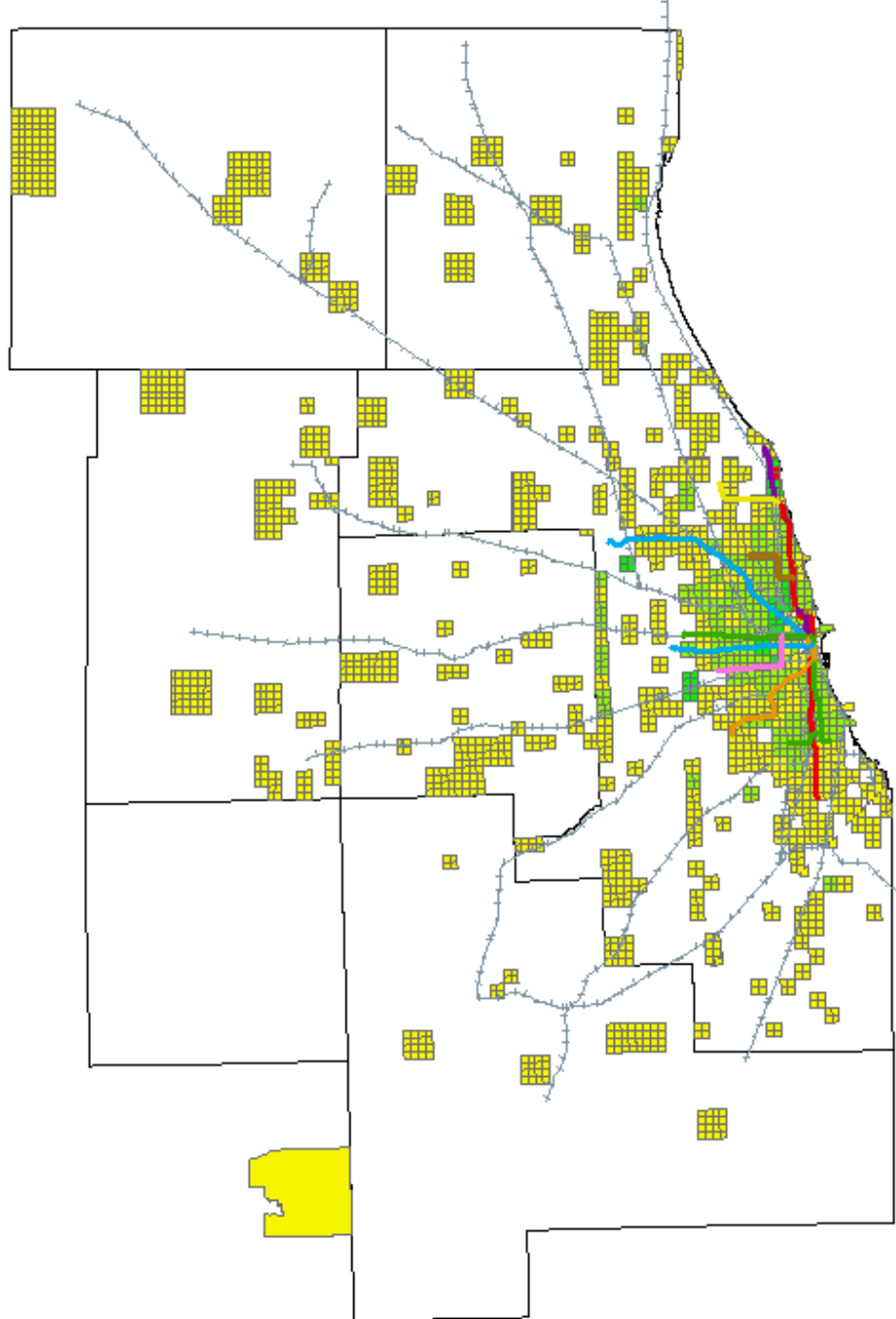
Forecasted change in household density, 2015-50

- Population decline
 - Low growth
 - High growth
- ↑
↓

Source: Chicago Metropolitan Agency for Planning forecast of population, households, and employment.



DRAFT-Impact of Regionally Significant Projects in 2050





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