

Chicago **E-Scooter** **Ridership** **(Pilot Program Evaluation)**

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Background

- ★ Chicago hosted a pilot program to evaluate e-scooters as alternative form of transportation
- ★ Program ran in Summer 2019 in areas North and West of the Loop
- ★ Future availability of e-scooters will depend on results from pilot program

Objectives

- ★ Understand e-scooter rider behavior and identify usage patterns
- ★ Determine if program was successful and recommend adjustments, as appropriate
- ★ Optimize scooter deployment & retrieval to achieve desired outcomes

Data



★ Scooter Data

- ◎ Distance
- ◎ Duration
- ◎ Date and Time
- ◎ Origin and Destination

★ Transportation

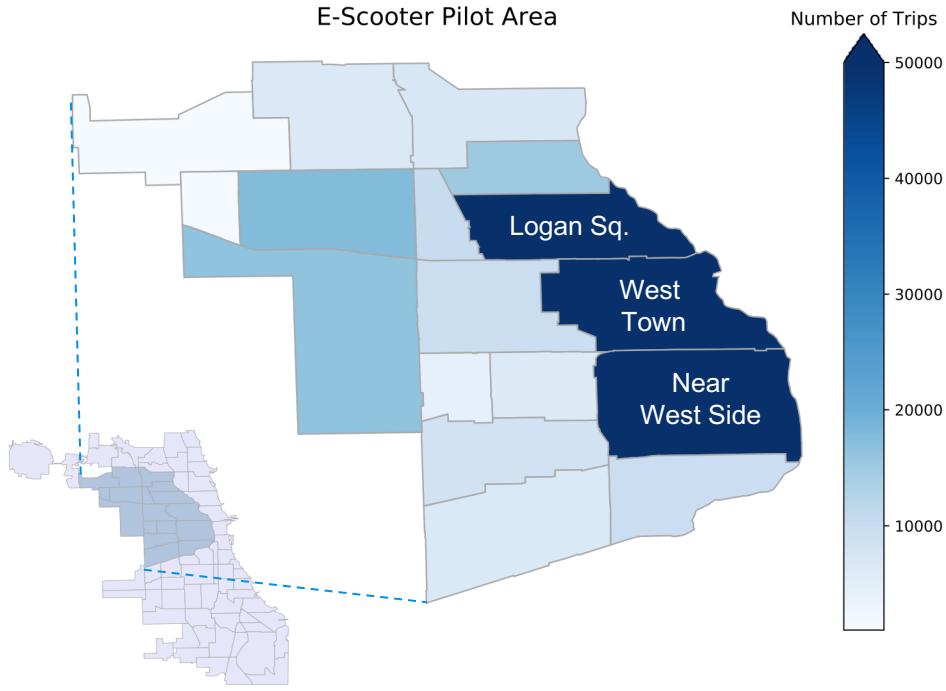
- ◎ Bike Lanes
- ◎ Bus Routes
- ◎ Rail Routes
- ◎ CTA 'L' Stations
- ◎ Bike Share Stations

★ Socioeconomic

- ◎ Income
- ◎ Education
- ◎ Unemployment
- ◎ Population Density



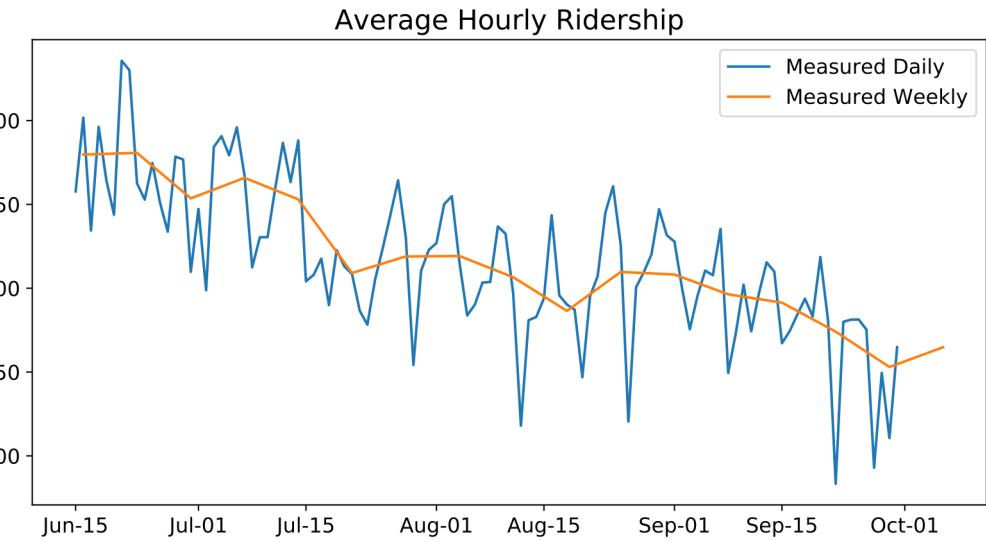
Overview



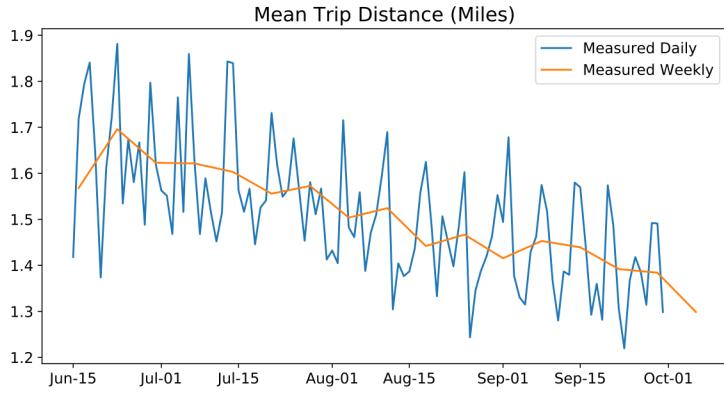
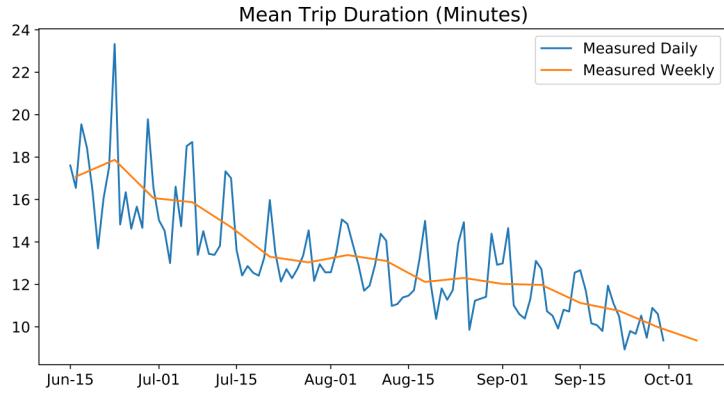
- ★ Over 500,000 total trips recorded
- ★ Program area involved 17 (of 77) community areas
- ★ Over 75% of trips originated in three areas

Usage: Ridership

- ★ Ridership declined steadily over pilot period
- ★ Perhaps high volume at beginning of pilot comprised of shorter “test runs”?



Usage: Trip Length

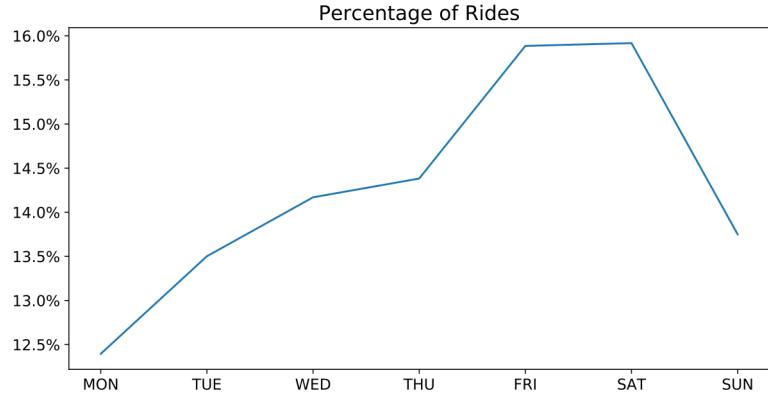
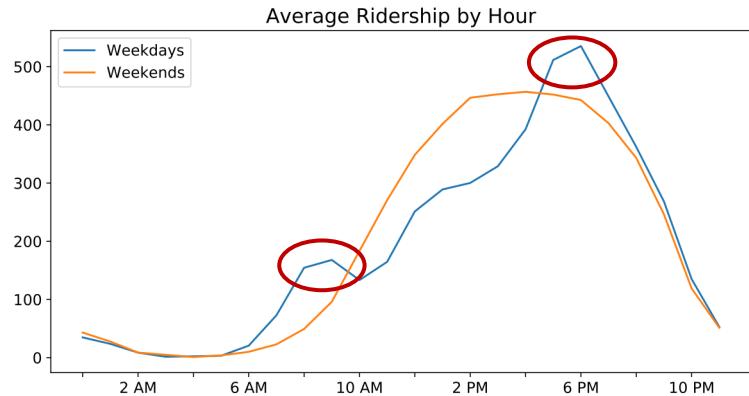


★ Mean trip duration and distance both declined throughout the pilot period as well

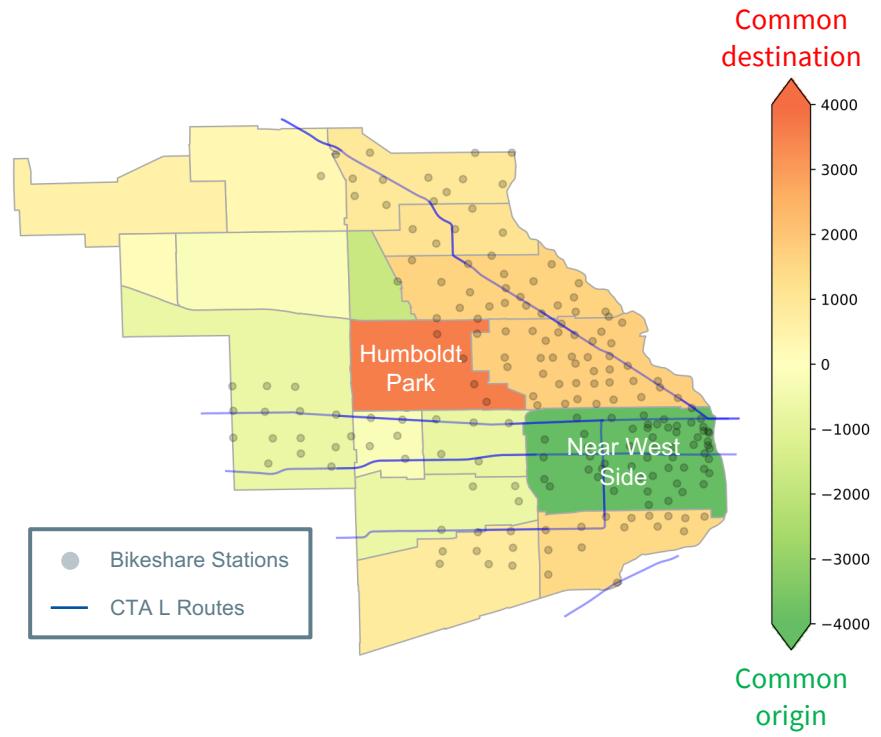
★ Usage decline not due to “test runs” but an underlying change in rider behavior

Usage: Timing

- ★ Weekday usage during morning and evening rush hours indicate scooters used to commute to work
- ★ Nearly half of all trips occur on Friday, Saturday, and Sunday

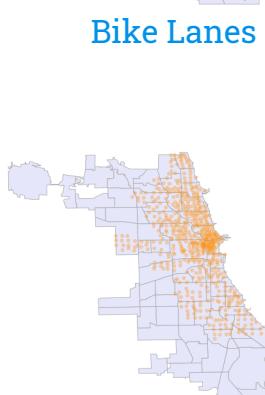
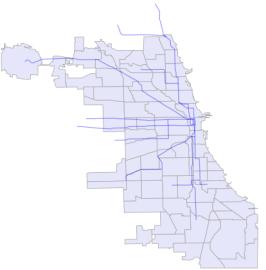
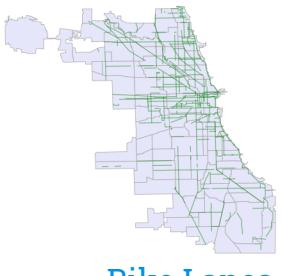


Transportation Access



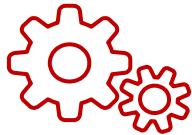
- ★ Scooters generally flow from West to East
- ★ Highest outflow in area with most access to transportation
- ★ Reallocation of scooters to HP and NW pilot area may improve outcomes

Model Design



Divvy (Bike Share)

Socioeconomic

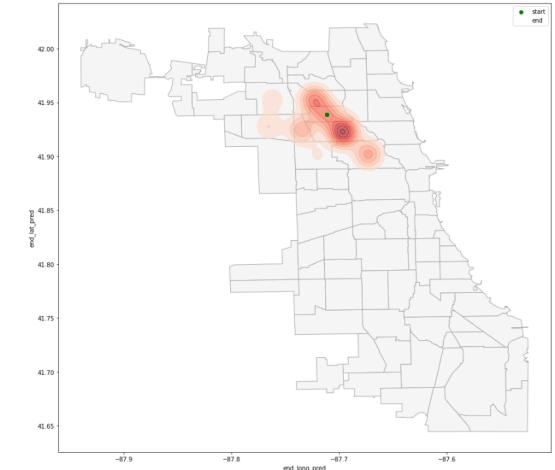


Multi-Classifier



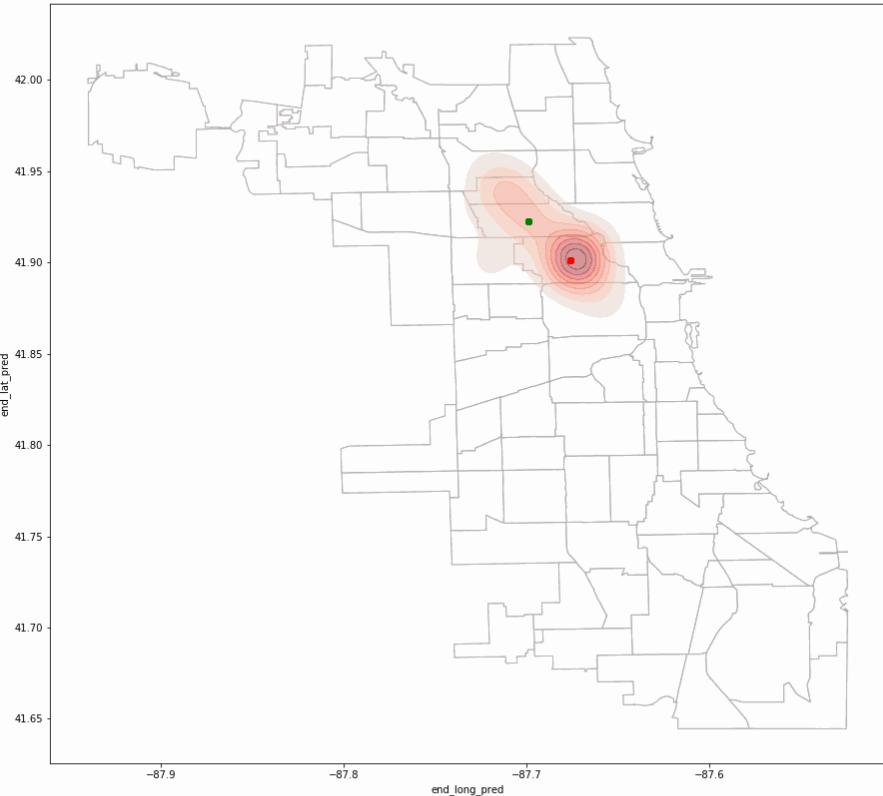
Scooter Data

Predicted Destinations



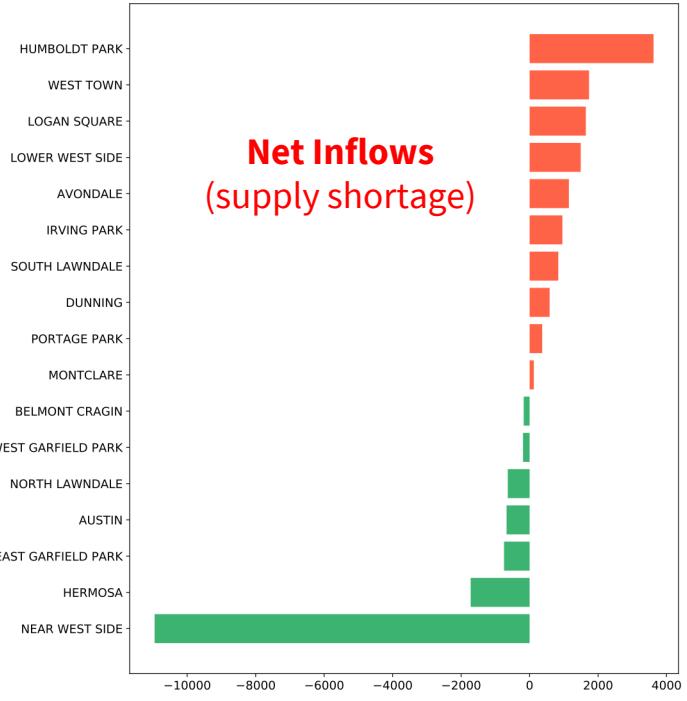
Sample Predictions

- ★ Given scooter origin,
model predicts distribution
of potential destinations
- ★ Results can be used to
optimize scooter allocation
and minimize inefficiencies

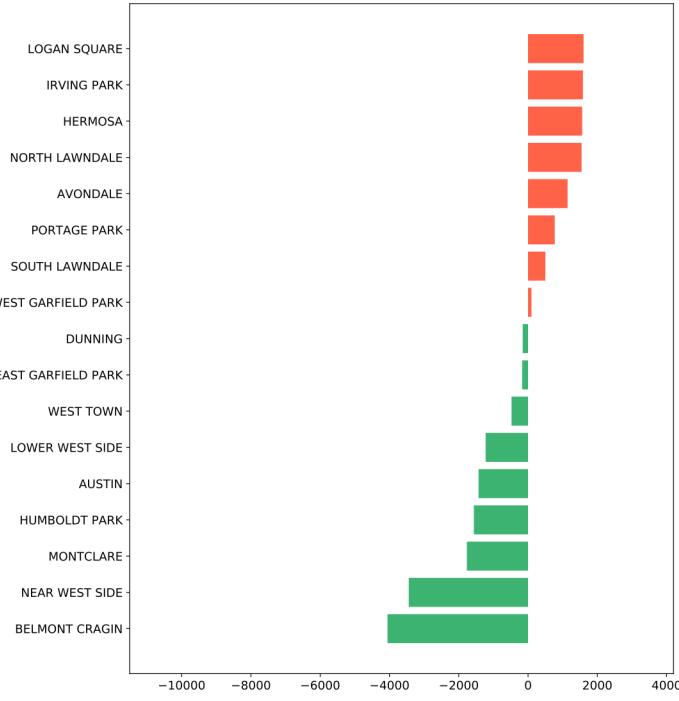


Optimized Deployment

Pilot Program

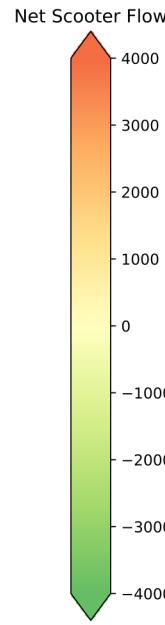
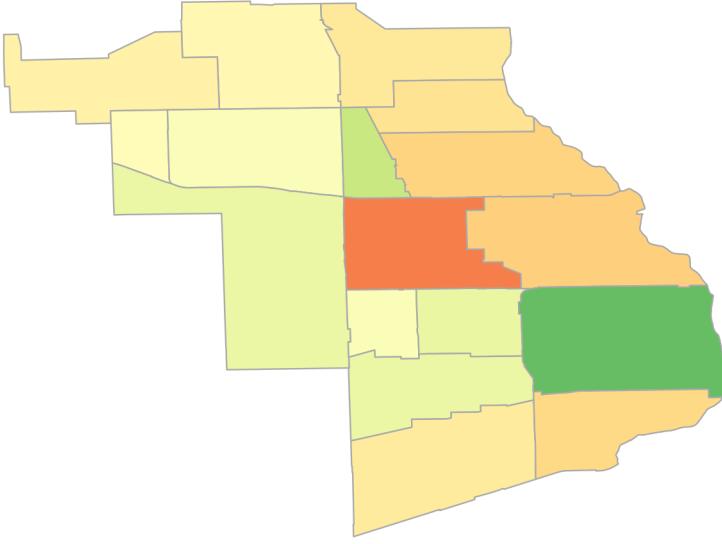


Alternative Allocation

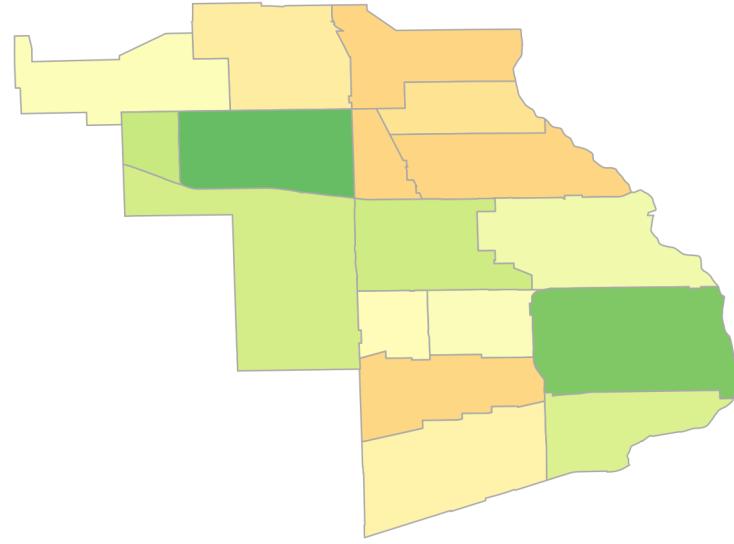


Optimized Deployment

Pilot Program



Alternative Allocation



Program Evaluation

- ★ Clear indications some users use scooters to commute
- ★ Multiple measures of usage declined during pilot period
- ★ Scooter usage highest in areas with access to alternatives
- ★ Deployment allocation may be to blame
- ★ Different deployment strategies may yield different results





Thanks!

Questions?

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