



## Partnering to Create an Off Peak Delivery Pilot Program in Metropolitan Chicago

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# The Premise

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**Businesses generally want deliveries during normal hours. Truckers need to meet those demands. So, most truck deliveries occur during congested peak daytime periods.**

**If more businesses would accept deliveries in off peak times, trucks could deliver goods faster and at less cost. That would reduce congestion and cost of goods, and yield economic and environmental benefits.**

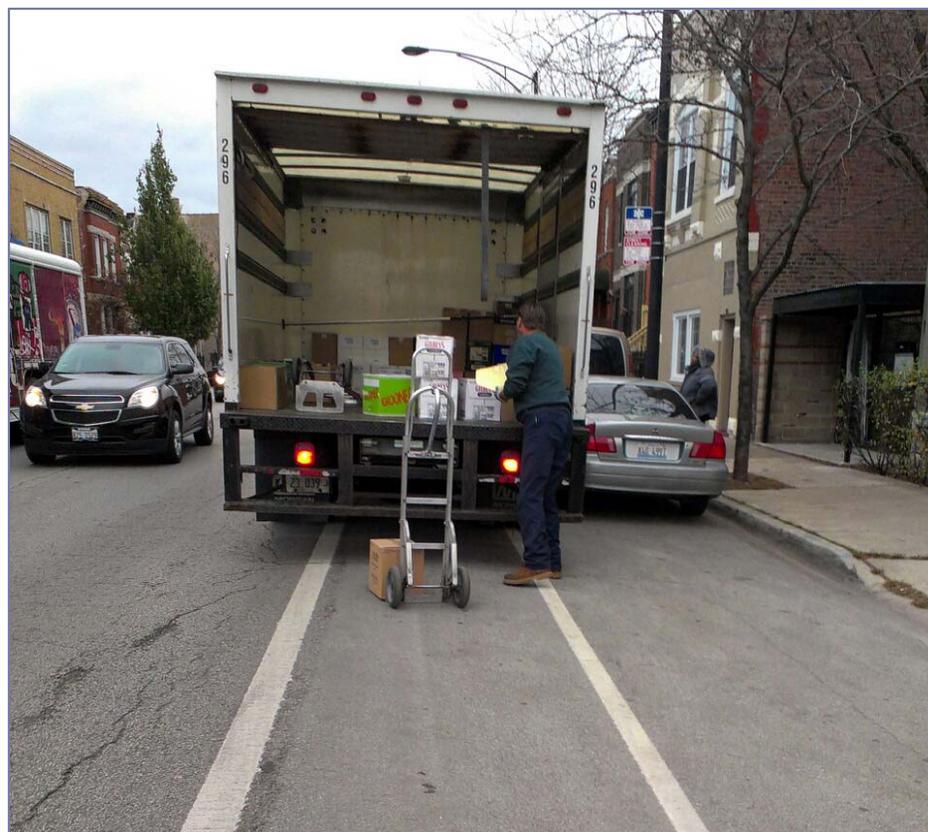


Image credit: [www.flickr.com/photos/65172294@N00/8142555406/](http://www.flickr.com/photos/65172294@N00/8142555406/)

# Our Approach to the Project

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## ▶ Research

- Literature review
- Case studies
- Data analysis: Zip Code Business Patterns, Hoover's Business Database, CMAP Congestion Maps
- Draft research paper and invite critique

## ▶ Designing the Pilot Project in Partnership with Implementers

- Primary Partner: Supply Chain Innovation Network of Chicago, a unit of World Business Chicago
- Chicago Department of Transportation
- Chicago Loop Alliance
- Chicago Metropolitan Agency for Planning
- Illinois Department of Transportation
- And many others . . .

# Other Regions Have Tried OPD

## New York

- Initially a pilot project with 35 receivers, the long-term program now has more than 400 participants.

## PierPass, Ports of Long Beach and Los Angeles

- PierPass began OffPeak in 2005 and by 2008 shifted 45% of container cargo to off peak shifts; still reporting more than 30% shift from peak to off peak.

## Barcelona

- Began in 2003 with two grocery stores receiving off peak deliveries, by 2010 spread to over 400 stores in 35 provinces.

## London

- Implemented off peak deliveries during the 2012 Olympics and currently conducting OPD trials.

## Dublin

- In 2011, approximately 25% of all food deliveries occurred during off-peak hours.

## The Netherlands

- Fostered innovations in low-noise technologies and behaviors resulting in standards now used in over 50 cities with 1,400 quiet deliveries a week.

## Orlando Pilot

- Hospital system Orlando Health is currently piloting OPD on their main campus in "South of Downtown Orlando."

## Washington D.C. Pilot

- OPD was listed as a strategy to improve the movement and delivery of goods in the District's 2014 freight plan and is now being implemented through a pilot project.

# Traffic Congestion & Delay Cost Our Region.

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- ▶ Congestion costs our economy \$7.6 billion annually.
- ▶ Travel in AM peak periods takes 60% longer than free flow travel.
  - Trucks are 6-10 percent of the region's traffic.
  - Most truck traffic happens in peak times.
- ▶ Peak period deliveries cost carriers 30-40% more.
- ▶ 70 percent\* of our communities reported to CMAP that peak period deliveries are a challenge.

\* weighted by population

# OPD Can Yield Significant Benefits to Rail and Intermodal Businesses and Their Customers.

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- ▶ Companies up and down the supply chain can benefit.
- ▶ In the Chicago region, the six class one railroads generate 15,000 daily truck trips to and from their customers and 7,500 daily truck trips between intermodal facilities.
- ▶ According to the 2012 Commodity Flow Survey, 25% of goods destined for Chicago by train (measured by value) will make some portion of their journey on a truck.



Photo credit: Russell Sekeet, [www.flickr.com/photos/73784413@N00/4599014520/](http://www.flickr.com/photos/73784413@N00/4599014520/)

# OPD Can Yield Significant Benefits to Carriers, Receivers, and Travelers.

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- ▶ In LA, PierPass Off Peak shifted more than 30% of traffic to off peak times.
- ▶ The New York City pilot project concluded:
  - Off-hour deliveries cost carriers about 30% less – carriers save about 48 minutes in travel time and 1 to 3 hours in total service time for each delivery tour.
  - Parking fines, often exceeding \$1,000 per truck per month, are reduced.
  - Increased reliability was the main reason receivers cited for continuing OPD.
  - OPD policies in Manhattan could save all highway users 3-5 minutes per trip.
  - Long term OPD policies would save between \$100 and \$200 million/year in travel time and pollution reduction.
  - Reduced peak time congestion makes it safer for pedestrians, cyclists and vehicles.
  - Reduced travel time leads to a reduction in environmental pollutants.

# Several Factors Affect OPD Participation.

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- ▶ **There is a market failure.**
  - Most of the benefits are spread throughout the greater community.
  - Carriers mostly receive positive net benefits while receivers have often perceived that their direct costs (staff, security, etc.) would exceed their benefits.
  
- ▶ **Businesses generally want to receive deliveries during daytime hours when they are open.**
  - Receiving businesses are the customers and specify delivery times.
  - Carriers must meet required pick-up and delivery times of shippers and receivers.
  
- ▶ **Location and industry type can affect participation.**
  - Businesses most receptive to off-peak deliveries are those that would likely be open anyway, such as restaurants, bars, hotels, 24-hour supermarkets, medical facilities and many retailers.
  - Larger establishments, buildings with many businesses and more densely developed areas yield greater savings in the number of truck trips and cost effective implementation, as added costs can be shared among more customers.

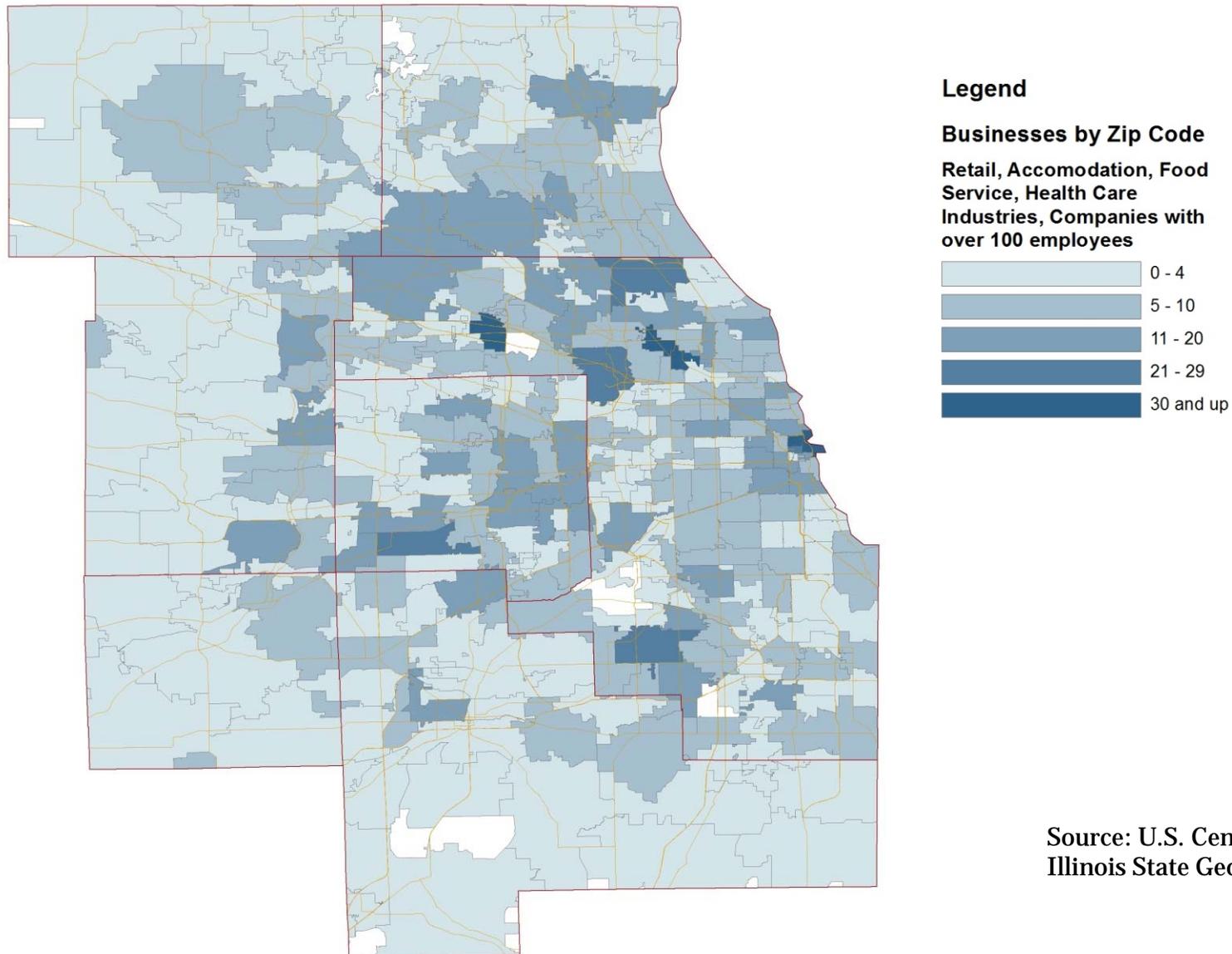
# Unassisted off peak delivery may have more potential for some types of businesses.

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- ▶ It involves providing a setting for unassisted drop-offs.
- ▶ It may require some investment to create a secure area – options include:
  - Delivery lockers
  - Double doors
  - Electronic key boxes
  - Virtual cages with deliveries entered through a hand-held scanner
- ▶ Less ongoing staff expense can enhance long term success.

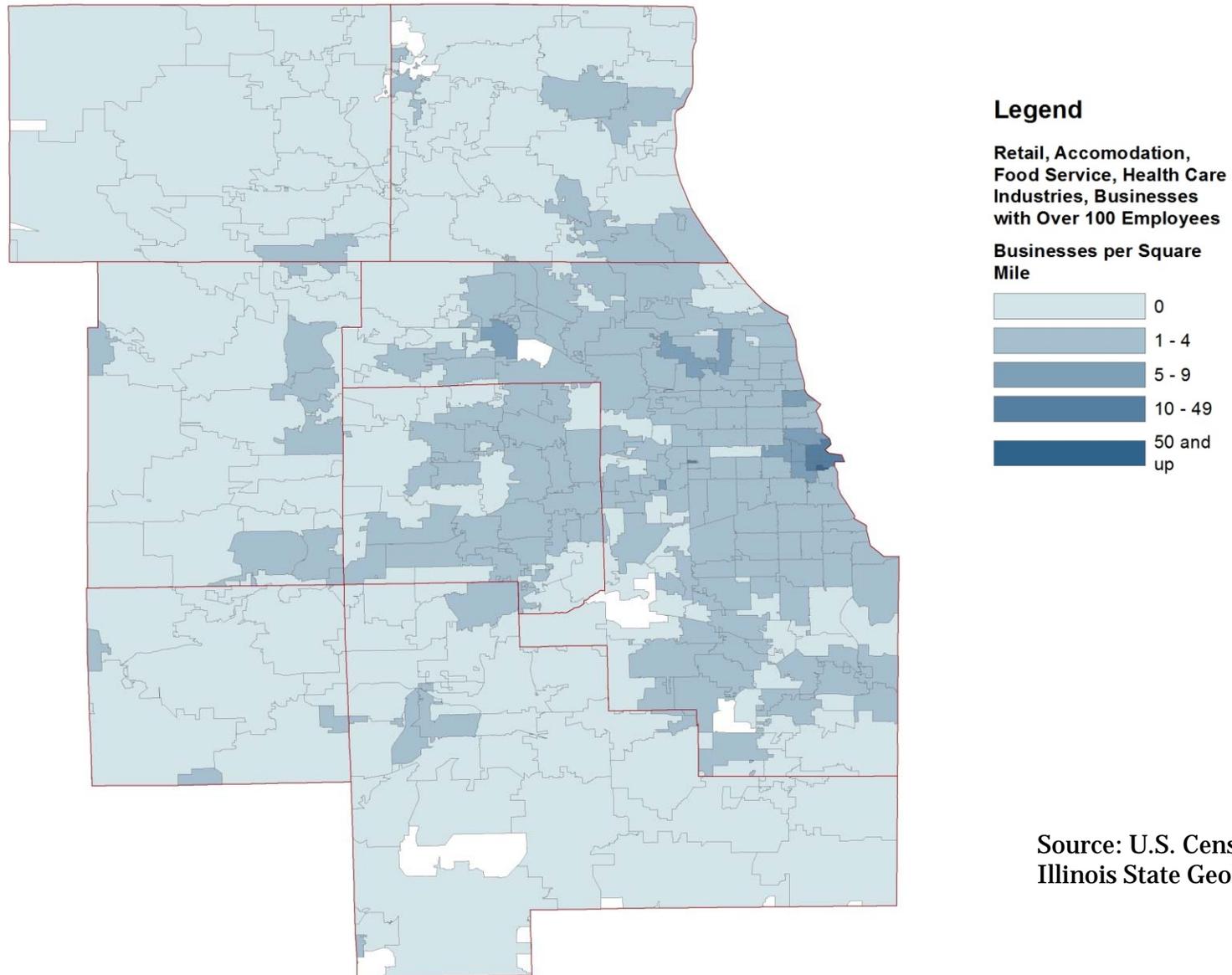


# OPD Target Locations: Selected Industries, Companies with over 100 Employees by Zip Code



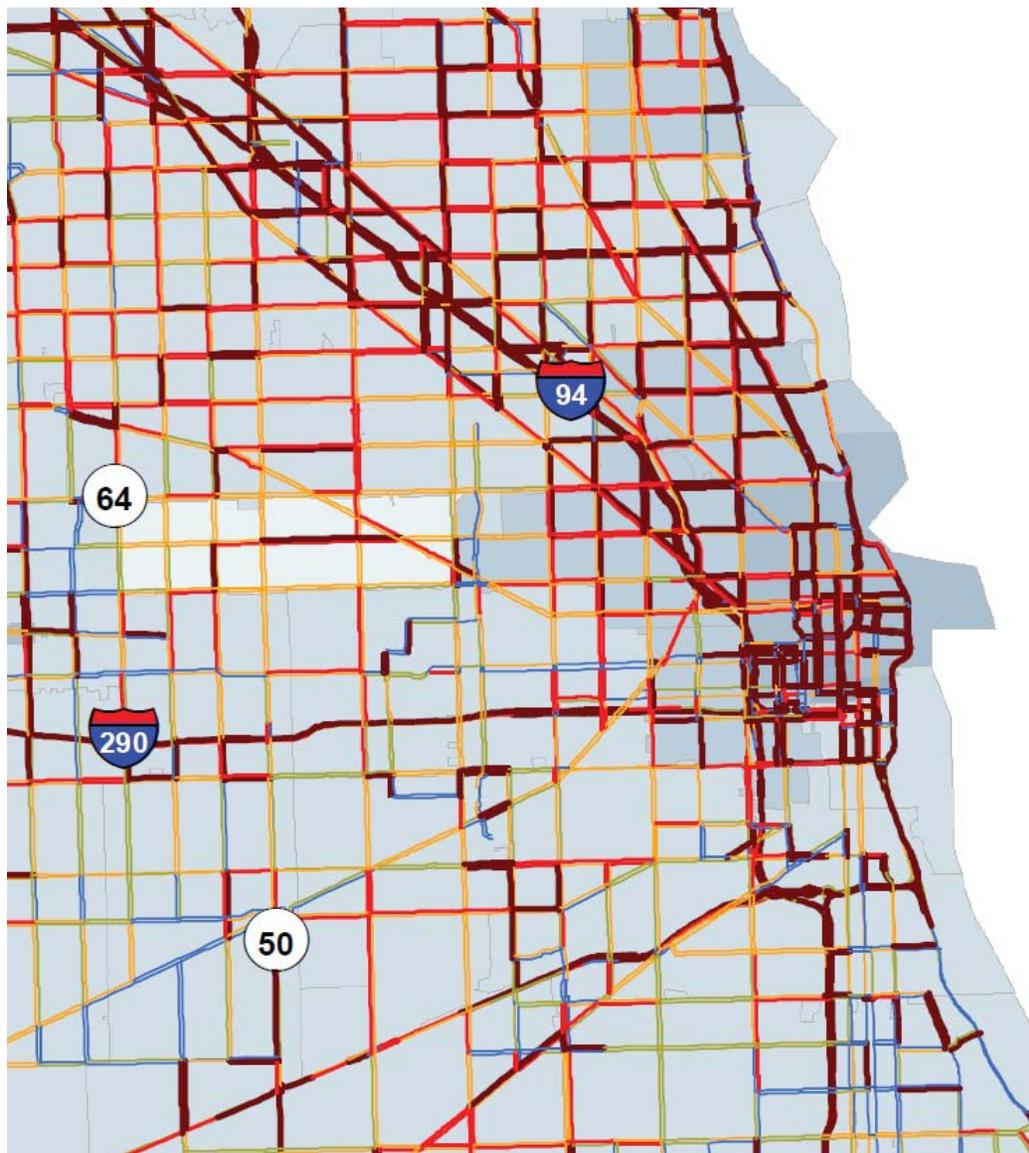
Source: U.S. Census Bureau,  
Illinois State Geological Survey

# OPD Target Locations: Density of Selected Industries, Companies with Over 100 Employees by Zip Code

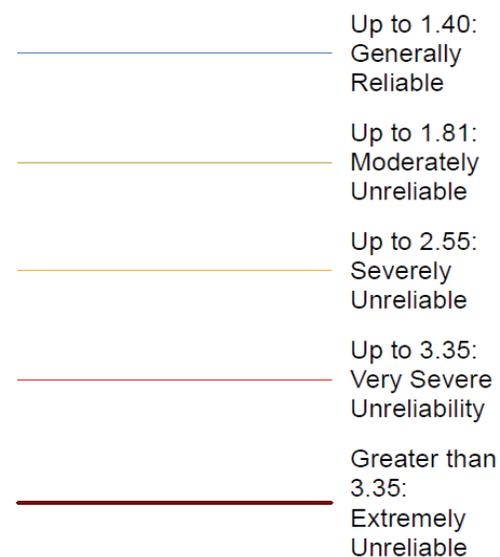


Source: U.S. Census Bureau,  
Illinois State Geological Survey

# Congestion: Travel Time Reliability



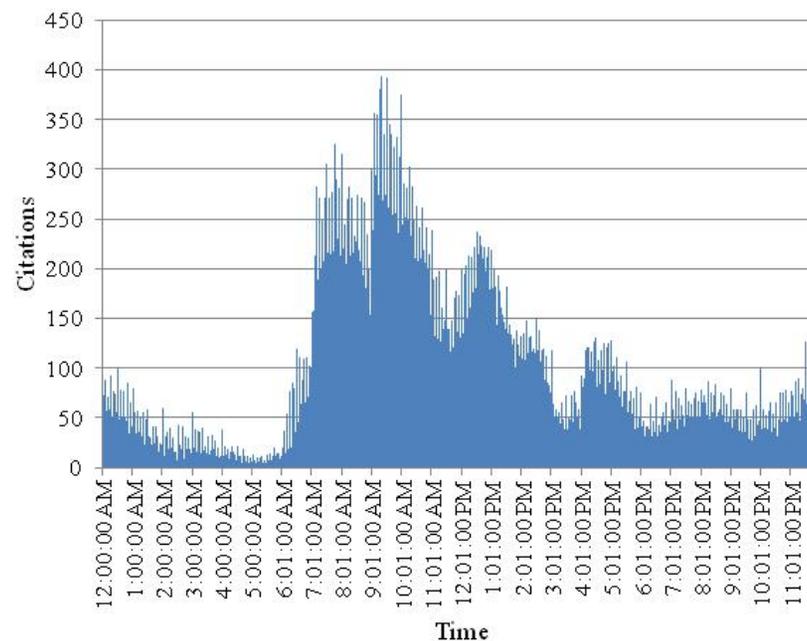
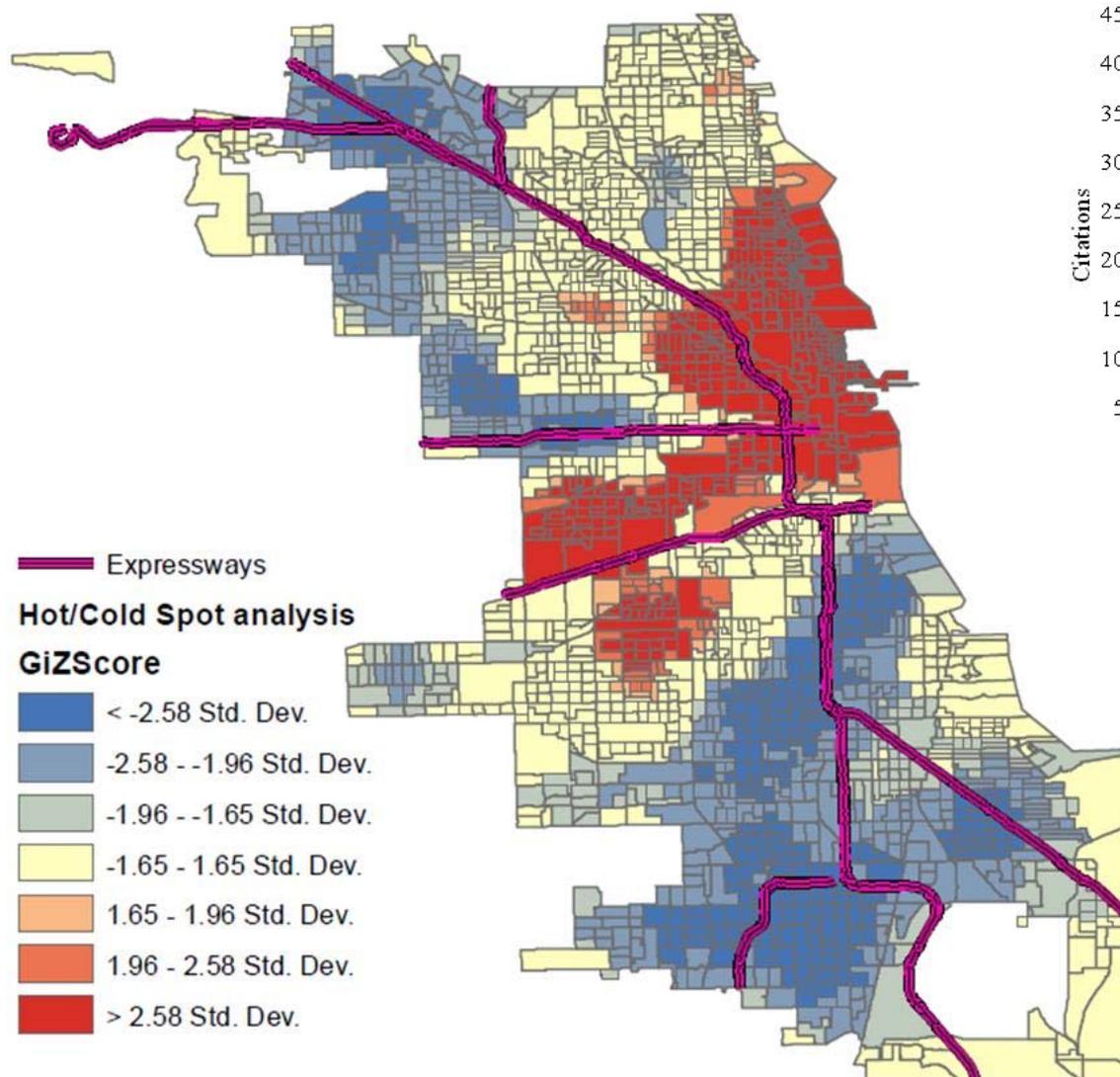
## Highway Reliability, 2012: Planning Time Index



The planning time index is the ratio of peak travel time to free flow travel time. It is a measure of travel time reliability.

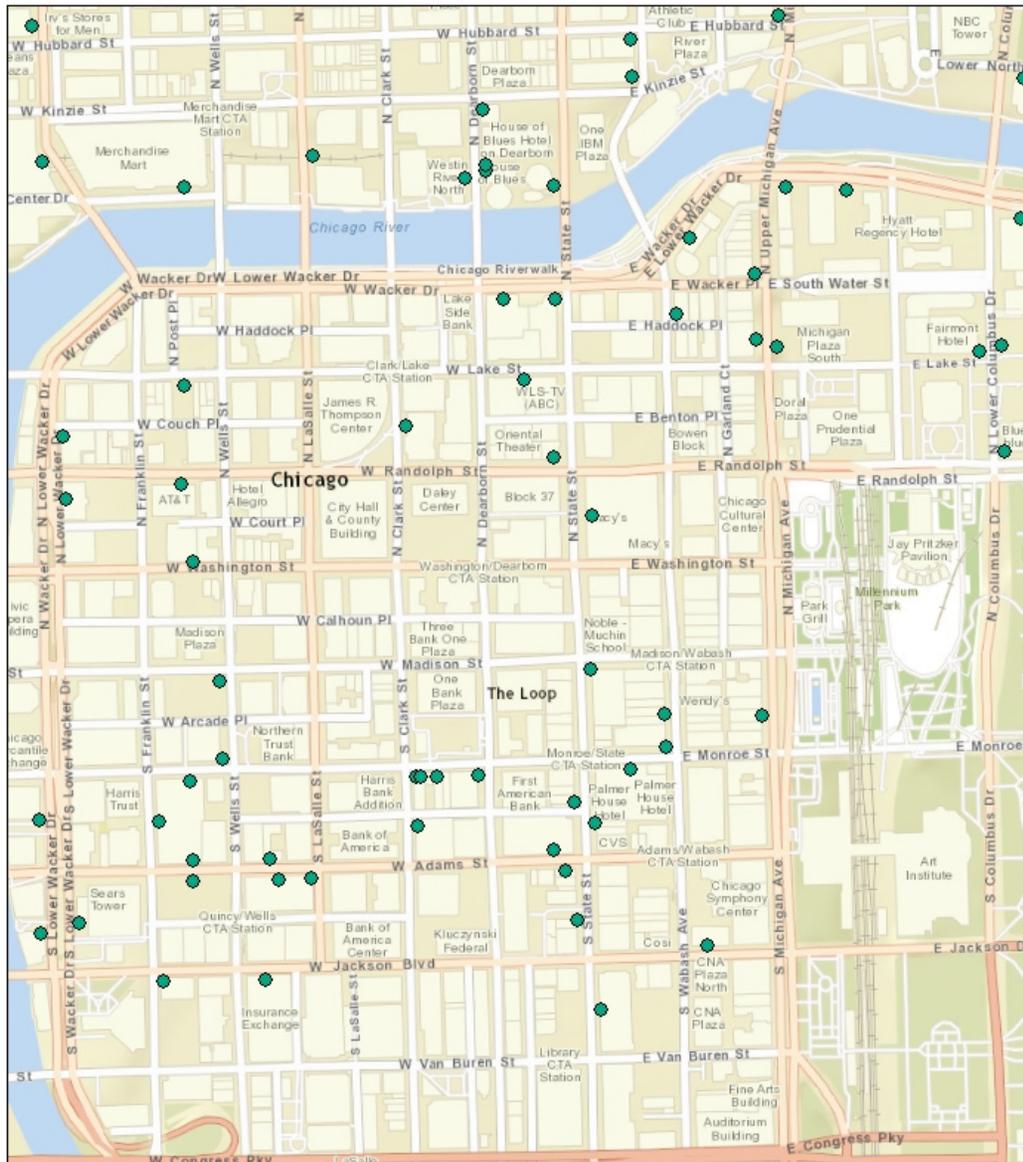
Sources: CMAP, Midwest Software Solutions, HERE, IDOT

# Parking Ticket Violation Hot Spots and Time Of Day



Prepared by: Kazuya Kawamura, P.S.  
Sriraj, Havan Raj Surat, Martin  
Menninger, College of Urban Planning  
and Public Affairs and Urban  
Transportation Center, UIC (Analysis of  
Factors Affecting Truck Parking Violation  
Frequency in Urban Areas)

# Loop Off Peak Delivery Receiver Candidates



Source: Mergent Intellect

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



# Incentives can attract participation.

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- ▶ Public recognition – who wouldn't like that?
- ▶ Direct monetary incentives – subject to funding
- ▶ Discounted pricing by carriers – could be coordinated
- ▶ Organized business support and encouragement
- ▶ Discounted fees from governments or businesses
- ▶ List of “Trusted Vendors” that certify quiet delivery practices



# Possible models for an OPD program

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## Traditional Approach –

Using grant funding as a financial incentive as in the New York pilot, seek out receivers in a particular corridor or area to implement off peak delivery on a trial basis.

## One Large Receiver Approach –

Identify one large receiver to be a demonstration project. A major healthcare facility would have ideal scale and volume. This may or may not require a financial incentive; none was needed in Orlando.

## Package Approach –

Piece together an attractive package of discounts and non-monetary incentives, such as:

- ▶ Public recognition through a coordinated program
- ▶ Coordinated direct discounts by carriers to receivers for off peak deliveries
- ▶ Coordinated participation by receiving businesses
- ▶ Discounted fees and charges from governments and supportive businesses.
- ▶ One-time funding for physical improvements such as storage lockers for unstaffed OPD or sound-reducing technologies (if funds are available).
- ▶ Other financial incentives
- ▶ List of “Trusted Vendors” that certify certain safe and quiet delivery practices

Any of these approaches would need coordinated administration and publicity.

## Key decisions are needed.

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- ▶ **Design and location(s) for the pilot**
- ▶ **Gaining participation of:**
  - Receiving businesses
  - Carriers
- ▶ **Incentives**
- ▶ **Type of OPD (staffed, unstaffed or both?)**
- ▶ **Administrative requirements**
- ▶ **Budgeting and paying for the program:**
  - Can it pay for itself?
  - Grants needed?
  - Sponsorships?
- ▶ **Publicity and communication**
- ▶ **Possible supportive government actions**



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