Data-based Selection of Location for New Business in Chicago

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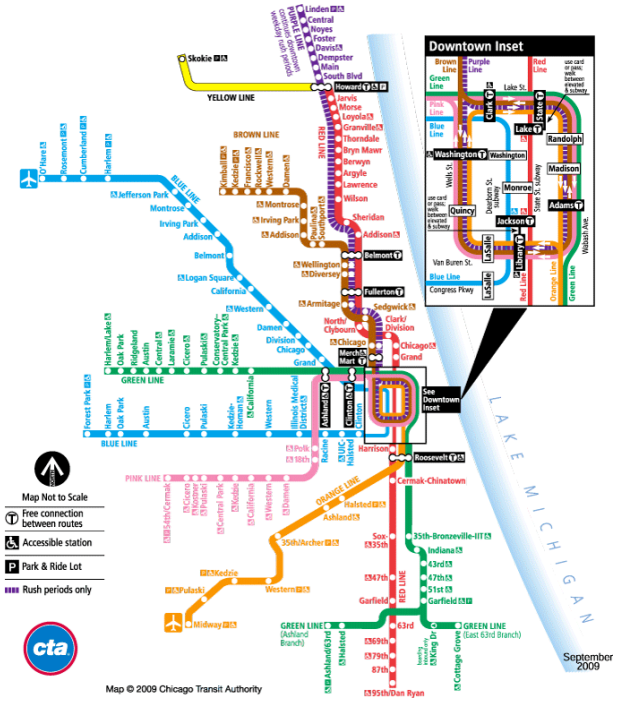

So you're a business owner in Chicago looking to open a new location!

Let me explain why data on the usage of CTA, the Chicago system of elevated and subway trains is of use to you!

- **It is how your customers will get to you!** Like many large cities, the downtown of Chicago is a difficult and expensive place to park. Many Chicagoans choose not to own cars or simply prefer to use the convenient CTA to travel about the city
- **It is where your customers are!** Chicago is a city full of pedestrians. If your business counts on incidental foot traffic to attract new customers, then you want to put your store front where the people are. From CTA ridership data, we can predict where the dense foot traffic in the city of Chicago is. Additionally, Chicago CTA ridership data can tell you where Chicagoans are living and working. If you are a grocery store or a lunch counter, that is where you want to be!

- **It is how your employees will get to you!** Maybe you are a small manufacturing company that doesn't need to be in heavily foot-trafficked areas. However, chances are your work-force will still be using public transportation to get to you. A low-rent location near a CTA station will give you access to a large, diverse, work-force unlikely to be impacted by the reliably high traffic congestion of Chicago.

So, if you are a (1) business whose customer demographic is more likely to patronize you if you are accessible by CTA (e.g. retail store, a sports bar, or a new neighborhood bike shop), or a (2) business that benefits from incidental foot traffic. (e.g. a coffee shop, restaurants, boutique shopping) or a (3) business that benefits from being near where Chicagoans live or work. (e.g. a grocery store, dry cleaners, or restaurant.), then metrics that we can calculate from the CTA ridership are of use for you when choosing where to put your business.

Accessibility by CTA

1. What locations in Chicago are near a CTA station? Using simple the geographic information provided on the location of CTA stops, we can limit searches for commercial business properties to only those within 0.5 miles of CTA stations. How much square mileage in Chicago is within 0.5 miles of a CTA station?
2. Which CTA stations in the city are the most accessible to Chicagoans? Using the data provided we can tell you which stations are ADA compliant, i.e. have an elevator. By inferring, or adding as a layer of information, precisely how the CTA stations are connected, we can determine which CTA stations are reachable by the shortest trips from the most other CTA stations. By weighting that data by the rider usage of the different stations, we can determine which CTA stations are the most accessible to the largest fraction of people who use the CTA.

Incidental Foot Traffic

3. Where is the foot traffic of Chicago? Using the turnstile statistics at each station, we can predict where the foot traffic in Chicago is dense. By interpolating between the ridership data at the geographical locations of the different stations, we can predict foot traffic all over Chicago, albeit with less reliability at greater distances from the stations.
4. Trends Matter! While ridership has steadily been increasing since 2001, it has not increased the same amount everywhere. Your ideal location may be the next hot neighborhood where the rent is still inexpensive but where the local foot traffic is increasing relative to trends in the CTA as a whole. By looking at the relative trends in ridership over time between different stations, we can predict what neighborhoods are growing or declining in popularity.
5. Target demographic. Does your business target the commuter, the tourist, or the recreational CTA user? By dividing the ridership of the CTA into Weekday versus Weekend/Holiday statistics or even using specific dates of the year such as New Year's Eve and July 4, we can separate different types of foot traffic to predict where the commuting crowd is found versus the crowds seeking recreation.

Where Chicagoans Live/Work

6. Using weekday ridership data, we can also make predictions about where Chicagoans live and work.

Additional Data to Gather

- To improve accuracy – Bus Ridership data in Chicago. Many Chicagoans use one or both of the bus and the train. Adding Bus ridership data can extend the accuracy of foot traffic density predictions away from CTA stations.
- Commercial Real Estate rental prices ($/SF) by location to estimate the cost of renting in different locations.
- Demographic data on the density of residential neighborhoods in Chicago. I would use this data to see how well CTA ridership correlates where people live. Since ridership data is provided more frequently than census data is collected, if it correlates well, then it can be used to predict changing popularity of different neighborhoods.
- For Businesses that wanted to target very specific types of customers, may want to also overlap a map of the CTA stations with different types of businesses or specific sites in Chicago (Hospitals, Retail, Schools, Museums, Pharmacies).
- For businesses interested in recreational foot traffic with disposable income, the local density of Starbucks in a neighborhood could stand in for disposable income of the incidental foot traffic.
- Crime statistics by zip-code or GPS coordinate or precinct. (From Police Department site). While some locations may technically be accessible, Chicagoans may choose to not frequent a stop if it is perceived to be in a high-crime neighborhood. (While this is sentiment more than hard facts, could ascertain hard facts by overlaying a crime map as well).

Making the data presentable

- Show historical trends in each measure. (E.g Wouldn't want the foot traffic stat to be downward trending relative to norm at a given location.)

- Show foot traffic and CTA accessibility measure as a heat map laid over the city displayed at the resolution of 0.25 km by 0.25 km.

- Show CTA stops on a map and make the size of each CTA stop proportional to its accessibility or ridership numbers.

- Provide a list of zip codes in the city that maximize value measures (e.g. density of foot traffic versus square-footage/$) as a sorted separate list.

- Commercial Properties currently for rent could be shown as drop pins on that map. This data may lend itself to additional measures such as the relative availability of properties to

rent (e.g. the Pilsen problem – you may really want to live there but is a lack of supply of properties on the market.). Additionally, may want data describing local vacancies. (While the rent may be cheap, would you want to be on Ashland and Chicago in between multiple vacant businesses?)