



Pace / CTA North Shore Transit Service Coordination Study & Market Analysis



Final Report

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Lori Brown, Illinois Department of Transportation (IDOT)
Allison Buchwach, Metra
Erik Cook, Village of Skokie
Jorge Cruz, Village of Wilmette
Will Gillespie, Regional Transportation Authority (RTA)
Brian Hacker, Regional Transportation Authority (RTA)
Lance Hall, Northwestern University
Danielle Horn, Village of Wilmette
Jim Hurley, City of Evanston
Elizabeth Irvin, Chicago Metropolitan Agency for Planning (CMAP)
Adam Kermen, Pace Citizen Advisory Board
Katie Knapp, City of Evanston
Bruce Lewis, Northwestern University
Shelly Lyon, City of Chicago 50th Ward
Amandeep Mann, Village of Skokie
Steve Marciani, Village of Skokie
Susan Mea, Chicago Department of Transportation (CDOT)
Paul Merkey, Northwestern University
Charles Meyer, Village of Lincolnwood
Kevin O'Neil, City of Chicago 49th Ward
Theresa Pelletier, Illinois Department of Transportation (IDOT)
Brian Pigeon, Northwest Municipal Conference (NWMC)
Mark Pitstick, Regional Transportation Authority (RTA)
Scott Presslak, Metra
Brenda Rancher-McGruder, Chicago Department of Transportation (CDOT)
Matthew Schmitz, Cook County Department of Transportation and Highways (CCDOH)
Jonathan Silverstein, City of Chicago 39th Ward
Erika Storlie, City of Evanston
Gereld Turry, Village of Lincolnwood
Matteo Vanella, City of Evanston
Michael Walczak, Northwest Municipal Conference (NWMC)
Tim Wiberg, Village of Lincolnwood

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All recommended adjustments to publicly-operated bus transit service described herein are subject to change at the discretion of Pace Suburban Bus and the Chicago Transit Authority (CTA).

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The North Shore Transit Coordination Plan & Market Analysis completed with the assistance of Nelson/Nygaard Consulting Associates, Inc. (NN), Metro Strategies, Inc., and C R Market Surveys, Inc.

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Pace / CTA  
North Shore Transit  
Coordination Plan &  
Market Analysis Study

# Final Report

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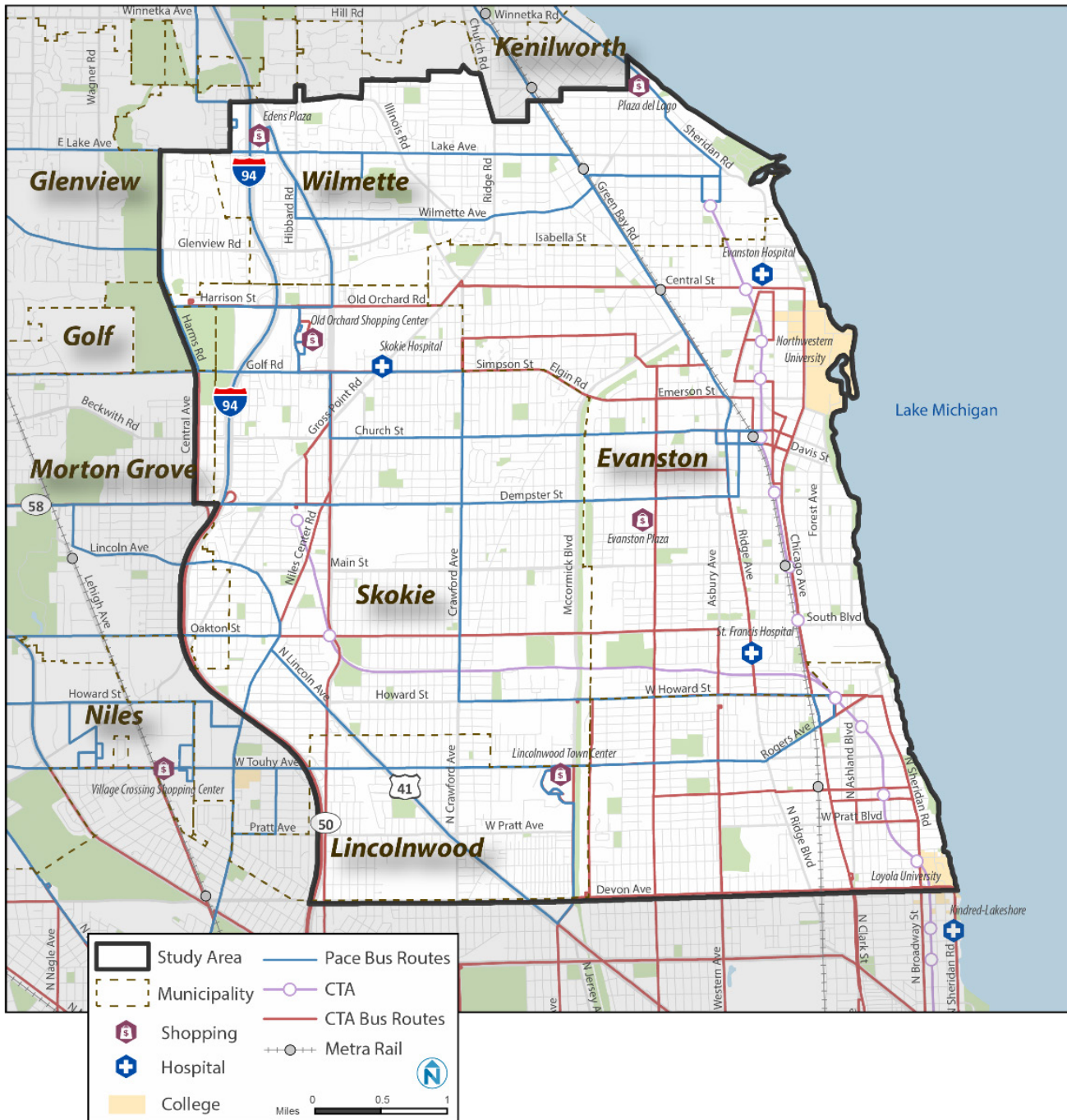
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Figure ES-1 North Shore Study Area



# EXECUTIVE SUMMARY

## INTRODUCTION

The Pace/CTA North Shore Transit Coordination Plan & Market Analysis Study (North Shore Coordination Plan) represents the most recent joint-agency collaboration effort to improve public bus service in Northeastern Illinois.

The North Shore Coordination Plan set out to achieve several important goals, as follows:

- Improve the overall bus transit network within the North Shore area of Northeastern Illinois
- Understand existing travel patterns
- Investigate how demographic trends and community preferences toward bus service in the study area have developed since the implementation of past changes to bus service
- Reduce redundant bus service
- Investigate opportunities for new bus service
- Optimize individual Pace and CTA bus route alignments, span and frequencies

Planned coordination of bus service offerings between the two agencies is expected to reduce operating costs, but more importantly is expected to improve mobility for current and future transit passengers.

The primary study area included the communities of Evanston, Lincolnwood, Skokie and Wilmette, as well as northern neighborhoods in Chicago, as shown in Figure ES-1.

Important steps in the North Shore Coordination Plan process included gathering meaningful public input throughout the project, understanding the market for transit, analyzing strengths and weaknesses of existing service, developing and evaluating service options, and creating implementable recommendations. This Executive Summary provides an overview of the findings and recommendations for restructuring Pace and CTA service in the North Shore and vicinity.

## GUIDING PRINCIPLES

The project Steering Committee reviewed and guided the development of five guiding principles based on findings from the market and travel analysis. These principles are designed to inform the future of transit service in the North Shore, as follows:

- **Focus on demand.** Service improvements should focus on areas of high demand for bus service, indicated by strong route and stop-level ridership. Improvements should also target areas and corridors with significant levels of population and employment, human activity and transit propensity, as defined by the study market analysis.
- **Create a stronger grid.** A key finding from the onboard survey is that passengers' largest concern is frequency and having reliable connections. A grid network helps facilitate more frequent service, provides a network that is more legible for passengers, and improves passengers' ability to make connections between intersecting routes.
- **Grow ridership.** Decreasing travel times and While Pace and CTA's largest ridership numbers are generated from peak-oriented trips, there is latent demand for service during non-peak hours. Improving service levels during these times will improve ridership among current passengers and attract other trip types beyond work trips.
- **Shift resources to more passengers.** Resources should be reallocated in ways which improve service for the greatest number of passengers possible. In practice, this entails operating bus service where and when it is most needed.
- **Serve new connections and new markets.** The market and travel analysis conducted early on in the study revealed several unmet travel markets. Restructuring existing routes and creating new routes will provide new connections and attract new passengers.

## THE MARKET FOR TRANSIT

The market analysis reviews demographic characteristics associated with the market for transit ridership, including population and employment levels and indicators. The purpose of this analysis is twofold: (1) to identify gaps in transit service in areas with high demand, and conversely (2) to identify over-served areas where transit demand is weak. This market analysis assesses demographic characteristics that are commonly associated with demand for transit as well as travel patterns to, from, and within North Shore communities. The analysis helps to better understand the people who live and work in the North Shore and project how likely they are to use transit.

A survey of Pace and CTA bus passengers asked how they use bus services in the North Shore study area today— their riding patterns and transfers, reasons for riding, about themselves, and what improvements to bus service they want to see —what would make them ride more often, and what their preferences are.

A total of 1,463 people responded to surveys on-board Pace and CTA bus routes in the study area conducted in the spring of 2016. An additional 1,000 people responded to a general public survey, both online (54 percent) and in-person (46 percent). The results from the general public survey helped identify the market potential for attracting new passengers within the study area and better understanding their needs.

More information about the market for transit is available in Chapter 2. Key findings from the market analysis are described below.

### **Ridership is focused in a few high-demand areas.**

- The most intense ridership is related to a few areas within the study area that are characterized by high levels of population and employment, greater levels of human activity, more intense transit propensity, and higher levels of transit service.

### **Current passengers are most concerned about frequency and reliable connections.**

- The comparison of overall passenger satisfaction with satisfaction of specific characteristics is useful for understanding which



characteristics, if improved, are most likely to improve overall satisfaction.

- The findings from this method provides insight into what parts of service are most important to current passengers:
  - Bus-rail transfer reliability ranked highest in importance among surveyed passengers, which correlates to the fact that over one-half of bus passengers transfer and nearly 25 percent of them reported a transfer to or from CTA rail service.
  - Speed and on-time performance also ranked as highly important among passengers.
  - Improving weekday midday frequency and adding later service is moderately important in improving passenger satisfaction.

### **Opportunities exist to improve ridership among current passengers.**

- Passengers who use bus service on a regular basis typically ride for work purposes. These majority of frequent passengers are young, diverse, lower income, working, don't own their own vehicle, or a combination thereof. These characteristics match well with the nationally developed profile of passengers (TransitCenter, 2016) who are more likely to use transit for all trip purposes.
- In the North Shore study area, 61 percent of all work trips completed via bus are made by passengers aged 18 to 40, who only constitute 50 percent of the study area population, and only 30 percent of all study area passengers.
- Current service offers access to many non-work destinations and activity centers as demonstrated by ridership patterns.

### **Opportunities exist to increase use among infrequent and non-passengers.**

- Top service improvements from survey participants who are infrequent or non-passengers were:
  - Frequency
  - Service to more places
  - Reliability
  - Morning and evening hours

- When asked what would get them to ride more often, infrequent and non-passengers are more likely to choose service improvements that enhance travel within the North Shore area over travel to downtown Chicago via CTA or Metra rail service.

**Opportunities exist to focus resources to improve service for more passengers.**

- There are areas and time periods featuring very low ridership. Reducing service to these areas may allow the reallocation of resources to areas and/or time periods that would serve additional passenger trips.
- There are a few areas where transit resources are duplicative or competing (i.e., where lines are on the same street or close together), or areas where the spacing between routes may not be appropriate compared with the surrounding land use conditions. While some of these may be justified, there may also be options to reduce redundancy and direct those resources to areas of higher transit demand.
- Opportunities exist to meet latent demand on certain routes when productivity is relatively high outside of peak times.

**There is a significant difference between work trips made by automobile and work trips made by bus for certain travel markets.**

- (Figures ES-2 and ES-3): The market assessment of the study included evaluating all home-based work trips - based on CMAP origin-destination model results, and the origins and destinations of respondents from the onboard survey that was conducted.
- A visual comparison of the trip patterns of all commuters (ES-2) with the trip patterns of only bus passengers (ES-3) allows a qualitative evaluation of where opportunities exist to improve bus service.
- If bus service was equally competitive with all other modes of travel for each of these trip patterns, the maps would appear as mirror images. However, while the two populations share some trip patterns, there are also some stark differences. Comparison of the two maps suggest opportunities exist to create new connections or serve new markets.

Figure ES-2 Regional Home-Based Work Trips (All Modes)

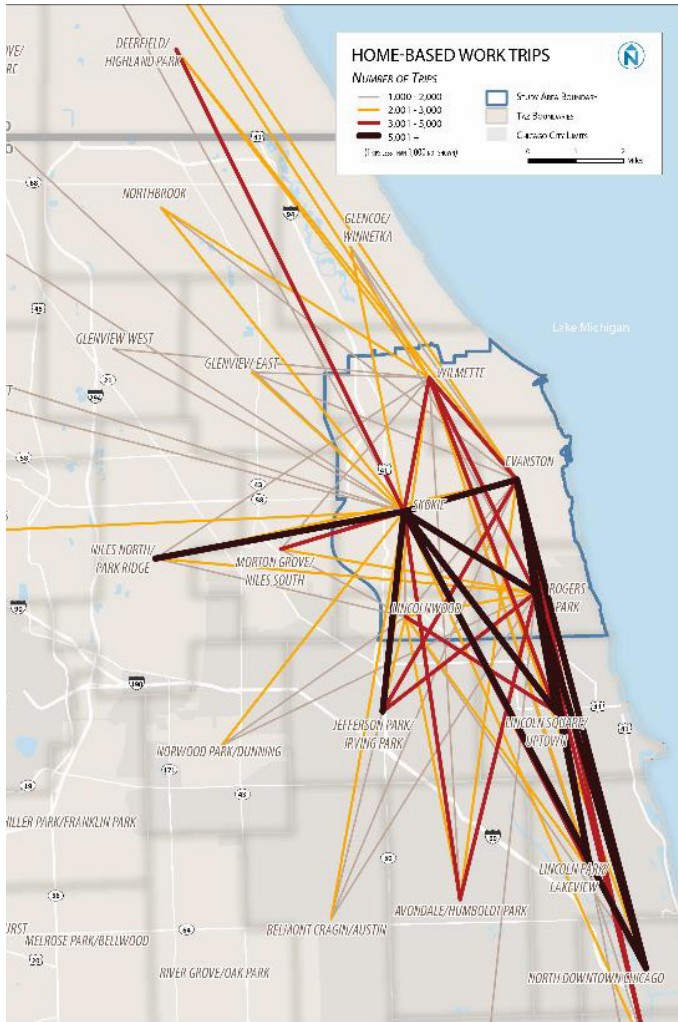
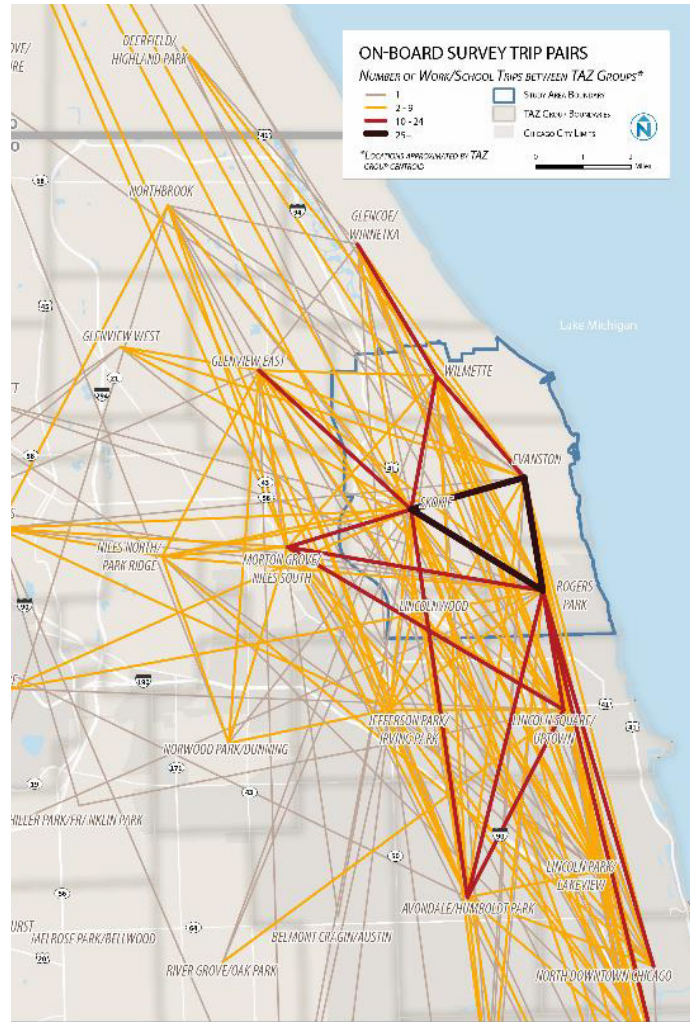


Figure ES-3 Bus Passenger Commute Trips



## EXISTING TRANSIT SERVICES

An existing transit service analysis was conducted which describes study area bus service in detail. This includes alignment characteristics, service span, headway, destinations served, ridership, and schedule adherence. The ridership information displayed in Figure ES-4 is based on recorded boardings and alightings provided by Pace and CTA.

Key findings from the existing service analysis include the following:

- **Transit Propensity is correlated to ridership.** Bus stops with the most ridership activity are located in areas with high transit propensity, namely to the southern and eastern portions of the study area.
  - Specific high-ridership sub-areas include the Chicago neighborhoods of Rogers Park and West Ridge, southern Evanston, and the Skokie Boulevard corridor.
  - The highest ridership stops are (in order) Howard CTA Station, Davis CTA Station, Loyola CTA Station, and Westfield Old Orchard Mall.
  - The highest ridership corridor is along Devon Avenue where CTA operates Route 155.
- **Weekends have service gaps.** Pace and CTA's most productive weekday routes are also the routes that operate on weekends. However, compared to weekday service, coverage on the weekends drops off notably, with only 9 out of 17 service-area routes operating on Saturday and 6 operating on Sunday.
- **Service is often running late.** Over one-third of routes have on-time performance averages below 80 percent. In some instances, running times that are too long for certain route segments may be contributing to on-time performance issues. For nearly all routes, unreliability is caused by late running.
- **Frequency is correlated to ridership.** Corridors with the highest peak-service frequency attract ridership, including Devon Avenue, Touhy Avenue, Howard Street, and Skokie Boulevard. On weekdays, notable off-peak headway reductions occur along several corridors.
- **Most passengers transfer.** More than half (59 percent) of weekday trips are completed with a transfer. Among passengers who transfer, 41 percent complete one transfer and 18 percent complete two transfers to complete.



**Average Weekday Ridership**

5,000  
1,000  
250  
10

**Agency Ridership**

Pace  
Both agencies at same stop  
CTA

1,474  
824

Pace Ridership  
CTA Ridership

**Routes**

CTA/Pace Bus Routes  
Metra Rail  
CTA Rail  
Study Area

**Map Labels:** Wilmette, Linden, Central, Noyes, Foster, Davis, Dempster, Main, South Blvd, Howard, Jarvis, Rogers Park, Morse, Loyola, Granville, Thorndale, Berwyn, Arroyo, St Augustine College, Chicago Junior College, Hebrew Theological College, Morton Grove, Skokie, Oakton-Skokie, Lincolnwood, Evanston, Central St, Central Ave, Lake Ave, Isabella St, Garfield St, Church St, Dempster St, Main St, Howard St, W Touhy Ave, W Lunt Ave, W Pratt, N Lincoln Ave, W Devon Ave, W Lake Ave, W 15th St, W 14th St, W 13th St, W 12th St, W 11th St, W 10th St, W 9th St, W 8th St, W 7th St, W 6th St, W 5th St, W 4th St, W 3rd St, W 2nd St, W 1st St, N Lake Ave, N Central Ave, N Lincoln Ave, N Devon Ave, N 15th St, N 14th St, N 13th St, N 12th St, N 11th St, N 10th St, N 9th St, N 8th St, N 7th St, N 6th St, N 5th St, N 4th St, N 3rd St, N 2nd St, N 1st St, W 15th St, W 14th St, W 13th St, W 12th St, W 11th St, W 10th St, W 9th St, W 8th St, W 7th St, W 6th St, W 5th St, W 4th St, W 3rd St, W 2nd St, W 1st St, N 15th St, N 14th St, N 13th St, N 12th St, N 11th St, N 10th St, N 9th St, N 8th St, N 7th St, N 6th St, N 5th St, N 4th St, N 3rd St, N 2nd St, N 1st St, W 15th St, W 14th St, W 13th St, W 12th St, W 11th St, W 10th St, W 9th St, W 8th St, W 7th St, W 6th St, W 5th St, W 4th St, W 3rd St, W 2nd St, W 1st St, N 15th St, N 14th St, N 13th St, N 12th St, N 11th St, N 10th St, N 9th St, N 8th St, N 7th St, N 6th St, N 5th St, N 4th St, N 3rd St, N 2nd St, N 1st St.



- **Service duplication is common.** An assessment of route spacing revealed that there are eight duplicated or competing segments of note in the study area.
- **Opportunities exist for reallocating resources.** Pace and CTA currently operate routes featuring low productivity during certain time periods. Areas and time periods in the study area where there is little or no ridership may indicate an opportunity to reallocate service to areas and time periods that can generate more ridership with the same levels of equipment and manpower.

Detailed information about the North Shore's existing bus service is available in Chapter 2.

## PUBLIC OUTREACH

Throughout the study, stakeholder and public involvement played an important role in the development of the plan and helped shape the final proposed service changes. A primary objective for public outreach conducted as part of the North Shore Coordination Plan was to obtain feedback regarding transit needs and potential improvements from a wide range of community members. The target audiences for outreach were transit passengers and the general public.

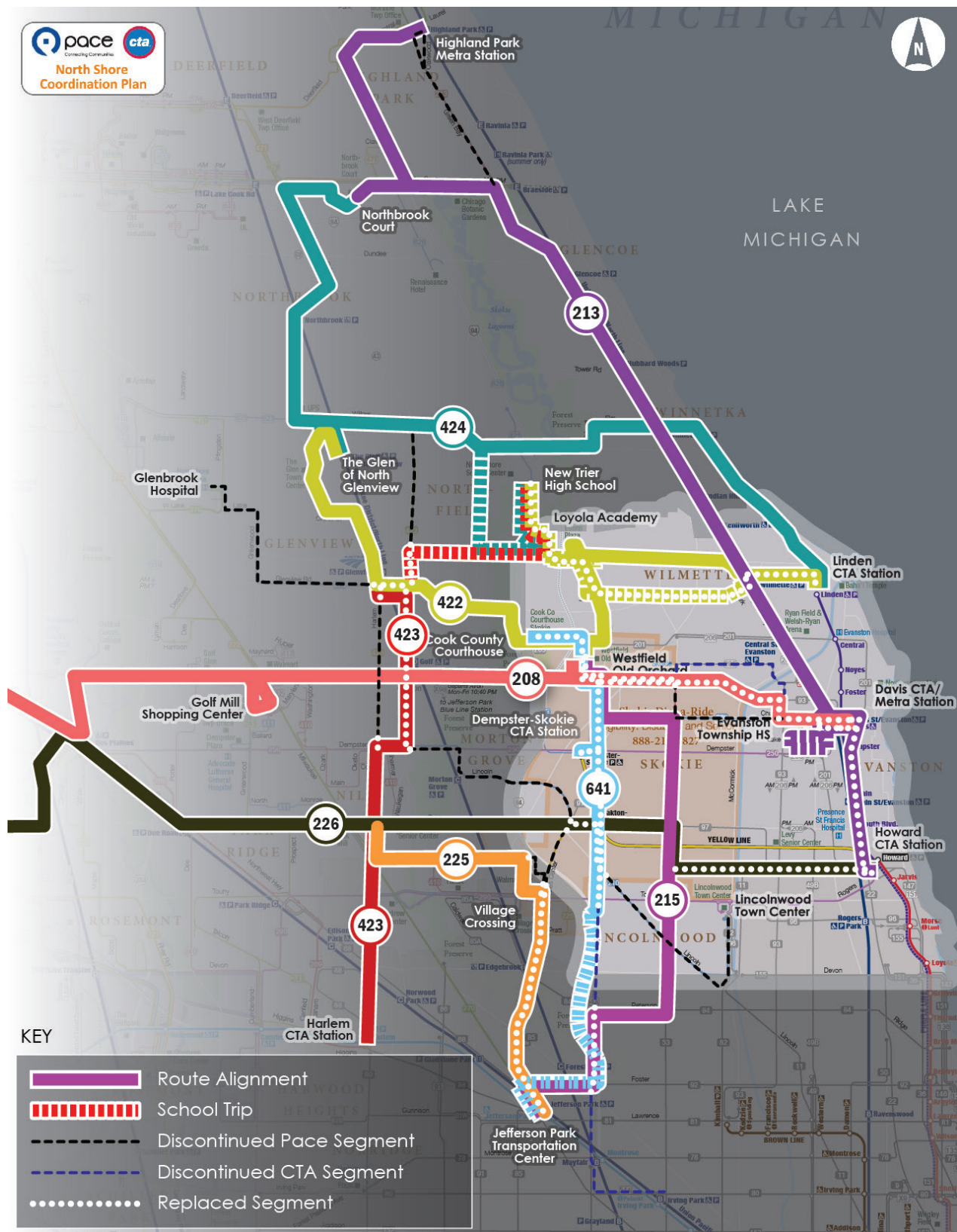
The public involvement approach provided stakeholders and the public with a variety of opportunities to provide input and feedback during the planning process. There were four main public involvement components:

- Steering Committee Meetings
- Public Open Houses
- Onboard Bus Passenger (1,400+ responses)
- Public Surveys (1,000+ responses)
- Study Webpage

The public and the stakeholder involvement activities provided important guidance throughout the study. The Steering Committee, in addition to providing general feedback and input, helped to guide the overall study and provide direction at key milestones. The study also engaged with the general public to gather information about their transit and travel needs and to provide general feedback and input at critical milestones.

More information regarding public outreach is available in Chapter 3.

Figure ES-5 Proposed Route Alignments with Discontinuities and Replacements\*



\* Only progressing study area routes with alignment changes are shown.

## SERVICE RECOMMENDATIONS

Proposed changes to transit service in the North Shore study area were presented to the public and key stakeholders at multiple meetings. Based on feedback from the outreach, a fiscally-constrained Preferred Alternative was created.

Figure ES-5 depicts the bus route alignments of the Preferred Alternative, while Figure ES-6 depicts changes to network frequency, and Figures ES-7 and ES-8 summarize the proposed alignment, frequency and span for respective Pace and CTA bus routes.

The changes address the following study goals:

- Adjusting service to better match demand
- Creating a stronger grid to improve connections, frequency and reliability
- Improving off-peak frequency
- Maintaining service quality for the vast majority of existing customers

Overall, an estimated 53 percent of existing passengers using study area routes will experience an improvement in bus service frequency or span representing an estimated 18,317 average daily boardings. These improvements are partially made possible by reallocating resources, which will cause a loss of service to roughly two percent of current passengers, representing an estimated 814 average daily boardings.

The preferred alternative will result in a slight increase in bus service hours in the North Shore. Net vehicle requirements for both agencies combined will be lower, however, implementation of the preferred alternative will require 4-5 additional vehicles for Pace services during peak hours.

More information about service recommendations can be found in Chapter 4.

***53% of passengers will  
gain better service using  
fewer net resources.***



Figure ES-6 Proposed Network Frequency | All Study Routes, plus Pace Pulse

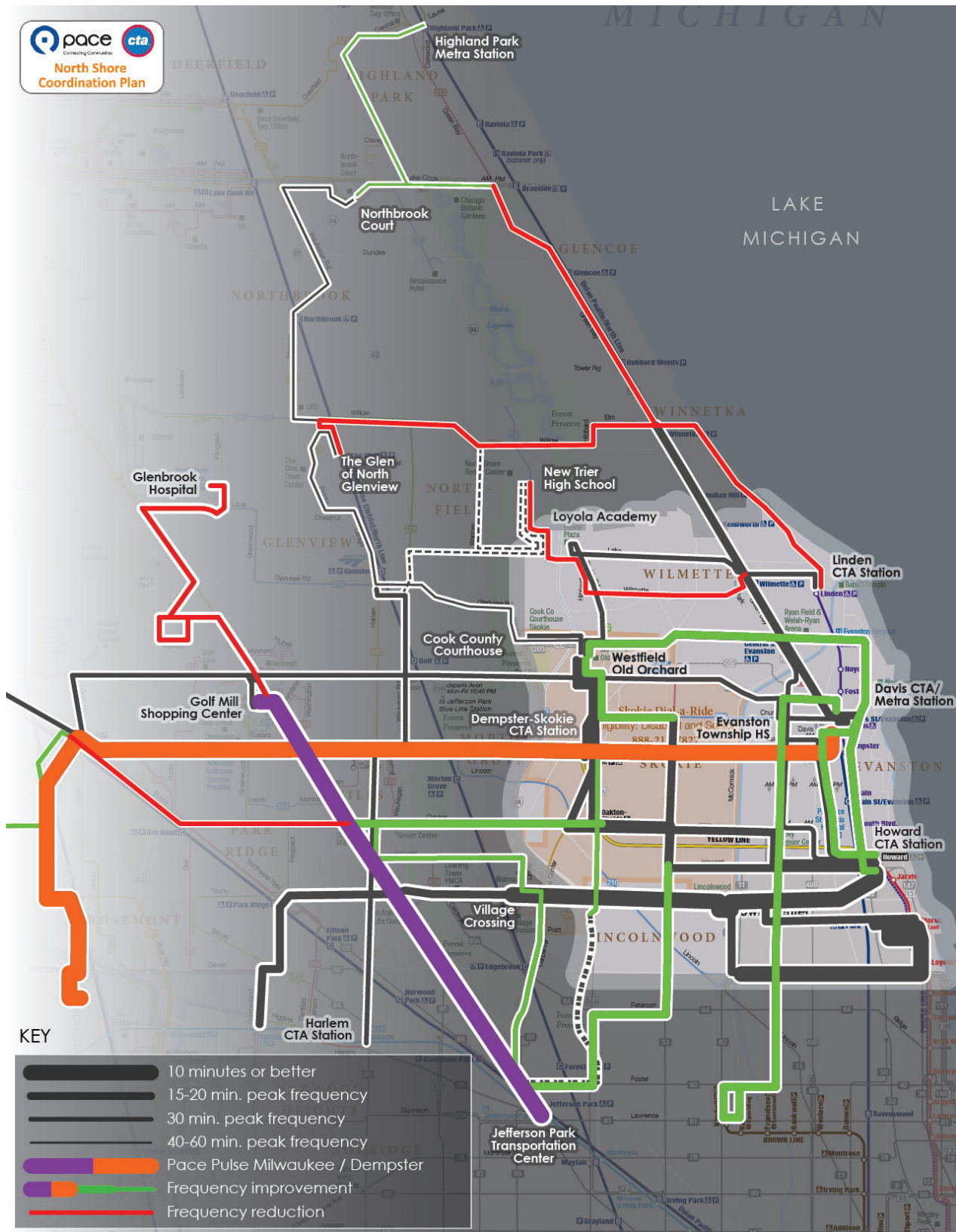


Figure ES-7 Summary of Changes | Pace Routes

| ROUTE | SUMMARY OF CHANGES                                                                                                                                                                                                                                            | PROPOSED FREQUENCY (Min.) |          | PROPOSED SPAN                                                                |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|------------------------------------------------------------------------------|
|       |                                                                                                                                                                                                                                                               | Peak                      | Off-peak |                                                                              |
| 208   | Restructure to operate on Golf/Emerson (CTA Route 205 segment) and on Church between Dodge and Davis CTA.                                                                                                                                                     | 30                        | 30       | 5:46 am-10:55 pm<br>6:40 am-10:40 pm (Saturday)<br>7:47 am-9:16 pm (Sunday)  |
| 210   | Discontinue; certain portions to be served by other route restructurings.                                                                                                                                                                                     | -                         | -        | -                                                                            |
| 213   | Extend service to Howard CTA via Chicago Ave. (CTA Route 205 segment) and improve frequency; short turn in Winnetka; add school trip to ETHS; Consolidate northern branches between Northbrook Court and Highland Park and increase midday frequency to both. | 20-40                     | 30       | 5:40 am-9:57 pm<br>6:55 am-7:45 pm (Saturday)                                |
| 215   | Extend to Jefferson Park CTA via Crawford/Peterson/Cicero/Foster/Milwaukee. Maintain existing frequency of 20-min peak / 40-min off-peak.                                                                                                                     | 20                        | 40       | 5:06 am-12:15 am<br>5:45 am-12:10 am (Saturday)<br>6:15 am-12:10 am (Sunday) |
| 225   | Restructure to serve Touhy/Central Street in Niles; add bidirectional service; extend span to all day with 30 min peak, 60 min off-peak service.                                                                                                              | 30                        | 60       | 5:30 am-7:11 pm                                                              |
| 226   | Extend to Howard CTA via Oakton-Crawford-Howard; Consolidate short-turns between Milwaukee/Oakton (Pulse Milwaukee Station) and Howard CTA Station. Remove service on Niles-Center Road (Route 225 segment).                                                  | 20-40                     | 30-60    | 5:01 am-12:00 am<br>5:45 am-12:10 am (Saturday)<br>6:15 am-12:10 am (Sunday) |
| 250   | No change; Pulse Dempster line implementation and related Route 250 changes targeted for 2020 to include overall service improvements in the corridor.                                                                                                        | 20                        | 20       | 4:58 am-1:15 am<br>6:05 am-1:13 am (Saturday)<br>6:05 am-1:14 am (Sunday)    |
| 290   | No change.                                                                                                                                                                                                                                                    | 7-10                      | 20       | 4:52 am-1:30 am<br>5:33 am-1:00 am (Saturday)<br>6:30 am-12:00 am (Sunday)   |
| 421   | Discontinue; school trips to be retained and reassigned to Route 422.                                                                                                                                                                                         | -                         | -        | -                                                                            |
| 422   | Restructure to serve Glen of Glenview; pick up school trips from Route 421.                                                                                                                                                                                   | 30-60                     | 60       | 6:19 am-10:41 pm                                                             |
| 423   | Restructure to serve Harlem to downtown Glenview only; shift alignment from Harlem to Waukegan Road north of Dempster (Route 210 segment); retain existing school trips.                                                                                      | 30                        | 60       | 5:35 am-8:40 pm                                                              |
| 424   | <b>NEW ROUTE</b> - Linden CTA Station to Northbrook Court via Elm-Hibbard-Willow-Shermer-Waukegan-Lake Cook (Route 423 segment).                                                                                                                              | 60                        | 60       | 5:35 am-8:40 pm                                                              |
| 641   | <b>NEW ROUTE</b> - Express from Jefferson Park to Touhy/Skokie, local to Old Orchard, Skokie Courthouse (CTA Route 54A segment).                                                                                                                              | 30                        | 30       | 6:00 am-6:00 pm                                                              |



**Figure ES-8 Summary of Changes | CTA Routes**

| ROUTE | SUMMARY OF CHANGES                                                            | PROPOSED FREQUENCY (Min.) |          | PROPOSED SPAN                                                                |
|-------|-------------------------------------------------------------------------------|---------------------------|----------|------------------------------------------------------------------------------|
|       |                                                                               | Peak                      | Off-peak |                                                                              |
| 54A   | Discontinue; portions to be served by Pace Route 215 and 641 service changes. | -                         | -        | -                                                                            |
| 93    | Improve route frequency.                                                      | 11-20                     | 20       | 5:00 am – 9:40 pm<br>7:00 am – 8:15 pm (Saturday)                            |
| 96    | No change.                                                                    | 15-30                     | 30       | 5:25 am - 7:05 pm                                                            |
| 97    | No change.                                                                    | 15                        | 20       | 4:55 am-10:45 pm<br>6:30 am-10:30 pm (Saturday)<br>6:35 am-10:35 pm (Sunday) |
| 155   | No change.                                                                    | 8-15                      | 10-20    | 4:45 am-12:40 am<br>5:00 am-12:40 am (Saturday)<br>5:20 am-12:40 am (Sunday) |
| 201   | Improve route frequency.                                                      | 20                        | 30       | 5:00 am-8:00 pm<br>8:55 am-7:15 pm (Saturday)                                |
| 205   | Discontinue; portions to be served by Pace Routes 208 and 213.                | -                         | -        | -                                                                            |
| 206   | Reduce route span.                                                            | 20-25                     | -        | 7:05 am-8:20 am 2:20 pm-5:20 pm                                              |

## ALIGNMENT WITH GUIDING PRINCIPLES

The Preferred Alternative was reviewed to ensure alignment with established guiding principles, as summarized in Figure ES-9. The Preferred Alternative either improves or aligns with these principles.

**Figure ES-9 Achievement of Guiding Principles**

| PRINCIPLE                     | ROUTE(S)      | HOW THE CHANGES ACHIEVE THE PRINCIPLE                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Focus on demand</b>        | 93, 201       | Routes 93 and 201 are busy routes, a fact that directly influenced the need for increased frequency.                                                                                                                                                                                                                                                                                                                                           |
|                               | 206           | Lower demand on certain trips warranted the consolidation of trips to focus on the times when demand is highest.                                                                                                                                                                                                                                                                                                                               |
|                               | 213           | Frequency improvements focus on Green Bay Road and Chicago Avenue between Winnetka and Howard station, where demand is highest.                                                                                                                                                                                                                                                                                                                |
|                               | 421           | Very low demand on non-school trips warrants the elimination of non-school service and shifting of resources to higher-demand areas.                                                                                                                                                                                                                                                                                                           |
|                               | 422           | Lower demand on certain segments warranted restructuring of Route 422 which also allows other route changes.                                                                                                                                                                                                                                                                                                                                   |
|                               | 423, 424      | By splitting Route 423 into two routes (Routes 423 and 424), resources can be re-focused to provide an appropriate level of service for each corridor.                                                                                                                                                                                                                                                                                         |
| <b>Create a stronger grid</b> | 205           | The discontinuation of Route 205 allows the previously L-shaped alignment to be replaced by east-west running Route 208 and north-south running Route                                                                                                                                                                                                                                                                                          |
|                               | 208           | The Z-shaped kink of this route in downtown Skokie will be removed to allow a longer east-west stretch into downtown Evanston.                                                                                                                                                                                                                                                                                                                 |
|                               | 213           | The extension of Route 213 south to Howard CTA Station will augment a north-south component of the grid network.                                                                                                                                                                                                                                                                                                                               |
|                               | 226           | The north-south segment of this route is absorbed by Route 225; by absorbing the portion of Route 215 on Howard, Route 226 becomes an east-west route.                                                                                                                                                                                                                                                                                         |
|                               | 421, 422, 423 | By splitting Route 423 into two routes (Routes 423 and 424), Route 423 will provide a stronger north-south orientation while Route 424 will provide a stronger east-west orientation (between Glenview and Linden CTA Station). Meanwhile, the combination of having Route 422 absorb the Glen portion of Route 423, and having Route 424 absorb the northern segment of Route 422 will provide a stronger east-west orientation of Route 422. |

**Figure ES-9 Achievement of Guiding Principles (continued)**

| PRINCIPLE                                    | ROUTE(S) | HOW THE CHANGES ACHIEVE THE PRINCIPLE                                                                                                                                                                                                                                                                         |
|----------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grow ridership</b>                        | 93       | Increased frequency is expected to attract additional passenger activity.                                                                                                                                                                                                                                     |
|                                              | 213      | Increased frequency is expected to attract additional passengers, both on the northern end where two branches going to Highland Park and Northbrook Court mall will be consolidated, and in the southern end of Chicago Avenue where 30-min peak service (Route 205) will be upgraded to 20-min peak.         |
|                                              | 225      | A minor alignment change in Niles will provide a more direct connection between the CTA Blue Line and the Village Crossing shopping area, a locale that currently generates heavy passenger activity on Route 290. Introduction of midday service is expected to attract riders where there is latent demand. |
|                                              | 226      | Providing a new strong east-west connection between Howard CTA Station and Milwaukee Avenue at the future Pace Pulse Milwaukee Oakton Station is expected to be mutually beneficial for passengers traveling in both corridors.                                                                               |
|                                              | 641      | Created to provide a fast, reliable and all-day travel option to address the gap in transit use between Skokie and Jefferson Park that was identified from the Market Analysis. The route will also augment transfer opportunities to future Pace Pulse Dempster service at Dempster-Skokie CTA Station.      |
| <b>Shift resources to more passengers</b>    | 93, 201  | Similar to how the frequency improvements will focus on demand, so too will the associated increase in resources benefit additional passengers.                                                                                                                                                               |
|                                              | 210      | The resources saved from the discontinuation from this route would be reinvested in other route improvements.                                                                                                                                                                                                 |
|                                              | 215      | The necessary investment in resources to restructure Route 215 is expected to benefit passengers in multiple parts of the study area.                                                                                                                                                                         |
|                                              | 225      | Increasing resources on Route 225 will compensate for the loss of Route 226 service on Niles-Center Road, as well as provide additional trip options to multiple employment locations just outside of the study area.                                                                                         |
|                                              | 226      | The anticipated growth in ridership from restructuring this route will be made possible from the addition of resources.                                                                                                                                                                                       |
|                                              | 421      | Very low demand on non-school trips warrants the elimination of non-school service and shifting of resources to higher-demand areas.                                                                                                                                                                          |
| <b>Serve new connections and new markets</b> | 213      | New north-south connections include Davis to Howard CTA Station, as well as Highland Park to Northbrook Court mall.                                                                                                                                                                                           |
|                                              | 215      | New north-south connections to Jefferson Park Transportation Center from Jefferson Park, Forest Glen, Sauganash, Lincolnwood Skokie, and Westfield Old Orchard shopping center.                                                                                                                               |
|                                              | 226      | New east-west connections between Rogers Park, Evanston and Skokie, and by extension to Niles, Morton Grove, Des Plaines, and Elk Grove Village.                                                                                                                                                              |
|                                              | 422      | New east-west connections between the Glen of Glenview and Westfield Old Orchard shopping center and Wilmette.                                                                                                                                                                                                |
|                                              | 423      | New north-south connection between Waukegan Road in Morton Grove and Harlem CTA Blue Line station.                                                                                                                                                                                                            |
|                                              | 424      | New connections between Northbrook Court mall/Village of Northbrook and Northfield, Winnetka, Kenilworth and Wilmette.                                                                                                                                                                                        |
|                                              | 641      | New connections between Jefferson Park Transportation Center and Lincolnwood, Pulse Dempster-Skokie CTA Station, downtown Skokie, and Skokie Courthouse.                                                                                                                                                      |

## PHASING PLAN

Anticipated phasing for the Preferred Alternative service recommendations is provided in Figure ES-10 below.

**Figure ES-10 Summary of Proposed Phasing Plan**

| PHASE / TIMEFRAME                         | CHANGE IDENTIFIED BY THIS PLAN                                      | OTHER PLANNED CHANGES                                                       |
|-------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Post-Study Launch</b><br>Pre-2018      | CTA Route 206   Restructure                                         | N/A                                                                         |
|                                           | Pace Route 208   Schedule optimization                              |                                                                             |
|                                           | CTA Route 93   Improve frequency                                    |                                                                             |
| <b>Phase 1</b><br>Fall of 2018            | CTA Route 205   Discontinue                                         | Pace Pulse Milwaukee   Launch                                               |
|                                           | Pace Route 208   Restructure                                        | Pace Route 270   Restructure                                                |
|                                           | Pace Route 213   Restructure and extension                          |                                                                             |
| <b>Phase 2</b><br>Early to mid-2019       | CTA Route 54A   Discontinue                                         | N/A                                                                         |
|                                           | Pace Route 210   Discontinue                                        |                                                                             |
|                                           | Pace Route 215   Restructure and extend                             |                                                                             |
|                                           | Pace Route 225   Restructure and add weekday service                |                                                                             |
|                                           | Pace Route 226   Restructure and add weekday and weekend service    |                                                                             |
|                                           | Pace Route 423   Restructure (Waukegan Road segment)                |                                                                             |
|                                           | Pace Route 641   Launch                                             |                                                                             |
| <b>Phase 3</b><br>Late 2019 or early 2020 | Pace Route 421   Discontinue and reassign school trips to Route 422 | Pace Pulse Dempster   Launch (target late 2020)                             |
|                                           | Pace Route 422   Restructure                                        | Pace Route 250   Restructure (target late 2020, with Pulse Dempster launch) |
|                                           | Pace Route 423   Restructure and shorten                            |                                                                             |
|                                           | Pace Route 424   Launch                                             |                                                                             |



*CTA and Pace buses staging at the Howard CTA Red Line Station in Chicago, Illinois.*



# 1 Introduction

The primary goals of the North Shore Transit Coordination Plan & Market Analysis Study (North Shore Coordination Plan) were to improve coordination of Pace and CTA services on overlapping corridors and to investigate opportunities for new service.

Other goals of the study were to improve overall transit service in the North Shore area and optimize coordination of Pace and CTA bus services by studying existing travel demands and markets and reviewing changes and new developments in the study area related to prior service changes and planning efforts. This Final Report is a written summary of the North Shore Coordination Plan process, findings and recommendations.

The study was administered by staff from both Pace Suburban Bus and the Chicago Transit Authority (CTA) through a Pace-administered contract. Eighty percent of funds for this study came from federal grant money administered by the Chicago Metropolitan Agency for Planning (CMAP) via the United Works Program (UWP). Pace funded the remainder.

Pace procured the services of Nelson/Nygaard Consulting Associates, Inc. for this study, who served as the primary contractor and managed the services of sub-contractors Metro Strategies and CR Market Surveys, Inc.

## REPORT ORGANIZATION

The Final Report is organized into three main chapters, as follows:

- **Chapter 1 Introduction** (this page)
- **Chapter 2 Existing Conditions:** Summarizes current socioeconomic conditions and travel patterns within the North Shore study area. This chapter also overviews trends in bus services based on recent agency-provided performance data and market analysis findings.
- **Chapter 3 Public Outreach:** Summarizes public outreach activities conducted throughout the study process.
- **Chapter 4 Service Alternatives:** Provides an evaluation of service alternatives and description of the preferred alternative and proposed implementation phasing.



*CTA and Pace buses serving the JC Penney entrance of Westfield Old Orchard Shopping Center in Skokie, Illinois.*

## 2 EXISTING CONDITIONS

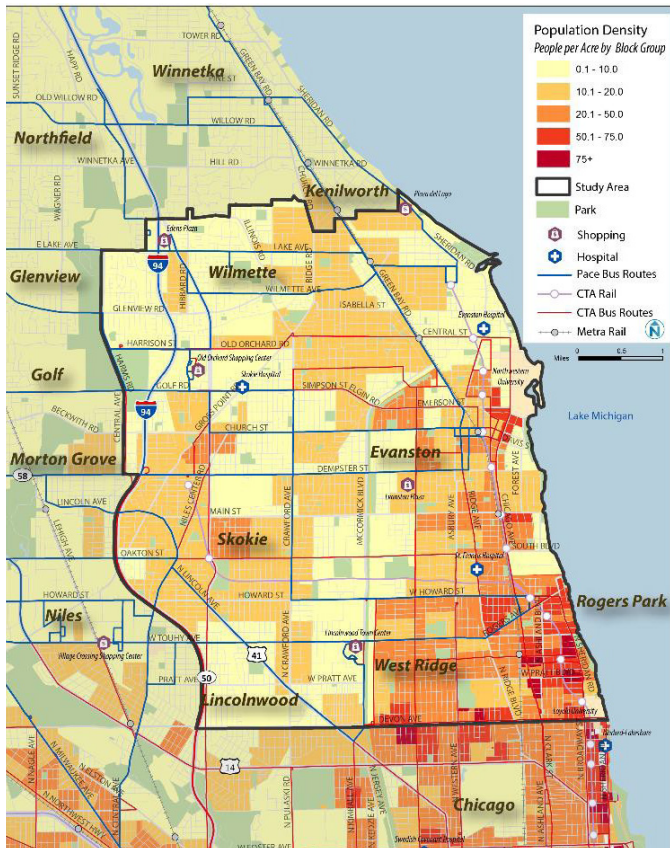
### STUDY AREA DEMOGRAPHICS

Demographics help inform the defining characteristics and locations of people who are more likely to ride transit. Two important factors are concentrations of population and employment.

Population and employment densities directly influence transit usage; the more people there are living in an area or attracted to an area, the larger the probability is that a greater number of them will use transit. Aside from simple concentrations of people and economic activity, socio-economic factors such as income, automobile access, age, physical disabilities, and rental housing can also affect an area's demand for transit services.

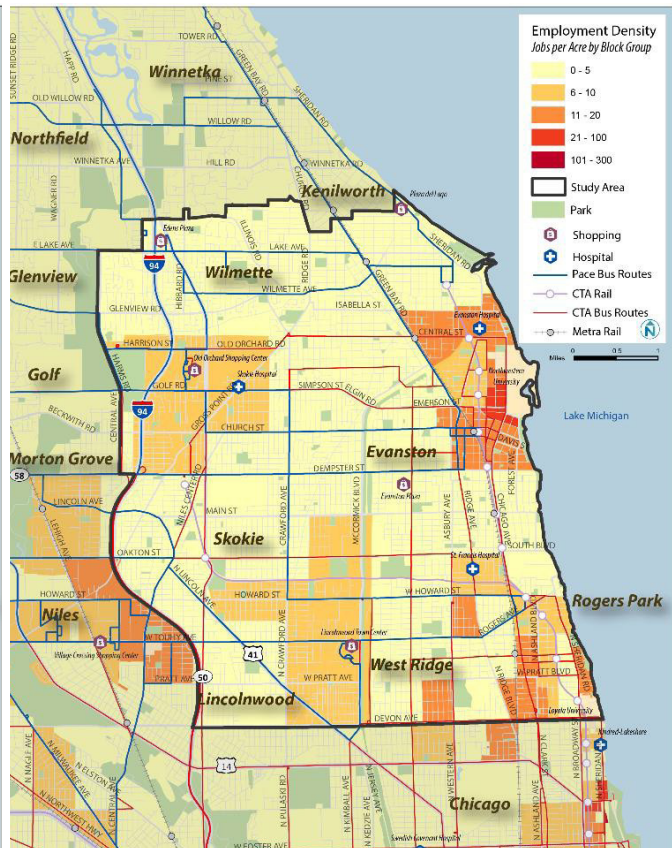
The following section summarizes key findings from a demographic assessment of the North Shore study area. Figures 2-1 through 2-10 graphically indicate concentrations of key demographic indicators.

**Figure 2-1 Population**



Residents are most highly concentrated in the eastern half of the study area, most notably in Rogers Park and Evanston, centered along the Chicago Avenue, Clark Street, and Devon corridors. The population of the entire study area is 276,513.

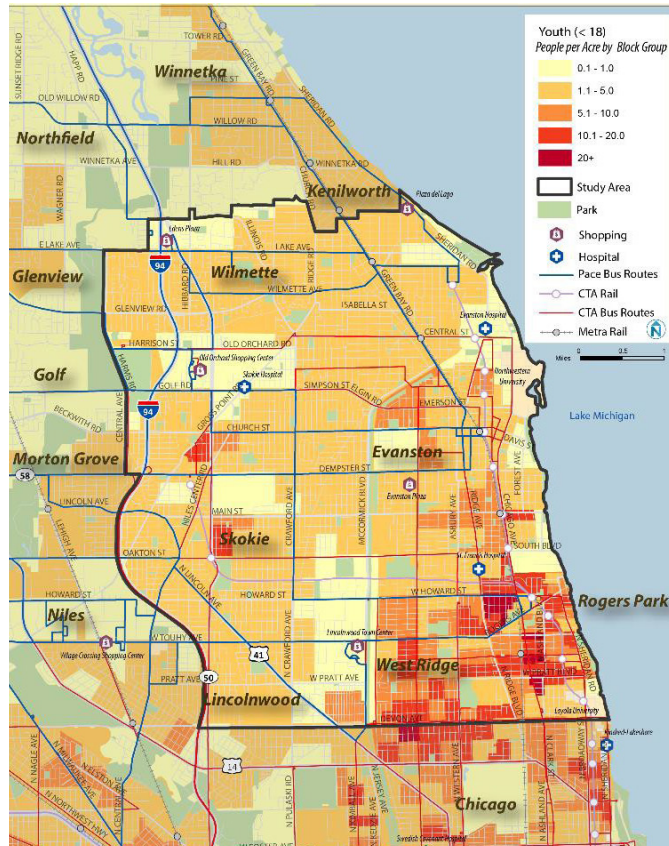
**Figure 2-2 Employment**



Employment is clustered primarily around Northwestern University, in Rogers Park, throughout Skokie, and just to the west of the study area in Niles and Skokie. Jobs in the entire study area total 110,802.

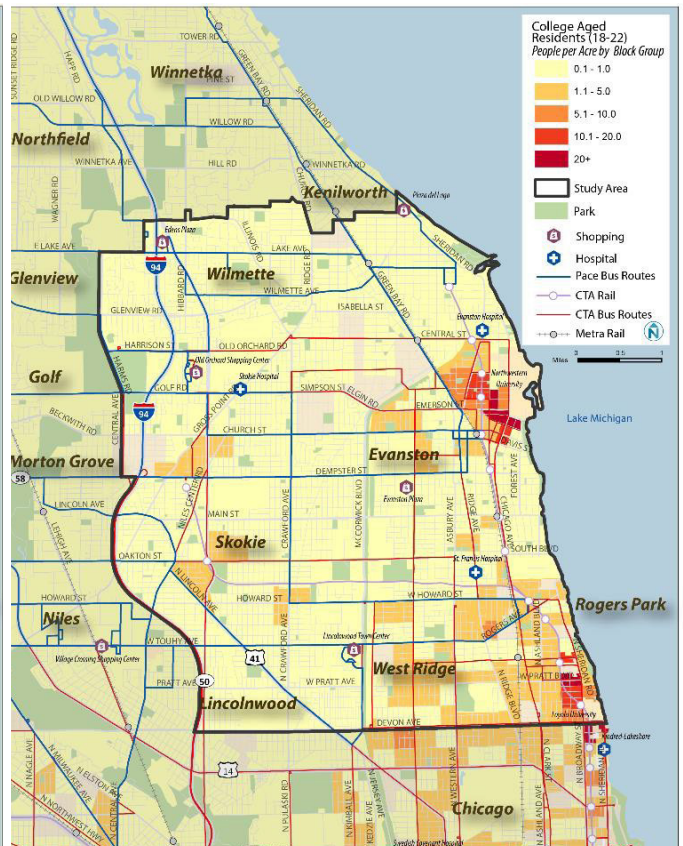


Figure 2-3 Youth, under 18 years



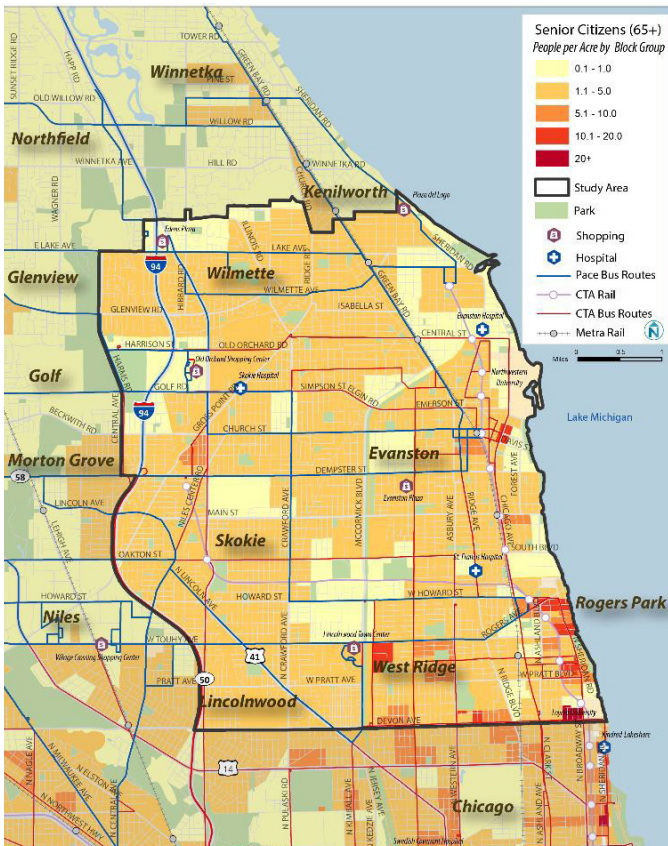
Youth under the age of 18 are concentrated in the southeastern part of the study area, especially in Rogers Park and West Ridge. There are also notable instances of high youth population in Skokie and Evanston.

Figure 2-4 Young Adults, 18-22 years



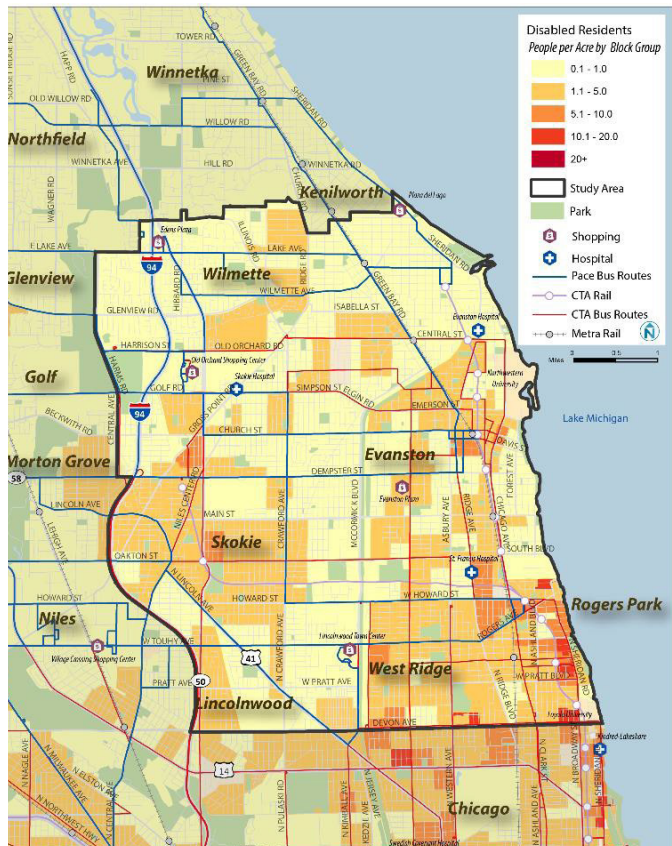
Young adults have the most notable presence around Northwestern University and Loyola University. West Ridge and the northern edge of Rogers Park are also home to a sizable population of residents aged 18 to 22.

**Figure 2-5 Seniors, over 65 years**



Senior over the age of 65 are evenly dispersed across the study area with a few notable clusters along Lake Michigan. The block groups with the highest densities can be found in Evanston, West Ridge, and Rogers Park.

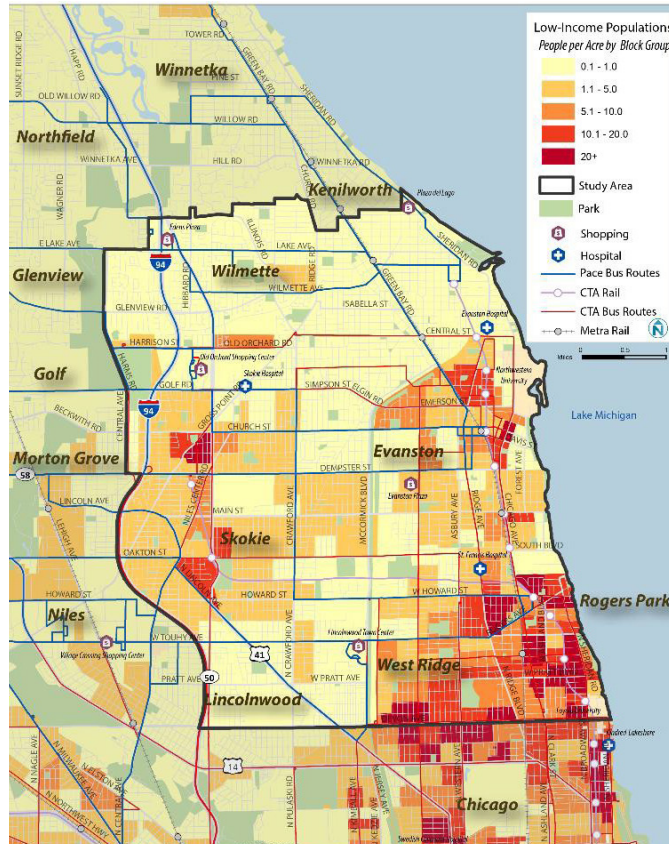
**Figure 2-6 Residents with Disabilities**



Among residents with a disability, the most notable clusters are on the Sheridan Avenue corridor (Rogers Park), on the Devon Avenue corridor (West Ridge and Rogers Park), along the Skokie Blvd corridor, and near downtown Evanston.

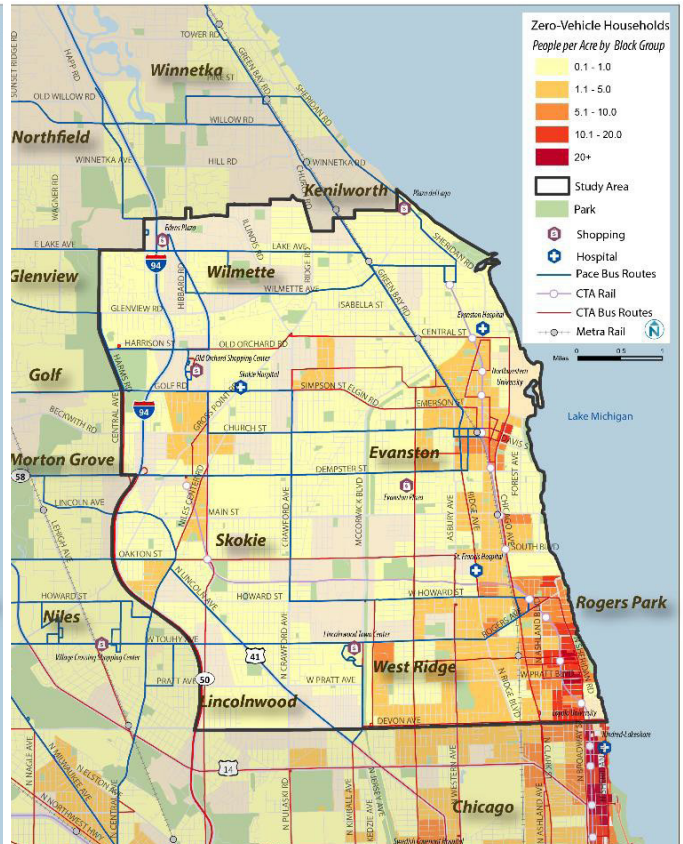


Figure 2-7 Low-Income Population



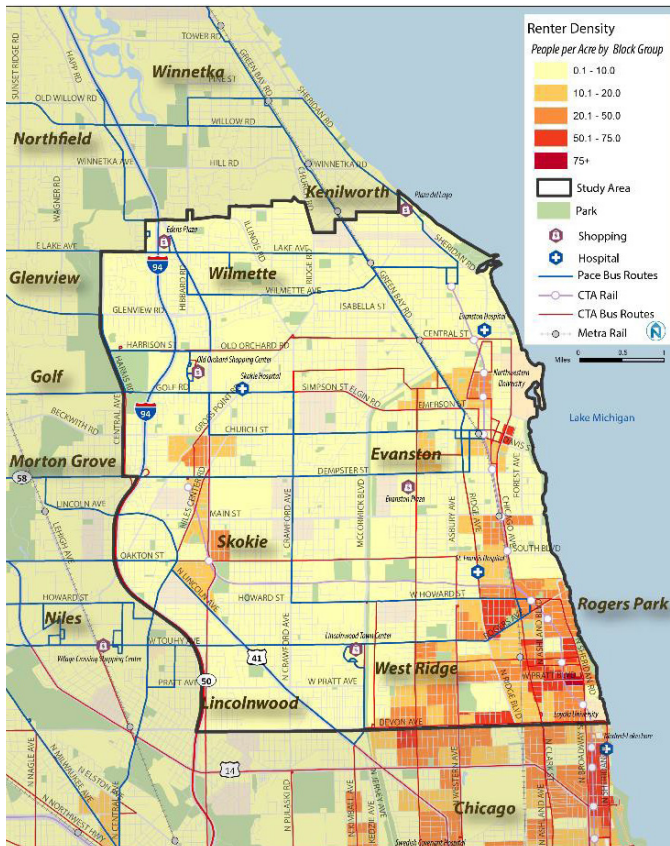
Low-income persons (at or below 150 percent of Census poverty threshold) are highly concentrated on the southeast portion of the study area in Rogers Park and West Ridge. Other small clusters are present in the western half of the study area, and near Northwestern University in Evanston.

Figure 2-8 Zero-car Households



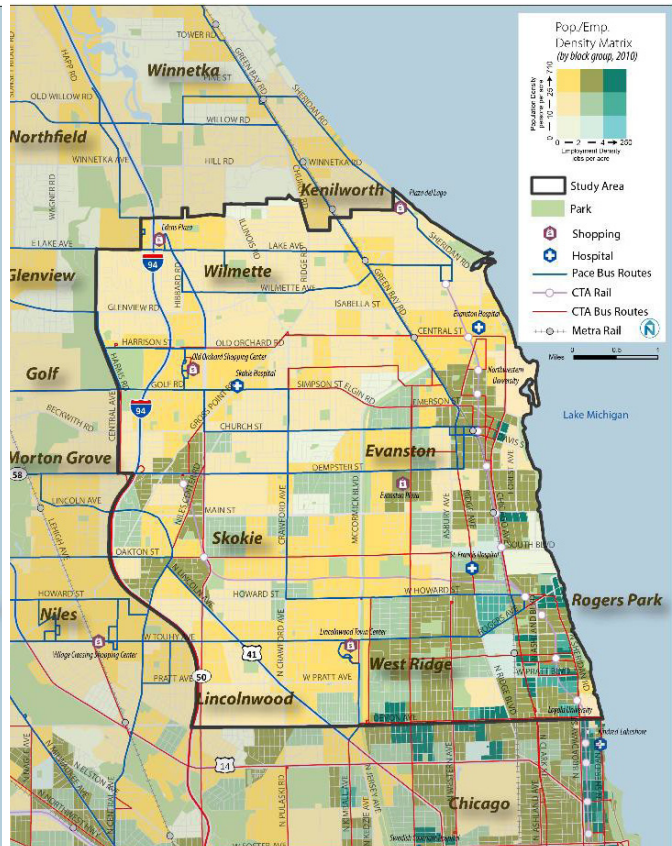
Households without access to a car have a strong presence along the eastern half of the study area, with the densest pockets in Rogers Park just west of Sheridan Road and in Evanston just south of Northwestern University.

**Figure 2-9 Rental Dwellings**



Rental households are most concentrated in northern Chicago, especially in Rogers Park just north of Loyola University and in West Ridge just north of Devon Avenue.

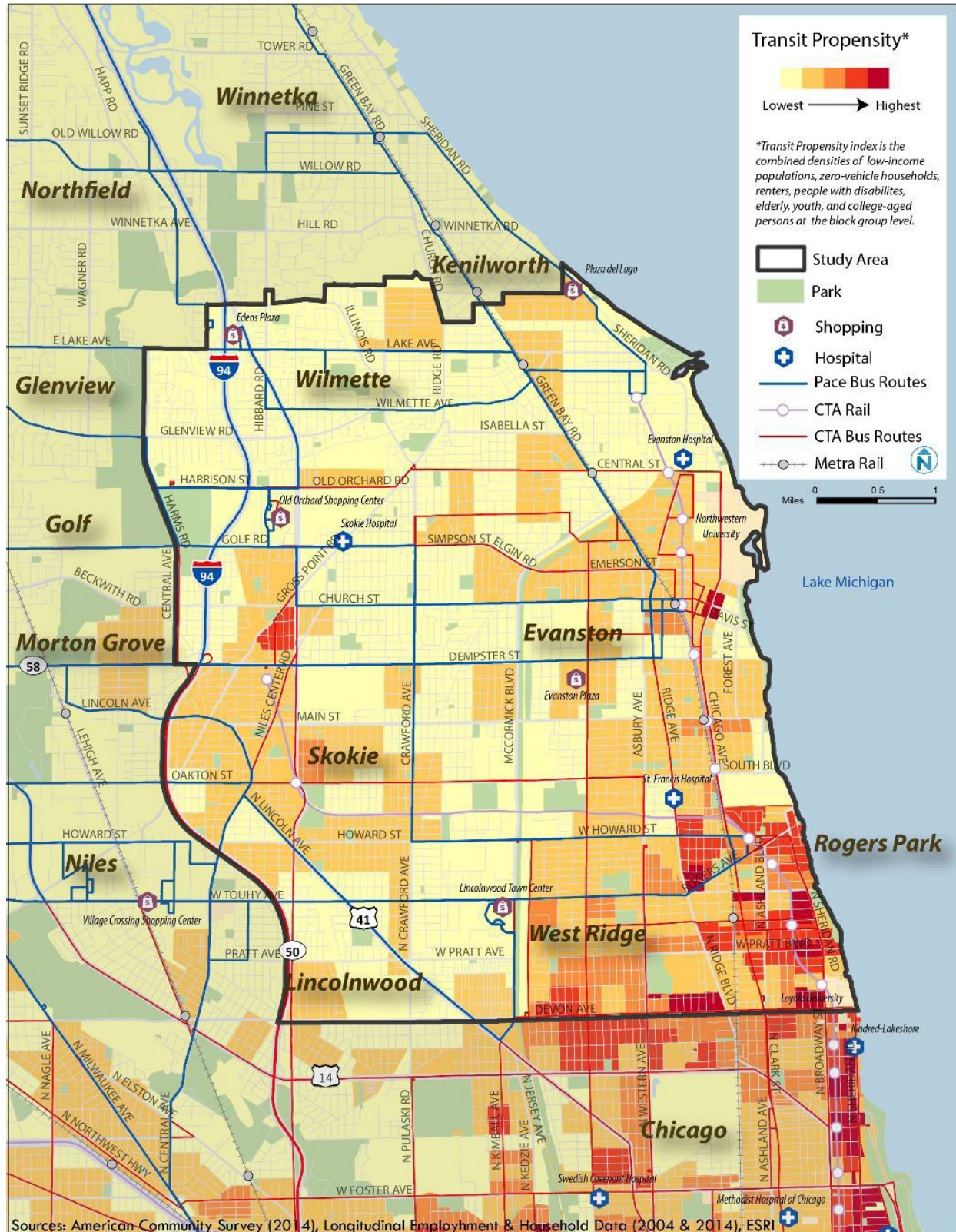
**Figure 2-10 Population & Employment**



High population and employment densities, when taken together, are a good indicator of an area's need for transit service. The areas in Evanston and northern Chicago east of McCormick Boulevard and in Skokie between I-94 and Skokie Boulevard have the highest concentration of both employment and residences.



Figure 2-11 Transit-Propensity Index



## Transit Propensity

Transit propensity is an index measure that indicates where the highest ridership need is likely to occur based on demographics. For the North Shore study area, transit propensity is highest in the southeastern corner (in Rogers Park and West Ridge) and in Evanston, especially in the neighborhoods adjacent to Northwestern University. There are also visible pockets along the Skokie Boulevard corridor.

In order to estimate transit propensity in the North Shore study area, the densities of seven different demographic indicators including youth, college students, seniors, people with a disability, households without access to a car, people living in poverty, and renters were added together, assigned values, and grouped from very low to very high.

Figure 2-11 shows how this index is distributed geographically.

## TRAVEL PATTERNS

An analysis of origin-destination travel demand was conducted to determine major travel patterns to, from, and within the North Shore study area. The analysis used trip tables from the Chicago Metropolitan Agency for Planning (CMAP) travel demand model for the year 2010 as well as 2014 Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census Bureau. Several trip types were examined, including home-based work trips, non-home based trips, and home-based other trips. The analysis includes both automobile and transit trips.

More people commute into or out of the study area (84 percent) than those who commute within it (16 percent).<sup>1</sup> The LEHD data also indicates the following study area characteristics:

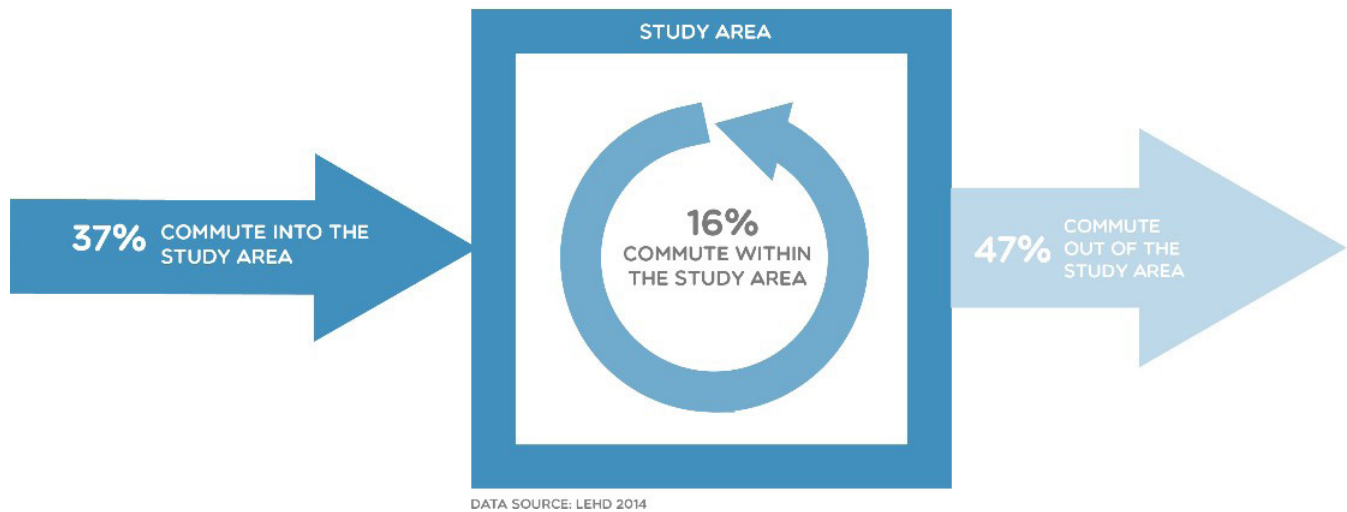
- 174,814 work trips are generated from and attracted to study area communities.
- 81,320 study area residents travel outside the study area to work.
- 65,150 commuters live outside the study area and travel into the study area for work.
- 28,344 commuters live and work within the boundaries of the study area. When combined with the 65,150 people who travel into the area for employment, the daytime population of the study area is slightly higher than the residential population.

---

<sup>1</sup> U.S. LEHD, 2014

## By the Numbers

OUT OF **174,814** DAILY COMMUTERS IN THE STUDY AREA...



## Home-Based Work Trips

The North Shore is a major employment center in the region, producing and attracting thousands of commute trips of short and long distances.

Figure 2-12 depicts home-based work trip patterns derived from the 2010 CMAP regional travel demand model. Findings from this analysis include:

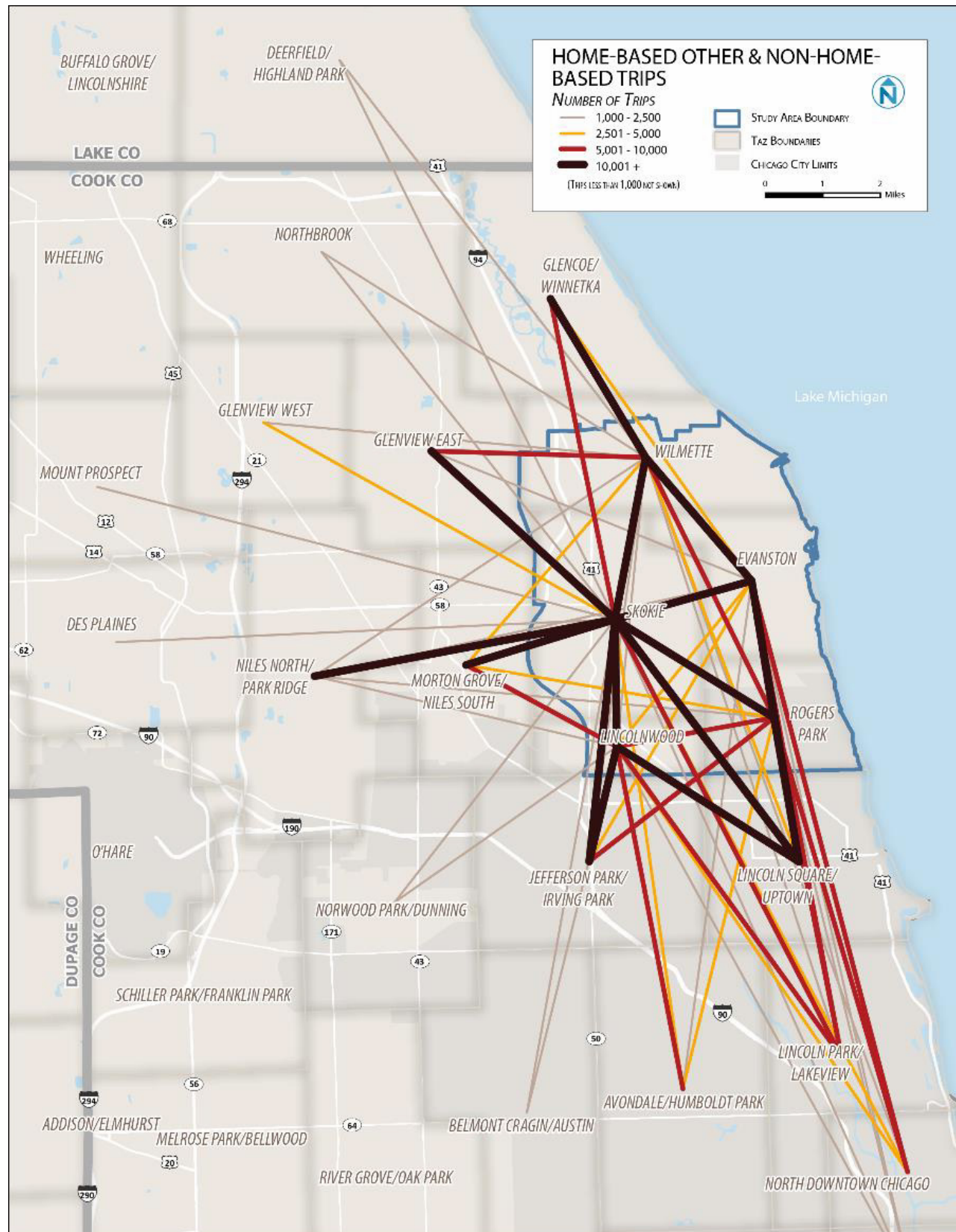
- Communities outside the study area that attract and generate the most trips are (in order): Downtown Chicago, Lincoln Square/Uptown, Lincoln Park/Lakeview, and Jefferson Park/Irving Park.
- Many people also commute between Evanston, Skokie, and Niles North/Park Ridge, and to a lesser extent between Skokie and Morton Grove/Niles South. These pairs are well served by transit, with several long east-west bus routes providing a one-seat ride between Evanston and Niles North/Park Ridge (Pace routes 208, 250, 290).
- The number of people commuting between Skokie, Evanston, and Rogers Park is also high, totaling over 5,000 home-based work trips daily. These origin-destination pairs are well served by transit, with multiple Pace and CTA bus routes serving the area as well as CTA rail service between Rogers Park and Skokie, and Rogers Park and Evanston.







Figure 2-13 Home-Based Other and Non-Home-Based Trips



## Home-Based Other and Non-Home-Based Trips

Non-work travel patterns in the study area, including home-based trips for purposes other than work and non-home-based trips, are displayed in Figure 2-13, once again using the 2010 CMAP regional travel demand model:

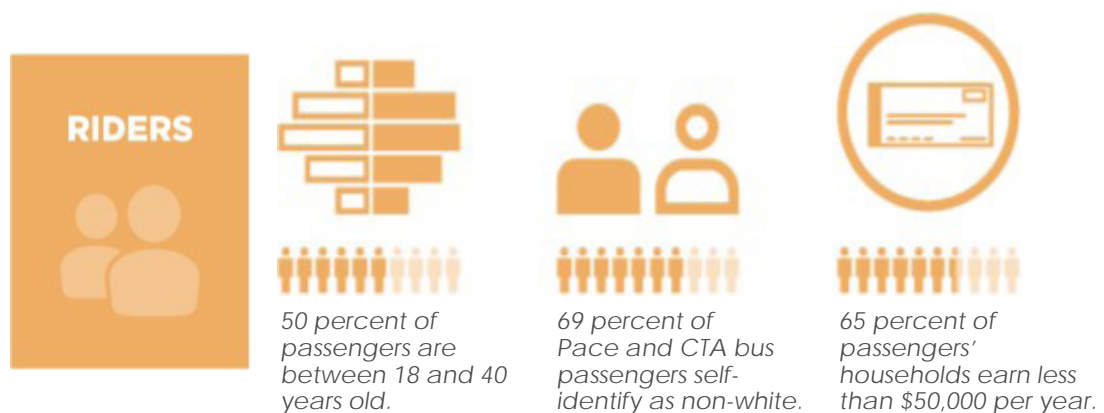
- The most significant travel patterns (more than 10,000 daily trips) are generally short distances between adjacent zones. These trips are served by Pace and CTA bus routes within the study area.
- There is also some longer distance north-south travel activity between the study area and Avondale/Humboldt Park, Lincoln Park/Lakeview, and North Downtown Chicago.

## BUS PASSENGER SURVEY

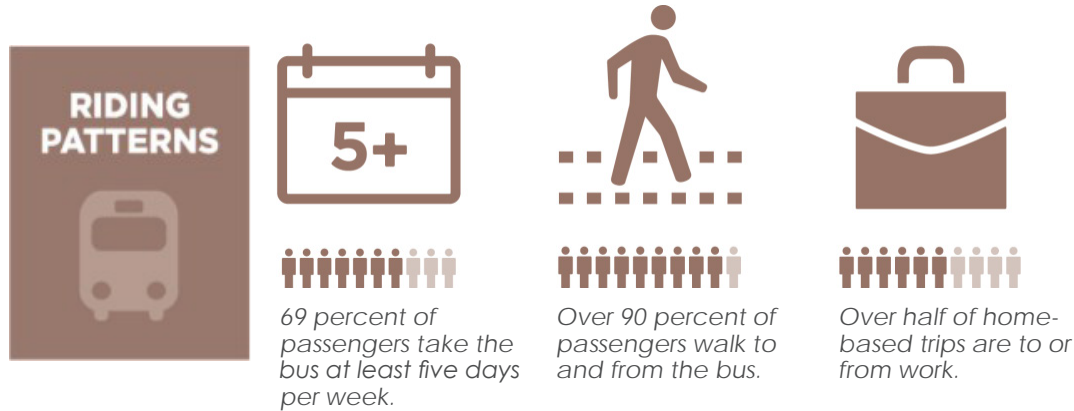
Pace and CTA asked bus passengers how they use bus services in the North Shore study area today—their riding patterns and transfers, reasons for riding, about themselves, and what improvements to bus service they want to see—what would make them ride more often, and what their preferences are. The following section summarizes the findings of that on-board survey conducted in spring 2016. A total of 1,463 people responded to surveys on-board Pace and CTA bus routes in the study area.

### Who are Pace and CTA bus passengers?

Generally, bus passengers are younger, more diverse, have lower household incomes, and own fewer autos than the general population of the study area, and are travelling for work and school. Passengers who occasionally use transit for non-work purposes are older, have higher incomes with a diversity profile that is similar to the study area community. Low-income, working passengers were the least likely among income groups to have a discounted transit pass.



## Where are passengers going?



Bus passengers' travel patterns are shown in the maps in Figure 2-12 and Figure 2-13. Bus passengers' work and school trips are much less oriented to downtown Chicago than are the trips of the general public. Short trips within one area comprise nearly one-quarter of all trips.

Important trip origins and destinations for transit passengers include:

- Between Evanston and Rogers Park
- Between Skokie and Rogers Park
- Between Skokie and other areas outside the study area, such as Morton Grove, southern Niles, and Avondale/Humboldt Park
- Intra-Evanston trips
- Intra-Rogers Park trips

## What are passengers' transfer patterns?



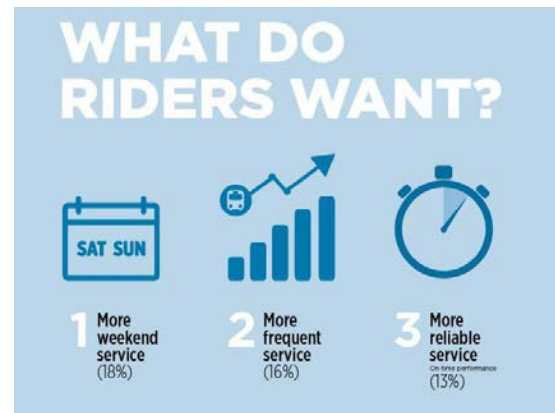
## What reasons are passengers riding?

Pace and CTA buses provide a valuable service to people without (or with limited access to) personal automobiles. Over two-thirds of bus passengers cite not owning a car as a reason for using public transit. One-quarter cite the cost of driving or the cost of parking, followed by 17 percent who said they prefer taking transit.

An additional nine percent indicated that they own a car but that someone else in the household uses it.

## What improvements do passengers want to see?

Bus passengers are interested in seeing more weekend service, increased frequency, and better reliability.



## How satisfied are passengers?

Overall satisfaction with Pace and CTA bus service was evaluated, and is based on which routes passengers use and how frequently they take the bus. Findings include:

- Passengers on Pace Routes 210, 250 and 422 are most satisfied with service.
- Passengers on CTA Route 201 also ranked service as good among overall satisfaction rankings.
- Passengers on CTA Routes 54A and 93 reported the lowest overall satisfaction.
- As overall passenger satisfaction increases, the time they are willing to wait for a transfer increases.
- Occasional bus passengers who use transit once per week or less are more likely than other bus passengers to rank services as poor and less likely to rank services as good.

On-board surveys also inquired about how satisfied passengers are with specific aspects of bus service in the North Shore study area. These aspects include frequency, on-time performance, speed, and areas served.

In addition to rating individual service attributes, those surveyed were also asked to rate their overall satisfaction with Pace and CTA bus service. These rankings were then further analyzed to determine how important each service attribute is to passengers. The purpose of this analysis is to clarify the degree of satisfaction, as well as understand which attributes are most important overall.

The level of importance was derived by assessing the correlation of each individual service attribute with passengers' overall satisfaction ranking, which then allows attributes to be ranked in order from greatest to least.

For example, a customer may have rated walking distance as "Poor," yet still rated their overall satisfaction with transit service as "Excellent." This tells us that the person places less importance on walking distance. Even though they are relatively dissatisfied with that particular element of service, it plays only a minor role in their overall level of satisfaction with bus service in the study area.

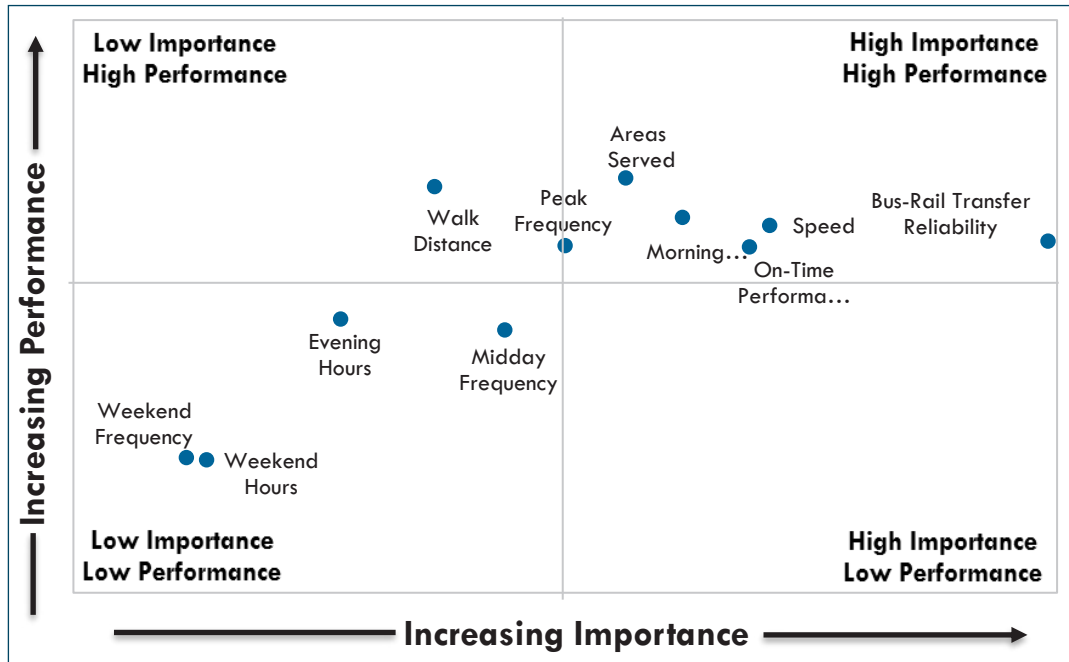
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<sup>2</sup> Although survey results are statistically representative of bus transit passengers in the study area, sample sizes may not be statistically representative for each route.



Figure 2-14 illustrates the performance of specific service attributes or the level of satisfaction for that attribute, as such correlate to bus passengers' overall satisfaction.

Figure 2-14 Importance vs. Performance for Service Attributes



Attributes in upper-right quadrant in the figure above indicate service features that Pace and CTA passengers are most satisfied with, and that are highly correlated with passengers' overall satisfaction, or the level of importance that factor plays in determining overall satisfaction. Improving on these attributes will likely have a significant positive effect on overall passenger satisfaction.

Attributes in the lower-left quadrant indicate service features that passengers indicate lower levels of satisfaction yet are less important to passengers' overall satisfaction. Therefore, improving on these factors would likely have a minimal impact on improving overall satisfaction.

***Passengers indicate that Pace and CTA should focus on improving bus-rail transfer reliability, bus speed and on-time performance of bus routes.***

Other key findings from the performance/importance assessment include:

- **Pace and CTA do well with high-importance attributes.** Passengers indicate that Pace and CTA are performing well on several of their highest valued transit service attributes: bus-rail transfer reliability, speed, on-time performance, morning operating hours, and areas served.
- **Bus-rail transfer reliability, speed, and on-time performance have performance rankings closest to the average.** This indicates there are opportunities for Pace and CTA to affect overall customer satisfaction through targeted improvements. It should be noted that bus-rail transfers -- including both bus-to-bus and bus-to-rail -- affect about half of all passengers. The fact that this attribute also shows up as one of the most important in terms of overall satisfaction indicates transfers should be a key priority for both agencies.
- **Walking distance matters, but less than other attributes.** Walking distance to bus stops receives high marks, but is less important to passengers than other attributes.
- **Frequency matters, but less than other attributes.** The frequency of buses during peak hours also ranks above average in performance but is on the border between low and high importance, suggesting that current passengers are moderately satisfied with the level of service in peak periods.
- **Off-peak frequency is lacking, but also less important.** Passengers feel that Pace and CTA are under-performing on midday frequency, evening hours, weekend hours, and weekend frequency. However, these also have lower importance, indicating that improving these attributes would have a lesser influence on improving overall customer satisfaction. Of these, midday frequency is closest to the median, indicating that this attribute plays a greater role in passengers' overall satisfaction than evening hours or weekend service.

## GENERAL PUBLIC SURVEY

More than 1,000 people responded to a general public survey using both the online (54 percent) and in-person (46 percent) versions that were made available in the spring of 2016.

Project team staff intercepted respondents at five locations in the North Shore study area where respondents completed digital surveys on-site:

- Davis CTA Station (Evanston)
- Howard CTA Station (Chicago)
- Summer Concert Series event at Proesel Park (Lincolnwood)
- Westfield Old Orchard Mall (Skokie)
- Wilmette Metra Station (Wilmette)

The online version of the survey was also sent to major employers and communities in the study area via email.

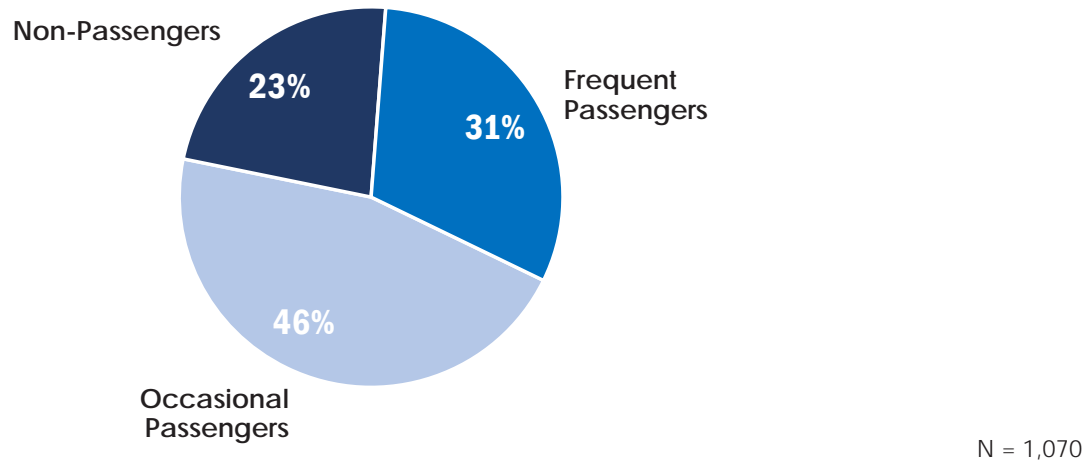
The results from this survey are intended to help identify potential markets for attracting new passengers within the study area, as well as better comprehend the travel needs, desires and preferences of the general public who spend time in the North Shore.

### How often do people ride Pace and CTA buses?

While some respondents to the general public survey indicated they are current transit users, they tend to ride on the system less frequently than those who took the onboard survey. Nearly half of people who took the general public survey reported using the bus less than once per week compared to the onboard survey where nearly 70 percent of respondents ride on buses five or more days per week.

Figure 2-15 shows how often people reported riding Pace or CTA buses in the general public survey.

**Figure 2-15 Frequency of Pace/CTA Bus Use**



Among the 1,070 people who responded to the survey:

- 31 percent are frequent passengers, riding Pace or CTA buses two or more times per week
- 46 percent are occasional passengers, riding Pace or CTA buses once per week or less
- 23 percent are non-passengers, who have not ridden Pace or CTA buses any time in the past year

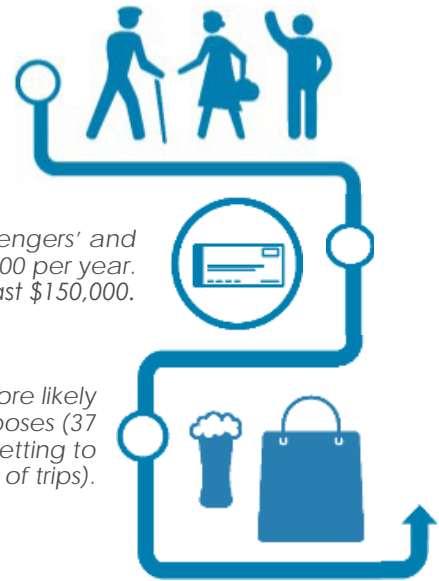
We focused the findings below on responses from people who do not ride the bus often— occasional and non-passengers—as these groups represent a potential market for increasing bus transit ridership in the North Shore area.

## Who are they?

*Occasional transit passengers (one transit trip per week or less) and non-passengers are well distributed by age. Adults aged 65 and over are over-represented as compared to the general population.*

*More than two-thirds (69 percent) of occasional passengers' and non-passengers' households earn more than \$50,000 per year. More than one-fifth (22 percent) earn at least \$150,000.*

*Occasional passengers and non-passengers are more likely to use the bus for recreational and social purposes (37 percent of trips) than for other purposes such as getting to work (35 percent of trips) or school (7 percent of trips).*



## Where are they going?

Occasional transit passengers' and non-transit passengers' travel patterns are shown in the maps in Figures 2-18 and 2-19. This information is contrasted with the travel patterns of respondents from the on-board survey in Figures 2-16 and 2-17. Occasional and non-transit passengers traveled for non-commute purposes (i.e., shopping, recreation, socializing) to more destinations south of the study area compared to frequent transit passengers.

The most important trip origins and destinations for occasional transit passengers and non-passengers are:

- Evanston
- Skokie
- Wilmette
- Rogers Park
- Downtown Chicago



### What would make them ride more?

Occasional transit passengers and non-passengers would like increased frequency, service to new areas, more reliable service, and extended operating hours.

- Buses that come more frequently
- Buses that go more places
- Buses that come on time more often
- Buses that run earlier and later in the day

When asked what would get them to ride more frequently, occasional passengers and non-passengers also favored service improvements that enhance travel within the North Shore area over travel to downtown Chicago via CTA or Metra rail.

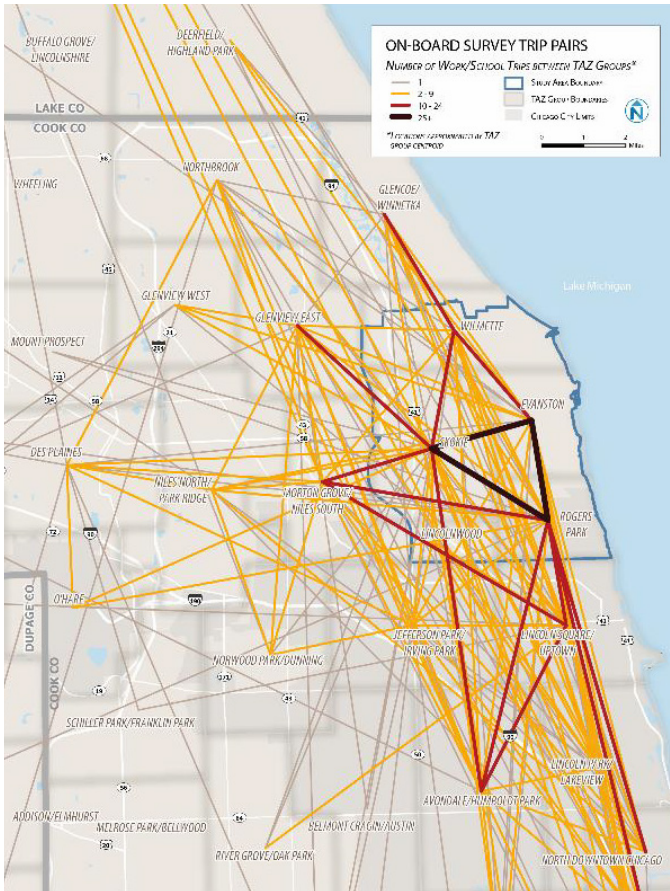
### Overall Satisfaction

Overall satisfaction with Pace and CTA bus service in the area was also evaluated based on how frequently respondents ride buses, as well as their place of residence. Findings from this analysis include:

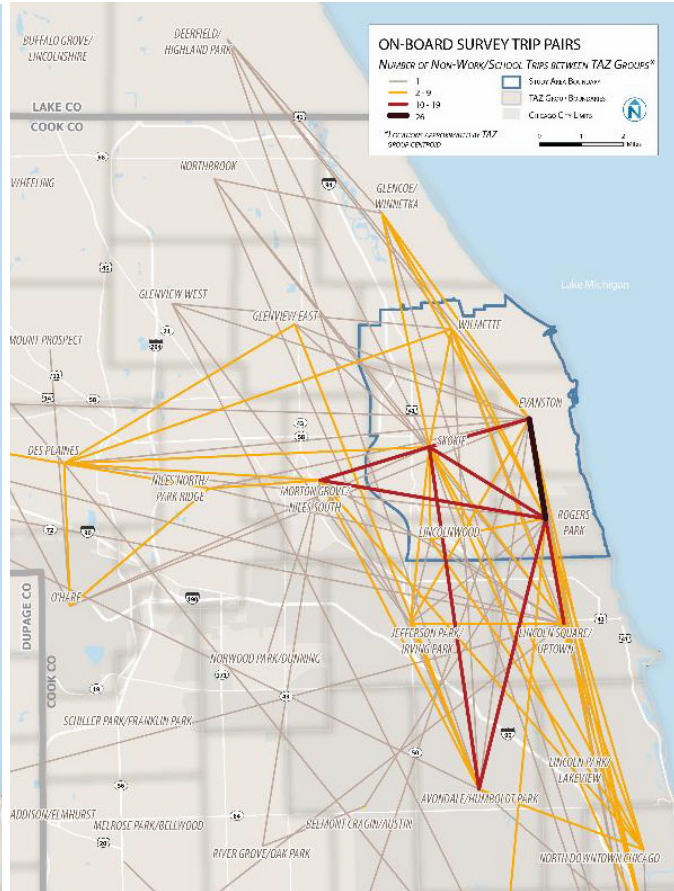
- A common reason infrequent and non-passengers more is that transit information is confusing or too hard to understand. Efforts to clarify or distribute information about transit may encourage people to try transit.
- Residents requested more destinations in Lincolnwood; 37 percent of Lincolnwood residents mentioned coverage as one of the reasons they do not ride more often, and 54 percent listed coverage as the best way to get them to ride more often.
- Evanston residents mentioned a lack of service frequency and that buses do not take them to where they want to go more than other study area residents. This indicates that improvements to coverage or destinations available from Evanston might attract more passengers.

The Market Briefing Book provides more detailed information about both the passenger and general public survey results and analyses.

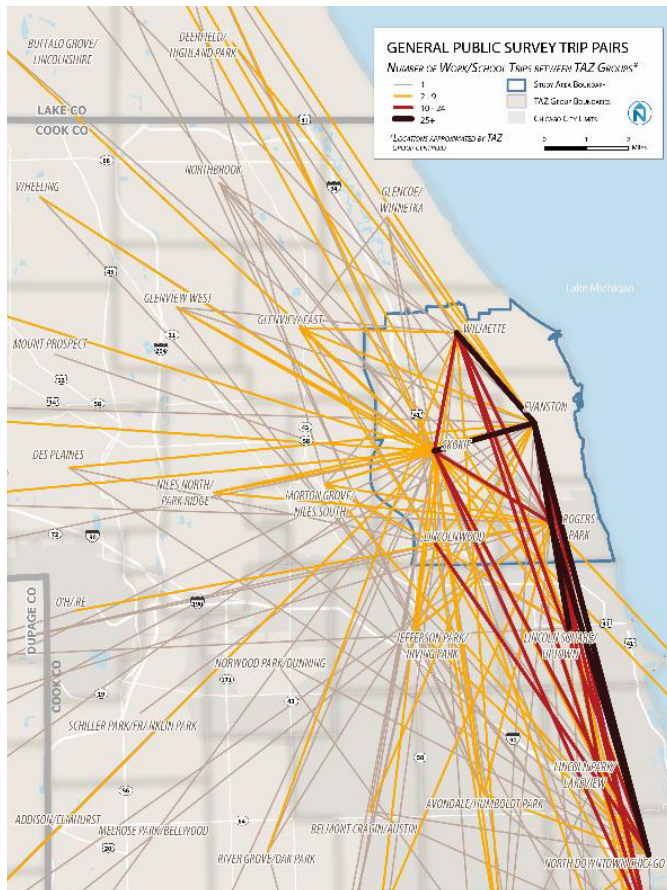
**Figure 2-16 On-Board Survey Travel Patterns Map – Commute Trips**



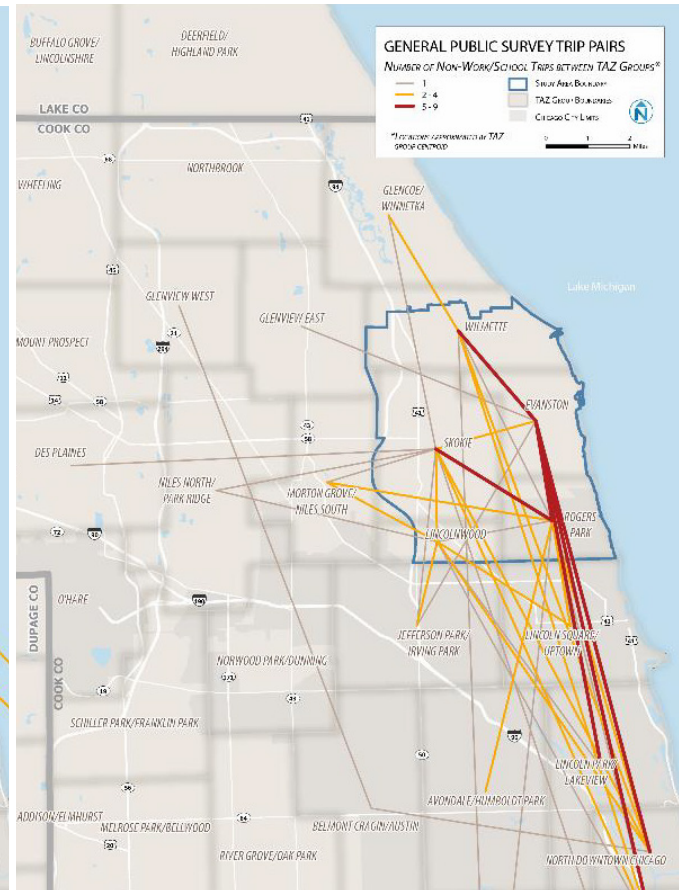
**Figure 2-17 On-Board Survey Travel Patterns Map – Non-Commute Trips**



**Figure 2-18 General Public Survey Travel Patterns Map – Commute Trips**



**Figure 2-19 General Public Survey Travel Patterns Map – Non-Commute Trips**





## SERVICE ASSESSMENT

The performance of Pace and CTA bus routes were evaluated based on measures such as ridership, productivity and on-time performance. Additionally, the project team assessed route schedule adherence, service span, frequency, productivity and coverage to illustrate potential transit market opportunities in the North Shore study area.

### Ridership Source

Pace and CTA automatic passenger count (APC) data collected during April of 2016 was used to determine ridership figures for this study. Study area route values in this data range averaged 35,719 boardings per weekday.

### Measuring Productivity

Productivity is used to compare performance among routes. For this study, productivity is measured by dividing the average number of passenger boardings in a day by the number of revenue vehicle hours required to operate the service.

Ordinarily, Pace and CTA use different definitions of revenue hours, which may affect estimated productivity levels on agency-specific routes. Pace revenue hours are defined as “in-service only,” whereas CTA revenue hours are the number of vehicle hours required to operate the service, which includes out of service hours such as deadheading and layovers. For the purposes of this study, the Pace definition of revenue hours (in-service only) is used for both agencies.

Note that productivity for the routes in the service area account for all ridership and “in-service” hours on each route, not just those occurring within the study area boundaries.

## Stop-level Ridership Overview

Figure 2-20 illustrates the average weekday ridership on Pace and CTA bus routes in the service area, with total boardings for each route combined at the stop level.

Figure 2-21 illustrates both average weekday ridership and transit propensity. This index of demographic indicators is a useful tool for measuring area ridership potential both within existing corridors and in locations where there is currently no transit service.

Bus stops with the most ridership activity are located in areas with high transit propensity, namely to the southern and eastern portions of the study area.

- Specific high-ridership sub-areas include the Chicago neighborhoods of Rogers Park and West Ridge, southern Evanston, and the Skokie Boulevard corridor.
- The highest ridership stops are (in order) Howard CTA Station, Davis CTA Station, Loyola CTA Station, and Old Orchard Mall.
- The highest ridership corridor is along Devon Avenue where CTA operates Route 155.



Figure 2-20 Pace and CTA Weekday Stop-Level Ridership

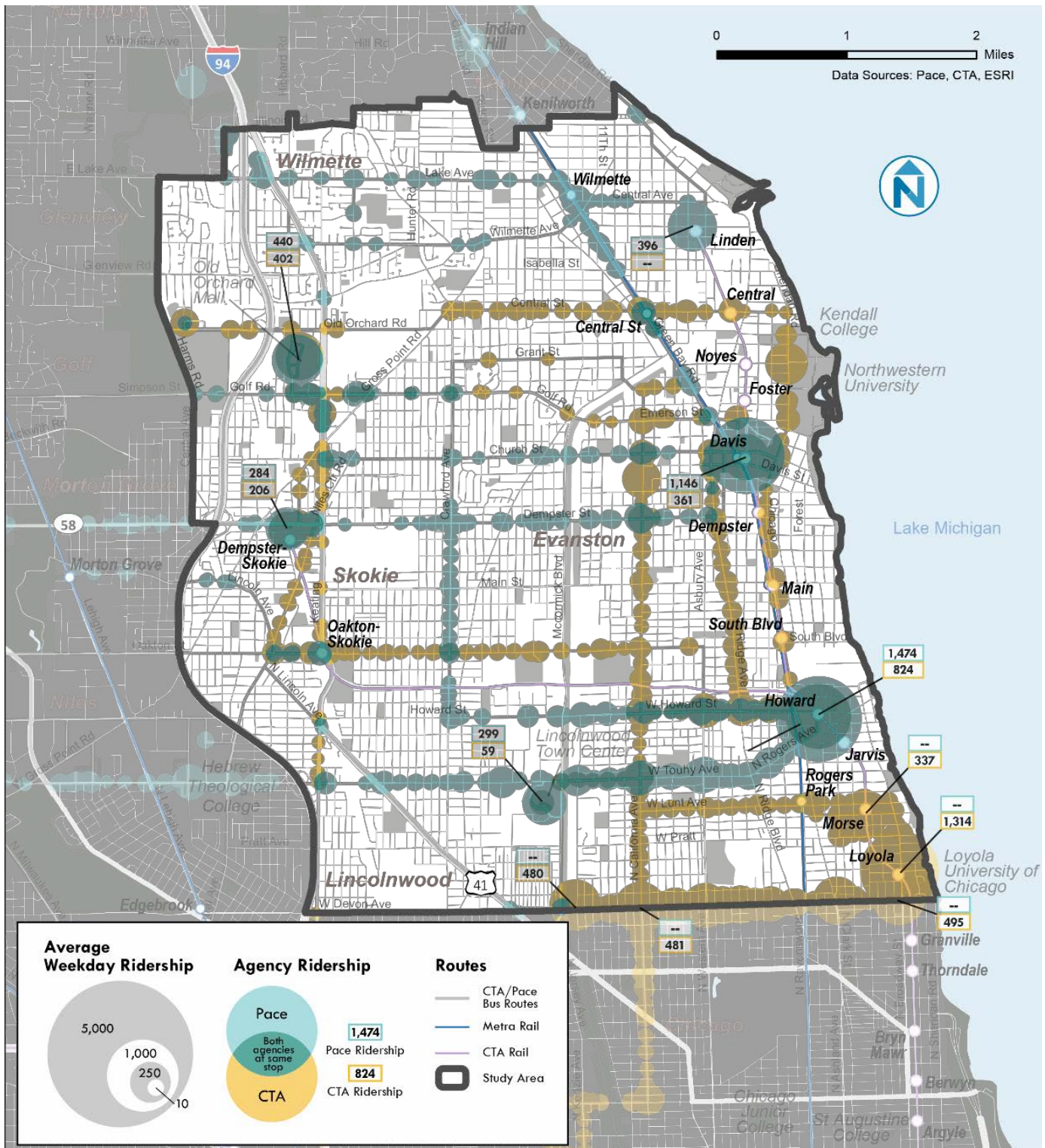
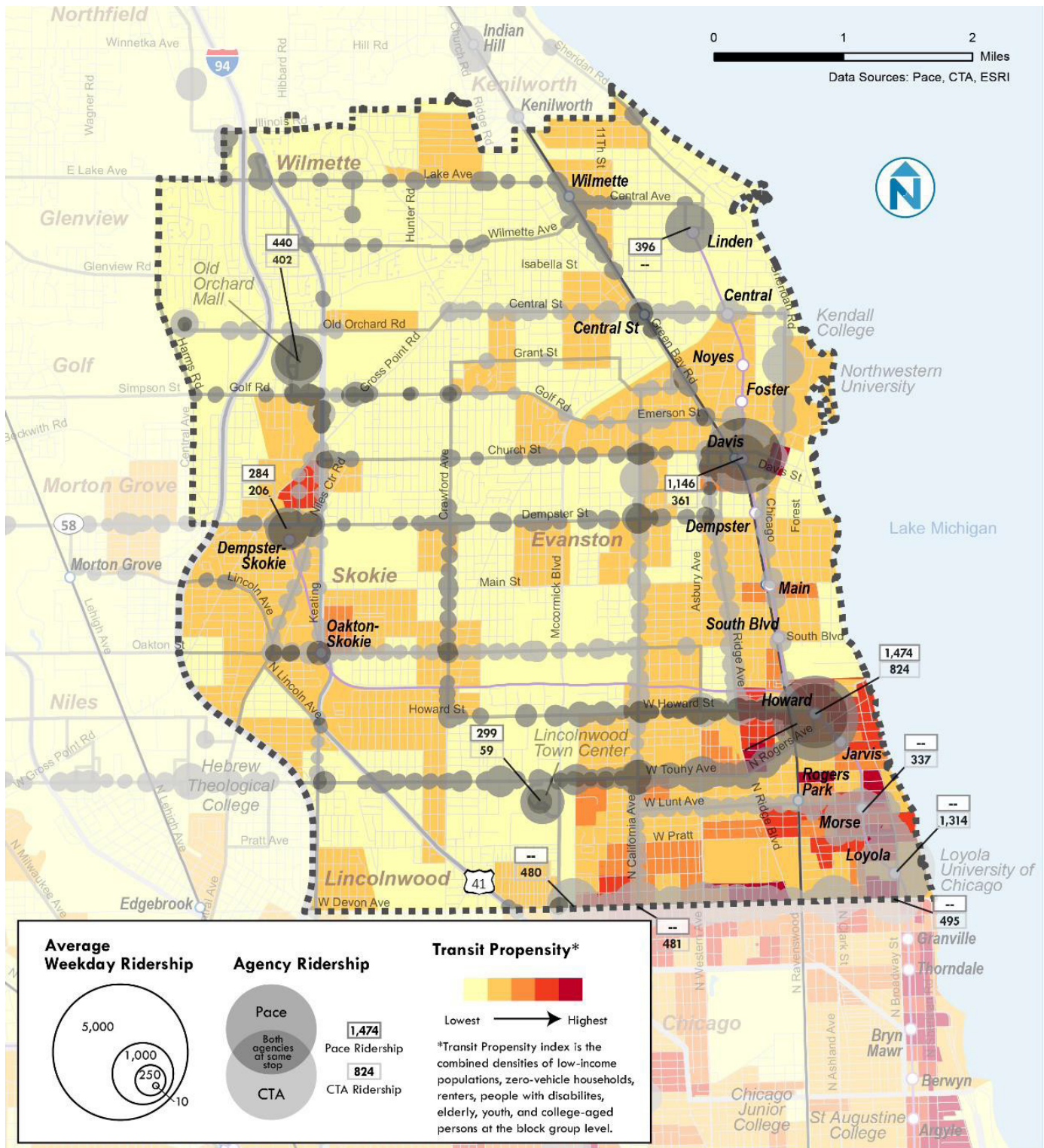




Figure 2-21 Weekday Stop-Level Ridership and Transit Propensity

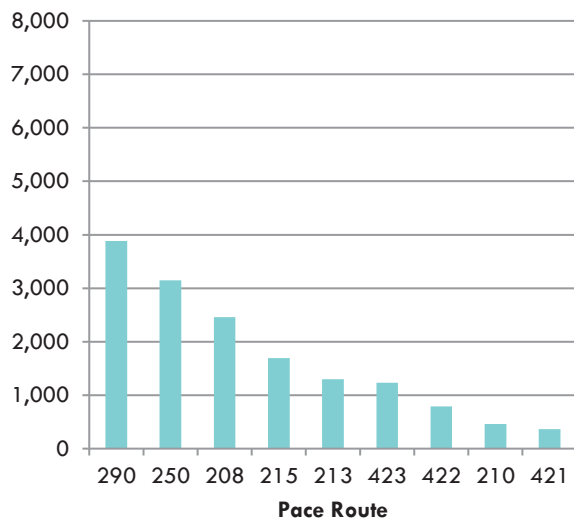


## Ridership by Route

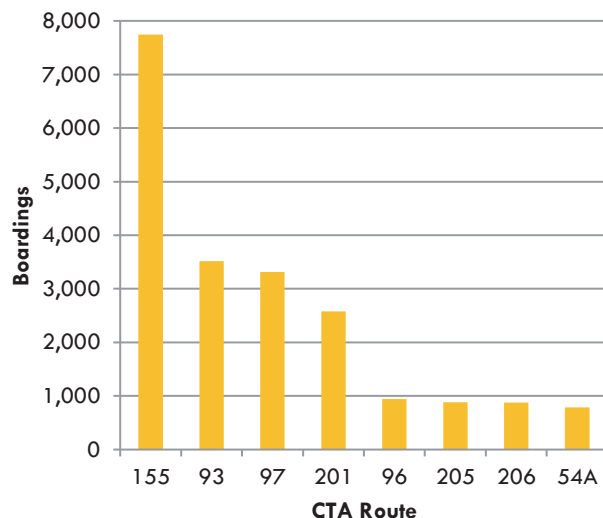
Pace and CTA ridership figures by route are shown in Figure 2-22 through Figure 2-25. Note that the daily ridership totals include all ridership on the route. Many routes extend beyond the study area. Therefore, figures below include ridership that may or may not occur within the study area.

- Among Pace routes in the study area, routes 208, 250 and 290 have the highest weekday ridership with over 2,000 boardings per day.
- CTA route 155 has more than double the ridership of other bus routes in the study area at 7,745 boardings per weekday.
- Other high ridership weekday CTA routes that serve the study area are 93, 97, and 201. These routes have weekday ridership of over 2,000 boardings per day.
- Albeit with lower totals, weekend routes have the same relative ranking of ridership as their weekday counterparts, with the exception of CTA Routes 93 and 97 (with Route 97 carrying more passengers than Route 93 on Saturdays).

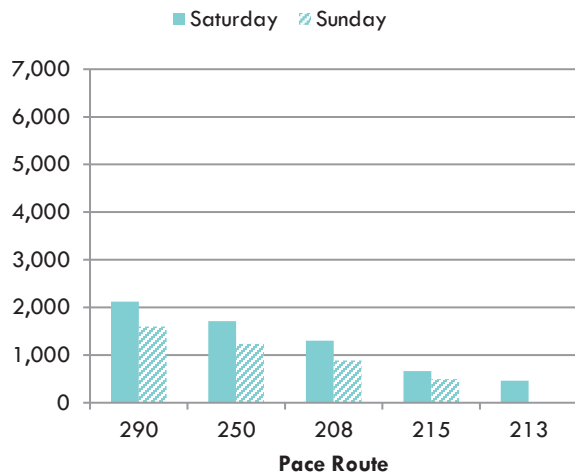
**Figure 2-22 Pace Weekday Ridership**



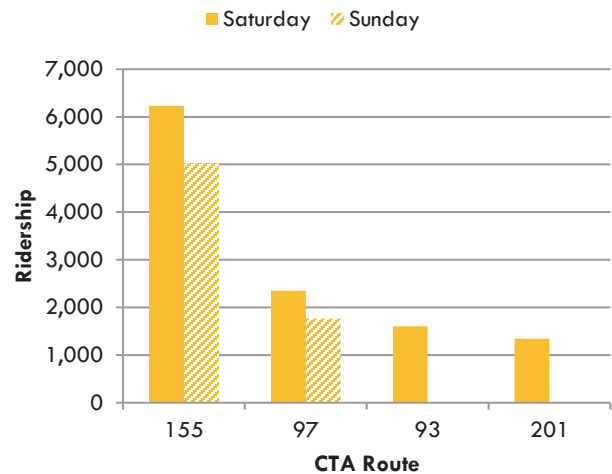
**Figure 2-23 CTA Weekday Ridership**



**Figure 2-24 Pace Weekend Ridership**



**Figure 2-25 CTA Weekend Ridership**

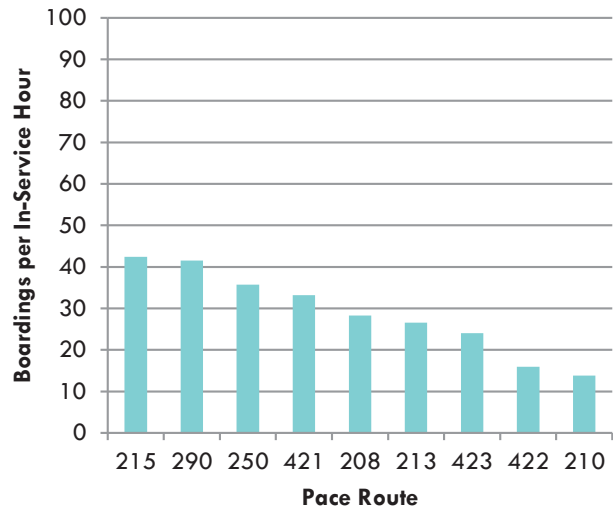


## Productivity by Route

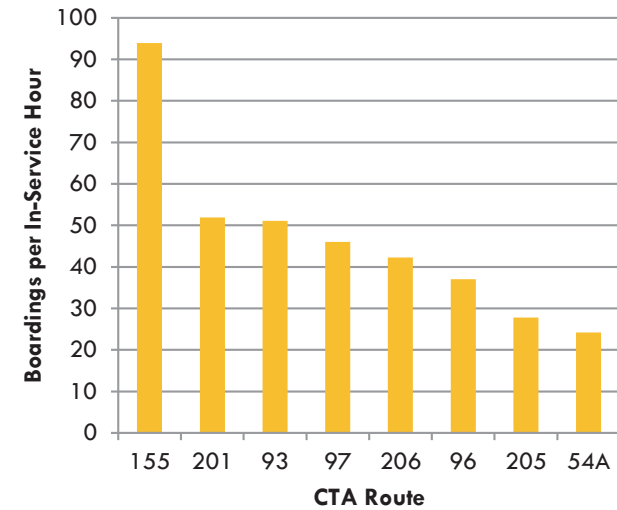
Bus routes in the study area have a wide range of productivity, averaging from as few as 10 to over 90 weekday boardings per in-service hour. Productivity by route is shown in Figure 2-26 through Figure 2-29.

- CTA Route 155 has the highest productivity of any bus route in the study area, with an average of 94 weekday boardings per hour. Other CTA routes with high ridership (201, 93, and 97) also have high productivity, averaging 40 or more weekday boardings per hour.
- Pace Routes 215, 250 and 290 have the highest weekday productivity among Pace bus routes in the study area. These routes average 30 or more boardings per in-service hour on weekdays.
- Pace Route 421 is also highly productive, despite having the lowest weekday ridership of bus routes in the study area. This is due to the school trips this route operates.
- The most productive Pace and CTA weekday routes are the only routes that operate on weekends (excluding Pace Route 421).
- CTA's least productive weekday routes are 54A and 205. Both routes generate less than 30 average weekday boardings per hour.
- Pace's least productive weekday routes are 210 and 422. Both routes generate less than 20 average weekday boardings per hour.
- None of CTA and Pace's least productive weekday routes is operated on weekends.

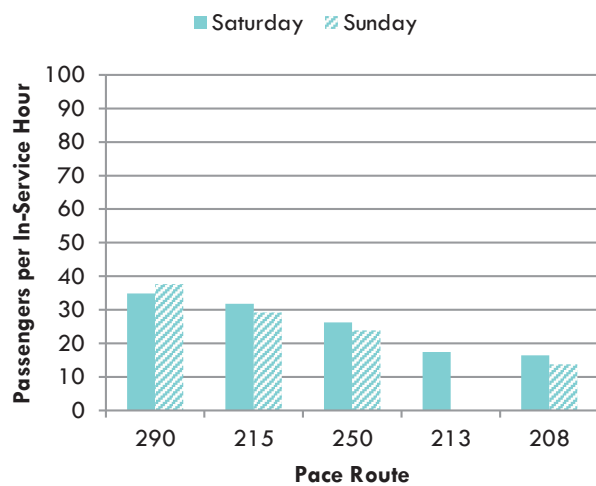
**Figure 2-26 Pace Weekday Productivity**



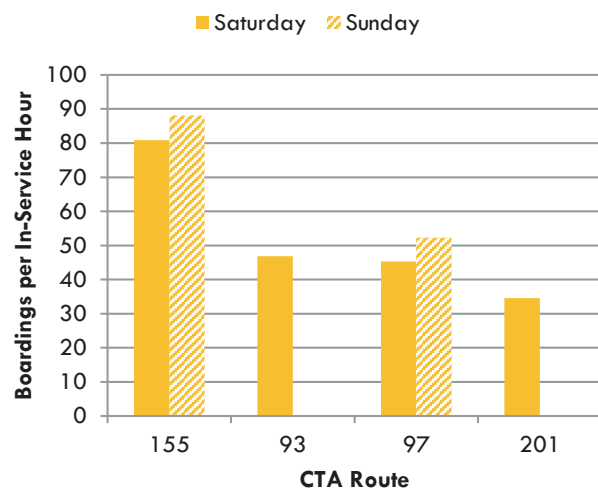
**Figure 2-27 CTA Weekday Productivity**



**Figure 2-28 Pace Weekend Productivity**



**Figure 2-29 CTA Weekend Productivity**





## Schedule Adherence / On-time Performance

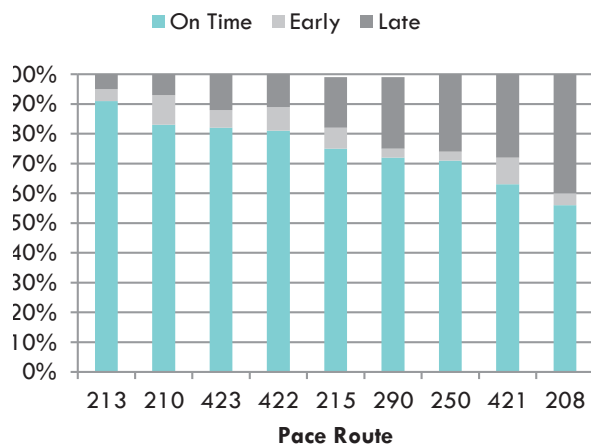
On-time performance is a measure that indicates the percentage of times that bus trips arrival and/or departure select locations within a certain range of time of the stated time on the bus public timetable. Among both onboard and general public participants, better on-time performance was the third-most requested service improvement.

For both Pace and CTA, a bus is considered to be on time if it is no more than one minute early (or five minutes early for Pace routes at the last timepoint) and no more than five minutes late at a given time point. It should be noted, however, that data between the agencies is not directly comparable due to different methods for selecting timepoints to calculate on-time performance.

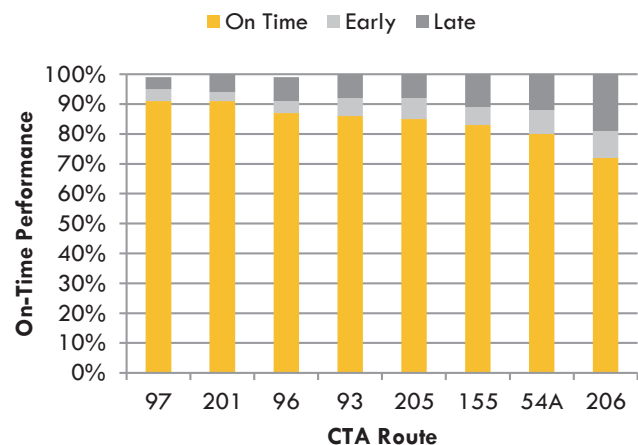
Figures 2-30 and 2-31 provide weekday on-time performance measures for Pace and CTA bus routes.

- For routes only operating on weekdays, Pace Route 213 and CTA Routes 97 and 201 have on-time averages at or above 90 percent.
- Over one-third of all routes have on-time performance averages below 80 percent. These may merit consideration for adjusting schedules to more accurately reflect running times. In some instances, running times that are too long for certain route segments may be contributing to on-time performance issues.
- For nearly all routes, unreliability is caused by trips that are late. Pace Route 210 and CTA Route 97 are the exceptions with slightly higher shares of trips that arrive early.

**Figure 2-30 Pace Weekday On-time Performance**



**Figure 2-31 CTA Weekday On-time Performance**



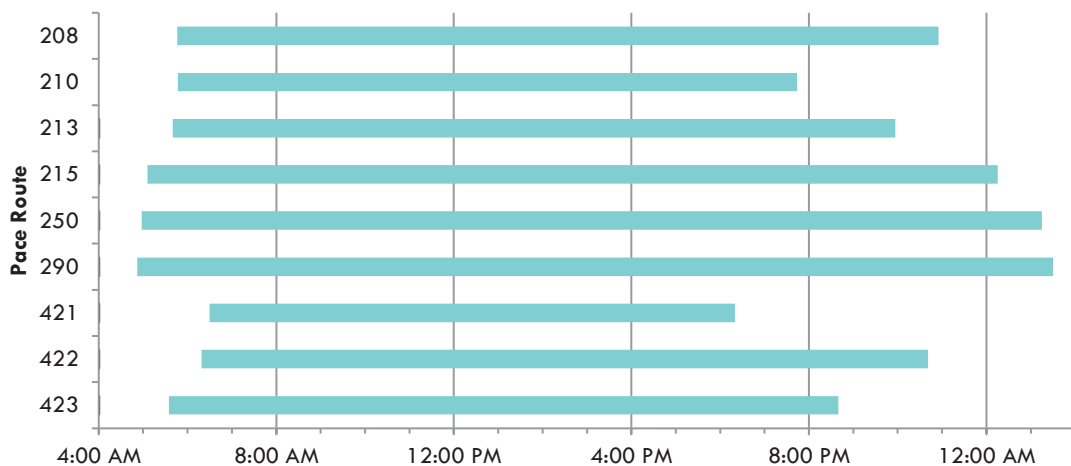
## Service Span

Figures 2-32 through 2-37 depict the weekday, Saturday, and Sunday service spans for Pace and CTA routes.

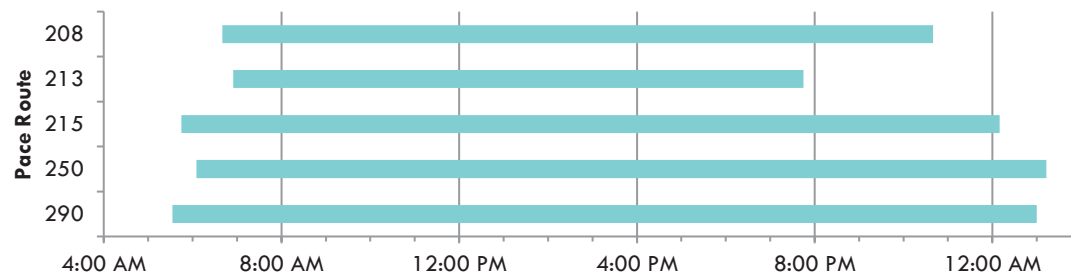
Weekday morning service hours scored above average among service attributes for passenger satisfaction. However, evening hours scored slightly below average, and weekend hours had the lowest score among all service attributes.

- 75 percent of weekday routes begin service at or before 6:00 AM.
- Four routes operate after midnight, including Pace Routes 215, 250 and 290, and CTA Route 155).
- Routes with relatively high productivity during late hours of service include Pace Routes 215 and 290 and CTA Routes 96 and 201. This may indicate latent demand for additional service trips during evening hours.
- 50 percent of routes operate on Saturdays, and 35 percent of routes operate on Sundays. In general, routes with the shortest operating times on weekdays do not operate on weekends.

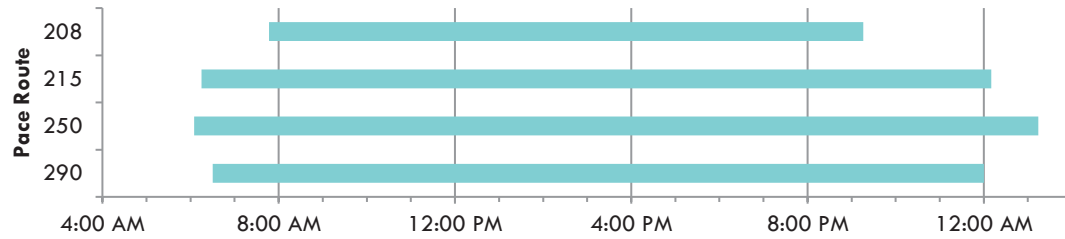
**Figure 2-32 Pace Weekday Service Span**



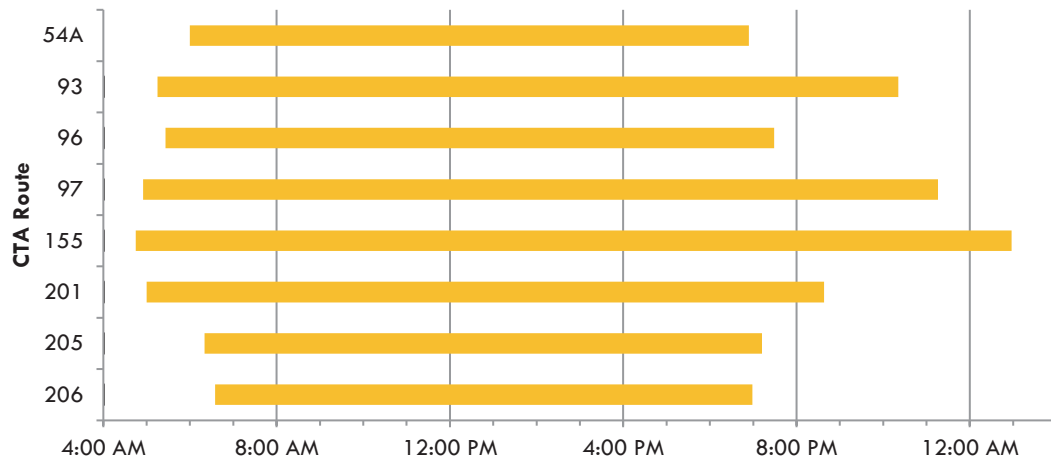
**Figure 2-33 Pace Saturday Service Span**



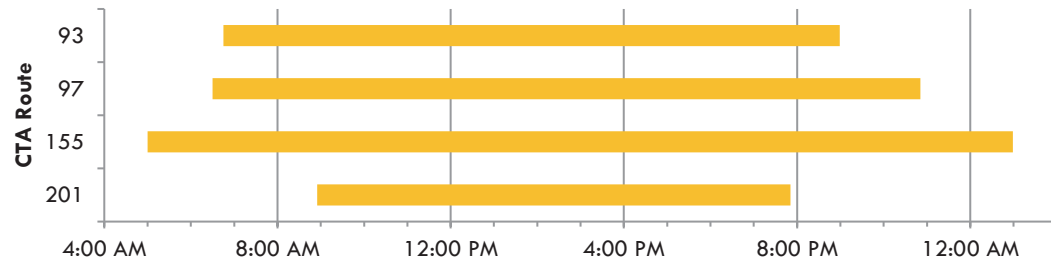
**Figure 2-34 Pace Sunday Service Span**



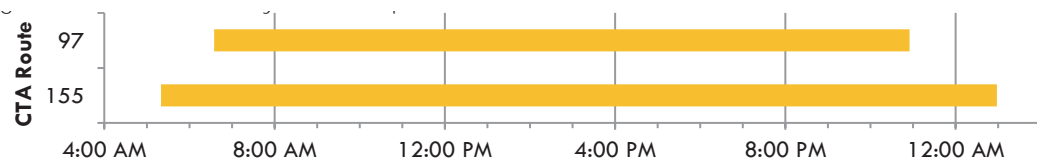
**Figure 2-35 CTA Weekday Service Span**



**Figure 2-36 CTA Saturday Service Span**



**Figure 2-37 CTA Sunday Service Span**

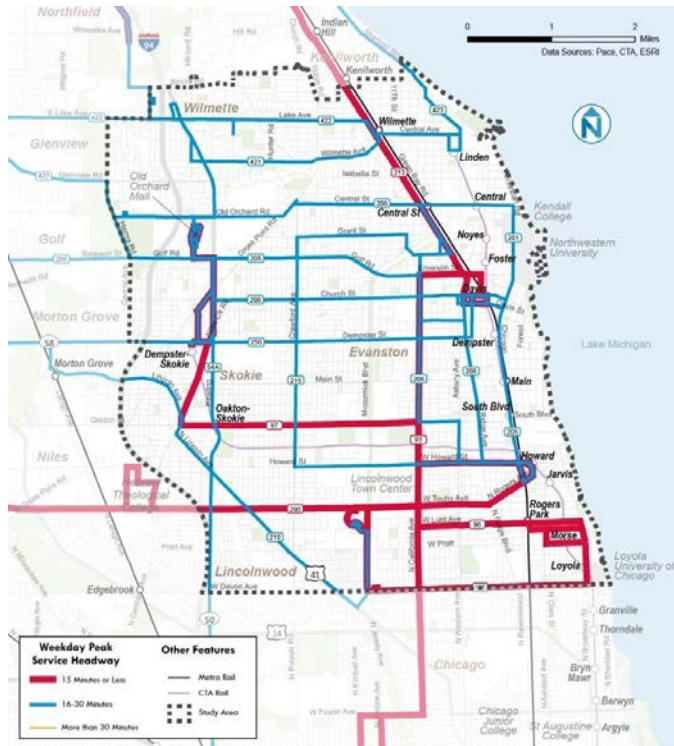


## Service Frequency and Coverage

Figures 2-38 through 2-42 show the route coverage and service frequencies available on weekdays (both peak and off-peak), Saturday, and Sunday. Corridor frequencies are represented based on the following groupings: 15 minutes or less, 16-30 minutes, and more than 30 minutes.

For customers, the higher the frequency, the more attractive and useful the service and the less coordination required to time connections between routes. When a route operates every 15 minutes or better, customers tend to rely less on schedules, perceiving the next bus or train will arrive in a few minutes.

**Figure 2-38 Weekday Peak Frequency among all study area routes**



**Figure 2-39 Weekday Off-Peak Frequency among all study area routes**



Figure 2-40 Saturday Frequency among all study area routes



Figure 2-41 Sunday Frequency among all study area routes





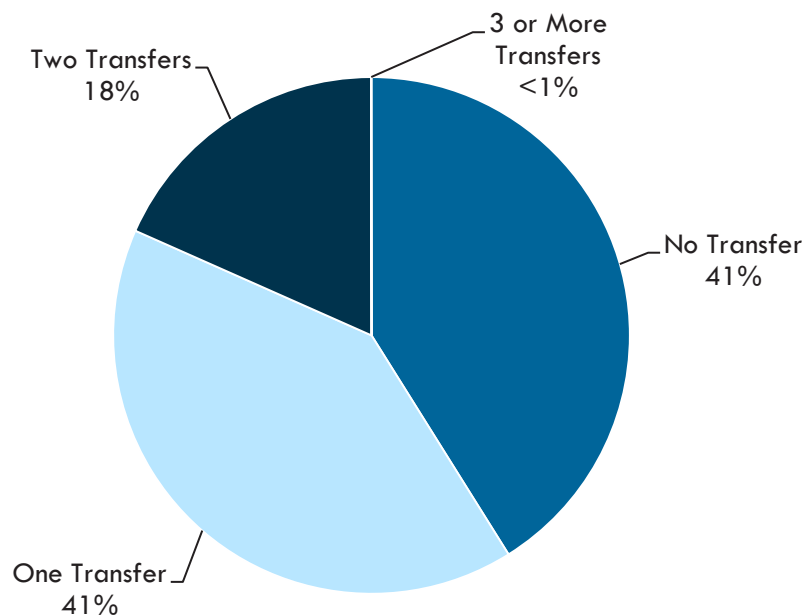
## Transfer Activity

Figure 2-41 depicts the average number of transfers required to complete a weekday trip on Pace and CTA bus routes. Trip data for this chart comes from October 2015 farebox records from both agencies.

For consistency with the Market Analysis Report, only transfer data for the original study area routes are included in these totals. However, the data is for the entire route and some routes operate outside the study area. In the next section “Transfer Patterns” and in Figure 2-42 below, other “non-study area” routes have been added to show their relationship with transit services within the study area.

More than half (59 percent) of weekday trips on study area routes are completed with a transfer. Among passengers who transfer, 41 percent require one transfer and 18 percent require two transfers to complete their linked trip. Fewer than 0.01 percent of trips are completed using three transfers or more.

**Figure 2-42 Number of Transfers Required to Complete a Transit Trip**



Source: October 2015 Ventra data for Pace Routes 208, 210, 213, 215, 250, 290 421, 422, 423 and CTA Routes 54A, 93, 96, 97, 155, 201, 205, 206. Ventra facilitates electronic fare payments on all Pace bus and Call-n-Ride services, and all CTA bus and rail services.

## Transfer Patterns

The following matrix shows the frequency of weekday transfers between routes in study area, other Pace and CTA bus routes, and CTA rail. In addition to study area routes, transfer information for Pace Route 226 and CTA Routes 11, 53, and 82 is included. Transfer data is derived from October 2015 farebox records. Key analytical parameters were established for the transfer matrix and findings in Figure 2-43:

- Transfer matrix excludes transfers where the route number was unknown or missing in the data (roughly 4 percent of all trips)
- The transfer matrix excludes transfers made to/from the same route (roughly 12 percent of all trips)
- Some of these transfers occur outside the study area, as the majority of these routes travel outside the study area.

Overall findings of this data include:

- 42 percent of all transfers are to other CTA bus routes
- 41 percent of all transfers are to CTA rail routes
- CTA routes 53 and 82 had the highest levels of transfer activity to other CTA bus routes and CTA rail.
- Pace Route 290 and CTA Routes 97, 155, and 11 also have high levels of transfer activity with CTA rail.

Among study area bus routes, the most notable transfer activity occurs between the following (in order of magnitude):

- CTA Route 82 and CTA Route 155
- CTA Route 93 and CTA Route 97
- CTA Route 82 and Pace Route 290
- CTA Route 93 and CTA Route 155
- CTA Route 93 and Pace Route 290
- CTA Route 82 and CTA Route 93.
- Pace Route 208 and other Pace bus routes
- Pace Route 250 and other Pace bus routes
- Pace Route 290 and other CTA bus routes

These transfer patterns are consistent with the transfer patterns observed in passenger survey data. However, the Passenger Survey focused almost exclusively on the study area. Therefore, even though the results of the two data sets are similar, some variances in the exact numbers may exist.

**Figure 2-43 Transfer Matrix | Combined Weekday Pace and CTA Transfer Activity**

|                 |     | Pace Bus Routes |     |     |     |     |     |     |       |     |     |     | CTA Bus Routes |       |     |       |     |     |     |     |     |     |     |
|-----------------|-----|-----------------|-----|-----|-----|-----|-----|-----|-------|-----|-----|-----|----------------|-------|-----|-------|-----|-----|-----|-----|-----|-----|-----|
|                 |     | 208             | 210 | 213 | 215 | 225 | 226 | 250 | 290   | 421 | 422 | 423 | 11             | 53    | 54A | 82    | 93  | 96  | 97  | 155 | 201 | 205 | 206 |
| Pace Bus Routes | 210 | 21              |     |     |     |     |     |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 213 | 27              | -   |     |     |     |     |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 215 | 50              | 0   | -   |     |     |     |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 225 | -               | 0   | -   | -   |     |     |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 226 | 25              | 10  | 0   | 0   | 3   |     |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 250 | 185             | 34  | 47  | 35  | 0   | 27  |     |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 290 | 3               | 27  | 0   | 34  | 19  | 41  | 8   |       |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 421 | 0               | 0   | 25  | -   | -   | -   | -   | -     |     |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 422 | 43              | 13  | 29  | 35  | -   | -   | 0   | 1     | 6   |     |     |                |       |     |       |     |     |     |     |     |     |     |
|                 | 423 | 40              | 12  | 30  | 0   | -   | 11  | 44  | 51    | 4   | 21  |     |                |       |     |       |     |     |     |     |     |     |     |
| CTA Bus Routes  | 11  | 0               | 22  | -   | 52  | -   | -   | -   | 53    | -   | -   | 0   |                |       |     |       |     |     |     |     |     |     |     |
|                 | 53  | 0               | 0   | -   | 0   | 0   | 1   | 0   | 0     | -   | 0   | 0   | 1              |       |     |       |     |     |     |     |     |     |     |
|                 | 54A | 16              | 5   | -   | 8   | -   | 1   | 50  | 43    | -   | 22  | -   | 0              | 31    |     |       |     |     |     |     |     |     |     |
|                 | 82  | -               | 71  | 0   | 2   | -   | 0   | -   | 238   | -   | -   | 0   | 151            | 76    | 0   |       |     |     |     |     |     |     |     |
|                 | 93  | 60              | 1   | 103 | 81  | -   | -   | 117 | 194   | -   | 0   | 0   | 41             | 3     | 0   | 271   |     |     |     |     |     |     |     |
|                 | 96  | 0               | 6   | 0   | 2   | -   | -   | 0   | 84    | -   | 0   | 0   | 19             | -     | -   | 187   | 59  |     |     |     |     |     |     |
|                 | 97  | 103             | 49  | 1   | 111 | 1   | 94  | 149 | 56    | 1   | 53  | 0   | 4              | 0     | 55  | 1     | 303 | 2   |     |     |     |     |     |
|                 | 155 | -               | 22  | 0   | 0   | -   | -   | 1   | 2     | 0   | -   | 0   | 86             | 0     | -   | 526   | 237 | 58  | 2   |     |     |     |     |
|                 | 201 | 42              | 1   | 35  | 26  | -   | 1   | 32  | 25    | 0   | 14  | 0   | 0              | 0     | 13  | 0     | 28  | 0   | 100 | 0   |     |     |     |
|                 | 205 | 26              | 0   | 11  | 15  | -   | -   | 9   | 17    | -   | 7   | -   | -              | 0     | 12  | 0     | 40  | -   | 33  | 0   | 27  |     |     |
|                 | 206 | 1               | 0   | 5   | 11  | -   | -   | 8   | 8     | -   | 1   | -   | -              | -     | 1   | -     | 20  | 1   | 17  | -   | 22  | 6   |     |
| Other Pace Bus  |     | 385             | 5   | 26  | 1   | 1   | 39  | 340 | 136   | 0   | 4   | 24  | 0              | 21    | 16  | 4     | 2   | 1   | 15  | 0   | 1   | 0   | 0   |
| Other CTA Bus   |     | 8               | 6   | 5   | 145 | 59  | 144 | 26  | 375   | 4   | 6   | 96  | 350            | 7,557 | 253 | 6,347 | 425 | 98  | 372 | 525 | 91  | 44  | 29  |
| CTA Rail        |     | 250             | 30  | 308 | 427 | 72  | 245 | 413 | 1,156 | 119 | 168 | 439 | 558            | 4,404 | 124 | 4,557 | 394 | 295 | 976 | 821 | 354 | 175 | 95  |

**Key:**

- = 1,000+
- = 500 - 999
- = 250 - 499
- = 100 - 249
- = 50 - 99
- = 25 - 49

## Frequency and Coverage Compared to Transit Markets

A qualitative analysis of route coverage and service frequency in relation to findings from the market analysis (including transit propensity and major travel patterns), provides a visual reference for how well the network is meeting the mobility needs of current and potential passengers.

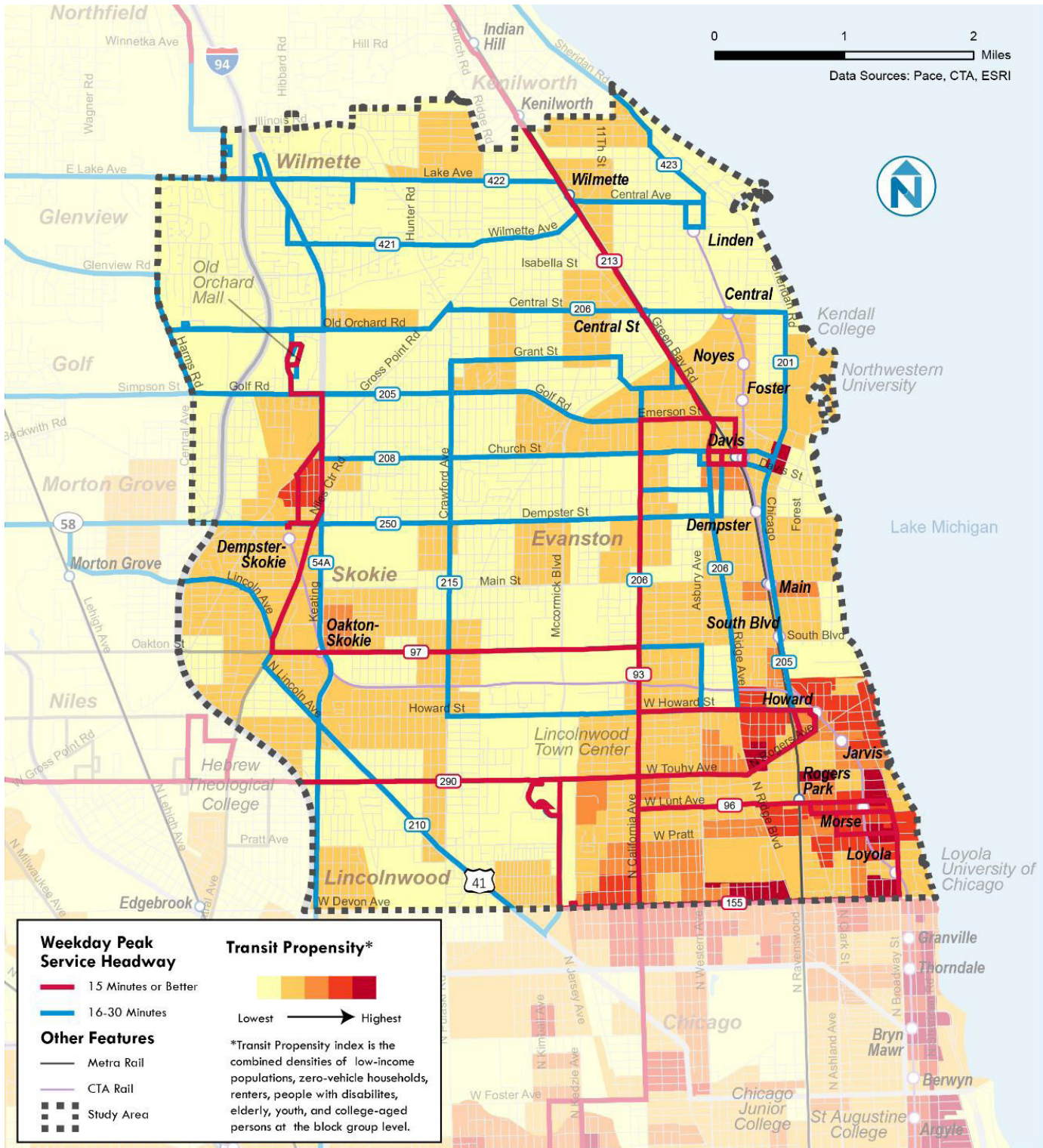
Improved frequency was the most important service improvement that would encourage general public survey respondents to ride more frequently, and the second most important service improvement priority among passenger survey respondents.

## Travel Demand Patterns

- Many major home-based work trips are well served by frequent bus and CTA rail service during weekday peak hours. Major regional commute patterns that have frequent weekday peak service include Evanston and Downtown Chicago, Evanston and Rogers Park, and Skokie and Rogers Park.
- There is a lack of high-frequency service between Evanston and Skokie and between Skokie and Niles; both major regional commute patterns (see Figure 2-5). Implementation of the upcoming Pulse Dempster Line will improve this transit commute with faster, more reliable service.
- There is a lack of frequent transit service between Skokie and Jefferson Park/Irving Park (another major commute pattern; see Figure 2-5). Although CTA Route 54A serves Irving Park, it runs on 30 minute headways most of the day. Pace Route 226 provides service between downtown Skokie and Jefferson Park but ends service around 7:00 PM. Neither of these routes operate on weekends.
- In addition to the commute trip patterns described above, regional travel data suggest there is opportunity for transit to better serve non-commute trips. Major travel pairs not currently served by frequent transit include Skokie-eastern Glenview, Skokie-Wilmette, Lincolnwood-Lincoln Square, and Skokie-Lincoln Square.
- Due to a lack of transit-supportive densities in some of these areas (and the sporadic nature of non-commute trips), new or increased service for these trip pairs may not prove as successful as commuter-oriented service.



Figure 2-44 Weekday Peak Service Frequency & Transit Propensity



## Transit Propensity

Areas with the highest density of transit-supportive populations are well served by high frequency bus service and CTA Purple and/or Yellow Line services during weekday peak hours. Comparatively, during off-peak service, and on weekends, CTA Route 155 is the only bus route operating at a 15-minute or better frequency. Weekday peak service frequency and transit propensity are compared in Figure 2-44.

## Route Spacing

Duplicative and closely spaced parallel route segments were identified for restructuring route alignments. This helped to facilitate an investigation of service alternatives that more evenly space routes and provide more efficient service coverage. A more efficient network design helps free up agency resources that can be re-invested in more frequent service.

Nonetheless, some duplication is unavoidable due to constraints of the road network and the need for multiple routes to serve common high-ridership generators. For instance, generators require alignments to use common entrance/exit routings before branching off in other directions.

Notable duplicated/competing segments include:

- Routes 54A and 97 between Oakton-Skokie Station and Old Orchard.
- Route 96 shares common terminals with more frequent Route 155.
- Routes 97 and 215 on Howard Street between Howard Station and Dodge Avenue.
- Route 205 on Chicago Avenue is duplicated by the CTA Purple Line, Routes 93 and 208 on Dodge Avenue, and Route 215 on Golf Road.
- Route 206 is duplicated by Route 93 on Dodge Avenue and Route 201 on Ridge Avenue and Central Street.
- Route 210 on Waukegan Road provides competing parallel service from Route 423 on Harlem Avenue.
- Routes 96 and 290 provide overlapping service on Touhy and operate with closely spaced service between California and Ridge.
- Routes 201, 205, 206 and 250 operating on East-West streets between Dempster and Central from Crawford to Green Bay Road, are closely spaced 1/4 to 1/2 mile apart compared with areas of higher transit propensity where routes are spaced one mile apart or more.

## Weekend Service Gaps

Compared to weekday service, coverage on the weekends drops off notably, with only nine out of seventeen service-area routes operating on Saturday and six operating on Sunday.

- Among routes with weekend service, all operate every 30 minutes or less, excepting Route 215 which runs every 40 minutes. Considering this route has the second-highest productivity among weekend Pace routes, it is a candidate for improved weekend frequency.
- On weekends there is no north-south service linking Skokie and Lincolnwood to Jefferson/Irving Park (an important travel pattern among non-commute trips).
- On Sundays, north-south service is lacking between West Ridge and Evanston as is east-west service in northern Evanston.

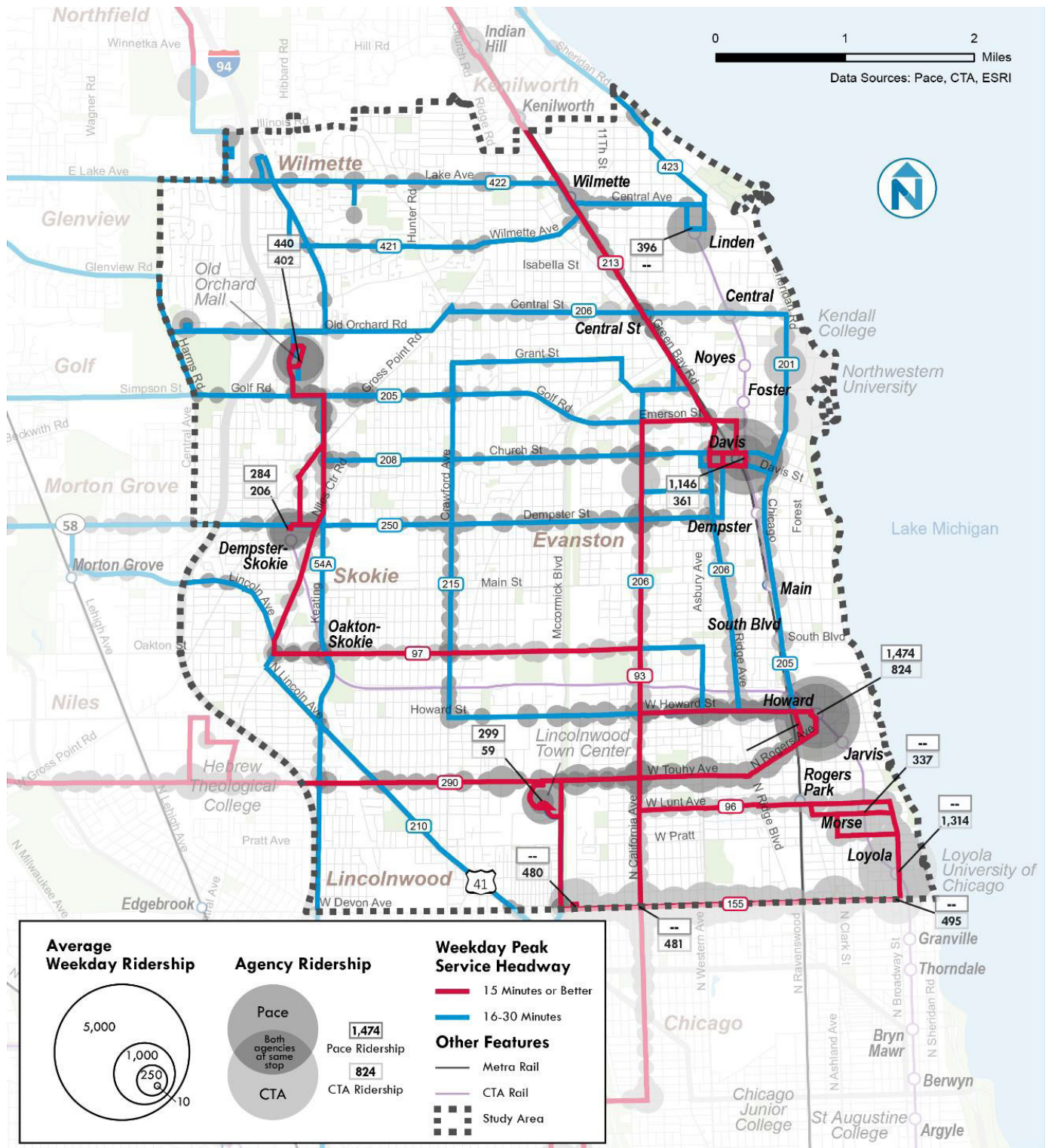
## Bus Headways

As shown in Figure 2-45, corridors with the highest peak-service frequency operate in areas with the highest transit propensity.

- High ridership corridors of note include Devon Avenue, Touhy Avenue, Howard Street and Skokie Boulevard.
- On weekdays, notable off-peak headway reductions occur along several corridors, including: Lincoln Avenue, Lunt Avenue, Touhy Avenue, Howard Street, Oakton Street, Niles Center Road, Skokie Boulevard, Crawford Avenue, Green Bay Road, and Sheridan Road.
- Based on transit propensity and corridor ridership (depicted in Figure 2-44), Route 290 along Touhy Avenue and Routes 97 and 215 along Howard Street are candidates for improving midday frequency. Note that Routes 97, 215 and 290 are highly productive during middays.
- While Rogers Park already has high-frequency midday bus service with Route 155, frequency improvements on Routes 93 and 201 would benefit those living and working in high-transit propensity locales of Northwestern University.
- Areas and time periods featuring low ridership indicate opportunities to reallocate service to areas and time periods with higher demand using the same resources. For example, on Route 421, the majority of ridership is generated from school trips, presenting an opportunity to maintain these trips while reducing or eliminating other service.



Figure 2-45 Weekday Peak Service Frequency & Average Daily Ridership







*A project team member discussing study findings with a meeting attendee at an open house event.*

## 3 Public Outreach

Significant stakeholder and public outreach was conducted as part of the North Shore Coordination Plan. This chapter summarizes that process and the information collected. Throughout the study, stakeholder and public involvement played an important role in the development of the plan and helped shape the final proposed service changes.

### OVERVIEW OF PUBLIC INVOLVEMENT ACTIVITIES

The public involvement approach provided stakeholders and the public with a variety of opportunities to provide input and feedback during the planning process. There were four main public involvement components:

- Steering Committee (SC) Meetings
- Public Open Houses
- Onboard Bus Passenger and Public Surveys
- Study Webpage

The public and the stakeholder involvement activities provided important guidance throughout the study. In addition to providing general feedback and input, the Steering Committee (SC) guided the efforts of the project team, providing direction at key milestones.

The project team also engaged with the general public at various points of the study timeline to gather information about their transit and travel needs and to provide general feedback and input at critical milestones.

Brief summaries and documentation of the public involvement activities are included in the following pages of this chapter.

## STEERING COMMITTEE

The Steering Committee (SC) was established in early 2016 and composed of municipal, public agency and community representatives with vested interests in the project study area (see inside cover for a list of SC membership).

The role of the SC was to help guide the study on the overall goals and community outreach strategies (survey and open house locations, methods for notifying the public, etc.). This group also reviewed and provided feedback on improvement strategies and proposed network changes.

The SC met five times over the course of the study. Below is a summary with details on the location, dates and key information discussed at each meeting:

- **Meeting #1 | March 31, 2016 at the Skokie Village Hall:**  
The project team presented the overall goals and components of the study and solicited ideas and desires from SC members and staff.
- **Meeting #2 | September 8, 2016 at the Skokie Village Hall:**  
Preliminary findings from the Market Analysis Report, passenger and general public survey results, and feedback from the first public open house event were presented and discussed.
- **Meeting #3 | April 6, 2017 at the Willette Village Hall:**  
Refined findings and overarching recommendations from the Market Analysis process were presented and discussed.
- **Meeting #4 | August 15, 2017 at the Lorraine H. Morton Civic Center in Evanston:** Preliminary service alternatives were presented and discussed.
- **Meeting #5 | November 28, 2017 at the Skokie Village Hall:**  
Feedback from the public open house events, final proposed service alternatives and a preliminary service implementation timeline was presented and discussed.

Meeting agendas and presentation files from these meetings can be found on the project website.

## PUBLIC SURVEYS

As discussed in Chapter 2, Pace and CTA administered two surveys during the study, an on-board passenger survey and a general public survey. The purpose of the surveys was to obtain information and data to better understand passenger travel behavior and opinions as well as transit needs and market potential in the North Shore area.

Additionally, the surveys provided the public and transit passengers with a direct opportunity to be involved with the study. The information from the surveys informed the Market Analysis Report and played an important role in the evaluation of current conditions and in designing the proposed service changes and recommendations.

Full survey results are discussed in this report in Chapter 2 Existing Conditions and in the Market Analysis Report posted to the project website.

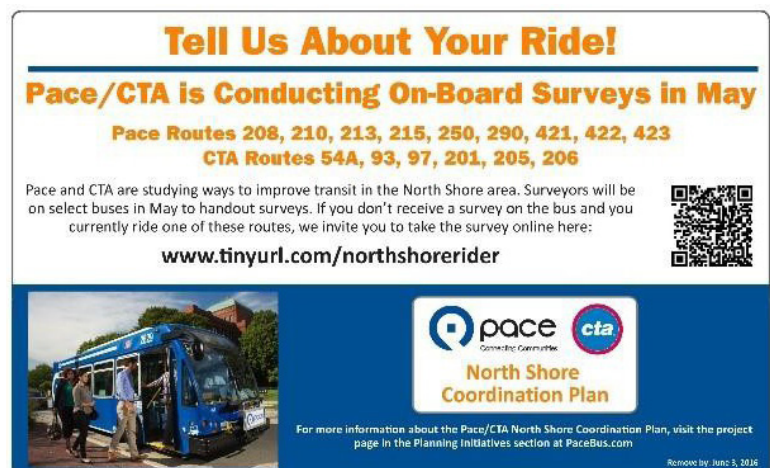
### Onboard Passenger Survey

The on-board passenger survey was conducted on both weekdays and weekends on 17 Pace and CTA bus routes in the study area in the spring of 2016. The survey questions asked information about the respondent's current transit trip, general demographic information and information about the passenger's transit usage in general.

Passengers who could not complete the onboard survey in-person were given a postcard with a QR code to complete it online at a later time (see Figure 3-1). A version of the postcard was also formatted as an on-bus advertisement and placed on Pace and CTA bus vehicles operating out of the three garages that operate the 17 bus routes serving the study area.

A total of 1,463 passengers completed the survey. The information from the responses allowed the study team to better understand current travel patterns and to develop improvement recommendations.

**Figure 3-1 Onboard Passenger Survey Postcard**





## General Public (Non-Passenger) Survey

While gaining insight into existing passenger experiences, preferences and demographics was imperative to understanding the transit needs of the study area, it was also important to gain a better understanding of how the general public feels about bus service. Therefore, the project team administered a general public (non-passenger) survey, which provided an opportunity for everyday people to provide input into the study process.

The general public survey took place in May and June of 2016. It was administered in two ways: 1.) An electronic version was developed, posted online and marketed through various methods; and 2.) Project staff intercepted pedestrians at key activity centers where they solicited them to complete the online version of the survey using a tablet device.

In-person intercept efforts took place at five locations in the study area (see Figure 3-2). The survey targeted people who lived, worked, or traveled in the North Shore area regardless of their transit usage.

The goal of the general public survey was to gather information about travel behavior, transit needs and the market for transit in the North Shore. The survey asked about general transit use and the factors that influenced the respondents' travel mode choices and details of a recent transit trip.

A total of 1,090 surveys were collected, of which 54 percent were completed online and 46 percent were collected from in-person intercepts at the locations in the following figure.


A postcard with information about the online survey was developed in both English and Spanish (see Figure 3-3) and was distributed via:

- Posted on the websites of SC partners, chambers of commerce, universities/schools and community organizations
- Posted on the project website
- Publicized via Pace and CTA social media, newsletters and email subscriber lists

**Figure 3-2 General Public Intercept Survey Locations**

| COMMUNITY   | LOCATION                                         | DAY       | DATE          | TIME         |
|-------------|--------------------------------------------------|-----------|---------------|--------------|
| Evanston    | Downtown Evanston – Sherman Ave./Davis St.       | Wednesday | June 8, 2016  | 3:00-7:00 PM |
| Skokie      | Old Orchard Mall                                 | Saturday  | June 11, 2016 | 1:00-5:00 PM |
| Wilmette    | Metra Station                                    | Thursday  | June 16, 2017 | 3:00-7:00 PM |
| Chicago     | CTA Howard Station                               | Tuesday   | June 21, 2016 | 3:00-7:00 PM |
| Lincolnwood | Lincolnwood Summer Concert Series/Aquatic Center | Thursday  | June 23, 2016 | 5:00-8.30 PM |

Figure 3-3 General Public Survey Postcards



**Tell Us How You Get Around!**

**Do you live, work, or travel in Skokie, Lincolnwood, Evanston, Wilmette or the North Side of Chicago?**

Pace and CTA want to hear how you'd improve transit options in your area.

Take this short survey at:  
**[www.tinyurl.com/pacectanorth](http://www.tinyurl.com/pacectanorth)**

**Act fast! Survey only takes 5-7 minutes.**  
Survey ends July 1, 2016.

For more information about the Pace/CTA North Shore Coordination Plan, visit the project page in the Planning Initiatives section at PaceBus.com

 **pace** **cta**  
Connecting Communities  
**North Shore  
Coordination Plan**



**Dinos cómo te transportas**

**Vives, trabajas, o visitas las comunidades de Skokie, Lincolnwood, Evanston, Wilmette o el lado norte de Chicago?**

Pace y CTA quieren saber de ustedes para ayudar a mejorar las opciones de transporte en su área.

Tome esta breve encuesta a:  
**[www.tinyurl.com/pacectanorth](http://www.tinyurl.com/pacectanorth)**

**¡Actúa rápido! La encuesta solo dura 5-7 minutos**  
La encuesta termina el 1 de Julio

Para más información sobre el North Shore Coordination Plan, visita nuestra página en internet en la sección de 'Planning Initiatives' a PaceBus.com

 **pace** **cta**  
Connecting Communities  
**North Shore  
Coordination Plan**

## PUBLIC OPEN HOUSES

The project team hosted two rounds of public open house events during the study. For each round, two open house events were held on different days, times and locations. This was done to both maximize attendance and provide the public different options if one particular time or location was not convenient.

The scheduling of open houses rounds followed the completion of two important study milestones, the Market Analysis and Service Design. Both rounds allowed the public to provide feedback on the plan as it developed.

Several marketing efforts were conducted to inform the public about these events, including:

- Onboard bus advertisements (car cards) were placed on Pace and CTA vehicles operating out of garages that serve study area routes.
- Press releases were sent to the local media
- A digital ad was produced and placed using Pace's advertising channels.
- SC members informed their respective constituencies through their websites, newsletters and email distributions using sample language and meeting flyers that were provided by the project team.

At these open houses, Pace and CTA presented the latest study information and findings. Project staff members were available to collect comments and answered questions at these events.



*Round 1 Open House Event | Chicago Public Library, Rogers Park Branch. October 4, 2016*

## Round 1 Public Open Houses

The first round of open house events focused on introducing the study purpose and goals. An open house flyer was distributed to project stakeholders and posted in buses in the study area (See Figure 3-4).

Details of these events are as follows:

- First meeting | November 4, 2016 at the Chicago Public Library, Rogers Park Branch. Sixteen (16) people attended and seventeen (17) comments were received.
- Second meeting | November 5, 2016 at the Lincolnwood Community Center. Twenty-two (22) people attended and fourteen (14) comments were received.

At the event(s), information was displayed on exhibit boards and project team members answered questions and provided context for attendees. A table was set up in the middle of the room for the public to fill out and submit comment cards. The open houses provided the public an opportunity to alert the study team of any concerns with current service and to identify opportunities for service improvements.

The information provided included a map of the study area, the goals of the project, and preliminary findings from the Market Analysis Report. Initial results of the on-board and general public survey were also available. The findings from the Market Analysis displayed a general demographic profile of the study area, a basic overview of travel trends and factors that influenced ridership gathered from the survey results to date.

A total of 38 people attended the meetings and 31 comments were collected. The most common topics included increasing the hours of operation and improving connections. Other topics included improving bus stops and improving Americans with Disabilities Act (ADA) accessibility.



Figure 3-4 Round 1 Public Open House Flyer

# You're Invited to an Open House!

## Do you live, work, or travel in Skokie, Lincolnwood, Evanston, Wilmette or the North Side of Chicago?


**Pace and CTA invite you to an open house to learn about the North Shore Coordination Plan.**

### Open Houses

**Tuesday, October 4, 2016**  
**12:30 pm to 2:30 pm**  
 Chicago Public Library, Rogers Park Branch  
 Community Room  
 6907 N. Clark Street | Chicago IL 60626  
*Served by CTA routes 22, 96, 155*

**Tuesday, October 4, 2016**  
**4:00 pm to 6:00 pm**  
 Lincolnwood Community Center  
 6900 N. Lincoln Avenue | Lincolnwood, IL 60712  
*Served by Pace routes 210, 290*


**Study Area**



Open houses will include:

- Project introduction and overview
- Initial market analysis and survey results
- Opportunity to provide your input and feedback on ways to improve transit options in the study area

For more information about the Pace/CTA North Shore Coordination Plan, visit the project page in the Planning Initiatives section at [PaceBus.com](http://PaceBus.com).



**North Shore**  
**Coordination Plan**

The second round of open house events took place near the end of the study to present the proposed service changes and provide the public with an opportunity to give feedback prior to finalizing service recommendations. Similar to the first round of open houses, a flyer was developed and distributed to stakeholders to inform the public about the dates and locations of the open houses (see Figure 3-5).

Details of these events are as follows:

- First event | September 18, 2017 at the Skokie Public Library. Twenty-four (24) people attended and twelve (12) written comments were received.
- Second event | September 19, 2017 at the Levy Center in Evanston. Twenty-two (22) people attended and eight (8) written comments were received.

The latter event was shared with the Pace Pulse Dempster Open House event showcasing preliminary station locations and other information about Pace's environmental review process for this project. While these studies were conducted separately, both are relevant to one another since the planned Pulse Dempster line will operate through the North Shore Coordination Plan study area and provide connectivity with study area routes. The joint open house also allowed the public interested in both projects an option to attend one open house instead of two.

At both events, information was displayed around the room on exhibit boards and a fact sheet was distributed that summarized the proposed service improvements, including a breakdown of routes proposed for elimination or adjustments (see Figure 3-6). The boards also displayed the proposed changes within study area communities for the convenience of attendees. Staff was available to answer questions and there were comment cards available for the public to complete.

A total of 48 people attended the second round of events and 20 written



Round 2 Open House Event | Levy Center in Evanston. September 19, 2017

comments were submitted. The comments covered a broad range of topics including several calling for the extension of CTA Route 155 and requests for improved late night and weekend service on several routes. The routes that received the most comments included Pace Routes 215 and 226, and CTA Route 97.

Figure 3-5 Round 2 Public Open House Flyer (front)

## Open Houses



**Pulse Dempster Line  
and  
Pace/CTA North Shore  
Coordination Plan**

**September 12, 2017 5:00-7:00 pm**



**PULSE**  
Dempster Line

**Des Plaines Public Library**  
1501 Ellinwood St.  
Des Plaines, IL 60016

*Served by Pace routes 208, 226, 230, 234, 250 and Metra UP-Northwest Line*

**PaceBus.com/Pulse**

Come learn about the Pulse Dempster Line and help refine initial station locations. The Pulse Dempster Line is part of Pace's new rapid transit network which will provide enhanced express bus service using the latest technology and streamlined route design. It will operate along Dempster Street between Evanston and O'Hare Airport.

**September 19, 2017 5:00-7:00 pm**

**Combined Open House!**



**PULSE**  
Dempster Line



**North Shore Coordination Plan**

**One location!  
Both projects!**

Information about both the Pulse Dempster Line and the Pace/CTA North Shore Coordination Plan will be presented.

**Levy Senior Center**  
300 Dodge Ave.  
Evanston, IL 60202

*Served by CTA routes 93, 97*

**September 18, 2017 5:00-7:00 pm**



**North Shore Coordination Plan**



**Skokie Public Library**  
2nd Floor  
5215 Oakton St.  
Skokie, IL 60077

*Served by Pace routes 210, 226; CTA route 97 and CTA Yellow Line via Oakton-Skokie station*

Visit the project page in the Planning Initiatives section at **PaceBus.com**

Come learn about proposed updates and changes to routes in the North Shore area as a result of this study. The North Shore Coordination Plan is a joint Pace/CTA study to evaluate the existing transit in the study area and to identify ways to improve service and coordination between Pace and the CTA.



Figure 3-5 Round 2 Public Open House Flyer (back)

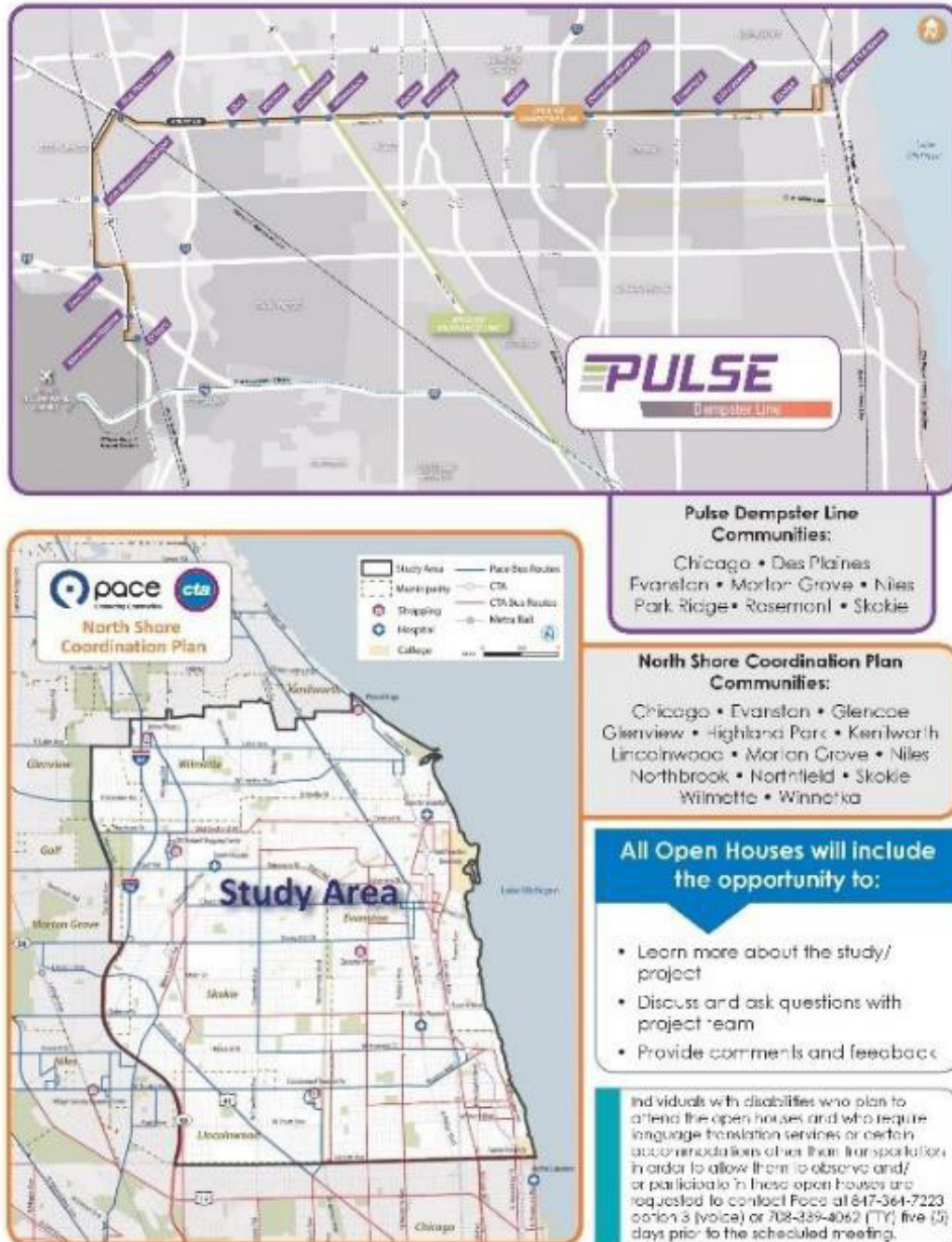




Figure 3-6 Round 2 Public Open House Fact Sheet (front)

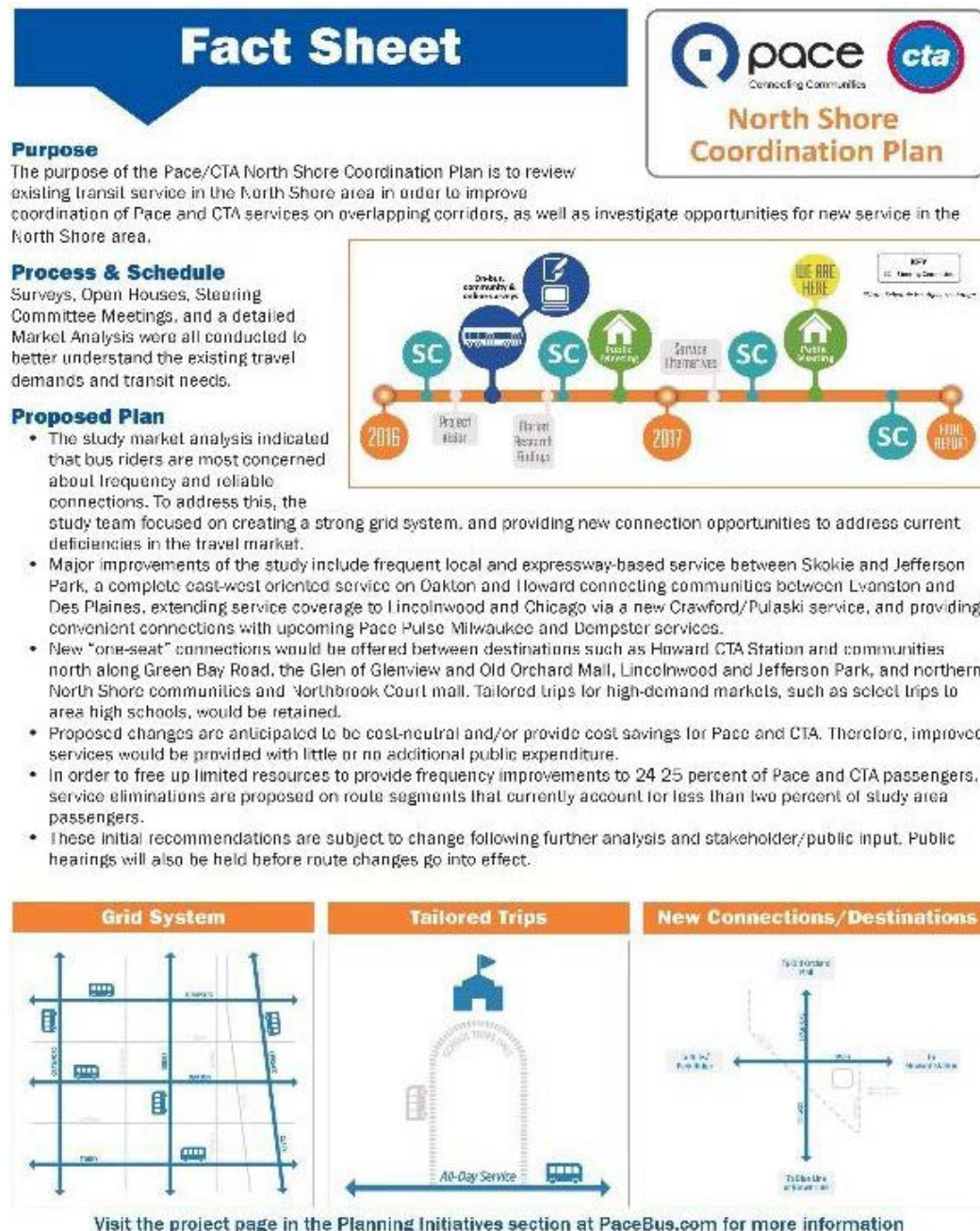


Figure 3-6 Round 2 Public Open House Fact Sheet (back)

## Proposed Route Network



## Open House Media Coverage

Press releases were sent out to the local media regarding the public open house events, some of which in turn provided coverage. A list and links to the media articles are provided below.

- *Extend Devon Ave Bus to Edgebrook? Not Likely, Pace Officials Say.* DNAinfo. October 10, 2017. <https://www.dnainfo.com/chicago/20171010/sauganash/pace-cta-bus-extend-devon-avenue-margaret-laurino-anthony-napolitano>
- *Don't You Forget About Me: Lots of Changes Proposed to North Shore Bus Service.* Streetsblog. October 2, 2017. <https://chi.streetsblog.org/2017/10/03/dont-you-forget-about-me-lots-of-changes-proposed-to-north-shore-bus-service/>
- *Extend Devon Ave Bus to Edgebrook, Alderman Say.* DNAinfo. August 17, 2017. <https://www.dnainfo.com/chicago/20170817/edgebrook/devon-avenue-bus-line-alderman-margaret-laurino-anthony-napolitano-debra-silverstein-pace>



## STUDY WEBPAGE

A study webpage, [www.pacebus.com/sub/initiatives/north\\_shore\\_2016.asp](http://www.pacebus.com/sub/initiatives/north_shore_2016.asp), was developed to share study information and provide regular updates. The page was housed on the Pace website under the Initiatives Section. On CTA's website, [http://www.transitchicago.com/news\\_initiatives/planning/pacenorthshore.aspx](http://www.transitchicago.com/news_initiatives/planning/pacenorthshore.aspx), CTA provided a short study summary and link to the study webpage on Pace's website. Information on the study webpage included a timeline, an overview and background section, and the latest information as the study progressed.

### Figure 3-7 Study Webpage

#### *North Shore Coordination Plan*

#### ***North Shore Transit Service Coordination Plan and Market Analysis***

##### ***Project Overview***

Pace, in partnership with the Chicago Transit Authority (CTA), has initiated the North Shore Transit Service Coordination Plan and Market Analysis. This study will include a review of existing Pace and CTA routes in the North Shore area, including portions of the cities of Chicago and Evanston and the villages of Lincolnwood, Skokie and Wilmette. The primary goals of the project are to improve coordination of Pace and CTA services in the North Shore on overlapping corridors, as well as investigating opportunities for new service.

Other goals of the North Shore Coordination Plan include:

- Improve overall transit service in North Shore area
- Improving/optimizing coordination of Pace and CTA services by:
  - Studying existing travel demands and markets
  - Reviewing changes and new developments in the study area relative to prior service changes and planning efforts

##### ***PROJECT UPDATE***

A draft preferred plan has been developed which includes proposed bus route changes primarily affecting the communities of Evanston, Glenview, Highland Park, Lincolnwood, Morton Grove, Northbrook, Northfield, Skokie, Wilmette, and Chicago's Forest Glen, Jefferson Park, Pulaski Park and Sauganash neighborhoods.

A two-page fact sheet about the proposed plan can be downloaded [here](#).

Pace and CTA also hosted two public open house events in September in Evanston and Skokie, where large maps of proposed changes were displayed. Digital copies of these maps can be downloaded [here](#).

Pace and CTA will continue to receive public comments on the proposed plan through the month of October. Please [contact us](#) to have your voice heard.





*Pace and CTA buses serve the CTA Davis Purple Line station in Evanston, Illinois.*

## 4 PREFERRED ALTERNATIVE

### PROCESS AND OVERVIEW

This chapter presents the Preferred Alternative to restructuring bus service in the North Shore study area and surrounding communities. Service recommendations for this alternative were developed based on public comments, market analysis-based recommendations, Steering Committee feedback, and agency direction.

After concluding the initial year-long market analysis phase of the study, the project team spent most of 2017 working through and evaluating multiple scenarios of route alignment changes. Internal in-person team meetings and workshops were convened, as were conference calls and other collaborative processes between the consultant team and agency staff and management. These discussions all facilitated the evolution of ideas and scenarios, and aided in assessing how well such could address the study goals and objectives.

At the direction of management from both agencies, the project team sought a service alternative which was overall fiscally constrained. After establishing a base network of alignments that achieved sufficient service coverage in the North Shore study area (and neighboring communities), the team calculated baseline resource estimates that would be required to operate different levels of service frequency on individual routes.

Next, different combinations of route frequencies were compared and adjusted until a preliminary alternative emerged which would provide service improvements to greatest possible number of passengers while limiting the reduction of service to the least possible number of passengers.

Finally, the preliminary alternative was then subjected to Steering Committee and public review, which the project team evaluated and used to inform decisions for making final adjustments to what has now become the Preferred Alternative.

Pace and CTA staff will continue to discuss and work through proposed changes with community stakeholders. Recognizing the dynamic nature of bus service in changing environments, both agencies expect that plans for bus service can and should continue to evolve - both prior to and after changes have been implemented.

## PREFERRED ALTERNATIVE

The Preferred Alternative is comprised of all proposed route alignment, frequency and span changes, and represents the collective final recommendations of the North Shore Coordination Plan.

Figures 4-1 through 4-5 provide information that describes route-level changes, network-level changes, frequency and span adjustments, and proposed plans for a phased implementation of changes. Detailed route-by-route changes with phase-level connection opportunities are provided in the Route-by-Route Summary of Changes Report, which can be found on the project website.

### Proposed Route Changes Overview

- 11 Pace and 8 CTA bus routes evaluated (currently in service)
- 7 Pace routes proposed for restructuring, most of which include major alignment, frequency and/or span changes
- 3 CTA routes proposed for changes to frequency and/or span
- 2 new Pace routes proposed
- 2 Pace and 2 CTA bus routes proposed for elimination; productive segments to be replaced by Pace route restructurings and new Pace routes

### Major Impacts Expected

- Approximately two percent of existing passengers would lose coverage, allowing frequency and span improvements to more than 50 percent of existing passengers – Expected to improve overall ridership and on-time performance.
- Improvements are expected to use the same overall level of resources than are currently being spent (CTA will save resources, Pace will invest resources, combined slight net increase).
- New connection opportunities between communities and to rapid transit lines (multiple Pace Pulse stations and CTA / Metra stations), and one using the new I-94 / Eden's Bus-on-Shoulder lanes.

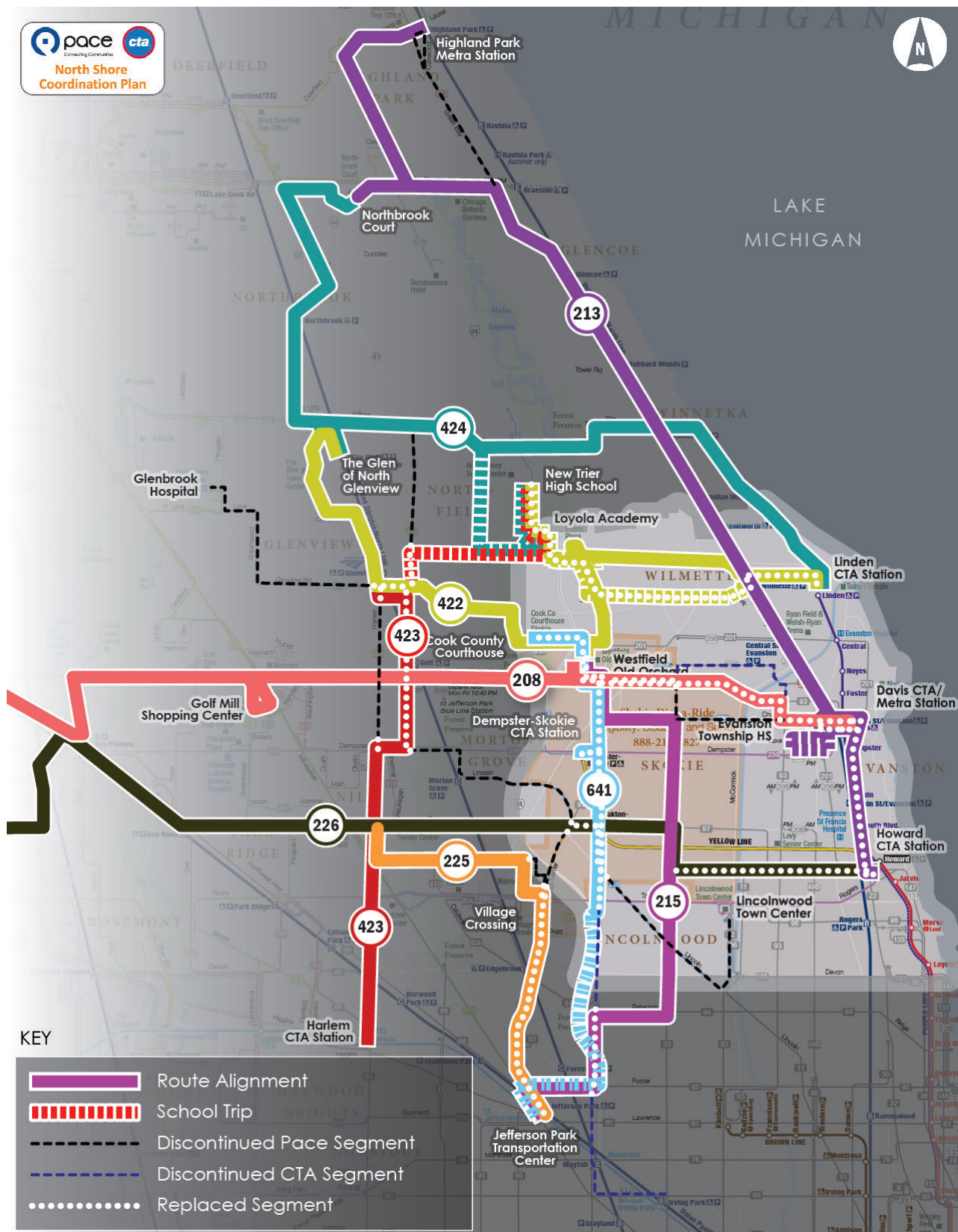
## System Redesign Guiding Principles

In collaboration with the project Steering Committee, the project team developed five guiding principles for designing service improvements. These principles are based on the findings from the market analysis, which include:

- **Focus on demand.** Service improvements should focus on areas of high demand for bus service, indicated by strong route and stop-level ridership. Improvements should also target areas and corridors with significant levels of population and employment, human activity and transit propensity, as defined by the study market analysis.
- **Create a stronger grid.** A key finding from the onboard survey is that passengers' largest concern is frequency and having reliable connections. A grid network helps facilitate more frequent service, provides a network that is more legible for passengers, and improves passengers' ability to make connections between intersecting routes.
- **Grow ridership.** While Pace and CTA's largest ridership numbers are generated from peak-oriented trips, there is latent demand for service during non-peak hours. Improving service levels during these times will improve ridership among current passengers and attract other trip types beyond work trips.
- **Shift resources to more passengers.** Resources should be reallocated in ways which improve service for the greatest number of passengers possible. In practice, this entails operating bus service where and when it is most needed.
- **Serve new connections and new markets.** The market and travel analysis conducted early on in the study revealed several unmet travel markets. Restructuring existing routes and creating new routes will provide new connections and attract new passengers.

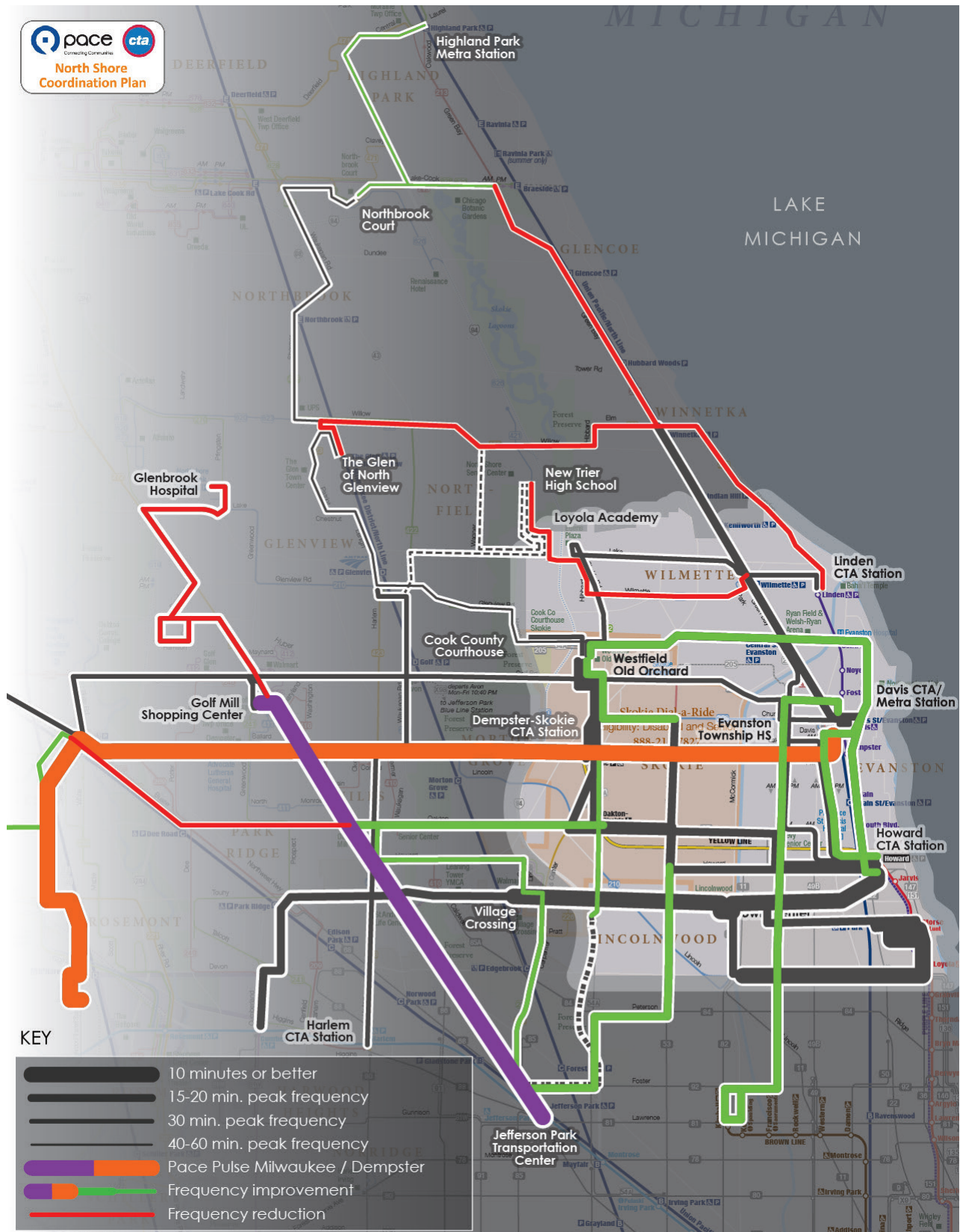


Figure 4-1 Proposed Route Alignments with Discontinuities and Replacements\*



\* Only progressing study area routes with alignment changes are shown.

Figure 4-2 Proposed Network Frequency | All Study Routes, plus Pace Pulse



**Figure 4-3 Summary of Changes | Pace Routes**

| ROUTE | SUMMARY OF CHANGES                                                                                                                                                                                                                                            | PROPOSED FREQUENCY (Min.) |          | PROPOSED SPAN                                                                |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|------------------------------------------------------------------------------|
|       |                                                                                                                                                                                                                                                               | Peak                      | Off-peak |                                                                              |
| 208   | Restructure to operate on Golf/Emerson (CTA Route 205 segment) and on Church between Dodge and Davis CTA.                                                                                                                                                     | 30                        | 30       | 5:46 am-10:55 pm<br>6:40 am-10:40 pm (Saturday)<br>7:47 am-9:16 pm (Sunday)  |
| 210   | Discontinue; certain portions to be served by Routes 82, 96, 97, 215, 226, 250, 423 and 641.                                                                                                                                                                  | -                         | -        | -                                                                            |
| 213   | Extend service to Howard CTA via Chicago Ave. (CTA Route 205 segment) and improve frequency; short turn in Winnetka; add school trip to ETHS; Consolidate northern branches between Northbrook Court and Highland Park and increase midday frequency to both. | 20-40                     | 30       | 5:40 am-9:57 pm<br>6:55 am-7:45 pm (Saturday)                                |
| 215   | Extend to Jefferson Park CTA via Crawford/Peterson/Cicero/Foster/Milwaukee. Maintain existing frequency on new route segments.                                                                                                                                | 20                        | 40       | 5:06 am-12:15 am<br>5:45 am-12:10 am (Saturday)<br>6:15 am-12:10 am (Sunday) |
| 225   | Restructure to serve Touhy/Central Street in Niles; add bidirectional service; extend span to all day with 30 min peak, 60 min off-peak service.                                                                                                              | 30                        | 60       | 5:30 am-7:11 pm                                                              |
| 226   | Extend to Howard CTA via Oakton-Crawford-Howard; Consolidate short-turns between Milwaukee/Oakton (Pulse Milwaukee Station) and Howard CTA Station. Remove service on Niles-Center Road (Route 225 segment). Add Saturday and Sunday service.                 | 20-40                     | 30-60    | 5:01 am-12:00 am<br>5:45 am-12:10 am (Saturday)<br>6:15 am-12:10 am (Sunday) |
| 250   | No change; Pulse Dempster line implementation and related Route 250 changes targeted for 2020 to include overall service improvements in the corridor.                                                                                                        | 20                        | 20       | 4:58 am-1:15 am<br>6:05 am-1:13 am (Saturday)<br>6:05 am-1:14 am (Sunday)    |
| 290   | No change.                                                                                                                                                                                                                                                    | 7-10                      | 20       | 4:52 am-1:30 am<br>5:33 am-1:00 am (Saturday)<br>6:30 am-12:00 am (Sunday)   |
| 421   | Discontinue; school trips to be retained and reassigned to Route 422.                                                                                                                                                                                         | -                         | -        | -                                                                            |
| 422   | Restructure to terminate at Glen of Glenview; pick up school trips from Route 421.                                                                                                                                                                            | 30-60                     | 60       | 6:19 am-10:41 pm                                                             |
| 423   | Restructure to serve Harlem to downtown Glenview only; shift alignment from Harlem to Waukegan Road north of Dempster (Route 210 segment); retain existing school trips.                                                                                      | 30                        | 60       | 5:35 am-8:40 pm                                                              |
| 424   | <b>NEW ROUTE</b> - Linden CTA Station to Northbrook Court via Elm-Hibbard-Willow-Shermer-Waukegan-Lake Cook (Route 423 segment).                                                                                                                              | 60                        | 60       | 5:35 am-8:40 pm                                                              |
| 641   | <b>NEW ROUTE</b> - Express from Jefferson Park Transportation Center to Touhy/Skokie, local to Pulse Dempster-Skokie Station, Old Orchard, Skokie Courthouse (CTA Route 54A segment).                                                                         | 30                        | 30       | 6:00 am-6:00 pm                                                              |



Figure 4-4 Summary of Changes | CTA Routes

| ROUTE | SUMMARY OF CHANGES                                                       | PROPOSED FREQUENCY (Min.) |          | PROPOSED SPAN                                                                |
|-------|--------------------------------------------------------------------------|---------------------------|----------|------------------------------------------------------------------------------|
|       |                                                                          | Peak                      | Off-peak |                                                                              |
| 54A   | Discontinue; portions to be served by 54, 80, 97, 215, 422 and 641.      | -                         | -        | -                                                                            |
| 93    | Improve route frequency.                                                 | 11-20                     | 20       | 5:00 am – 9:40 pm<br>7:00 am – 8:15 pm (Saturday)                            |
| 96    | No change.                                                               | 15-30                     | 30       | 5:25 am - 7:05 pm                                                            |
| 97    | No change.                                                               | 15                        | 20       | 4:55 am-10:45 pm<br>6:30 am-10:30 pm (Saturday)<br>6:35 am-10:35 pm (Sunday) |
| 155   | No change.                                                               | 8-15                      | 10-20    | 4:45 am-12:40 am<br>5:00 am-12:40 am (Saturday)<br>5:20 am-12:40 am (Sunday) |
| 201   | Improve route frequency.                                                 | 20                        | 30       | 5:00 am-8:00 pm<br>8:55 am-7:15 pm (Saturday)                                |
| 205   | Discontinue; portions to be served by Pace Routes 208, 213, 422 and 641. | -                         | -        | -                                                                            |
| 206   | Reduce route span.                                                       | 20-25                     | -        | 7:05 am-8:20 am 2:20 pm-5:20 pm                                              |



## ESTIMATED RESOURCE NEEDS

Resource estimate needs were developed to evaluate proposed service alternatives and to ensure an efficient allocation of resources in the North Shore study area. Costs are represented by estimated service hours and vehicles needed to operate the proposed route changes. These estimates are conceptual and subject to refinement through internal Pace and CTA processes, which may warrant additional changes.

The refinement process may include, but is not limited to: developing bus schedules; blocking trips, run cutting and crew rostering; route garage assignments; labor agreements; public hearings; and, agency management and board approval processes. Nonetheless, Pace and CTA consider these conceptual estimates informative for forecasting and facilitating internal planning efforts.

Figure 4-5 summarizes the difference in total resource costs from existing operations.

**Figure 4-4 Summary of Estimated Total Costs (Study Area Routes)**

| AGENCY       | ANNUAL VEHICLE HOURS |                | CHANGE IN PEAK PERIOD VEHICLE REQUIREMENT | CHANGE IN OFF-PEAK PERIOD VEHICLE REQUIREMENT |
|--------------|----------------------|----------------|-------------------------------------------|-----------------------------------------------|
|              | Change in Hours      | Percent Change |                                           |                                               |
| Pace         | 26,257               | 10.6           | 4                                         | 2                                             |
| CTA          | -23,298              | -18.2          | -8                                        | -7                                            |
| <b>Total</b> | <b>2,952</b>         | <b>0.8</b>     | <b>-4</b>                                 | <b>-5</b>                                     |

The preferred alternative will result in a 10.6 percent increase in daily vehicle hours for Pace, and an 18.2 percent decrease in daily vehicle hours for CTA. Combined, the proposed service changes for this study would represent a 0.8 percent increase in total vehicle hours. While service changes would also result in a net decrease of peak bus vehicles operated in the study area, Pace services alone would necessitate the use of four additional vehicles during peak hours.

Detailed estimates of change to annual vehicle hours and vehicle requirements are provided in Figures 4-5 through 4-8.

## Vehicle Hours

Vehicle hours are a measure of how many hours of service will be provided by Pace and CTA buses in the area.

For this particular assessment, vehicle hours were estimated using a costing model developed by Nelson/Nygaard Consulting Associates, Inc. This model factors in assumptions for layover and deadhead operations that may result in a total that is not exactly the same as existing operations.

Figures 4-5 and 4-6 summarize existing, proposed, and net change in annual vehicle hours for Pace and CTA service proposals, respectively. Overall, the preferred alternative is expected to result in an approximately 0.8 percent increase in total vehicle hours among both agencies.

These figures are high-level estimates. As previously noted, final resource needs and fiscal impacts for Pace and CTA will depend on the final service design at the time of implementation.

**Figure 4-5 Change in Annual Vehicle Hours for Pace Routes**

| ROUTE        | ANNUAL VEHICLE HOURS |                |               |
|--------------|----------------------|----------------|---------------|
|              | Existing             | Proposed       | Net Change    |
| 208          | 36,586               | 36,586         | 0             |
| 210          | 11,557               | 0              | -11,557       |
| 213          | 20,380               | 26,463         | 6,083         |
| 215          | 18,327               | 25,582         | 7,255         |
| 225          | 5,334                | 8,636          | 3,302         |
| 226          | 13,716               | 24,857         | 11,141        |
| 250          | 40,026               | 40,026         | 0             |
| 290          | 34,798               | 34,798         | 0             |
| 421          | 4,572                | 0              | -4,572        |
| 422          | 19,685               | 22,479         | 2,794         |
| 423          | 15,367               | 7,493          | -7,874        |
| 424          | 0                    | 10,160         | 10,160        |
| 641          | 0                    | 9,525          | 9,525         |
| <b>Total</b> | <b>220,348</b>       | <b>246,605</b> | <b>26,257</b> |

**Figure 4-6 Change in Annual Vehicle Hours for CTA Routes**

| ROUTE        | ANNUAL VEHICLE HOURS |                |                |
|--------------|----------------------|----------------|----------------|
|              | Existing             | Proposed       | Net Change     |
| 54A          | 11,208               | 0              | -11,208        |
| 93           | 26,054               | 26,054         | 0              |
| 96           | 8,443                | 8,443          | 0              |
| 97           | 29,882               | 29,882         | 0              |
| 155          | 38,069               | 38,069         | 0              |
| 201          | 19,217               | 19,217         | 0              |
| 205          | 12,090               | 0              | -12,090        |
| 206          | 6,220                | 6,220          | 0              |
| <b>Total</b> | <b>151,183</b>       | <b>127,885</b> | <b>-23,298</b> |

## Vehicle / Equipment Needs

Vehicle requirements are a measure of how many buses Pace and CTA will need to have available to operate proposed service in the North Shore study area. Peak and off-peak vehicle requirements for both existing and proposed route designs are estimated through the Nelson\Nygaard costing model. The costing model makes assumptions for layover and deadhead travel that may result in a total that is not exactly the same as existing. Additionally, efficiencies gained from interlining patterns, garage assignment and/or run cutting are not included.

Figures 4-7 and 4-8 summarize calculated existing, proposed, and net change in peak and off-peak vehicle / equipment needs for study area routes. School trips are included in vehicle requirements calculations for Pace Routes 213, 250, 290, 422, 423 and 424, as well as CTA Route 206.

Figure 4-7 Change in Equipment for Pace Routes

| ROUTE        | EXISTING VEHICLES |           | PROPOSED VEHICLES |           | NET CHANGE |          |
|--------------|-------------------|-----------|-------------------|-----------|------------|----------|
|              | Peak              | Off-Peak  | Peak              | Off-Peak  | Peak       | Off-Peak |
| 208          | 4                 | 7         | 4                 | 7         | 0          | 0        |
| 210          | 4                 | 3         | 0                 | 0         | -4         | -3       |
| 213          | 7                 | 4         | 7                 | 5         | 0          | 1        |
| 215          | 5                 | 2         | 6                 | 3         | 1          | 1        |
| 225          | 2                 | 0         | 3                 | 2         | 1          | 2        |
| 226          | 4                 | 4         | 7                 | 5         | 3          | 1        |
| 250          | 9                 | 8         | 9                 | 8         | 0          | 0        |
| 290          | 12                | 6         | 12                | 6         | 0          | 0        |
| 421          | 3                 | 0         | 0                 | 0         | -3         | 0        |
| 422          | 5                 | 5         | 7                 | 4         | 2          | -1       |
| 423          | 5                 | 5         | 4                 | 1         | -1         | -4       |
| 424          | 0                 | 0         | 2                 | 2         | 2          | 2        |
| 641          | 0                 | 0         | 3                 | 3         | 3          | 3        |
| <b>Total</b> | <b>60</b>         | <b>44</b> | <b>64</b>         | <b>46</b> | <b>4</b>   | <b>2</b> |

Figure 4-8 Change in Equipment for CTA Routes

| ROUTE        | EXISTING VEHICLES |           | PROPOSED VEHICLES |           | NET CHANGE |           |
|--------------|-------------------|-----------|-------------------|-----------|------------|-----------|
|              | Peak              | Off-Peak  | Peak              | Off-Peak  | Peak       | Off-Peak  |
| 54A          | 5                 | 5         | 0                 | 0         | -5         | -5        |
| 93           | 7                 | 4         | 7                 | 4         | 0          | 0         |
| 96           | 2                 | 2         | 2                 | 2         | 0          | 0         |
| 97           | 5                 | 5         | 5                 | 5         | 0          | 0         |
| 155          | 11                | 7         | 11                | 7         | 0          | 0         |
| 201          | 6                 | 4         | 6                 | 4         | 0          | 0         |
| 205          | 3                 | 2         | 0                 | 0         | -3         | -2        |
| 206          | 4                 | 0         | 4                 | 0         | 0          | 0         |
| <b>Total</b> | <b>43</b>         | <b>29</b> | <b>35</b>         | <b>22</b> | <b>-8</b>  | <b>-7</b> |



## PASSENGER IMPACTS

Understanding how the proposed changes impacts passengers primarily involves identifying bus route segments and stops which would be served differently than today, categorizing which would have more or less frequency and/or span, and summarizing how many existing passengers would experience such impacts.

These passenger impacts are evaluated based on average weekday boardings at bus stops using Pace and CTA data compiled in 2016.

### Passenger Impacts from Service Improvements

Overall, more than half of current passengers (53 percent) in the North Shore study area will experience an improvement in bus service. Figure 4-9 details the number of passengers who will be impacted by service improvements on segments or entire lengths of study area routes. Frequency changes to Pace and CTA bus routes with in the preferred alternative are illustrated in Figure 4-2.

**Figure 4-9 Estimated Passenger Impacts from Frequency and Span Improvements**

| ROUTE                                                 | SEGMENT                    | BETWEEN                                                                                           | Avg. Daily Boardings | Avg. Daily Alightings | TOTAL         |
|-------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------|----------------------|-----------------------|---------------|
| 93                                                    | Entire route               | N/A                                                                                               | 3,445                | 3,445                 | 6,890         |
| 201                                                   | Entire route               | N/A                                                                                               | 4,747                | 5,293                 | 10,040        |
| 206                                                   | Entire route               | N/A                                                                                               | 3,197                | 3,255                 | 6,452         |
| 213                                                   | Green Bay Road             | Winnetka & Howard Station                                                                         | 2,283                | 2,122                 | 4,405         |
| 215                                                   | Laverne and Golf           | Harrison & Skokie                                                                                 | 212                  | 227                   | 439           |
| 215                                                   | Skokie & Church            | Golf & Crawford                                                                                   | 93                   | 112                   | 205           |
| 215                                                   | Cicero                     | Peterson & Foster                                                                                 | 60                   | 48                    | 108           |
| 225                                                   | Entire route               | N/A                                                                                               | 168                  | 170                   | 338           |
| 226                                                   | Oakton                     | Milwaukee & Crawford                                                                              | 649                  | 906                   | 1,555         |
| 250*                                                  | Entire route               | N/A                                                                                               | 3,146                | 3,165                 | 6,311         |
| 423                                                   | Partial Routes 210 and 423 | Glenview - Harlem & Waukegan;<br>Waukegan - Glenview & Dempster;<br>Harlem - Dempster & Bryn Mawr | 317                  | 588                   | 905           |
| <b>Total</b>                                          |                            |                                                                                                   | <b>18,317</b>        | <b>19,331</b>         | <b>37,648</b> |
| <b>Percent of all Passengers on Study Area Routes</b> |                            |                                                                                                   | <b>52.0%</b>         | <b>54.0%</b>          | <b>53.0%</b>  |

\* Improvements in the Dempster corridor would come from the launch of Pulse Dempster service.

## Passenger Impacts from Discontinued Service

Several routes will be discontinued and/or partially replaced by other bus service including CTA Routes 54A and 205, and Pace Routes 208, 210, 213, 215, 421, 422 and 423. In total, about two percent of current passengers will lose service due to restructuring and discontinuation of service in the North Shore area, representing 814 daily boardings, as indicated in Figure 4-10.

Segments that will no longer be served by Pace or CTA bus service in the preferred alternative are illustrated in Figure 4-1.

It should be noted that in most cases, eliminated route segments are within a quarter mile to other existing or proposed route segments, and are likely equally if not more accessible to many of these existing passengers.

**Figure 4-10 Estimated Passenger Impacts from Discontinued Service**

| ROUTE                                                 | SEGMENT                         | BETWEEN                                     | Avg. Daily Boardings | Avg. Daily Alightings | TOTAL        |
|-------------------------------------------------------|---------------------------------|---------------------------------------------|----------------------|-----------------------|--------------|
| 54A                                                   | Cicero                          | Peterson & Estes                            | 27                   | 27                    | 54           |
| 54A                                                   | Cicero                          | Foster & Montrose                           | 63                   | 55                    | 118          |
| 205                                                   | Grant - select trips            | Golf & Emerson                              | 31                   | 16                    | 47           |
| 208                                                   | Church                          | Dodge & Crawford                            | 95                   | 113                   | 208          |
| 210                                                   | Lake/Greenwood/<br>Glenview     | West of Lehigh                              | 107                  | 119                   | 226          |
| 210                                                   | Ferris/Lincoln/Niles<br>Center  | Dempster & Oakton                           | 41                   | 48                    | 89           |
| 210                                                   | Lincoln Ave in<br>Lincolnwood   | Skokie & McCormick                          | 80                   | 62                    | 142          |
| 213                                                   | North of Lake Cook<br>Rd        | North of North Branch Trail                 | 22                   | 23                    | 45           |
| 215                                                   | Crawford                        | Golf & Church                               | 12                   | 8                     | 20           |
| 421*                                                  | Central/Happ                    | New Trier HS & Northfield Plaza             | 18                   | 20                    | 38           |
| 421*                                                  | Happ                            | Willow & New Trier HS & Northfield<br>Plaza | 19                   | 18                    | 37           |
| 422                                                   | Waukegan                        | Willow & Lake                               | 29                   | 32                    | 61           |
| 423                                                   | Harlem                          | Dewes St & Dempster St                      | 70                   | 92                    | 162          |
| 423                                                   | Willow/Hibbard/<br>Elm/Sheridan | Linden CTA Station and Patriot              | 200                  | 200                   | 400          |
| <b>Total</b>                                          |                                 |                                             | <b>814</b>           | <b>833</b>            | <b>1,647</b> |
| <b>Percent of all Passengers on Study Area Routes</b> |                                 |                                             | <b>2.3%</b>          | <b>2.3%</b>           | <b>2.3%</b>  |

## ACHIEVEMENT OF GUIDING PRINCIPLES

The Preferred Alternative was evaluated against the established guiding principles, as summarized in Figure 4-11.

Preferred Alternative service changes each achieve multiple guiding principles. In this way, service changes are both efficient and effective given the resource constraints of both CTA and Pace.

Furthermore, many new markets and connections will be made available in areas with high transit propensity and demand for service, largely using resources gained from the discontinuation or restructuring of under-performing service.

The final network of routes also promotes a bus system that is more comprehensible, dynamic and connected for both existing and future passengers. This is largely achieved through the stronger grid design.

**Figure 4-11 Achievement of Guiding Principles**

| PRINCIPLE                     | ROUTE(S)      | HOW THE CHANGES ACHIEVE THE PRINCIPLE                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Focus on demand</b>        | 93, 201       | Routes 93 and 201 are busy routes, a fact that directly influenced the need for increased frequency.                                                                                                                                                                                                                                                                                                                                           |
|                               | 206           | Lower demand on certain trips warranted the consolidation of trips to focus on the times when demand is highest.                                                                                                                                                                                                                                                                                                                               |
|                               | 213           | Frequency improvements focus on Green Bay Road and Chicago Avenue between Winnetka and Howard station, where demand is highest.                                                                                                                                                                                                                                                                                                                |
|                               | 421           | Very low demand on non-school trips warrants the elimination of non-school service and shifting of resources to higher-demand areas.                                                                                                                                                                                                                                                                                                           |
|                               | 422           | Lower demand on certain segments warranted restructuring of Route 422 which also allows other route changes.                                                                                                                                                                                                                                                                                                                                   |
|                               | 423, 424      | By splitting Route 423 into two routes (Routes 423 and 424), resources can be re-focused to provide an appropriate level of service for each corridor.                                                                                                                                                                                                                                                                                         |
| <b>Create a stronger grid</b> | 205           | The discontinuation of Route 205 allows the previously L-shaped alignment to be replaced by east-west running Route 208 and north-south running Route                                                                                                                                                                                                                                                                                          |
|                               | 208           | The Z-shaped kink of this route in downtown Skokie will be removed to allow a longer east-west stretch into downtown Evanston.                                                                                                                                                                                                                                                                                                                 |
|                               | 213           | The extension of Route 213 south to Howard CTA Station will augment a north-south component of the grid network.                                                                                                                                                                                                                                                                                                                               |
|                               | 226           | The north-south segment of this route is absorbed by Route 225; by absorbing the portion of Route 215 on Howard, Route 226 becomes an east-west route.                                                                                                                                                                                                                                                                                         |
|                               | 421, 422, 423 | By splitting Route 423 into two routes (Routes 423 and 424), Route 423 will provide a stronger north-south orientation while Route 424 will provide a stronger east-west orientation (between Glenview and Linden CTA Station). Meanwhile, the combination of having Route 422 absorb the Glen portion of Route 423, and having Route 424 absorb the northern segment of Route 422 will provide a stronger east-west orientation of Route 422. |

**Figure 4-11 Achievement of Guiding Principles (continued)**

| PRINCIPLE                                    | ROUTE(S) | HOW THE CHANGES ACHIEVE THE PRINCIPLE                                                                                                                                                                                                                                                                      |
|----------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grow ridership</b>                        | 93       | Increased frequency is expected to attract additional passenger activity.                                                                                                                                                                                                                                  |
|                                              | 213      | Increased frequency is expected to attract additional passengers, both on the northern end where two branches going to Highland Park and Northbrook Court mall will be consolidated, and in the southern end of Chicago Avenue where 30-min peak service (Route 205) will be upgraded to 20-min peak.      |
|                                              | 225      | A minor alignment change in Niles will provide a more direct connection between Jefferson Park and the Village Crossing shopping area, a locale that currently generates heavy passenger activity on Route 290. Introduction of midday service is expected to attract riders where there is latent demand. |
|                                              | 226      | Providing a new strong east-west connection between Howard CTA Station and Milwaukee Avenue at the future Pace Pulse Milwaukee Oakton Station is expected to be mutually beneficial for passengers traveling in both corridors.                                                                            |
|                                              | 641      | Created to provide a fast, reliable and all-day travel option to address the gap in transit use between Skokie and Jefferson Park that was identified from the Market Analysis. The route will also augment transfer opportunities to future Pace Pulse Dempster service at Dempster-Skokie CTA Station.   |
| <b>Shift resources to more passengers</b>    | 93, 201  | Similar to how the frequency improvements will focus on demand, so too will the associated increase in resources benefit additional passengers.                                                                                                                                                            |
|                                              | 210      | The resources saved from the discontinuation from this route would be reinvested in other route improvements.                                                                                                                                                                                              |
|                                              | 215      | The necessary investment in resources to restructure Route 215 is expected to benefit passengers in multiple parts of the study area.                                                                                                                                                                      |
|                                              | 225      | Increasing resources on Route 225 will compensate for the loss of Route 226 service on Niles-Center Road, as well as provide additional trip options to multiple employment locations just outside of the study area.                                                                                      |
|                                              | 226      | The anticipated growth in ridership from restructuring this route will be made possible from the addition of resources.                                                                                                                                                                                    |
|                                              | 421      | Very low demand on non-school trips warrants the elimination of non-school service and shifting of resources to higher-demand areas.                                                                                                                                                                       |
| <b>Serve new connections and new markets</b> | 213      | New north-south connections include Davis to Howard CTA Station, as well as Highland Park to Northbrook Court mall.                                                                                                                                                                                        |
|                                              | 215      | New north-south connections to Jefferson Park Transportation Center from Jefferson Park, Forest Glen, Sauganash, Lincolnwood Skokie, and Westfield Old Orchard shopping center.                                                                                                                            |
|                                              | 226      | New east-west connections between Rogers Park, Evanston and Skokie, and by extension to Niles, Morton Grove, Des Plaines, and Elk Grove Village.                                                                                                                                                           |
|                                              | 422      | New east-west connections between the Glen of Glenview and Westfield Old Orchard shopping center and Wilmette.                                                                                                                                                                                             |
|                                              | 423      | New north-south connection between Waukegan Road in Morton Grove and Harlem CTA Blue Line station.                                                                                                                                                                                                         |
|                                              | 424      | New connections between Northbrook Court mall/Village of Northbrook and Northfield, Winnetka, Kenilworth and Wilmette.                                                                                                                                                                                     |
|                                              | 641      | New connections between Jefferson Park Transportation Center and Lincolnwood, Pulse Dempster-Skokie CTA Station, downtown Skokie, and Skokie Courthouse.                                                                                                                                                   |



## PHASING PLAN

A phased implementation of the North Shore Coordination Plan service changes was determined by Pace and CTA to allow both agencies sufficient lead time to develop schedules, remove, revise and/or install bus stop signs, update electronic tracking and reporting systems, budget resources, hire new operators, procure or reassign vehicle equipment, complete federally-required analyses, provide public hearing reviews, gain executive board approvals, comply with union rules and labor laws, and a variety of other needs and requirements which impact the implementation of service changes.

The phasing plan includes three packages of coordinated service changes that require synchronous implementation. Details of the preliminary phasing plan for the Preferred Alternative service recommendations are provided in Figure 4-12.

Figure 4-12 Summary of Proposed Phasing Plan

| PHASE / TIMEFRAME                         | CHANGE IDENTIFIED BY THIS PLAN                                      | OTHER PLANNED CHANGES                                                       |
|-------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Post-Study Launch</b><br>Pre-2018      | CTA Route 206   Restructure                                         | N/A                                                                         |
|                                           | Pace Route 208   Schedule optimization                              |                                                                             |
|                                           | CTA Route 93   Improve frequency                                    |                                                                             |
| <b>Phase 1</b><br>Fall of 2018            | CTA Route 205   Discontinue                                         | Pace Pulse Milwaukee   Launch                                               |
|                                           | Pace Route 208   Restructure                                        | Pace Route 270   Restructure                                                |
|                                           | Pace Route 213   Restructure and extension                          |                                                                             |
| <b>Phase 2</b><br>Early to mid-2019       | CTA Route 54A   Discontinue                                         | N/A                                                                         |
|                                           | Pace Route 210   Discontinue                                        |                                                                             |
|                                           | Pace Route 215   Restructure and extend                             |                                                                             |
|                                           | Pace Route 225   Restructure and add weekday service                |                                                                             |
|                                           | Pace Route 226   Restructure and add weekday and weekend service    |                                                                             |
|                                           | Pace Route 423   Restructure (Waukegan Road segment)                |                                                                             |
|                                           | Pace Route 641   Launch                                             |                                                                             |
| <b>Phase 3</b><br>Late 2019 or early 2020 | Pace Route 421   Discontinue and reassign school trips to Route 422 | Pace Pulse Dempster   Launch (target late 2020)                             |
|                                           | Pace Route 422   Restructure                                        | Pace Route 250   Restructure (target late 2020, with Pulse Dempster launch) |
|                                           | Pace Route 423   Restructure and shorten                            |                                                                             |
|                                           | Pace Route 424   Launch                                             |                                                                             |

## Phase 1

Phase 1 service changes are tentatively scheduled for the Fall of 2018 and include the following:

- CTA Route 205 | Discontinue
- Pace Route 208 | Restructure
- Pace Route 213 | Restructure and extension

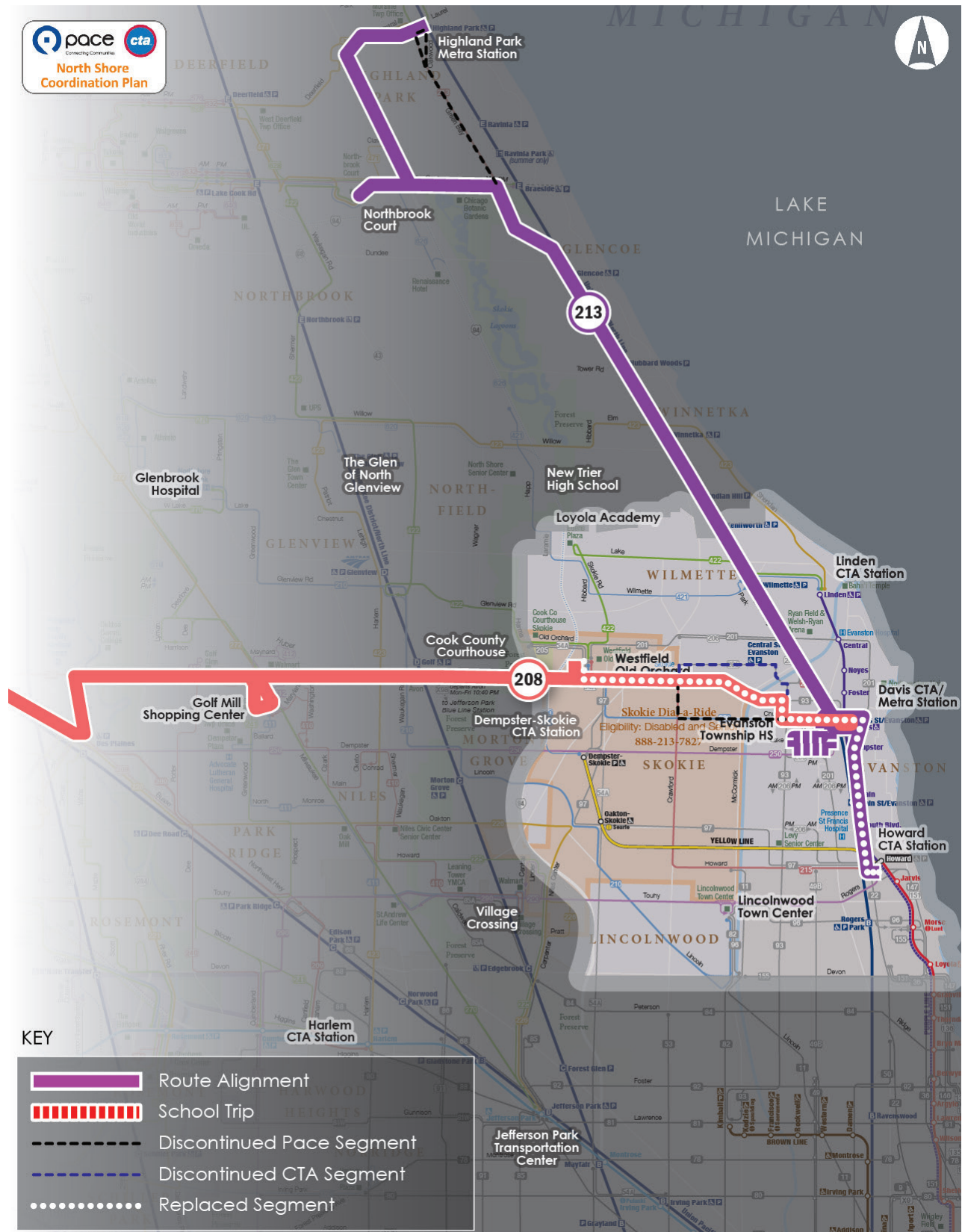
Figure 4-13 summarizes the expected changes in annual vehicles hours and peak and off-peak vehicles for implementing Phase 1 service changes.

Figure 4-14 depicts alignment and frequency changes for Phase 1 service changes.

**Figure 4-13 Phase 1 Cost Summary**

| ROUTE                 | CHANGE IN<br>VEHICLE HOURS | CHANGE IN<br>PEAK VEHICLE<br>REQUIREMENTS | CHANGE IN OFF-<br>PEAK VEHICLE<br>REQUIREMENTS |
|-----------------------|----------------------------|-------------------------------------------|------------------------------------------------|
| Pace Route 208        | 0                          | 0                                         | 0                                              |
| Pace Route 213        | 6,083                      | 0                                         | 1                                              |
| CTA Route 205         | -12,090                    | -3                                        | -2                                             |
| <b>Pace Subtotal</b>  | <b>6,083</b>               | <b>0</b>                                  | <b>1</b>                                       |
| <b>CTA Subtotal</b>   | <b>-12,090</b>             | <b>-3</b>                                 | <b>-2</b>                                      |
| <b>Combined Total</b> | <b>-6,007</b>              | <b>-3</b>                                 | <b>-1</b>                                      |

Figure 4-14 Phase 1 Changes





## Phase 2

Phase 2 service changes are tentatively targeted for implementation in mid-to-late 2019 and include the following:

- CTA Route 54A | Discontinue
- Pace Route 210 | Discontinue
- Pace Route 215 | Restructure and extend
- Pace Route 225 | Restructure and add weekday service
- Pace Route 226 | Restructure and add weekday and weekend service
- Pace Route 423 | Restructure (Waukegan Road segment)
- Pace Route 641 | Launch

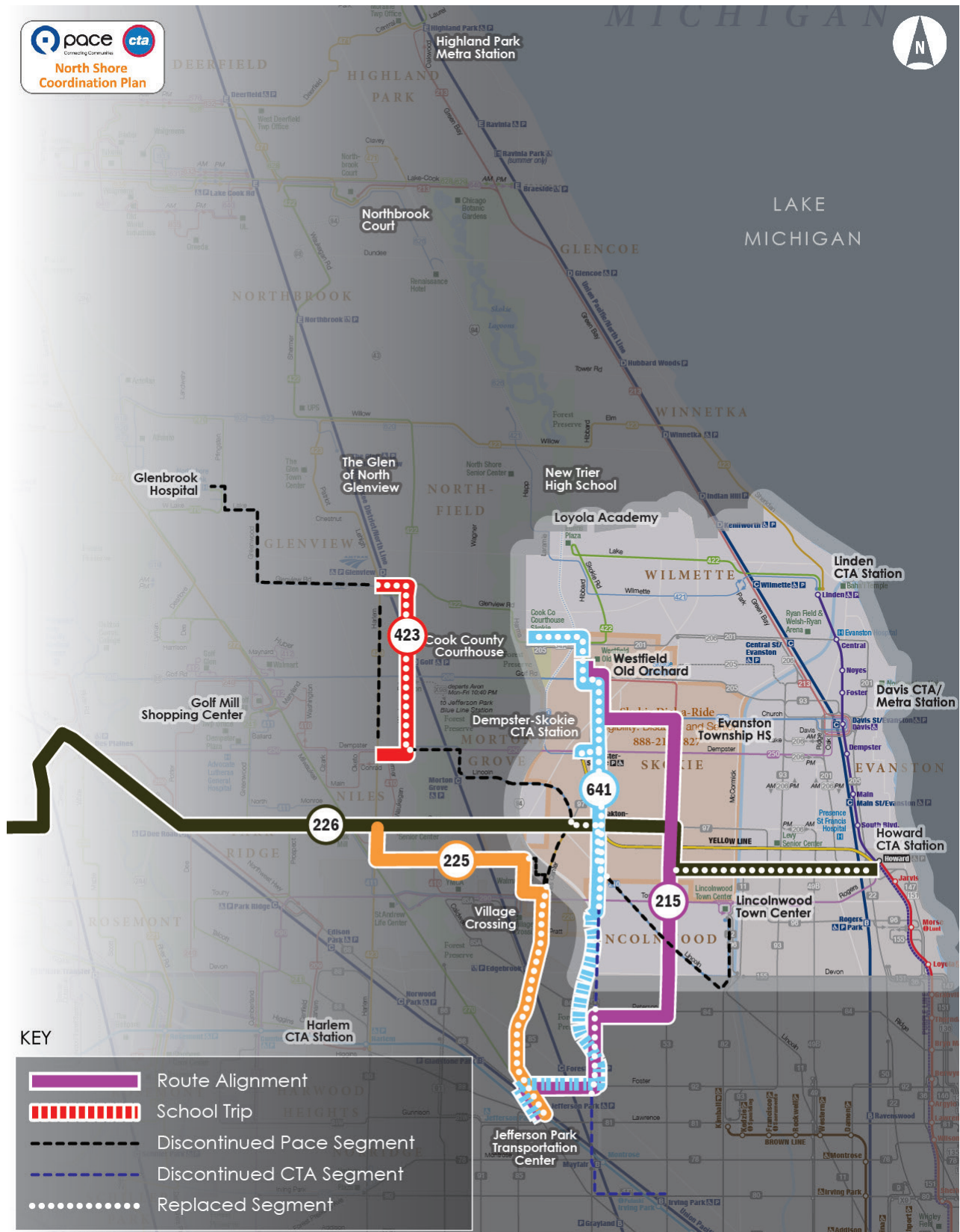
Figure 4-15 summarizes the expected changes in annual vehicles hours and peak and off-peak vehicles for implementing Phase 2 service changes.

Figure 4-16 depicts alignment and frequency changes for Phase 2 service changes.

**Figure 4-15 Phase 2 Cost Summary**

| ROUTE                 | CHANGE IN<br>VEHICLE HOURS | CHANGE IN<br>PEAK VEHICLE<br>REQUIREMENTS | CHANGE IN OFF-<br>PEAK VEHICLE<br>REQUIREMENTS |
|-----------------------|----------------------------|-------------------------------------------|------------------------------------------------|
| CTA Route 54A         | -11,176                    | -5                                        | -5                                             |
| Pace Route 210        | -11,557                    | -4                                        | -3                                             |
| Pace Route 215        | 7,255                      | 1                                         | 1                                              |
| Pace Route 225        | 3,302                      | 1                                         | 2                                              |
| Pace Route 226        | 11,141                     | 3                                         | 1                                              |
| Pace Route 641        | 9,525                      | 3                                         | 3                                              |
| <b>Pace Subtotal</b>  | <b>19,666</b>              | <b>4</b>                                  | <b>4</b>                                       |
| <b>CTA Subtotal</b>   | <b>-11,176</b>             | <b>-5</b>                                 | <b>-5</b>                                      |
| <b>Combined Total</b> | <b>8,490</b>               | <b>-1</b>                                 | <b>-1</b>                                      |

Figure 4-16 Phase 2 Changes



## Phase 3

Phase 3 service changes are tentatively targeted for implementation in mid-to-late 2019 and include the following:

- Pace Route 421 | Discontinue and reassign school trips to Route 422
- Pace Route 422 | Restructure
- Pace Route 423 | Restructure and shorten
- Pace Route 424 | Launch

Figure 4-17 summarizes the expected changes in annual vehicles hours and peak and off-peak vehicles for implementing Phase 1 service changes.

Figure 4-18 depicts alignment and frequency changes for Phase 1 service changes.

**Figure 4-17 Phase 3 Cost Summary**

| ROUTE                 | CHANGE IN<br>VEHICLE HOURS | CHANGE IN<br>PEAK VEHICLE<br>REQUIREMENTS | CHANGE IN OFF-<br>PEAK VEHICLE<br>REQUIREMENTS |
|-----------------------|----------------------------|-------------------------------------------|------------------------------------------------|
| Pace Route 421        | -4,572                     | -3                                        | 0                                              |
| Pace Route 422        | 2,794                      | 2                                         | -1                                             |
| Pace Route 423        | -7,874                     | -1                                        | -4                                             |
| Pace Route 424        | 10,160                     | 2                                         | 2                                              |
| <b>Pace Subtotal</b>  | <b>508</b>                 | <b>0</b>                                  | <b>-3</b>                                      |
| <b>CTA Subtotal</b>   | <b>0</b>                   | <b>0</b>                                  | <b>0</b>                                       |
| <b>Combined Total</b> | <b>508</b>                 | <b>0</b>                                  | <b>-3</b>                                      |

Figure 4-18 Phase 3 Changes

