



2040 TRANSPORTATION PLAN

Transit Plan



The Lake County Division of Transportation is committed to providing safe, efficient, and well-maintained county highways and bikeways to improve the general welfare of travelers in our communities and foster the orderly economic development of the county.



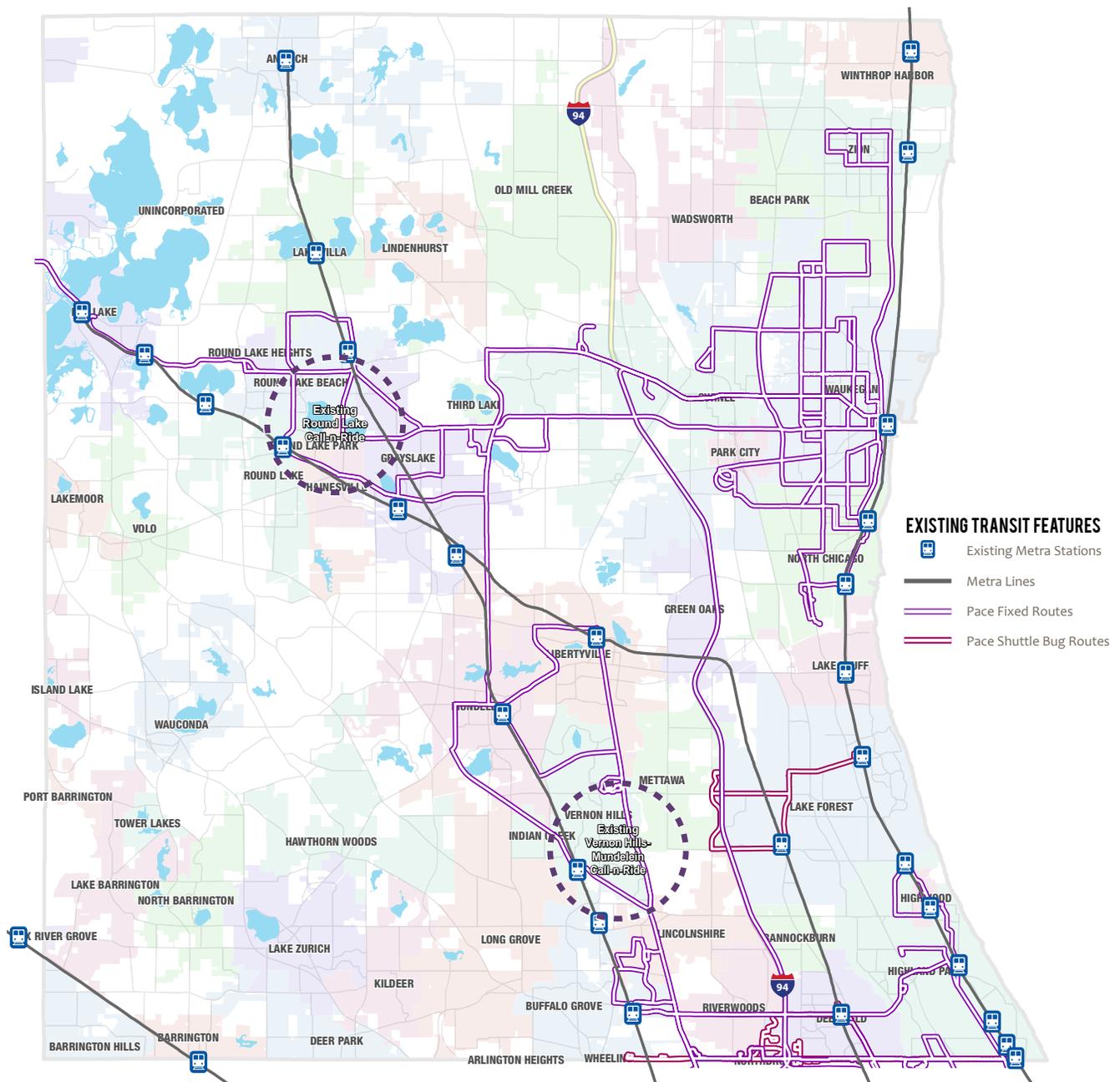
Transit Plan Memo

Part of the
Lake County 2040 Transportation Plan

November 2014



I.	INTRODUCTION	1
	Study Background	1
	Goals of the Transit Plan	1
	Plan Background	1
II.	DEMOGRAPHIC ANALYSIS	2
	Population Density	2
	Employment	2
	Household Density	2
	Elderly Population (Age 65+)	7
	Households with No Vehicles Available	7
	Households Below Poverty Level	7
	Journey to Work Data	11
III.	EXISTING TRANSIT SERVICES	14
	Metra Service	14
	Pace Bus Routes	16
	Existing Metra and Pace Usage	21
	Transit Use Over Time	24
IV.	TRANSIT NEEDS	27
	RTA Transit Demand Index (TDI)	27
	Housing and Employment Growth	27
V.	REGIONAL TRANSIT PROJECTS WITHIN LAKE COUNTY	30
	Lake County 2020 Transportation Priority Plan	30
	Pace Vision 2020	30
	Go To 2040	30
	The Lake County Mobility Management Plan	31
	Metra Strategic Plan	31
	Lake County Transportation Market Analysis	31
	Summary of Recommended Projects	31
VI.	TRANSIT FRIENDLY INFRASTRUCTURE	34
VII.	PRIORITIZATION OF SERVICES	34
	Evaluation Criteria	34
VIII.	IMPLEMENTATION & FUNDING	37
	Descriptions of Potential Funding Sources	37
	Implementation Tasks	39
	Conclusion	39



OVERVIEW OF TRANSIT IN LAKE COUNTY

Due to the diversity of land uses, population and employment densities throughout Lake County, there is no single transit solution. A palette of transit services, ranging from Dial-a-Ride to fixed route to commuter rail can best address the different characteristics of the County. Improved transit in the County would provide important alternative transportation that improves the quality of life and the economic potential for Lake County residents.

Lake County is currently served by four Metra rail lines and thirty two Pace bus routes. Enhancements to existing services are recommended in the 2040 Transportation Plan. Some projects, such as a new Dial-a-Ride service can be implemented in a shorter time frame, while other projects, such as a Metra commuter rail extension to Wadsworth, requires significant capital investment.



I. INTRODUCTION

Study Background

The purpose of the study is to develop a 2040 Long Range Plan that identifies the deficiencies and recommends improvements for future transportation services in Lake County. All modes of transportation are considered: roadway, transit and non-motorized. This Plan addresses transit.

Goals of the Transit Plan

The Lake County Strategic Plan adopted September 8, 2009 and updated in July 2013 consists of a Mission Statement, a Vision, and a Statement of Values and Goals. The Transportation Goal is to “reduce congestion and improve transportation systems in Lake County”. The strategic statement to meet this goal is to “promote development of State, County and municipal transportation systems that provide for efficient, flexible, and uncongested movement through an integrated network of road, rail, public transit, and non-motorized (bicycle, pedestrian) modes of travel.

Plan Background

The Transit Plan identifies the transit connections that are most important to Lake County. It serves as a guide to the County to move forward with advocating improved transit services. The Plan identifies demographic and land use conditions in the County, describes existing transit services, identifies transit gaps, synthesizes existing information from studies that have been done or are on-going to identify recommended improvement priorities and provide implementation guidance.

The Transit Plan is organized into seven chapters:

- Chapter I: Introduction
- Chapter II: Demographic and Land Use Analysis
- Chapter III: Existing Transit Services
- Chapter IV: Transit Needs
- Chapter V: Proposed Transit Services
- Chapter VI: Transit Friendly Infrastructure
- Chapter VI: Evaluation of Services
- Chapter VIII: Implementation and Funding



II. DEMOGRAPHIC ANALYSIS

The identification and evaluation of socio-economic characteristics are often used as indicators for support and/or demand for public transportation. Using U.S. Census Bureau statistics the following socio-economic evaluations were conducted:

- Population Density
- Employment
- Household Density
- Elderly Population
- Households with No Vehicle Available
- Population Below the Poverty Level

Population Density

U.S. Census data for population shows the total Lake County population in 2010 as 703,360. Population projections produced by the Chicago Metropolitan Agency for Planning (CMAP) indicate that by 2040, the population of Lake County will reach 953,669, an increase of 36%.

The 2010 population map is shown in Figure 1, based on U.S. Census data. Population densities are represented by shades of color, with darker colors representing higher population density. As indicated in Figure 1, the population is denser in the eastern and central areas of the County with lower densities scattered throughout. Areas of the County that don't have as significant of population include the north and western areas of the County.

Employment

Work-related trips often account for a sizeable portion of transit ridership¹. As a result, areas of the community where there are a greater number of jobs may benefit from better transit services. The Transit Capacity and Quality of Service Manual² suggests that a level of four jobs per acre can potentially support fixed route transit service.

As shown in Figure 2, the area south of Waukegan, between the eastern boundary of the County, west to the Metra Milwaukee District-North Line, is generally where employment is most prevalent. In particular, the communities with the highest density areas of employment include the cities of Waukegan and North Chicago which have large employers such as the County offices, Abbott Laboratories and Great Lakes Naval Training Center. Libertyville, Mundelein, Vernon Hills, Bannockburn, Deerfield, Lincolnshire, Highland Park and Highwood also have over four jobs per acre. The north, west and southwest areas of the County generally have lower employment density.

¹ Source: OnTheMap, All Jobs 2010

² Source: Transportation Research Board (TRB), Transit and Cooperative Research Program Report 100, October 2009

Household Density

Household density is an important factor in determining potential use of transit. The 2009 Transit Capacity and Quality of Service Manual states that three households per acre to be the minimum acceptable to support fixed route transit service. Two units per acre can support limited fixed route service and one to two units per acre can support demand response service.

The household density map in Figure 3, displaying data from the 2010 U.S. Census, shows that the municipalities of Waukegan and Zion have the largest areas of higher density housing. Portions of North Chicago, Round Lake Beach, Round Lake Park, Mundelein, Libertyville, Vernon Hills, Park City, Indian Creek, Highwood, Highland Park, Lake Zurich, Deerfield, Lindenhurst, Wauconda and Buffalo Grove also have density that is appropriate for fixed route service. However, the majority of the County has low housing density that may support flexible routes or demand response service.

Figure 4 combines 2010 household and employment and displays the information by census block. Higher density is represented by darker colored squares. This data is based on demographic data prepared by CMAP that depicts the distribution of population, households and employment throughout the region. As indicated, the greatest densities are in the southeast and central eastern part of the County. In southeastern Lake County, the areas of highest employment and residential density are the municipalities of Bannockburn, Buffalo Grove, Deerfield, Highland Park, and Vernon Hills; in east central Lake County, Libertyville and Waukegan. Other areas of the County which have higher amounts of household and employment densities include the municipalities of Antioch, Barrington, Grayslake, Lincolnshire, North Chicago, Park City, and Wauconda.

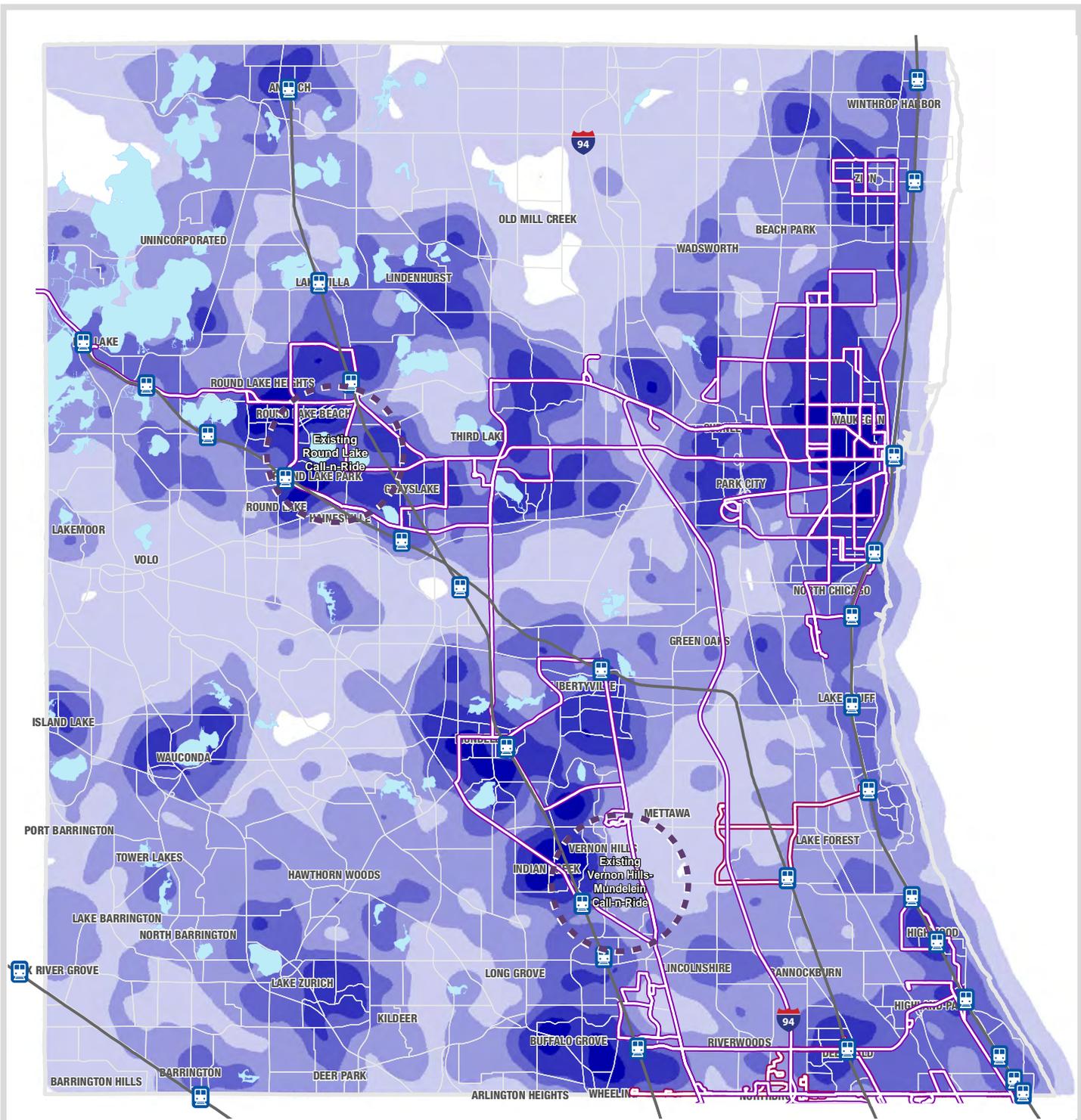


FIGURE 1:
POPULATION-2010

LEGEND

RESIDENTIAL POPULATION BY CENSUS BLOCK

- 1 to 100
- 101 to 500
- 501 to 600
- 601 and Above

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: U.S. Census Bureau Census Block, On The Map Data

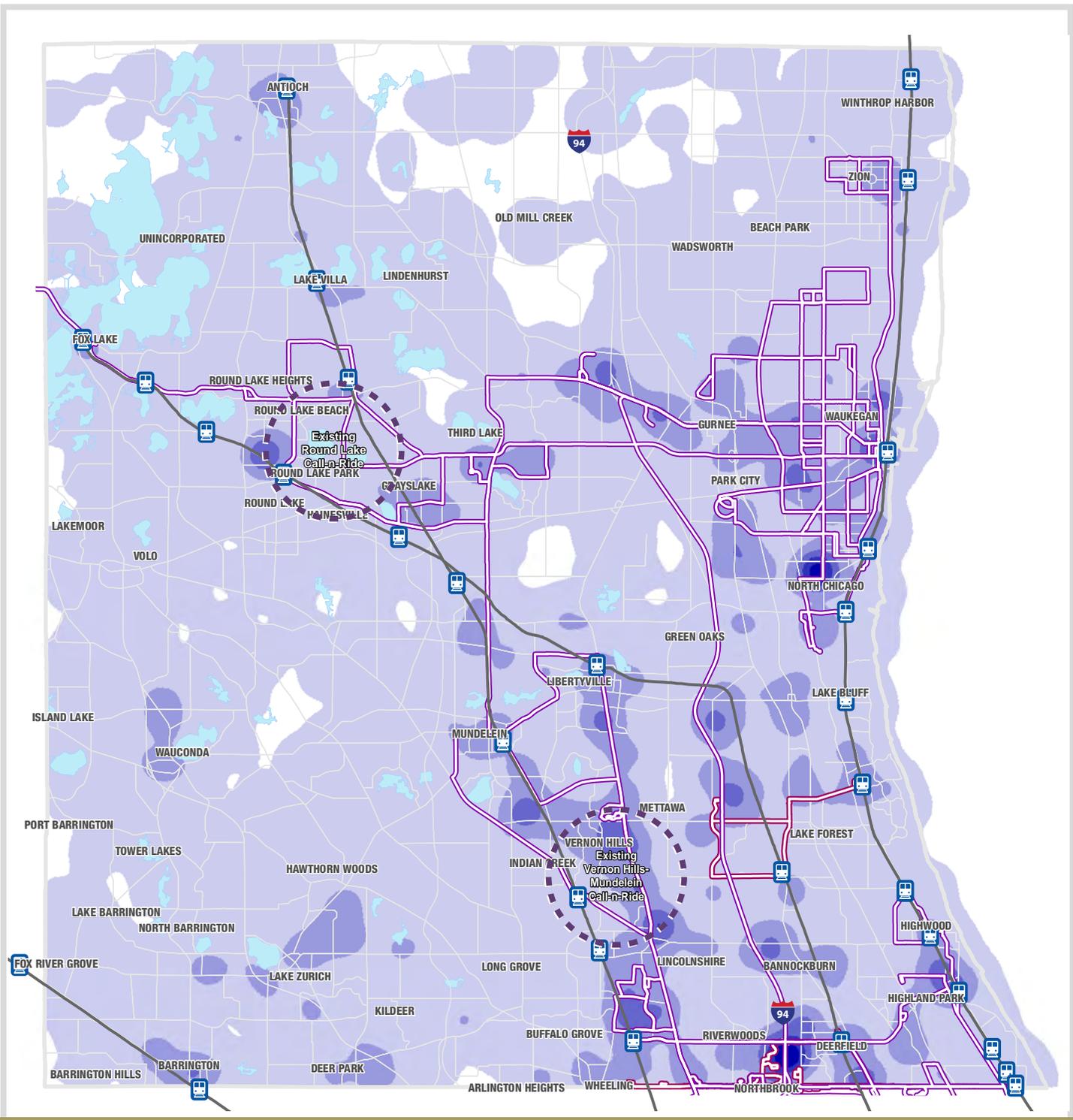


FIGURE 2:
EMPLOYMENT - 2010

LEGEND

NUMBER OF JOBS BY CENSUS BLOCK

	1 to 100		1,500 to 5,000
	101 to 500		5,001 to 11,156
	501 to 1,500		

EXISTING TRANSIT FEATURES

	Existing Metra Stations
	Metra Lines
	Pace Fixed Routes
	Pace Shuttle Bug Routes



Source: U.S. Census Bureau Census Block, On The Map Data

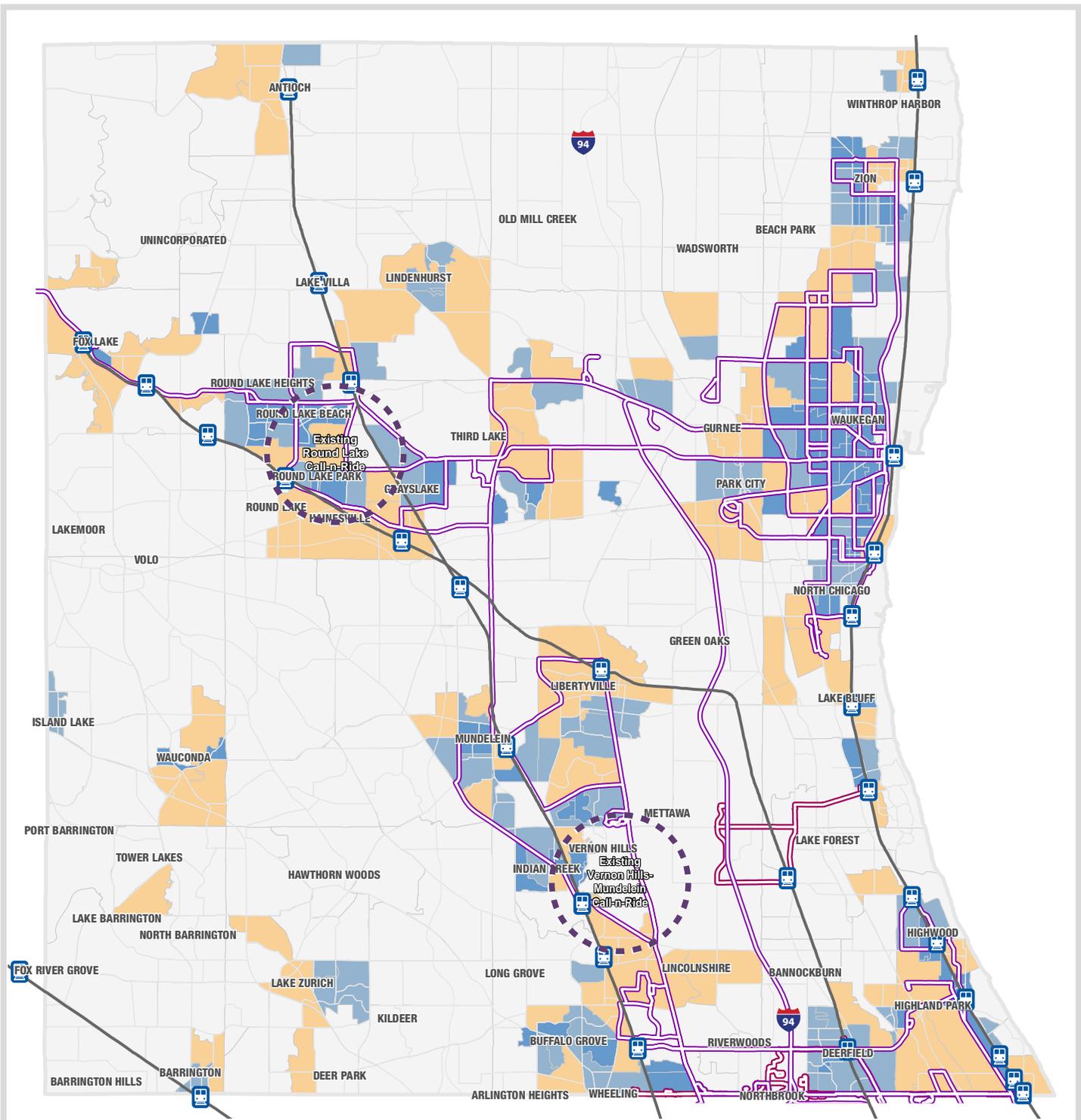


FIGURE 3:
HOUSEHOLD DENSITY - 2010

LEGEND

HOUSEHOLD DENSITY PER ACRE

White	Less than 1.0
Light Orange	1.1 to 2.0
Medium Blue	2.1 to 3.0
Dark Blue	Greater than 3.0

EXISTING TRANSIT FEATURES

Blue Bus Icon	Existing Metra Stations
Black Line	Metra Lines
Purple Line	Pace Fixed Routes
Pink Line	Pace Shuttle Bug Routes



Source: U.S. Census Bureau, 2010 Census Block Data

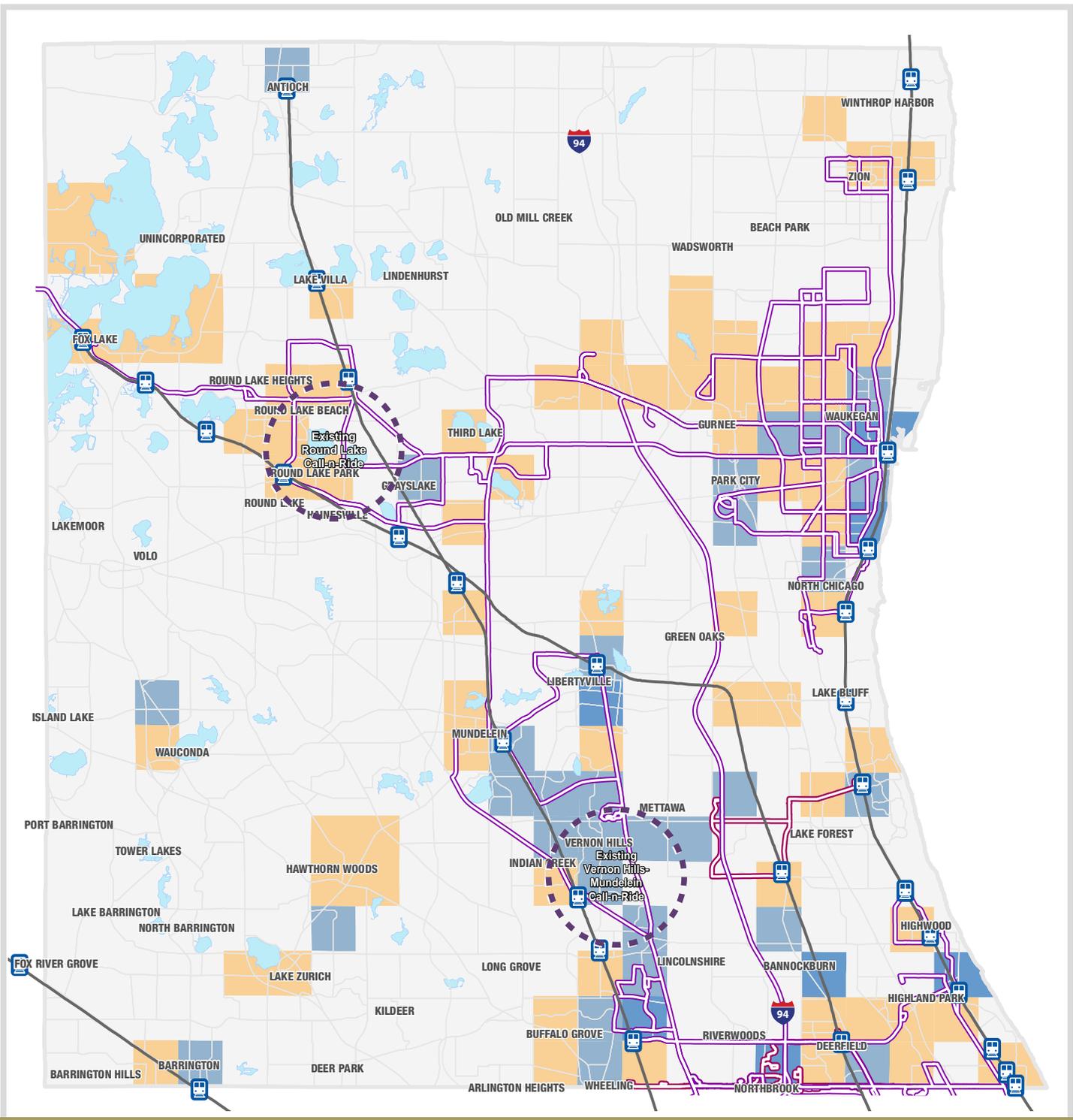


FIGURE 4:
HOUSEHOLDS & EMPLOYMENT - 2010

LEGEND

HOUSEHOLDS & EMPLOYMENT PER ACRE

- Low
- Medium
- High
- Very High

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: Modeling Estimate Based on CMAP Data



Elderly Population (Age 65+)

Seniors represent a group that is often more likely to use transit. Seniors may have increasing health issues that restrict their ability to drive. According to 2010 Census data, areas of the County that have heavier concentrations (see Figure 5) of seniors are portions of Fox Lake, Barrington Hills, Tower Lakes, Round Lake, Vernon Hills, North Chicago, Waukegan, Lincolnshire, Mettawa, Lake Bluff, Lake Forest, Highland Park and unincorporated land between Grayslake and Mundelein and in the northwest part of the County.

Households with No Vehicles Available

If no vehicle is available in the household, the residents may need to rely on transit service to meet their transportation needs. Figure 6 indicates that Waukegan, North Chicago and Zion have the greatest concentrations of areas where over 20% of households have no vehicle available. Smaller areas are scattered throughout the County where greater than 10% of households do not have access to a vehicle, including Antioch, Fox Lake, Highwood, Lake Bluff, Lake Villa, Libertyville, Park City, Round Lake, Round Lake Beach and Wauconda.

Households Below Poverty Level

Residents whose income is below the poverty level may not be able to afford to lease, buy, or maintain a vehicle. Insurance and gasoline prices create additional burdens in owning a car. Low income residents may utilize public transit to fulfill their transportation needs. As shown in Figure 7, North Chicago, Waukegan and Zion have the greatest concentrations of households below the poverty level, with over 20% of households in many areas.

Communities with 15% to 20% of the households below the poverty level include Mundelein, Round Lake Beach and Round Lake Park.



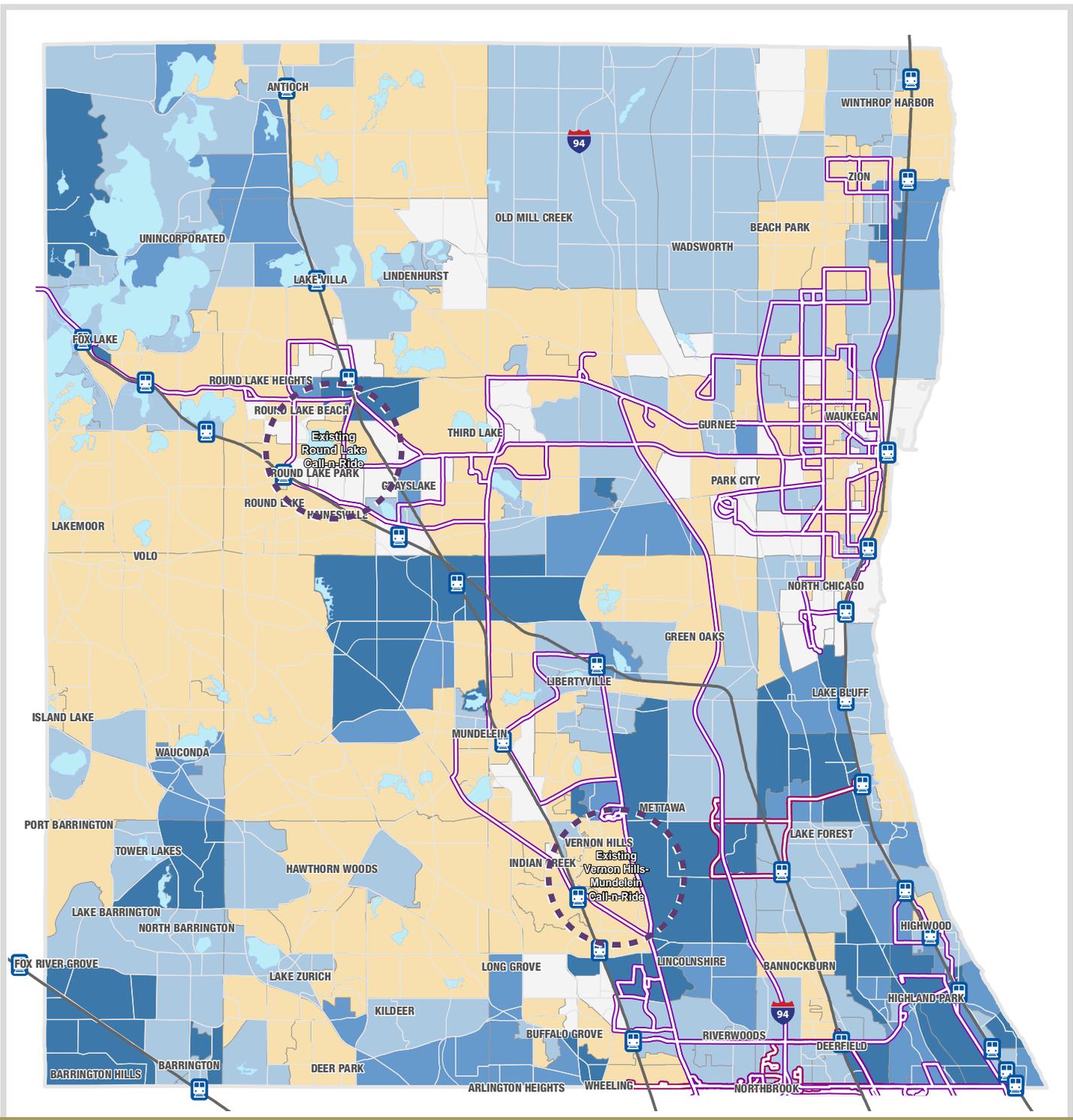


FIGURE 5:
ELDERLY POPULATION (65+ YEARS)



LEGEND

ELDERLY POPULATION AS A PERCENT OF TOTAL POPULATION

- Under 5.0%
- 5.1% to 10.0%
- 10.1% to 15.0%
- 15.1% to 20.0%
- Over 20.0%

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: U.S. Census Bureau Census Block 2010, On The Map Data

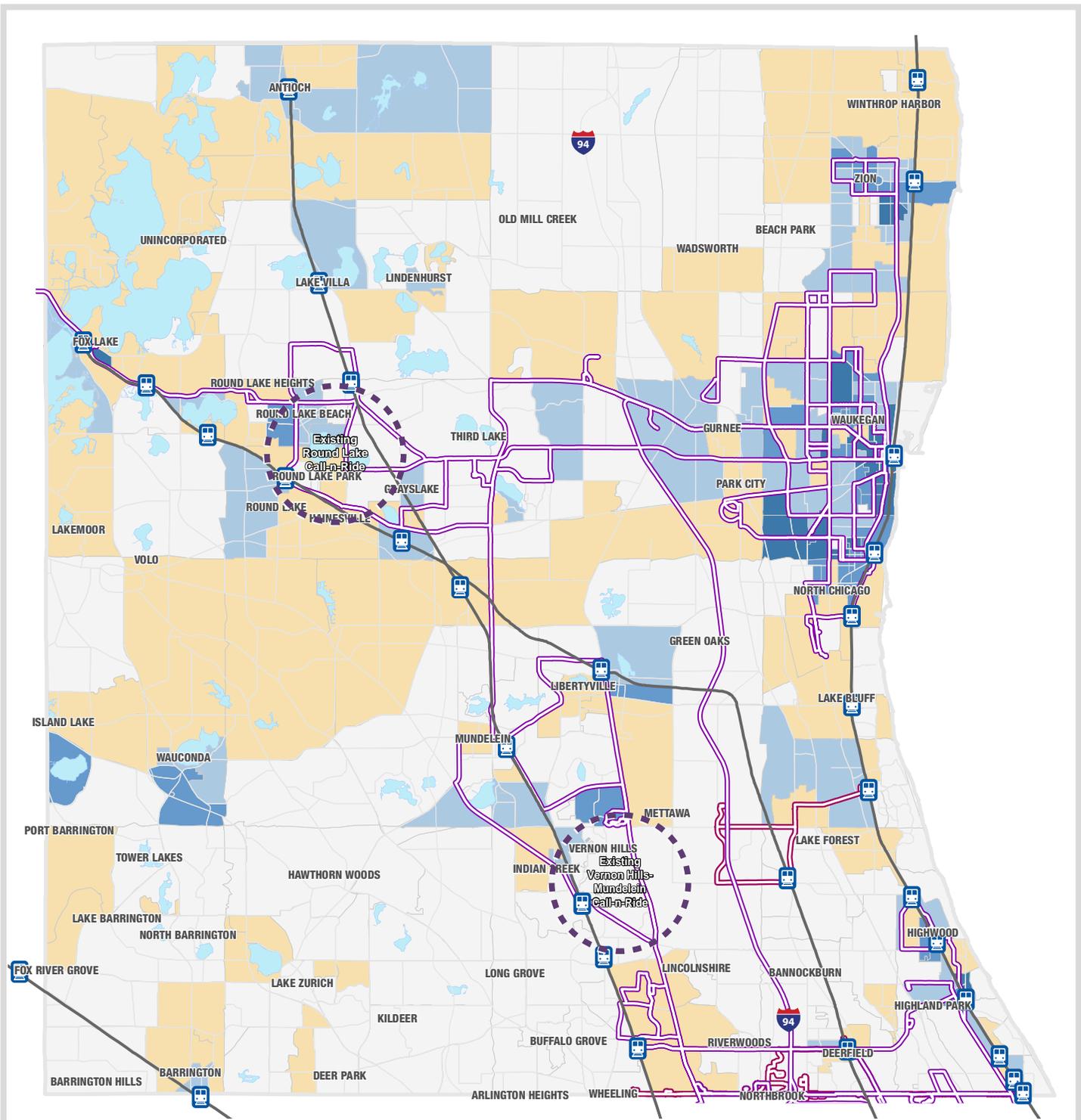


FIGURE 6:
VEHICLES ACCESS

LEGEND

HOUSEHOLD WITH NO VEHICLES

- Under 2.0%
- 2.0% to 5.0%
- 5.1% to 10.0%

- 10.1% to 20.0%
- Over 20.0%

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: U.S. Census Bureau, 2006-2010 American Community Survey Tract Level

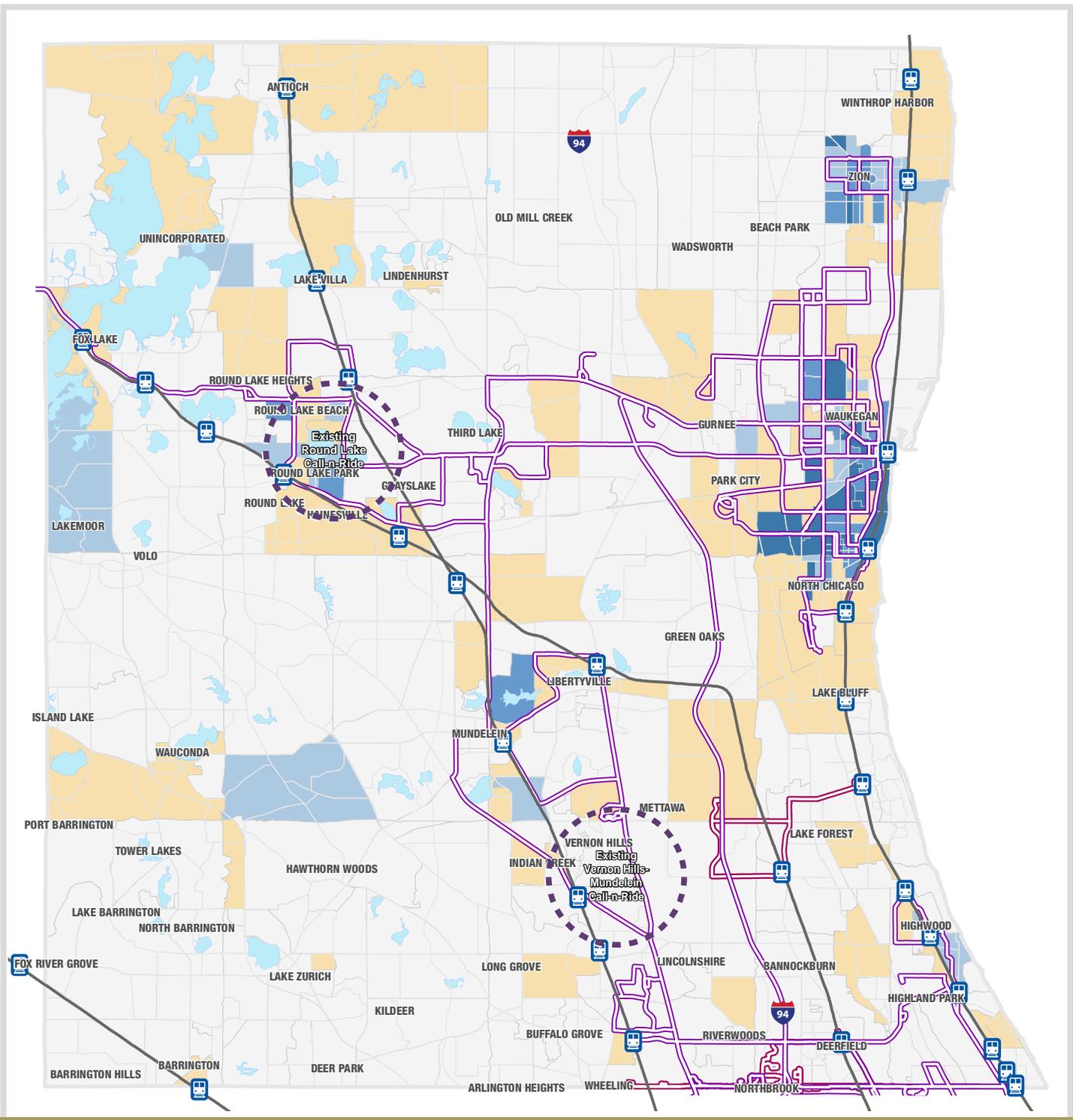


FIGURE 7:
POVERTY STATUS

LEGEND

POPULATION BELOW POVERTY LEVEL

- Under 5.0%
- 5.1% to 10.0%
- 10.1% to 15.0%
- 15.1% to 20.0%
- Over 20.0%

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: U.S. Census Bureau, 2006-2010 American Community Survey Tract Level



Journey to Work Data

Journey to Work data is available through the U.S. Census. The data is a record of a person's work trip, noting their origin (i.e. their home) and their destination (i.e. their place of employment). The data is based on a sample of households that responded to the Census "long" form which was distributed to approximately 1 in 6 households.

Daily trips of over 100 from any one census tract to another census tract were mapped and are shown in Figure 8. The work trips are overlaid onto the employment density map in Figure 9. As expected, Figure 8 shows that work trips are concentrated in areas of higher employment densities.

By far the greatest number of work trips between census tracts within the County occurs in North Chicago around the Great Lakes Naval Training Center (23,000 employees) and Abbott Laboratories (15,000 employees). North Chicago also includes Veterans Health Administration (1,500 employees) and Rosalind Franklin University of Medicine & Science (800 employees). Highlighted on both Figures 8 and 9, this census track has over 2,000 daily journey to work trips.

Vernon Hills is a destination for many trips because of employees at its regional shopping centers, as well as large employers including CDW Inc. (2,500 employees) and Zebra Technologies (900 employees). The Lincolnshire/Bannockburn area has many trips because it is home to Hewitt Associates, LLC (6,000 employees), Quill Corporation (1,200 employees), LTD Commodities (800 employees), among others.

South of Bannockburn, many trips are destined for Deerfield. Deerfield is the location of large employers including Baxter International (4,500 employees), Walgreen Company (2,500 employees), Takeda Pharmaceuticals (2,000 employees), Astellas Pharma Inc. (1,000 employees) and United Stationers Inc. (800 employees).

Lake Forest is a major trip generator. Lake Forest has many large employers such as W W Grainger (1,700 employees), Lake Forest Hospital (1,600 employees), Hospira Inc. (1,400 employees), Trustmark Insurance Cos. (1,200 employees) and Pactiv Corp. (800 employees). Private employee shuttles and Pace bus service transport workers between offices and the Metra station in Lake Forest.

Although Waukegan does not have over 200 trips from any one census tract, Waukegan appears to have the largest number of trips in a generalized area. Large employers in Waukegan include Lake County Government (2,800 employees), Cardinal Health (1,500 employees), Vista Health (1,350 employees), Uline Inc. (1,200 employees), Coleman Cable Inc. (1,000 employees) and Illinois Department of Human Services (725 employees).



Over 2,000
Daily Trips



FIGURE 8:
DAILY WORK TRIPS

LEGEND

DAILY WORK TRIPS BY CENSUS TRACT*

- 100 to 200
- 201 to 600
- 601 to 2,000 (none)
- 2,001 to 6,795

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes

* Trips Below 100 Are Not Shown



Source: U.S. Census Bureau, 2000 Census Tracts

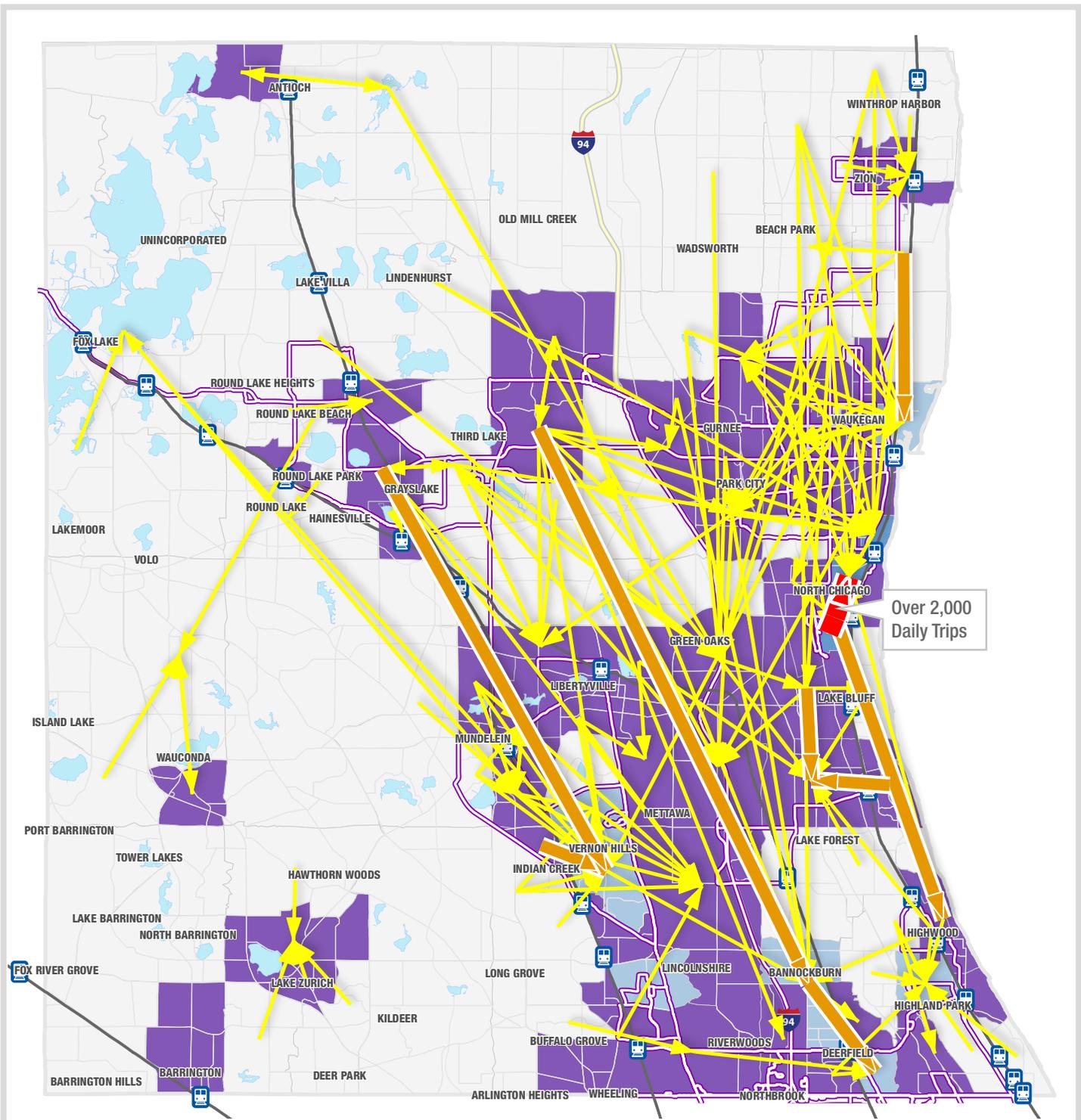


FIGURE 9:
DAILY WORK TRIPS & EMPLOYMENT DENSITY



LEGEND

DAILY WORK TRIPS BY CENSUS TRACT*

	100 to 200	601 to 2,000 (none)
	201 to 600	
		2,001 to 6,795

EMPLOYEE PER ACRE

	Less than 1.0
	1.1 to 5.0
	5.1 to 10.0
	10.1 to 28.3

EXISTING TRANSIT FEATURES

	Existing Metra Stations
	Metra Lines
	Pace Fixed Routes
	Pace Shuttle Bug Routes



* Trips Below 100 Are Not Shown

Source: U.S. Census Bureau, 2000 Census Tracts

III. EXISTING TRANSIT SERVICES

Fixed route transit service in Lake County includes four Metra rail lines and thirty two Pace bus routes (comprised of fixed routes and Shuttle Bug). The map in Figure 10 shows existing fixed route transit.

Metra Service

The Metra lines serving Lake County are: North Central Service (NCS), Union Pacific North (UP-N), Union Pacific Northwest (UP-NW) and Milwaukee District North (MD-N). The Metra lines provide regional passenger rail connections between Lake County, Chicago and the greater region. Table 1 summarizes Metra service in Lake County. Table 2 shows the frequency of service.

TABLE 1: 2010 METRA LINE STATISTICS

	Entire Line			Lake County	
	Average Weekly Ridership	Stations	Route Miles	Stations in Lake County	Miles in Lake County
Milwaukee District North (MD-N)	23,500	21	50 mi	8	26 mi
North Central Service (NCS)	5,400	11	53 mi	8	24 mi
Union Pacific North (UP-N)	36,400	27	52 mi	13	24 mi
Union Pacific Northwest (UP-NW)	40,900	22	71 mi	1	4 mi

TABLE 2: 2010 METRA LINE SERVICE FREQUENCY

	Weekday	Saturday	Sunday
Milwaukee District North (MD-N)	(Peak) 10 to 30 minutes (Off-peak) Hourly	Varies 1 to 2 hours	Varies 1 to 4 hours
North Central Service (NCS)	(Peak) 10 to 30 minutes (Off-peak) Varies 2 to 4 hours	No Service	No Service
Union Pacific North (UP-N)	(Peak) 10 to 20 minutes (Off-peak) Hourly	Varies 1 to 2 hours	Every 2 hours
Union Pacific Northwest (UP-NW)	(Peak) 15 to 25 minutes (Off-peak) Varies 1 hour to 1 hour 50 minutes	Varies 1 to 2 hours	Every 2 hours



Table 3 shows the way riders access Metra stations. The percentage of people who walk to stations varies between 2% (Lake Villa) to 57% (Highwood). Commuters who “drive alone” ranges from 26% (Ravinia and Highwood) to 75% (Winthrop Harbor). Percentage of riders “dropped off” ranges from 6% (Prairie Crossing) to 38% (North Chicago). Those who carpool vary from 0% (Round Lake Beach and Highwood) to 21% (Prairie Crossing). Riders who take a bus to the station are 0% (several stations) to 8% (Waukegan). Bike access ranges from 0% (several stations) to 6% (Prairie Crossing).

TABLE 3: MODE OF ACCESS TO METRA STATION

Line	Station	Walked	Drove Alone	Dropped Off	Carpool	Bus	Bike	Other
MD-N	Deerfield	16%	65%	15%	1%	1%	1%	1%
MD-N	Lake Forest	7%	69%	14%	7%	1%	1%	0%
MD-N	Libertyville	11%	61%	19%	5%	1%	1%	2%
MD-N	Grayslake	8%	69%	14%	6%	0%	2%	0%
MD-N	Round Lake	5%	67%	20%	5%	1%	2%	1%
MD-N	Long Lake	15%	66%	16%	2%	0%	0%	0%
MD-N	Ingleside	10%	68%	14%	6%	0%	2%	0%
MD-N	Fox Lake	5%	68%	21%	4%	0%	0%	0%
NCS	Buffalo Grove	10%	71%	14%	4%	0%	1%	0%
NCS	Prairie View	17%	64%	12%	6%	0%	1%	1%
NCS	Vernon Hills	18%	56%	17%	6%	0%	2%	2%
NCS	Mundelein	3%	72%	20%	2%	0%	2%	1%
NCS	Prairie Crossing	8%	52%	6%	21%	0%	6%	6%
NCS	Round Lake Beach	8%	61%	26%	0%	1%	4%	0%
NCS	Lake Villa	2%	65%	27%	5%	0%	1%	0%
NCS	Antioch	9%	55%	28%	7%	0%	1%	1%
UP-N	Braeside	34%	46%	11%	8%	0%	1%	1%
UP-N	Ravinia	56%	26%	13%	1%	1%	3%	1%
UP-N	Highland Park	21%	55%	15%	6%	2%	1%	0%
UP-N	Highwood	57%	26%	15%	0%	2%	0%	0%
UP-N	Fort Sheridan	15%	69%	13%	3%	0%	0%	0%
UP-N	Lake Forest	26%	47%	21%	4%	0%	1%	1%
UP-N	Lake Bluff	24%	58%	10%	4%	0%	4%	2%
UP-N	Great Lakes	9%	48%	30%	3%	6%	0%	3%
UP-N	North Chicago	18%	27%	38%	3%	5%	3%	5%
UP-N	Waukegan	5%	57%	21%	7%	8%	0%	4%
UP-N	Zion	10%	56%	22%	6%	0%	3%	4%
UP-N	Winthrop Harbor	8%	75%	10%	4%	0%	3%	2%
UP-NW	Barrington	8%	67%	16%	6%	0%	1%	1%

Source: Metra (2006 data)

Pace Bus Routes

Thirty two Pace routes serve Lake County, including 24 fixed routes and 8 “Shuttle Bug” routes. Shuttle Bug routes are different from “regular” fixed routes in that they operate during weekday, peak periods only, and provide service between certain Metra stations and large employers. Pace routes typically transport passengers within Lake County, but some routes travel beyond the County’s borders to adjacent destinations. Routes typically range from 5 miles to 20 miles in length. As the map in Figure 10 shows, the greatest concentration of Pace routes exists in Waukegan.

Pace routes within Lake County have varying levels of service frequency as displayed in Table 4. The majority of routes do not provide Saturday service, and only two routes, Routes 565 and 568 operate on Sundays. Several routes only provide feeder service for Metra stations during weekday peak periods.

The map in Figure 11 shows the Pace routes that provide all-day service on weekdays. Figure 12 shows the routes that provide Saturday and Sunday service.

Three Pace routes in Lake County discontinued service in 2011 and 2012:

- Route 557 The Hot Line – Barrington Road Corridor (*terminated in March 2011*)
- Route 473 Highland Park – Northbrook Court (*terminated in October 2011*)
- Route 622 Lake Cook Shuttle Bug 12 (*terminated in January 2012*)

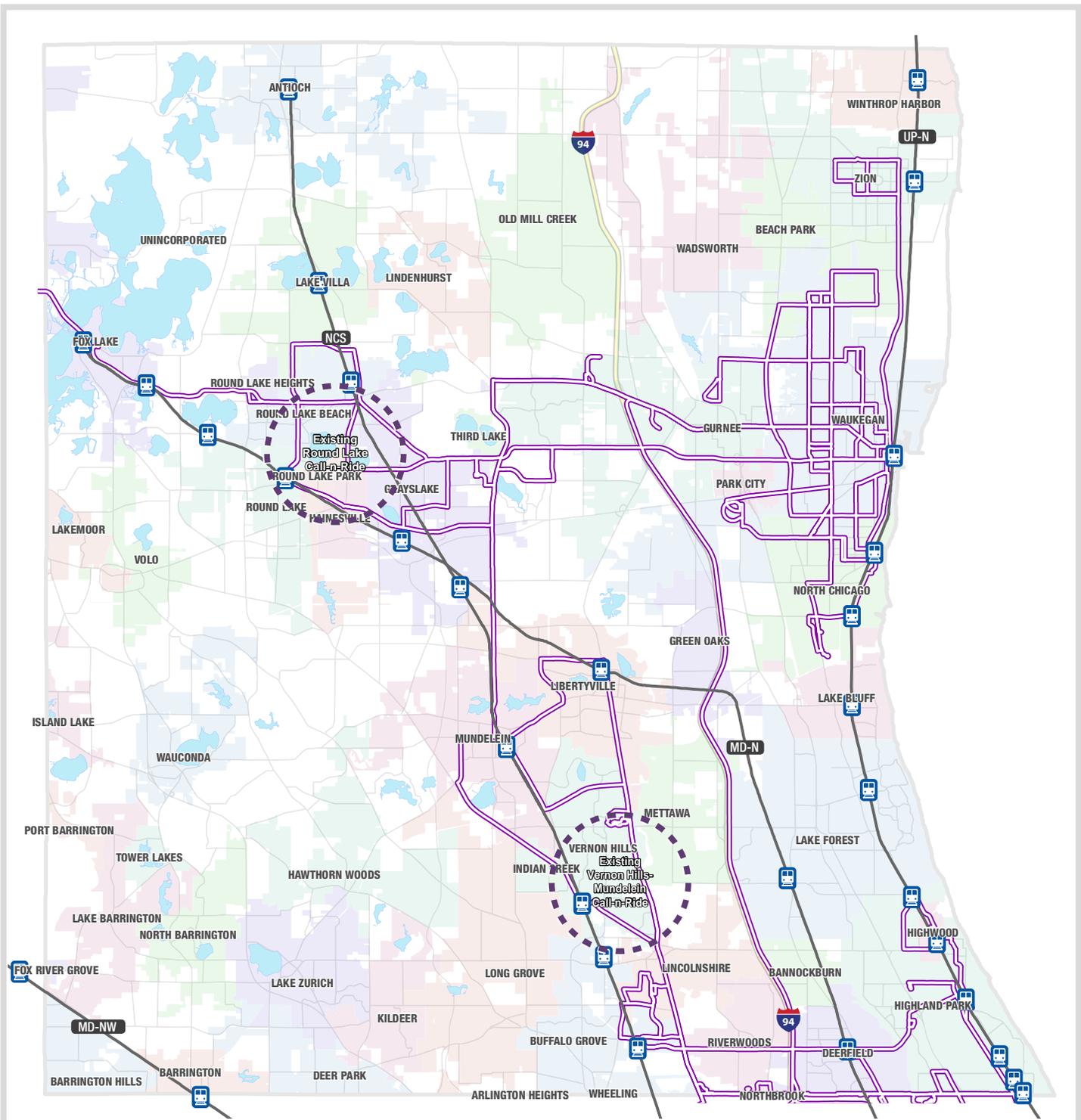


FIGURE 10:
FIXED ROUTE TRANSIT

LEGEND

EXISTING TRANSIT FEATURES

-  Existing Metra Stations
-  Metra Lines
-  Pace Fixed Routes
-  Pace Shuttle Bug Routes



Source: RTAMS, Pace 2014

TABLE 4: PACE ROUTE SERVICE FREQUENCY (FEBRUARY 2014)

Fixed Routes	Weekday	Saturday	Sunday
Route 213 Green Bay Road	Peak: 10 to 20 minutes Off-peak: 30 minutes	30 minutes	No Service
Route 234 Wheeling – Des Plaines	Peak: 20 to 30 minutes Off-peak: 60 minutes	No Service	No Service
Route 272 Milwaukee Avenue North	Peak: 30 to 40 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 284 Schaumburg - Great America Gurnee Express	Friday Only 9:30 a.m. departure	9:30 a.m. departure	9:30 a.m. departure
Route 471 Highland Park – Northbrook Court	Peak: 30 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 472 Highland Park – Highwood	Peak: 15 to 30 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 561 Castlecrest via McAree	Peak: 30 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 562 Gurnee via Sunset	Peak: 15 minutes Off-peak: 60 minutes	No Service	No Service
Route 563 Great Lakes Naval Station	Peak: 30 minutes Off-peak: 60 minutes	No Service	No Service
Route 564 Jackson / 14th	Peak: 10 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 565 Grand Avenue	Peak: 35 to 40 minutes Off-peak: 40 to 60 minutes	40 minutes	60 to 80 minutes
Route 566 McAree-Keller	Peak: 15 to 40 minutes Off-peak: no service	No Service	No Service
Route 568 Belvidere	30 minutes	60 minutes	60 to 80 minutes
Route 569 Lewis	Peak: 15 minutes Off-peak: 30 minutes	No Service	No Service
Route 570 Fox Lake - Gurnee Mills via CLC	60 minutes	60 minutes	No Service
Route 571 Zion	60 minutes	60 minutes	No Service
Route 572 Waukegan-Grayslake-Westfield Hawthorn	Peak: 30 to 60 minutes Off-peak: 60 minutes	60 minutes	No Service
Route 573 Green Bay Road	Peak: 40 to 50 minutes Off-peak: no service	No Service	No Service
Route 574 CLC - Westfield Hawthorn	60 minutes	60 minutes	No Service
Route 576 Deerfield Metra to Buffalo Grove/ Lincolnshire	Two AM peak trips Two PM peak trips	No Service	No Service
590 Round Lake Area Call-n-Ride	On Demand: 6 a.m. to 6:15 p.m.	No Service	No Service
593 Vernon Hills - Mundelein Call-n-Ride	On Demand: 6 a.m. to 6:15 p.m.	No Service	No Service
Route 626 Skokie Valley Limited	Peak: 15 to 45 minutes Off-peak: no service	No Service	No Service
Route 806 Crystal Lake-Fox Lake	Peak: 30 to 90 minutes Off-peak: No Service	No Service	No Service
Shuttle Bug Routes	Weekday	Saturday	Sunday
Route 625 Lake Forest Shuttle Bug	Peak: 60 minutes Off-peak: no service	No Service	No Service
Route 627 Discover - Takeda Shuttle Bug	Peak: 30 to 40 minutes Off-peak: no service	No Service	No Service
Route 628 Braeside Shuttle Bug 8	Peak: 60 minutes Off-peak: no service	No Service	No Service
Route 629 Braeside Shuttle Bug 9	Peak: 60 minutes Off-peak: no service	No Service	No Service
Route 631 Lake Cook Shuttle Bug 1	Peak: 20 to 30 minutes Off-peak: no service	No Service	No Service
Route 632 Lake Cook Shuttle Bug 2	Peak: 25 to 30 minutes Off-peak: no service	No Service	No Service
Route 633 Lake Cook Shuttle Bug 3	Peak: 20 to 30 minutes Off-peak: no service	No Service	No Service
Route 634 Shuttle Bug 4	Two AM peak trips Three PM peak trips	No Service	No Service

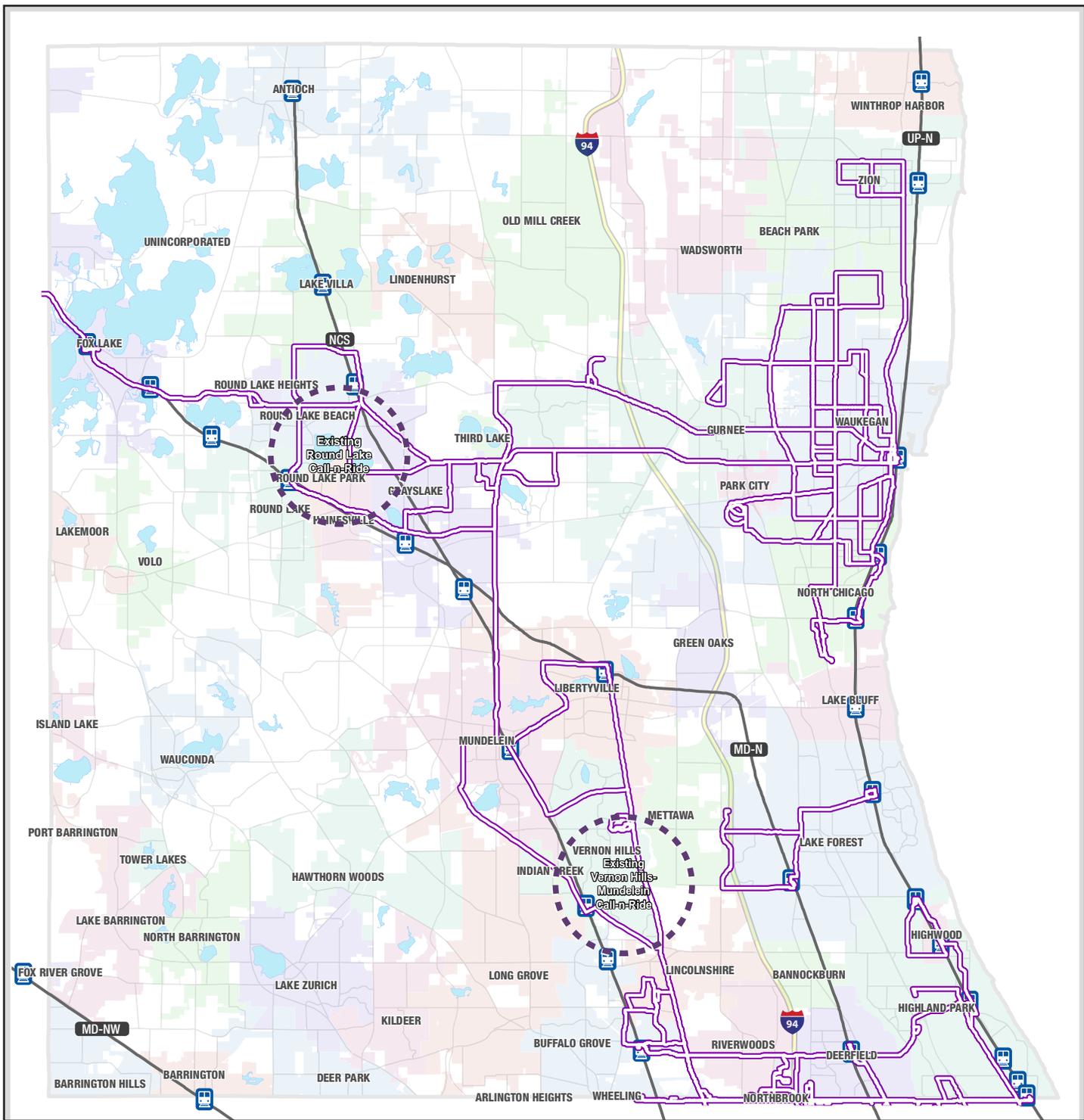


FIGURE 11:

FIXED ROUTE TRANSIT - WEEKDAY SERVICE

LEGEND

PACE FIXED ROUTE ALL DAY SERVICE

 All Day Fixed Route Service

EXISTING METRA FEATURES

 Existing Metra Stations
 Metra Lines



Source: RTAMS, Pace 2014

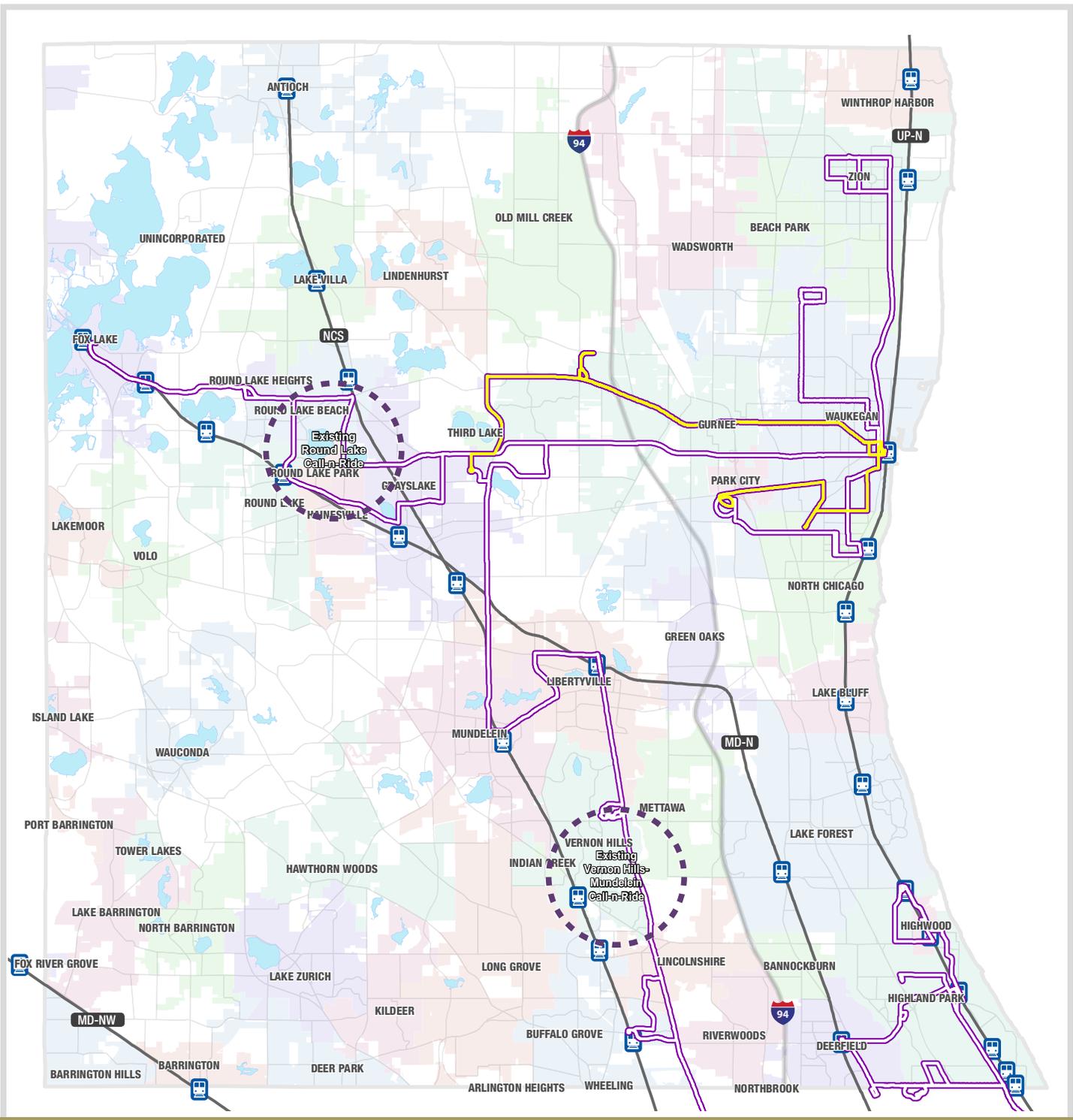


FIGURE 12:
FIXED ROUTE TRANSIT – WEEKEND SERVICE

LEGEND

PACE FIXED ROUTE WEEKEND SERVICE

- Saturday Service
- Saturday and Sunday Service

EXISTING METRA FEATURES

- Existing Metra Stations
- Metra Lines



Source: RTAMS, Pace 2014



Existing Metra and Pace Usage

Table 5 shows boardings at Metra stations in Lake County. Boardings on an average weekday range from 1724 passengers at the UP-NW Barrington station to 79 passengers at the UP-N Winthrop Harbor station.

Peak inbound boardings are shown to capture reverse commuting, in which residents who live closer to the City of Chicago commute outbound to work in Lake County. Stations with large numbers of reverse commuters are mostly concentrated in the southeastern part of Lake County. They include Deerfield (279 PM peak inbound boardings), Lake Forest (215), Highland Park (211), Lake Bluff (145), Barrington (144) and Libertyville (117).

TABLE 5: AVERAGE DAILY WEEKDAY METRA BOARDINGS - 2006

Line	Station	Total Average Daily Boardings	AM Peak Inbound Boardings	PM Peak Inbound Boardings
MD-N	Deerfield	1,315	705	279
MD-N	Lake Forest	578	388	68
MD-N	Libertyville	1,169	792	117
MD-N	Grayslake	772	614	34
MD-N	Round Lake	710	615	36
MD-N	Long Lake	133	100	15
MD-N	Ingleside	150	127	3
MD-N	Fox Lake	632	525	34
NCS	Buffalo Grove	545	466	19
NCS	Prairie View	299	239	7
NCS	Vernon Hills	353	307	12
NCS	Mundelein	283	219	10
NCS	Prairie Crossing	117	64	38
NCS	Round Lake Beach	154	132	4
NCS	Lake Villa	150	138	1
NCS	Antioch	262	219	11
UP-N	Braeside	341	187	97
UP-N	Ravinia Park	No data	No data	No data
UP-N	Ravinia	332	219	23
UP-N	Highland Park	1,118	580	211
UP-N	Highwood	279	98	37
UP-N	Fort Sheridan	279	199	30
UP-N	Lake Forest	725	283	215
UP-N	Lake Bluff	519	246	145
UP-N	Great Lakes	306	53	83
UP-N	North Chicago	191	68	57
UP-N	Waukegan	1,030	630	87
UP-N	Zion	152	130	3
UP-N	Winthrop Harbor	79	77	0
UP-NW	Barrington	1,724	1,305	144

Table 6 shows ridership for Pace routes in the County. Ridership on an average weekday on Pace routes ranges from 1,045 riders on Route 213 to 19 riders on Route 573.

TABLE 6: PACE ROUTE AVERAGE DAILY RIDERSHIP (FEBRUARY 2014)

Fixed Routes		Weekday	Saturday	Sunday
Route 213	Green Bay Road	1,153	445	No Service
Route 234	Wheeling - Des Plaines	278	No Service	No Service
Route 272	Milwaukee Avenue North	563	290	No Service
Route 284	Schaumburg - Great America Gurnee Express	No Data	No Data	No Data
Route 471	Highland Park-Northbrook Court	196	154	No Service
Route 472	Highland Park - Highwood	184	95	No Service
Route 561	Castlecrest via McAree	394	176	No Service
Route 562	Gurnee via Sunset	489	No Service	No Service
Route 563	Great Lakes Naval Station	194	No Service	No Service
Route 564	Jackson / 14th	298	182	No Service
Route 565	Grand Avenue	1,022	864	342
Route 566	McAree-Keller	271	No Service	No Service
Route 568	Belvidere	1,069	435	288
Route 569	Lewis	743	No Service	No Service
Route 570	Fox Lake - CLC	244	73	No Service
Route 571	Zion	522	250	No Service
Route 572	Washington	849	211	No Service
Route 573	Green Bay Road	34	No Service	No Service
Route 574	CLC - Westfield Hawthorn	320	1,602	No Service
Route 576	Deerfield Metra to Buffalo Grove/ Lincolnshire	20	No Service	No Service
Route 590	Round Lake Area Call-n-Ride	28	No Service	No Service
Route 593	Vernon Hills - Mundelein Call- n-Ride	25	No Service	No Service
Route 626	Skokie Valley Limited	441	No Service	No Service
Route 806	Crystal Lake-Fox Lake	53	No Service	No Service
Shuttle Bug Routes				
Route 625	Lake Forest Shuttle Bug	31	No Service	No Service
Route 627	Discover - Takeda Shuttle Bug	195	No Service	No Service
Route 628	Shuttle Bug 8	97	No Service	No Service
Route 629	Shuttle Bug 9	69	No Service	No Service
Route 631	Shuttle Bug 1	146	No Service	No Service
Route 632	Shuttle Bug 2	170	No Service	No Service
Route 633	Shuttle Bug 3	119	No Service	No Service
Route 634	Shuttle Bug 4	78	No Service	No Service

The map in Figure 13 displays existing Pace ridership as well as Metra station boardings in Lake County on an average weekday. Pace routes with the strongest ridership exist in Waukegan, west of Waukegan to the Grayslake area, and to the south in the Libertyville, Mundelein, Vernon Hills and Lincolnshire area. The number of Metra boardings varies throughout, but generally more people board in the southern half of the County. Barrington, the only Metra station in the County on the UP-NW Line, has the greatest number of boardings in Lake County, 1,724 total average daily boardings.

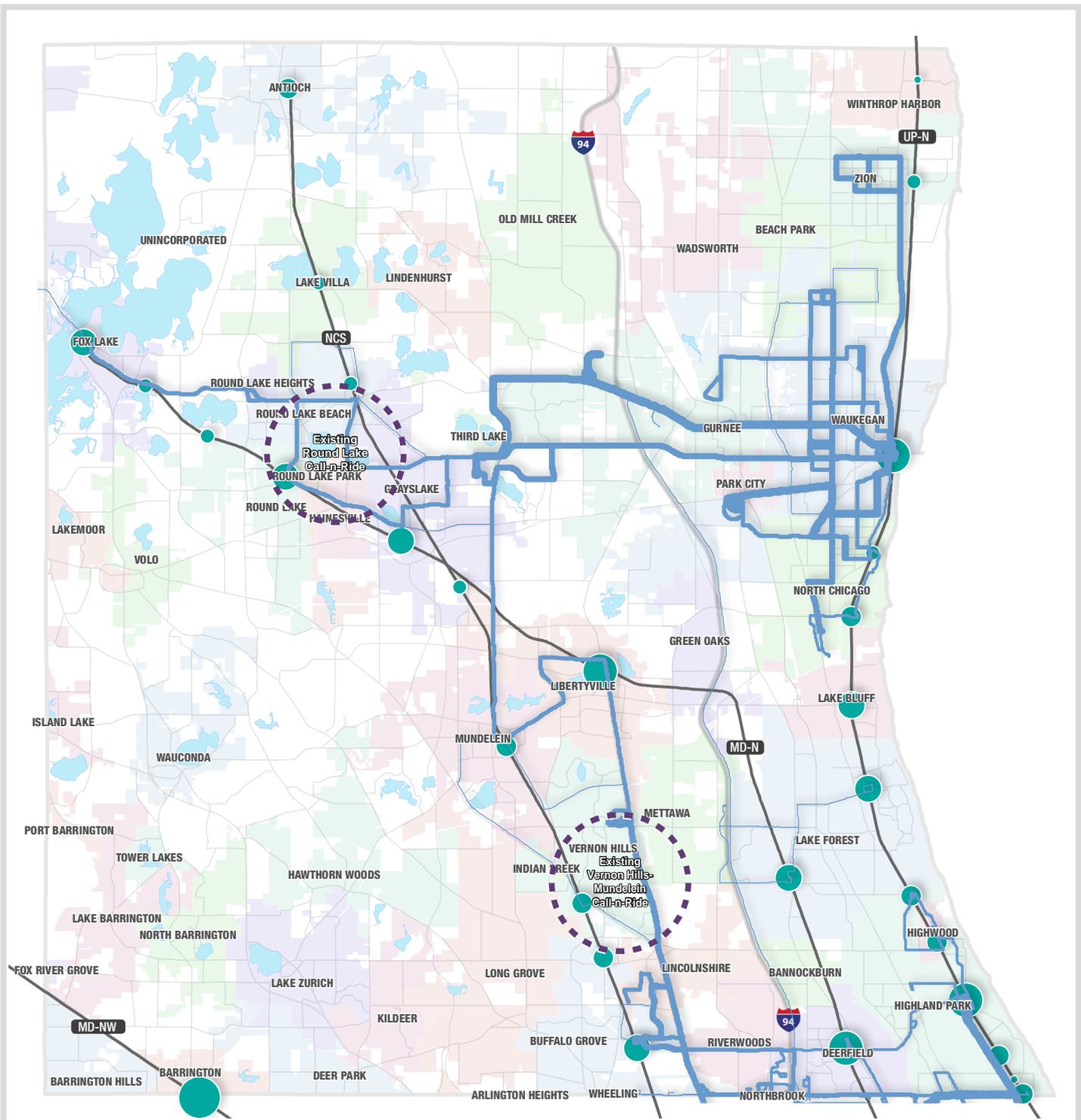


FIGURE 13:
AVERAGE WEEKDAY RIDERS



LEGEND

- PACE RIDERSHIP***
- Less than 100
 - 100 to 200
 - 201 to 500
 - 501 to 1,000
 - 1,001 to 1,272

- METRA BOARDINGS****
- Less than 100
 - 100 to 200
 - 201 to 500
 - 501 to 1,000
 - 1,001 to 1,500
 - 1,501 to 1,724



Source: RTAMS
 * Average Weekday Pace Ridership, February 2014
 ** Average Weekday Metra Boardings, 2006

Transit Use Over Time

Figure 14 shows that the number of people boarding Metra trains in Lake County has increased over time. The most recent data available is for the year 2006, which was prior to the recent economic recession. Also in 2006, the first phase of double tracking on the NCS line was completed, which allowed more trains and increased ridership. All lines show an increase, with the exception of the single UP-NW station in Lake County that appears relatively constant over time.

FIGURE 14: METRA BOARDINGS IN LAKE COUNTY

Average Daily Weekday Boardings on Metra Stations in Lake County - 1997-2006

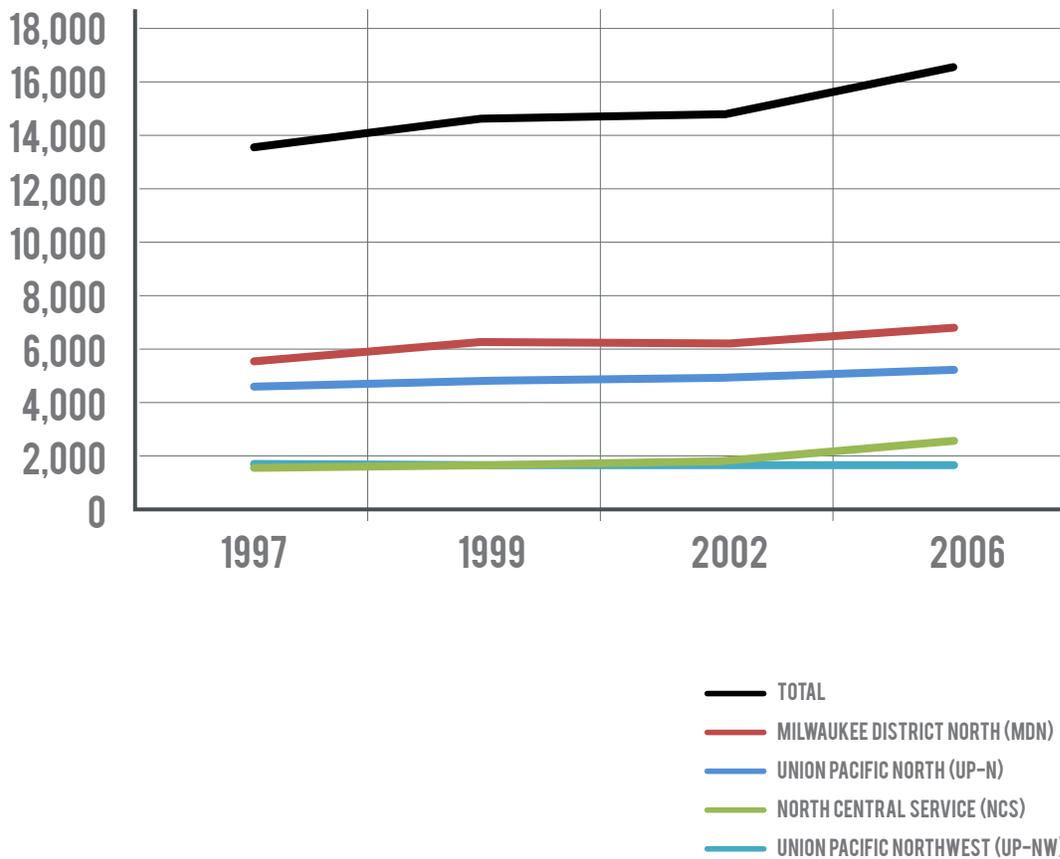




Figure 15 shows that the number of Pace riders in Lake County has fluctuated over time, but in general has remained around 12,000 people on an average weekday.

FIGURE 15: PACE RIDERSHIP IN LAKE COUNTY

Average Daily Weekday Ridership on All Pace Routes in Lake County - 1997-2010

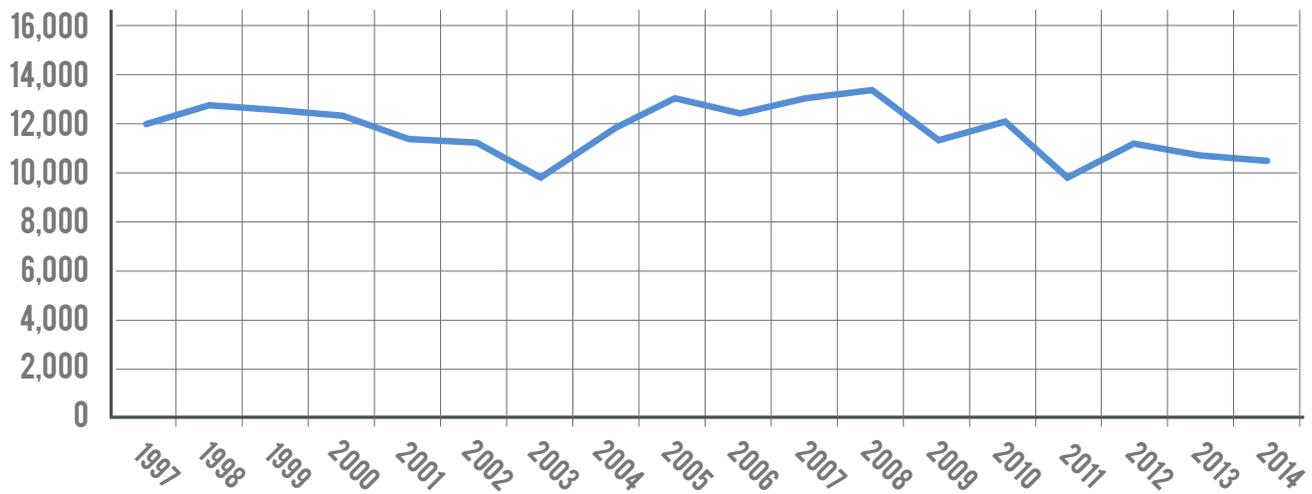


Figure 16 shows the locations of increases and decreases in usage of Pace and Metra throughout the County over a 17-year period. Significant increases in Pace ridership has occurred in three different areas of the County, the western portion, north-south routes on the west side of Waukegan and the communities between Buffalo Grove and Mettawa.

The increase in ridership of the routes on the west edge of Waukegan potentially indicates an expansion of jobs and housing in this area. A recent change to Route 570 Fox Lake-Gurnee Mills, due to high demand, was an increase in service from two hour headways and no weekend service to one hour headways with Saturday service. As a result of more frequent service, ridership increased.

Metra stations exhibiting ridership growth include Round Lake on the MD-North Line, North Chicago and Waukegan on the UP-N Line and Antioch on the NCS.

In addition to growth in the west, Pace and Metra use has increased in the south around Vernon Hills and Lincolnshire. These locations of growing ridership could point to the need for additional transit services in the future to follow a gradual outward shift of jobs and housing.

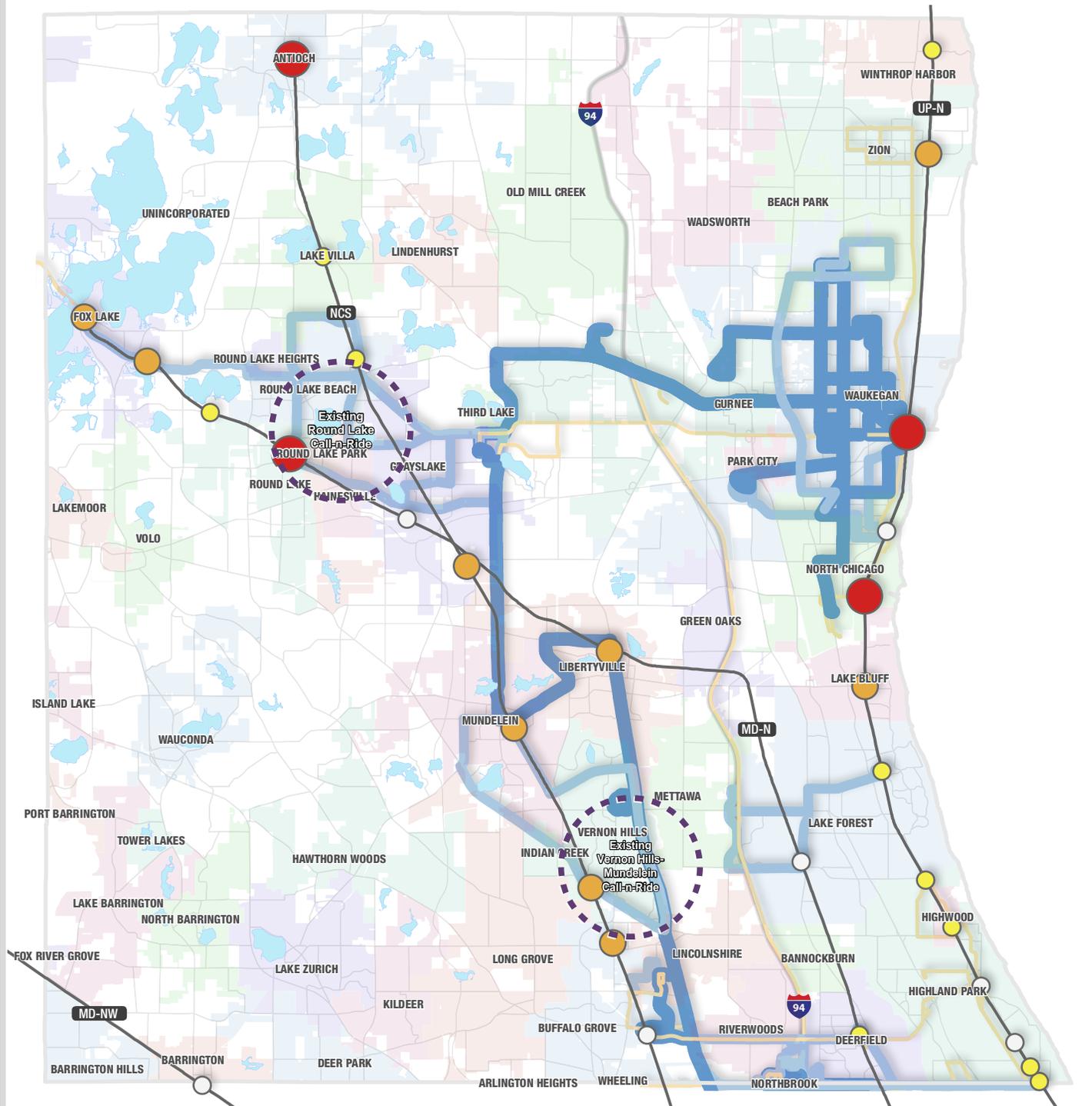


FIGURE 16:

CHANGE IN RIDERSHIP OVER TIME



LEGEND

CHANGE IN PACE RIDERSHIP*

- Decline
- 0 to 100
- 100 to 256

CHANGE IN METRA BOARDINGS**

- Decline
- 0 to 50
- 51 to 100
- 101 to 176



Source: RTAMS (Most Current Data Available)
 * Change in Average Weekday Pace Ridership, 2004 to 2014
 ** Change in Average Weekday Metra Boardings, 1999 to 2006



IV. TRANSIT NEEDS

Lake County is a large and diverse county. While there are areas with some concentration of residential, commercial, or institutional activity (especially in the town centers), both the population and built environment are relatively dispersed. Land uses range from agricultural to more densely suburban characteristics. Due to the diversity of land uses, population and employment densities throughout the County, there is no “one” transit solution.

A palette of transit serves, ranging from Dial-a Ride to Fixed Route bus services can best address the different characteristics of the County. There are major portions of the County that are relatively rural, and could not support fixed route services or allow for easy access to Metra commuter rail due to an incomplete roadway pattern. In addition, an auto-oriented network of development is most commonly found in the outlying areas of Lake County. This pattern of development, where new construction is most often located away from established community centers, is not transit supportive and causes various issues when trying to implement transit services. Density is reduced and building footprints are set back from the roadway with parking lots in front making it harder to serve by transit.

The demographic information presented earlier in the report, along with two additional resources, the RTA Transit Demand Index and housing and employment projections from the CMAP GoTo2040 Plan, can be used to identify the need for transit in areas not currently served.

RTA Transit Demand Index (TDI)

A good source for identifying places where there is sufficient demand for transit service is the Regional Transportation Authority (RTA) Regional Transit Index Viewer, available online at <http://www.rtams.org/RTG>. The viewer uses a Transit Demand Index (TDI) developed by the agency that is intended to predict the likely level of transit service that a given geographic area will support. This assumption is based on analysis of the ridership levels of existing service in the RTA service area (outside of the City of Chicago). These have been correlated with a number of demographic characteristics and the ones with the most direct relationships identified.

Factors in the TDI, in their order of significance, are:

Demographic

- Number of adults (18 to 64)
- Number of seniors (65 and older)
- Number of children (17 and under) – negatively correlated
- Number of vehicles in household – negatively correlated

Employment

- Retail employment
- Non-retail employment

In essence, increased potential for transit ridership is based on adult population and senior population. People in households with children are less likely to ride transit and more cars in a household will reduce transit demand. Retail workers have a high likelihood of riding transit, particularly buses, while other types of workers are more likely to ride Metra.

The results of the TDI shows areas of high, medium, low and nominal transit demand based on these factors. See Figure 17.

Housing and Employment Growth

The Chicago Metropolitan Agency for Planning (CMAP) Go To 2040 Comprehensive Regional Plan (October 2010) includes projections for housing and job growth to the year 2040. The map in Figure 18 indicates by quarter section where household and employment growth is projected to occur. Quarter sections colored blue are projected to experience the most growth. These growth areas are projected mainly in central Lake County and southeastern Lake County.

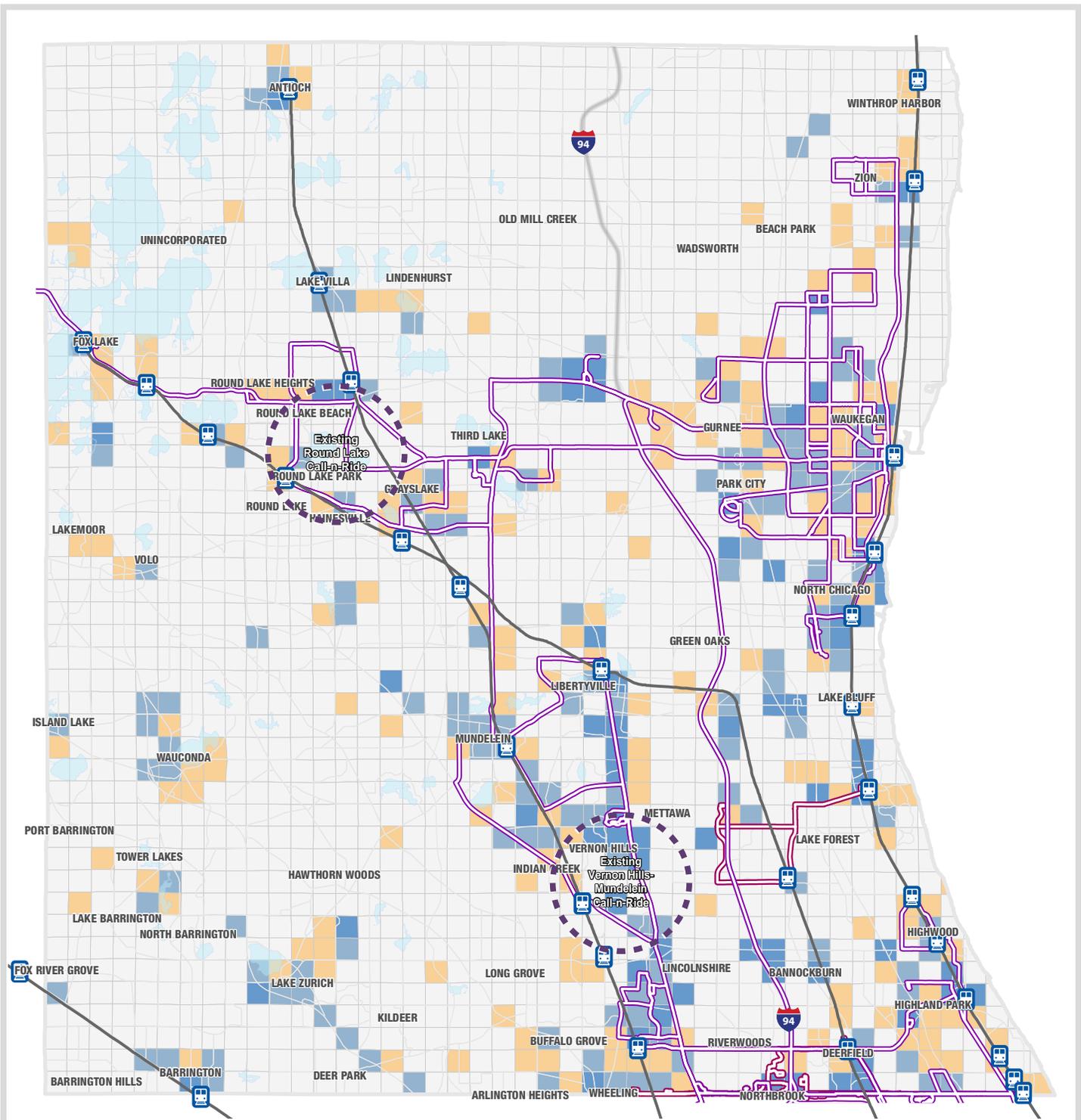


FIGURE 17:
TRANSIT DEMAND INDEX (TDI)



LEGEND

TRANSIT DEMAND INDEX

- Nominal
- Low
- Medium
- High

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: Regional Transit Authority (RTA) Regional Transit Index Data Viewer

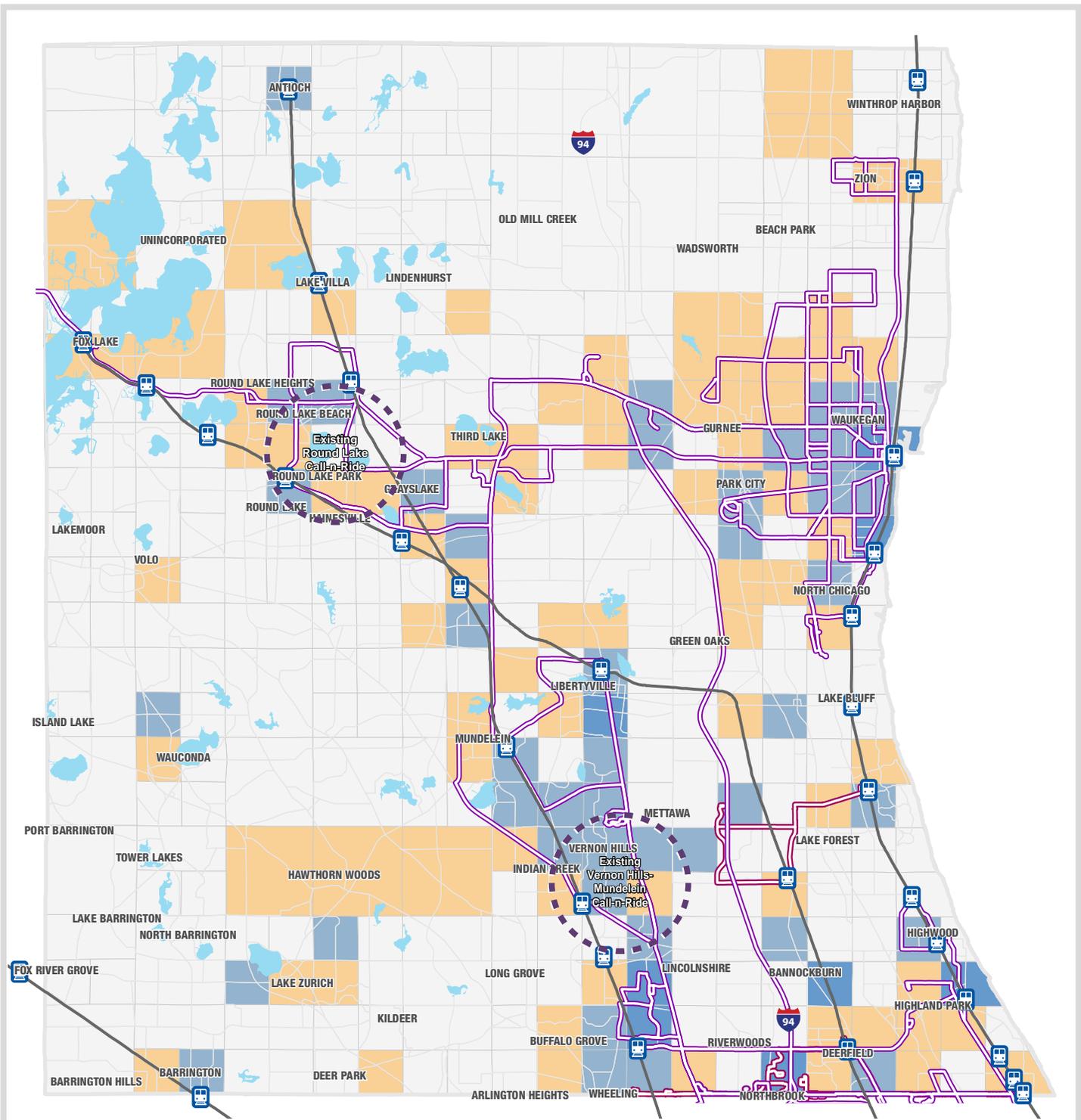


FIGURE 18:
HOUSEHOLDS & EMPLOYMENT - 2040



LEGEND

HOUSEHOLDS & EMPLOYMENT

- Low
- Medium
- Medium

EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



Source: Modeling Estimates Based on CMAP Data

V. REGIONAL TRANSIT PROJECTS WITHIN LAKE COUNTY

In order to identify future transit services, transit reports that were completed for Lake County by other entities were referenced. These reports and recommendations are listed below.

Lake County 2020 Transportation Priority Plan

The Lake County 2020 Transportation Priority Plan was adopted by the County Board on June 11, 2002 to provide a priority plan for roadway, mass transit and bicycle planning in Lake County. This Plan built off a prior effort, the Lake County Transportation Improvement Project (LCTIP). The 2020 Priority Plan includes the following transit projects:

- Double-tracking of the North Central Service (NCS) line
- EJ&E Commuter Rail Line (STAR Line)
- Milwaukee District North (MD-N) Metra Rail Extension to Wadsworth
- Improved bus transit service within Waukegan Road and Green Bay Road corridors
- Waukegan multi-modal hub
- Rondout Station multi-modal hub
- Prairie Crossing multi-modal hub
- S Mundelein/Vernon Hills multi-modal hub
- IL-60 transit corridor shuttle service between NCS and Union Pacific-North (UPN) commuter rail lines
- Gurnee shuttles between Wadsworth Extension and industrial/shopping areas
- Wauconda shuttle and Lake Zurich shuttles from STAR Line
- Transit connections from proposed multi-modal hubs

Pace Vision 2020

Vision 2020 represents the blueprint for Pace's vision. It calls for a network of new services, infrastructure improvements and a decrease in travel time. The Plan addresses community based services and recommends regional and community transportation centers. Recommended future transit services in Lake County include:

- Central Lake County Corridor: IL 53 North and IL 120 Limited Access, with Express Bus Service
- Improved bus transit in Waukegan Road Corridor
- Improved bus transit in Green Bay Road Corridor
- Bus transit in the Town Line Road Corridor
- Bus transit along Route 59 Corridor
- Bus transit along Route 120 Corridor
- Bus transit along Route 22 Corridor
- Bus transit along Midlothian Road Corridor
- Regional Transportation Centers at Lake-Cook Road and Waukegan Metra Stations
- Community Transportation Centers in Antioch, Barrington, Buffalo Grove, Deerfield, Fox Lake, Highland Park, Lake Forest, Libertyville, Mundelein, Rondout, Round Lake Beach, Volo, Wadsworth and Wauconda.

Go To 2040

The Chicago Metropolitan Agency for Planning (CMAP) Go To 2040 Comprehensive Regional Plan (October 2010) identified proposed future Metra transit projects in Lake County:

- Metra Union Pacific North Line improvements – station upgrades and track improvements to improve capacity and reliability
- Metra Milwaukee District North Line Rail Extension to Wadsworth
- Metra Milwaukee District North Line Rail improvements



The Lake County Mobility Management Plan

Conducted for the Lake County Coordinated Transportation Services Committee (TranSystems, February 15, 2011), this Plan focused on the extensive demand response service operated in Lake County. In meetings with stakeholders, concerns primarily revolved around the need for extended hours and days of service, coordinating the disparate services operated in the County, gradually making eligibility requirements, days and hours of service, and fares more uniform. A key objective is to facilitate regional trips (both within the County and to/from adjacent counties). Logically, these longer trips should be coordinated with Metra and Pace fixed route service which is optimized for such trips. The next step in the study is to identify possible coordination options for Lake County including centralized information about available transportation services, countywide trip reservations, additional taxi subsidy program and extended hours of paratransit.

Metra Strategic Plan

Metra developed a Strategic Plan, which was adopted in February 2013. It is a critically important document that will guide the agency for years to come. After significant public outreach, Metra is in the process of updating the Plan. The Plan includes the following Lake County projects:

- Station Improvements at: Fox Lake, Deerfield, Great Lakes, Waukegan, Zion, and Ravinia Park
- Union Pacific North (UP-N) Line Improvements
- Milwaukee District North (MD-N) Improvements
- Milwaukee District North Extension to Wadsworth

Lake County Transportation Market Analysis

Lake County Transportation Market Analysis
The Lake County Transportation Market Analysis (Cambridge Systematics, September 2012) provided an analysis of existing transit services and made recommendations for future services. The study included a significant amount of market research by conducting surveys and focus groups. It developed recommendations for new and/or modified transit service, both fixed route and demand response. It also identified some fixed route service that is lightly used, suggesting that the resources devoted to operating this service be diverted to new service. Recommendations were divided into short term, mid-term and long-term categories. Most of the recommendations in all of the

categories revolve around improvements of demand response service: either Call-n-Ride or deviating route service³. These include improving coordination between Dial-A-Ride services (as called for in the Mobility Management Plan) and implementing new Call-n-Ride or deviating route service for:

- The Mundelein/Libertyville and Vernon Hills area (supplementing Route 572 regional fixed route during off-peak hours)
- Lake Forest/Town Line Road
- Green Bay Road (west side of Waukegan), replacing existing Route 573 fixed route service
- Antioch
- Lake-Cook Road

Other recommendations include:

1. Shorten Route 564 (in southwest Waukegan) to free up resources for new service
2. Improve coordination between Metra and Pace in dealing with delayed trains and improved wayfinding between modes at stations
3. Investigate parking solutions at Metra stations over capacity
4. Add new job access express bus between Waukegan and Central Corridor employment centers
5. Modify existing fixed route bus service to provide service to Lindenhurst Medical Center
6. Modify existing fixed route bus service (Route 565 and Route 570) to create hourly pulse at College of Lake County
7. Increase service on Metra North Central Service line (reverse commute, midday, evening, weekend)

Summary of Recommended Projects

Table 7 provides a summary of all of the transit projects proposed in each report.

The Lake County 2040 Transit Plan is presented in Figure 19.

³ Deviating bus services, sometimes called flex routes, comprise a range of transit options that are hybrids of demand responsive and fixed route services. The options include two primary types. One type is route deviation, which operates on a regular schedule along a well-defined route and deviates on demand to make pick-ups and drop-offs at locations within a specified zone around the route. The second type is point deviation, a demand-responsive service without a defined route that serves a limited number of fixed bus stops as well as on demand deviation stops within a specified zone.

TABLE 7: PROJECT EVALUATION

Project	Limits	Lake County 2020	Pace Vision 2020	Go To 2040	Lake County Market Analysis	Metra Strategic Plan
Central Lake County Corridor: IL 53 North and IL 120 Limited Access, with Express Bus Service	Lake-Cook Rd to IL 120; Wilson Rd to I-94		X	X		
Milwaukee District North Ext. Wadsworth	Rondout to Wadsworth	X		X		X
Milwaukee District North Improvements	Fox Lake to Rondout			X		X
North Central Service Improvements	Union Station to Antioch	X		X		
Union Pacific North Improvements	Track and Signal Improvements from Ogilvie to Kenosha			X		X
Improved bus transit in Waukegan Road Corridor	From Route 132, west of Waukegan, to Lake-Cook Road	X	X			
Improved bus transit in Green Bay Road Corridor (Express service via I-94 in Pace plan)	From Route 132, west of Waukegan, to Route 176	X	X		X	
Bus transit in the Town Line Road (Route 60) Corridor (possibly route deviation service)	Connecting North Central/EJ&E joint station to 2 Lake Forest stations	X	X		X	
Bus transit along Route 59 Corridor	Barrington to Route 176 (extended to Round Lake in Pace Plan)	X	X			
Bus transit along Route 59 and Route 22	Barrington to Lake Zurich (future EJ&E station)	X				
Shuttle service for Gurnee shopping and industrial areas	To a station on the proposed Wadsworth rail extension	X				
Bus transit along Route 120 corridor	McHenry to College Of Lake County		X			
Bus transit along Route 22 corridor	Lake Zurich to Highland Park		X			
Bus transit along Midlothian Road Corridor	Lake Zurich to Mundelein		X			
Implement Call n Ride service	Lake Forest/Town Line Road				X	
Implement Call n Ride service	Antioch area				X	
Implement Call n Ride service/ improved bus transit	Green Bay Road, west side of Waukegan		X		X	
Implement Call n Ride service	Lake Cook Road				X	
Waukegan Multi-Modal Hub	Waukegan Metra Station	X			X	
Rondout Multi-Modal Hub	Roundout Metra Station	X				
Prairie Crossing Multi-Modal Hub	Prairie Crossing Metra Station	X				
S. Mundelein/Vernon Hills Multi-Modal Hub	S. Mundelein/Vernon Hills Multi-Modal Hub	X				
Multi-Modal Hubs at Fox Lake Station and Prairie Crossing	Fox Lake Metra Station				X	
Transit Hub at Hawthorn Mall	Hawthorn Mall				X	
Multi-Modal Hub at Prairie Crossing	Prairie Crossing Metra Station	X				
IL Route 60 Transit Corridor Shuttle	Between NCS and UP-N Metra Stations	X				
Wauconda and Lake Zurich shuttles	To/From STAR Line	X				
Improved bus transit in Waukegan Road Corridor	Waukegan Road		X			
Regional Multimodal Transportation in Waukegan	Waukegan Metra Station	X	X			
Mundelein-Libertyville Call-n-Ride	Mundelein, Libertyville		X		X	
Gurnee Shuttles	Gurnee	X	X			



FIGURE 19:
2040 TRANSIT PLAN



LEGEND

PROPOSED TRANSIT IMPROVEMENTS

- Rail Projects
- Bus Projects
- Transit Hubs

EXISTING TRANSIT FEATURES

- Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bug Routes



VI. TRANSIT FRIENDLY INFRASTRUCTURE

In order for transit to be successful, transportation investment policies and programs must be paired with land use policies and programs. Land use policies that embrace denser development, a mix of uses and traditional design maximize access to public transportation and often incorporate features to encourage transit ridership. Integral to land use policies are considerations for good pedestrian and bicycle access. The design of paths, sidewalks and transit stops contribute to a passenger’s experience and perception of safety on the transit system. Well-connected sidewalks and paths should be installed so that transit patrons will not be forced to walk in the street while traveling to or from a stop or station. In addition, roadway crossings should be made safer with an appropriate combination of facilities, such as marked crosswalks, crosswalk bump outs, median crossing islands, warning signs and pedestrian signals. Good pedestrian and bicycle design should account for the needs of all potential users, including those with physical or mental limitations.

The 2040 Non-Motorized Plan’s recommendations will foster a better transportation experience for people accessing transit stops. Additionally, Lake County’s Guidelines for Non-Motorized Travel Investments should be emphasized with adequate consideration of pedestrian and bicycle access to transit.

VII. PRIORITIZATION OF SERVICES

Evaluation Criteria

Evaluation criteria were developed for analysis purposes. The evaluation criterion includes:

- Other transit connections
- Residential density within a half mile
- Employment density within a half mile
- Major employers/employment centers (such as Walgreens, AbbVie, Abbott Laboratories, etc.)
- Healthcare facilities
- Major retail/retail centers/malls
- Pedestrian friendly environment
- RTA Transit Demand Index
- Included in previous accepted transit plans

Table 8 lists the evaluation criteria and provides a quantitative assessment for each alternative.

In Table 9, the quantitative assessment was converted to a numeric value (1, 2, or 3). The number “3” means that that alternative best meets the criteria as compared to the other alternatives, “2” indicates that it partially meets that criteria as compared to the other alternatives and “1” means that it least meets the criteria compared to the other alternatives.



TABLE 8: EVALUATION FACTORS FOR SERVICE ALTERNATIVES

Proposed Transit Improvements by Area of County	Other Transit Connections	Residential Density w/in .5 miles	Employment Density w/in .5 miles	Major Employers	Healthcare Facilities	Major Retail	Pedestrian Friendly Environment	RTA Transit Demand Index	Included in Lake County 2020 Transportation Plan?
Metra MD-N Line Ext. to Wadsworth	None	75	34,304	Allegiance Corporation	-	No	No	Low	Yes
Gurnee Shuttles	Limited	100	38,496	Six Flags Great America	-	Gurnee Mills	No	Low-High	Yes
Bus Transit in Green Bay Road Corridor	Many	86	32,945	Great Lakes Naval Training Center	Vista Medical Center West	Neighborhood Retail	Yes	Medium	Yes
Multimodal Transportation Center-Waukegan	Many	18	11,746	Lake County	-	Neighborhood Retail	Yes	High	Yes
Antioch Call-n-Ride	Limited	26	9,066	-	-	Neighborhood Retail	No	Low	No
Metra NCS Line Improvements	Many	272	113,949	Motorola	-	No	No	Medium-High	No
Fox Lake Station Multi-Modal Hub	Limited	10	3,418	-	-	Neighborhood Retail	Yes	Medium	No
Metra MD-N Line Improvements	Many	259	115,208	-	-	Neighborhood Retail	Yes	Medium-High	No
College of Lake County Route Adjustment	Limited	15	5,218	-	-	No	Yes	Low-High	No
Bus Transit in Route 120 Corridor	Limited	76	26,072	-	-	No	No	Low-Medium	No
Prairie Crossing Multi Modal Hub	Limited	17	10,658	-	-	No	No	Low	Yes
Bus Transit in Waukegan-Lake Cook Corridor	Many	181	84,292	Allegiance Corporation	Lake Forest Hospital	Neighborhood Retail	Yes	Low-High	Yes
Bus Transit in Town Line Road Corridor	Limited	112	57,190	-	Lake Forest Hospital	No	No	Medium-High	Yes
Hawthorn Mall Transit Hub	Limited	31	17,605	-	-	Hawthorn Mall	No	High	No
Bus Transit in Lake- Cook Road Corridor	Many	159	80,565	Baxter Healthcare Corporation	-	Northbrook Court	Yes	Low-High	Yes
Lake Forest Call-n-Ride	Limited	86	41,491	Conway Business Park	Lake Forest Hospital	Neighborhood Retail	Yes	Low-High	No
Bus Transit in Route 59 Corridor	Limited	34	17,445	-	-	Neighborhood Retail	Yes	Low-High	Yes
Bus Transit in Route 22 Corridor	Many	143	64,859	Kemper Insurance; Hewitt Associate LLC	Advocate Good Shepard Hospital; Highland Park Hospital	No	No	Low-High	No
Central Lake County Transit Corridor	Limited	87	31,273	Kemper Insurance	-	No	No	Low	No

TABLE 9: QUALITATIVE RANKING OF SHORT TERM SERVICE ALTERNATIVES

Proposed Transit Improvements by Area of County	Other Transit Connections	Residential Density w/in .5 miles	Employment Density w/in .5 miles	Major Employers	Healthcare Facilities	Major Retail	Pedestrian Friendly Environment	RTA Transit Demand Index	In Lake County 2020 Transportation Plan?
NORTHEAST									
Metra MD-N Line Ext. to Wadsworth	1	2	1	3	1	1	1	1	3
Gurnee Shuttles	2	2	1	3	1	3	1	2	3
Bus Transit in Green Bay Road Corridor	3	2	1	3	2	2	3	2	3
Multimodal Transportation Center-Waukegan	3	1	1	3	1	2	3	3	3
NORTHWEST									
Antioch Call-n-Ride	2	1	1	1	1	2	1	1	1
Metra NCS Line Improvements	3	3	3	2	1	1	1	3	1
Fox Lake Station Multi-Modal Hub	2	1	1	1	1	2	3	2	1
Metra MD-N Line Improvements	3	3	3	1	1	2	3	3	1
College of Lake County Route Adjustment	2	1	1	1	1	1	3	2	1
Route 120 Bus Transit	2	2	1	1	1	1	1	2	1
Prairie Crossing Multi Modal Hub	2	1	1	1	1	1	1	1	3
SOUTHEAST									
Bus Transit in Waukegan-Lake Cook Corridor	3	3	3	3	2	2	3	2	3
Bus Transit in Town Line Road Corridor	3	3	2	1	2	1	1	2	3
Hawthorn Mall Transit Hub	2	1	1	1	1	2	1	3	1
Bus Transit in Lake-Cook Road Corridor	3	3	3	2	1	3	3	3	3
Lake Forest Call-n-Ride	2	2	2	3	2	2	3	2	1
SOUTH WEST									
Bus Transit in Route 59 Corridor	2	1	1	1	1	2	3	2	3
Bus Transit in Route 22 corridor	3	3	2	3	3	1	1	2	1
Central Lake County Transit Corridor	2	2	1	2	1	1	1	1	1



VIII. IMPLEMENTATION & FUNDING

This chapter is intended to outline the steps involved in implementing the improvements which have been described. Two strategies in achieving better transit services are possible. The first strategy is to work with the current resource levels and develop cost/revenue neutral service changes. This strategy is used when making service recommendations to existing routes (e.g. adjust pulse point of routes at College of Lake County). The second strategy is to increase the total amount of transit service in Lake County by obtaining additional funding. Adding new services, both in the short term and the long term requires additional funding. Sources for new transit funding are identified in this chapter. Key to implementation is coordination between Lake County, Pace and Metra to work together in the implementation of these services.

Descriptions of Potential Funding Sources

1. Federal Funds

Federal transit funds are administered by the Federal Transit Administration (FTA).

a. Section 5307/JARC

Section 5307 is the most prevalent Federal program for transit funding. With limited exceptions, it may only be used for capital expenditures (with a 20% local share requirement). This is a formula-based program, with the distribution of funds between the RTA services boards also controlled by formula. With the tremendous unmet needs for bringing the region's transit infrastructure into a state of good repair (SOG) these funds are very difficult to access and only transit agencies may apply. Recently, with the passage of Moving Ahead for Progress in the 21st Century (MAP 21), the Job Access Reverse Commute (JARC) program was placed under Section 5307. JARC funding is only available through the service boards (Pace, Metra, and CTA), however outside entities can submit to those agencies for JARC funding.

The JARC program provides operating and capital assistance for transportation services planned, designed and carried out to meet the transportation needs of eligible low-income individuals and of reverse commuters regardless of income. The RTA is the designated recipient of JARC funds and is responsible for overseeing and administering the program in northeastern Illinois. Types of projects may include:

- Fixed-route service oriented towards reverse commuters and/or at times specific to access lower wage jobs
- Shuttle service to and from rail stations

In pursuing JARC funding it may be challenging to prove that the users of the new or expanded bus services are low income individuals. Funds may also be allocated for only one year to establish the service and cannot be used for continual service. If new bus service was put into place, a permanent funding source to fund future operations would need to be identified.

b. CMAQ - Congestion Mitigation and Air Quality Program

The CMAQ Improvement Program is a federally funded program of surface transportation improvements authorized by the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005 and continues under the Moving Ahead for Progress in the 21st Century Act (MAP-21). CMAQ funds may fund up to 80% of projects that increase the use of public transportation systems. Generally, there are four broad categories of transit service-related projects or programs:

1. **Transit System Startup** – These projects are new rail systems, bus service or vanpools. Operating expenses for new systems can be reimbursed for up to three years.
2. **Transit Transfer Facilities** – These projects increase the convenience of transferring between transit services.
3. **Transit Facility Improvements** – These projects enhance the existing transit systems through adding or improving facilities such as stations, pedestrian, and bicycle accommodations.
4. **Transit Service and Equipment** – These projects enhance the existing transit system through improvements such as increasing the frequency or operating speed or service on bus routes or rail lines. Operating expenses can be reimbursed for up to three years.

CMAQ applications are submitted to the planning liaison of the Mayors and Managers Councils for review and then submitted to the Chicago Metropolitan Agency for Planning (CMAP). CMAP's CMAQ Project Selection Committee selects projects in northeastern Illinois, with subsequent approval by the Transportation Committee, Programming Coordination Committee, and CMAP Policy Committee. The CMAP staff performs technical analysis of all projects. The Illinois Department of Transportation (IDOT) administers the projects. Projects are evaluated based on ability to reduce auto trips and the resulting vehicle emissions.

There are several disadvantages of the CMAQ program that may limit its applicability in Lake County. First, projects must be able to demonstrate significant reductions in emissions, which limited local bus service does not have a large impact on. Secondly, although the CMAQ program can support new transit services as stated above, the CMAQ program for northeastern Illinois has historically consisted primarily of capital projects associated with vehicle procurement and construction of installation of new transportation systems. Thirdly, CMAQ funds are limited to three years of start up operations (for example, the Shuttle Bug service). If a new bus service was put into place, a permanent funding source to fund future operations would need to be identified. It may be difficult to prove a reduction in emissions in the region, a main objective of this funding program, since the proposed new bus services are local, not regional, services.

c. FTA New Starts

The discretionary New Starts and Small Starts program is the FTA's primary financial resource for supporting locally planned, implemented and operated transit "guideway" capital investments. Eligible fixed-guideway projects include, but are not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers and exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles. Non-guideway bus-based projects that include a defined set of low-cost features may also qualify for support under the Small Starts and Very Small Starts project categories. As a discretionary program, this is a very competitive program, requiring comprehensive analysis of proposed projects.

Metra has used the New Starts program to support systemic improvements on designated routes, including the UP-Northwest Line.

d. Surface Transportation Funds (STP)

The STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects and intracity and intercity bus terminals and facilities.

2. State, Regional, and Local Funds

a. Sales Tax Revenues

An RTA sales tax, increased by 0.50% as part of the 2008 Mass Transit Reform Legislation, is collected in the collar counties (i.e. Lake County), with half (1/2) of that available to the counties for transportation or public safety purposes. These funds have already been dedicated in Lake County for LCDOT projects so no transit improvements will get funding through this method in Lake County.

b. RTA Innovation, Coordination, and Enhancement (ICE) Program

The ICE program is a competitive funding program, established as part of the 2008 Mass Transit Reform Legislation. The program provides operating and capital assistance to enhance the coordination and integration of public transportation and to develop and implement innovations to improve the quality and delivery of public transportation. Projects funded through this program advance the vision and goals of the RTA by providing reliable and convenient transit services and enhancing efficiencies through effective management, innovation and technology. Grants are typically less than \$1 million. Currently only the service boards (Pace, Metra and CTA) are eligible to apply for ICE grants.

c. Motor Fuel Tax (MFT)

The Motor Fuel Tax Funds are distributed to local municipalities by the State of Illinois from taxes on gasoline and diesel fuel. A municipality's share of the total MFT municipal allocation is based on the ratio of that municipality's population to the total population of all incorporated areas in the State. The allotment of each municipality is not based on the total fuel tax collected within that municipality's boundary but is based on State wide sales.

Lake County's MFT funds are dedicated towards roadway projects and will not be used for transit improvements in the county.



Implementation Tasks

Table 10 shows the implementation tasks for the recommendations in this report. The table summarizes:

- Name of proposed alternative
- Description of the alternative
- Stakeholders involved in implementation
- List of implementation tasks
- Potential funding sources (see description of the various programs after the table)
- Priority ranking:
 - Highest Merit Projects
 - Middle Merit Projects
 - Lowest Merit Projects

Conclusion

Although many funding sources have been identified, there is significant competition for limited dollars. It is imperative that Lake County puts a strategy in place to most effectively and efficiently pursue the limited dollars with the transit agencies. In addition, teaming with other entities, including adjacent counties, exploring public-private partnerships for the development of park ‘n’ ride lots and infrastructure improvements like sidewalks and transit stop amenities and continuing to meet with Pace and Metra on service strategies is critical to the implementation of this Plan.

TABLE 10: IMPLEMENTATION TABLE

Name	Description	Stakeholders	Tasks	Funding	Priority	Notes
NORTHEAST						
Metra MD-N Line Ext. to Wadsworth	Extension of Metra Service to Wadsworth	Metra Wadsworth	1. County to continue to monitor Metra Strategic Plan	<ul style="list-style-type: none"> FTA New Starts Local funding or local share for station area development 	Lowest	Need to have more development in corridor; Metra needs to secure major capital funding; Long range project
Gurnee Shuttles	New service in Gurnee area	Pace County Township Wadsworth	<ol style="list-style-type: none"> Identify funding available Coordinate with other paratransit services in areas Work with Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAQ 	Highest	Implementation would help to fulfill the transit needs in the northeast corner of the County
Bus Transit in Green Bay Road Corridor	Improved fixed route services along Green Bay Road	Pace North Chicago Waukegan	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAQ 	Highest	New service supported by higher density housing and lower income population; also supported by the Lake County Market Analysis and is a carryover project from Lake County 2020
Multimodal Transportation Center-Waukegan	Located at Metra UP –North Line Waukegan Station	Metra Pace Waukegan	<ol style="list-style-type: none"> Identify funding available Work with Metra and Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> JARC 5307 CMAQ 	Middle	Multimodal Transportation Center could be located at Metra Train Station; carryover from Lake County 2020 Plan
NORTH WEST						
Antioch Call-n-Ride	New service in Antioch area	Pace County Township Antioch	<ol style="list-style-type: none"> Identify funding available Coordinate with other paratransit services in areas Work with Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAQ 	Highest	Implementation would help to fulfill the transit needs in the northwest corner of the County
Antioch to Gurnee Mills Deviating Bus	Bus route between Antioch and Gurnee Mills that can deviate from it's fixed route and stop at another location	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAQ 	Middle	Route deviations cost more and require at advanced notice
Metra NCS Line Improvements	Double Track NCS Chicago to Antioch	Metra	1. Identify funding available	<ul style="list-style-type: none"> FTA New Starts 	Lowest	Significant costs; not included in Metra Strategic Plan
Fox Lake Station Multi-Modal Hub	Multi-modal hub at Metra Fox Lake Station on Milwaukee District – North Line	Metra Fox Lake	<ol style="list-style-type: none"> Identify funding available Work with Metra and Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> JARC 5307 CMAQ 	Middle	Existing station
Metra MD-N Line Improvements	Fox Lake to Rondout	Metra	1. Identify funding available	<ul style="list-style-type: none"> 5307 Capital funding 	Middle	In Metra Strategic Plan; costly improvements
Bus Transit along IL Route 120	New Pace fixed route bus service along IL Route 120	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAQ 	Middle	New service supported by the Lake County Market Analysis
Prairie Crossing Multi Modal Hub	Multi-modal hub at Metra Prairie Crossing Station on Milwaukee District – North Line	Metra Pace Libertyville	<ol style="list-style-type: none"> Identify funding available Work with Metra and Pace on implementation 	<p>Potential sources:</p> <ul style="list-style-type: none"> JARC 5307 CMAQ 	Middle	Existing station



Name	Description	Stakeholders	Tasks	Funding	Priority	Notes
SOUTHEAST						
Bus Transit in Waukegan-Lake Cook Corridor	New Pace fixed route bus service between Waukegan and Lake Cook Road	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis ; lower income populations along the northern part of the corridor
Bus Transit in Town Line Road Corridor	New Pace fixed route bus service along Town Line Road	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis
Hawthorn Mall Transit Hub	Transit hub at Hawthorn Mall	Pace Hawthorn Mall	<ol style="list-style-type: none"> Identify funding available Work with Metra and Pace on implementation 	Potential sources: <ul style="list-style-type: none"> JARC 5307 CMAAQ 	Middle	Need to identify location of center on Mall property
Bus Transit in Lake-Cook Road Corridor	New Pace fixed route bus service along Lake-Cook Road	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis
Lake Forest Call-n-Ride	New service in Lake Forest	Pace Township Lake Forest	<ol style="list-style-type: none"> Identify funding available Coordinate with other paratransit services in areas Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	Would help fill gap for paratransit services in Lake Forest area
Mundlein-Libertyville Call-n-Ride	New service in Mundlein-Libertyville	Pace Township Mundlein Libertyville	<ol style="list-style-type: none"> Identify funding available Coordinate with other paratransit services in areas Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	Would help fill gap for paratransit services in Mundlein-Libertyville area
SOUTH WEST						
Bus Transit in Route 59 Corridor	New Pace fixed route bus service along Route 59	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis
Bus Transit in Route 22 corridor	New Pace fixed route bus service along Route 22	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis
Central Lake County Transit Corridor	New Pace fixed route bus service in Central Lake County	Pace Municipalities along the corridor	<ol style="list-style-type: none"> Identify funding available Work with Pace on implementation 	Potential sources: <ul style="list-style-type: none"> 5307 – Generally limited to capital funds JARC ICE – (RTA) CMAAQ 	Middle	New service supported by the Lake County Market Analysis

