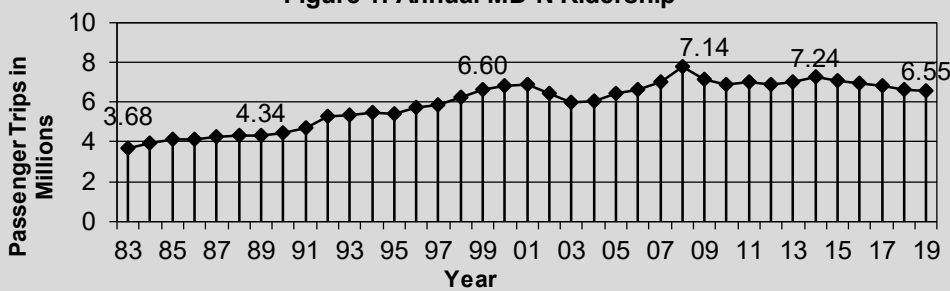


Milwaukee District - North

Line at a Glance

- › Average Trip Length (2019) : 22.8 miles
- › Average Fare Paid (2019) : \$5.16
- › Number of Stations: 22
- › Route Length: 49.5 miles
- › Number of Weekday Trains (Dec 2019): 63
- › On-Time Performance (2019): 91.9%
- › 60% of MD-N riders drive to their boarding station.
- › Population growth has been flat on the MD-N since 2010.
- › 4% fewer people work along the MD-N than did in 2010.

Figure 1: Annual MD-N Ridership



The data included in this document predates the onset of COVID-19, which has greatly impacted Metra's riders and operations. This information is presented to inform the public about Metra's historic and recent operational environment but may not be illustrative of Metra's current or future operations. For the latest information, visit Metra's Operations and Ridership Data webpage at metrarail.com.



Schedules as of Dec 2019

- › 19 trains in the AM Peak
- › 13 trains in the Midday
- › 20 trains in the PM Peak
- › 11 trains in the Evening
- › 20 trains on Saturdays
- › 18 trains on Sundays



- › 7th highest ridership
- › Lake Cook Road is the highest reverse commute station in the system



- › Most male line (58%) in the system
- › 2nd highest income ridership in the system

Chicago to Fox Lake

Table 1: Metra Capital Investment History	MD-N (\$m)	System (\$m)
Rolling stock	\$206	\$2,978
Track and structure	\$123	\$1,567
Signal, electrical, and communications	\$121	\$1,137
Facilities and equipment	\$94	\$685
Stations and parking	\$74	\$1,120
Acquisitions, extensions, and expansions	\$2	\$603
Support activities	\$50	\$431
TOTAL	\$670	\$8,521
PERCENTAGE	7.9%	100.0%

Notes: 1) Excludes South Shore, preventative maintenance, new lines, and pending grants. 2) Prior expenses not adjusted for inflation. 3) Data subject to budget revisions, audit adjustments, etc. 4) Project costs without specific locations have been allocated to entire lines where appropriate

Table 2: MD-N 2018 Weekday Boardings	Inbound	Outbound
Time of Day		
AM Peak	8,469	1,307
Midday	1,464	910
PM Peak	1,524	8,398
Evening	232	1,032
TOTAL	11,689	11,647

Source: 2018 Weekday Station Boardings and Alightings by Time-of-Day and Direction

ON COVID-19 AND HOW TO USE THIS DOCUMENT

The information presented in this chapter is representative of Metra's operations prior to the onset of COVID-19, which upended almost every aspect of daily life. While Metra's pre-COVID services may not be replicated in the same manner going forward, the transportation services Metra continues to provide are essential to the vitality of the Chicago region.

There are certain elements of Metra's situational and operational environment that are unlikely to change in the short or medium term. These are: the location and capacity of each rail line, the location and physical characteristics of each station, the general characteristics of the communities around each station, Metra's history in each community, and Metra's mission to provide safe, reliable, efficient commuter rail service that enhances the economic and environmental health of northeast Illinois. On the other hand, there are operational and situational factors that are likely to be quite different. These may be: the number of riders, the time and duration of peak travel demand, the public's perception of the relative safety of various transportation modes, the way riders access and depart from stations, and the location preferences of people and businesses.

The challenges posed by the pandemic were significant and likely will result in the emergence of a very different operational environment. Even so, understanding Metra's past performance, pre-COVID service levels, and established community baselines is vital to making informed decisions about the reality that is taking shape. Through this process Metra will continue to achieve Metra's mission, realizing its vision, and pursuing its strategic goals.

In this section

- 1 – Annual Passenger Trips
- 2 – MD-N Overview
- 3 – Present and Future Demand
- 4 – Station Characteristics
- 5 – Mode of Access and Parking
- 7 – Reverse Commute and Non-Downtown Markets
- 7 – Major Capital Projects
- 7 – ADA Accessibility
- 9 – MD-N Corridor Demographics
- 9 – MD-N Corridor Household Data
- 9 – MD-N Corridor Employment Data
- 10 – Major Trip Generators

As part of a regional transportation network, Metra provides safe, reliable, efficient commuter rail service that enhances the economic and environmental health of northeast Illinois.

- Metra's Mission Statement

MD-N OVERVIEW

Metra's Milwaukee District-North (MD-N) Line extends 49.5 miles north-northwest from Chicago's Union Station (CUS or "Union Station") to Fox Lake. The MD-N Line provides service to 20 intermediate stations between CUS and Fox Lake with service to the northwest side of Chicago, northern Cook County, and Lake County. In 2019, passenger trips on the MD-N totaled 6.55 million, ranking seventh among the eleven Metra lines.

Both the Milwaukee District-North and Milwaukee District-West (MD-W) Lines are operated and maintained by Metra employees. Trains on both lines are dispatched from Minneapolis by Canadian Pacific (CP), which operates

freight service over Metra-owned Milwaukee District tracks. The main line segment of the MD-N (from CUS to Rondout Junction) carries Amtrak's Hiawatha and Empire Builder trains.

The MD-N has three distinct segments: a triple-track main line from CUS to the A-5 junction, a double-track main line north from A-5 to Rondout Junction, and a single-track branch line (the Fox Lake Subdivision) northwest from Rondout to Fox Lake.

Service levels are higher on the double-track main line than the single-track Fox Lake branch. The variety of train operations on the main line, as well as limited crossovers and lack of a second track on the branch, preclude the maximization of reverse-commute service and additional recycling of trains for peak-period trips. See Table 3 for more station-level details.

PRESENT AND FUTURE DEMAND

Due to substantial increases in population along the MD-N corridor, demand for commuter rail service is expected to grow. Figure 4 shows the origins of MD-N riders using stations outside the Central Business District (CBD).

According to the 2018 Metra Boarding and Alighting Count, the MD-N had over 23,000 boardings, with 72% of boardings on peak period, peak-direction

FIGURE 2: METRA STATIONS ON THE MD-N LINE

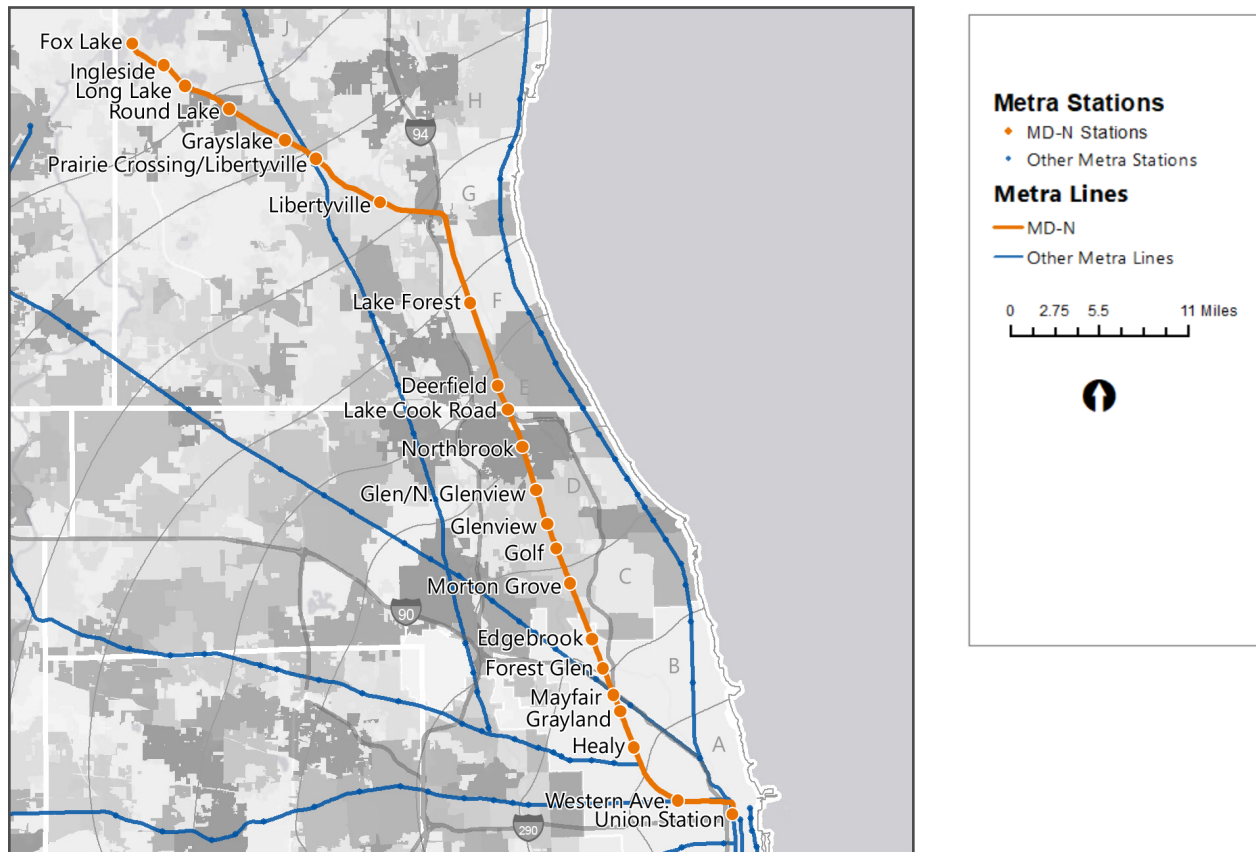



TABLE 3: MD-N STATION CHARACTERISTICS

Station	 ¹	Fare Zone	Mile Post	Responsibility and Maintenance			Boardings				Weekday trains as of Dec 2019
				Platform	Depot	Parking	1983 ²	2006 ²	2016 ²	2018 ²	
Union Station	●	A	0.0	--	--	--	5,805	9,776	10,072	10,326	63
Western Ave.	●	A	2.9	Metra	Metra	Metra	136	435	421	428	61
Healy	●	B	6.4	Metra	Metra	Muni	226	342	345	323	49
Grayland		B	8.2	Metra	Metra	Muni	78	318	339	357	46
Mayfair		B	9.0	Metra	Metra	--	53	317	284	281	47
Forest Glen		C	10.2	Metra	Metra	Multiple	73	331	343	376	46
Edgebrook	○	C	11.6	Metra	Metra	Multiple	197	544	609	701	49
Morton Grove	●	C	14.3	Metra	Metra	Multiple	451	966	969	967	52
Golf	●	D	16.2	Metra	Metra	Multiple	131	315	375	355	47
Glenview	●	D	17.4	Metra	Multiple	Multiple	1,218	1,611	1,439	1,462	54
Glen/N. Glenview ³	●	D	18.8	Metra	Multiple	Multiple	--	770	1,070	1,163	49
Northbrook	●	E	21.1	Metra	Multiple	Multiple	1,213	1,323	1,392	1,259	52
Lake Cook Rd. ³	●	E	23.0	Metra	Metra	Metra	--	1,406	1,271	1,086	56
Deerfield	●	E	24.2	Metra	Multiple	Multiple	1,185	1,315	1,282	1,133	60
Lake Forest	●	F	28.4	Metra	Muni	Muni	193	578	548	607	49
Libertyville	●	H	35.5	Metra	Multiple	Multiple	702	1,169	825	801	46
Prairie Crossing ³	●	H	39.2	Metra	Multiple	Multiple	--	344	422	368	41
Grayslake	●	I	41.0	Metra	Multiple	Multiple	196	772	494	470	43
Round Lake	●	I	44.0	Metra	Metra	Multiple	317	710	417	395	33
Long Lake	●	J	46.0	Metra	Metra	Metra	45	133	96	93	32
Ingleside	●	J	47.8	Metra	Metra	Metra	15	150	74	63	31
Fox Lake	●	J	49.5	Metra	Metra	Multiple	405	632	356	322	36
TOTAL MD-N							12,670	24,257	23,443	23,336	63

¹ Accessibility information is displayed using a three dot system. A complete dot means the station is fully accessible. No dot means that the station is inaccessible. A hollow dot means the station is partially accessible. Customers who use wheelchairs at partially accessible stations will be able to access train platforms from the street. However, ramps, ticket windows, buildings and shelters may not fully conform to ADA guidelines.

² Metra, "Commuter Rail System Station Boarding/Alighting Counts," Fall 2006, Spring 2014, and Fall 2018.

³ Glen/North Glenview opened in 2001. Prairie Crossing/Libertyville opened in 2004. Lake Cook Rd. opened in 1996.

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TABLE 4: 2019 MODE OF ACCESS AND COMMUTER PARKING AT MD-N METRA STATIONS

Station Name	Mode of Access (2019)					Station Parking (2019)		
	Walk/Bike	Drive ¹	Dropped Off ²	Transit	Other	Capacity	Effective Use ³	Observed Use ⁴
Union Station	30%	39%	12%	14%	6%	0	--	--
Western Ave. ⁵	48%	22%	26%	4%	0%	23	100%	100%
Healy	50%	15%	15%	13%	7%	13	54%	54%
Grayland	56%	33%	6%	6%	0%	119	69%	69%
Mayfair	37%	13%	11%	32%	7%	12	0%	0%
Forest Glen	38%	51%	6%	3%	2%	105	79%	79%
Edgebrook	37%	43%	13%	6%	1%	200	87%	87%
Morton Grove	18%	59%	20%	2%	1%	473	91%	79%
Golf	42%	24%	26%	3%	5%	37	97%	97%
Glenview	28%	55%	15%	1%	1%	743	94%	76%
Glen/N. Glenview	10%	79%	10%	0%	1%	1,291	52%	52%
Northbrook	16%	70%	14%	0%	1%	723	98%	98%
Lake Cook Rd.	8%	78%	9%	3%	2%	664	67%	67%
Deerfield	15%	68%	14%	1%	2%	626	95%	92%
Lake Forest	8%	70%	17%	2%	3%	525	74%	57%
Libertyville	11%	63%	24%	1%	1%	526	83%	73%
Prairie Crossing ⁶	3%	77%	19%	0%	1%	411	75%	74%
Grayslake	10%	70%	20%	0%	0%	682	39%	39%
Round Lake	6%	64%	29%	0%	1%	494	44%	39%
Long Lake	10%	68%	20%	2%	0%	49	89%	89%
Ingleside	18%	64%	18%	0%	0%	124	33%	33%
Fox Lake	5%	73%	19%	0%	2%	449	69%	63%
TOTAL MD-N	20%	60%	16%	3%	2%	8,266	70%	65%
SYSTEM TOTAL	26%	54%	16%	4%	1%	91,558	70%	63%

¹ Includes carpool drivers

² Includes carpool passengers

³ Effective use: all sold permit spaces are assumed to be used, even if unoccupied during parking survey

⁴ Observed use: spaces physically occupied during parking survey

⁵ Western Ave. Station serves MD-N, MD-W and NCS Lines

⁶ Parking area at this station serves MD-N and NCS Lines

Sources: Metra, Origin-Destination Survey, Fall 2019; Metra Station and Parking Capacity and Use Survey, 2018

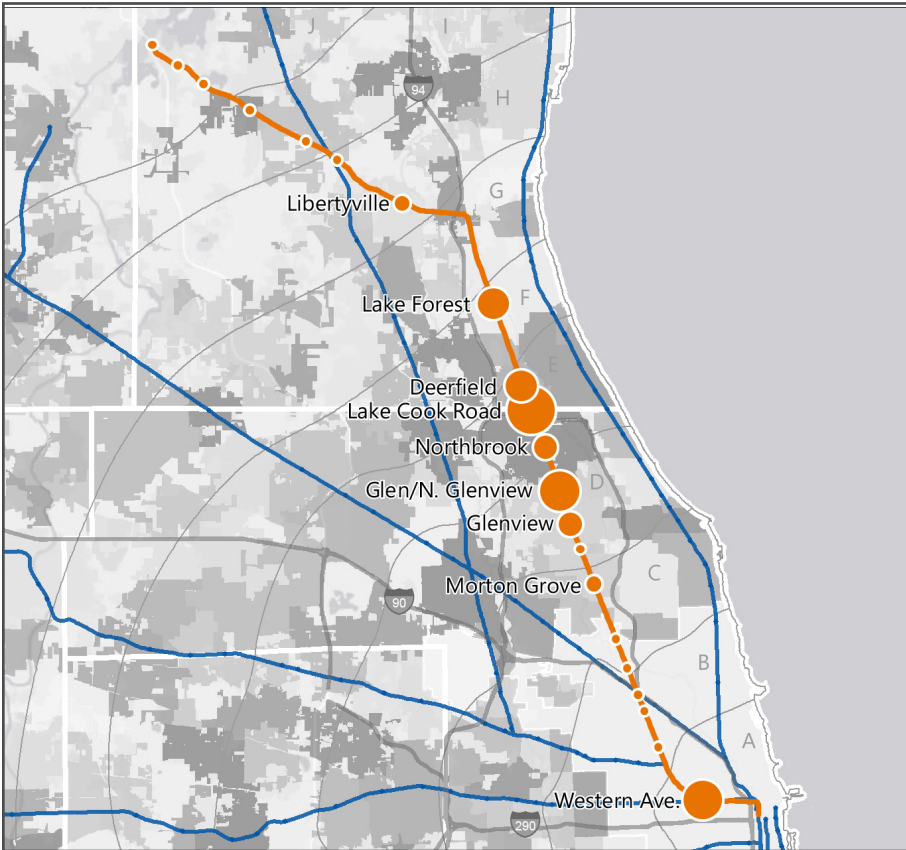
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trains. Overall, the MD-N has seen a 78% increase in boardings since 1983. Despite considerable population and ridership growth in northwest Lake County along the Fox Lake Subdivision, approximately 66% of weekday non-CBD boardings on the MD-N take place in Cook County (including the Lake Cook Road Station). Overall passenger ridership on the MD-N totaled 6.55 million in 2019.

Just over 8,000 parking spaces serve MD-N riders. According to parking counts conducted in 2019, the effective parking utilization rate on the MD-N as a whole is 70%. Six stations have effective utilization rates above 85%, which indicates a demand for increased parking on the line, since Metra considers lots over 85% occupied to be approaching full capacity.

In 2010, the population of the entire MD-N corridor was 668,829. By 2050, the population of the corridor is expected to increase by 13% to 760,191. Stations along the Fox Lake Subdivision are estimated to have the greatest percent increase in population, with projected growth of 29%. With heavy population and household growth along the MD-N corridor, it is likely that the MD-N will continue to see ridership gains and increased service demands in the future, particularly along the Fox Lake Subdivision. Tables 5, 6 and 7 describe the population, household and employment demographics for stations along the MD-N corridor.

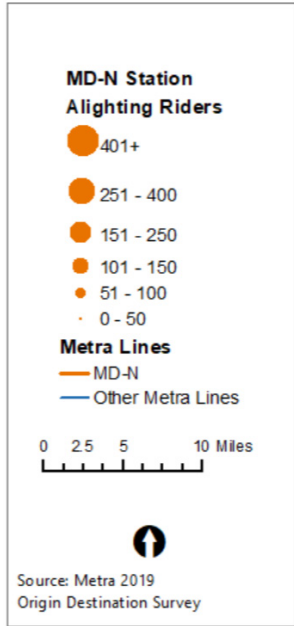
FIGURE 3: NON-DOWNTOWN DESTINATIONS DURING AM PEAK



Terms Defined

“Peak-Direction Trains” are those that travel in the direction with the most demand from riders. During the “AM Peak,” trains travelling toward the Loop are “Peak-Direction” while trains travelling away from the Loop are “Peak-Direction” during the “PM Peak.”

“Effective Parking Utilization” is calculated by assuming that all parking pass holders will need a parking space at the same time. This ensures that there is always a space for those who hold a parking pass.



Note: Only stations with alightings greater than 50 are labeled.

Significant suburban employment expansion is anticipated along the Fox Lake Subdivision (Libertyville to Fox Lake Stations). Here, employment is projected to increase by 31% through 2050, compared with a 9% increase in employment in mainline station marketsheds. However, main line station marketsheds outside of downtown Chicago are still projected to have over five times as many jobs as Fox Lake Subdivision marketsheds by 2050.

REVERSE-COMMUTE AND NON-DOWNTOWN MARKETS

Although traditional suburb-to-CBD commuters are Metra's primary market, Metra has also seen a demand for city-to-suburb reverse-commute options (Metra's primary commuter market is discussed in the Central Business District Market chapter). The shift of employment to suburban locations has left many commuters with limited transit accessibility to jobs. Figure 3 shows AM alightings at non-CBD MD-N stations.

Employment in outer MD-N marketsheds, from Northbrook north, is expected to increase 21% between 2020 and 2050 (see Table 7). Growth in suburban employment centers has been linked to increased reverse commuting, suggesting that this type of trip pattern will continue to increase on the MD-N Line.

MAJOR CAPITAL PROJECTS ALONG THE MD-N

Since 1985, Metra has invested \$670 million (in year of expenditure dollars) in improvements to the MD-N Line. Table 1 indicates the amount of investment in different asset categories. Metra has completed improvements at a number of MD-N stations, including the addition of three new infill stations and improvements at a number of existing stations. Over the years, Metra has partnered with Amtrak, owner of CUS, to complete a number of upgrades to the terminal's commuter facilities. For more information on proposed CUS improvements, see the CBD chapter of this report.

As part of implementation of Positive Train Control (PTC), a new signal system was installed along track between Rondout and Fox Lake for the transmission of voice, signal data, corporate data, video, and PTC data. The construction of six new control points has greatly improved efficiency through the remote dispatching of switches. Dispatching and track switching on the entire MD-N Line is now controlled from a centralized traffic control center following the center's completion in late 2018.

The construction of a siding between Rondout and Libertyville was completed in 2017, which will provide increased operational flexibility on a 17-mile section of single track.

MD-N ACCESSIBILITY IMPROVEMENTS

Most MD-N stations now comply with the accessibility requirements of the Americans with Disabilities Act (ADA), and approximately 96% of MD-N weekday boardings took place at these accessible stations. Metra's station

Terms Defined

"Reverse Commuting" refers to riders who regularly travel in the opposite direction of most commuters. For Metra riders, this refers to people who are travelling away from the Loop during the AM Peak and toward the Loop during the PM Peak.

"Alighting Riders" are those who get off the train. They are the opposite of a "boarding rider."

ADA-compliance program started with designating ten of the busiest MD-N stations, including CUS, as “key stations,” all of which were made fully accessible by 2007. Since 1985, Metra has completed access improvements at 12 non-downtown MD-N stations, and 17 outlying stations on the line are now fully accessible to disabled riders. In September 2019, Metra completed the renovation of the Healy Station, which was made fully ADA-compliant. Metra will bring the remaining stations into full ADA compliance as they are rehabilitated so that eventually all stations will be accessible.

FIGURE 4: ORIGINS OF RIDERS USING NON-CBD MD-N STATIONS

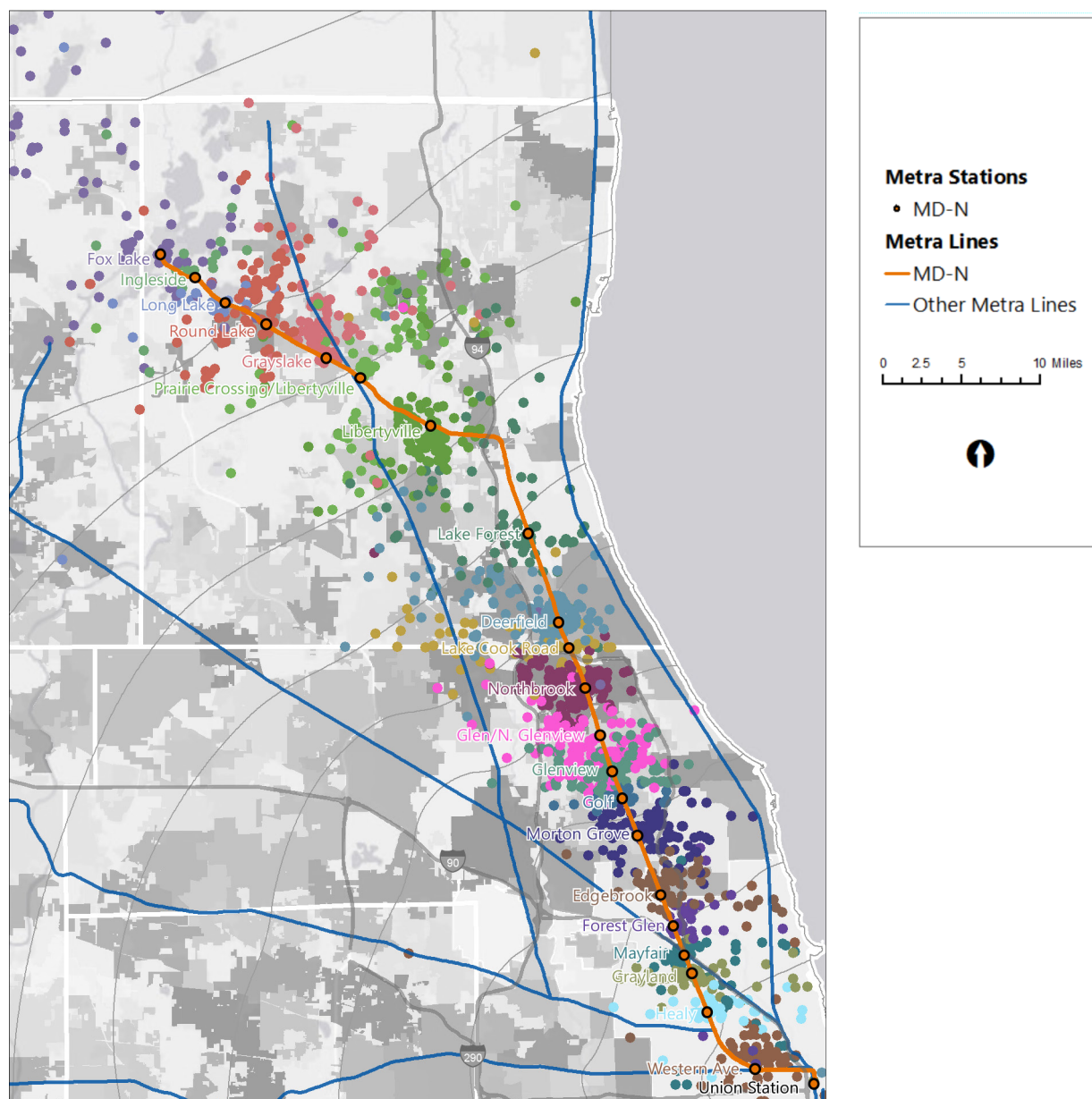


TABLE 5: MD-N CORRIDOR POPULATION

Station	Fare Zone	Area Sq. Mi.	Population in Zone			Percent Change	
			2010	2020	2050	2010 vs 2020	2020 vs 2050
Union Station, Western Ave.	A	3.6	60,407	59,736	65,410	-1%	9%
Healy, Grayland, Mayfair	B	9.2	199,644	184,832	190,961	-7%	3%
Forest Glen, Edgebrook, Morton Grv.	C	19.4	114,595	116,199	127,638	1%	10%
Golf, Glenview, Glen/N. Glenview	D	20.5	64,305	72,586	83,240	13%	15%
Northbrook, Lake Cook Rd, Deerfield	E	22.9	59,670	58,352	65,919	-2%	13%
Lake Forest	F	14.6	14,607	12,706	14,954	-13%	18%
Libertyville, Prarie Crossing	H	35.3	50,492	50,664	61,984	0%	22%
Grayslake, Round Lake	I	30.8	44,191	45,637	58,625	3%	28%
Long Lake, Ingleside, Fox Lake	J	83.6	60,918	70,659	91,460	16%	29%
MD-N TOTAL		239.9	668,829	671,371	760,191	0%	13%
REGION TOTAL		3,748.0	8,523,863	8,672,509	10,354,840	2%	19%

TABLE 6: MD-N CORRIDOR HOUSEHOLDS

Station	Fare Zone	Area Sq. Mi.	Households in Zone			Percent Change	
			2010	2020	2050	2010 vs 2020	2020 vs 2050
Union Station, Western Ave.	A	3.6	24,034	27,865	29,730	16%	7%
Healy, Grayland, Mayfair	B	9.2	63,137	64,016	65,162	1%	2%
Forest Glen, Edgebrook, Morton Grv.	C	19.4	43,406	44,957	52,736	4%	17%
Golf, Glenview, Glen/N. Glenview	D	20.5	23,727	28,745	35,877	21%	25%
Northbrook, Lake Cook Rd, Deerfield	E	22.9	21,562	23,053	28,297	7%	23%
Lake Forest	F	14.6	4,897	4,792	6,105	-2%	27%
Libertyville, Prarie Crossing	H	35.3	18,431	19,822	25,407	8%	28%
Grayslake, Round Lake	I	30.8	14,937	15,981	21,707	7%	36%
Long Lake, Ingleside, Fox Lake	J	83.6	21,660	27,836	38,100	29%	37%
MD-N TOTAL		239.9	235,791	257,067	303,121	9%	18%
REGION TOTAL		3,748.0	3,100,987	3,341,064	4,140,227	8%	24%

TABLE 7: MD-N CORRIDOR EMPLOYMENT

Station	Fare Zone	Area Sq. Mi.	Employment in Zone			Percent Change	
			2010	2020	2050	2010 vs 2020	2020 vs 2050
Union Station, Western Ave.	A	3.6	88,493	108,121	116,366	22%	8%
Healy, Grayland, Mayfair	B	9.2	33,978	31,810	33,981	-6%	7%
Forest Glen, Edgebrook, Morton Grv.	C	19.4	77,452	77,001	83,912	-1%	9%
Golf, Glenview, Glen/N. Glenview	D	20.5	33,792	39,554	45,420	17%	15%
Northbrook, Lake Cook Rd, Deerfield	E	22.9	77,456	49,771	55,310	-36%	11%
Lake Forest	F	14.6	21,720	15,083	17,103	-31%	13%
Libertyville, Prarie Crossing	H	35.3	28,289	24,188	29,470	-14%	22%
Grayslake, Round Lake	I	30.8	12,055	13,157	17,935	9%	36%
Long Lake, Ingleside, Fox Lake	J	83.6	14,644	12,118	19,492	-17%	61%
MD-N TOTAL		239.9	387,879	370,803	418,989	-4%	13%
REGION TOTAL		3,748.0	4,141,355	4,231,961	4,945,892	2%	17%

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TABLE 8: MAJOR TRIP GENERATORS ACCESSIBLE ALONG THE MD-N CORRIDOR

Generator Type	Name	Comments	Municipality
Colleges and Universities	Wilbur Wright College	One of the City Colleges of Chicago; 10,200 students	Chicago
	Hebrew Theological College	340 students	Skokie
	College of Lake County - Grayslake campus	Community college; 1 of 3 campuses	Grayslake
Culture and Entertainment	Wrigley Field	Chicago Cubs' historic ballpark; capacity 41,000	Chicago
	Kohl Children's Museum	46,700 sq. ft. children's museum	Glenview
	Marytown	Catholic shrine and retreat center	Libertyville
	Lake County Fairgrounds	Hosts several events throughout the year	Grayslake
Shopping	Golf Mill Shopping Center	Regional shopping center	Niles
	The Glen Town Center	Lifestyle center	Glenview
	Northbrook Court	Super-regional mall	Northbrook
	Deerfield Square	Lifestyle center	Deerfield
	Westfield Hawthorn Mall	Super-regional mall	Vernon Hills
Government	Cook County Juvenile Court	28 courtrooms and juvenile temporary detention center	Chicago
	Cook County District 2 Courthouse	Cook County courthouse and administrative offices	Skokie