



Existing Conditions Report

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Existing Conditions

The multimodal transportation system serving Lake County was evaluated to establish an existing conditions profile as part of Lake County Division of Transportation's (LCDOT) Envision 2050 Long Range Transportation Plan (LRTP). This existing conditions profile acts to identify the existing multimodal transportation issues and needs in Lake County, providing a baseline scenario that can be used to evaluate how future forecasted growth and development within the County could impact future multimodal safety, operations, and asset conditions.

The existing conditions profile reviews multimodal transportation through the various components of the County's existing system:

- **Roadway:** Traffic safety and traffic operations.
- **Infrastructure Conditions:** Conditions of existing pavement, bridge structures, and Lake County's Intelligent Transportation System infrastructure.
- **Bicycle and Pedestrian:** Existing bicycle and pedestrian facilities and their usage.
- **Transit:** Public transit services operating within Lake County, including Pace, Metra, and Ride Lake County.
- **Freight:** Key highway, rail, and air freight facilities located within Lake County.

Roadway System

Lake County's roadway network serves as a vital component of the overall transportation system, facilitating access and mobility for residents, businesses, and visitors. This section outlines the current state of the roadway infrastructure, such as roadway classifications, traffic safety, and traffic operations.

Roadway Classifications

FUNCTIONAL CLASSIFICATIONS

The roadway functional classification system was developed by the Federal Highway Administration (FHWA) and was implemented by the Illinois Department of Transportation (IDOT) in Illinois as the DOT's 5-Year Functional Classification System. The system categorizes roads based on their intended purpose and design. It helps guide transportation planning, design, and funding decisions by identifying how each roadway serves the movement of people and goods.

Functional classifications for roadways in Lake County are shown in **Figure 1** and defined as follows¹:

- **Interstate routes** are designed for high-speed, long-distance travel and regional connectivity. They are fully access controlled, divided highways which form part of the national transportation network.

¹ Chicago Metropolitan Agency for Planning, [Roadway Functional Classification Guidebook](#)

- **Freeways and Expressways** are roadways designed and constructed for efficient travel over longer distances within and between urban areas. Like interstates, they offer high mobility and limited access to adjacent properties.
- **Other Principal Arterials** serve major development centers and offer a high degree of mobility while allowing direct access to adjacent land uses. They function similarly in both urban and rural contexts, supporting significant travel demand and connecting key destinations.
- **Minor Arterials** support moderate length trips and serve smaller geographic areas than principal arterials. In urban areas, they enhance connectivity between communities and higher-level roadways. In rural areas, they provide inter-regional or inter-county service.
- **Major and Minor Collectors** gather traffic from local roads and distribute it to arterial routes. They primarily serve intra-county travel and different route lengths. Major collectors serve longer routes with higher traffic volumes, higher speed limits, and more travel lanes. Minor collectors serve shorter routes with lower traffic volumes, lower speed limits, and smaller communities.
- **Local Roads or Streets** provide direct access to properties and connect them to higher classified routes. These roads offer the lowest level of mobility, serve the shortest trip lengths, and are designed with low speeds and frequent access points.

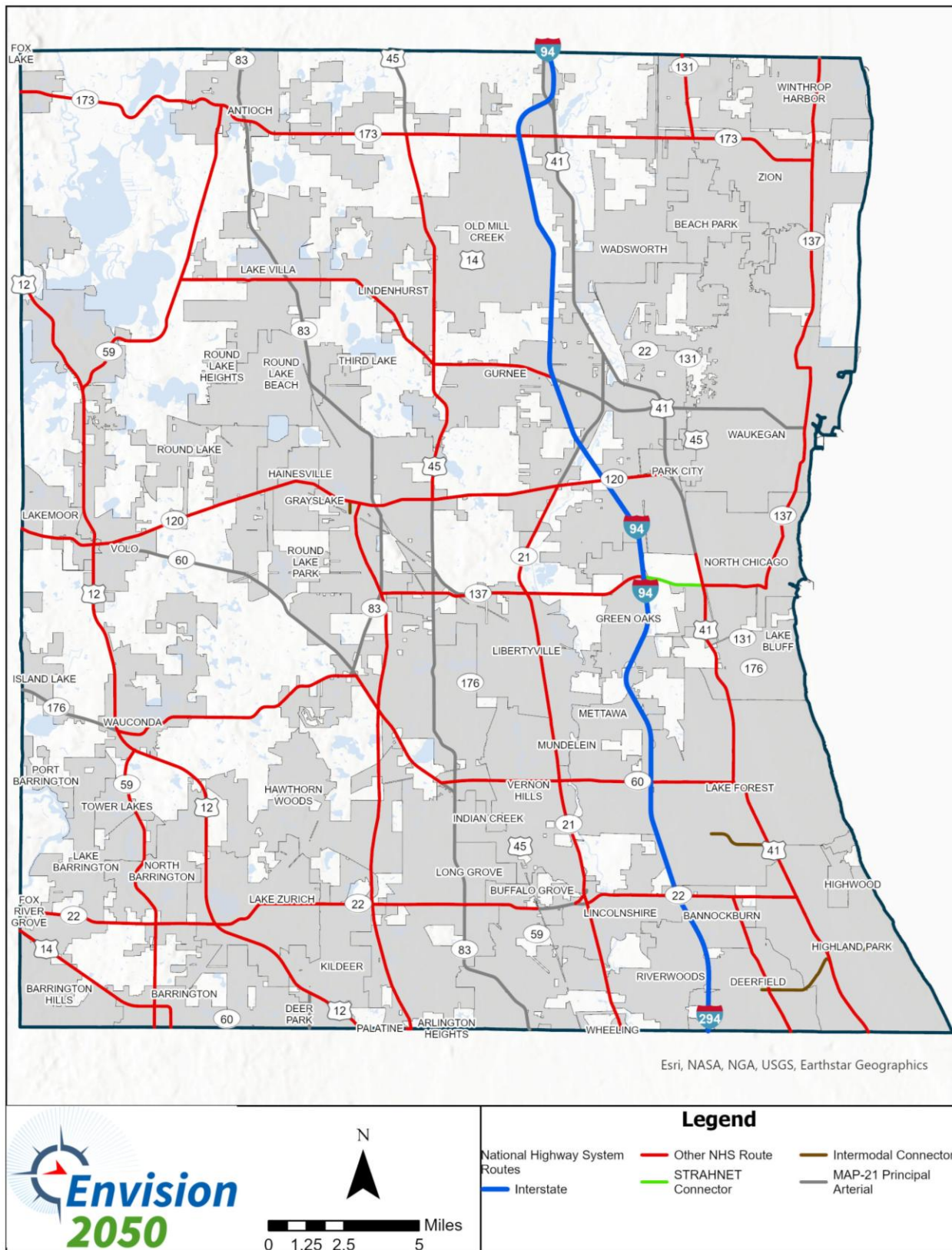
NATIONAL HIGHWAY SYSTEM

The National Highway System (NHS) is a network of roads that supports the United States' economy, national defense, and overall transportation efficiency. NHS routes in Lake County are shown in **Figure 2** and defined as follows²:

- **Interstates** are part of the Eisenhower Interstate System and maintain a separate identity within the NHS.
- **Other Principal Arterials** connect rural and urban areas to major transportation hubs such as ports, airports, and transit centers.
- **Strategic Highway Network (STRAHNET)** supports the national defense by ensuring military access and emergency readiness.
- **Major Strategic Highway Network Connectors** link key military facilities to the STRAHNET system.
- **Intermodal Connectors** connect major intermodal facilities to the rest of the NHS.
- **MAP-21 Principal Arterials** facilitate connectivity between major population centers on urban and rural roads not already categorized.

² U.S. Department of Transportation Federal Highway Administration, [National Highway System](#)

Figure 2: National Highway System Routes in Lake County



Source: Federal Highway Administration

ROADWAYS BY JURISDICTION

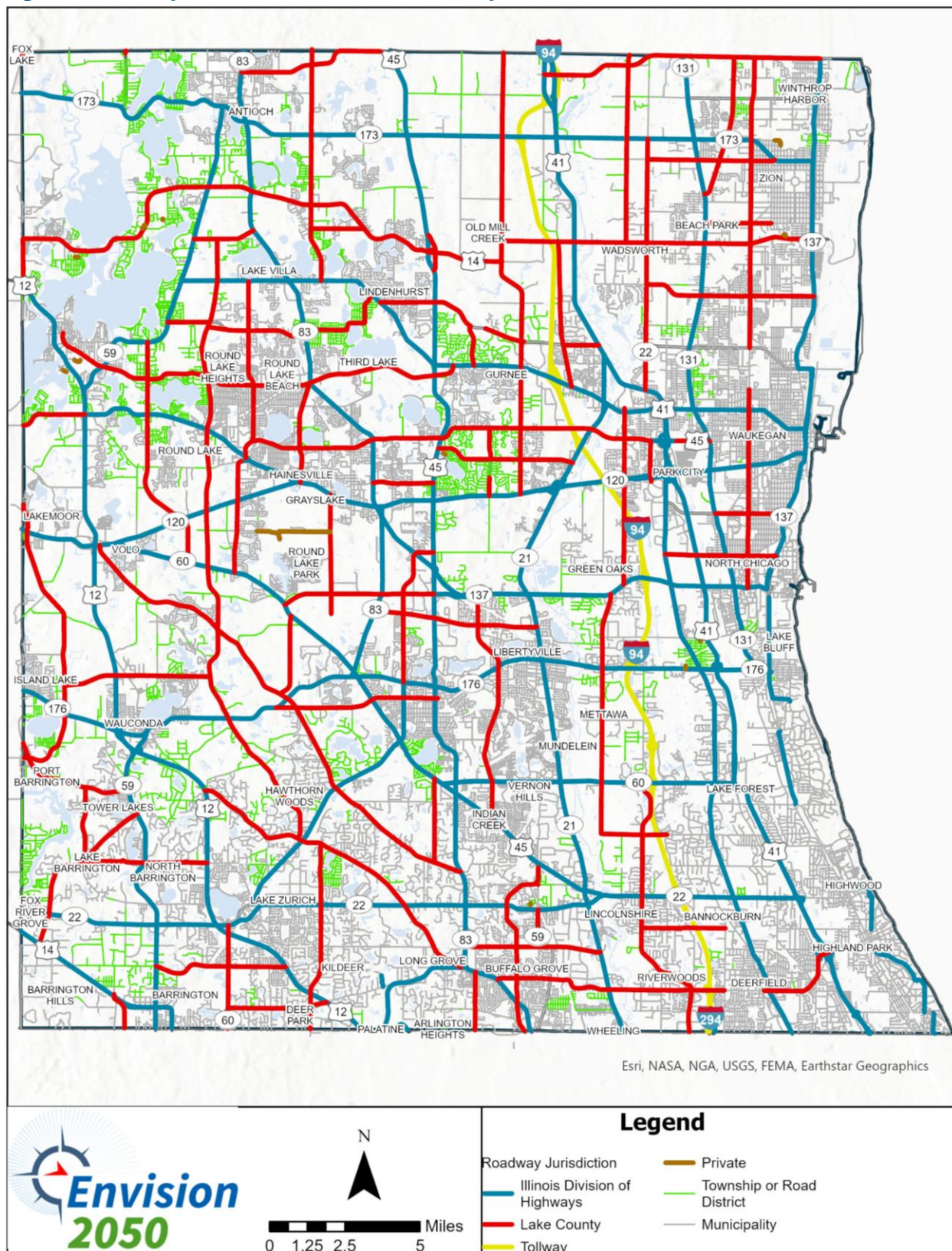
Roadways are constructed, maintained, and repaired by various government agencies. Roads fall under state, county, township, municipality, and private jurisdiction. Roadway jurisdictions in the Lake County region are shown in **Figure 3** and defined as follows along with agency names³:

- **State highways** are under the authority of the Illinois Department of Transportation.
 - **State Agencies:** Illinois Department of Transportation.
- **County highways** must meet criteria set by Illinois state law, be officially designated by the county board, and receive approval from the state. The Lake County highway system is more than 300 centerline miles of major collector arterial⁴.
 - **County Agencies:** Lake County Division of Transportation.
- **Township roads** are located outside of municipal boundaries that are not classified as state or county highways.
 - **Townships:** Antioch, Avon, Benton, Cuba, Ela, Fremont, Grant, Lake Villa, Libertyville, Moraine, Newport, Shields, Vernon, Warren, Wauconda, Waukegan, West Deerfield, and Zion.
- **Municipal roads** typically serve residential areas and subdivisions, providing local access.
- **Local Agencies** are under the authority of cities and villages.
- **Tollways** comprise the network of roadways operated and maintained under the authority of the Illinois State Toll Highway Authority.
- **Private / non-dedicated roads** are roads that are not maintained by a governmental agency.

³ Lake County, [Cities, Townships & Villages](#)

⁴ Lake County Division of Transportation, [Jurisdiction: Whose Road Is It?](#)

Figure 3: Roadway Jurisdictions within Lake County



Source: Illinois Department of Transportation

0 1.25 2.5 5 Miles

Legend

- Private
- Township or Road District
- Municipality

Table 1 summarizes the total mileage of Lake County’s roadway system by 5-year functional classification for state, toll, county, township, and local roadways. In addition to total mileage, the table includes the percentages of mileage by functional classification maintained under each jurisdiction category, while the total row provides the percentage of overall roadway mileage maintained under each jurisdiction category relative to the 3,383 miles of Lake County’s total roadway system mileage. Today, there are nearly 3,400 miles of roadways in Lake County which indicates nearly 500 miles of roadways have been added to the system since the adoption of Lake County’s 2040 LRTP. For 2024, local roadways comprise the largest share of system mileage with 2,243 miles of roadways while state routes make up the second largest proportion of system mileage with 328 miles. County-owned mileage totals 290 miles.

Table 1: Total Roadway System Mileage by 5-Year Functional Classification in Lake County, 2024

Classification	State System	Toll System	County System	Township System	Local System	Total
Interstate	1.1 (0.3%)	24.4 (100%)	0 (0%)	0 (0%)	0 (0%)	25.6 (0.8%)
Freeway/Expressway	3.1 (1.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3.1 (0.1%)
Other Principal Arterial	251.1 (76.5%)	0 (0%)	2.1 (0.7%)	0 (0%)	0 (0%)	253.2 (7.5%)
Minor Arterial	64.6 (19.7%)	0 (0%)	238.9 (82.3%)	8.5 (1.7%)	51.0 (2.3%)	363.1 (10.7%)
Major Collector	4.1 (1.2%)	0 (0%)	44.7 (15.4%)	20.1 (4.0%)	204.8 (9.1%)	273.6 (8.1%)
Minor Collector	1.6 (0.5%)	0 (0%)	1.3 (0.4%)	5.6 (1.1%)	44.8 (2.0%)	53.2 (1.6%)
Local	2.5 (0.8%)	0 (0%)	3.1 (1.1%)	463.3 (93.1%)	1,942.8 (86.6%)	2,411.7 (71.3%)
Total	328.1 (9.7%)	24.4 (0.7%)	290.1 (8.6%)	497.5 (14.7%)	2,243.33 (66.3%)	3,383.4 (100.0%)

Source: Illinois Department of Transportation, [2024 Illinois Highway and Street Mileage Statistics](#)

Safety

Crash data was obtained from the Illinois Department of Transportation (IDOT) for the most recent five-year dataset (2020-2024). This data was reviewed to gain an understanding of Lake County traffic safety and to identify potential safety countermeasures that could improve future traffic safety.

The data contains a variety of variables, including year, month, day of the week, location, severity, number of injuries, crash type, and environmental conditions, among others. While these variables provide significant insight into traffic safety conditions, the analysis described in this section focuses on crash trends related to time, location, severity, and crash type.

It is noted that particular attention is paid to observing the trends between crashes in urbanized areas (incorporated areas) and rural areas (unincorporated areas within townships). Further emphasis is also placed on fatal and serious injury crashes, which are the focus of Lake County’s [Safety Action Plan \(SAP\)](#), completed in 2025 and provided the foundation of the safety analysis for Envision 2050. The SAP provides a roadmap to reduce and eliminate serious injury and fatal

crashes by having a Safe System Approach that develops countermeasures and recommendations to improve safety performance. The five critical areas of safety that the Safe System Approach focuses on are as follows:

- **Safer Vehicles**
- **Safer Speeds**
- **Safer Roads**
- **Post-Crash Care**
- **Safer People**

IDOT categorizes crash severities into one of five categories. Severity can refer to the crash itself (i.e., an A injury crash) as well as to the result of the injury to individuals involved (i.e., a crash resulting in one A injury and two B injuries). The severity categories include⁵:

- **K – Fatality:** A death that results from a traffic crash within 30 days of the crash.
- **A – Incapacitating or serious injury:** Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person could perform before the injury occurred. Type A injuries commonly include severe lacerations, broken limbs, skull or chest injuries, and abdominal injuries.
- **B – Non-incapacitating injury:** Any injury, other than a fatal or incapacitating injury, which is evident to observers at the scene of the crash. Type B injuries might include a lump on the head, abrasions, bruises, and minor lacerations.
- **C – Possible injury:** Any injury reported or claimed that is not an incapacitating, non-incapacitating, or fatal injury. Type C injuries may include momentary unconsciousness, claims of injuries not evident, limping, complaints of pain, nausea, and hysteria.
- **PDO – Property Damage Only:** No indication of injury, property damage only.

Within Lake County, a total of 58,910 crashes and 14,417 total fatal and injury crashes were reported from 2020 to 2024.

CRASH TRENDS OVER TIME

Crash data for the years 2016 through 2024 was obtained from IDOT to conduct a trailing five-year analysis. The longer time frame was reviewed to gain an understanding of longer-term trends in total crashes, as well as fatal and serious injuries within Lake County.

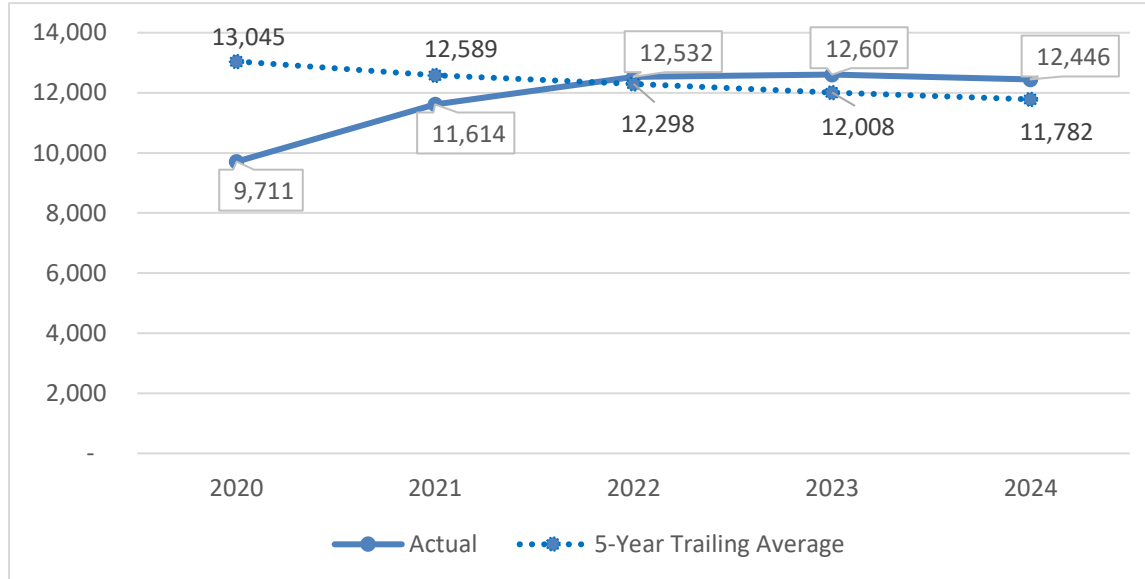
Total Crashes by Year

Figure 4 shows total crashes by year along with 5-year trailing averages. While actual crash volumes increased from 9,711 in 2020 to a peak of 12,607 in 2023 and then declined to 12,446 in 2024, the trailing average shows a consistent downward trend, decreasing from 13,045 in 2020 to 11,782 in 2024, this is a reduction of approximately 9.7%. This explains that although short-term fluctuations have occurred, overall crash rates have declined over the past decade. This occurs because the trailing average includes earlier crash years where crash rates were higher and it

⁵ Federal Highway Administration, [KABCO Injury Classification Scale and Definitions](#).

gradually replaces those values with lower crash years. These lower crash years are likely due to the COVID-19 pandemic and reduced roadway activity nationwide.

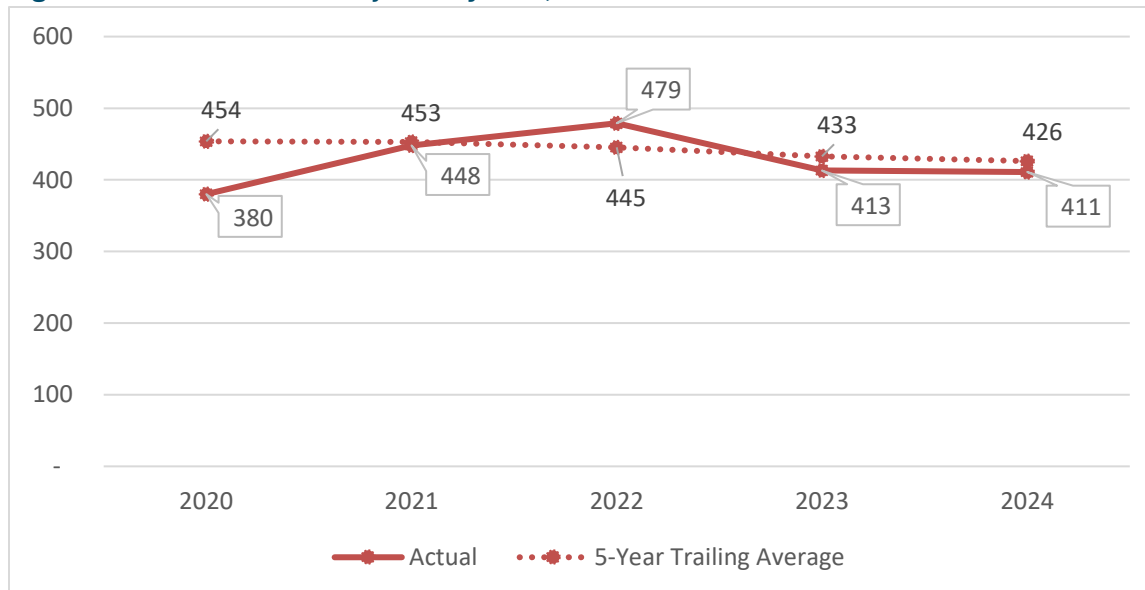
Figure 4: Crashes by Year, 2015-2024



Fatal and Serious Injuries by Year

Figure 5 shows fatal and serious injuries by year along with 5-year trailing averages. While actual fatal and serious injuries increased from 380 in 2020 to a peak of 479 in 2022 and then declined to 411 in 2024, the trailing average shows a consistent downward trend, decreasing from 454 in 2020 to 426 in 2024, this is a reduction of approximately 6.2%. This explains that although short-term fluctuations have occurred, overall fatal and serious injury rates have declined over the past decade like total crashes.

Figure 5: Fatal and Serious Injuries by Year, 2015-2024



CRASHES BY SEVERITY

Table 2 summarizes Lake County crashes by severity and **Figure 6** illustrates the location of all injury crashes in Lake County from 2020 to 2024. Fatal and serious injury crashes accounted for 2.9% of total crashes in Lake County. The elimination of these crashes by 2050 is the primary goal of Lake County’s Safety Action Plan.

Table 2: Crashes by Severity, 2020-2024

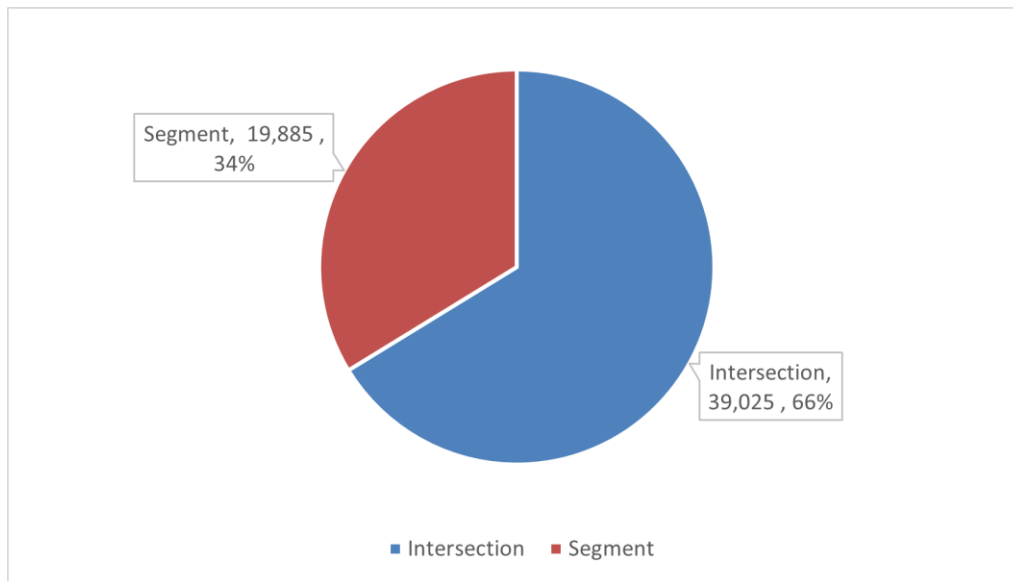
	Number of Crashes	% of All Crashes
Fatal Crash	248	0.4%
A Injury Crash	1,480	2.5%
B Injury Crash	6,732	11.4%
C Injury Crash	5,957	10.1%
PDO Crash	44,493	75.5%

CRASHES BY LOCATION

Intersection vs Segment

Intersections are the most common locations for Lake County crashes, accounting for 66 percent of all crashes. Segment crashes make up 34 percent of all crashes. This highlights the need for targeted safety improvements and traffic control measures at intersections. **Figure 7** presents Lake County crashes by location (segment/intersection).

Figure 7: Crashes by Location (Segment/Intersection), 2020-2024



Urban vs Rural

Most crashes in Lake County occurred in urban areas. As shown in **Table 3**, about 94 percent of all crashes and 92 percent of fatal and serious injury crashes occurred in urban areas. While more fatal and serious injury crashes occur in urban areas, rural crashes tend to be more severe, indicating a higher likelihood of fatal or serious injuries when crashes do occur in rural settings.

Table 3: Crashes by Location (Urban/Rural), 2020-2024

	All Crashes	% of All Crashes	K/A Crashes	% of K/A Crashes	K/A Crashes as Share of Total Crashes
Rural	3,605	6.1%	138	8.0%	3.8%
Urban	55,305	93.9%	1,590	92.0%	2.9%
Total	58,910	100%	1,728	100%	

Roadway Jurisdiction

Entities that have jurisdiction over roadways design and maintain their networks differently. In addition to differing design standards, roadway jurisdiction tends to correlate with variables such as roadway width, number of lanes, speed limit, driveway access, intersection frequency, and adjacent land uses.

The analysis of Lake County crashes by roadway jurisdiction shows that the highest number and percentage of crashes (23,680; 40 percent) occurred on state roads, followed by 19,188 (33 percent) crashes on municipal roads, 11,756 (20 percent) crashes on county roads, and 4,286 (7 percent) on other roads.

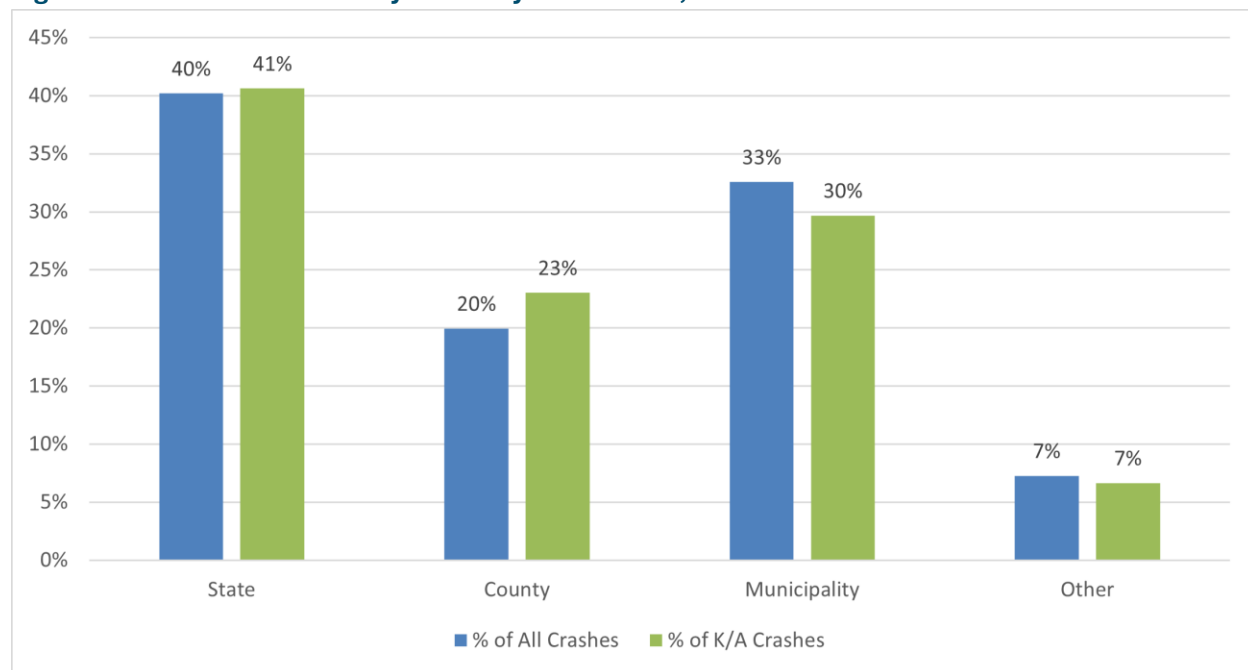
For fatal and serious injury crashes, state routes accounted for 41 percent, municipal routes accounted for 30 percent, county routes accounted for 23 percent, and other routes accounted for 7 percent. This data indicates that fatal and serious injury crashes occur at a higher rate on state and county routes compared to all crashes and should be prioritized for safety improvements.

Table 4 and **Figure 8** present Lake County crashes by roadway jurisdiction.

Table 4: Crashes by Roadway Jurisdiction, 2020-2024

	All Crashes	% of All Crashes	K/A Crashes	% of K/A Crashes	K/A Crashes of Share of Total Crashes	% of County Roadway Mileage
State	23,680	40%	702	41%	3%	9.7%
County	11,756	20%	398	23%	3%	8.6%
Municipality	19,188	33%	513	30%	3%	66.3%
Other	4,286	7%	115	7%	3%	15.4%
Total	58,910	100%	1,728	100%		

Figure 8: Percent of Crashes by Roadway Jurisdiction, 2020-2024



Crashes were also analyzed to identify trends related to where they occurred within Lake County’s urban and rural areas. Most urban crashes occurred on state and municipal routes, with a large portion also occurring on county routes. In contrast, rural crashes occurred outside municipalities, on state and county routes. This pattern demonstrates that urban crash mitigation should focus on state and municipal routes while rural crash mitigation should focus on state and county routes.

Table 5 presents Lake County urban and rural crashes by roadway jurisdiction.

Table 5: Crashes by Roadway Jurisdiction and Location (Urban/Rural), 2020-2024

	Urban	Rural	Total
State	22,145	1,535	23,680
County	10,672	1,084	11,756
Municipality	18,952	236	19,188
Other	3,536	750	4,286
Total	55,305	3,605	58,910

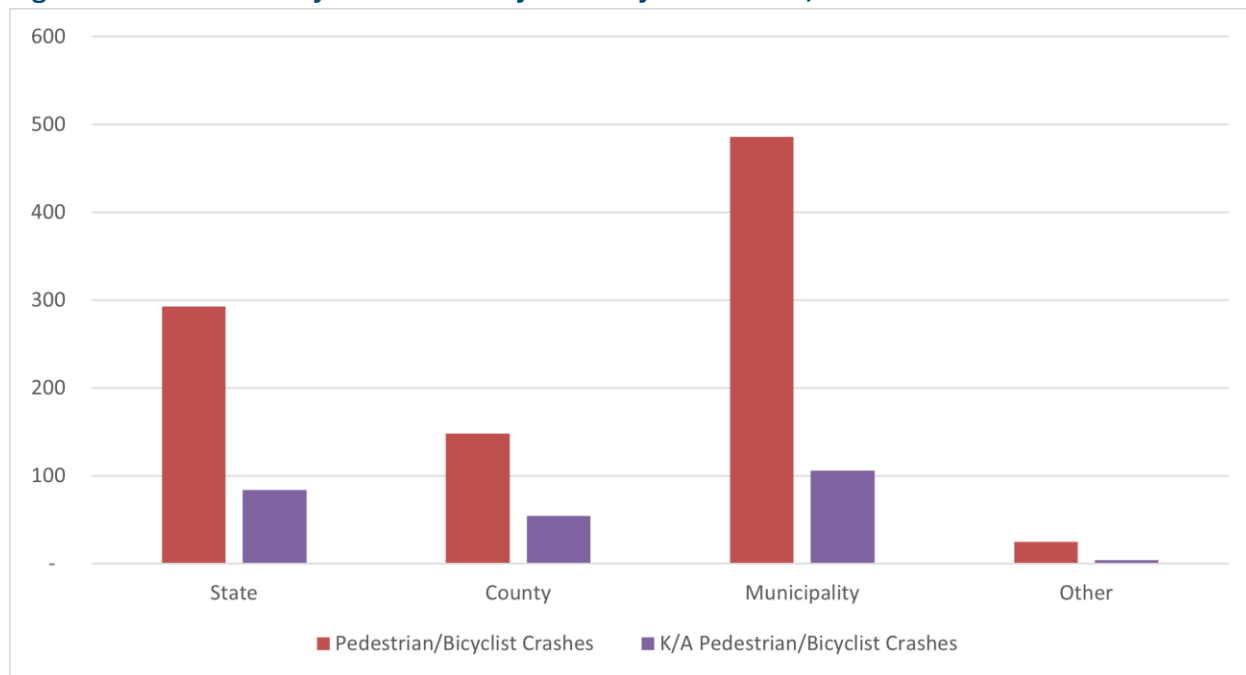
Ped/Bike Crashes by Roadway Jurisdiction

A total of 486 pedestrian/bicyclist crashes occurred on municipal roads, 293 crashes occurred on state roads, 148 crashes occurred on county roads, and 25 crashes occurred on other roads. Although municipal roads account for the highest number of crashes, county roads have the highest percentage of fatal and serious injury crashes relative to their total crash count. This suggests that while municipal roads see more incidents, county roads may pose greater risks to vulnerable road users. **Table 6** and **Figure 9** summarize Lake County pedestrian/bicyclist crashes by roadway jurisdiction.

Table 6: Pedestrian/Bicyclist Crashes by Roadway Jurisdiction, 2020-2024

	Pedestrian / Bicyclist Crashes	% of Pedestrian / Bicyclist Crashes	K/A Pedestrian / Bicyclist Crashes	% of K/A Pedestrian / Bicyclist Crashes	K/A Pedestrian/Bicyclist Crashes as Share of Pedestrian/Bicyclist Crashes
State	293	31%	84	34%	28.7%
County	148	16%	54	22%	36.5%
Municipality	486	51%	106	43%	21.8%
Other	25	3%	4	2	16.0%
Total	952	100%	248	100%	

Figure 9: Pedestrian/Bicyclist Crashes by Roadway Jurisdiction, 2020-2024



INJURY CRASHES BY COLLISION TYPE

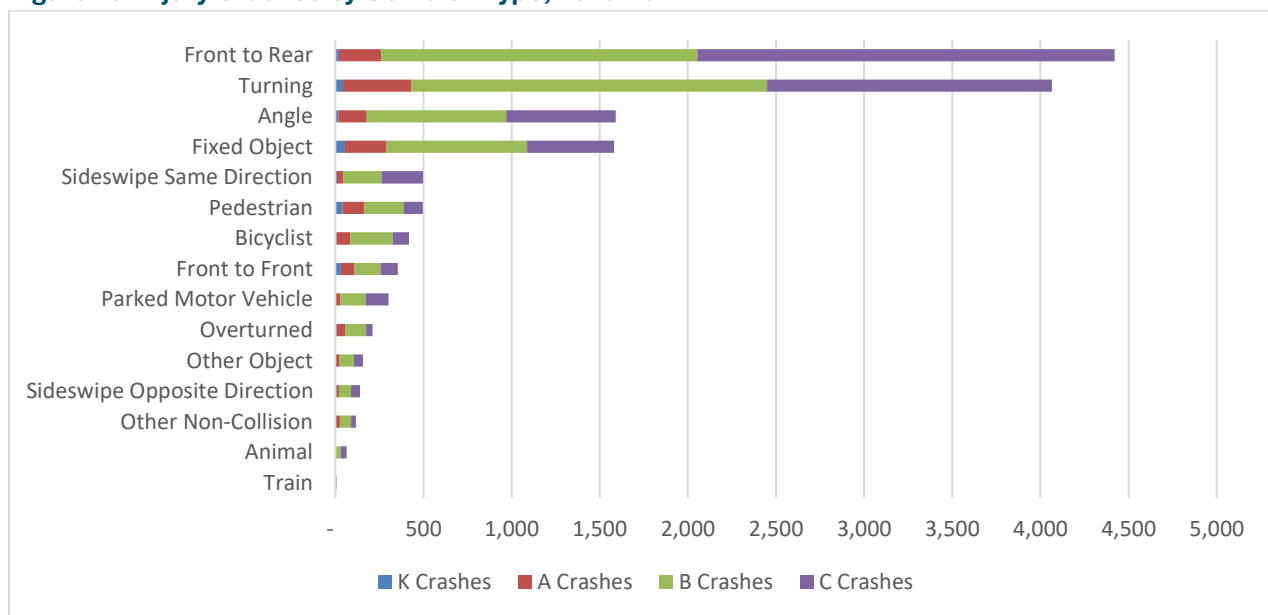
The analysis of injury crashes by collision type from 2020 to 2024 indicates front to rear crashes are the most common type of injury crashes in Lake County. There were 4,421 front to rear injury crashes accounting for 28 percent of injury crashes, 1,591 angle injury crashes accounting for 11 percent of injury crashes, and 1,581 fixed object injury crashes accounting for 11 percent of injury crashes. There were 913 pedestrian/bicyclists' injury crashes accounting for 6.3 percent of injury crashes and 497 sideswipe same direction injury crashes, which accounted for about 3.4 percent of injury crashes. All other collision types comprised the remaining 9.3 percent of injury crashes.

While front to rear crashes make up the largest percent of injury crashes (31 percent), that percentage drops by more than half when only considering the percentage of fatal and serious injury crashes, indicating that although this type of injury crash is prevalent, they are less likely to result in severe injury. Fixed object, pedestrian, and front to front crashes account for a disproportionately high percentage of fatal and serious crashes when compared to their percentage of total injury crashes, indicating these crashes are more likely to result in severe injury. This suggests that while rear end collisions are prevalent, targeted safety efforts should focus on collision types with higher severity rates to effectively reduce serious injuries and fatalities. **Table 7** and **Figure 10** present Lake County injury crashes by collision type.

Table 7: Injury Crashes by Collision Type, 2020-2024

Collision Type	K Crashes	A Crashes	B Crashes	C Crashes	Total Injury Crashes	% of K/A Crashes	% of Total Injury Crashes	Variance
Front to Rear	20	240	1,794	2,367	4,421	15.0%	30.7%	-15.6%
Turning	43	389	2,017	1,617	4,066	25.0%	28.2%	-3.2%
Angle	17	162	790	622	1,591	10.4%	11.0%	-0.7%
Fixed Object	54	236	798	493	1,581	16.8%	11.0%	5.8%
Sideswipe Same Direction	10	34	218	235	497	2.5%	3.4%	-0.9%
Pedestrian	41	123	223	109	496	9.5%	3.4%	6.1%
Bicyclist	8	76	242	91	417	4.9%	2.9%	2.0%
Front to Front	31	79	147	97	354	6.4%	2.5%	3.9%
Parked Motor Vehicle	2	27	144	128	301	1.7%	2.1%	-0.4%
Overtuned	8	47	119	37	211	3.2%	1.5%	1.7%
Other Object	1	23	82	50	156	1.4%	1.1%	0.3%
Sideswipe Opposite Direction	7	13	69	51	140	1.2%	1.0%	0.2%
Other Non-Collision	2	24	64	27	117	1.5%	0.8%	0.7%
Animal	-	6	25	32	63	0.3%	0.4%	-0.1%
Train	4	1	-	1	6	0.3%	0.0%	0.3%
Total	248	1,480	6,732	5,957	14,417	100.0%	100.0%	

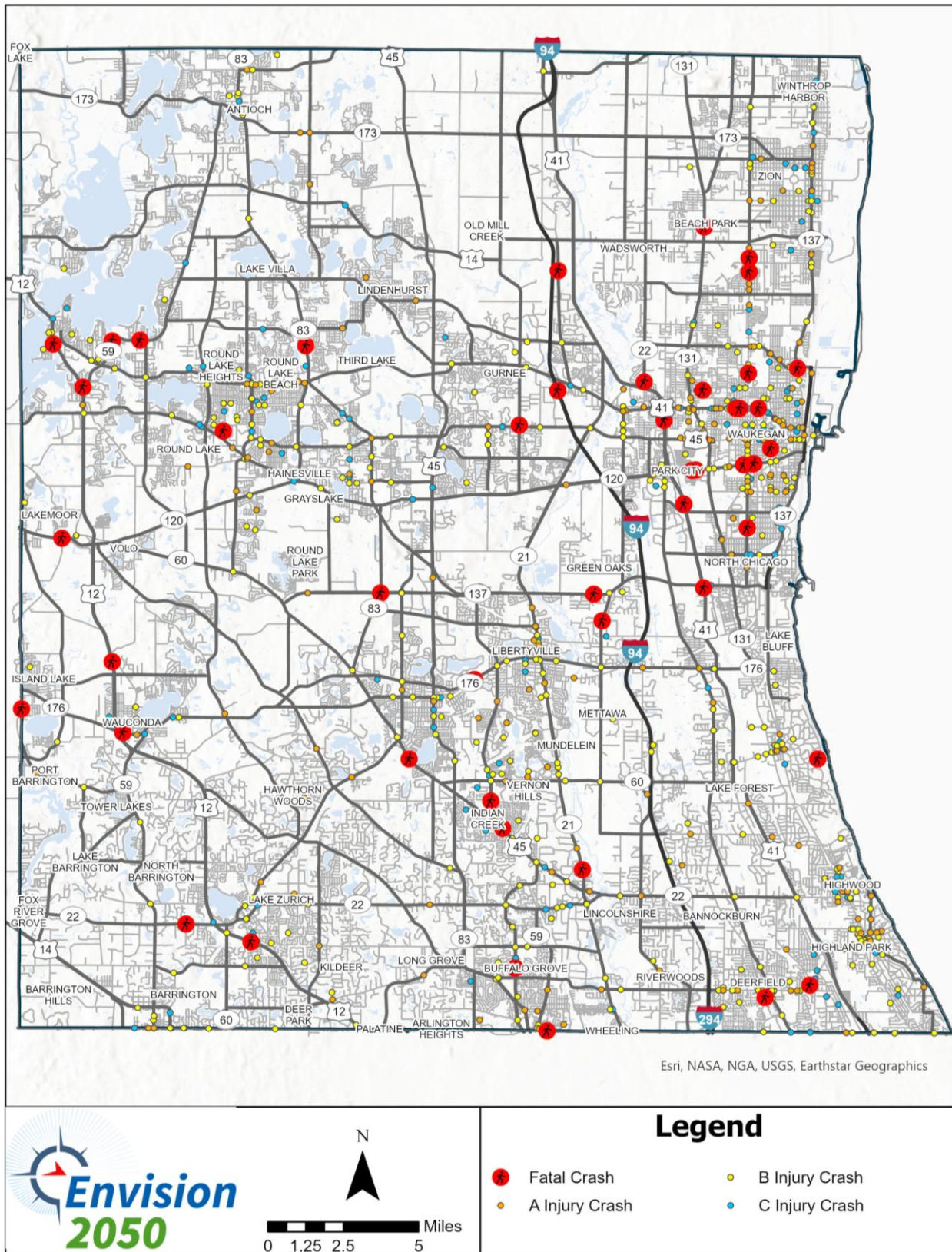
Figure 10: Injury Crashes by Collision Type, 2020-2024



CRASHES BY MODE TYPE

During the 5-year period from 2020 to 2024, Lake County recorded a total of 509 pedestrian crashes and 443 bicyclist crashes. A map highlighting only the injury crashes involving non-motorized users (pedestrians and bicyclists) is provided below in **Figure 11**. These crashes tend to be in the more densely populated areas of Lake County where sidewalk networks are more widespread. This pattern highlights the importance of enhancing safety infrastructure for non-motorized users in urban areas, particularly where pedestrian and bicyclist activity is highest.

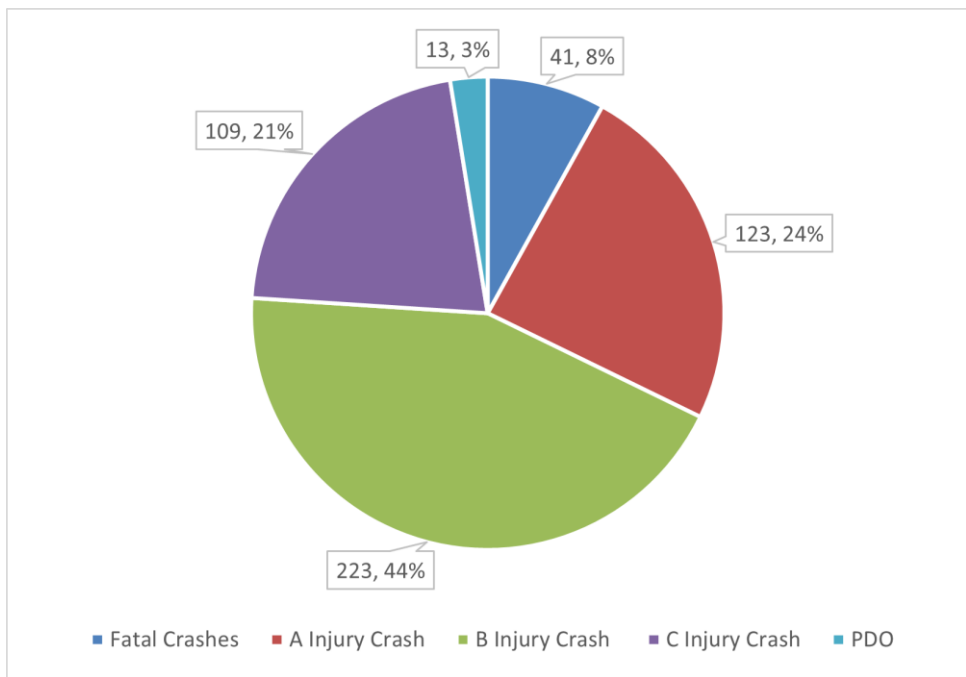
Figure 11: Injury Crash Location and Severity of Non-Motorized Crashes, 2020-2024



Pedestrian

The crash data indicates that 97 percent of pedestrian crashes resulted in injuries, and of these pedestrian crashes resulting in injury, 32 percent resulted in fatal/serious injuries which reinforces the elevated risk pedestrians face and the need for focused safety interventions. **Figure 12** summarizes Lake County pedestrian crashes by crash injury severity.

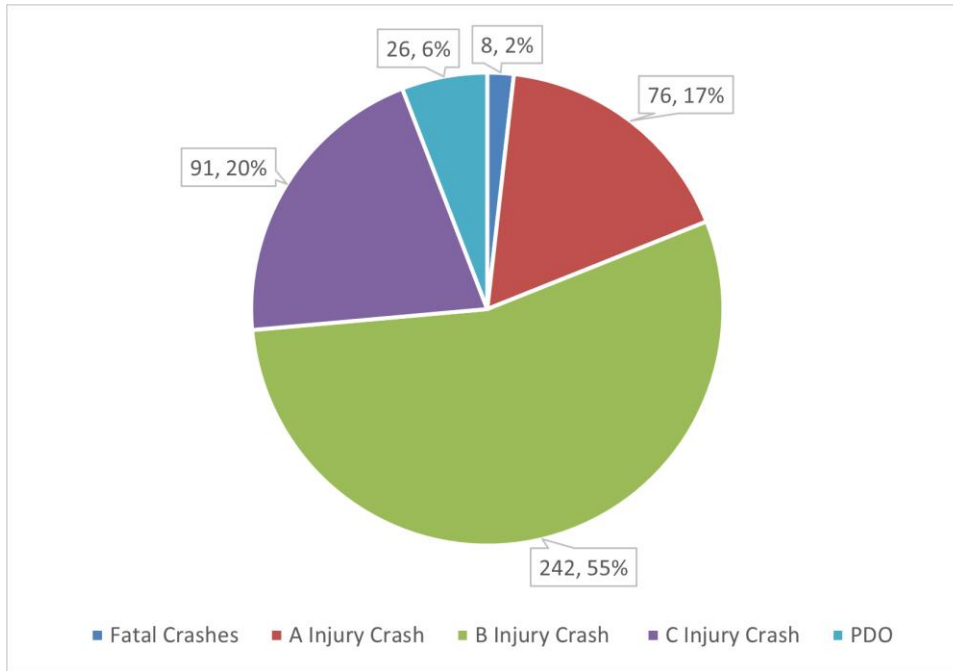
Figure 12: Pedestrian Crashes by Severity, 2020-2024



Bicyclist

The data indicates that 94 percent of bicyclist crashes resulted in injury, and of these bicycle crashes resulting in injuries, 19 percent resulted in fatal/serious injuries. This highlights the elevated vulnerability of cyclists and the need for targeted infrastructure and safety measures to reduce both the frequency and severity of bicyclist crashes. **Figure 13** summarizes Lake County bicyclist crashes by crash injury severity.

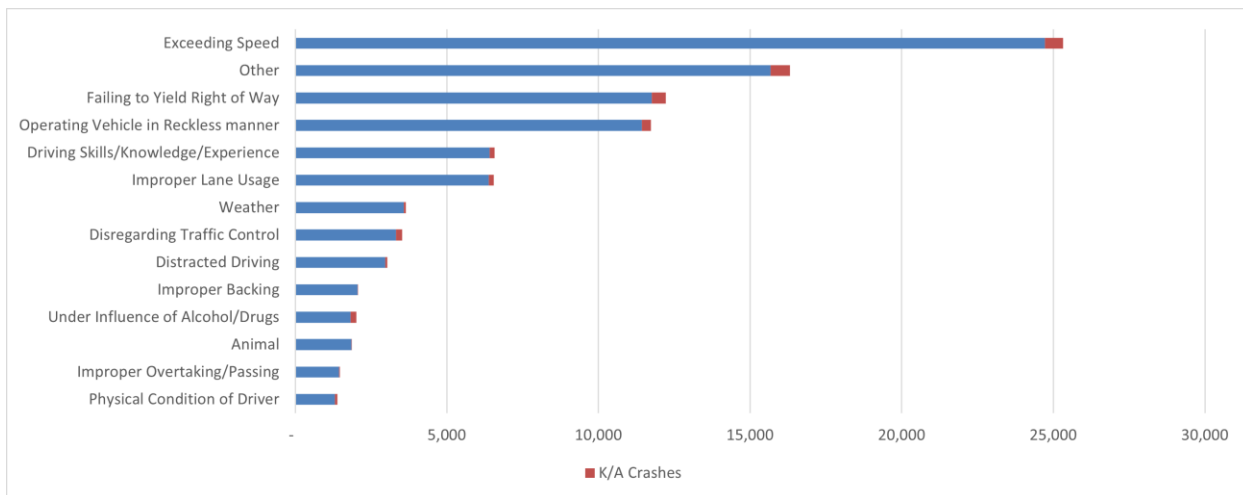
Figure 13: Bicyclist Crashes by Severity, 2020-2024



CRASHES BY POTENTIAL CAUSE

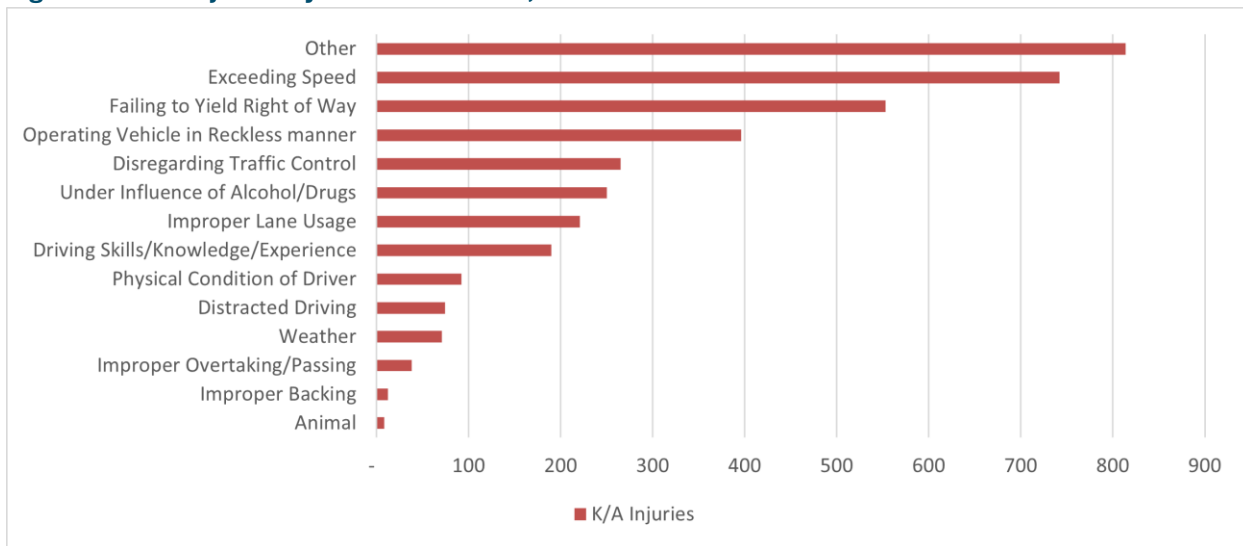
The analysis of Lake County crashes of all types by potential cause indicates exceeding speed as the most common potential cause of crashes. Exceeding speed was cited as a primary or secondary cause of a crash 25.9 percent of the time, followed by failing to yield right-of-way cited 12.5 percent of the time, and operating vehicle in reckless manner cited 11 percent of the time. Driving under the influence of drugs and alcohol was cited 2.1 percent of the time as either the primary or secondary cause of crashes. Less common potential causes, such as driving on the wrong side/wrong way, road construction/maintenance, equipment-vehicle condition, etc., are grouped under the ‘other cause’ category. This emphasizes the need for targeted enforcement and education materials focused on speeding, right-of-way compliance, and aggressive driving behaviors. **Figure 14** summarizes Lake County crashes by potential crash cause.

Figure 14: Crashes by Potential Cause, 2020-2024



The fatal and serious injury crashes that occurred in Lake County were reviewed to understand the potential primary or secondary causes of them. Exceeding speeding was the most common potential cause of injuries, cited 19.9 percent of the time, followed by failing to yield right-of-way cited 14.8 percent of the time, and operating vehicle in reckless manner cited 10.6 percent of the time. All other less common causes not listed in the figure, such as driving on wrong side/wrong way, road construction/maintenance, equipment-vehicle condition etc., are categorized under the ‘other cause’ category. While the most frequent crash causes are likely to cause the greatest number of injuries, failing to yield right-of-way resulted in a disproportionately high number of K/A injuries relative to its overall crash frequency, indicating these types of crashes may be particularly dangerous in Lake County. **Figure 15** summarizes Lake County K/A injuries by potential crash cause.

Figure 15: K/A Injuries by Potential Cause, 2020-2024



Traffic Operations

Traffic operations for the roadway network within Lake County were analyzed to understand locations that exhibit congestion today and could serve as a potential candidate for future improvement. The traffic operations assessment looks at operations during two periods—the AM Peak Hour and the PM Peak Hour—and seeks to understand which areas within Lake County see degradations in traffic operations during these peak hours.

EXISTING TRAFFIC VOLUMES IN LAKE COUNTY

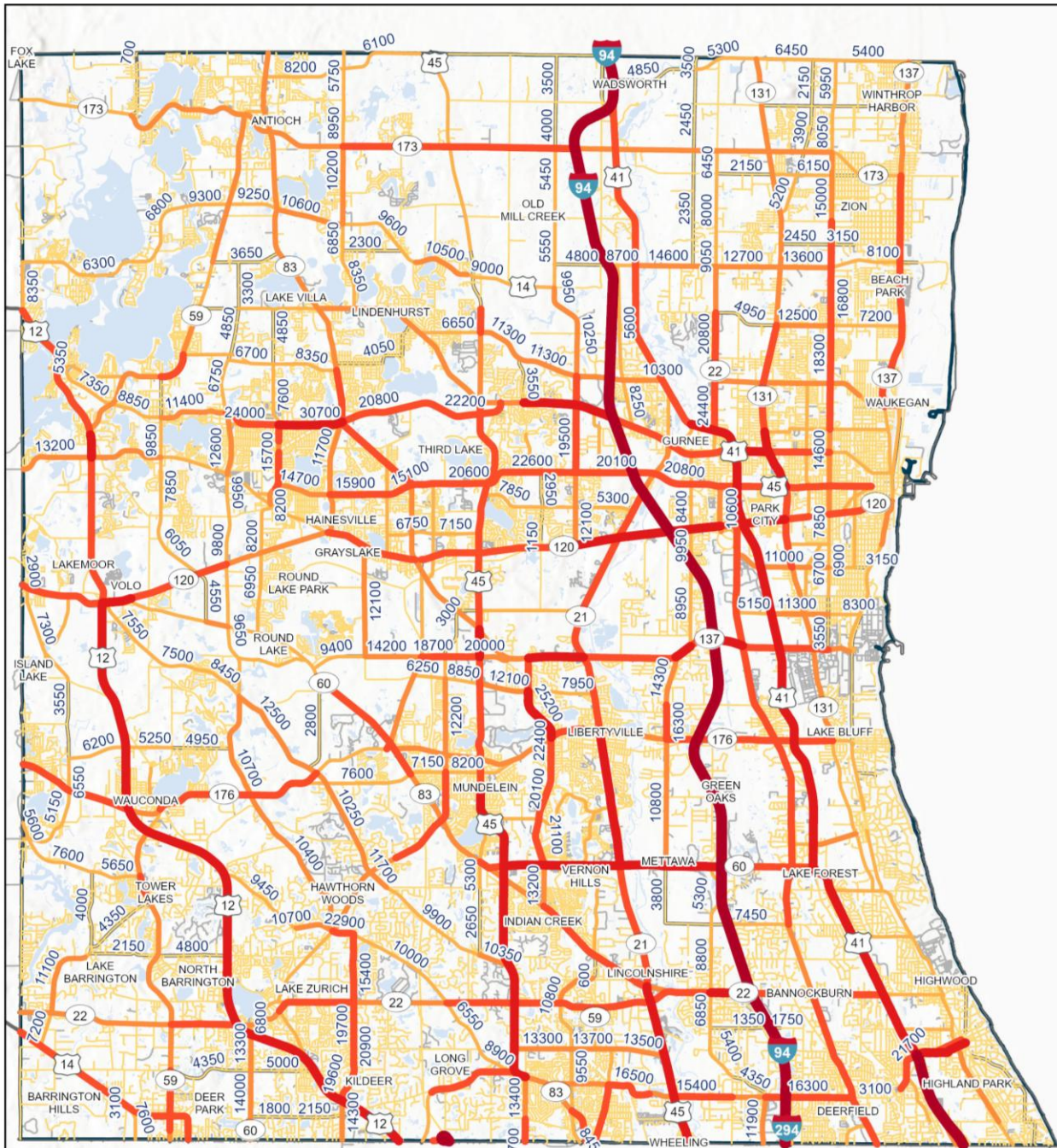
Existing traffic volumes for the streets and roads within Lake County are shown in **Figure 16**. The figure presents traffic volumes, referred to as Average Daily Traffic (ADT) volumes, in bandwidths that group similar values for all streets and roads in the County; it is noted that the ADT labels shown in the figure are for roads identified as being maintained by Lake County and are based on the roadway jurisdiction information presented in **Figure 3**.

As the figure shows, the highest volume roadways in Lake County are the Interstate, U.S., and state highway routes. These routes typically carry daily traffic volumes of 25,000 ADT or more, with the highest volume roads carrying up to 170,000 ADT. Regarding County-maintained facilities, the average ADT based on data for the year 2023 is 10,300, with the highest County-maintained facilities carrying upwards of 30,000 vehicles per day. The top five County-maintained routes in terms of daily traffic volumes carried are detailed in **Table 8**.

Table 8: Top 5 Highest Daily Traffic Volume Routes for Lake County-Maintained Facilities

Corridor	Extent	Average Daily Traffic Range
Rollins Road	N Fairfield Road to IL 132 (Grand Avenue)	18,200 - 30,700
Deerfield Road	US 41 to Ridge Road	21,700 - 27,300
Butterfield Road	IL 137 (Buckley Road) to IL 60 (Townline Road)	19,300 - 25,200
Arlington Heights Road	IL 83 (McHenry Road) to IL 68 (Dundee Road)	13,400 - 24,700
Delany Road	Wadsworth Road to US 41	13,700 - 24,400

Figure 16: Existing Traffic Volumes in Lake County, 2023



Esri, NASA, NGA, USGS, Earthstar Geographics

N

Miles
0 1.25 2.5 5

Legend

Average Daily Traffic Volumes (ADT)	<ul style="list-style-type: none"> — 10,001 - 15,000 ADT — 15,001 - 25,000 ADT — 25,001 - 50,000 ADT — 50,001 or More ADT
<ul style="list-style-type: none"> — 5,000 or Fewer ADT — 5,001 - 10,000 ADT 	

PEAK HOUR SPEED REDUCTIONS

Typical peak hour speed reductions were analyzed for highway and county-maintained routes within Lake County using datasets sourced from Waze, which provide information related to estimated free flow and observed travel speeds. Based on this data, reductions in travel speeds can be calculated to identify locations where travel speeds are reduced during the AM and PM peak travel periods. For the purpose of this analysis, the AM and PM peak travel periods are defined as:

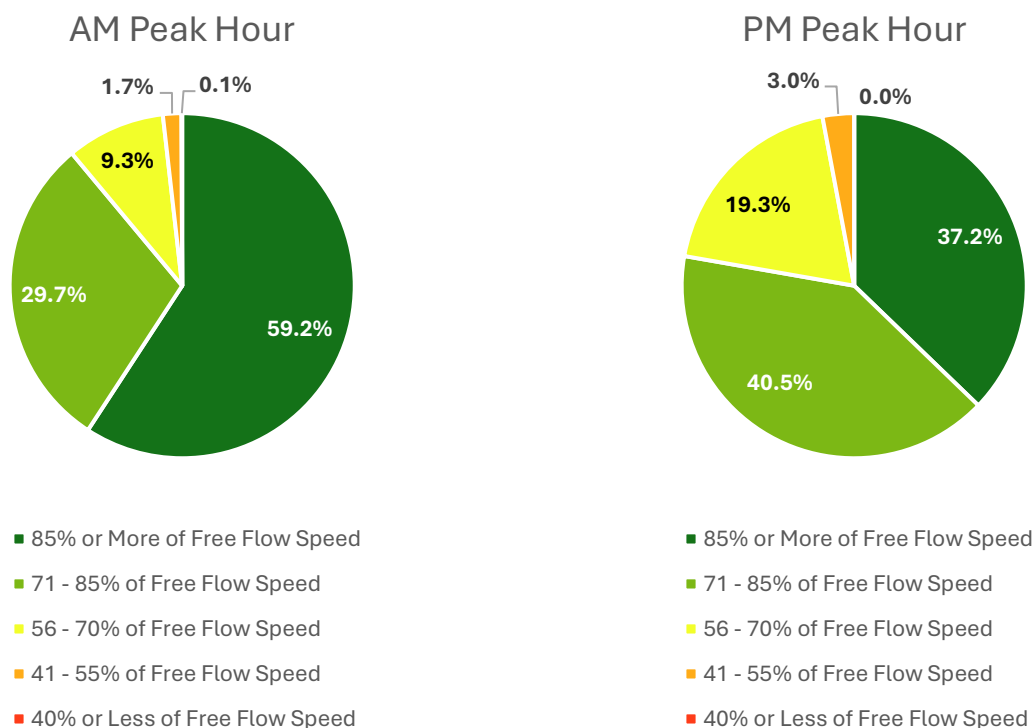
- **AM Peak Travel Period:** 6 AM – 9AM
- **PM Peak Travel Period:** 4 PM – 7 PM

The Waze data query was also included a temporal assumption that looked at speeds on the County’s highway and county-maintained facilities during the month of September for the year 2024 to best reflect a typical travel period.

The Waze data was analyzed to calculate speed reductions by comparing each segments “worst” speed reduction which represents the lowest observed travel speed over a 15-minute interval compared to a free-flow condition speed. This ratio, presented as a percent reduction in travel speed, is then used to identify the segments that experience the largest reduction during the AM and PM peak travel periods.

Figure 17 provides an overview of the speed reductions for the AM and PM peak travel periods for all highway and county-maintained routes analyzed.

Figure 17: Comparison of Peak Hour Speed Reductions for All Highway and County-Maintained Routes



Source: Lake County Division of Transportation

As **Figure 17** indicates, nearly 60 percent of highway and county-maintained routes experience a maximum speed reduction of 85 percent or more during the AM peak travel period but this percentage drops to 37.2 percent during the PM peak travel period. However, the percentage of routes with a maximum speed reduction of 71 percent to 85 percent compared to free flow conditions increases between the two periods, comprising nearly 30 percent in the AM period and increasing to 40.5 percent in the PM peak travel period. The percentages of peak hour speed reductions calculated to be between 41 to 55 percent and 56 to 70 percent in the AM peak travel period both increase in the PM peak travel period from 9.3 percent and 1.7 percent, respectively, to 19.3 percent and 3 percent. A small percentage, 0.1 percent, of highway and county-maintained routes demonstrate a maximum reduction of 40 percent or below during the AM peak travel period while no routes demonstrate a reduction this significant during the PM peak travel period.

Figure 18 takes a deeper look into how county-maintained routes perform during the AM and PM peak travel periods and demonstrates a similar trend to the overall analysis for all highway and county-maintained routes. As the figure shows, 72 percent of county-maintained routes have speed reductions at or above 85 percent compared to free flow speeds while this proportion drops to just over 50 percent for the PM peak travel period. In the AM peak travel period, 23 percent of county-maintained routes showed maximum speed reductions of 71 to 85 percent in the AM peak travel period and this figure rises to 40 percent in the PM peak travel period. A similar trend was observed for the proportions of county-maintained routes exhibiting maximum speed reductions of 56 to 70 percent which rose roughly 5 percent between the AM and PM peak travel hours. Marginal changes were shown for county-maintained corridors with maximum speed reductions calculated to be 55 percent or below free flow conditions.

Figure 18: Comparison of Speed Reductions for County-Maintained Routes during the AM and PM Peak Travel Periods

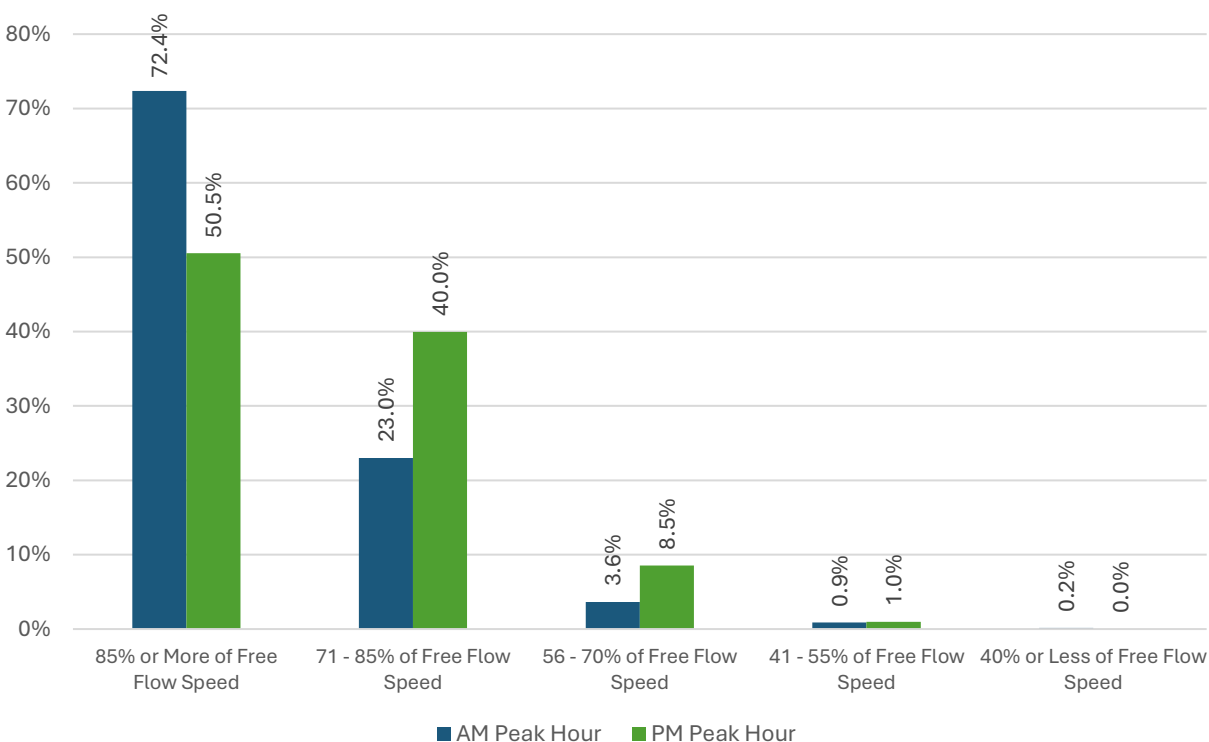


Figure 19 and **Figure 20** present the full results of the AM and PM peak travel period speed reductions analysis based on the Waze datasets. It is noted that the non-county-maintained routes are shown using the dashed line symbology to differentiate between facilities maintained by Lake County and those that are not.

The main takeaways from the speed reductions analysis conducted using the Waze datasets is that the worst speed reductions for county-maintained routes occur in the AM peak travel hour but are limited to higher volume corridors generally located in the southern part of Lake County. The PM peak travel period have higher proportions of county-maintained segments that exhibit maximum speed reductions below 85 percent, but several of the worst speed reductions remain the same or improve during the PM peak travel period. The county-maintained routes with the most significant speed reductions are summarized in **Table 9**.

Table 9: County-Maintained Routes Exhibiting the Most Significant Reductions in Speeds for the AM and PM Peak Travel Periods

Route	Extent	AM Peak Travel Period Speed Reduction	PM Peak Travel Period Speed Reduction
Hart Road	US 14 to Lake Cook Road	37.8%	74.2%
Ela Road	IL 22 (Main Street) to Lake Cook Road	52.2%	57.5%
Deerfield Road	Illinois Tollway to IL 43 (Waukegan Road)	53.0%	66.8%
Delany Road	Sunset Avenue to US 41	53.3%	63.1%
Quentin Road	Lake Cook Road to US 12	59.3%	53.3%
Midlothian Road	Peterson Road to IL 60	70.1%	53.9%

Figure 19: Maximum Speed Reductions for Lake County Highways and County-Maintained Roadways, AM Peak Travel Period

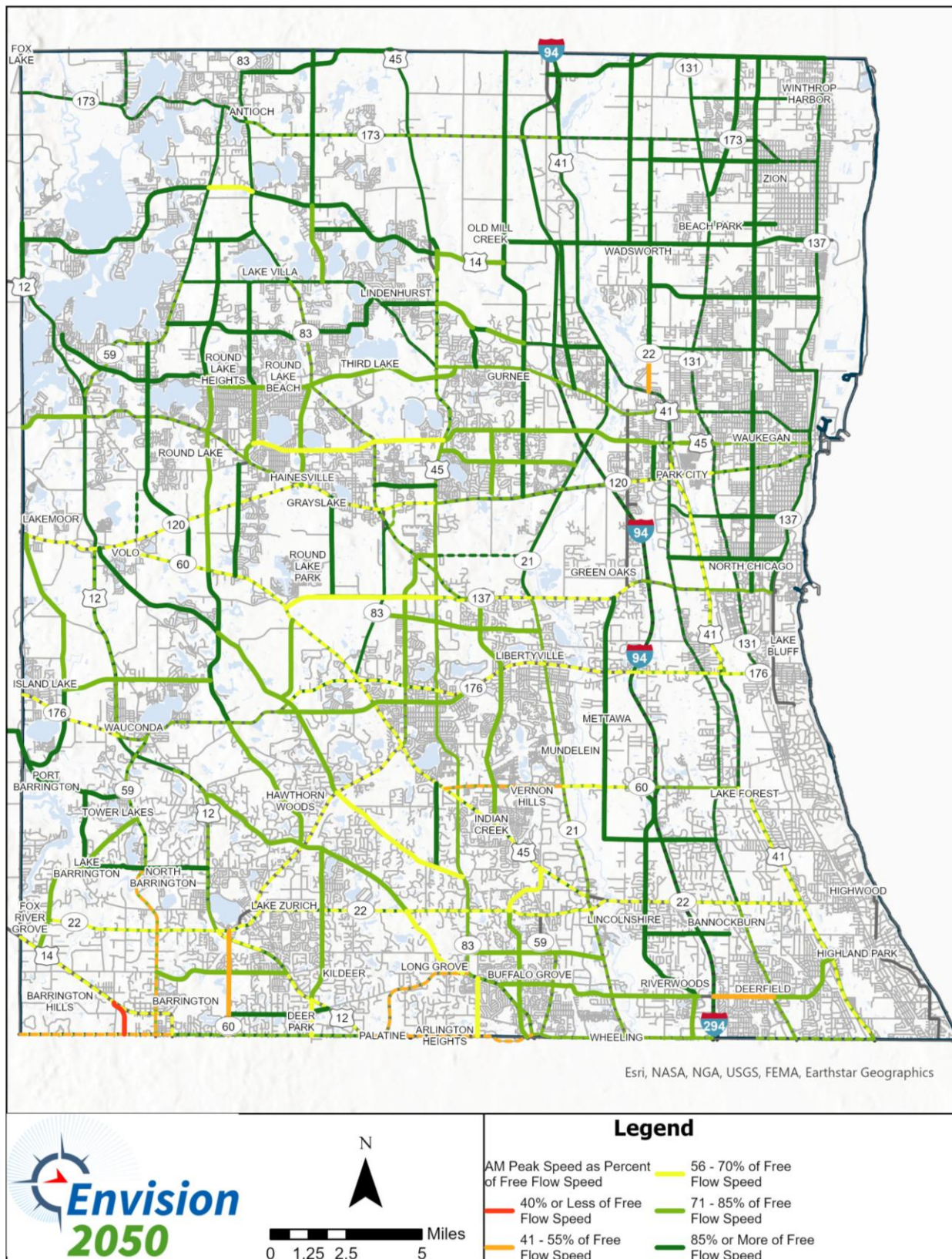
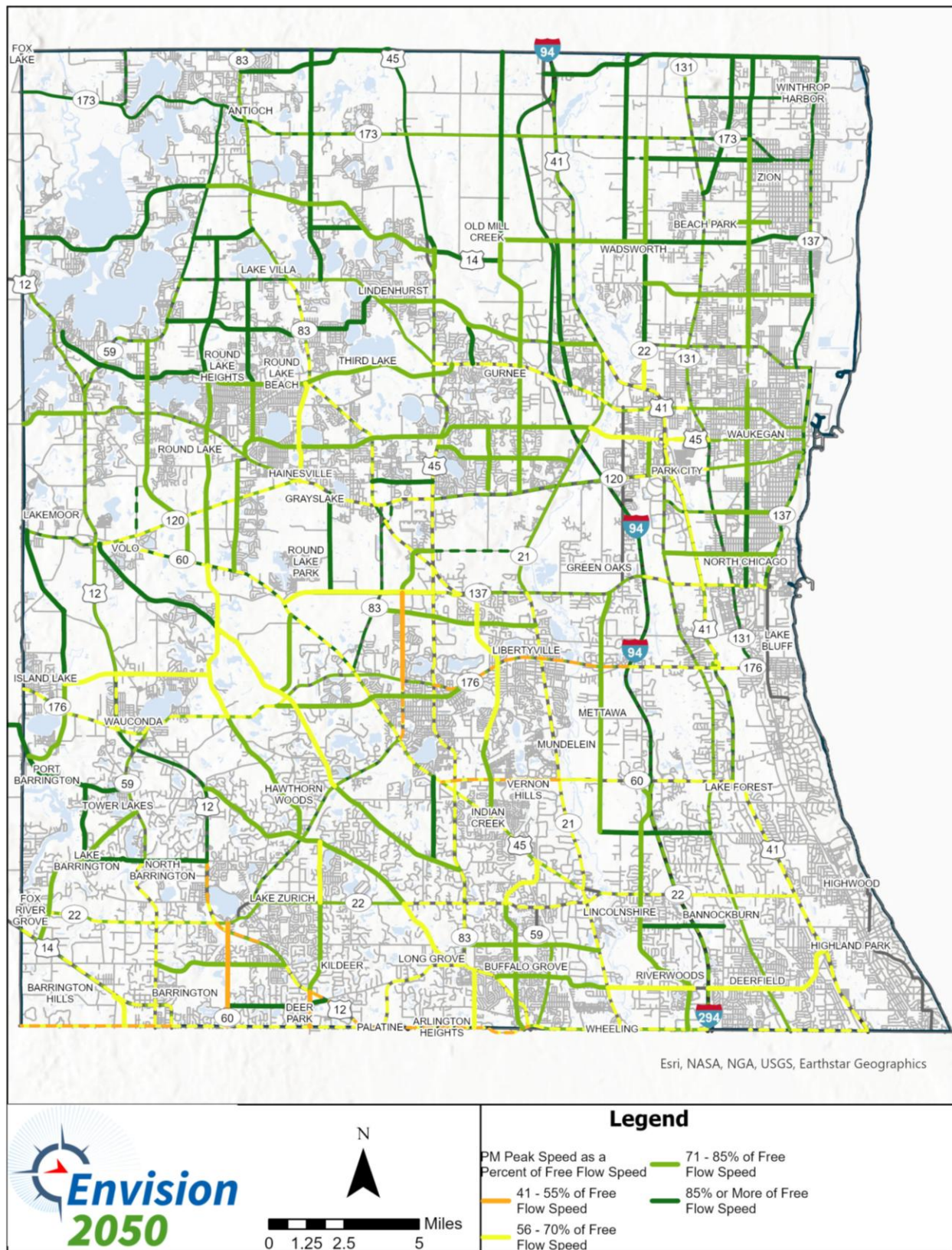


Figure 20: Maximum Speed Reductions for Lake County Highways and County-Maintained Roadways, PM Peak Travel Period



Infrastructure Conditions

Lake County’s pavement and bridge structure conditions were analyzed to understand the current status of these critical assets and identify strategies to address them.

PAVEMENT CONDITIONS

Maintaining roadway pavement is a major responsibility for transportation agencies. Investments to preserve and maintain pavement assets often comprise a large portion of the transportation revenues available to these agencies each year.

LCDOT views the maintenance and preservation of the roughly 300 centerline miles of pavement under its jurisdiction as a top priority when programming annual transportation improvements. To help guide the selection of pavement repair projects on county-owned facilities, LCDOT collects pavement condition data to analyze current pavement conditions and identify routes to target for repair and rehabilitation.

The latest data collection effort is detailed in LCDOT’s 2025 Pavement Management Report. The report summarizes the recent collection of approximately 130 centerline miles of pavement data, representing a portion of the overall total centerline mileage of county-owned pavement. This dataset was combined with pavement condition data previously collected in 2024 for the remaining 170 miles of Lake County’s pavement to summarize overall conditions. These combined datasets provide a look into pavement conditions, reported using a Pavement Condition Index (PCI) rating that evaluates the surface condition and structural integrity of the pavement. PCI ratings are then organized into the following categories shown in **Table 10**.

Table 10: Pavement Condition Index Rating Categories

Category	Typical Distresses and M&R Recommendations*	PCI Range
Excellent	Like new condition – little to no maintenance required	85<PCI<100
	Monitor condition or preventative maintenance	
Very Good	Minor cracking, raveling, or other NLAD	70<PCI<85
	Routine or preventative maintenance	
Good	Minor to moderate cracking and low severity LAD such as alligator cracking and rutting	60<PCI<70
	Surface treatments with localized repairs and overlays	
Fair	More extensive and severe longitudinal and transverse cracking, as well as moderate severity NLAD	50<PCI<60
	Localized repairs or major rehabilitation	
Marginal	Localized high-severity alligator cracking, and rutting	40<PCI<50
	Major rehabilitation	
Poor	A greater extent of severe alligator cracking, rutting	25<PCI<40
	Major rehabilitation	
Very Poor	Extensive and severe alligator cracking, more extensive and deeper rutting, and potholes	0<PCI<25
	Major rehabilitation	

*M&R refers to maintenance and rehabilitation

Source: Lake County Division of Transportation, Pavement Management Report 2025

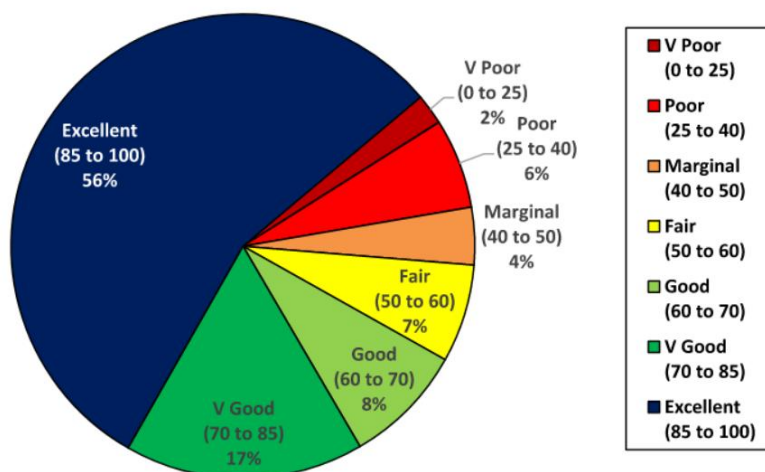
The 2025 Pavement Management Report found that the average PCI rating for Lake County pavement is 79, and roughly 72 percent of Lake County pavement is in “Excellent” or “Very Good” condition (**Figure 21**). Pavement in “Very Poor” and “Poor” condition represent 8 percent of county pavement and are considered candidates for full or partial reconstruction. Overall, the Report found that Lake County pavement is well maintained and investment in low-cost preventative maintenance can aid the County in maintaining a healthy pavement network.

Figure 22 shows PCI ratings for Lake County-maintained pavements based on data for the year 2025. As the figure shows, the majority of Lake County-maintained pavements have a PCI of 70 or greater, which indicates “Very Good” condition. The pavements illustrating lower PCIs, in the “Very Poor” and “Poor” range are concentrated in the northern part of the County. These routes include:

- North Avenue, from Main Street in Antioch to US 45
- Sunset Avenue, from N Delany Road in Gurnee to IL 131 (Green Bay Road)
- Wadsworth Road, from IL 131 (Green Bay Road) to IL 137 (Sheridan Road)
- Lewis Avenue, from Wadsworth Road to York House Road
- Lewis Avenue, from IL 132 (Grand Avenue) to W Glen Flora Avenue
- Hunt Club Road, from IL 120 (Belvidere Road) to Washington Street
- Washington Street, from US 45 to Hunt Club Road
- Hutchins Road/Stearns School Road, from IL 132 (Grand Avenue) to US 45
- Rollins Road, from IL 83 (Barron Boulevard) to Fairfield Road
- Rollins Road, from IL 59 (Spring Road) to US 12
- Wilson Road, from IL 59 (Grand Avenue) to IL 134 (Big Hollow Road/Long Lake Road)
- Fairfield Road, from Rollins Road to Monaville Road
- Cedar Lake Road, from Rollins Road to Monaville Road

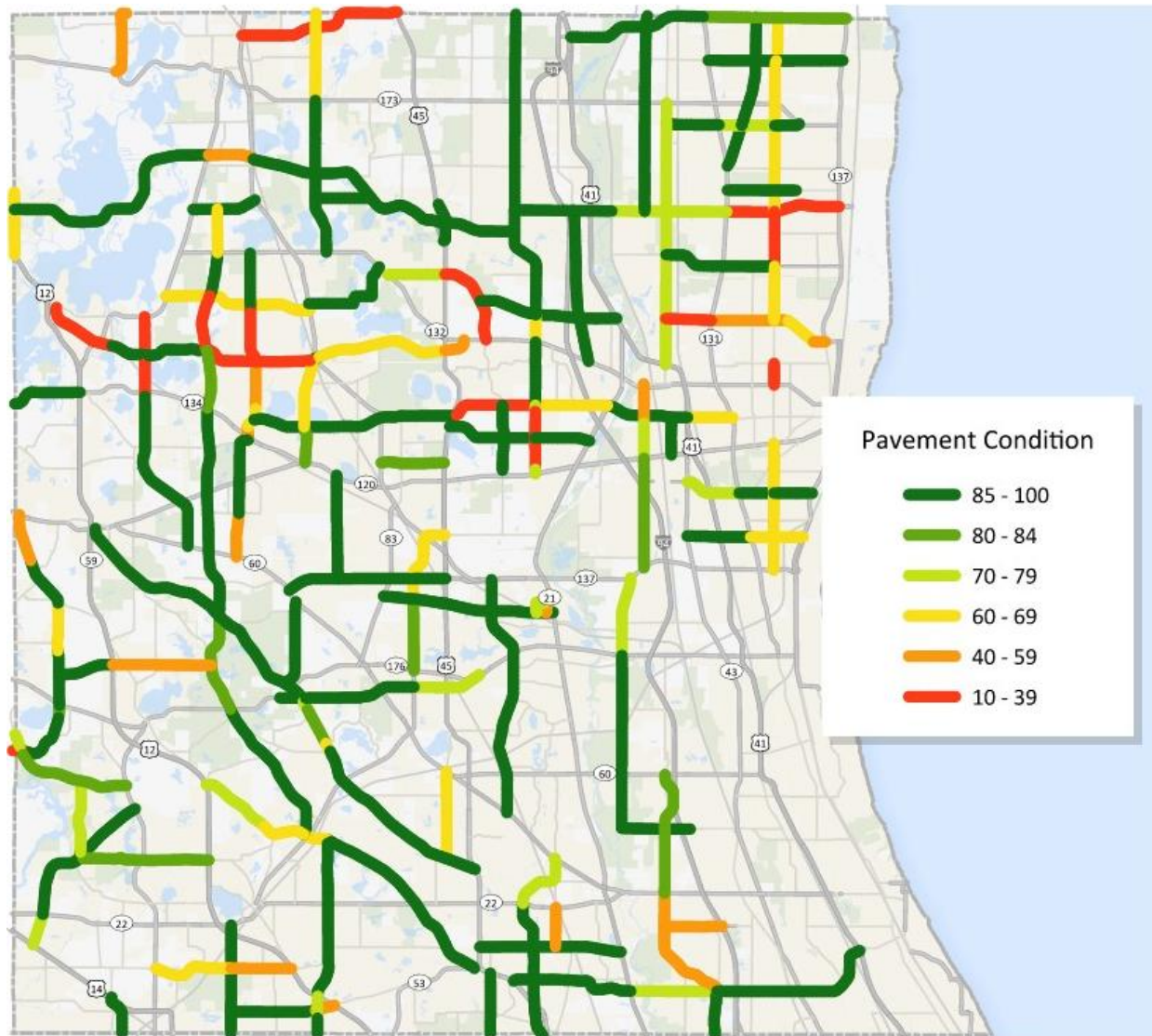
It is noted that Lake County has planned preservation and rehabilitation projects for the segments named above as part of the County’s resurfacing program within LCDOT’s current [Transportation Improvement Program](#). These projects are planned for implementation over the next five years.

Figure 21: Conditions of Lake County Pavement



Source: Lake County Division of Transportation, Pavement Management Report 2025

Figure 22: Pavement Condition Index Ratings for Lake County Pavement, 2025



Source: Lake County Division of Transportation

Additional metrics related to pavement conditions are available through IDOT datasets and are discussed below. It is noted that for the purposes of LCDOT’s planning of county-owned facilities, the PCI metric and information discussed above is the main driver of decision-making whereas the IDOT data discussed in this section provides some insight into additional approaches to pavement management used by IDOT and reported to the Federal Highway Administration to meet performance management requirements. The IDOT pavement condition metrics discussed below present a subset of the data available for Lake County that has been narrowed down to county-maintained facilities.

Federal performance measure regulations require state DOTs and regional transportation planning organizations to report progress made toward established performance targets on an annual or biennial basis for the purpose of carrying out the National Highway Performance Program (NHPP). Performance targets related to pavement condition, referred to as PM2, are reported by IDOT annually, and evaluate pavement condition for Interstate and NHS routes using a composite metric that rates pavement condition in “Good,” “Fair,” and “Poor” categories based on:⁶

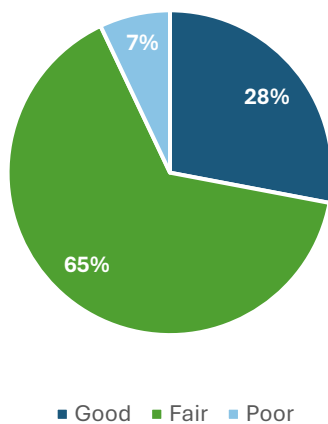
- International Roughness Index rating
- Present serviceability rating (for routes with posted speed limits below 40 MPH)
- Cracking
- Rutting
- Faulting

While IDOT reports pavement condition information on the Interstate and NHS system, data is also collected for state and county highways and reports the same PM2 metrics. As noted previously, the pavement condition data referenced here represents a subset of the pavement condition data that focuses on LCDOT-maintained routes.

Pavement condition data sourced from IDOT for the year 2022 was reviewed to evaluate the PM2 condition ratings for routes maintained by LCDOT. **Figure 23** summarizes the breakdown of PM2 pavement condition ratings for LCDOT routes; as the figure shows, 28 percent of Lake County pavements were rated as being in “Good” condition based on the 2022 data while 65 percent of pavements were rated as being in “Fair” condition. The remaining 7 percent of Lake County-maintained pavements were rated as being in “Poor” condition.

Figure 24 shows the locations and PM2 condition ratings for Lake County-maintained pavements as reported in the 2022 dataset.

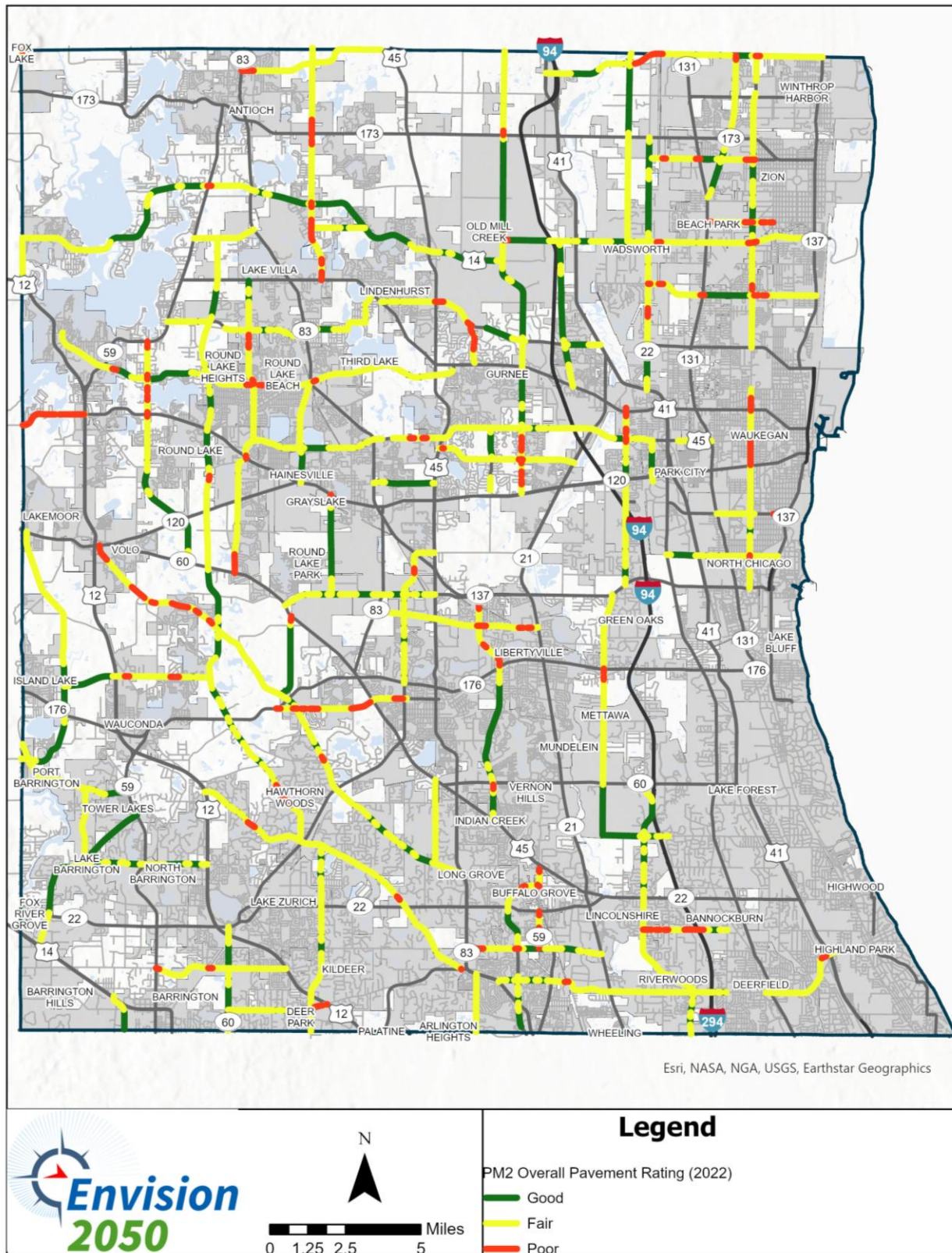
Figure 23: PM2 Condition Ratings for Lake County-Maintained Pavements, 2022



Source: Illinois Department of Transportation

⁶ Illinois Department of Transportation, [Performance](#).

Figure 24: Federal PM2 Pavement Condition Ratings for Lake County Maintained Pavement



Source: Illinois Department of Transportation

BRIDGE CONDITIONS

Bridge structures facilitate important mobility and connectivity for multimodal transportation networks in locations where physical elements, such as rivers and rail lines, create barriers. Similar to pavement, investments in bridge replacements and rehabilitations are a major focus of project planning and programming for transportation agencies.

A review of Lake County’s public bridge structures was conducted using bridge condition data sourced from the National Bridge Inventory (NBI) dataset which records condition information for all bridges and culverts located on publicly owned roads.

Each bridge structure and culvert included in the NBI dataset has a condition rating for each structure’s major structural elements. These ratings are assigned on a 0 to 9 scale and provide a qualitative description of each structural element’s condition; **Table 11** provides a description of the NBI condition rating categories.

Table 11: NBI Structural Element Condition Ratings Descriptions

Rating	Description
9	Excellent Condition
8	Very Good Condition – no problems noted
7	Good Condition – some minor problems
6	Satisfactory Condition – structural elements show some minor deterioration
5	Fair Condition – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour
4	Poor Condition – advanced section loss, deterioration, spalling, or scour
3	Serious Condition – loss of section, deterioration, spalling, or scour have seriously affected primary structural components.
2	Critical Condition – advanced deterioration of primary structural elements.
1	“Imminent” Failure Condition – major deterioration or section loss present in critical structural components.
0	Failed Condition – structure is out of service.

Source: National Bridge Inventory, [Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges](#).

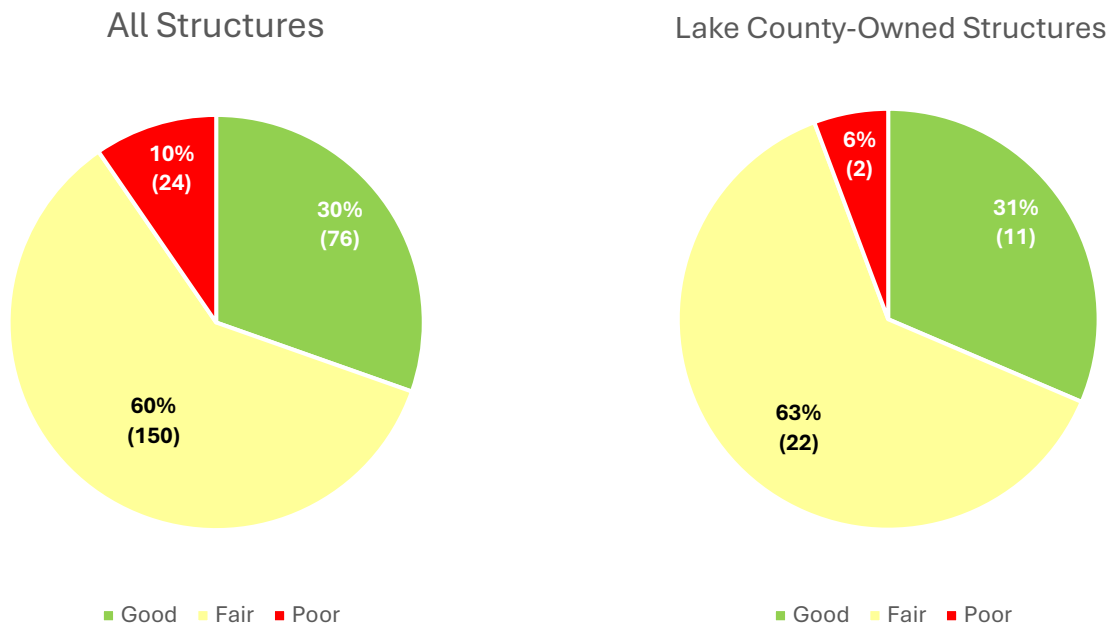
These ratings serve as the inputs necessary to evaluate the overall condition of each structure. The overall condition ratings assigned to a structure are reported as:

- **Good Condition:** Lowest structural element condition rating is greater than or equal to 7.
- **Fair Condition:** Lowest structural element condition rating is less than 7 but greater than 4.
- **Poor Condition:** Lowest structural element condition rating is less than or equal to 4.

The NBI dataset indicates that 250 bridge structures and culverts are found within Lake County. Of these 250 bridge structures and culverts, 35 structures are found on roadways under Lake County’s jurisdiction. **Figure 25** provides a comparison of the overall condition ratings for Lake County-owned bridge structures and culverts to the overall condition ratings of all bridge structures and culverts found within Lake County. **Figure 26** shows the locations and overall condition ratings for Lake County-owned bridges as well as the locations of non-County-owned bridge structures and culverts in Lake County.

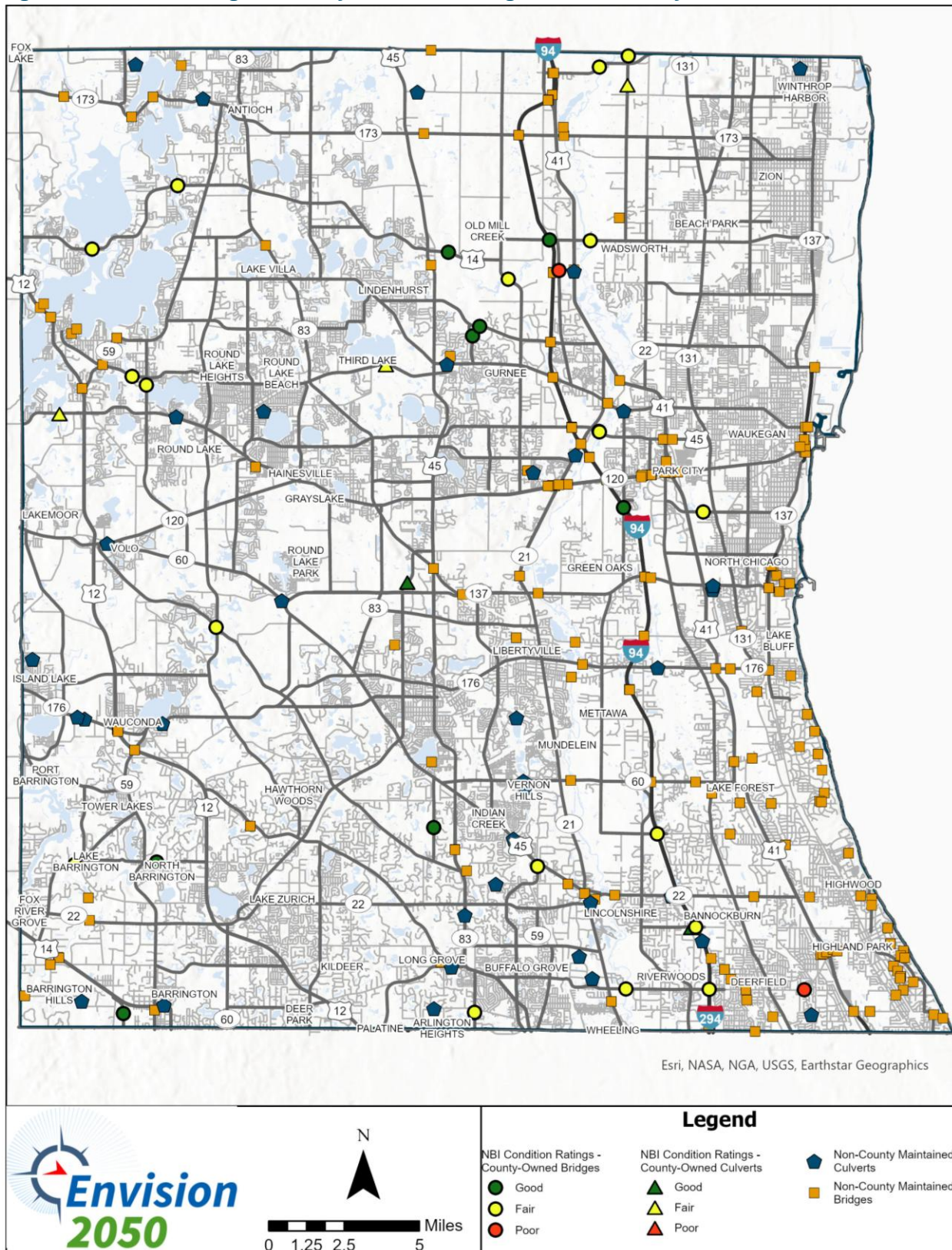
As **Figure 25** indicates, 30 percent of all structures in Lake County are rated as being in “Good” condition while 60 percent are rated as being in “Fair” condition; the remaining 10 percent of structures are rated as being in “Fair” condition. For Lake County-owned bridge structures and culverts, 31 percent are rated as being in “Good” condition while 63 percent are rated as being in “Fair” condition. The remaining 6 percent are rated as being in “Poor” condition. Along with the percentages shown in **Figure 25**, the number of structures for each category is included in parentheses.

Figure 25: Comparison of Overall Condition Ratings for All Public Bridge Structures and Culverts and Lake County-Owned Bridge Structures and Culverts, 2024



Source: National Bridge Inventory

Figure 26: National Bridge Inventory Condition Ratings for Lake County Maintained Structures



Source: National Bridge Inventory

INTELLIGENT TRANSPORTATION SYSTEM INFRASTRUCTURE

Lake County's PASSAGE is an Intelligent Transportation System (ITS) designed to improve travel on roadways in Lake County, IL. This includes notifying the public of roadway related incidents including crashes, stalls, debris, and roadwork. It also includes monitoring and improving traffic signal operations to help improve traffic congestion. PASSAGE uses a variety of technologies and works with different agencies and contractors to help in this effort.

What is ITS?

ITS integrates advanced communications technologies into transportation infrastructure and vehicles to improve transportation safety and mobility.

The Transportation Management Center (TMC) in Libertyville centralizes operation resources, network routing equipment and information and is shown in **Figure 27**. The video wall in the TMC provides visual information about status of the road network. Trained TMC operators and engineers can view various video feeds, weather information, police and fire reports ([Computer Aided Dispatch](#)), signal network information and real-time network congestion reports to determine appropriate responses to congestion, weather delays, construction, equipment malfunctions and crashes.

Figure 27: Lake County's Transportation Management Center in Libertyville



Source: Lake County Division of Transportation

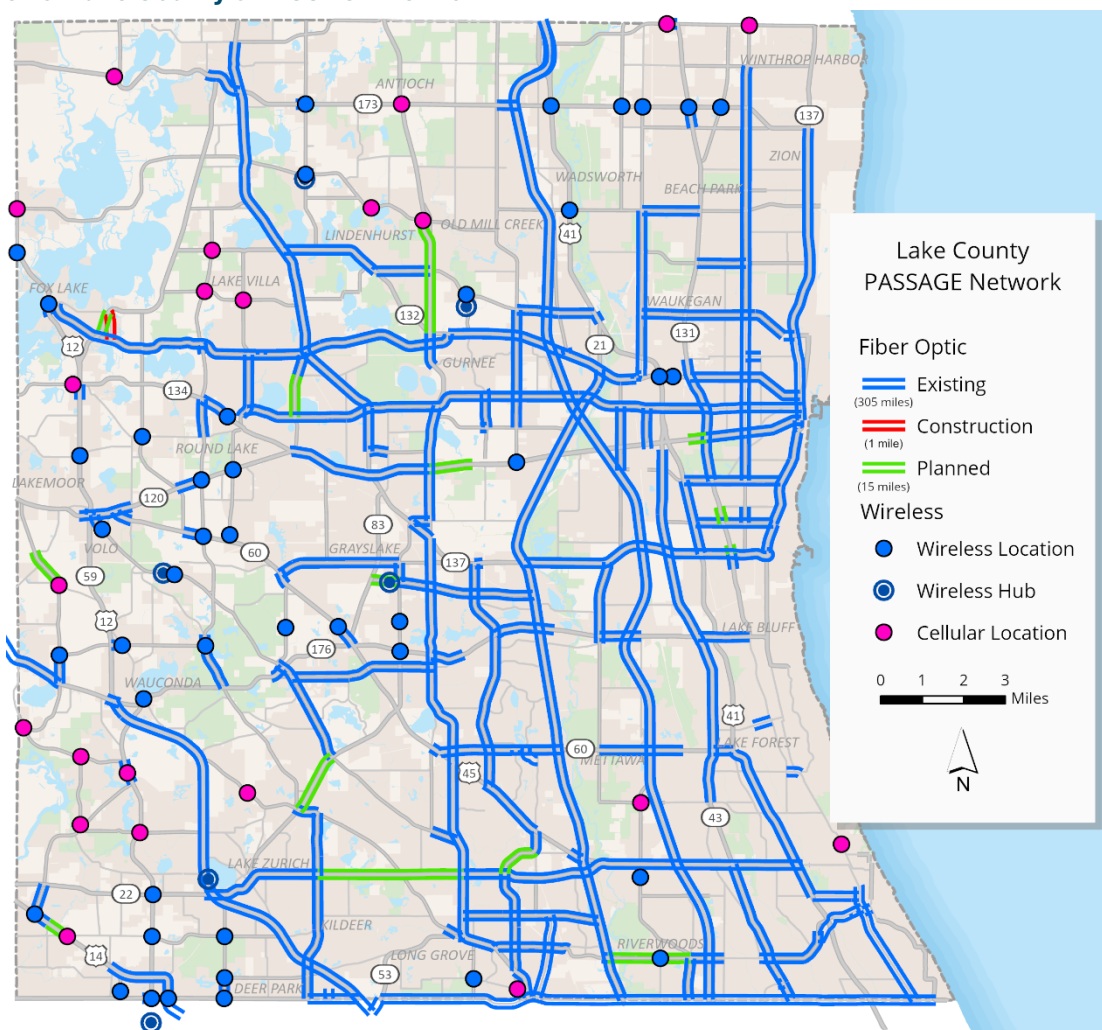
Lake County uses several different traffic signal systems. Despite these various systems, over 90% of the traffic signals in Lake County are connected to the TMC. These systems allow the TMC staff and engineers to see real-time traffic signal operations and make adjustments as necessary. The systems automatically notify maintenance contractors of signal malfunctions (4-way flash) or other critical issues. The operators perform daily status reports on signals and report any issues to the necessary contractor.

Engineers can also make temporary or permanent timing changes depending on the need. This includes changes to improve traffic flow around a crash or stalled vehicle, help exiting traffic at major events like the Lake County Fair or changing the whole system to accommodate a holiday that falls on a workday. Permanent changes are intended to improve changes to traffic volumes or patterns over time.

The PASSAGE system is connected by 301 miles of fiber optic cable connecting traffic signals to the TMC, with another 11 miles of fiber optic cable installation planned. Currently 677 traffic signals in Lake County are connected to the PASSAGE system in the TMC.

Lake County PASSAGE, in partnership with IDOT, currently has one adaptive technology system deployed along Butterfield Road in Libertyville. This adaptive system can adjust traffic signal timing based on traffic demand. The idea is to "adapt" as needed to variations in traffic demand. Lake County plans to continue expanding the use of adaptive and possibly artificial intelligence (AI) technology to help address traffic congestion issues. **Figure 28** shows Lake County's PASSAGE network.

Figure 28: Lake County's PASSAGE Network



Source: Lake County Division of Transportation, May 2025

The PASSAGE system utilizes 467 Pan Tilt Zoom (PTZ) Cameras that are placed at major intersections and 1 portable PTZ camera that are used to monitor traffic including congestion, incidents, and roadwork throughout the county. PTZ cameras can horizontally scan 360 degrees, tilt up and down, and zoom, allowing operators to see nearly a mile.

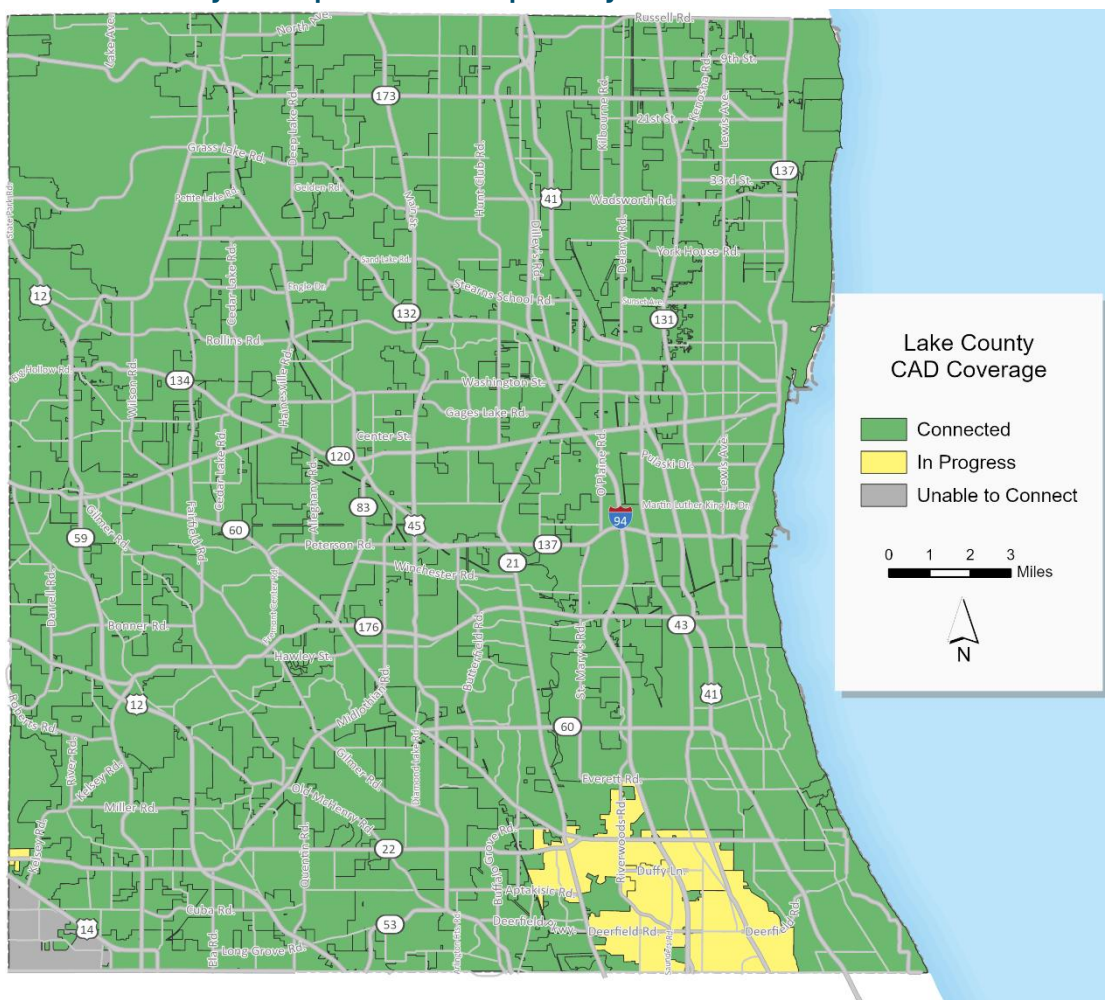
These cameras also help Lake County enhance emergency response and preparedness plans for Lake County and the surrounding areas.

Video detection cameras are deployed throughout Lake County, sensing approaching traffic and cycling the signal. In the past, loops of wire buried in the pavement were used to detect vehicles. In recent years, overhead cameras have been introduced, improving detection efficiency in certain areas. Unlike loops, the camera's area of detection can be optimized, improving signal accommodation for different vehicle sizes and types, from trucks to motorcycles.

When police agencies receive 911 emergency calls, they are processed by Computer Aided Dispatch (CAD) systems. The Lake County Sheriff's department, as well as other police agencies, provide information from these CAD systems electronically to Lake County PASSAGE. The CAD system filters out non-traffic related items, and operators in the TMC monitor and analyze the CAD information to determine the impact on the roadway network and implement a response plan if necessary.

The integrated CAD system currently includes most of the police and fire departments in Lake County and is shown in **Figure 29**.

Figure 29: Lake County's Computer Aided Dispatch System



Source: Lake County Division of Transportation, April 2025

PASSAGE Communications

A range of options exist for travelers within Lake County to receive information related to current Lake County traffic conditions. These include PASSAGE email notifications, Portable Message Boards, a smartphone application, and a data-sharing agreement with Waze, which is a free, community-driven GPS navigation app that supports travelers through providing real-time traffic data to inform users of the fastest route available to their destinations.

Passage Email Notifications

PASSAGE email notifications allow users to get real-time traffic information for designated roadways throughout Lake County. Users can create a profile that is customized to their commute based on region, times, days, and impact level of incidents or roadwork. When an incident is confirmed by an operator in the TMC, an email will be sent to the users based on the information they have signed up for. If the event changes, users may receive update emails for the event. Users will also receive cleared emails when the event is cleared.

Portable Message Boards

Lake County has 9 Portable Message Board (PCMS) signs that can be used anywhere in the county to display messages related to safety, roadwork, or event information.

Lake County Smartphone App

Lake County has a smartphone app for iOS and Android. These apps have similar information to the website with the addition of notifications for major incidents, roadwork, press releases, or special events throughout Lake County.

Lake County and Waze Data Sharing Agreement

Lake County also has a two-way sharing agreement with Waze and their program call Waze for Cities. Lake County sends good, known, verified information to Waze for use in their app. The PASSAGE events on their map are tagged with 'lcpassage'. Waze pushes these events to Google Maps as well. In return, Waze shares their traffic data with Lake County which includes anonymized user reports as well as travel time information for area roadways.

Bicycle and Pedestrian System

Lake County's bicycle and pedestrian systems provide additional transportation options for Lake County residents and visitors to walk or bike for work, entertainment, recreational, or retail purposes. The existing bicycle and pedestrian system consists of multiuse trails, sidewalks and pedestrian paths, and on-street bike lanes.⁷ The LCDOT has high priority for non-motorized travel. Where appropriate, bike paths or bike friendly shoulders are added in reconstruction or resurfacing projects. LCDOT communicates with municipal agencies and other community partners to identify opportunities that enhance connectivity and address gaps within the non-motorized transportation network.

Existing Bicycle and Pedestrian Facilities

LCDOT provides an interactive map of trails and bikeways in Lake County on their website for easy access to what facilities are available (**Figure 30**). Lake County has over 550 miles of bike trails with 253,000 residents living within a 5-minute walk to a bike trail.⁸ These include off-street and on-street facilities. Off-street bike paths include paved asphalt and unpaved, crush gravel surfaces. **Table 12** provides examples of these facilities.

^{7,9} Lake County Division of Transportation, [Non-motorized Paths](#); Number of residents with proximity to a bike trail was calculated using population data from the US Census Bureau

Table 12: Existing Bicycle and Pedestrian Facilities





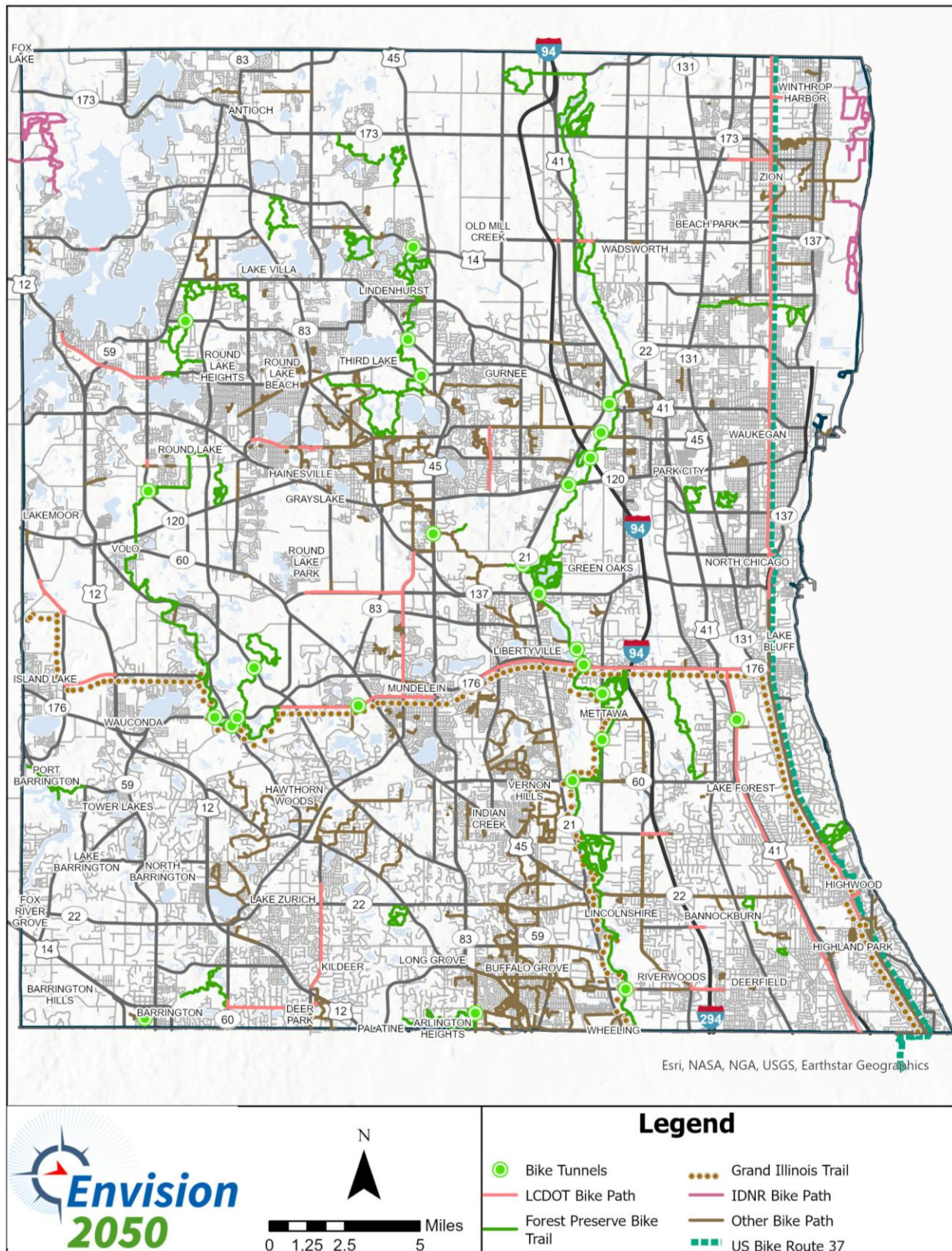
Facility Type		Description
Multiuse Trails		<p>The Lake County Forest Preserve District and Lake County Division of Transportation both have jurisdiction over the multiuse trails that can be used by bicyclists, runners, walkers, and others. The largest trail is the Des Plaines River Trail that spans 12 forest preserves in Lake County.</p>
On Street Bike Lanes		<p>Lake County Division of Transportation has bike lanes in various locations such as Wadsworth Road and Long Grove Road.</p>
Sidewalks / Pedestrian Path		<p>Sidewalks and pedestrian paths are designed, constructed, and maintained so that all pedestrians can travel safely and independently.</p>
Paved Shoulders		<p>Paved shoulders are constructed on a road when there is need for a pedestrian/bicycle pathway. Paved shoulders are not considered a travel lane and may contain other objects such as temporary parked vehicles.</p>

Figure 30: Existing Bicycle and Pedestrian Facilities within Lake County



Source: Bike Lake County

Active Transportation Activity in Lake County

Active transportation, also known as active transport or non-motorized travel, refers to walking, bicycling, and other modes of non-motorized travel such as wheelchairs or scooters. Active transportation allows for basic mobility, affordable transportation, physical fitness, and pleasure. Lake County supports active transportation options for its residents to support their health and well-being, gain economic benefits, support sustainability, and build community with one another.

To better understand how Lake County residents use the existing bicycle and pedestrian facilities, Strava data were used to obtain quantitative data on bicycle and pedestrian activity in the county. Strava is a social media application (app) that tracks different types of fitness activities including running, cycling, and hiking. The app allows users to connect with others in their area, join local clubs, and complete athletic challenges. Strava tracks the fitness activities by recording GPS data which includes distance, duration, and specific segments/locations where the activities were completed. It is noted that the Strava data does present some limitations in that the data is anonymized and user-provided, so activity patterns are not wholly representative of how all residents in Lake County hike, bike, and walk within the County. Instead, the dataset captures the behavior of individuals who use the Strava app, which provides insight on active transportation use for recreational and some commuting purposes.

Given these limitations, additional analysis of bicycle and pedestrian activity within Lake County was conducted using data obtained from Replica HQ, which is a seasonal, high-fidelity travel simulation platform that estimates travel behavior using a range of inputs. This analysis aimed to supplement the analysis completed using Strava data by looking at the characteristics related to non-recreational trips made via bicycling and walking, based on Replica's modeled outputs representing non-motorized travel patterns for typical weekday conditions in Spring 2025.

BICYCLE ACTIVITY

The obtained Strava data offer a detailed overview of bicycle activity across the Lake County region, including both the scale and purpose of bicycle use. Key takeaways are included in **Figure 31**. The 103,000 trips by 9,500 users indicate a strong engagement with bicycling from the county Strava users. As for the 86 percent of trips for recreation and 14 percent for commuting, these percentages suggest that leisure and fitness are the primary drivers for bicycling. This highlights a strong bicycling culture, with commuting still a growing avenue. The high mileage total of 6.7 million miles expresses the importance of maintaining and expanding safe, connected bike networks to support the level of activity in the Lake County region.

Figure 31: Bicycle Activity from Strava in 2024

103,000 Bicycle trips logged by 9,500 users in 2024

Over 6.7 million miles biked in 2024

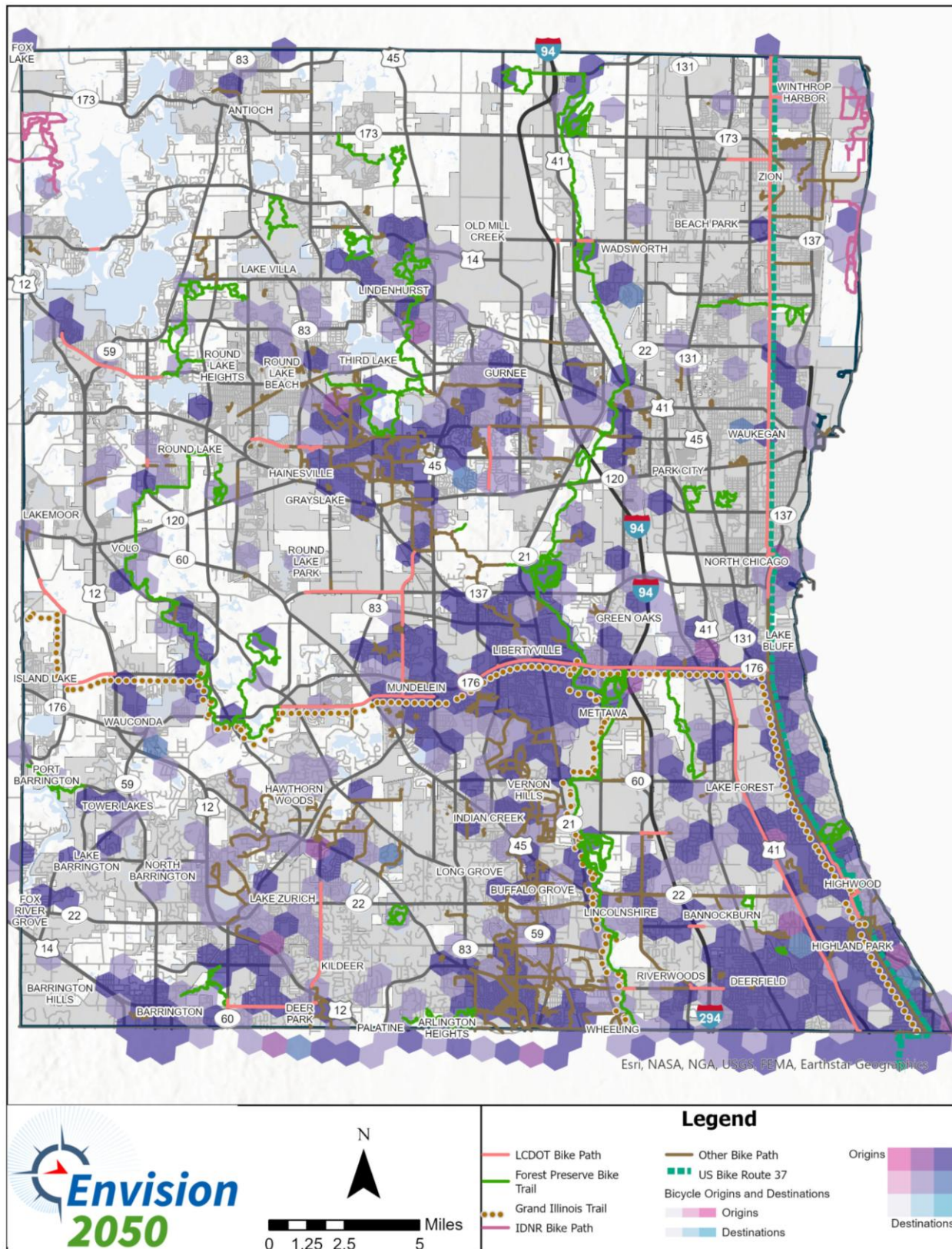
86% of trips were for recreation

14% of trips were for commuting

1.5% of trips made on e-bikes

Figure 32 illustrates bicycle activity across Lake County, highlighting origin and destination locations. It overlaps layers of origin and destination data with the bicycle and pedestrian network to provide a comprehensive view of bicycling activity and accessibility. The origins and destinations are shown using shaded regions in varying colors or blue, pink, and purple. Darker shades indicate areas with higher concentrations of bicycle trips, suggesting popular starting and ending points. Lighter shades reflect lower concentrations, possibly due to limited bike infrastructure or lower population of users. Areas such as Deerfield, Highland Park, Grayslake, and Libertyville show high activity, aligning with their proximity to bike trails and shared use paths. **Figure 32** expresses the importance of well-connected bike networks to promote bicycling. It also helps identify gaps in the network where demand might be underserved, guiding investments for non-motorized planning.

Figure 32: Origins and Destinations for User Reported Bicycle Trips in Lake County, 2024

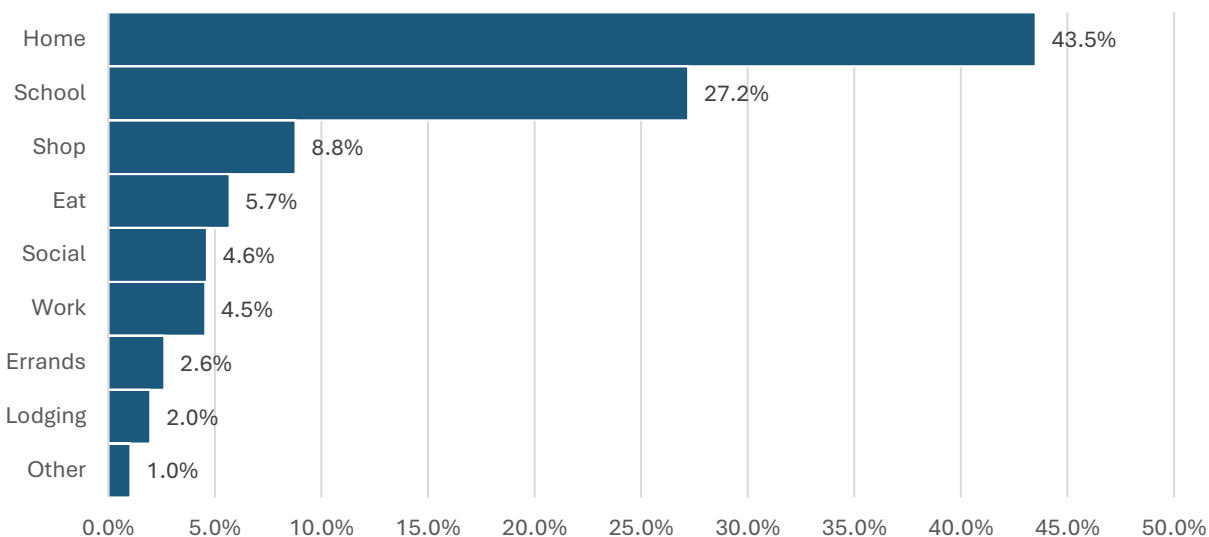


Source: Strava Metro

Bicycling trips made for non-recreational purposes were also analyzed using data sourced from Replica HQ. This data looked at all bicycle trips starting and ending within Lake County and represents non-recreational bicycling activity for a typical weekday in Spring 2025. Below is a discussion of key trip characteristics, including trip purposes, trip duration (in minutes), and trip distance (in miles).

Replica estimates indicate a total of 11,550 bicycle trips were made during a typical weekday in the Spring of 2025. The purposes that drove daily weekday bicycle trips are presented in **Figure 33**, and show that the largest proportion of bicycle trips were for the purpose of returning to the trip taker’s home, which amounted to 43.5 percent of typical weekday trips. School trips were the second most common purpose at 27.2 percent; overall, trips for home and school purposes comprised just over 70 percent of all typical weekday bicycle trips made for non-recreational purposes.

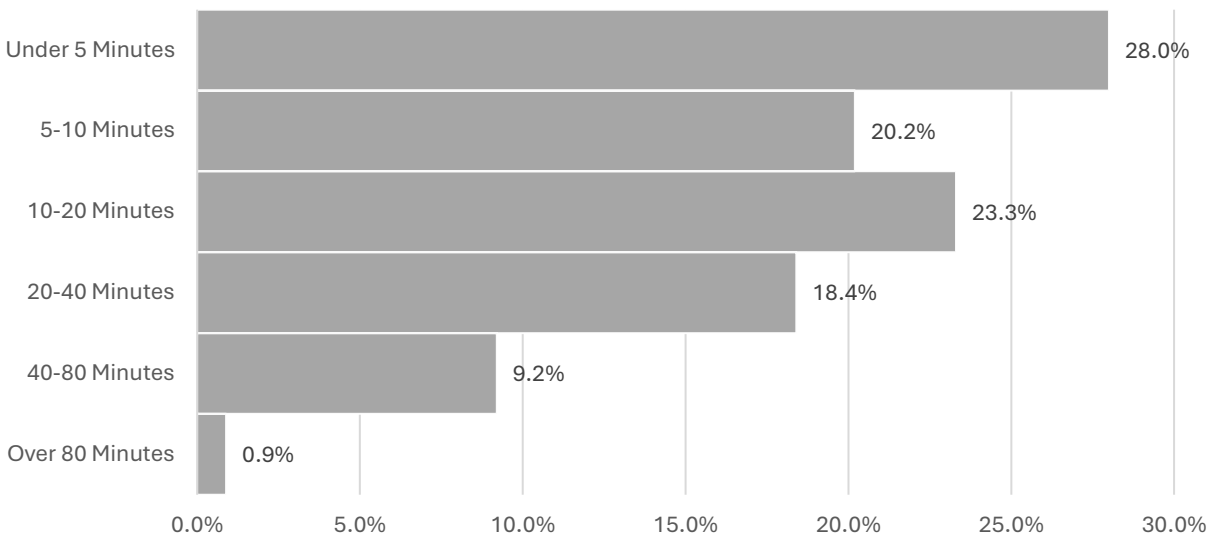
Figure 33: Trip Purposes for Non-Recreational Bicycle Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

Figure 34 summarizes the breakdown of typical weekday non-recreational bicycle trip durations, i.e. the time in minutes taken to complete each trip. As **Figure 34** demonstrates, 28 percent of non-recreational bicycle trips were taken 5 or fewer minutes and represents the highest proportion of trips by duration. Trips lasting between 5 and 10 minutes accounted for 20.2 percent of non-recreational bicycle trips while a slightly higher proportion of trips took between 10 and 20 minutes.

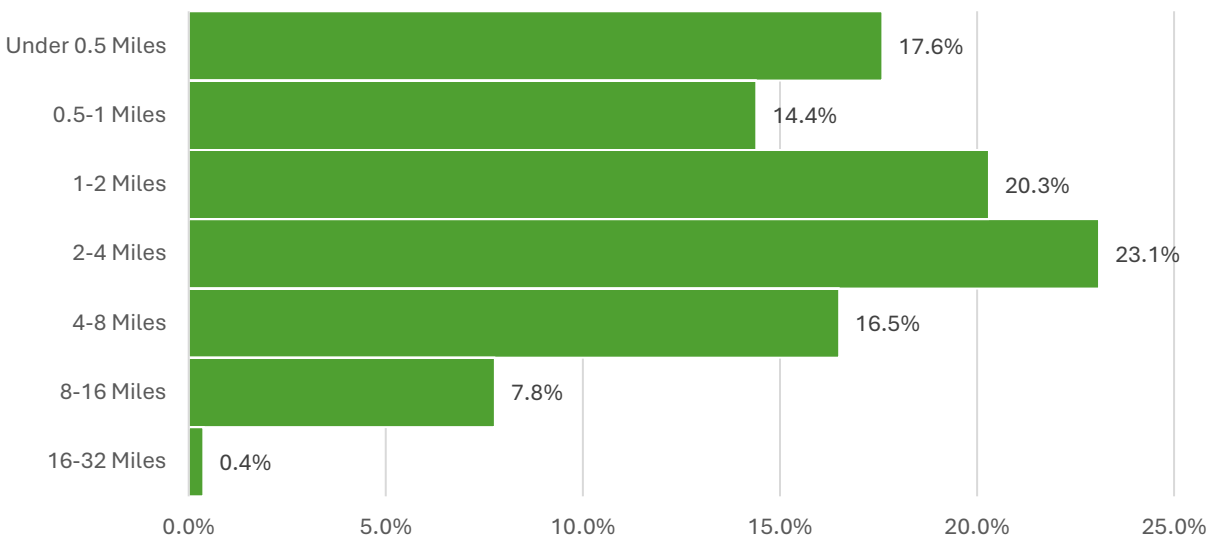
Figure 34: Trip Durations (in Minutes) for Non-Recreational Bicycle Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

Figure 35 summarizes the breakdown of typical weekday non-recreational bicycle trip distances. The Replica HQ data indicated that the largest proportion, 23.1 percent, of non-recreational bicycle trips traveled between 2 and 4 miles and 20.3 percent traveled between 1 and 2 miles. Overall, the Replica HQ data shows a relatively even dispersion of trips by trip length for trips that traveled up to 8 miles.

Figure 35: Trip Distances (in Miles) for Non-Recreational Bicycle Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

PEDESTRIAN ACTIVITY

The obtained Strava data offers a detailed overview of pedestrian activity across Lake County, including both the scale and purpose of foot travel. Key takeaways are included in **Figure 36**. The 357,800 trips by 23,000 users indicate a strong engagement with running, walking, and hiking from the county Strava users. As for the 94 percent of trips for recreation and 6 percent for commuting, these percentages suggest that leisure and fitness are the primary drivers for pedestrian activity. This highlights a strong running, walking, and hiking culture. The high mileage total of 4.3 million miles expresses the importance of maintaining and expanding safe, connected pedestrian networks to support the level of activity in the Lake County region.

Figure 36: Pedestrian Activity from Strava in 2024

357,800 running, walking, and hiking trips logged by 23,000 users

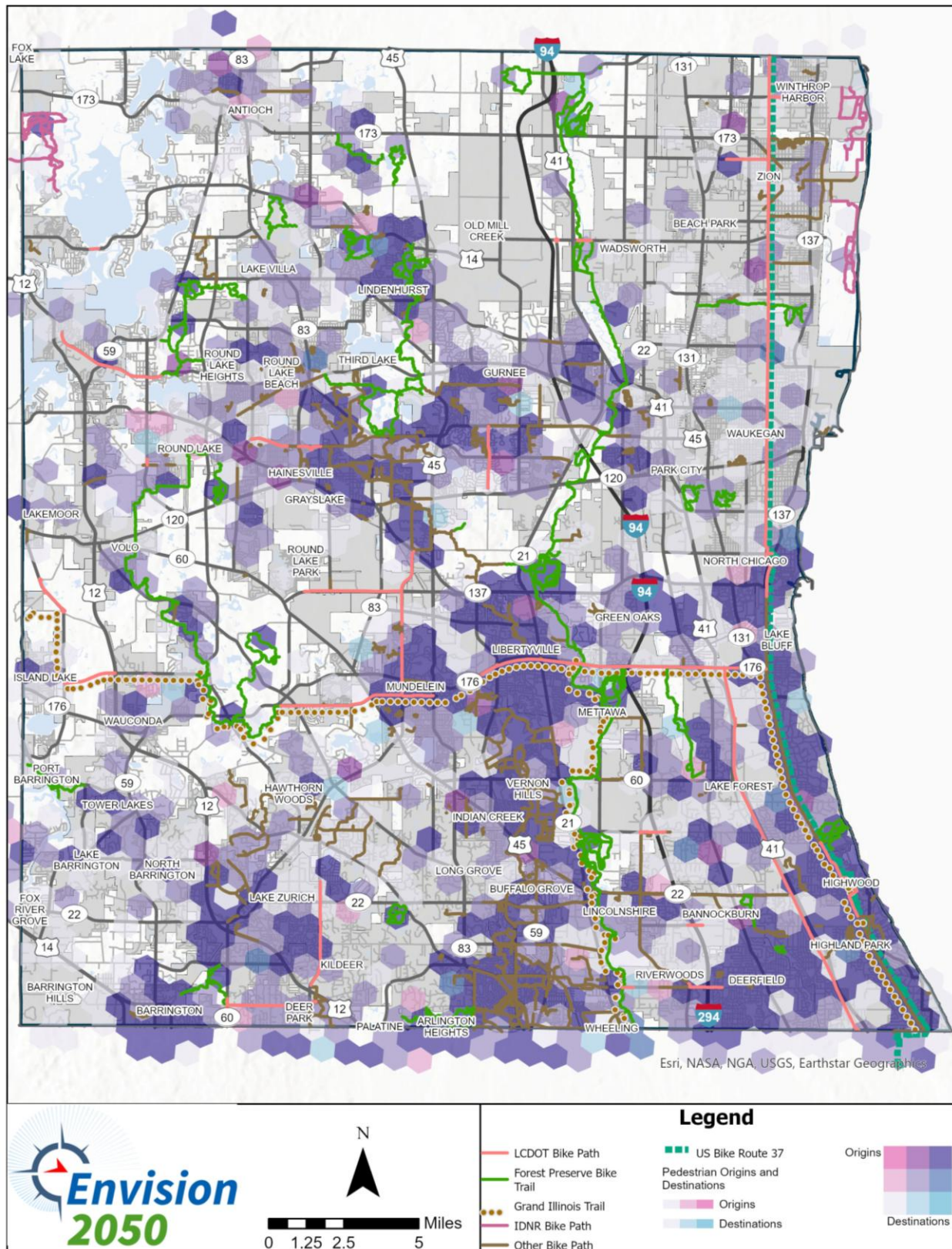
Over 4.3 million miles ran, walked, and hiked in 2024

94% of trips were for recreation

6% of trips were for commuting

Figure 37 illustrates pedestrian activity across Lake County, highlighting origin and destination locations. It overlaps layers of origin and destination data with the bicycle and pedestrian network to provide a comprehensive view of pedestrian behavior and accessibility. The origins and destinations are shown using shaded regions in varying colors or blue, pink, and purple. Darker shades indicate areas with higher concentrations of running, walking, and hiking trips, suggesting popular starting and ending points. Lighter shades reflect lower concentrations, possibly due to limited pedestrian infrastructure or lower population of users. Areas such as Deerfield, Buffalo Grove, Grayslake, and Libertyville show high activity, aligning with their proximity to bike trails and shared use paths. **Figure 37** expresses the importance of well-connected pedestrian networks to promote running, walking, and hiking. It also helps identify gaps in the network where demand might be underserved, guiding investments for non-motorized planning.

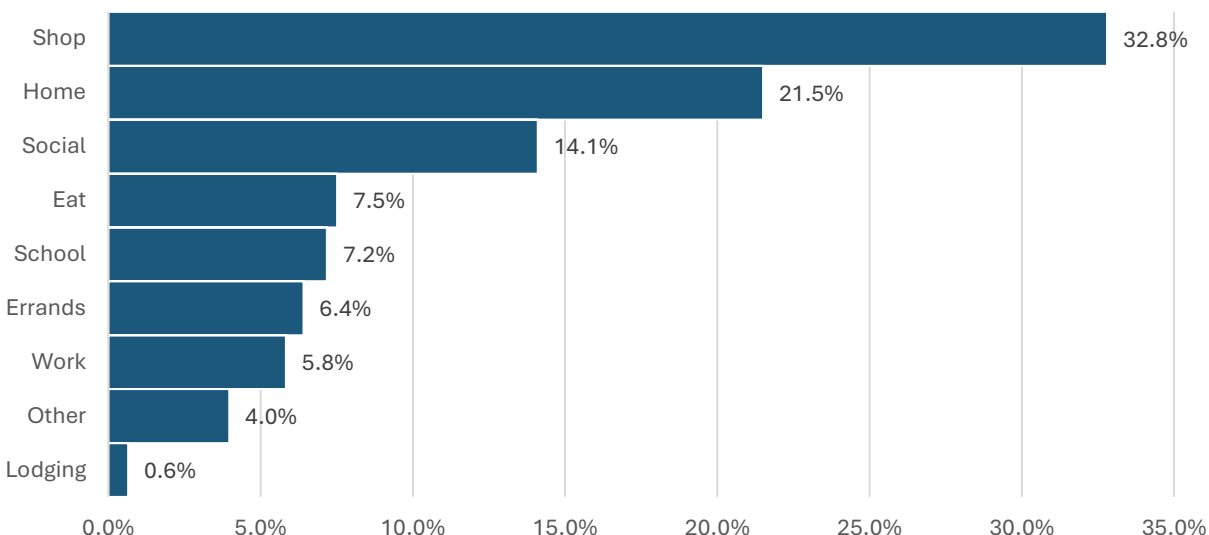
Figure 37: Origins and Destinations for User Reported Walking Trips in Lake County, 2024



Source: Strava Metro

Along with non-recreational bicycle trips, pedestrian trips made for non-recreational purposes were also analyzed using the Replica HQ data. **Figure 38** illustrates the breakdown of non-recreational pedestrian trips by trip purpose. The highest proportion of trips made were for shopping purposes, amounting to 32.8 percent, while the next highest proportion of trips were trips made home at 21.5 percent. Generally, purposes for non-recreational pedestrian trips align with those made for non-recreational bicycle trips.

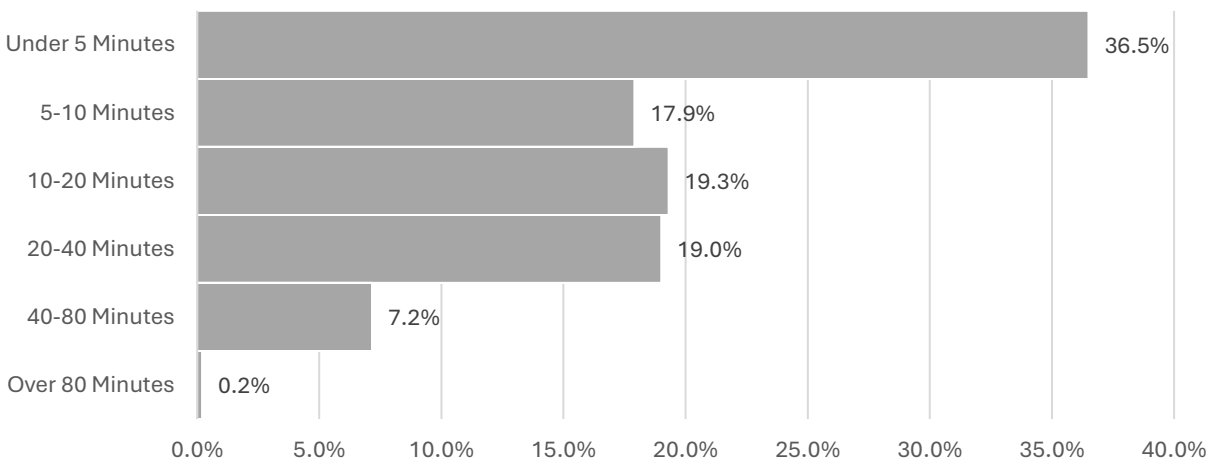
Figure 38: Trip Purposes for Non-Recreational Pedestrian Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

Figure 39 presents trip durations, in minutes, for non-recreational pedestrian trips made within Lake County. These trips mainly ranged from under five minutes up to 40 minutes, with over one third of trips lasting under 5 minutes. Non-recreational pedestrian trips lasting between 20 and 40 minutes accounted for just under 20 percent of all typical weekday trips.

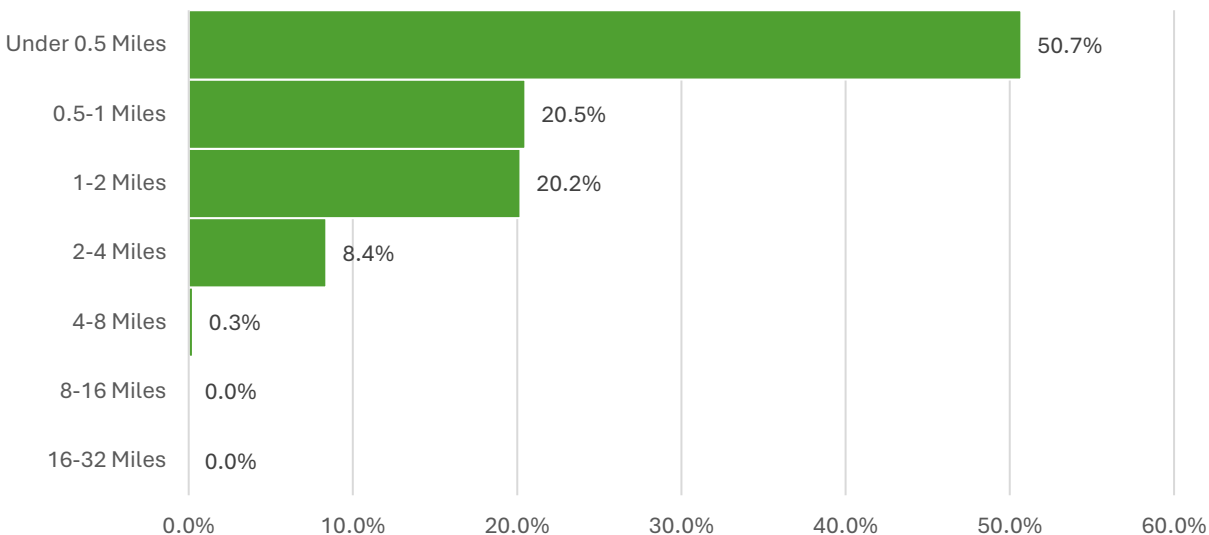
Figure 39: Trip Durations (in Minutes) for Non-Recreational Pedestrian Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

Figure 40 contains the breakdown of trip distances for non-recreational pedestrian trips and illustrates that roughly half of all non-recreational pedestrian trips were 0.5 miles or less. Trips traveling between 0.5 and 1 miles and 1 and 2 miles both comprise just over 20 percent, and when combined with trips that traveled less than 0.5 miles accounted for over 90 percent of all trips. These trends reinforce the utility of walking for shorter-distance travel.

Figure 40: Trip Distances (in Miles) for Non-Recreational Pedestrian Trips within Lake County, Typical Weekday in Spring 2025



Source: Replica HQ

Similar to the stated priorities of LCDOT staff and the County’s elected officials, residents of the County have a high propensity for non-motorized travel. From the user-reported Strava data, it was concluded that most non-motorized trips tracked by Strava users in Lake County are for recreational purposes but with more connected systems, residents could be encouraged to use them for commuting as well.

Transit System

Transit services operated within Lake County include commuter rail services operated by Metra, suburban bus service operated by Pace, and demand response service operated by Ride Lake County. Collectively, these transit services provide additional mobility options to help users access employment, housing, retail, medical needs, and other recreational opportunities.

Metra

Metra is a commuter rail system that serves the six-county Chicago area, offering service to and from downtown Chicago along 11 routes and 243 stations⁹. Metra operates four lines that serve Lake County; a total of 32 Metra stations are located within the County (**Table 13**). **Figure 41** shows the locations of the four Metra lines and 32 stations serving Lake County.

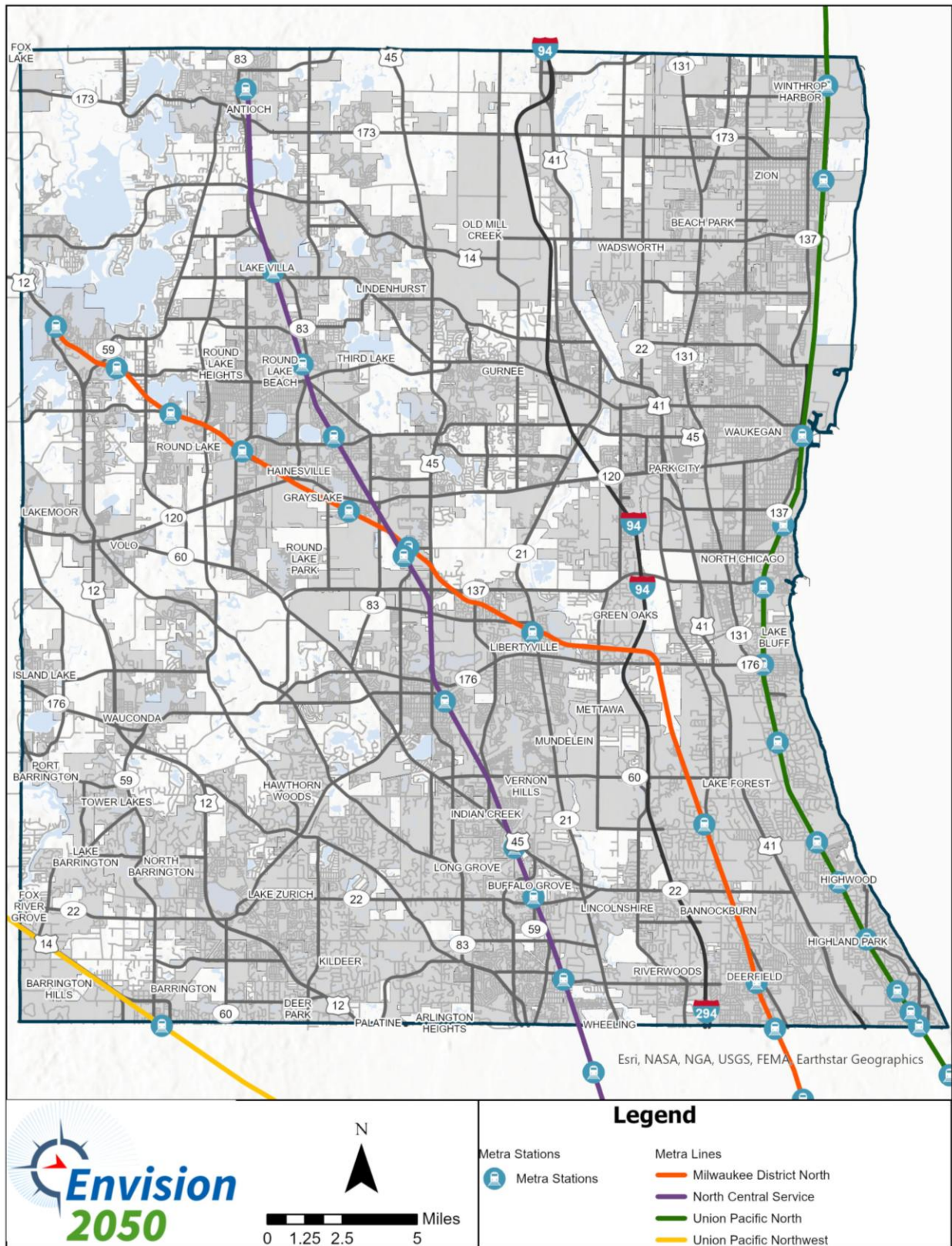
Table 13: Metra Lines and Stations within Lake County

Metra Line	Metra Stations in Lake County	Miles in Lake County
Milwaukee District North	9	26 miles
North Central Service	9	24 miles
Union Pacific North	13	24 miles
Union Pacific Northwest	1	4 miles

Source: Regional Transportation Authority

⁹ Metra, [About Metra](#).

Figure 41: Metra Lines and Stations within Lake County

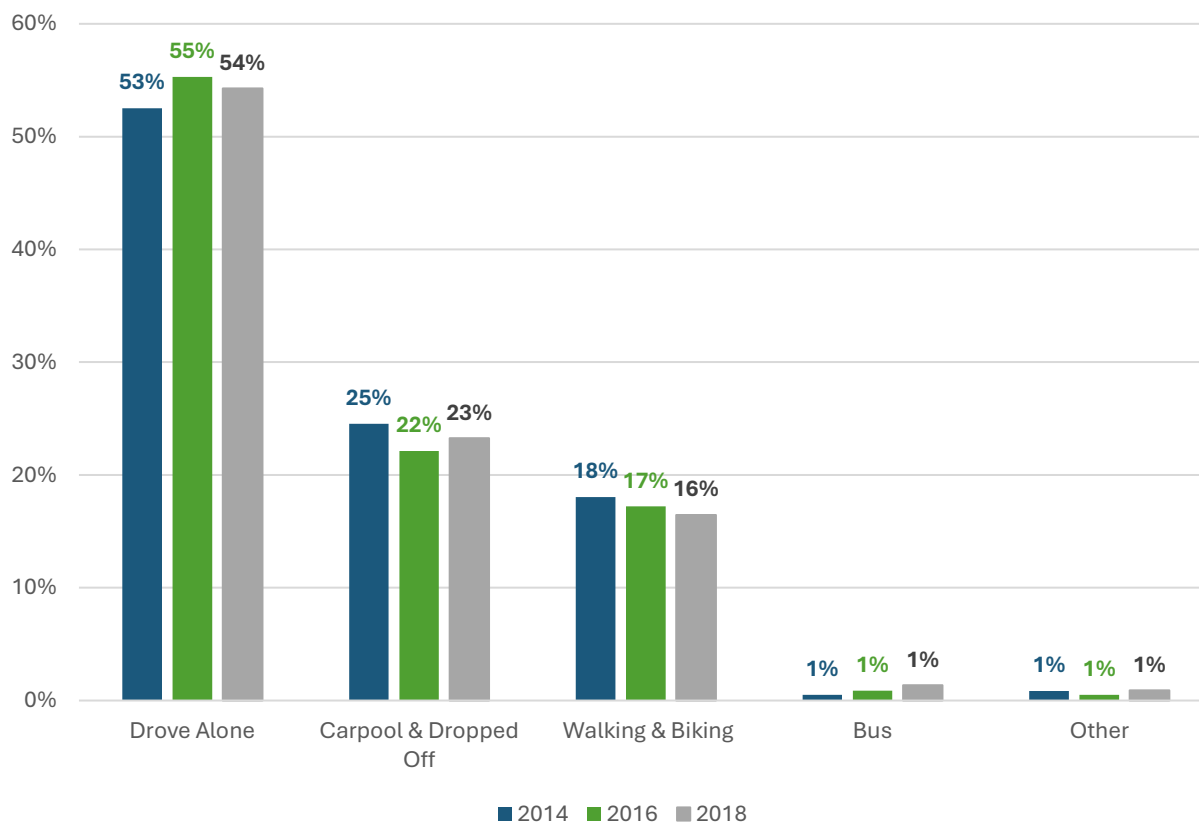


Source: Regional Transportation Authority

Station access data obtained from the Regional Transportation Authority Mapping and Statistics (RTAMS) repository provides insight into how Metra users travel to Metra stations prior to boarding. This data was collected biennially for the years 2014 through 2018 and was aggregated for all stations within Lake County to better understand how Metra users generally access the Metra stations within the County. **Figure 42** illustrates the aggregated data for mode of access for all Metra stations in Lake County collected between 2014 and 2018. This data represents the average mode share for all stations by year.

As the figure shows, the largest mode share was “Drove Alone” which accounted for a mode share of over 50 percent for each year analyzed. The next largest mode was “Carpool & Dropped Off” which accounted for over a mode share of over 20 percent for each year analyzed; combining with “Drove Alone” indicates that over 75 percent of Metra users accessed a Metra station in a private vehicle. The next largest modal share was “Walking & Biking” which accounted for 16 to 18 percent of trips made to Metra stations between 2014 and 2018.

Figure 42: Mode of Access for All Metra Stations in Lake County, 2014-2018

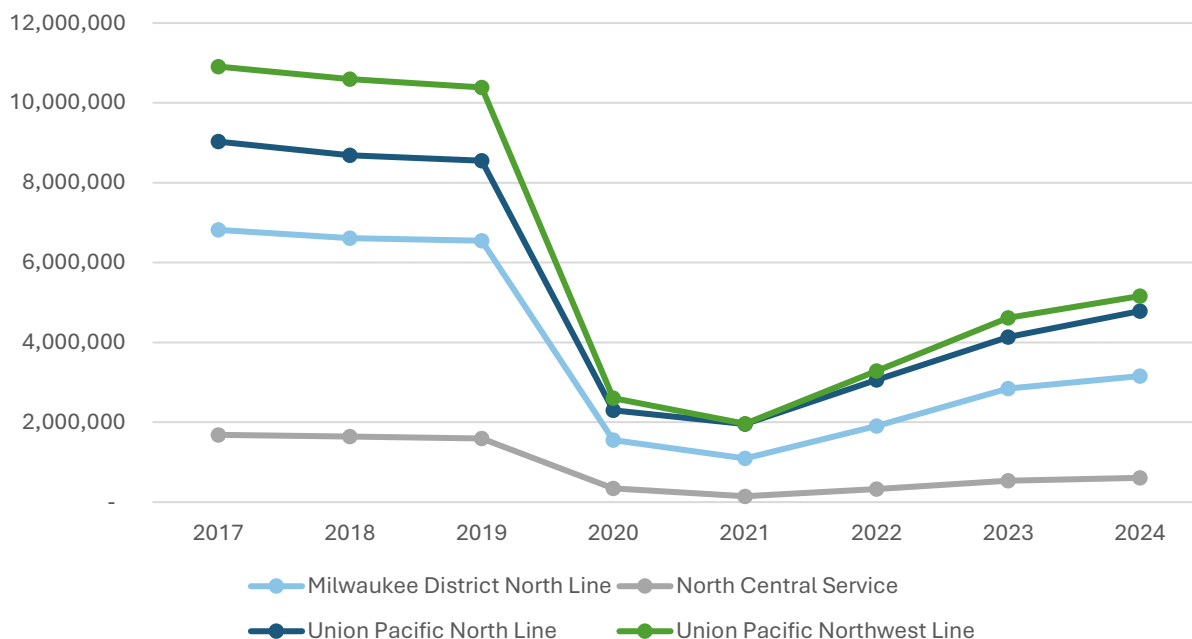


Source: Regional Transportation Authority

Annual ridership levels for Metra lines serving Lake County were also available from RTAMS for the years 2017 through 2024 and are shown in **Figure 43**. It is noted that the annual ridership levels shown reflect total ridership for each line and are not reflective of service within Lake County only. The Union Pacific Northwest line demonstrated the highest annual ridership during this period, peaking in 2017 at just under 11 million. The general trend for Metra ridership during this time period illustrates relatively static ridership between 2017 and 2019 before each line experience

dramatic declines in 2020 owing to the COVID-19 public health pandemic. Annual ridership for the year 2021 reflected similar levels to those of 2020 while annual ridership increased each year between 2022 and 2024.

Figure 43: Annual Ridership for Metra Lines Serving Lake County, 2024



Source: Regional Transportation Authority

Pace

Pace operates transit services for residents of Cook, Will, DuPage, Kane, Lake, and McHenry counties. Pace serves approximately 127,000 riders each day on its 134 fixed routes, 14 express routes, 14 Park-n-Rides, 37 Dial-a-Ride services, 11 On Demand services, and 401 Vanpools.¹⁰

The analysis of Pace services offered within Lake County was based on ridership data for the year 2024 and represents 21 Fixed Route and On Demand services. **Table 14** lists each of the 21 routes included in the analysis and details the services provided by each.

¹⁰ Pace, *About Pace*.

Table 14: Pace Routes Operated in Lake County

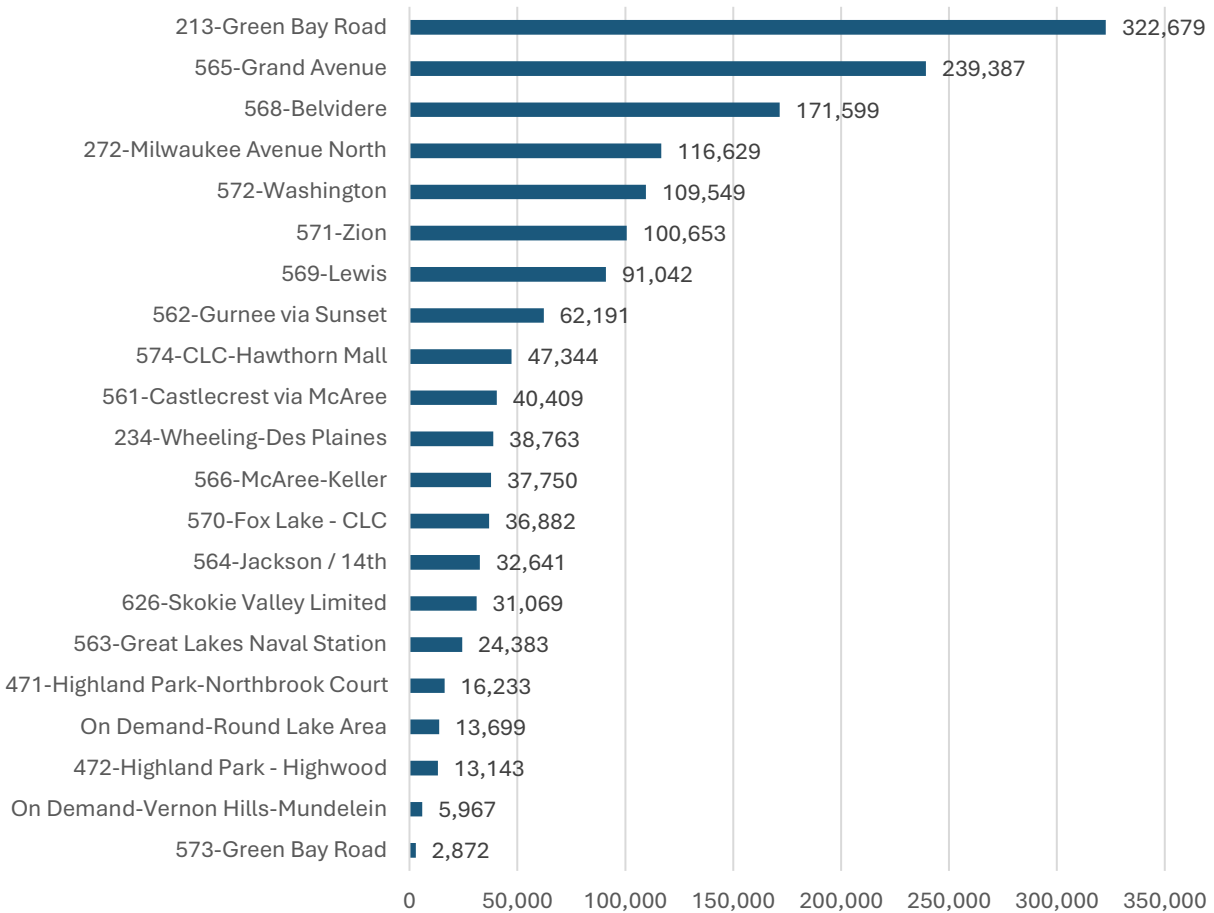
Route Number	Route Name	Service Type	Service Frequency
213	Green Bay Road	Fixed Route	Weekday, Saturday
234	Wheeling-Des Plaines	Fixed Route	Weekday, Rush Hour
272	Milwaukee Avenue North	Fixed Route	Weekday, Saturday
471	Highland Park-Northbrook Court	Fixed Route	Weekday, Saturday
472	Highland Park - Highwood	Fixed Route	Weekday, Saturday
561	Castlecrest via McAree	Fixed Route	Weekday, Saturday
562	Gurnee via Sunset	Fixed Route	Weekday
563	Great Lakes Naval Station	Fixed Route	Daily
564	Jackson / 14th	Fixed Route	Weekday, Saturday
565	Grand Avenue	Fixed Route	Daily
566	McAree-Keller	Fixed Route	Rush Hour
568	Belvidere	Fixed Route	Daily
569	Lewis	Fixed Route	Daily
570	Fox Lake - CLC	Fixed Route	Weekday, Saturday
571	Zion	Fixed Route	Daily
572	Washington	Fixed Route	Weekday, Saturday
573	Green Bay Road	Fixed Route	Rush Hour
574	CLC-Hawthorn Mall	Fixed Route	Weekday, Saturday
626	Skokie Valley Limited	Limited Stop Fixed Route	Weekday
On Demand	Round Lake Area	On Demand	Weekday
On Demand	Vernon Hills-Mundelein	On Demand	Weekday

Source: Pace

Annual ridership data for the year 2024 was reviewed for each of the 21 routes operating in Lake County and is summarized in **Figure 44**. The top routes, based on annual ridership for the year 2024, include route 213- Green Bay Road, route 565- Grand Avenue, route 568- Belvidere, route 272- Milwaukee Avenue North, and route 572- Washington. Collectively, these routes accounted for over 60 percent of the annual ridership recorded for all 21 of Lake County’s Pace routes.

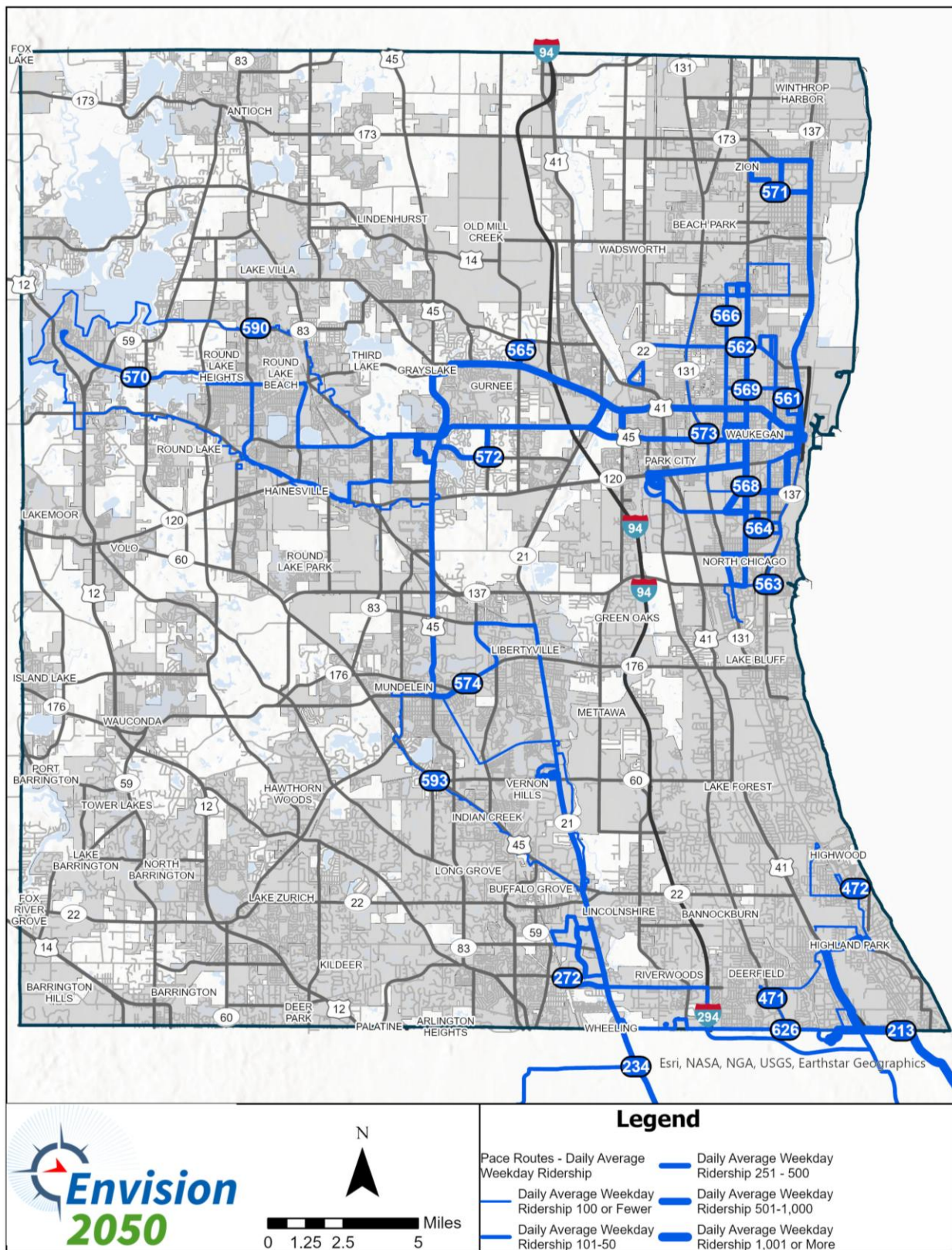
Figure 45 shows the 21 Pace routes operating in Lake County, symbolized by their daily average weekday ridership levels provided by Pace.

Figure 44: Annual Ridership for Lake County Pace Routes, 2024



Source: Pace

Figure 45: Lake County Pace Routes by Daily Average Weekday Ridership, 2024



Source: Regional Transportation Authority, Pace

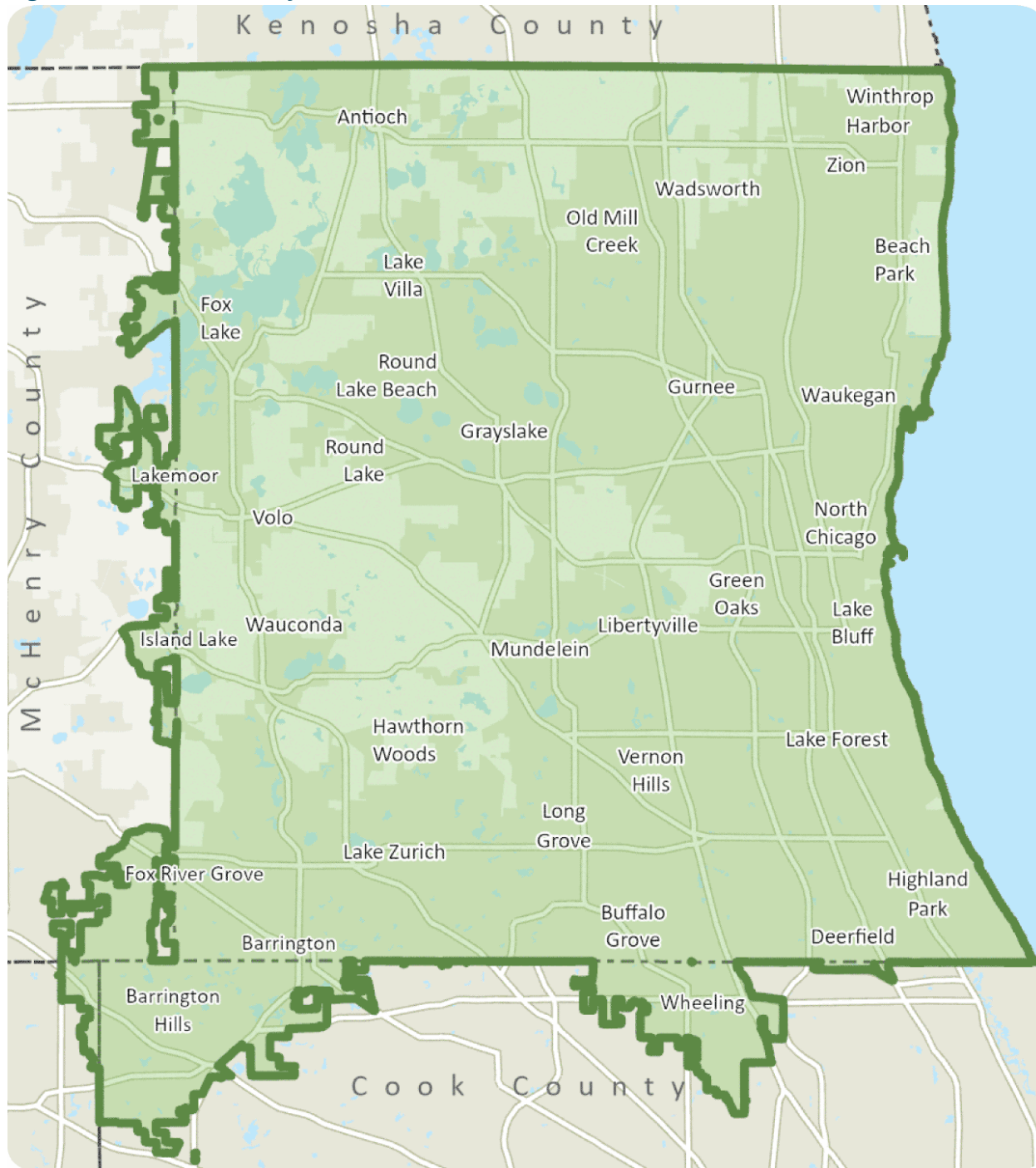
Ride Lake County

Ride Lake County is a countywide paratransit service for seniors aged 60+ and individuals with disabilities. Ride Lake County paratransit service is sponsored by Lake County and Pace, with federal funding awarded from the Regional Transportation Authority.

Users of Ride Lake County reserve rides in advance and are able to use the curb-to-curb service for rides to and from their pick-up and drop-off destinations located anywhere within Lake County or in the complete municipal boundaries of communities partially within Lake County, see Ride Lake County's service area (**Figure 46**).

For more information on Ride Lake County paratransit service, including how to register, how to reserve rides, and fare information, refer to the [Ride Lake County page](#) on LCDOT's website.

Figure 46: Ride Lake County Service Area

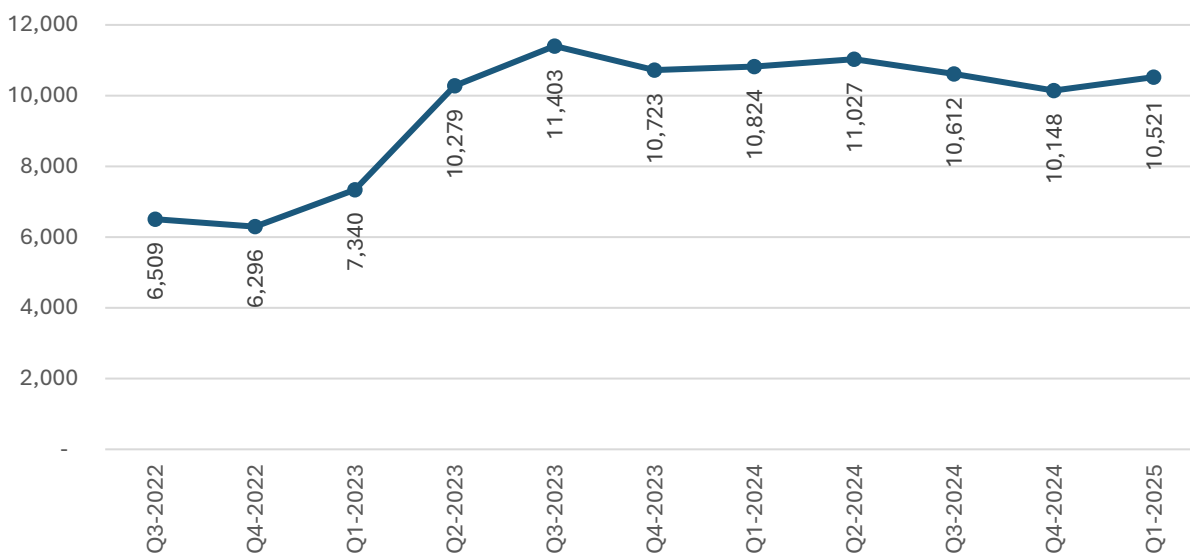


Source: Lake County Division of Transportation

Analysis of Ride Lake County’s paratransit service was conducted using trip data provided by LCDOT for the years 2022 through 2025; it is noted that data for the year 2022 was available only for the months of May through December while data for the year 2025 for the months of January through April.

Figure 47 presents the number of passengers served by quarter for the Quarter 3 of 2022 through Quarter 1 of 2025; the amounts shown in **Figure 47** represent the number of passengers for each trip booked during the analysis timeframe. As the figure shows, the number of passengers served saw a sharp increase in 2023 which was due to an expansion of the service county wide and increased promotion of the service. Usage of the service maintained a steady trend for the years 2024 and the first quarter of 2025, averaging roughly 10,600 passengers per quarter.

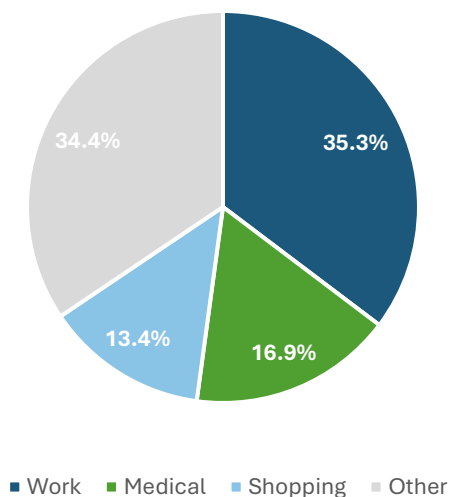
Figure 47: Passengers Served by Ride Lake County, 2022-2025



Source: Lake County Division of Transportation

Figure 48 summarizes the main trips purposes served via Ride Lake County in 2024. Trips made for work purposes constituted the largest proportion of trips, consisting of 35% of all trips. Medical and shopping were the second and third most common trip purpose, comprising just under 17% and 13.4% of all trips, respectively. The remaining 34% of trips served by Ride Lake County in 2024 were for other purposes.

Figure 48: Purpose of Ride Lake County Trips, 2024



Source: Lake County Division of Transportation

Table 15 presents the top five cities within Lake County for the origination and destination of trips made via Ride Lake County. The cities of Waukegan and Gurnee were the top origin and destination cities for Ride Lake County trips and accounted for approximately 32% of all trip origins and destinations during this period. Grayslake, Vernon Hills, and Libertyville were all included in the top five origin and destination cities and each accounted for roughly 7% of Ride Lake County trip origins and destinations.

Table 15: Top 5 Origin and Destination Cities for Ride Lake County Trips, 2024

Origin City	Trips	Percent of Trips	Destination City	Trips	Percent of Trips
Waukegan	7,273	17.1%	Waukegan	7,429	17.5%
Gurnee	6,302	14.8%	Gurnee	6,347	14.9%
Grayslake	3,302	7.8%	Vernon Hills	3,125	7.3%
Vernon Hills	2,901	6.8%	Libertyville	3,077	7.2%
Libertyville	2,812	6.6%	Grayslake	3,032	7.1%

Source: Lake County Division of Transportation

Figure 49 shows the concentrations of origins and destinations for the trips originating in Lake County’s municipalities in 2024.

Passenger Rail Service

An existing passenger rail line operated by Amtrak provides service through Lake County. Amtrak's Hiawatha Service operates daily and provides service between the cities of Chicago, Illinois and Milwaukee, Wisconsin. The Hiawatha Service does not currently stop within Lake County; in addition to stops in Chicago and Milwaukee, the service stops in Glenview, Illinois and Mount Pleasant, Wisconsin.



Amtrak Hiawatha Train
Source: Amtrak

Several communities within Lake County have initiated planning efforts aiming to understand the feasibility of providing access to Hiawatha Service. One example is the city of Waukegan's [Amtrak Station Feasibility Study](#) published in May 2025 that evaluates the service market and feasibility of constructing an Amtrak station within the community.

Freight System

The Role of Freight in Lake County

Freight activities are a key driver of the regional economy of northeast Illinois. IDOT's District 1 comprises six counties, including Lake County, and collectively these counties represent the largest DOT district in terms of freight tonnage and value coming into, out of, and through the district.¹¹

While the focus of District 1 freight activity are Cook and Will Counties, Lake County's series of highway, rail, and intermodal freight facilities support critical freight connectivity and mobility between District 1 and surrounding areas. This section of the memorandum provides an overview of freight-supportive facilities found within Lake County.

Highway Freight

Lake County's highway freight facilities designated as part of IDOT's truck route network are shown in **Figure 50**. The IDOT truck route classifications include highway routes designated as:¹²

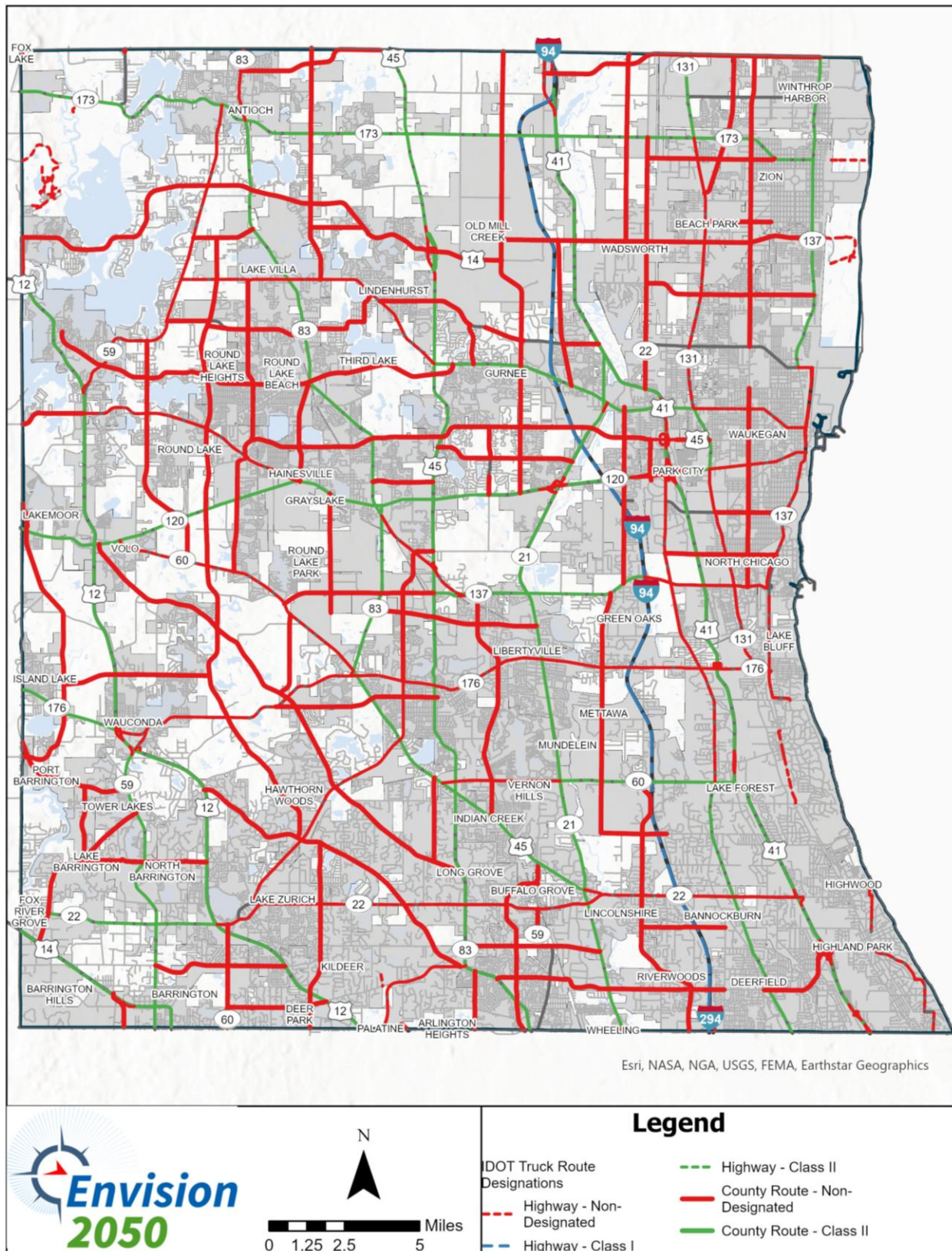
- **Class I:** Interstate highways, expressways, tollways, and other highways deemed appropriate by IDOT. Class I routes comprise **3.7 percent** of IDOT's truck route network centerline mileage in Lake County.
- **Class II:** Highways including state highways and designated local not built to Interstate highway standards that have at least 11-foot lane widths. Class II routes comprise **29.0 percent** of IDOT's truck route network centerline mileage in Lake County.

¹¹ Illinois Department of Transportation, [Illinois 2023 District 1 Freight Plan](#).

¹² State of Illinois, [625 ILCS 5/1-126.1](#).

- **Non-Designated:** State highways not designated as Class I or Class II and local highways that are a part of any county, township, municipal, or district road system designated as Class II. Local authorities may designate Class II highways within their systems of highways. Non-designated routes comprise **67.3 percent** of IDOT's truck route network centerline mileage in Lake County.

Figure 50: IDOT Truck Route Designations, Lake County



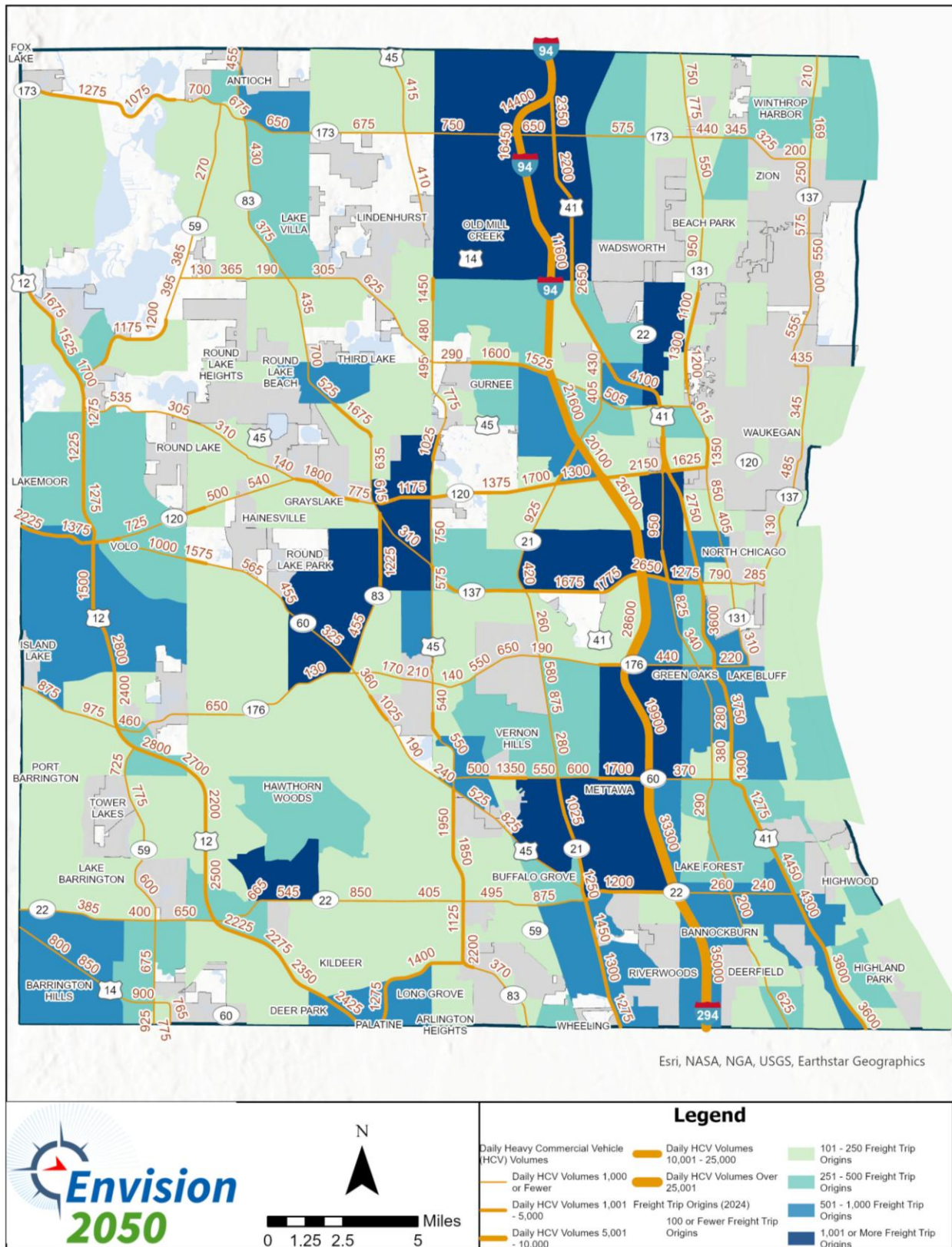
Source: Illinois Department of Transportation

Origins and destinations for highway freight trips beginning and ending in Lake County were analyzed using data obtained from Replica HQ. The freight highway origins and destinations are considered to be locations with land uses that generate and attract highway freight trips, such as industrial and commercial uses. The highway freight trip origin and destination data analyzed looks at highway freight trip patterns for a typical weekday in Fall 2024 and is reported at the census block group level.

Figure 51 shows the highway freight trip origins for Lake County block groups for a typical weekday in Fall 2024; the figure also includes daily heavy commercial vehicle volumes sourced from IDOT. The highway freight trip dataset shows that the Lake County census block groups with the highest number of trip origins are adjacent to I-94, which also carries the highest daily heavy commercial vehicle volumes. Other census block groups with high levels of highway freight trip origins are located in the central and southern portions of Lake County.

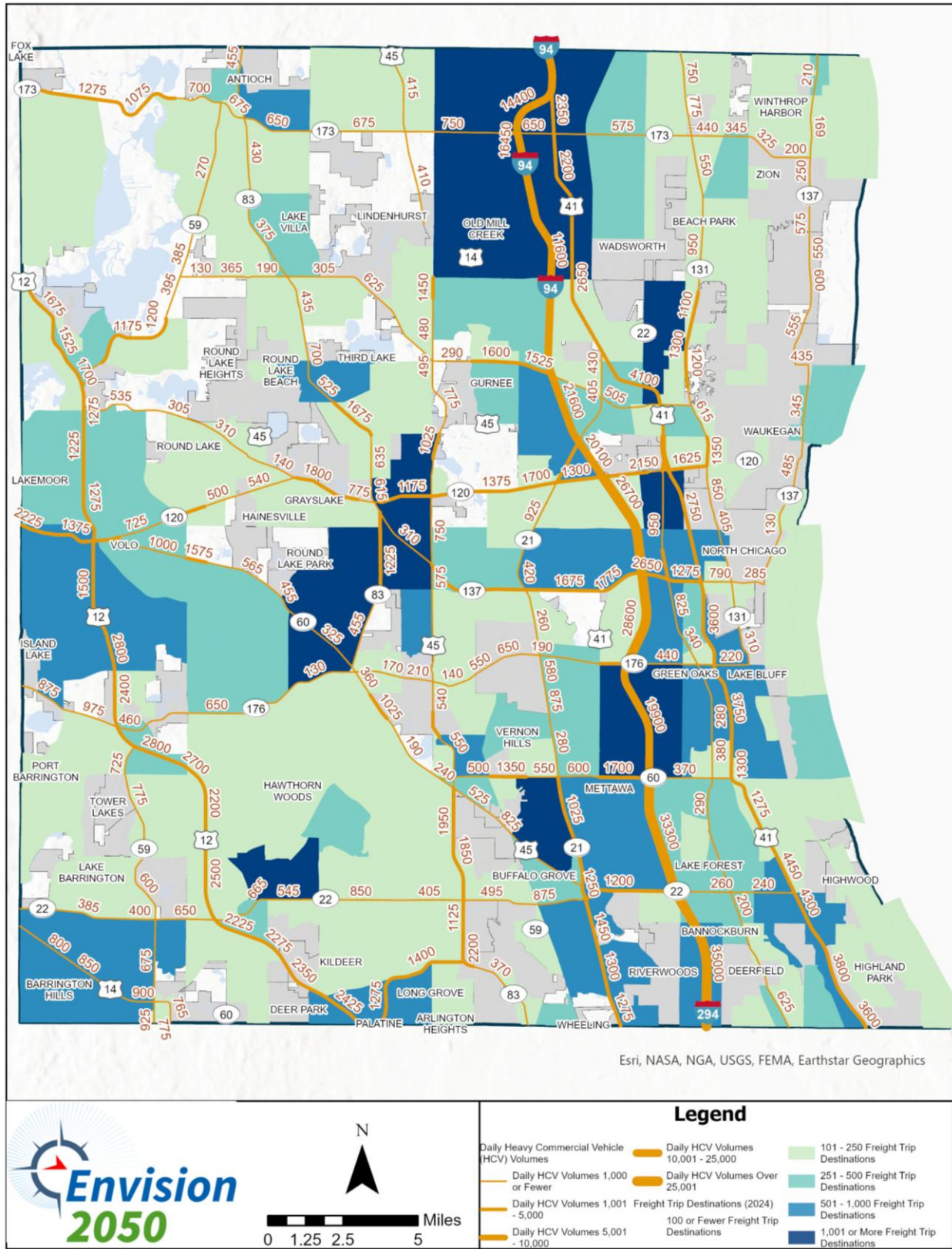
Figure 52 shows the highway freight trip destinations for Lake County block groups for a typical weekday in Fall 2024 along with IDOT's daily heavy commercial vehicle volumes. Similar to the highway freight origins, census block groups with higher numbers of highway freight destinations are adjacent to I-94.

Figure 51: Highway Freight Trip Origins in Lake County, 2024



Source: Replica HQ, Illinois Department of Transportation

Figure 52: Highway Freight Trip Destinations in Lake County, 2024



Source: Replica HQ, Illinois Department of Transportation

Rail Freight

Rail freight assets found within Lake County include existing rail lines and rail crossings, which are shown in **Figure 53**.

Rail lines within Lake County are owned and operated by several operators, including Canadian National, Canadian Pacific Railway, Northeast Illinois Regional Commuter Railroad, Union Pacific, and Wisconsin and Southern Railroad.

Today, there are 29 locations where at-grade crossings are found on Lake County-owned roadways. These locations are included in **Figure 53**, as noted above.

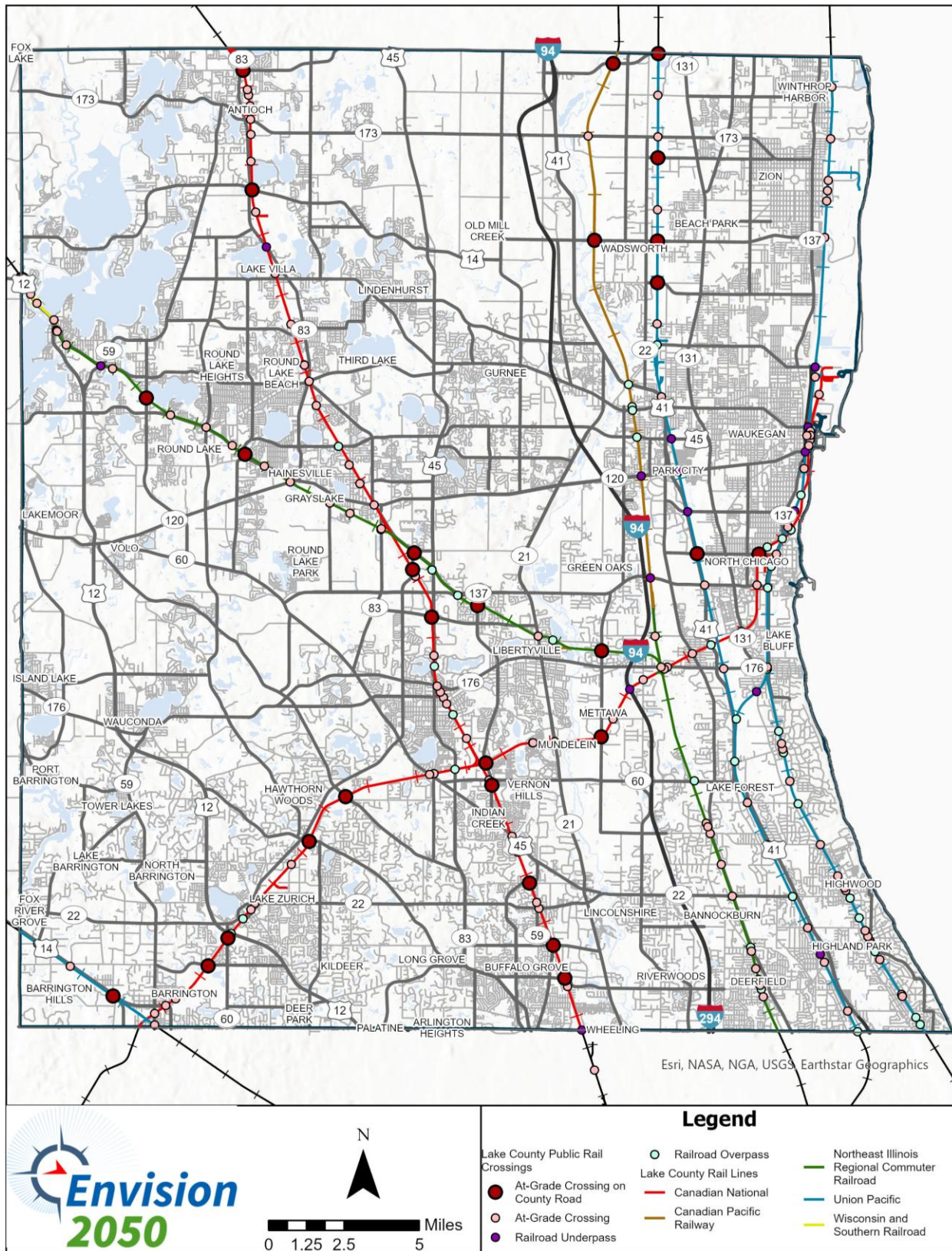
Table 16 provides a look at the public rail crossings in Lake County, of which over 70 percent are at-grade.

Table 16: Public Rail Crossings in Lake County

Crossing Position	Number of Crossings	Percent of Crossings
At-Grade	160	72.7%
Railroad Underpass	17	7.7%
Railroad Overpass	43	19.5%
Total	220	

Source: Federal Rail Administration

Figure 53: Lake County's Freight Rail Assets



Source: Federal Rail Administration

N

0 1.25 2.5 5 Miles

Air Freight

Air freight activities within Lake County are limited. Waukegan National Airport is located within Lake County and is identified in IDOT's [2023 District 1 Freight Plan](#) as an Air Cargo Airport, but does not routinely facilitate air cargo activities. Waukegan National Airport is defined by the Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS) as a "reliever airport" for O'Hare International Airport, which is located to the south in Cook and DuPage Counties.¹³

Ports and Waterways

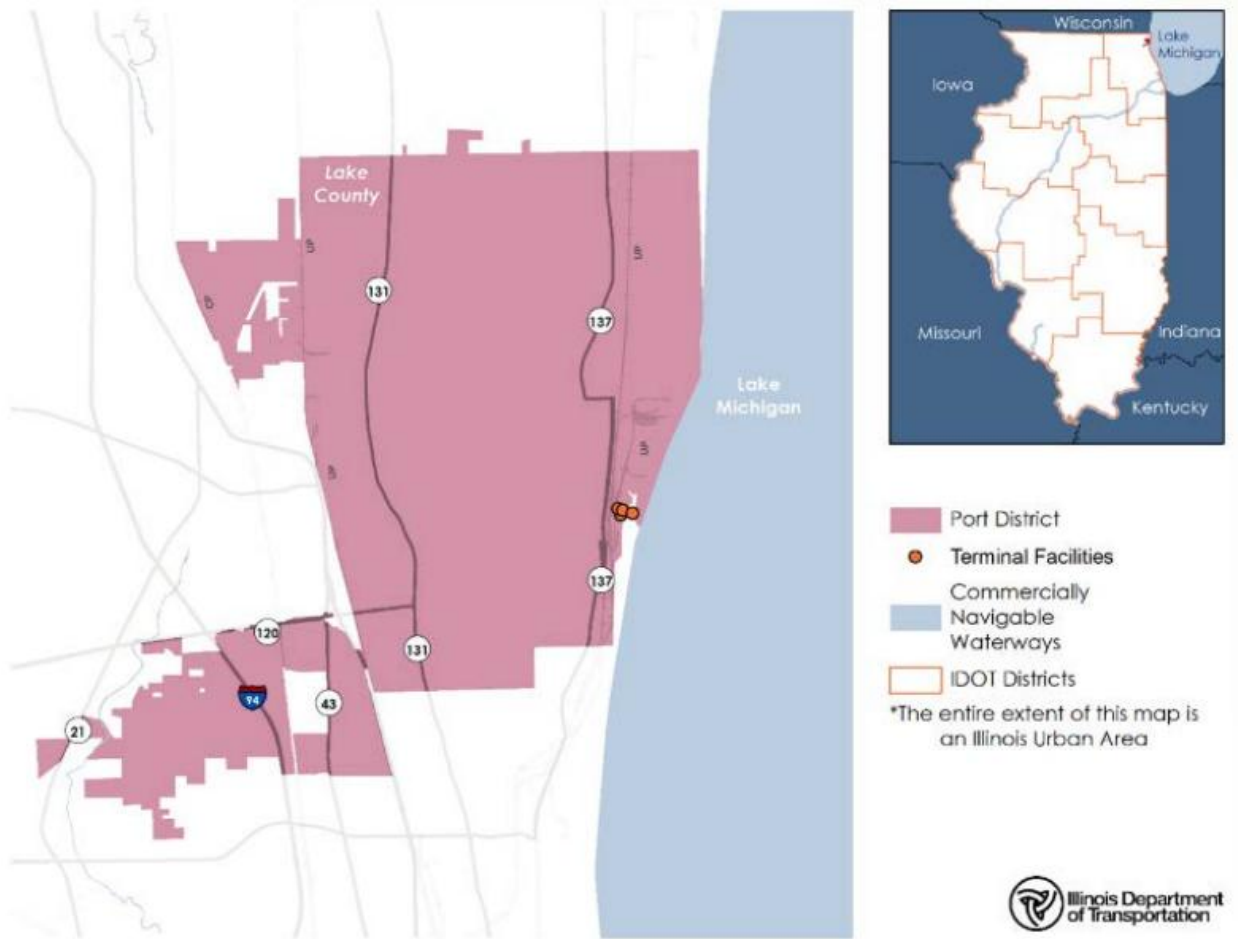
Ports and waterways are the series of facilities that support marine freight activities within the state of Illinois. The IDOT 2023 District 1 Freight Plan identifies the Waukegan Port District, and the multimodal connections found within this district. These multimodal connections are shown in **Figure 54** and include:¹⁴

- **Waterways:** 6.8 miles of coastline along Lake Michigan that are apart of Marine Highway M-90.
- **Highway:** Interstate, U.S., and state routes including I-94, IL 43 (Waukegan Road), IL 120 (Belvidere Road), IL 131 (Green Bay Road), IL 137 (Sheridan Road), and U.S. 41.
- **Rail:** Class I railroads operated by Union Pacific and Canadian Pacific-Kansas City Southern.
- **Air:** Intermodal connection with Waukegan National Airport.

¹³ Federal Aviation Administration, [2025-2029 National Plan of Integrated Airport Systems](#).

¹⁴ Illinois Department of Transportation, [Illinois 2023 District 1 Freight Plan](#).

Figure 54: Waukegan Port District



Source: Illinois Department of Transportation