# Appendix A: Land Use Information

## Lake Forest Land Use Characteristics

1. Residential

   Single Family residential composes the majority of the land area in the City. Many of the single family homes can be considered estates, especially in east Lake Forest. Lake Forest was laid out to provide limited access. This design helps contribute to the rural, small-town feel of Lake Forest. This is especially true of east Lake Forest along the coast of Lake Michigan.

2. Commercial

   Two commercial areas can be found in Lake Forest and both are near Metra Stations. The central business district contains Market Square, which is located across from the Union Pacific/North Line Metra Station. A variety of retail, banking, and restaurant establishments can be found in Market Square. Since Market Square is located in downtown Lake Forest, it is a very pedestrian oriented area. A Jewel grocery store is located on the northern border of the central business district.

   Settlers' Square is located in west Lake Forest along Waukegan Road near the Milwaukee District/North Line Station Settler's Square. It also contains restaurants and small retail stores. Unlike Market Square, Settler's Square is more automobile oriented. The business establishments are separated from the roadway by parking lots.

3. Employment and Industrial/Office Research

   Conway Park was designed and developed in the early 1990s. It is located adjacent to the Tri-State Tollway, north of Illinois Route 60 and is home to several large corporations including Brunswick, Hospira, Pactiv, HSBC, CDW, Grainger, PCA, and Tenneco. Approximately 6,000 employees work in Conway Park.

4. Parks and Recreation

   There are thirteen parks located in Lake Forest. Some of the larger parks include:

   - Forest Park Beach is located along Lake Michigan and contains facilities for swimming and boating.
   - Deerpath Community Park is located behind the Deerpath schools and contains athletic fields and a recreation center.
   - Everett Park is located at Everett School Road and Telegraph Road and contains athletic fields and a picnic shelter.
   - Northcroft Park is located near Ridge Road and Old Elm Road and contains a large pavilion, playground equipment, walking trails, and tennis courts.
   - South Park is located at Maywood Road and Highview Terrace and contains athletic fields and playground equipment.
   - Waveland Park is located along Waveland Road and contains athletic fields and playground equipment.
   - West Park is located at Woodland Road and Green Bay Road and contains athletic fields and playground equipment.

# Appendix B: Peer Community Interviews

Interviews were conducted with three similar communities to learn how public transportation is provided to those communities. The three communities were selected by the Technical Subcommittee of the Steering Committee. Table 1 summarizes the characteristics of these communities. This data comes from the U.S. Census' website and other websites.

Table 1: Characteristics of Peer Communities

| Community | Population | People per Square Mile | Median HH Income | Rail Link to Metro Area | Large Employer | Hospital | Private Schools | Colleges | Regional Retail | Transit |
|---|---|---|---|---|---|---|---|---|---|---|
| Lake Forest, Illinois | 20,059 | 1,189.4 | $150,670 | Yes | Yes | Yes | Yes | Yes | No | Pace, Private Shuttles |
| Greenwich, Connecticut | 61,101 | 1,277.6 | $117,857 | Yes | Yes | Yes | Yes | No | No | Norwalk, CT Transit |
| Schaumburg, Illinois | 75,386 | 3,967 | $65,267 | Yes | Yes | No | No | No | Yes | Pace, Village Funded DAR |
| Cupertino, California | 50,546 | 4,620.5 | $100,411 | Rail in Adjacent Communities | Yes | No | No | Yes | Yes | VTA |

A. Greenwich, Connecticut

Description of Community

Greenwich is considered to be the city in the United States that is most similar to Lake Forest. It is an affluent community that contains many headquarters for financial services companies. It is also the home of Nestle Waters division offices and United Rental headquarters, two of the largest companies in the world in their respective industries. Greenwich is about a 40-minute express train ride from Mid-Town Manhattan in New York City. A shopping district exists along Greenwich Avenue in the central business district. Greenwich Hospital is an affiliate of the Yale University School of Medicine. The public school district has several schools, including one public high school. There are also many private schools serving all grades. No colleges are located within Greenwich but there are several in nearby communities, including Stamford, CT and Purchase, NY. Greenwich has four beaches, beachfront bicycling paths, and a community sailing center. Public transportation needs are met through a combination of CTTransit, Norwalk Transit District, and MTA Metro-North Railroad. Amtrak does not have a stop in Greenwich, but does have one in adjacent Stamford.

MTA Metro-North Railroad

The MTA Metro-North Railroad began in 1983 and is a subsidiary of New York State's Metropolitan Transportation Authority. Greenwich has four Metro-North Railroad stations that take travelers to Grand Central Terminal in New York City. The "Greenwich" station is the main station of the four. The train stops at the Greenwich stations seven days a week, approximately 5:00 am-3:00 am.

CTTransit

Greenwich area transit has existed for several decades. CTTransit is the statewide bus service owned by the Connecticut Department of Transportation. CTTransit operates three bus routes that serve Greenwich: #11 Local, I-Bus Express, and #24 Local.

- #11 Local is one of the busiest CTTransit bus routes in the state of Connecticut, operating throughout the day weekdays and weekends. It travels along the US Route 1 corridor and serves Greenwich and adjacent Port Chester and Stamford communities. Riders along the route are office workers, local residents, landscaping laborers, students, and a general mix of people.

- The I-Bus provides connecting service to the Greenwich Metro-North rail station. It is a regional bus that travels along I-95 and I-287. The bus makes a stop in the middle of its route at the Greenwich Metro-North rail station on weekdays - twice during the morning peak and twice in the evening peak. It travels between Stamford and White Plains, two cities in the region.
- The #24 Local is a route that serves Greenwich and adjacent Stamford. It is doing poorly and will likely be cut in the future.

Although no official partnership exists, the Greenwich public high school lies along the #11 Local bus route. The route was so crowded with high school students and the general public that a helper bus was recently added for one trip around 2 pm on school days in order to assist specifically with overcrowding caused by the high school students. CTTransit uses standard 40-foot low floor buses for all routes, but is moving toward articulated buses for #11 Local to assist with overcrowding.

Norwalk Transit District

Norwalk Transit is a regional transit agency that supplements CTTransit. Norwalk Transit operates shuttles from the Greenwich Metro-North train station that focus on transporting commuters from the train to their jobs in the surrounding area. There are two shuttles: Central Loop serving downtown Greenwich and West Loop serving the area along US Route 1. Shuttles operate weekdays only 7:00 – 9:00 a.m. and 3:45-6:15 p.m. and have 10-20 minute headways to match each train arrival and departure time. The Central Loop makes six stops including the Greenwich Hospital and the West Loop makes eight stops before looping back to the train station.

The two shuttles began in 1993 and have not had any major changes since that time. They began with the help of Federal Congestion Mitigation and Air Quality (CMAQ) funds at a time when Transportation Management Agencies (TMA's) were being formed. The corporations in Greenwich were largely interested in getting tax credits if they created a transportation program. Ridership levels on the shuttles parallel the Metro-North rail levels. A year ago both services had many riders, but now with the state of the economy, downtown ridership has decreased because many companies have reduced their numbers of employees. The main ridership on the shuttles is administrative support or entry-level workers at the large corporations as well as the businesses in Greenwich's downtown. Corporate executives are not utilizing the shuttles. The riders on the shuttles can be considered reverse commuters, but they are not necessarily all from New York City. Commuting patterns in the region are such that workers in Greenwich come from a variety of places including nearby towns.

The shuttles largely do not serve Greenwich residents. Many Greenwich residents commute into New York City and those riding the train use the Kiss n' Ride and parking lot at the Greenwich train station. Traditional fixed route service does not travel where many Greenwich residents reside, which in many cases are very affluent areas with rural character. The several private schools have many students who arrive on the Metro-North rail. However, these students do not ride on the loop shuttles because each private school has its own private shuttle that takes its students to and from the rail station.

Advertising for the shuttles includes brochures, information on the web, and schedules at the rail station. Brochures and materials are produced in-house by Norwalk Transit but they have a strong partnership with Metropool, the ridesharing service sponsored by the New York and Connecticut Department of Transportations (DOTs). Metropool conducts outreach to employers about their ridesharing programs and includes Norwalk's shuttle service in that outreach. The shuttles in Greenwich are entirely funded by the Connecticut DOT. The employers work with the transit agency and Metropool to promote the service. The Town of Greenwich is supportive but is not involved in the shuttle service at all. The shuttles use 30-foot buses with cloth seats. According to Norwalk Transit, the nice look of the shuttles and the ability for everyone riding to have a seat are very important to the riders. The shuttles do not have Wi-Fi technology but the transit agency might look into it during the next procurement cycle.

Challenges/Lessons

The largest obstacle to transit service in a high income community such as Greenwich is that the community was, at first, not supportive of buses circulating through their community. Although there was a general sense that public transit was important and should be a part of the community, the reality was that there was resistance in allowing bus stops in certain areas. Community feelings changed over time, and Greenwich recently increased its support of transit by initiating a transit study. When high gas prices came in summer 2008, more people saw the benefits that public transit provides to the community.

*Information supplemented by interviews with Brian McLaughlin from CTTransit and Nancy Carroll at Norwalk Transit District.*

B. Westport, Connecticut

When speaking to Nancy Carroll at Norwalk Transit, she stated that the Town of Westport is an interesting case study. Westport is a small town that is served by Norwalk Transit. In the mid-1980's, traditional fixed route service began serving residents in multimillion dollar homes. This differs from Greenwich's shuttle service, which mainly serves reverse commuters and residents typically do not ride. In Westport, fixed-route transit travels through the neighborhoods approximately 5:30-7:30 a.m. picking up residents and dropping them off at the local rail station that serves New York City. Then between approximately 7:30-9:30 a.m. the transit service switches to a reverse commuter route that takes travelers from the train station to jobs at corporate campuses and in downtown Westport. In the afternoon, service resumes 3:30-6:00 p.m. to take the employees to the rail station for the commute home, and 6:00-8:30 p.m. the service takes residents returning on the train back to their neighborhoods. The early morning and late evening crowd represents affluent Westport residents.

The Town of Westport funds a large portion of the shuttle service. Two key aspects of the service's success are a lack of train station parking and very nice shuttle vehicles. Parking is minimal at the train station and there is a multi-year waiting list for an available space. The shuttles are very nice 30-foot vehicles that have cloth seats and provide enough seating so that no riders are forced to stand.

*Information provided by Nancy Carroll at Norwalk Transit District.*

C. Cupertino, California

Description of Community

Cupertino is a very affluent community that is in Silicon Valley. It is the headquarters for Apple, Symantec, and other major technology firms; there are over 60 technology firms in Cupertino. The town is a suburban environment that includes an excellent public school system, City Hall, local library, community hall for meeting space, and a shopping center that includes stores such as Macy's and Sears. For recreation, the city has a newly renovated sports complex, 13 parks, 2 golf courses, a nature preserve, winery, museum, and racquet club among other things. The City boasts that it has a balanced mix of high tech firms, a retail complex, open space, quality schools, and residential areas. De Anza College is a community college of 26,000 students that is a hub of activity in this city with no real downtown.

Public Transportation

Santa Clara Valley Transportation Authority (VTA) serves Cupertino with 11 bus routes. VTA was created in 1972 and VTA employees believe that bus service in Cupertino began soon after. VTA also runs bus and light rail throughout the Santa Clara region, of which Cupertino is one part.

Caltrain, which provides rail service to San Francisco, has a stop in nearby Sunnyvale about a 15 minute drive away. Cupertino residents using public transportation are most likely to use Caltrain instead of VTA; Caltrain can travel into San Francisco in 40 minutes

The biggest transit generator in Cupertino is DeAnza College. The college attracts students from surrounding areas that take the bus to and from the campus. There is a VTA hub and transfer point at the college since the college provides the largest ridership base. The college jointly funded a study for a transit center on campus with the transit agency, but no official partnership exists and the college has no input on routing. A student pass for transit ridership that is included in college tuition has been discussed and may be implemented in the future.

In addition to college riders, seniors and others use transit for local mobility, and some residents may use transit to access jobs in other towns. Not many people use VTA to come into Cupertino to work, however.

Light rail also exists in the region providing access to downtown San Jose but it does not directly serve the residents of Cupertino. Shuttles to the light rail line are funded by Clean Air and Reverse Commuter funds and are contracted out by VTA, but Cupertino lost its shuttle route recently due to low ridership. VTA's shuttle fleet do not have many innovative features. VTA's shuttles are 20-seat industrial passenger vans. Marketing for VTA and Caltrain focuses on the service areas throughout the county and region. VTA is financially supported by the county sales tax mostly as well as congestion mitigation funds, since VTA is the county congestion mitigation agency.

In 2007, VTA conducted a comprehensive operations analysis that looked at performance on all routes and sought to allocate more resources toward more productive markets. This led to changes in 2008 that supported bus routes doing well and eliminated routes doing poorly rather than focusing on service coverage. Some parts of Cupertino have poor coverage of transit service due to the elimination of routes because of lack of ridership.

Many corporations such as Apple have private shuttles that travel between Caltrain and their offices in Cupertino. These companies often also have shuttles throughout the day between their corporate campuses in the region. These shuttles are private and not available to the public. These shuttles are paid for by the companies and are provided as a benefit to employees.

As of recent, there are less high school and middle school students taking VTA's buses. In the past VTA's routes would see decent ridership before and after school, but that trend dissipated and the 2008 changes led to some routes near schools being removed. An employee at VTA speculates that for whatever reason more parents are driving their students to school rather than having them take public transportation.

A perspective on public transportation from a City of Cupertino employee noted that it is a very auto-centric town and not many people use public transportation. The sense one gets is that the City does not participate much in transit issues and transit is not high on the minds of the City government.

Challenges/Lessons

The greatest fixed route bus ridership in Cupertino comes from community college students traveling into Cupertino's college campus. Fewer grade school students are using public transportation to get to and from school. The high-tech corporate firms transport employees between Caltrain's rail station to the company's

offices mainly on private shuttles paid for by the company. In Cupertino, it is difficult for public transportation to serve affluent riders and suburban corporate campuses.

*Information supplemented by interviews with Robert Swierck from Santa Clara Valley Transportation Authority, Kermit Cuff from Santa Clara Valley Transportation Authority, Richard Cook from Caltrain, and Piu Ghosh from the City of Cupertino.*

D. Schaumburg, IL

Description of Community

The Village of Schaumburg is a community located approximately 27 miles northwest of Chicago. It contains 9.5 million square feet of retail and commercial space, 12 million square feet of office space and 13.5 million square feet of industrial space. The daytime population swells to approximately 150,000 as large numbers of employees occupy these spaces. Much of the retail and office developments are located near the intersection of I-90 and Highway 53. This area is generally referred to as Woodfield and is home to Woodfield Mall, one of the largest malls in the U.S., It is not a traditional downtown area. . Schaumburg lacks a hospital, private schools, and a college. These institutions are located in adjacent communities. Schaumburg has 21 elementary schools, 5 middle schools and 1 high school. Public transportation needs are met through a combination Metra Commuter Rail, Pace Suburban Bus, and community funded services.

Metra

Metra's Milwaukee District West Line operates from Elgin to Union Station in downtown Chicago. The Schaumburg station is located in the southern portion of the Village. Service levels are similar to the Milwaukee District North Line service provided in Lake Forest.

Pace

The Village is served by eleven Pace routes:

208 Golf Road
237 Schaumburg – Soldier Field (Seasonal)
282 Schaumburg – Wrigley Field (Seasonal)
284 Schaumburg – Six Flags (Seasonal)
554 Elgin – Woodfield
600 Northwest Express
602 Higgins – Salem – Cedarcrest
606 Northwest Limited (CTA Rosemont L – Woodfield)
696 Woodfield – Arlington Heights – Randhurst
699 Palatine – Woodfield – Elk Grove
757 Northwest Connection (Woodfield – CTA Congress L)

All of these routes, except for Route 602 Higgins – Salem – Cedarcrest, are regional routes providing connections to surrounding communities and the Chicago Transit Authority (CTA) rapid transit stations. Route 602 provides local feeder service to the Metra Schaumburg Station.

Village of Schaumburg Support Services

The Village financially contributes to the following services that are operated by a private contractor:

Dial-a-Ride Transportation (DART)*:* DART service has existed since the mid 1970s and evolved into its current design around 1985. DART offers curb-to-curb service within the municipal boundaries of Schaumburg. Passengers must call 90 minutes prior to their desired pick-up time to arrange a ride. The general public is eligible to use the service and is required to pay a fare. Pace provides a 20% operating subsidy.

Lunchtime Shoppers Shuttle: This service was eliminated on May 1, 2009 due to budgetary constraints. It had operated during the mid-day and connected Woodfield Corporate Center to Woodfield Mall and Streets of Woodfield. The routes were also subsidized by Woodfield Mall and Streets of Woodfield.

Woodfield Trolley: Trolley service began in 2000. This free service connects the Schaumburg Convention Center, IKEA, Woodfield Village Green, Woodfield Mall, Streets of Woodfield, and the Pace Northwest Transportation Center. Service operates on Fridays, Saturdays, and Sundays. Pace provides the vehicles and the Village pays for the operating costs.

Lessons Learned / Challenges

One of the challenges of the community funded services is attracting riders. While the DART service is open to the general public, many residents do not want to go through the burden of making advance reservations or share rides with other customers. The DART service also does not extend beyond the Village's borders. There are residents that need to travel into adjacent communities for medical and employment trips.

One of the important lessons learned is that community provided services must be fully supported by the community. Internal staff needs to oversee the service; oversight should not be left to the private provider. It is also important to obtain partners that are willing to help fund the service. The best solution to funding is a dedicated revenue stream. With a dedicated revenue stream, service likely will not need to be modified every time there is an economic downturn. Also, the service should be branded to reflect the characteristics of the community and to be easy identifiable. A marketing and outreach campaign should also be devised to promote the services. Promoting the service should go beyond typical municipal channels: cable access channel, newsletters, website, etc.

*Additional Information provided by Richard Bascomb at the Village of Schaumburg.*

# Appendix C: Metra Data

METRA

1. Rail Lines

Figure 1 shows the two Metra lines passing through Lake Forest: the Metra Union Pacific North (UP-N) Line and the Metra Milwaukee District North (MD-N) Line.

a. Metra Union Pacific North Line

The Metra Union Pacific North Line operates between the Ogilvie Transportation Center in downtown Chicago and Kenosha, Wisconsin. There are 26 stations along the line. The tracks parallel Western Avenue through Lake Forest and the Lake Forest Station is located at Western Avenue and Market Square in the downtown. Service operates seven days a week.

Inbound weekday service is available from Lake Forest starting at 4:31 a.m. The last train to leave downtown Chicago in the evening to get back to Lake Forest is at 12:35 a.m. The number of inbound and outbound trains serving Lake Forest is shown in Table 2.

Table 2: Number of Union Pacific North Line Trips

| | Weekday | Saturday | Sunday |
|---|---|---|---|
| Inbound | 25 | 13 | 9 |
| Outbound | 26 | 13 | 9 |

The first outbound train from Ogilvie Transportation Center to serve Lake Forest is the Sunrise Express departing at 5:42 a.m. This service started in April of 2007 and ridership rapidly grew. Many of the riders are City of Chicago residents who need to be at their place of employment between 7:00 a.m. and 7:30 a.m. Lake Forest was part of coalition that worked with Metra to make this service possible.

b. Metra Milwaukee District North Line

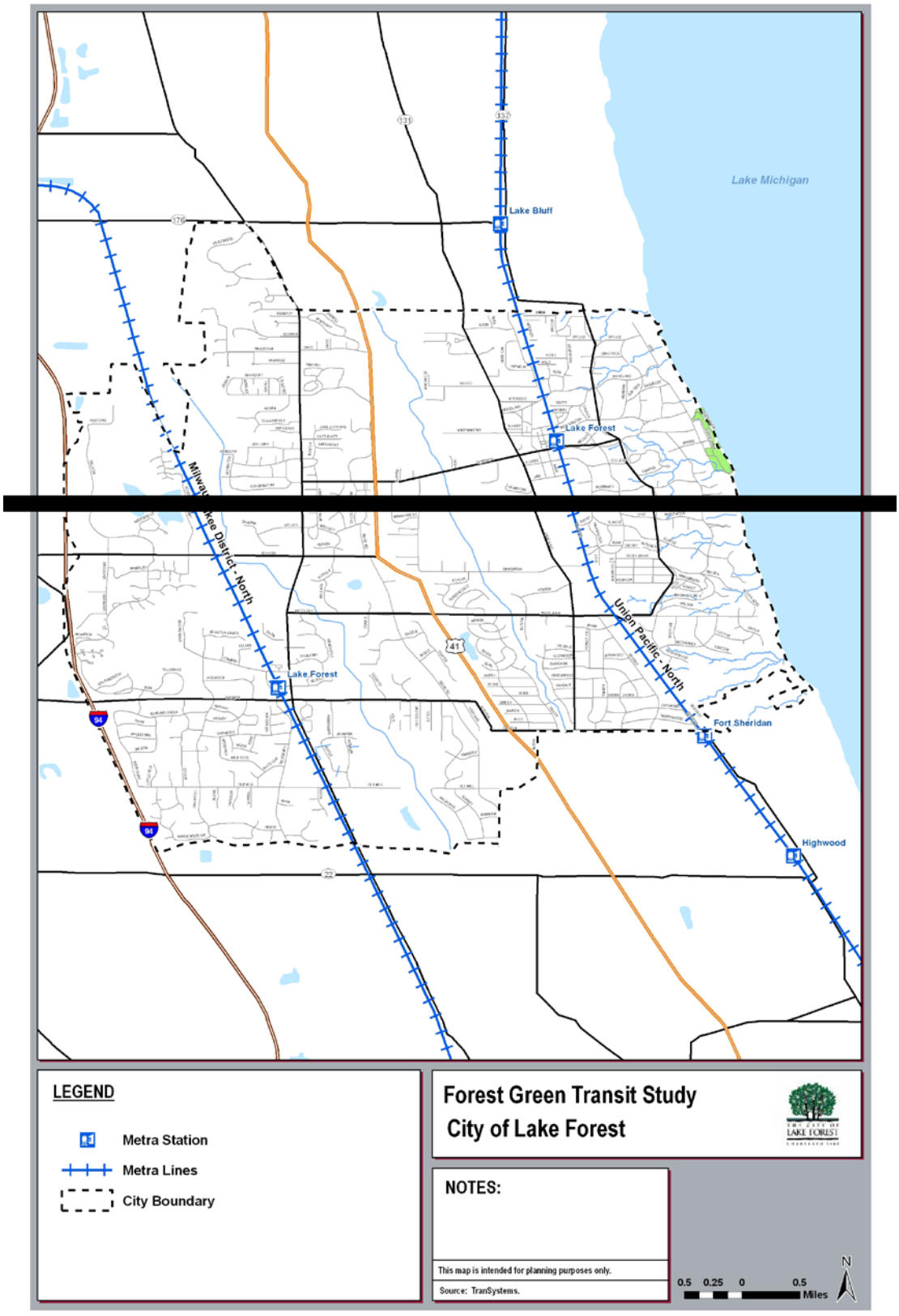
The Metra Milwaukee District North Line operates between Union Station in downtown Chicago and Fox Lake, Illinois. There are 22 stations along the line. The station is located at Everett Road and Telegraph Road in west Lake Forest.

Inbound weekday service is available from Lake Forest starting at 5:20 a.m. The last train to leave downtown Chicago in the evening to get back to Lake Forest is at 12:25 a.m. The number of inbound and outbound trains serving Lake Forest is shown in Table 3.

Table 3: Number of Milwaukee District North Line Trips

| | Weekday | Saturday | Sunday |
|---|---|---|---|
| Inbound | 21 | 12 | 10 |
| Outbound | 24 | 12 | 10 |

Figure 1: Metra Lines Serving Lake Forest



2. Ridership

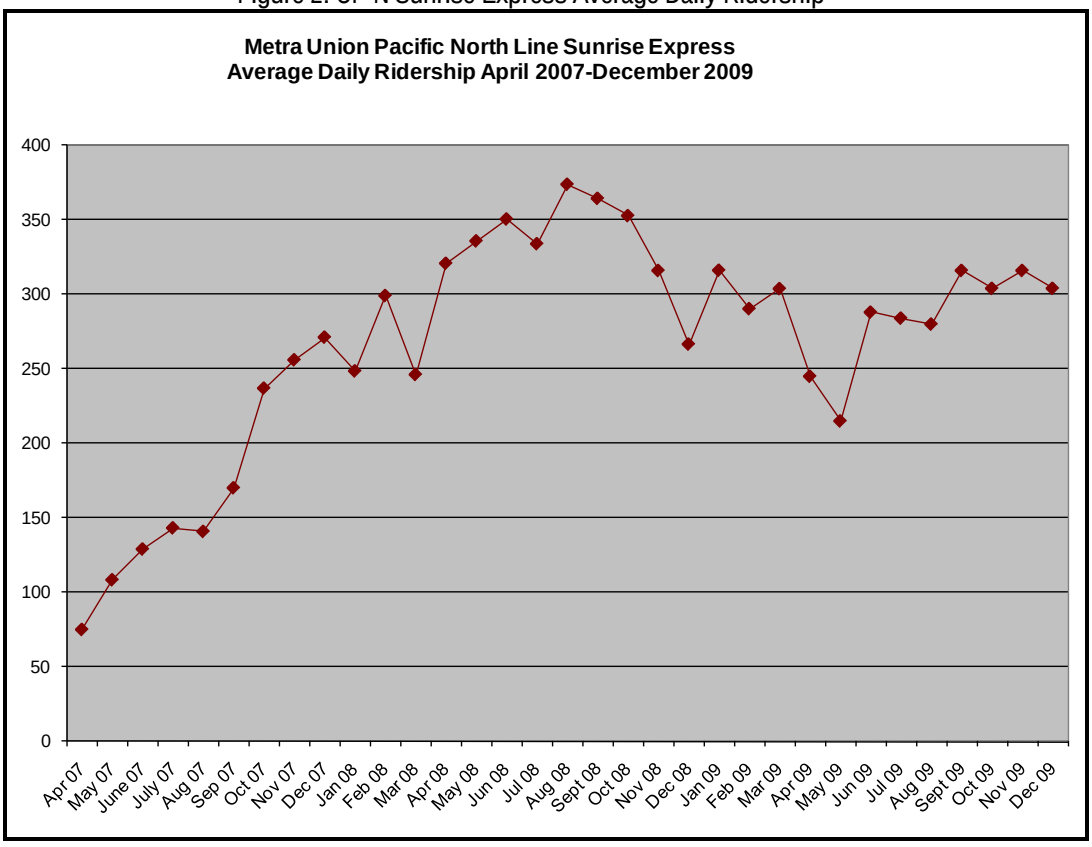
The average daily weekday inbound and outbound boardings[1] on the Metra Union Pacific North Line are 28,277. Table 4 shows the average weekday and weekend boardings and alightings by time of day at the Lake Forest Station. Metra's latest boarding and alighting counts were conducted before service on the Sunrise Express began.

Table 4: Metra Lake Forest UP-N Station Ridership

| UP-N | WEEKDAY | | | | | SAT | SUN |
|---|---|---|---|---|---|---|---|
| | AM Peak | Midday | PM Peak | Evening | TOTAL | TOTAL | TOTAL |
| Boardings( Inbound) | 283 | 93 | 215 | 70 | 661 | 201 | 120 |
| Boardings(Outbound) | 7 | 17 | 31 | 9 | 64 | 41 | 8 |
| Alightings ( Inbound) | 32 | 27 | 6 | 2 | 67 | 33 | 14 |
| Alightings(Outbound) | 237 | 67 | 260 | 59 | 623 | 192 | 110 |

The average daily ridership on the Sunrise Express, which began service on April 1, 2007, is shown in Figure 2. Ridership has grown from approximately 75 passengers per day to its current level of 300 passengers per day. Ridership peaked at over 350 passengers per day during the summer of 2008 while the Edens Expressway was under construction.

Figure 2: UP-N Sunrise Express Average Daily Ridership




[1] Source for ridership is 2006 Metra Boarding and Alighting Counts for weekday ridership; 1999 Metra Station Boarding and Alighting Counts for weekend ridership. These are the most recent counts reports available.

The average daily weekday boardings on the Metra Milwaukee District North Line are 24,257. Table 5 shows the average weekday and weekend boardings and alightings by time of day at the Lake Forest Station.

Table 5: Metra Lake Forest MD-N Station Ridership

| MD-N | WEEKDAY | | | | | SAT | SUN |
|---|---|---|---|---|---|---|---|
| | AM Peak | Midday | PM Peak | Evening | TOTAL | TOTAL | TOTAL |
| Boardings( Inbound) | 388 | 67 | 68 | 13 | 536 | 99 | 36 |
| Boardings(Outbound) | 2 | 7 | 32 | 1 | 42 | 10 | 3 |
| Alightings (Inbound) | 31 | 13 | 3 | 0 | 47 | 10 | 1 |
| Alightings(Outbound) | 78 | 51 | 372 | 68 | 616 | 83 | 46 |

3. Origin-Destination Data

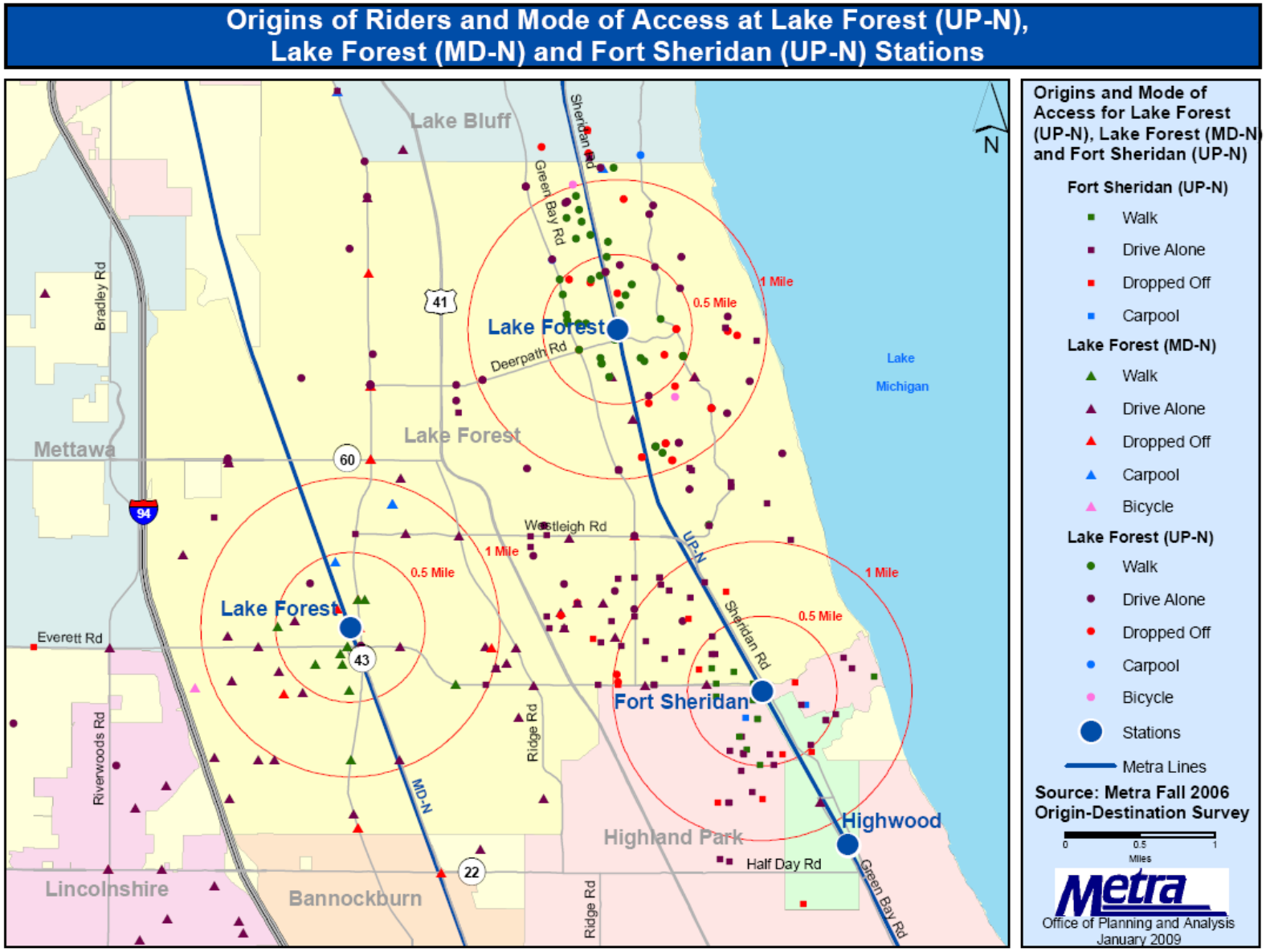
Metra collects data on the origins of its passengers and their mode of access. The mode of access is presented in Table 5. The origins of the passengers and mode of access are displayed on a map shown in Figure 3. Most of the commuters accessing the UP-N station live in between Green Bay Road and Sheridan Road. Many of the commuters accessing the MD-N station reside in the southwest portion of Lake Forest. Also, many of the commuters who live in the southeast portion of Lake Forest access the UP-N Fort Sheridan Station.

The primary mode of access for both stations is "drive alone" with 47% of UP-N commuters and 68% MD-N commuters responding in that manner. An additional 20% for the UP-N and 14% for the MD-N get dropped off. About one quarter of the commuters for the UP-N Station walk to the station compared to 7% of the MD-N Station commuters. The balance either carpool, bus or bike to access the stations.

Table 6: Mode of Access to Lake Forest Metra Stations

| Mode of Access | UP-N | MD-N |
|---|---|---|
| Drive Alone | 47% | 68% |
| Walked | 26% | 7% |
| Dropped Off | 20% | 14% |
| Carpool | 4% | 7% |
| Bus | 0% | 1% |
| Bike | 1% | 1% |
| Other/No Response | 2% | 2% |

Figure 3: Metra Stations: Origins of Riders and Mode of Access

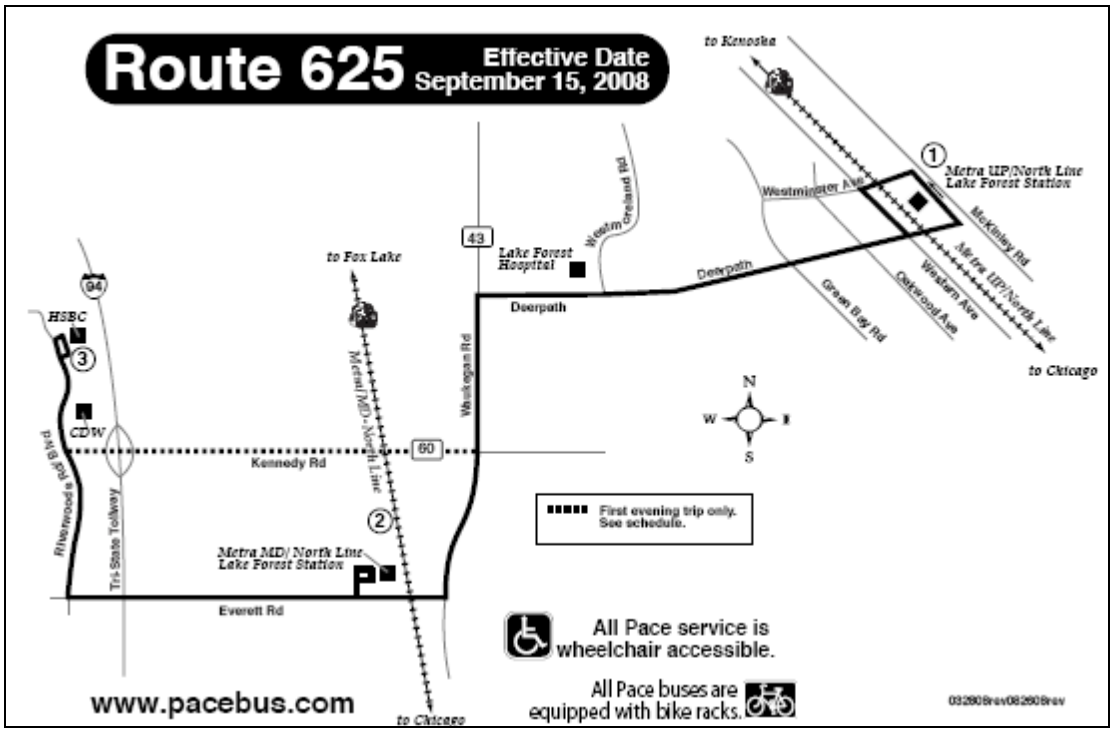


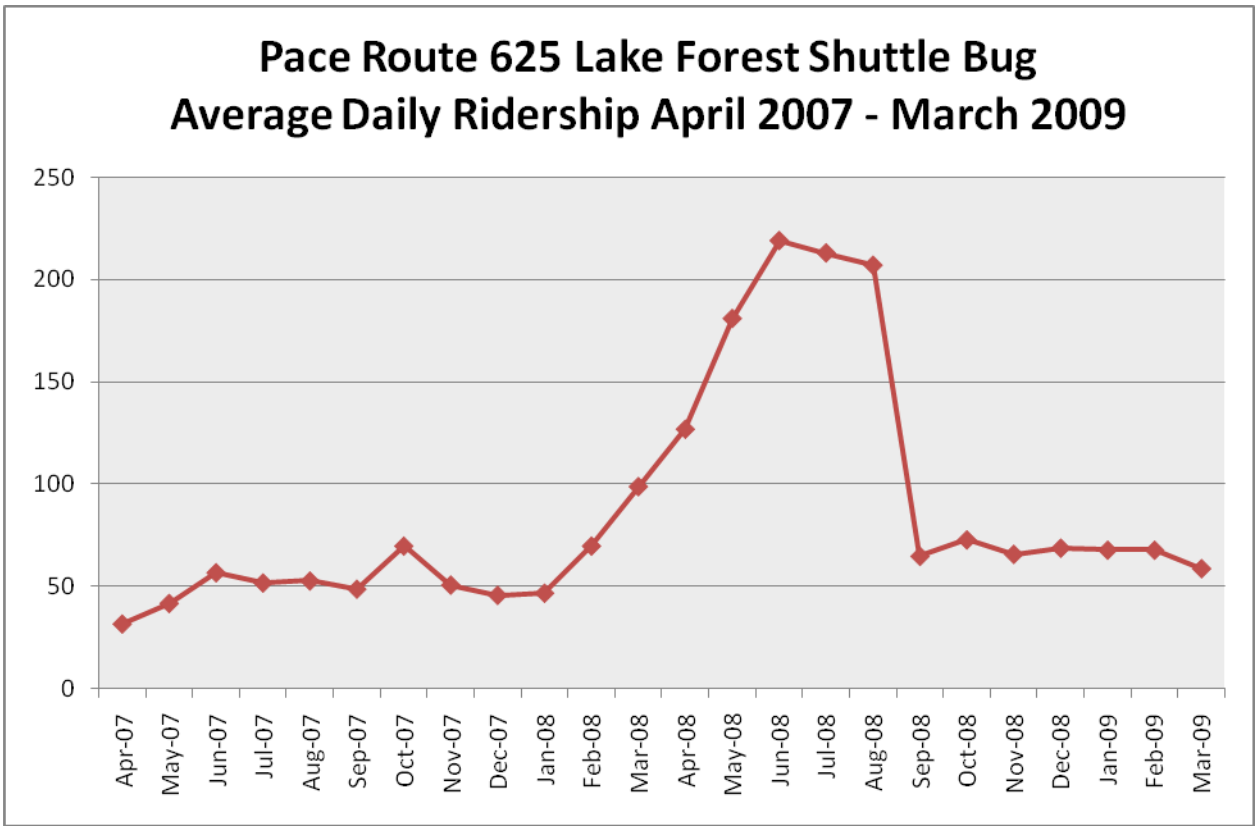
4. Parking Lots

At the UP-N Station, there are eleven parking lots with a total of 693 parking spaces, including ten handicapped accessible spaces. These parking lots are primarily located along the railroad right -of-way to the north of the station along McKinley Road. Ninety-seven percent (97%) are typically utilized on a daily basis. There is a daily fee of $3.00 to park in these lots. Ten tokens that may be used to park in these lots may be purchased for $25. Annual permits can also be purchased by residents and non-residents.

At the MD-N Station, there are three parking lots with 563 parking spaces, including ten handicapped accessible spaces. Four hundred eleven (411) spaces or seventy-seven percent (75%) of the spaces are utilized daily. There is a daily fee of $3.00 to park in these lots. Ten tokens that may be used to park in these lots may be purchased for $25. Annual permits can also be purchased by residents and non-residents.

# Appendix D: Pace Data


Route 625
Effective Date
September 15, 2008
to Kenosha
Metra UP/North Line
Lake Forest Station
Westminster Ave
McKinley Rd
Metra UP/North Line
Western Ave
Oakwood Ave
Green Bay Rd
to Chicago
Deerpath
Lake Forest Hospital
Western Ave
43
to Fox Lake
Deerpath
94
HSBC
3
CDW
Waukegan Rd
Metra MD/ North Line
60
Kennedy Rd
Riverwoods Rd
Tri-State Tollway
2
Metra MD/ North Line
Lake Forest Station
Everett Rd
to Chicago
N
W
E
S
First evening trip only.
See schedule.
All Pace service is
wheelchair accessible.
All Pace buses are
equipped with bike racks.
www.pacebus.com
032808rev082808rev


Pace Route 625 Lake Forest Shuttle Bug
Average Daily Ridership April 2007 - March 2009
250
200
150
100
50
0
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Jan-08
Feb-08
Mar-08
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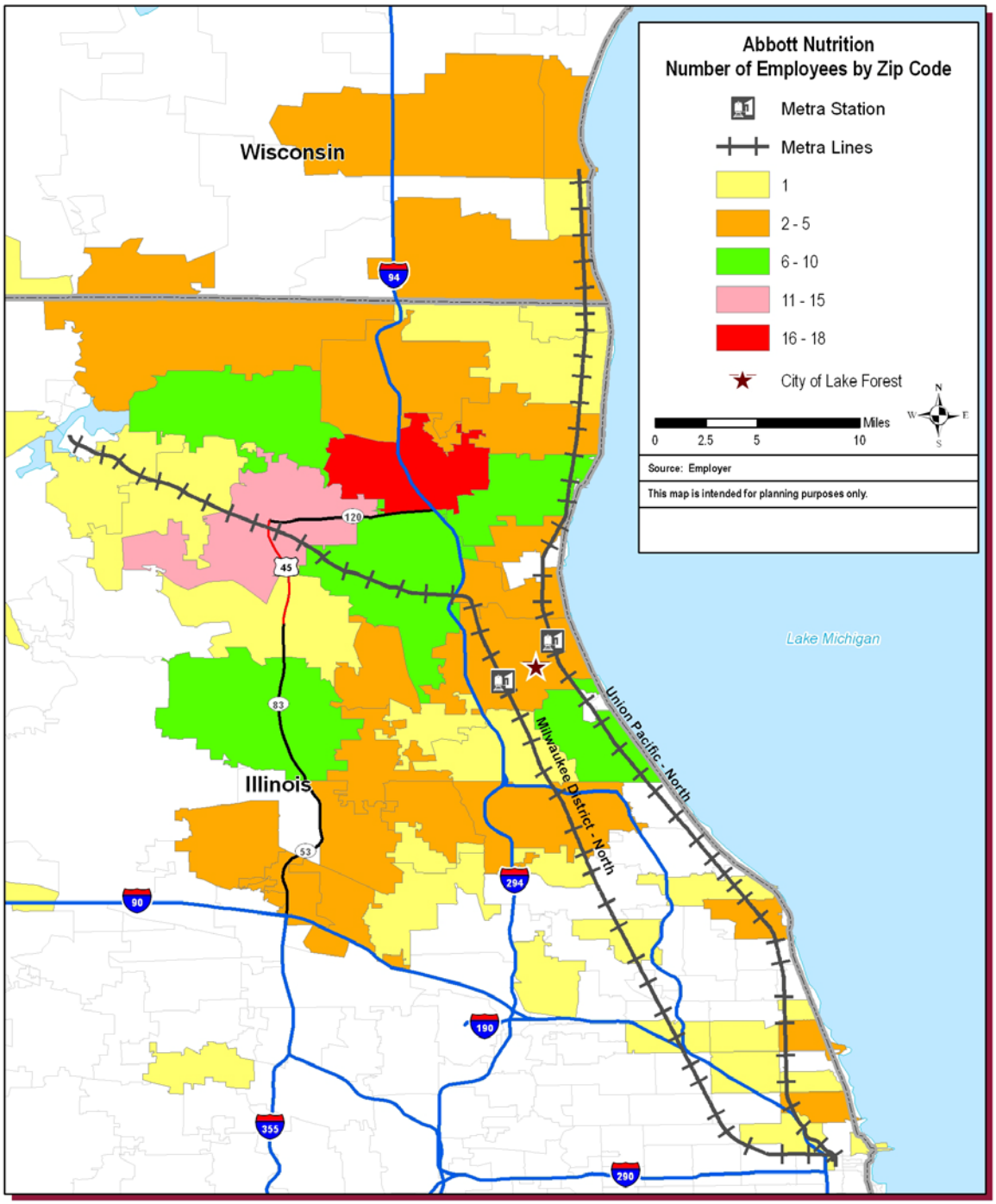
Feb-09
Mar-09

# Appendix E: Employer Maps

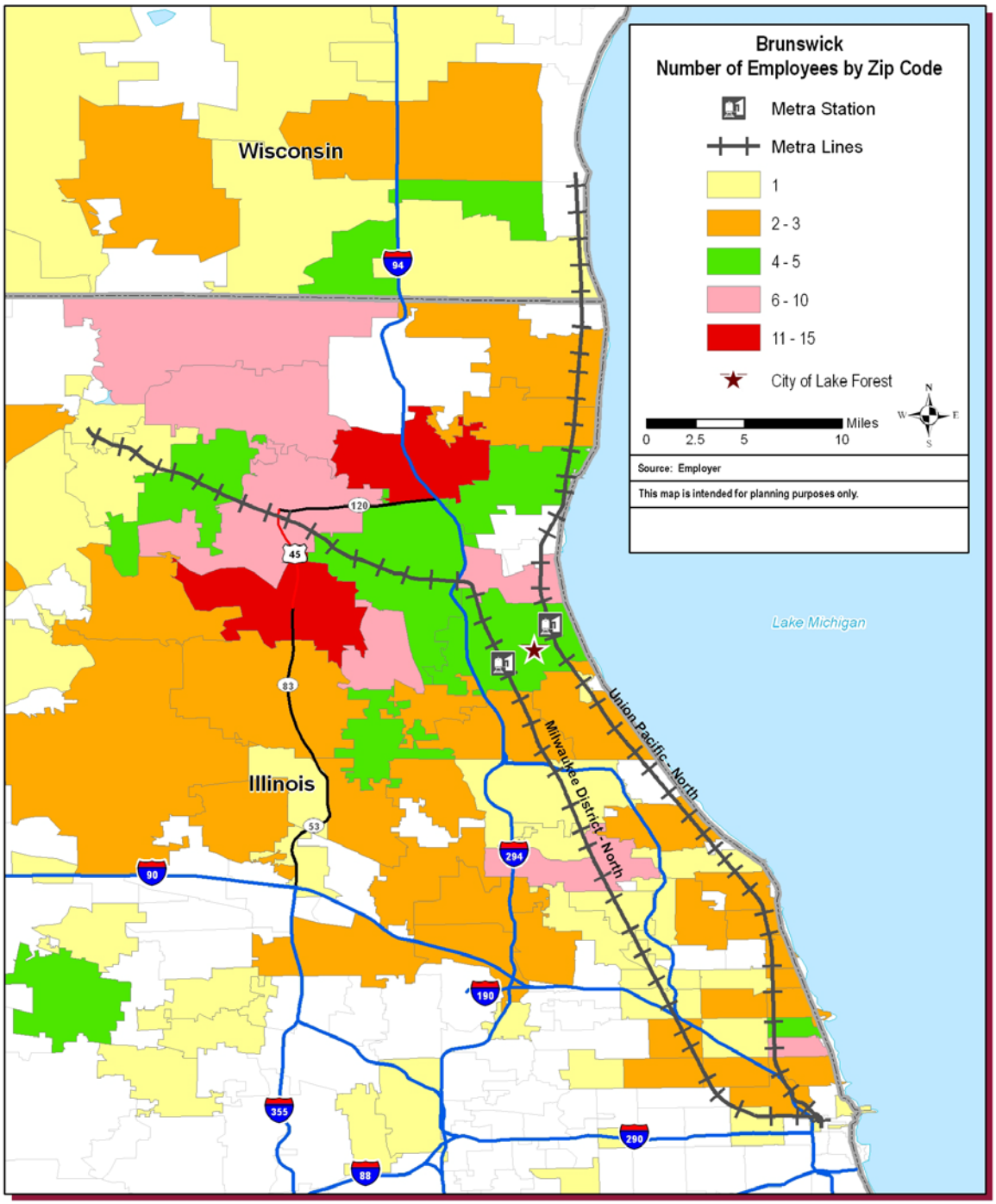
Figure 4: Abbott Nutrition Employees by Zip Code




**Forest Green Transit Study**
**City of Lake Forest**

**December 2009**

Figure 5: Brunswick Employees by Zip Code




**Forest Green Transit Study**
**City of Lake Forest**

**December 2009**

Figure 6: City of Lake Forest Employees by Zip Code

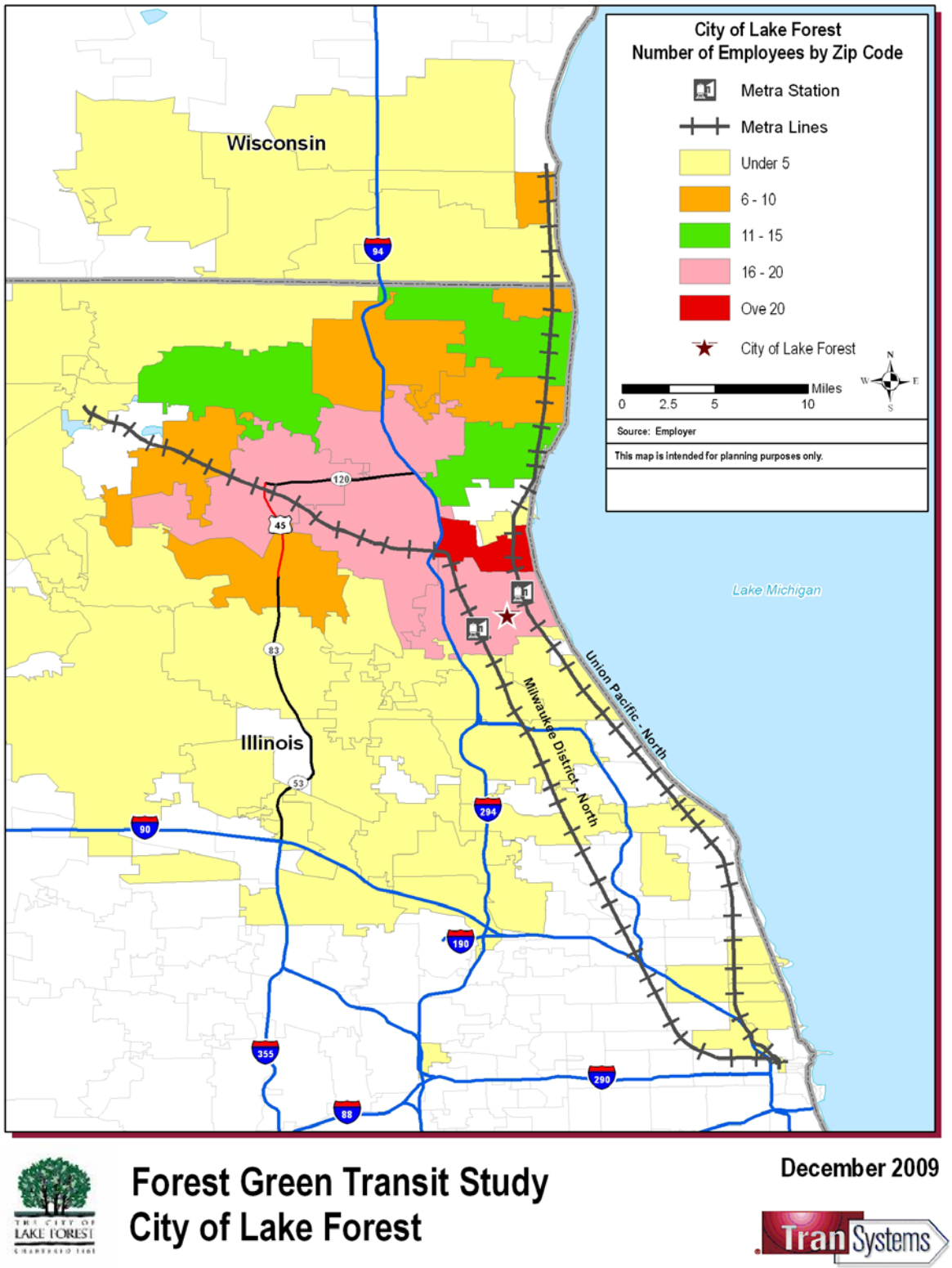


Figure 7: Eloyalty Employees by Zip Code

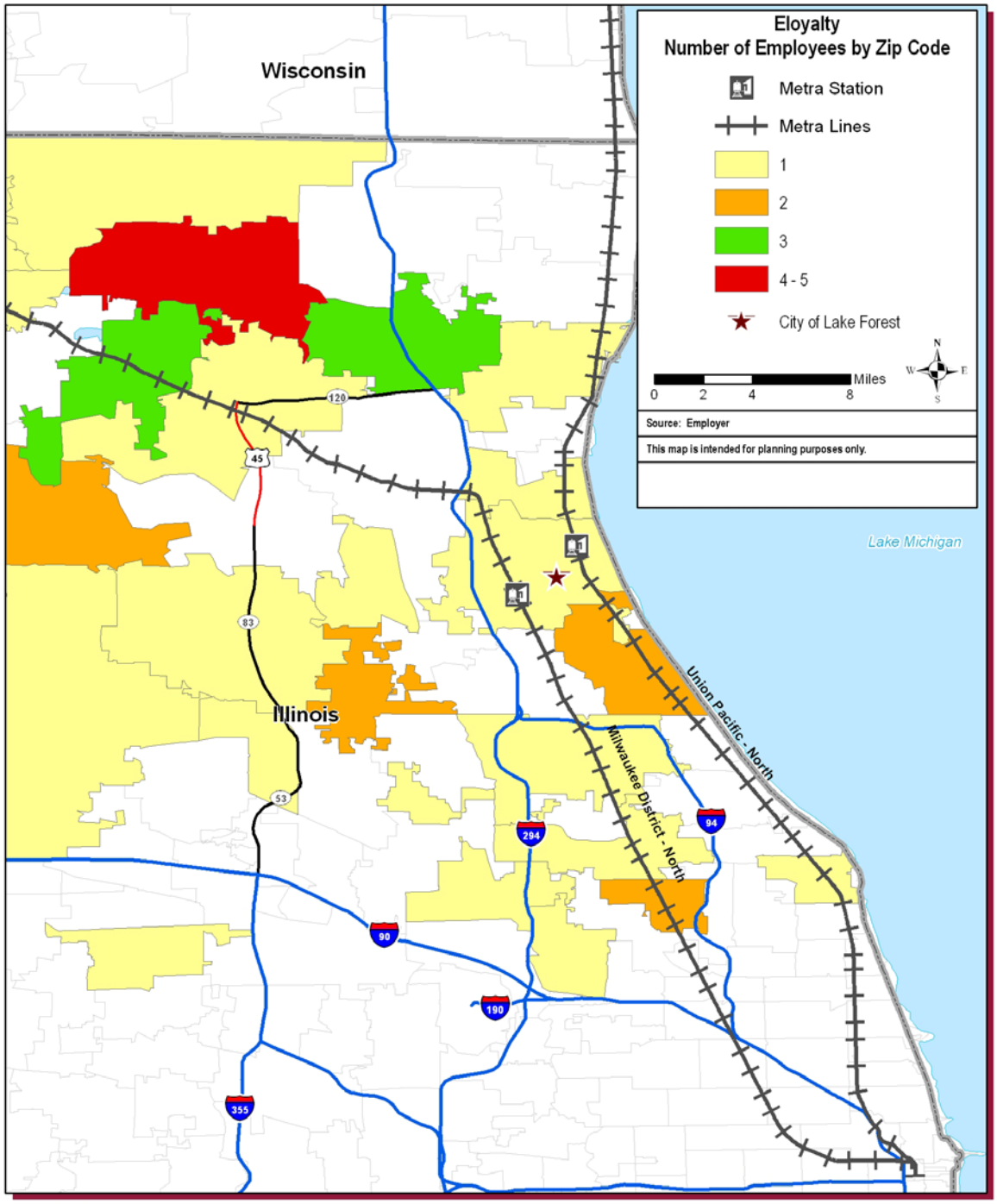



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Figure 8: Hospira Emplyees by Zip Code

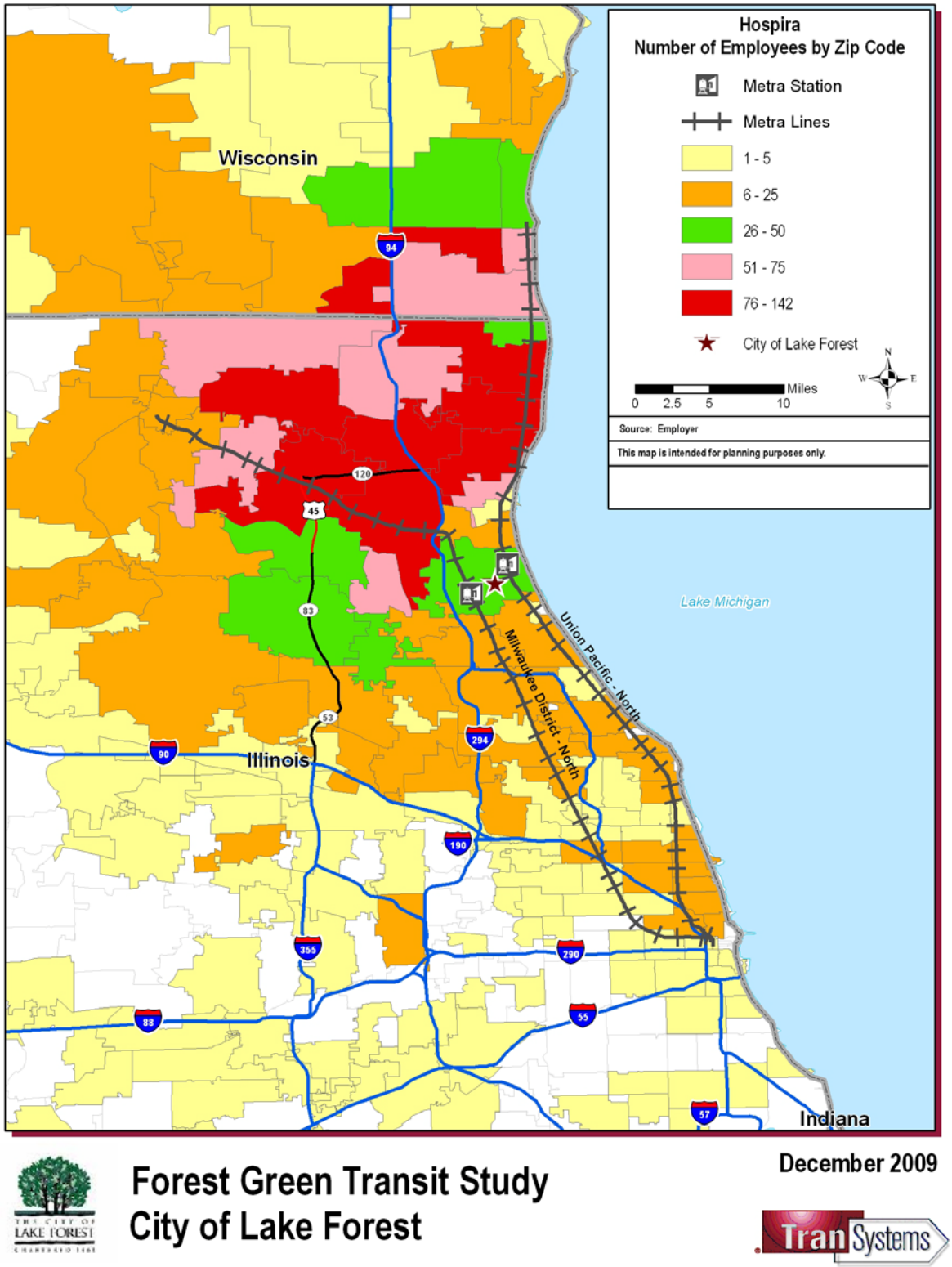

Figure 9: Lake Forest Academy Employees by Zip Code

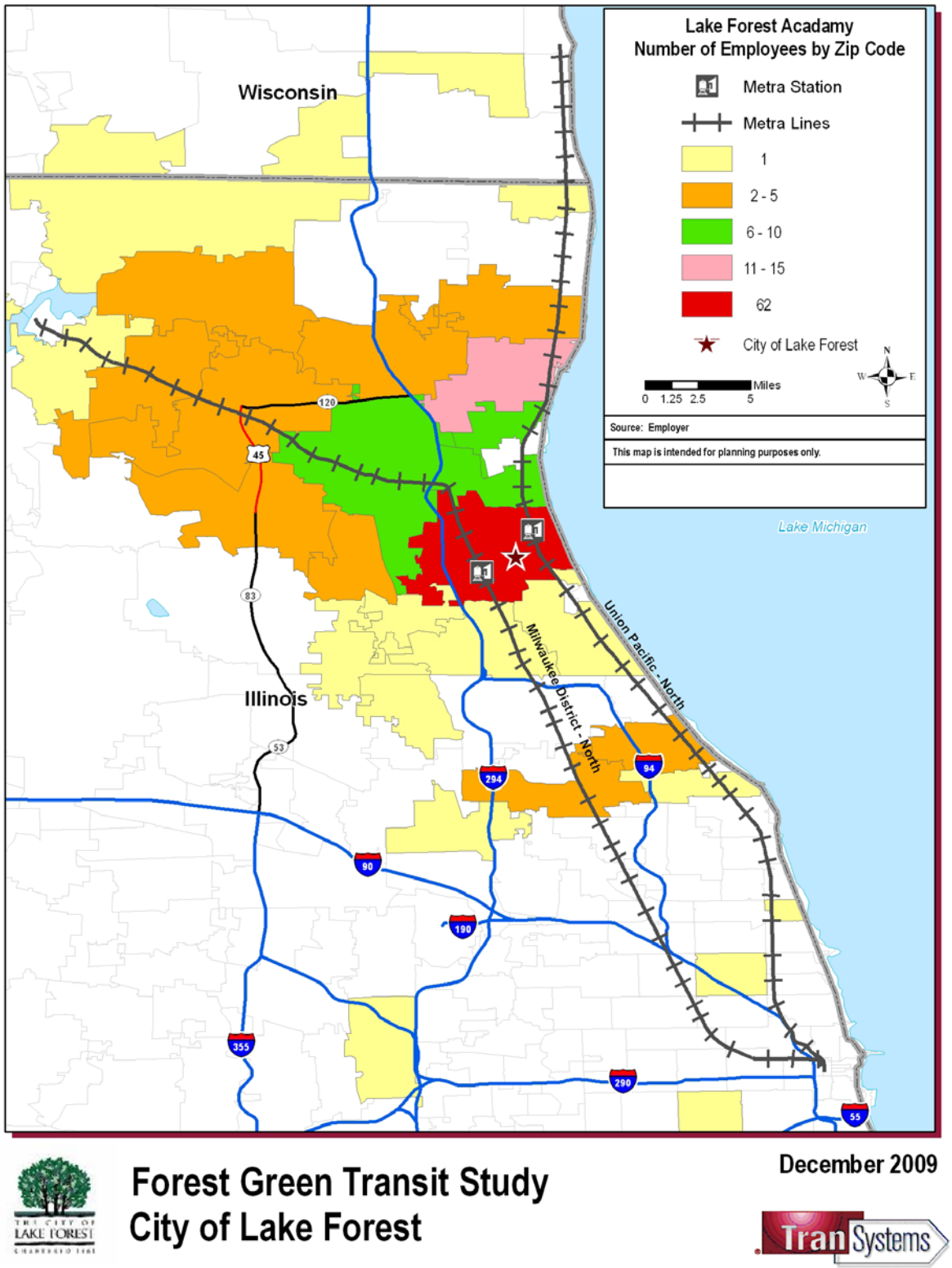

Figure 10: Lake Forest College Employees by Zip Code

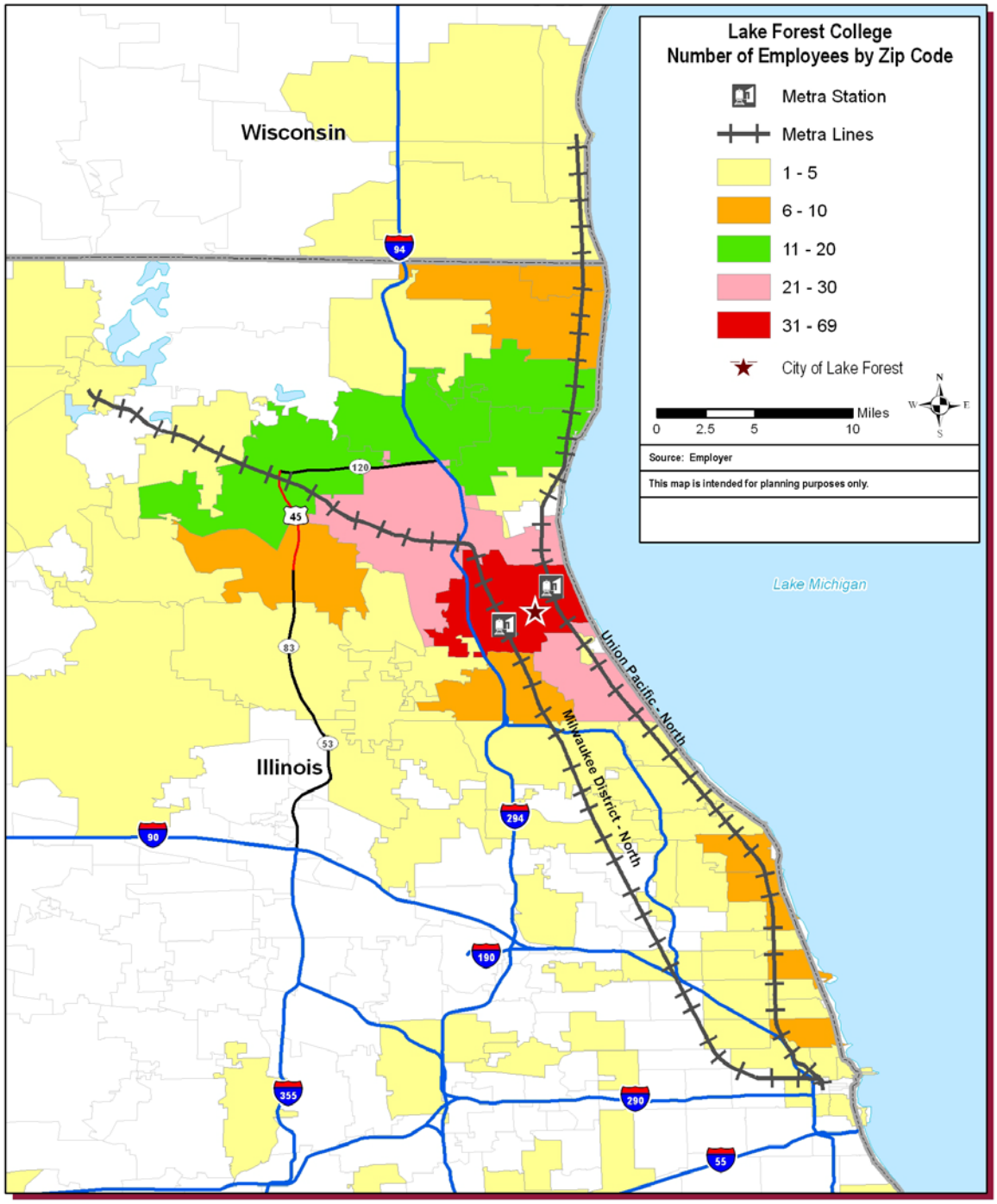


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Figure 11: Lake Forest Place Employees by Zip Code

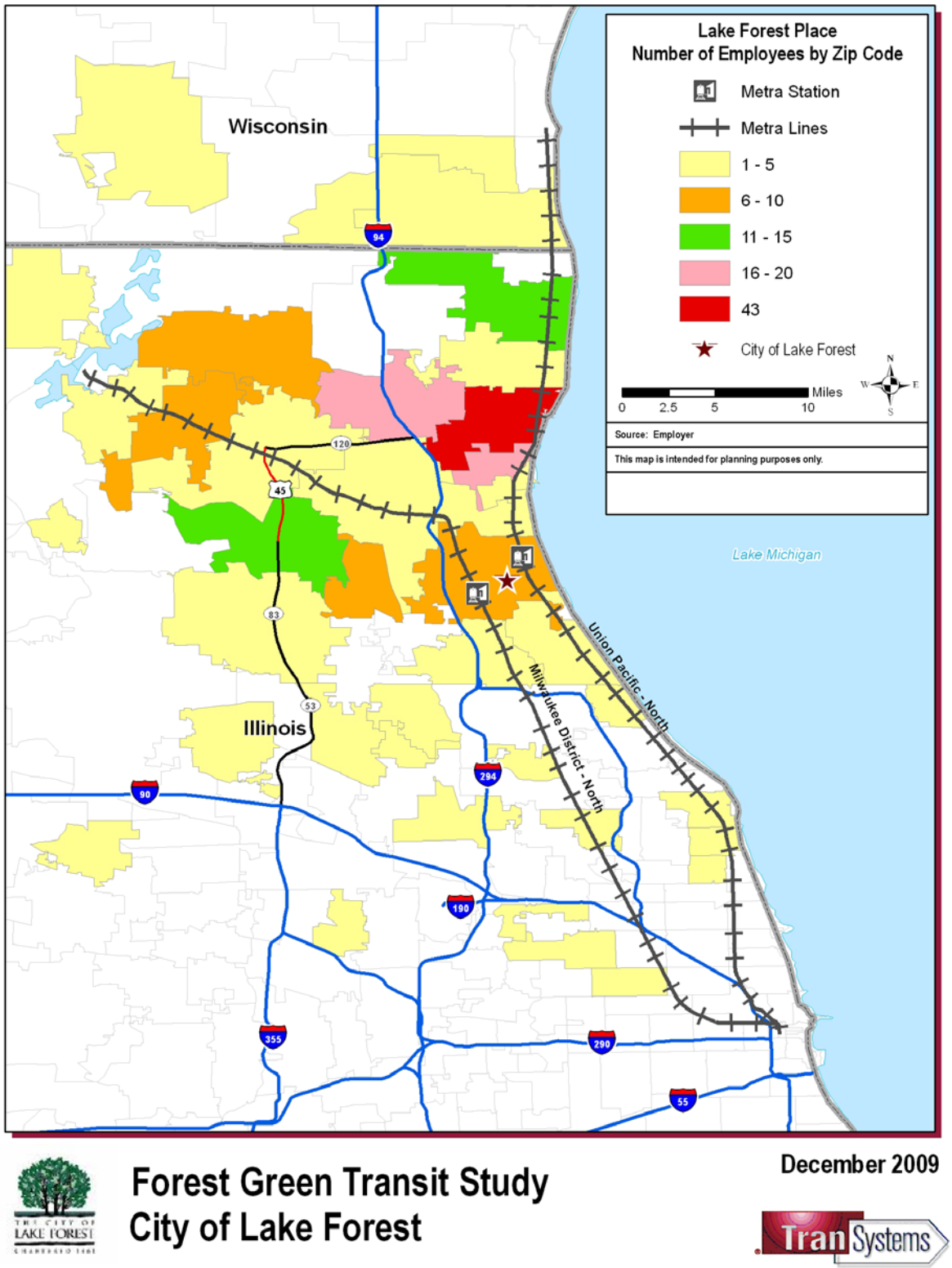

Figure 12: Lake Forest Graduate School Employees by Zip Code

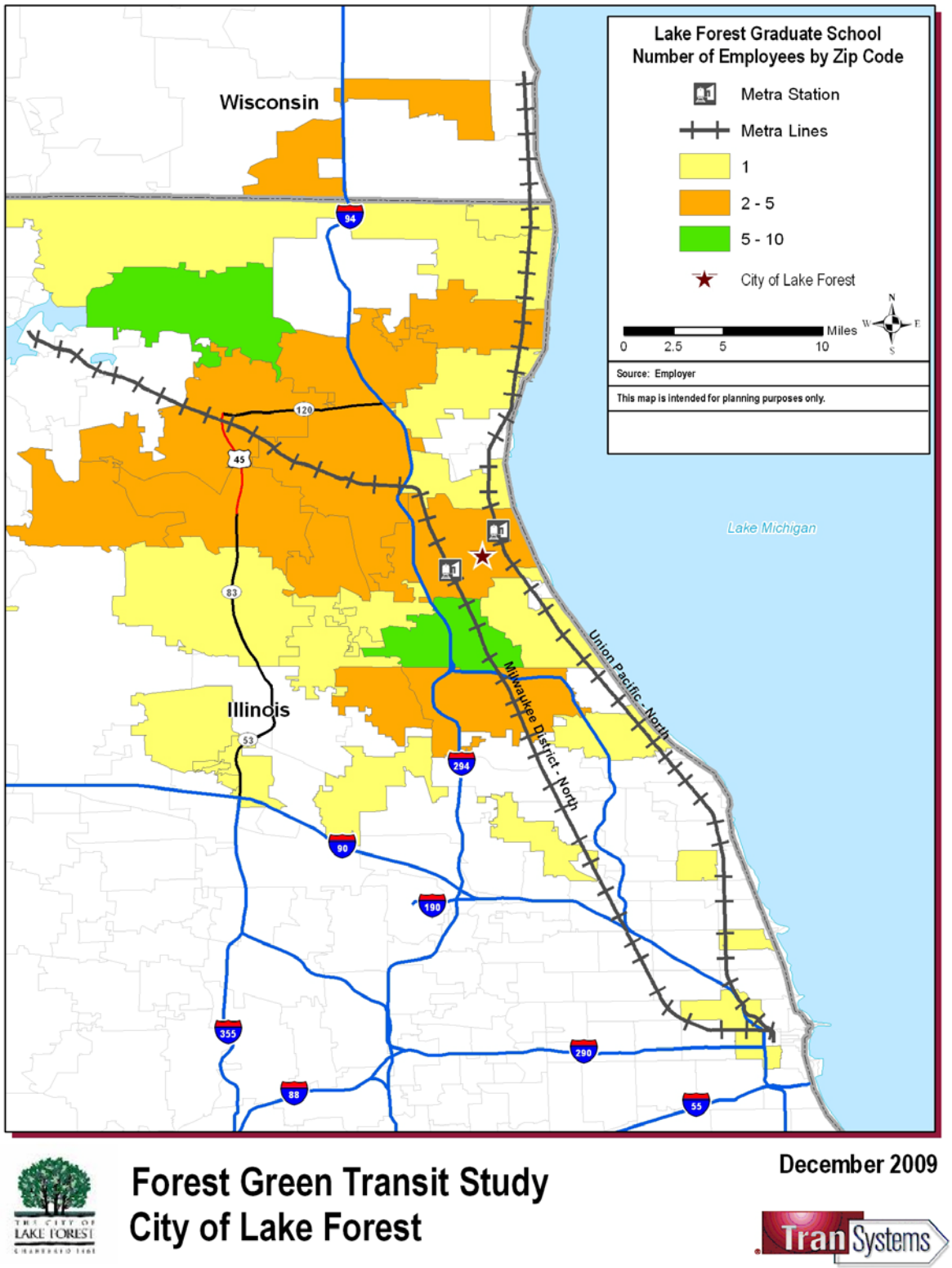

Figure 13: PAC Lake Forest Employees by Zip Code

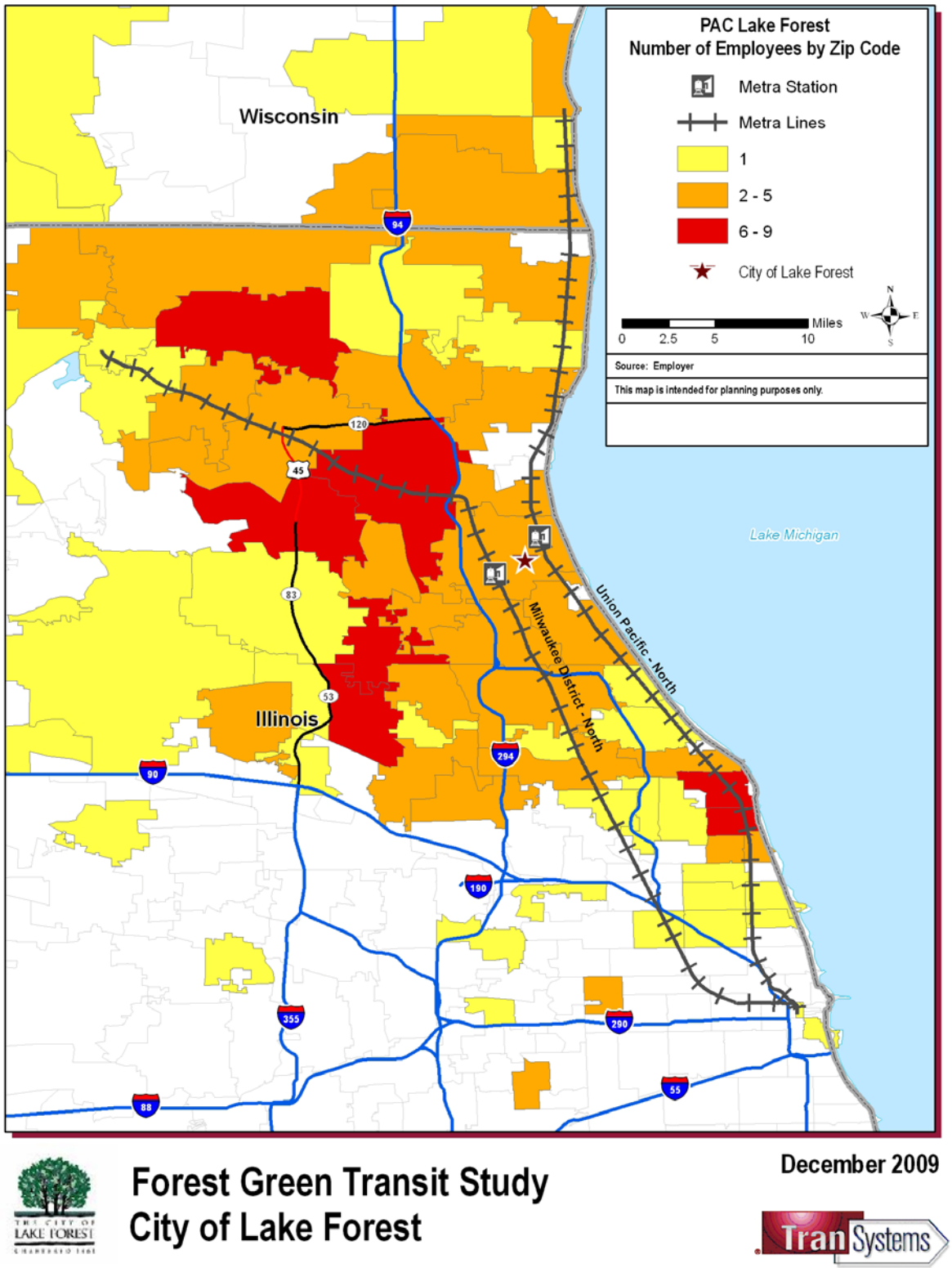

Figure 14: Pactiv Corporation Employees by Zip Code

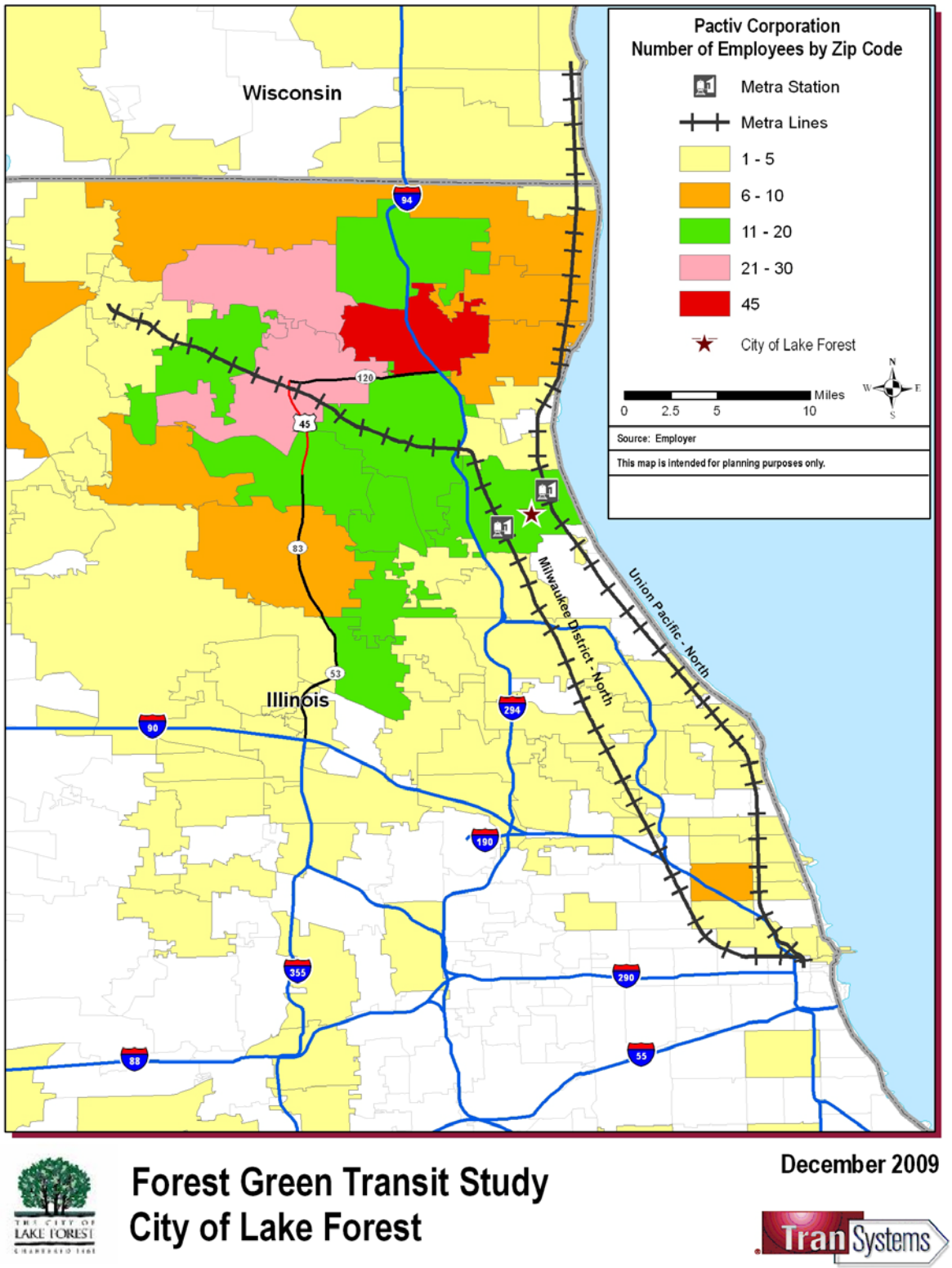


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Figure 15: Residential Homes of America Employees by Zip Code

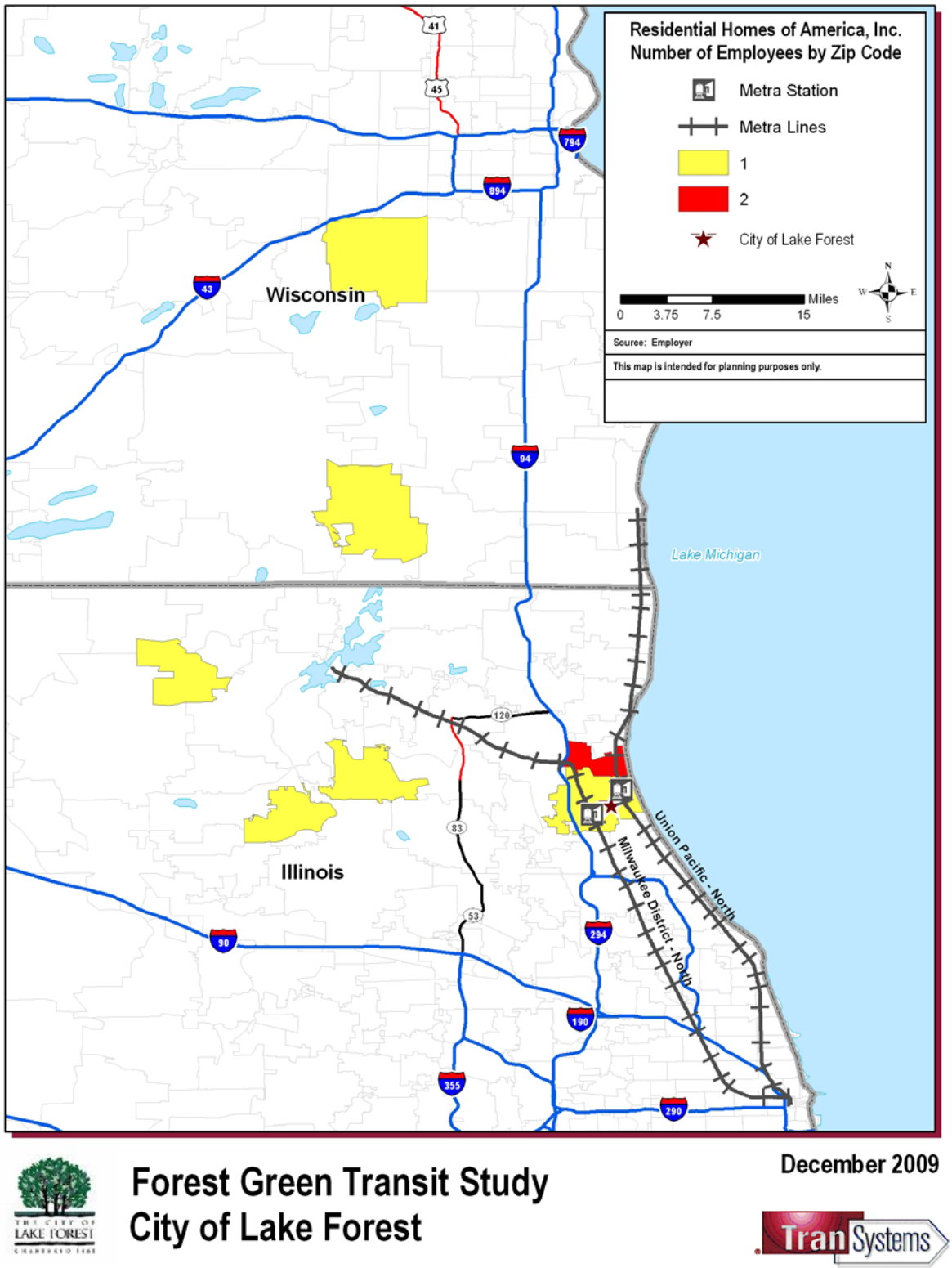


Figure 16: Teneco Employees by Zip Code

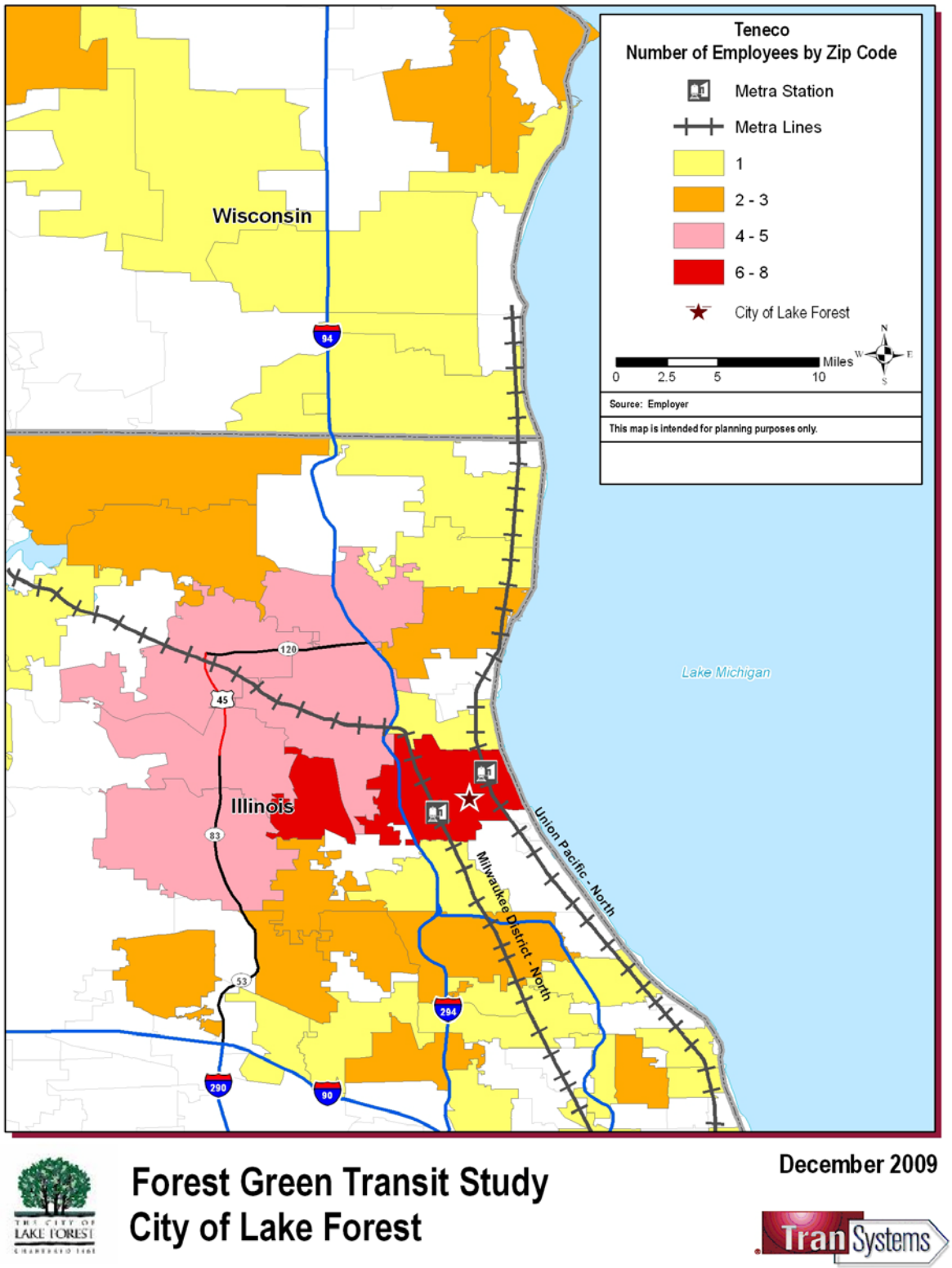


Figure 17: Trailmobile Employees by Zip Code

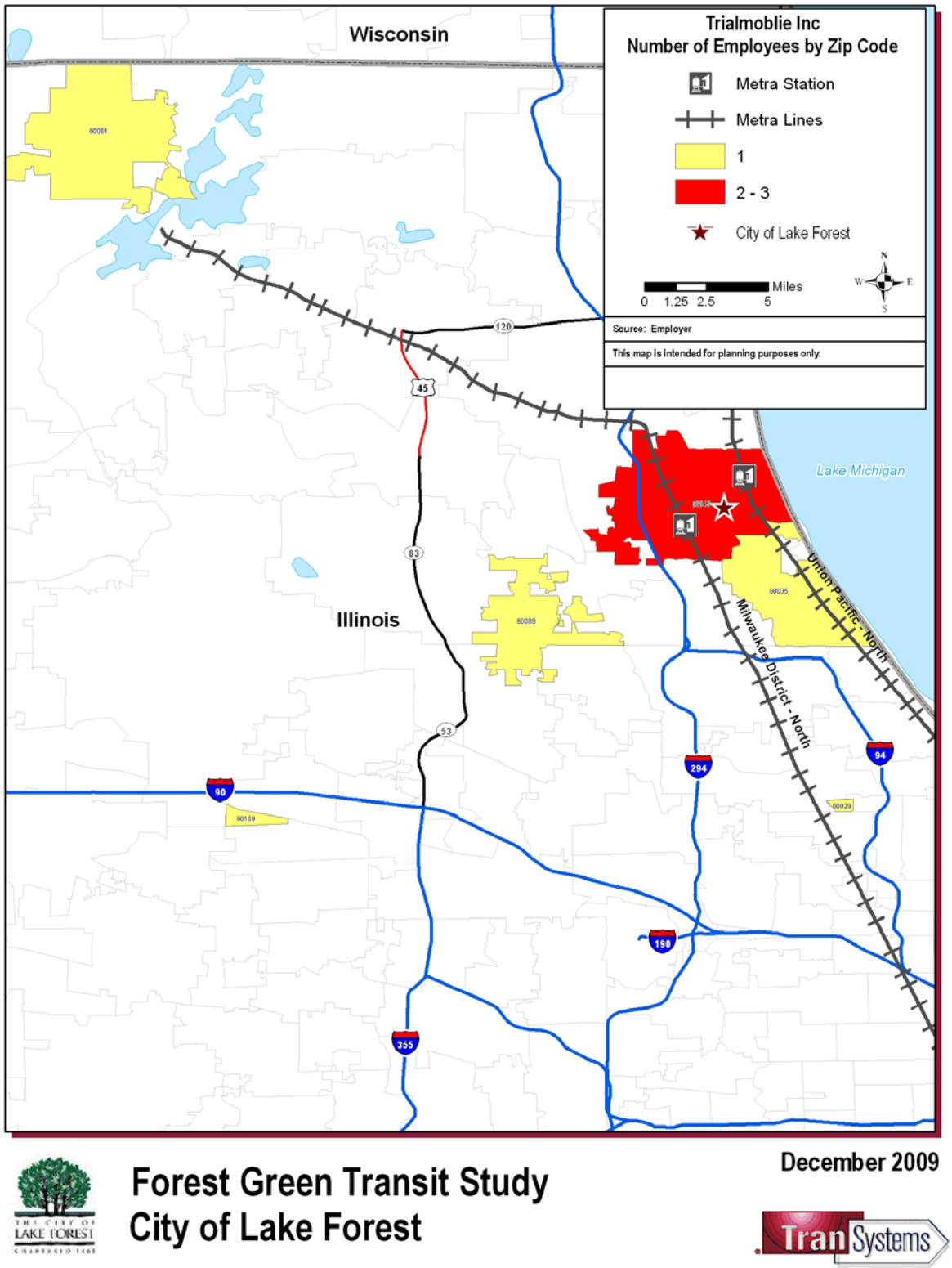


Figure 18: Trustmark Employees by Zip Code

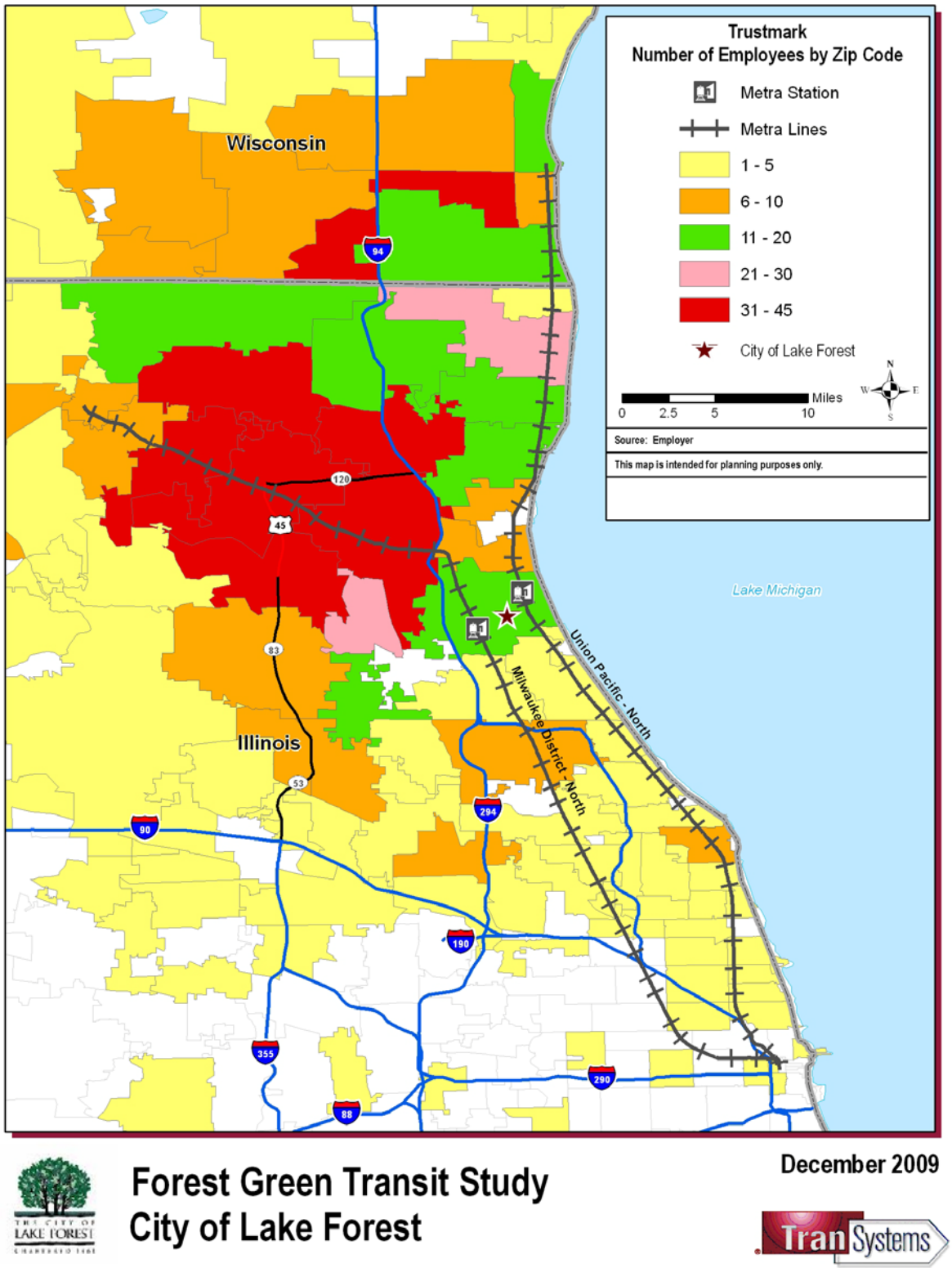
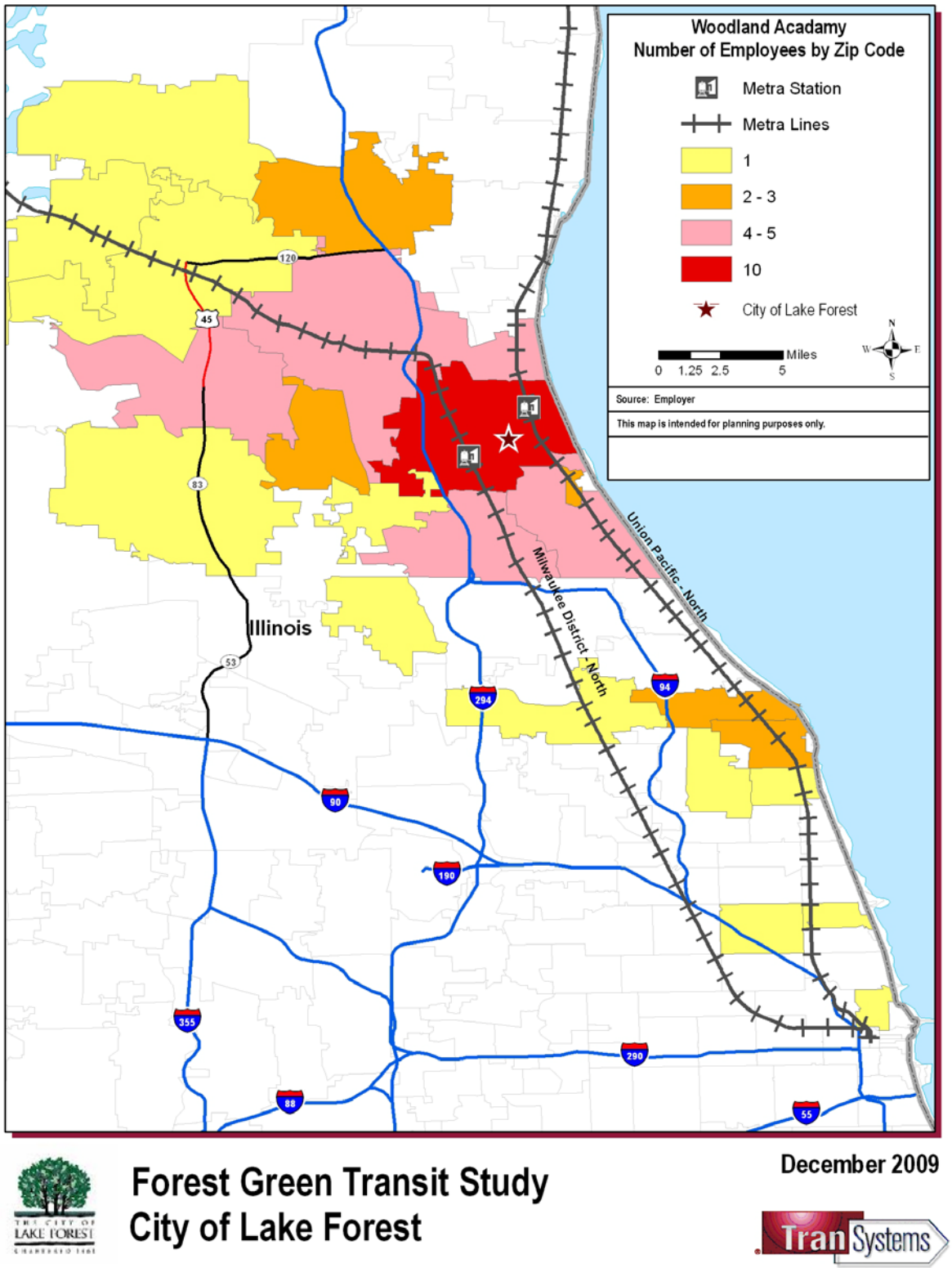


Figure 19: Woodland Academy Employees by Zip Code



Appendix F: Travel Needs Survey

# FOREST GREEN TRANSIT STUDY SURVEY

1. Are you a (circle as many as apply):

   Resident of Lake Forest

   Student in Lake Forest

   Employee in Lake Forest

2. Do you currently use Metra to commute to school or work?

   Yes (go to Metra questions on Page 4)

   No (continue to Question 3)

3. Do you ride a shuttle from a Metra Station to school or work?

   Yes (go to shuttle questions on Page 4)

   No (continue to Question 4)

4. If public bus service were available in Lake Forest, I would use it for transportation to (circle up to 2 reasons):

   Work

   Home

   Shopping

   Social or Recreational

   Medical/Dental Appointments

   Other (please specify):_____

5. My primary destination would be (circle only 1 destination):

   Cherokee School

   Conway Park

   CROYA

   Deer Path Middle School

   Everett School

   Forest Park Beach

   Gorton Community Center

   Jewel

   Lake Forest Academy

   Lake Forest College

   Lake Forest country Day School

   Lake Forest High School East Campus

   Lake Forest High School West Campus

   Lake Forest Hospital

   Lake Forest Library

   Market Square

   Metra MD North Line Station (West Station)

   Metra UP North Line Station (East Station)

   New Municipal Service Center in Conway Park

   Recreation Center

   Senior Center at Dickinson Hall

   Settlers Square/West Business District

   Sheridan School

   St. Mary's School

   Vern Hills Mall

   Woodlands Academy

   Other (Please Specify):_____

6. My secondary destination would be (chose up to 2 destinations):

| | |
|---|---|
| Cherokee School | Lake Forest Hospital |
| Conway Park | Lake Forest Library |
| CROYA | Market Square |
| Deer Path Middle School | Metra MD North Line Station (West Station) |
| Everett School | Metra UP North Line Station (East Station) |
| Forest Park Beach | New Municipal Service Center in Conway Park |
| Gorton Community Center | Recreation Center |
| Jewel | Senior Center at Dickinson Hall |
| Lake Forest Academy | Settlers Square/West Business District |
| Lake Forest College | Sheridan School |
| Lake Forest country Day School | St. Mary's School |
| Lake Forest High School East Campus | Vern Hills Mall |
| Lake Forest High School West Campus | Woodlands Academy |

Other (Please Specify):_____

7. I would ride the bus:

| | |
|---|---|
| 5 or more days per week | 3 to 4 days per week |
| 1-3 days per week | Only occasionally |

8. I would usually ride the bus on:

Weekdays Saturdays Sundays

9. The time I would need to reach my primary destination is:

Please specify:_____

10. The time I would need to leave my primary destination is:

Please specify:_____

11. My arrival and destination times are flexible:

Yes No

12. The following things are most important to me (1 is least important and 5 is most important)

| | | | | | |
|---|---|---|---|---|---|
| Frequency of bus service | 1 | 2 | 3 | 4 | 5 |
| Travel Time | 1 | 2 | 3 | 4 | 5 |
| Distance to Bus Stop | 1 | 2 | 3 | 4 | 5 |
| Cost | 1 | 2 | 3 | 4 | 5 |
| Evening Service | 1 | 2 | 3 | 4 | 5 |
| Appearance of Vehicles | 1 | 2 | 3 | 4 | 5 |
| Wi-Fi on Vehicles | 1 | 2 | 3 | 4 | 5 |
| Safety (Security) | 1 | 2 | 3 | 4 | 5 |
| Emergency Ride Home | 1 | 2 | 3 | 4 | 5 |

Ability to reserve a trip a day in advance 1 2 3 2 5

13. I plan to take my bike with me when I ride the bus:

    Yes

    No

14. Gender

    Male

    Female

15. Age

| | | |
|---|---|---|
| Less than 12 | 26 to 30 | 55 to 65 |
| 12 to 15 | 31 to 35 | Over 65 |
| 16 to 20 | 36 to 45 | |
| 21 to 25 | 46 to 55 | |

16. What is your zip code?

    Home_____

    Work_____

17. Please provide your HOME address or the closest intersection where you live. For example, 220 E. Deerpath, Lake Forest, IL or Deepath and Oakwood

    _____

    _____

18. Please provide your WORK address or the closest intersection where you work. For example, 220 E. Deerpath, Lake Forest, IL or Deepath and Oakwood

    _____

    _____

19. Please provide any additional comments

_____

_____

_____

_____

Metra Questions

1. If yes to question #2 above, which Metra line do you ride?

   Union Pacific North Line (East Station)  Milwaukee District North Line (West Station)

2. In the morning, at which station do you board the Union Pacific North Line Metra train:

   I don't board the UP North Metra Line
   Lake Forest
   Ogilvie Transportation Center
   Clybourn
   Ravenswood
   Rogers Park
   Main St, Evanston
   Davis St, Evanston
   Central St, Evanston
   Wilmette
   Braeside
   Highland Park
   North Chicago
   Waukegan
   Kenosha

   Other (Please Specify):_____

3. In the morning, at which station do you board the Milwaukee District North Line Metra train:

   I don't board the MD North Metra Line
   Lake Forest
   Union Station
   Fox Lake
   Round Lake
   Prairie Crossing
   Libertyville

   Other (Please Specify):_____

4. In the morning, what time does the train you typically ride arrive/depart Lake Forest?

   Please specify:_____

5. In the evening, what time does the train you typically ride arrive/depart Lake Forest?

   Please specify:_____

6. Does parking at the UP North Line Metra Station affect your decision to use Metra?

   No
   Yes, I ride an earlier train than I prefer
   Yes, I drive to the Milwaukee District North Line Station
   Yes, I drive to an another station along the Metra UP- North Line
   Yes, Please specify:_____

PLEASE GO BACK TO QUESTION 3 IN THE MAIN SECTION

Shuttle Questions

1. At which Metra station do you board a shuttle?

   Metra Union Pacific North Line (East Station)  Metra Milwaukee District North Line (West Station)

2. Which shuttle do you board?

   BPTC (Conway Park)
   Pace Shuttle Bug
   Lake Forest College
   Lake Forest Academy

   Other: Please Specify:_____

PLEASE GO BACK TO QUESTION 4 IN THE MAIN SECTION

A. ON-LINE SURVEY

1. Methodology

In order to allow the public to provide information on how they travel within Lake Forest and how they would use a public transit system, an on-line survey was designed. This survey was placed on the City's website for two weeks. Posters at the Metra Stations and an article in the City's newsletter encouraged people to fill out a survey. In addition to posters at the Metra Stations, e-mails were sent to steering committee members asking them encourage their people to complete a survey. Paper copies of the survey were distributed at the Senior Center. A copy of the survey is located in Appendix A.

2. Survey Analysis

a. General Analysis

Six hundred and seventy-five (675) people responded to the survey. A response rate cannot be calculated since an exact number of surveys were not distributed. Sixty- eight percent of the respondents were female (Figure 20). Fifty-one percent of the respondents were between the age of 36 and 65 with 30% between the age of 21 and 35 (Figure 21).

Figure 20: Survey Responses by Gender

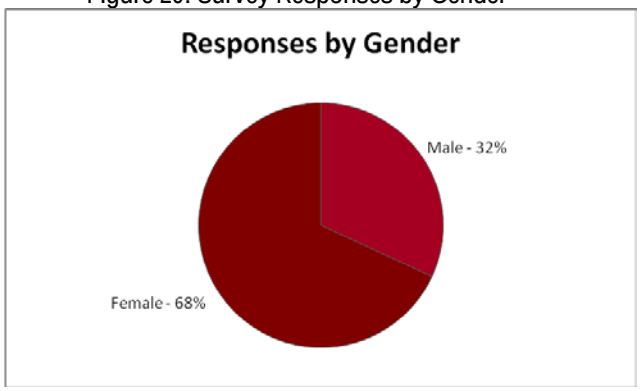
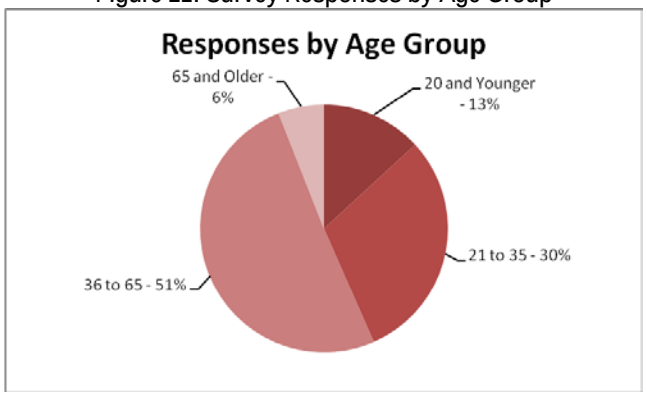



Figure 21: Survey Responses by Age Group




Two hundred thirty-one respondents provided Lake Forest's ZIP Code as their home ZIP Code (Figure 22). Two hundred seventy-four respondents reside outside of Lake Forest with between 15 and 25 respondents reside in Lake Bluff (21) and a north side Chicago (16) ZIP Codes. Almost all respondents (409) respondents work in Lake Forest (Figure 23). Only 58 respondents work outside of Lake Forest.

Figure 22: Survey Respondents Home ZIP Code

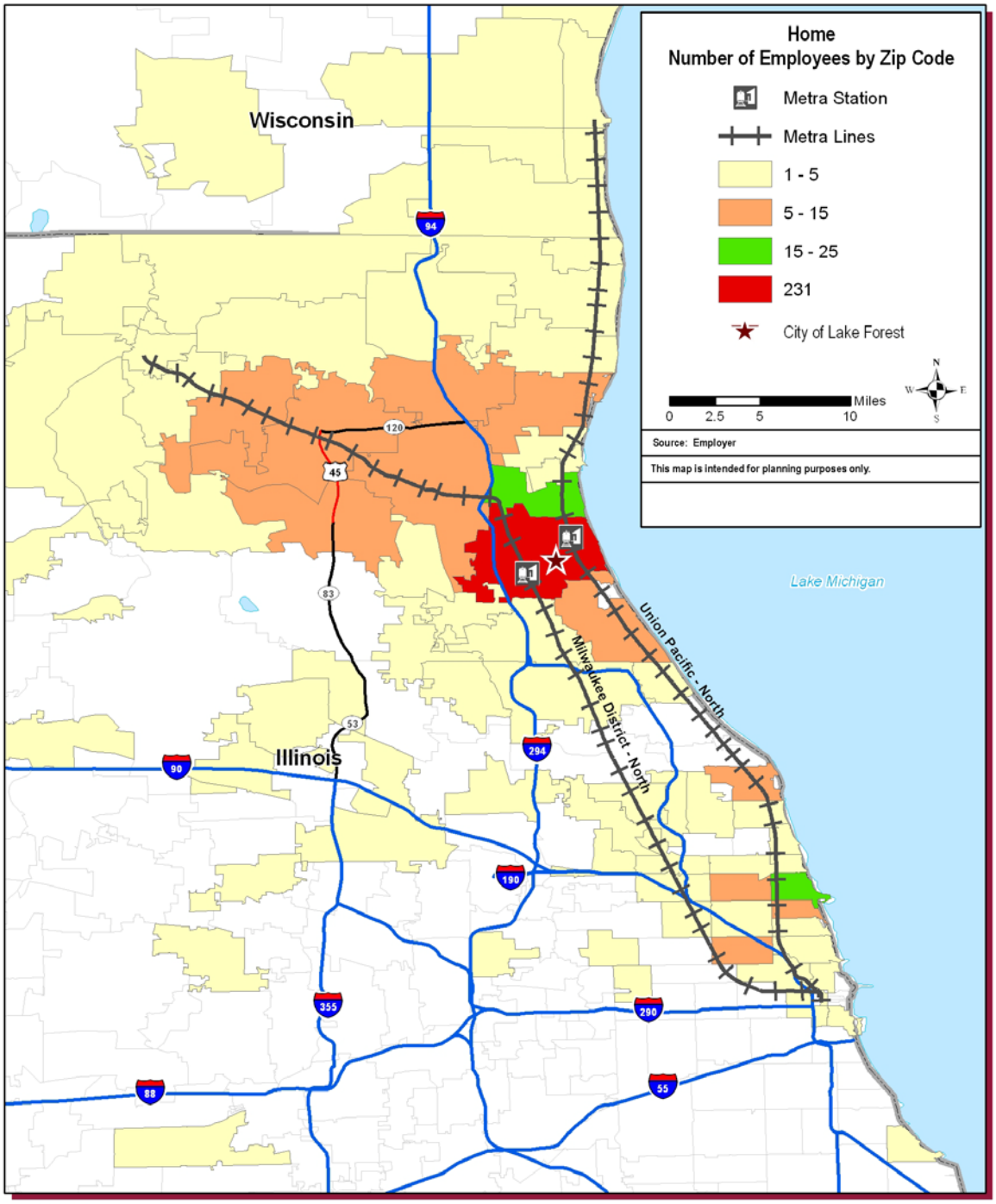
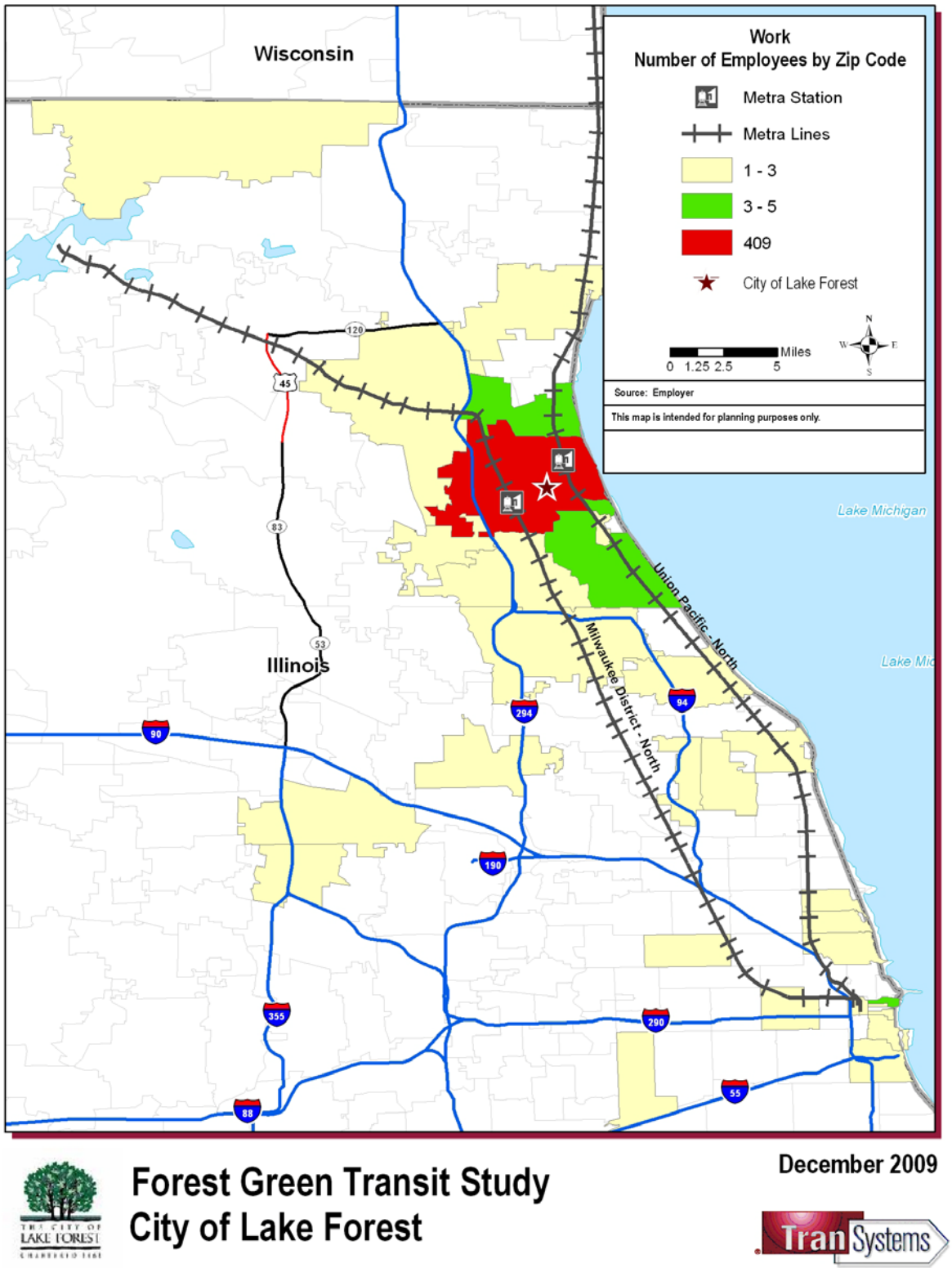


Figure 23: Survey Respondents Work ZIP Code



Survey respondents were asked questions about why and how they would use public bus service. These questions included what the purpose of their trip would be, where they would go and how often and on what days they would. Responses to these questions will guide the design of recommended services.

Survey respondents were asked for what purpose they would use public bus service. Fifty-eight percent (248) of the 469 responses stated that they would use the bus for work. Forty-six percent (215) would use the bus for shopping and 42% (196) for social or recreational purposes.

Survey respondents were asked what their primary and secondary destinations would be if they used public bus service. Table 7 summarizes the top twenty desired destinations. Lake Forest was the most requested destination, followed by Vernon Hills Mall.

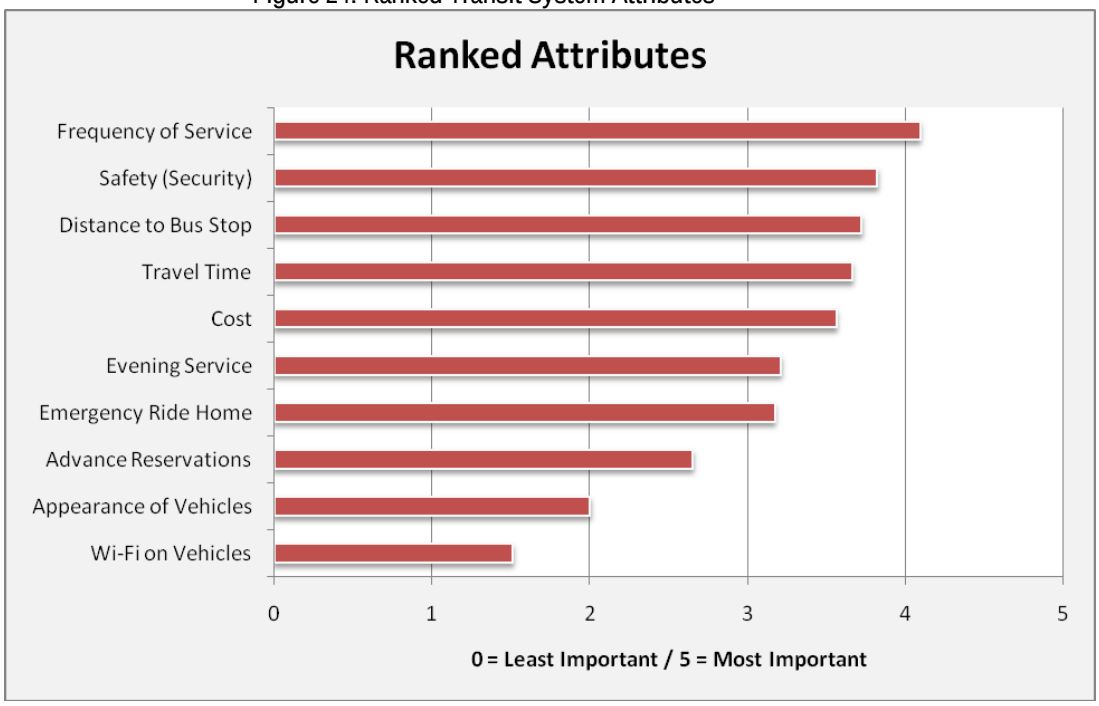
Table 7: Top Twenty Destinations

| Rank | Destination | Total Responses | Percent of Total |
|---|---|---|---|
| 1 | Lake Forest College | 156 | 14% |
| 2 | Vernon Hills Mall | 127 | 12% |
| 3 | UP-N Metra Station | 121 | 11% |
| 4 | Jewel | 111 | 10% |
| 5 | Market Square | 97 | 9% |
| 6 | MD-N Metra Station | 65 | 6% |
| 7 | Conway Park | 64 | 6% |
| 8 | Lake Forest Hospital | 55 | 5% |
| 9 | LFHS East Campus | 41 | 4% |
| 10 | Forest Park Beach | 38 | 3% |
| 11 | Deer Path Middle School | 29 | 3% |
| 12 | Lake Forest Library | 27 | 2% |
| 13 | Recreation Center | 27 | 2% |
| 14 | Settlers Square | 23 | 2% |
| 15 | LFHS West Campus | 21 | 2% |
| 16 | Municipal Complex | 21 | 2% |
| 17 | Senior Center | 13 | 1% |
| 18 | CROYA | 12 | 1% |
| 19 | Lake Forest Academy | 9 | 1% |
| 20 | Cherokee School | 8 | 1% |

Survey respondents were asked how many days per week they would ride public bus service. Thirty-two percent (154) of the 481 responses stated that they would use the bus one to three days per week. Thirty percent (145) would use the bus only occasionally and 19% (93) three to four days per week. Survey respondents were also asked on which day type they would ride the bus. A majority (404) of responses (480) stated they would use the bus on weekdays. Thirty percent (146) responded they would use the bus on Saturday and only 13% responded they would use the bus on Sundays.

A series of questions were asked to gauge what qualities were important in a transit system. Respondents were asked to rank the item and could rank them all equally important (Figure 24). Respondents ranked frequency of service as the most important attribute. Safety, distance to bus stop, and travel time were ranked almost equally. Respondents ranked appearance of vehicles and Wi-Fi on vehicles as the least important attribute.

Figure 24: Ranked Transit System Attributes




To determine if bike racks should be available on vehicles used on transit service in Lake Forest, survey respondents were asked if they would plan to take their bike with them when they ride the bus. Eighty-one percent (401) of the total respondents (494) stated that they would not bring their bike with them.

### b. Market Segment Analysis

The first question of the survey asked if the respondent was 1) resident of Lake Forest, 2) student in Lake Forest or 3) employee in Lake Forest. (Multiple responses were allowed). Since these different markets often have varied travel needs, additional analysis was conducted by each of these market segments.

Of the 128 residents responding to the trip purpose question, 59% (76) responded that they would use the bus for shopping and 56% (71) would use it for social or recreation. Residents' primary destination is Market Square, while their secondary destination would be Forest Park Beach. Residents would use the bus on weekdays and one to three days per week.

Of the 133 students responding to the trip purpose question, 76% (101) responded that they would use the bus for shopping and 74% (99) would use it for social or recreation. Students' primary destination is Lake Forest College, while their secondary destination would be Jewel. Sixty-five percent (86) of students responding (132) stated they would use the bus on Saturdays and 62% (82) stated they would use it on weekdays. Fifty percent responded they would use the bus one to three days per week.

Of the 250 employees responding to the trip purpose question, 84% (209) responded that they would use the bus for work. Employees' primary destination is Lake Forest College, while their secondary destination would be the Lake Forest UP-N Metra Station. A majority (96%) of employees would use the bus on weekdays. An almost equal number responded that they would use the bus only occasionally (75) and five or more days (70).

### c. Current Use of Transportation Services

Respondents were also asked if they currently use a transportation service in Lake Forest, either Metra or a private shuttle. Thirty-one percent of employees (112), 19% of students, and 12% of residents currently use Metra to commute to school or work. A majority (87%) of respondents ride the UP-N Line with 72% of residents, 100% students, and 87% employees riding this line. Forty-two percent of employees board the UP-N Metra train at the Ravenswood Station (near Lawrence and Damen in Chicago).

When examining which shuttle respondents board, 45% of respondents board the BPTC shuttle to Conway Park and 38% board a Lake Forest College shuttle. Sixty-one percent of employees board the BPTC shuttle and 96% of students board the Lake Forest College shuttle.

# Appendix G: Related Studies

A literature search was conducted to identify studies that can provide guidance when developing service designs for the Forest Green transit system. These studies are related to providing transit service in suburban settings, flexible service, and transit service to jobs.

The following summaries are adapted from or contain excerpts of text from the specified reports and should not be construed as original content.

A. TCRP Report 116: Guidebook for Evaluating, Selecting, and Implementing Suburban Transit Services – 2006

This report relates to Lake Forest because of its focus on serving low density, suburban environments with public transportation. This report updates information presented in *TCRP Report 55: Guidelines for Enhancing Suburban Mobility Using Public Transportation* (see below) and presents the latest research results related to suburban transit service options and attributes. The report includes analysis of 28 preliminary case studies, and a companion document to the report includes eight detailed case studies (see *TCRP Web-Only Report 34* below). The report identifies and describes suburban land-use environments and appropriate transit service strategies, and establishes evaluation criteria to determine best practices in providing suburban transit services. It notes that the difficulties of suburban public transportation do not have any "one size fits all" solutions. The success or failure of many suburban services can be based on a range of factors varying from a relatively stringent, quantitative analysis (e.g., meeting a minimum ridership-per-hour threshold) to a less stringent, qualitative analysis (e.g., value added to the community).

The report describes that the state of suburban transit services continues to evolve. Although the range of solutions (commuter service, regional connection, and local circulation) remains similar from prior studies, the decision-making process to retain or withdraw these suburban services is primarily based on local policies, which are substantially influenced by the availability of local funding. The range of services offered by the agencies included in the case studies are grouped into the following categories: commuter; route deviation; demand responsive; shuttles; circulators; and vanpools. Efforts by the research team to more specifically analyze the land-use connection with suburban transit services provided mixed results. The report considers the "four D's"—density, diversity, design, and deterrents to driving—in order to evaluate the level of transit supportiveness of a service area. The report updates *TCRP Report 55*'s suburban types by classifying suburbs as peaks, ridges, points, and plains. The research team found that the use of information on density, diversity, and design components had potential to assist with transit planning at the local level, but not at the national level. Many agencies are grappling with the issue of how to provide services in areas that cannot support fixed-route services. Some options, such as point and route deviation, appear to be accepted by local communities in some areas but not accepted by others. It also appears that many of the alternatives to fixed-route services are developed with the goal of expanding suburban transit service coverage, which is sometimes counter to the goal of fixed-route services which is to maximize productivity. Some of the alternative services eliminate the need for delivering separate Americans with Disabilities Act (ADA) complementary paratransit services by blending ADA-eligible clients into the suburban service solutions.

B. TCRP Web-Only Report 34: Developing Guidelines for Evaluating, Selecting, and Implementing Suburban Transit Services – 2006

This report relates to Lake Forest because of its detailed descriptions of suburban transit service options and the specific ways other transit agencies have served suburban environments. The body of this companion document to *TCRP Report 116* is, for the most part, the same report. This document differs from *TCRP Report 116* because it also includes eight appendices, the last of which provides detailed case studies. The Land Use appendix goes into further detail than *TCRP Report 116* regarding the "four D's"—density, diversity, design, and deterrents to driving. The Suburban Transit Services appendix is of particular interest to readers who want more detail about service options mentioned in *TCRP Report 116*. The Initial Case Studies appendix provides 2-3 pages of information on each transit agency, while the Detailed Case

Studies section provides about 10 pages of information per agency. The case studies describe the types of suburban transit services offered; the types of operational issues; the funding arrangements; the marketing program; the performance-measurement program; and the successes, challenges, and lessons learned from introducing suburban transit services. These case studies informed the conclusions drawn in *TCRP Report 116*.

C. TCRP Synthesis 53: Operational Experiences with Flexible Transit Services – 2004

This report relates to Lake Forest because, given its low density, one potential option for the City is "flexible transit service". This report documents and summarizes transit agency experiences with flexible transit services, including all types of hybrid services that are not pure demand-responsive (including dial-a-ride and ADA paratransit) or fixed-route services, but that fall somewhere in between those traditional service models. The report documents six types of flexible transit service, which, in order of increasing flexibility, are: request stops, flexible route segments, route deviation, point deviation, zone routes, and demand-responsive connector service. There are three applications for flexible services. The most common is flexible service in limited areas that are considered hard to serve for reasons of demographics, street layout, or community preferences. The second most common is flexible service in low-demand time periods, where flexible operation substitutes for fixed-route operation in either the entire network or in limited areas at certain times. The third application of flexible service is to provide the entire transit service for a small city, low-density suburban area, or rural area, in which the flexible service includes paratransit service. The following are some of the key conclusions of the report:

- Each flexible service is unique. There is as yet little standard practice that operators can turn to in designing flexible services.
- To balance efficiency and flexibility, operators strive to find the right balance between fixed-route operation and demand-responsive operation in each situation.
- Fare surcharges for off-route service may be useful as a way to encourage riders to board and alight at established stops.
- Coordination with regional fixed-route networks and with paratransit service is an important component of most flexible service.
- Flexible service operated over an agency's entire service area successfully eliminates or reduces the expense of separate paratransit service.
- The fluid and discretionary nature of many flexible services makes it difficult to provide a succinct yet accurate service description in public information materials.
- In hard-to-serve areas, flexible services typically have relatively low ridership and productivity levels compared with that found in fixed-route service. This situation is not so much a reflection of inefficiency in the service method as a reflection of the inherent difficulty of serving these areas, or inherent limitations of demand owing to low density or demographics.
- Most flexible services use some type of van or small body-on-chassis bus. However, many operators would prefer to operate some other type of vehicle than the one being used.
- If ridership on flexible services were to climb significantly above current levels, many systems would take it as an indication that the area could be better served with conventional fixed-route service.

D. TCRP Report 55: Guidelines for Enhancing Suburban Mobility Using Public Transportation – 1999

This report relates to Lake Forest because of its focus on serving low density, suburban environments with public transportation. The report includes a comprehensive review of current practices and case studies of 11 transit operators throughout the U.S. and Canada that reflect the diversity of suburban areas. The purpose of the report is to provide information about types of services, relative effectiveness of the services, and their applicability to specific suburban settings. Six types of suburban land-use environments are identified, with each environment representing a distinct operating setting that poses unique challenges to public transit: residential suburbs; balanced, mixed-use suburbs; suburban campuses; edge cities; suburban corridors; and exurban corporate enclaves. The range of transit applications to serve these suburban environments is classified as follows:

- Actions to Modify and Improve the Overall Suburban Transit Framework
  - Establishing a transit centers concept and timed-transfer program; and
  - Enhancing line-haul services, express buses, and limited services.
- Actions That Create Supporting/Complementary Services
  - Internal, local area circulators;
  - Shuttle links;
  - Subscription buses; and
  - Vanpools

The report identifies 12 key findings that are some of the common features of successful transit strategies for serving suburban transit markets: develop services around focal points; operate along moderately dense suburban corridors and connect land-use mixes that consist of all-day trip generators; serve transit's more traditional markets such as lower income, blue-collar neighborhoods; link suburban transit services, especially local circulators and shuttles, to the broader regional line-haul network; target markets appropriately; economize on expenses; adapt vehicle fleets to customer demand; creatively adapt transit service practices to the landscape; obtain private sector support; plan with the community; establish realistic goals, objectives, and standards; and develop supportive policies, plans, and regulations.

E. TCRP Synthesis 14: Innovative Suburb-to-Suburb Transit Practices – 1995

This report relates to Lake Forest because of its discussion of suburban transit services including the need for successful marketing. The report describes common elements of success among transit agencies with services that have suburban origins and destinations and that serve largely suburban travel needs. It examines survey results from 23 transit agencies and documents current transit agency practice regarding targeted marketing to the business community, partnerships with the private sector, site design and land use issues, and transit's role both as "mobility manager" and in taking corrective actions to attain national air quality standards. Four in-depth case studied are analyzed, including PACE in the Chicago region.

The report states that suburban transit services need to be much more highly tailored to the customer than regular fixed route services. Transit agencies must be innovative to capture a significant share of the suburban market, which is largely more affluent and less transit dependent than customers of more traditional transit services. The abundance of free parking, sprawling office parks, poor building siting, and single-use development are some of the factors that make serving the suburbs difficult. Early involvement by transit agencies in local land use issues and the development process is necessary to assure that transit is able to serve new suburban developments. Transit agencies need to provide more incentives to customers. The report notes that the automobile is strong competition in the suburbs, and simply putting transit service out on the street is not enough. Incentives such as guaranteed ride home programs, transit pass programs, merchandise discounts, and special outreach to the business community are important elements to the success of suburban transit services. Marketing costs and operational costs of suburb-to-suburb services can be significantly higher than for traditional fixed route services, so different evaluation criteria needs to be used for these services. Direct marketing to employers can be costly but critical to the success of suburb-to-suburb service. Traditional transit marketing plans consist largely of communications

and promotional plans with little attention focused on the market segmentation, targeting, and positioning of the value offered to the customer. The private sector has abandoned the concept of "one size fits all," and has strived to market unique products and services to increasingly well-defined market niches. Transit has had limited success in this area and could potentially benefit from the application of private sector marketing practices in order to reach suburban markets.

F. Access to Jobs: Planning South Cobb Enhancement Project – 2003

This relates to Lake Forest by describing how a wealthy suburban area with major employers can use transit service to assist reverse commuters. Cobb County, Georgia is located in the Atlanta metropolitan area. It has experienced population growth, is home to several major employers, and is one of the wealthiest counties in the nation. The county has benefited from an exodus of jobs from the central city of Atlanta. Unemployment in the county has traditionally been very low and employers often have difficulty filling entry-level jobs. The Federal Transit Administration's Job Access and Reverse Commute Program (JARC) presented an ideal opportunity for the local government and its transit agency to partner with local employers and regional and state agencies to bring new transit services to Cobb County. One of the major goals of the JARC program is to increase access to jobs for low income persons, disabled persons and other transportation disadvantaged groups. The project initiated new and expanded services to South Cobb County, which provided a direct connection to the Metropolitan Atlanta Rapid Transit Authority (MARTA) rail line in Atlanta and Fulton County. One of the major requirements of the JARC program is that projects must have come from an area-wide JARC Transportation Plan. The Plan was to identify and locate where job centers were, where low income persons reside, identify gaps and develop projects to address any needs identified. The South Cobb enhancement focused on providing transit access to numerous entry level and higher job opportunities in Atlanta and Cobb County, as well as providing an improved transportation service to the general community. The new service provided limited route diversions on selected trips to serve major employment sites. The project to date has been very successful for several reasons:

- Participation in a comprehensive, coordinated, collaborative regional and local planning process with diverse agencies to develop regional strategies
- Extensive spatial analysis of employment locations and target population to define existing transportation gaps between people and jobs
- Development of effective partnerships in the areas of finance, planning, marketing
- Allocation of the appropriate resources to address the transportation needs within the broader context of making incremental service improvements
- Developing and delivering a targeted, consistent message to the public

G. TCRP Report 46: The Role of Transit Amenities and Vehicle Characteristics in Building Transit Ridership: Amenities for Transit Handbook and the Transit Design Game Workbook – 1999

This report relates to Lake Forest because of its focus on amenities as a way to induce travelers to ride transit. The Handbook portion of the report identifies and describes passenger amenities and transit vehicle characteristics that attract ridership and explores how amenities may affect ridership. The Workbook includes information gathered from passenger surveys, focus groups, discussion sessions, and transit agency staff on the effect of recently implemented transit amenities on passengers. The report notes that there is a need to maximize the effect of investments by focusing resources on those amenities that will have the greatest positive effect on ridership. The report finds that the data clearly demonstrates the impact that passenger amenities and vehicle design characteristics have on shaping people's transit ridership choices and how these features can increase ridership. Amenities can make transit more efficient and easier to use, such as multiple doors to allow simultaneous boarding and alighting. Amenities can improve security through features such as adequate lighting at and around stops and posted maps of the surrounding area. When amenities are provided and successfully maintained, there is also an implied security presence and a sense that someone is in control of the area. Amenities which provide people with knowledge about the transit system improve their ability to use public transit. In many suburban communities, a lack of connections between subdivisions forces buses to use busy arterials, which are unappealing waiting environments for passengers. Many bus stops are not located or reachable by sidewalks, forcing passengers to walk and sometimes wait in the street. In this situation, transit amenities such as required sidewalk access and transit stop enhancements as part of building permits can become a catalyst for improvements which are of broader benefit to a community.

Using a decision-making game administered to transit passengers in five cities, the report concludes the following:

- The research clearly shows that passengers consider amenities to be important and a majority of riders in most cities are willing to forego a fare decrease in order to have them. However, the decision game results indicate that there does appear to be a limit to what riders are willing to "spend" on amenities before they would choose a fare decrease instead.
- The research shows the highest priorities in all five cities (although not necessarily in the same order of preference) to be bus shelters, padding for bus seats, and information (on board and at the stop.) In general, the preference was for a feature one step beyond the "basic".
- Priorities for amenities vary according to the climate, characteristics of the city, and type of passenger. For example, heated shelters are a priority in cold climates.
- Passengers' transit riding patterns and demographic characteristics influence preferences. Transit-riders-by-choice tend to be more interested in bus stop information, low floor buses, storage, and security cameras, than are "captive" riders. Higher income riders are no more willing to forego a fare reduction than are lower income riders.
- The research using the decision game shows that amenities promote transit ridership. Experience in the field with actual projects, however, shows that ridership gains (or reduction of ridership losses) are difficult to quantify as most transit agencies that implement projects also undertake other projects (such as increased service) which impact ridership levels at the same time.

H. Regional Commuter Buses and Their Potential Applicability in Connecticut – 1999

This article relates to Lake Forest because of its focus on serving affluent markets with high-amenity transit service. The article states that there is no universally applicable definition of the regional commuter bus, but it combines the flexibility of the bus with the comfort of commuter rail. Most regional commuter buses operate in suburb-to-city service, although some routes accommodate reverse-commute and suburb-to-suburb travel. The regional commuter bus serves a wider variety of origins and destinations than does rail transit. Yet like commuter rail, the commuter bus caters to longer-distance metropolitan travel, and it usually attempts to offer a comfortable seat to all passengers. Because of its amenity orientation and its fast service, the regional commuter bus often competes with the car on a basis of choice.

The article notes how the outward spread of housing and employment makes it difficult for rail transit to keep up with emerging travel patterns. The regional commuter bus normally runs on limited access highways and provides a comfortable ride that is time competitive with the automobile. It often uses deluxe equipment with well-upholstered seats that are arranged to maximize the number of seats. Various transit agencies have been successful using amenities such as seats with high backs, convenient routes, strict travel schedules, premium fares, joint fares with regional rail and local transit, and even reserved seats for monthly pass holders. The advantages of the regional commuter bus make it an option for planners to consider in markets in which ordinary bus service might not be applicable. The article points out that Connecticut's southwest corridor, with its many urban centers, employment centers, and affluent suburbs, may be a promising market for high-amenity regional commuter bus service. Regional commuter bus appeals to the time-sensitive, comfort-conscious, and affluent segments of the metropolitan travel market.

# Appendix H: Preliminary Service Design Concepts

The employee market is characterized by trips in the morning and evening peak periods with clustered destinations. Two types of transportation solutions are recommended to serve the employee market:

- Shuttle service for the employees at Conway Park
- Fixed route service for the employees at other locations

A. Conway Park

Description

A fixed route shuttle is most appropriate to serve Conway Park employees. Shuttles work well when there are a large number of employees traveling from a transit center or train station to the same building or general area. Conway Park and adjacent office complexes are currently served by shuttles operated by Pace and Business Park Transportation Consortium (BPTC).

Shuttles should be designed with the following factors: flexibility, information, reliability, travel time, comfort, cost, and image. Currently Conway Park and adjacent office complexes are served by two operators, though in the past a single operator provided the service. One service is operated by Pace and serves HSBC and CDW. The other service is operated by the BPTC and serves Conway Park, Opus Place, and Grainger. With two separate operators, currently there is no or limited coordination towards the key factors. Also a coordinated information program is not in place. Travel time is slower since the shuttle often stops at the other train station after departing the first train station. Employees view the school buses used on BPTC service as uncomfortable. Finally, resources are not being optimized.

It is recommended that these services be combined into one unified program that is operated through improved coordination of the current operators or by a single operator. Three routes would serve Conway Park and adjacent office complexes:

1. Metra/Union Pacific North Line Station to Conway Park
2. Metra/Union Pacific North Line Station to Opus Place, HSBC, CDW, and Grainger
3. Metra/Milwaukee District North Line Station to Conway Park, Opus Place, HSBC, CDW, and Grainger

Each of these fixed routes would be scheduled to meet various arrivals at the Metra stations. The bus would then travel directly to their destinations. By meeting several arriving and departing Metra trains, employees would have some flexibility when deciding when to arrive or depart work. The timed connections with trains would be reliable. Since the bus would travel directly to the Conway Park area without stopping at another station, travel time will be up to 30 minutes shorter.

It is recommended that 30-foot transit vehicles be used on the shuttles. These buses are more comfortable then a school bus. The transit vehicles would have seating designed for adults, better air conditioning and heat, storage place for briefcases or backpacks, and could have racks for bicycles. These styles of buses along with an improved information program would likely improve the image of the shuttle service.

The 30-foot buses could be either medium-duty bus that is built on truck chassis or heavy duty bus that is designed from the ground up to be a transit vehicle. The cost for these vehicles is between $100,000 and $325,000.

Figure 26: Medium-Duty Bus

Figure 25: Heavy-Duty Bus

The following map shows the recommended routing for each route serving Conway Park. The characteristics of such as hours of service, frequency of service, one-way running time, number of revenue hours are contained in a table on the following page.

Figure 27: Recommended Conway Park Service

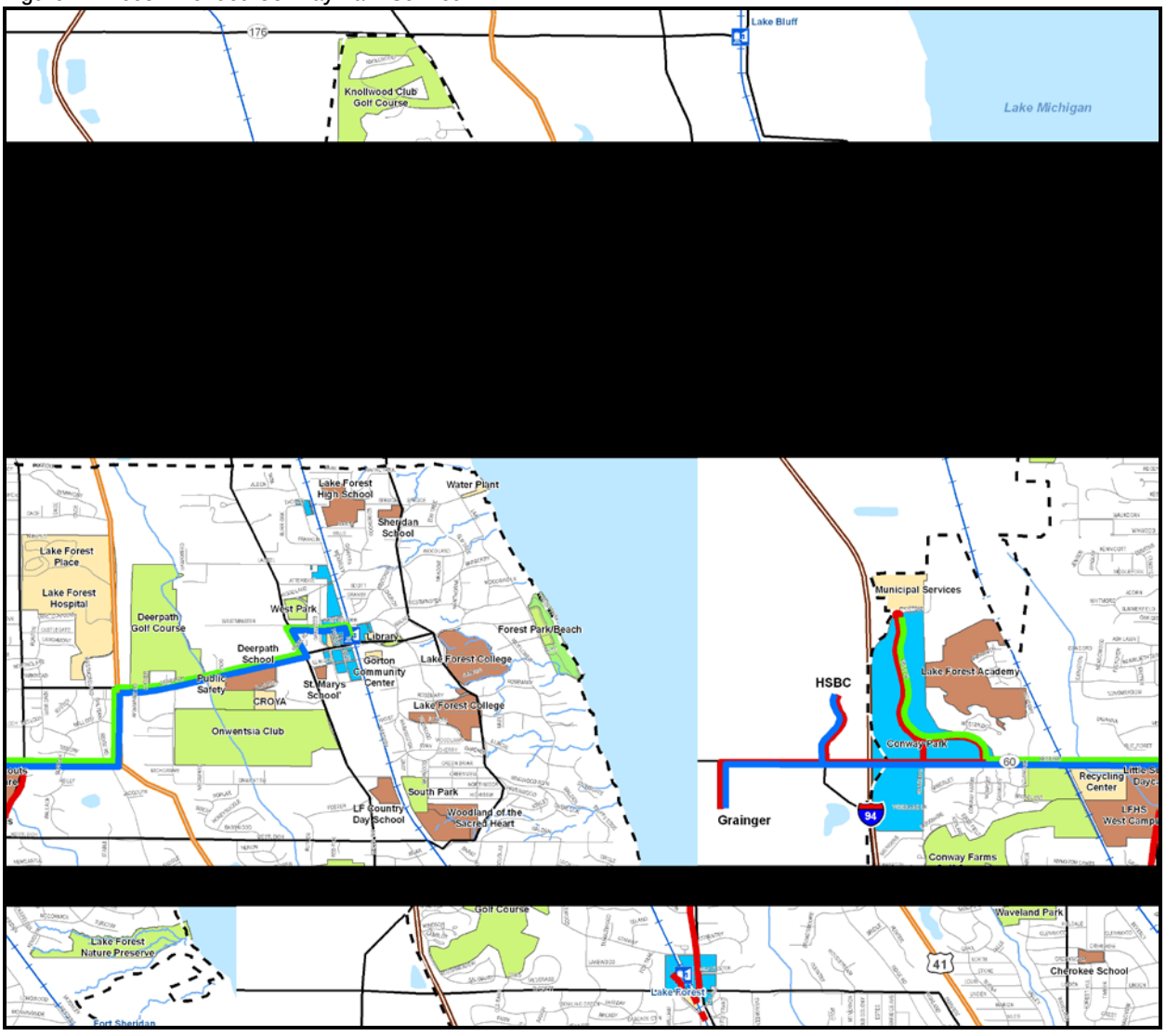


Table 8: Conway Park Service Characteristics

| | UP-N to Conway Park | UP-N to Opus Place, HSBC, CDW, and Grainger | MD – N to Conway Park, Opus Place, CDW, HSBC and Grainger |
|---|---|---|---|
| Hours of Service | Weekdays: 6:30a-9:00a, 4:00p-7:15p | Weekdays: 6:30a-9:00a, 4:00p-7:15p | Weekdays: 6:45a-9:00a, 4:15p-7:40p |
| Frequency of Service | 3 trips in the morning, 3 trips in the evening | 3 trips in the morning, 3 trips in the evening | 3 trips in the morning, 3 trips in the evening |
| One-Way Running Time | 15 minutes | 14 minutes | 14 minutes |
| Vehicles | One | One | One |
| Revenue Hours | 5.75 hours | 5.75 hours | 5.7 hours |
| Estimated Ridership | 70 – 90 | 60 – 80 | 60 – 80 |
| Estimated Annual Cost | $105,000 - $120,000 | $105,000 - $120,000 | $105,000 - $120,000 |
| Infrastructure Requirements | Dedicated boarding/alighting location at Metra Station | Dedicated boarding/alighting location at Metra Station | Dedicated boarding/alighting location at Metra Station |
| Regional Connections | Metra | Metra | Metra |

Strengths

- Provides direct connections from each Metra Station to Conway Park
- Direct service provides faster service for many passengers
- Maximizes resources through service coordination

Weaknesses

- Some passengers going to CDW and HSBC will have a slightly longer trip.

Issues

- Since there is a three hour gap in service to Chicago in the afternoon, the Metra/Milwaukee District – North Line service will need to serve the Deerfield station in the afternoon. This will increase the passenger's travel time and could make the service less reliable depending on congestion along Waukegan Road.

B. Other Work Locations

Due to the dispersed employment locations throughout Lake Forest, demand response service is recommended to serve employees at other locations. A small bus would be waiting for passengers at each of the stations. After getting off the train, passengers would board the bus and inform the driver where they wish to be dropped off. The driver would then determine the best routing to serve the passengers. Passengers may request an afternoon pick-up by calling a dispatcher before 3:00pm. The dispatcher would let the customer know the approximate pickup time. The vehicle would then arrive within a small window. This service would also be available to local market also. Residents could reserve a trip to get to the train station in morning and home in the afternoon. Students could use the service to travel to and from school.

The characteristics of this service are listed on the following page.

Table 9: Other Employees Demand Response Service Characteristics

| | Metra/Union Pacific North Line | Metra/Milwaukee District North Line |
|---|---|---|
| Hours of Service | Weekdays: 6:30a-9:00a, 4:00p-7:15p | Weekdays: 6:45a-9:00a, 4:15p-7:40p |
| Frequency of Service | 3 trips in the morning,<br>3 trips in the evening | 3 trips in the morning,<br>3 trips in the evening |
| One-Way Running Time | Depends on passengers | Depends on passengers |
| Vehicles | One | One |
| Revenue Hours | 5.75 hours | 5.7 hours |
| Estimated Ridership | 20 – 30 | 20 - 30 |
| Estimated Annual Cost | $90,000 - $105,000 | $90,000 - $105,000 |
| Infrastructure Requirements | Dedicated spot at Metra Station | Dedicated spot at Metra Station |
| Regional Connections | Metra | Metra |

Strengths

- Ability to serve the multiple dispersed smaller employers in Lake Forest.
- Better serves shift workers at Lake Forest Hospital or workers not well served by fixed route schedules.

Weaknesses

- Some passengers that currently have a direct trip to their place of employment may see their travel time increase.
- Requirement to call for an evening pick-up may lack appeal

Issues

- It is important that entities currently providing shuttle service continue to contribute to the operation of the demand response service. This will be explored in detail in the implementation task of the study.

C. Other Considerations

Approximately 350 employees in Lake Forest reside along the Metra/Milwaukee District North Line south of Lake Forest. However commuting on Metra is not very practical since there are no inbound trains on the MD-N between 4:47pm and 7:59pm.

Considering the disperse distribution of employees in Lake Forest, there are two programs offered by Pace that may meet the needs of employees that cannot use the recommended services. Pace Rideshare is a free web service that helps match people together that are interested in carpooling. If a carpool has 5 or more participants then they are eligible to form a Pace vanpool. A vanpool is designed to transport a group of 5 – 13 people that live and work near on another and share a similar work schedule. Each rider pays a low monthly fare based on distance and number of participants. The fare covers all the cost of the vanpool including gas, maintenance, insurance, cleaning, and tolls. One of the participants volunteers to drive the van. The driver does not pay a fare and receives 300 miles for personal use per month. The back-up driver also receives a small monthly discount on their fare.

The local market is characterized by trips at many times of the day from dispersed origins and destinations throughout Lake Forest. Three options are suggested for local service:

- Demand response
- Flexible circulator
- Fixed route regional connectors

Lake Forest would likely chose to implement either demand response service or the flexible circulator. The fixed route regional connector could be an optional component for either of these service designs. Or, Lake Forest could chose to implement elements of all three service designs.

A. Demand Response Service

Demand response service is where a passenger reserves a trip in advance. It is commonly referred to as Dial-a-Ride service. A vehicle shows up at an arranged time to pick-up the passenger. The vehicle may pick-up or drop-off other passengers as it takes the passengers to their destination. This service differs from taxi service since passengers share trips.

Passengers would be able to reserve a trip between 2-24 hours before they need to travel by calling a dispatcher. The passenger would state where they are going, what time they need to arrive and request a return trip. The employee would then receive confirmation of what time they would be picked-up. A vehicle would then arrive within a small window of the scheduled pick-up time.

The demand response service would cover the entire City, allowing residents and students to reach most of the desired destinations from the survey. Since the primary reason for using the service is shopping, dining, or recreation, the service would operate between 9:00am and 7:30pm. This is the timeframe that residents and students are likely to be making trips with these purposes.

This service would likely be very reliable and the most competitive compared to the automobile. However, this option would not have a significant impact on reducing the number of automobiles on the street.

It is recommended that transit vans be used on this service. These vans seat between 12 and 16 passengers. There are two vans available that have modern styling and offer low-emission options that would fit the image and goals of Lake Forest. They are highly maneuverable, which will assist navigating Lake Forest's street network and the narrow bodies may be less "intimidating" when other vehicles encounter the vans. These are the TurtleTop Terra Transport and the Dodge Sprinter Van (originally designed and manufactured by Mercedes). These vehicles cost between $50,000 and $75,000.

Figure 29: TurtleTop Terra Transport

Figure 28: Dodge Sprinter Van

Figure 30: Local Market Demand Response Service

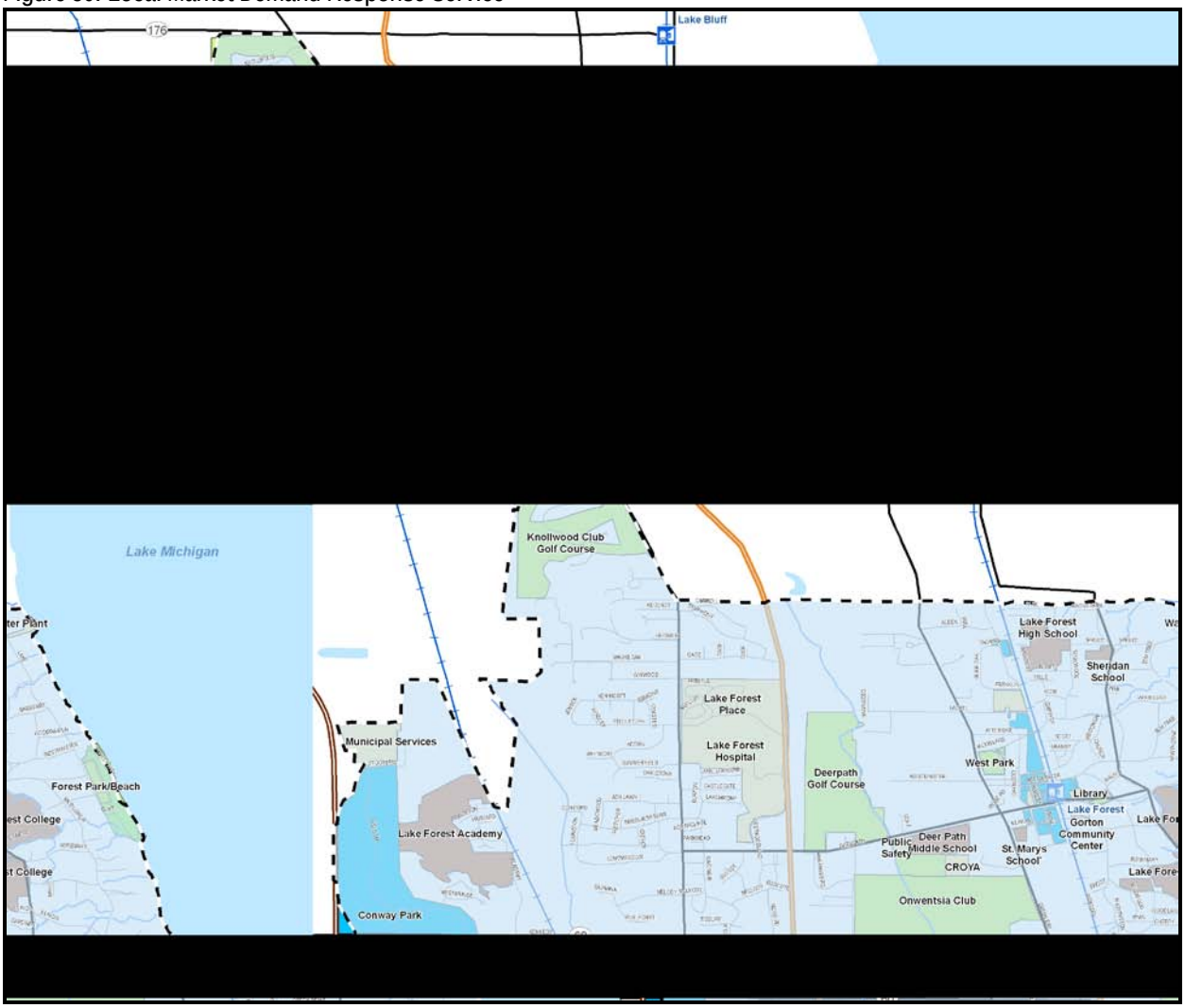


Table 10: Local Market Demand Response Service Characteristics

| | Demand Response Service |
|---|---|
| Hours of Service | Weekdays: 9:00a-7:30p |
| Frequency of Service | Passengers must call at least 2 hours in advance |
| One-Way Running Time | Depends on passengers' destination |
| Vehicles | Two |
| Revenue Hours | 21 hours |
| Estimated Daily Ridership | 65 – 105 |
| Estimated Annual Cost | $340,000 - $375,00 |
| Infrastructure Requirements | None |
| Regional Connections | Metra |

Strengths

- Passengers are able to reserve a trip for when they want to travel. There is no need to wait for bus at a bus stop.
- Travel time is more competitive with automobile than fixed route service.
- More direct routing from origin to destination.
- Can scale the amount of service needed to meet demand by adding or reducing the number of vehicles

Weaknesses

- Service is first come, first serve. If the trip cannot be accommodated when the passenger desires to travel, they will have to negotiate an alternative trip time.
- Without signs at stops or vehicles on a predetermined route, there could be a general lack of awareness of demand response service.
- Requires a dispatcher to take phone calls and schedule trips.

B. Flexible Circulator

A flexible route is where a vehicle follows an established route and timetable, but it may travel off route to pick-up or drop-off passengers. The vehicle returns to the designated route within one block of the point where the route deviated. This ensures that all intersections along a route are served and keeps the fixed route characteristic of knowing a transit vehicle will be on a route within a time range.

The circulator would operate a two-way loop through the City. The purpose of this is to shorten the time for a return trip from the initial destination. If all the buses operated in the same direction, then passengers may be required to travel a long distance for what would be a short trip if they could catch a bus in the opposite direction.

The clockwise circulator would start at the Metra/UP-N Station travel on Western Avenue – Woodland Avenue – Green Bay Road – Deerpath Road – Westmoreland Drive – Waukegan Road – Everett Road/Old Elm Road – Greenbay Road – Westleigh Road – Sheridan Road – Deerpath Road – Western Avenue – end at the Metra/UP-N Station. The counterclockwise loop would reverse the routing.

The circulator would directly serve many destinations including Metra/UP-N Station, Metra/MD-N Station, Lake Forest College, Market Square, Settlers Square, Lake Forest Hospital and Deer Path Middle School. Destinations that could be served with a flexible request include: Lake Forest High School East Campus, Forest Park Beach, Senior Center.

Either 30-foot transit vehicles or transit vans could be used on the circulator.

Figure 31: Local Market Flexible Circulator

Since the primary reason for using the service is shopping, dining, or recreation, the service would operate between 9:00am and 8:00pm. This is the timeframe that residents and students are likely to be making trips with these purposes.

Table 11: Local Market Flexible Circulator

| | Flexible Circulator Service |
|---|---|
| Hours of Service | Weekdays: 9:00a.m.-8:00p.m. |
| Frequency of Service | Every 60 minutes |
| One-Way Running Time | 52 minutes |
| Vehicles | Two |
| Revenue Hours | 22 hours |
| Estimated Daily Ridership | 110 – 180 |
| Estimated Annual Cost | $395,000 - $450,800 |
| Infrastructure Requirements | Bus stop signs and shelters |
| Regional Connections | Metra |

Strengths

- A flexible route may generate more transit use in a low density community like Lake Forest.
- Flexible routing allows additional places to be served.
- Retains some characteristics of a fixed-route system: bus stops, knowing when a bus is scheduled to serve a time point, and knowing approximate travel time to destination.
- Federally mandated Americans with Disabilities complementary paratransit[2] service is not necessary since the bus can deviate from the route to pick up passengers with disabilities.
- Ability to adjust the routing based on where the bus frequently deviates to pick-up/drop-off passengers.

Weaknesses

- Passengers may have a longer travel time than for fixed route service since the bus can deviate off its route.
- A perception of lower reliability may develop due to deviations.

Issues

- A fare surcharge for off-route service is recommended to encourage riders to board and alight at established stops.
- The number of off-route deviations per trip may need to be limited in order to maintain reliability.
- If ridership grows to significant level, Lake Forest may be better served by fixed route service.

C. Regional Connection Fixed Route

From survey responses, the second most requested destination is Vernon Hills Mall. The local market desires to use public transportation for shopping trips. Since there are few non-specialty retail stores in Lake Forest, the residents need to travel outside of the City for general shop shopping needs.

The route could start either at the Metra UP-N Station or Lake Forest College since survey responses indicated that college students desired to use this type of service. It is recommended that this service operate Thursday through

[2] Complementary paratransit is specialized demand response service provided for people who cannot use fixed route transit due to a disability, meeting specific comparability requirements as established by the ADA Act. The service is called complementary because it complements fixed-route service by providing additional service need to make the entire system usable by people with disabilities. Complementary paratransit service must be provided within three-quarters of a mile of fixed route and during the same hours of operation as the fixed route.

Saturday since people can tend to plan their shopping trips. Saturday service is provided for college students. The service would operate from 12:00 p.m. until 10:00 p.m. The later service would allow for dining or recreational trips such as going to the movies. A map and operating characteristics are below.

Either 30-foot transit vehicles or transit vans could be used on the circulator.

Figure 32: Regional Route to Vernon Hills


Table 12: Regional Route to Vernon Hills Service Characteristics

| | Regional Route Service |
|---|---|
| Hours of Service | Thursday through Saturday<br>12:00p.m. – 10:00p.m. |
| Frequency of Service | 60 minutes |
| One-Way Running Time | 25 minutes |
| Vehicles | One |
| Revenue Hours | 10 hours |
| Estimated Daily Ridership | 80 – 100 |
| Estimated Annual Cost | $110,000 - $125,000 |
| Infrastructure Requirements | Bus stop signs |
| Regional Connections | Metra, Pace Routes 272 and 572 |

Strengths

- Travel time competitive with the automobile.
- Provides evening and weekend transit service in Lake Forest.

Weaknesses

- Passengers will have to plan their shopping trips.
- Passengers residing in portions of Lake Forest not along the route would have to transfer from either demand response service or the circulator to reach Vernon Hills Mall.

Issues

- As ridership grows, additional days of service could be added.
- On Saturdays, the route could serve Lake Forest Academy. This may increase the one-way running time to 40 minutes and frequency of service to 90 minutes.

# Appendix I: Service Design Feedback Survey

## Introduction

Lake Forest is experiencing a growing demand for public transportation, and the City of Lake Forest has undertaken a study to identify an effective solution to reduce congestion, combat rising gas prices and support "green solutions." Basic demographic data has already been collected which identified traffic patterns, employee/resident needs, and desired public transit improvements.

Possible service designs were developed based on this input; and by completing this survey, you will provide vital information that will assist the City in developing service design recommendations for Lake Forest.

Through market research and data analysis, three distinct transit markets in Lake Forest have been identified: employee, local and regional. The employee market is characterized by peak hour users that often have common destinations. Employees tend to ride transit regularly. The local market is characterized by trips spread throughout the day with dispersed origins and destinations. These users tend to ride transit more infrequently. The regional market is characterized by trips for shopping, dining and recreation outside of Lake Forest. Users tend to make these trips several times a month on weekends.

This survey will take you approximately 10 minutes to complete. You'll start by answering demographic questions. Next, you will be provided a brief description and map of the possible service routes. You will then be asked to provide your feedback on these potential service routes.

1. Are you a (select as many as apply)?
    a. Resident of Lake Forest
    b. Middle School/High School Student in Lake Forest
    c. College Student in Lake Forest
    d. Employee in Lake Forest
2. What is your gender?
    a. Male
    b. Female
3. What is your age?
    a. Less than 12
    b. 12 to 17
    c. 18 to 24
    d. 25 to 34
    e. 35 to 54
    f. 55 to 65
    g. Over 65
4. Please provide your WORK address or the closest intersection where you work. (For example, 220 East Deerpath, Lake Forest, IL or Deerpath and Oakwood)
    a. Company:
    b. Address:
    c. City / Town:
    d. State:
    e. ZIP / Postal Code:

5. Please provide your HOME address or the closest intersection where you live. (For example, 220 East Deerpath, Lake Forest, IL or Deerpath and Oakwood)
    a. Address:
    b. City / Town:
    c. State:
    d. ZIP / Postal Code:
6. Do you currently ride a bus or shuttle from one of the Lake Forest Metra Stations that is provided by your employer or school?
    a. Yes, from the Metra / Union Pacific North Line Station (East Station)
    b. Yes, from the Metra / Milwaukee District North Line Station (West Station)
    c. No
7. Please select the first of the following choices that applies to you.
    a. An employee in Conway Park area
    b. An employee or student elsewhere in Lake Forest
    c. A resident in Lake Forest

Conway Park Area Employees

Improvements to existing service to Conway Park Area

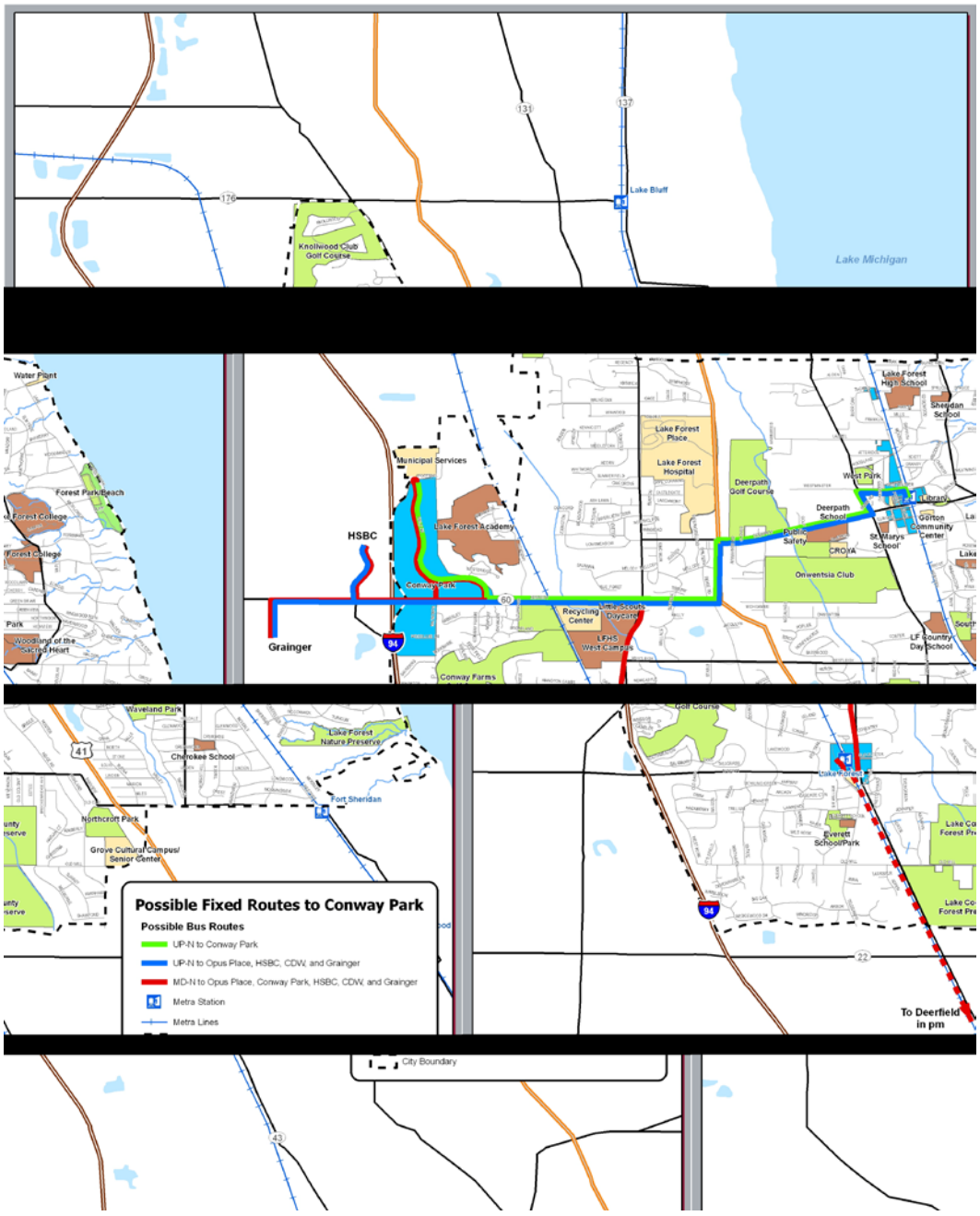
Transit service to Conway Park area is currently provided by separate operators. Increased coordination and dedicated service to and from the two Lake Forest Metra Train Stations could reduce travel time up to 20 minutes per trip.

It is recommended that Conway Park area be served by three routes (Map 1 below):

1. Metra/Union Pacific North Line Station to Conway Park (Green Line)

2. Metra/Union Pacific North Line Station to Opus Place, HSBC, CDW and Grainger (Blue Line)

3. Metra/Milwaukee District North Line Station to Opus Place, Conway Park, HSBC, CDW and Grainger (Red Line)



Each of these shuttles would be scheduled to meet trains arriving between 6:30am and 8:40am and departing between 4:30pm and 7:35pm. The shuttle would then travel directly to and from Conway Park area unlike many of the current routes that stop at both Metra Stations before going to Conway Park.

In the evening, the Shuttle serving the Milwaukee District – North Line would first stop at the West Lake Forest Train Station and then continue to the Deerfield Train Station since there are no southbound trains from Lake Forest between 4:47pm and 7:59pm.

1. Compared to your current use of a shuttle, would you:
    a. Ride more often then I currently ride
    b. Ride less often or stop riding
    c. Start riding
    d. Never ride
2. Why would OR wouldn't you use this service?
    a. _____
    _____
    _____
    _____
3. What changes would you like made to these potential transit service routes? (For example – meet a certain train, serve a specific area)
    a. _____
    _____
    _____
    _____
    _____
4. If a fare is charged, what is the most you would pay per one-way trip to use the service?
    a. Less than a $1.00
    b. Between $1.00 and $2.00
    c. Between $2.00 and $4.00
    d. I would not pay
5. Please provide any comments or questions you may have on the possible service to Conway Park.
    a. _____
    _____
    _____
    _____
6. Are you a resident or student in Lake Forest?
    a. Yes
    b. No

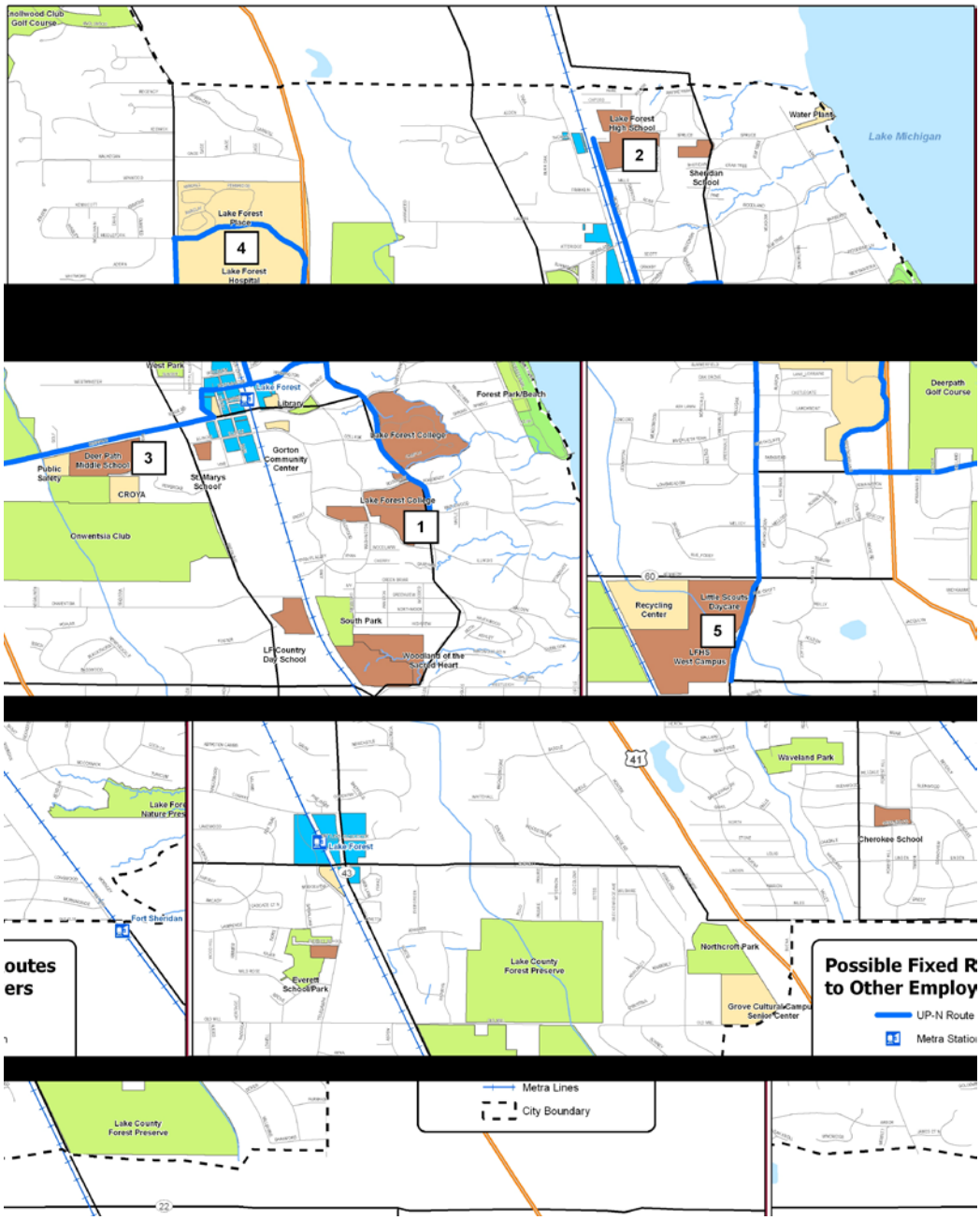
Other Employee / Student

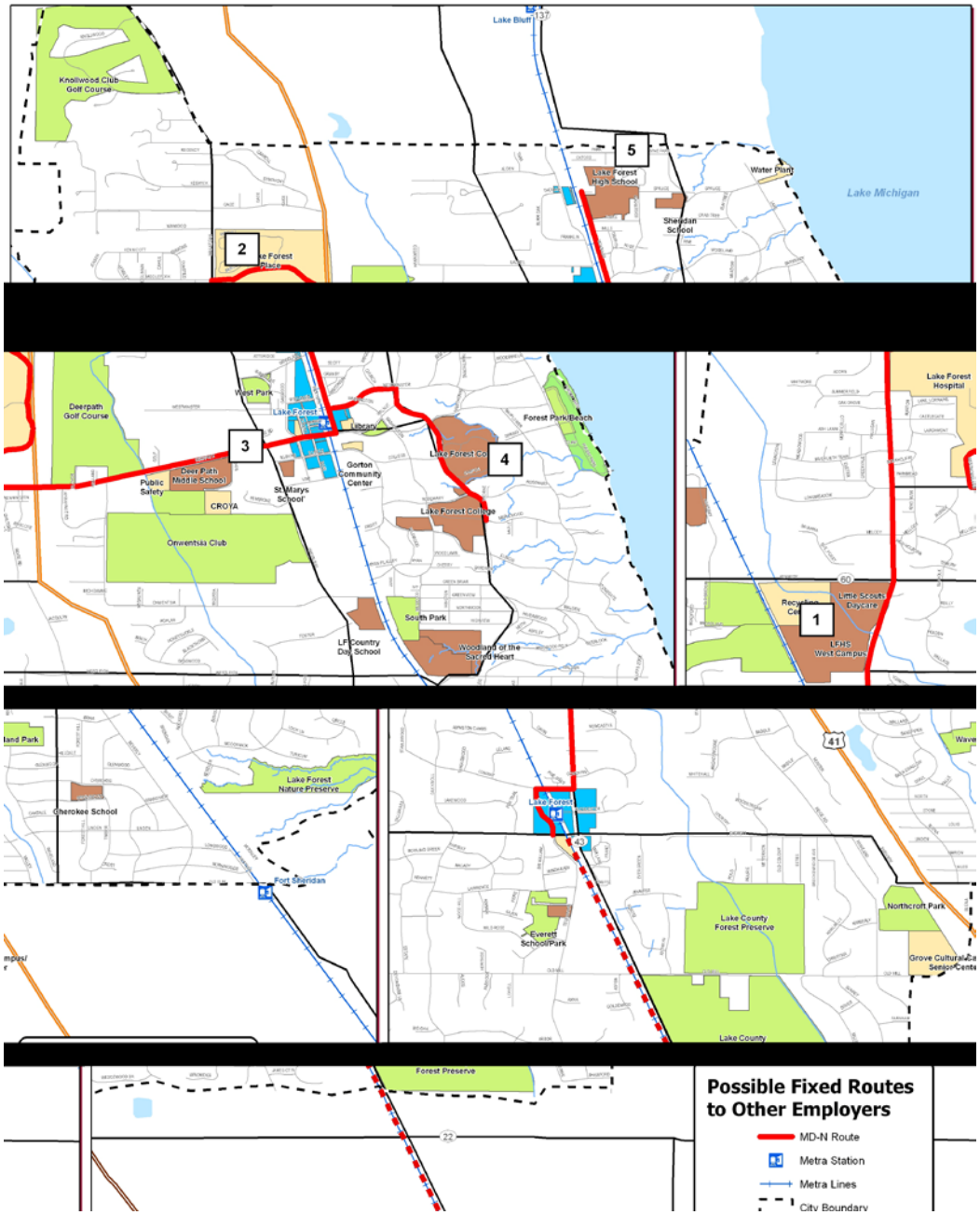
New Shuttle Buses (not for Conway Park Area) (Maps 2 and 3)

Two Shuttle buses are also recommend to serve other employers (The City of Lake Forest, Lake Forest College, Lake Forest Elementary and High Schools, Lake Forest Hospital and employees of the many small businesses in Lake Forest) and students.

Map 2: Metra/Union Pacific North Line Station (east side) to Lake Forest College, Lake Forest High School-East Campus, Deer Path Middle School, Lake Forest Hospital, and Lake Forest Place, and other destinations along the route. (Blue Line)

Map 3: Metra/Milwaukee District North Line Station (west side) to Lake Forest High School – West Campus, Lake Forest Place, Lake Forest Hospital, Deer Path Middle School, Lake Forest College, Lake Forest High School – East Campus, and other destinations along the route. (Red Line)






Both of these shuttles would be scheduled to meet trains arriving between 6:30am and 8:40am and departing between 4:30pm and 7:35pm. In the evening, the shuttle serving the Milwaukee District North Line service would first stop at the Westside Lake Forest Train Station and then continue to the Deerfield Train Station since there are no southbound trains from Lake Forest between 4:47pm and 7:59pm.

While these shuttles are primarily intended for employees, students or other people travling within Lake Forest would be able to ride these shuttles.

1. I would ride this service:
    a. Daily
    b. Several times a week
    c. Several times a month

d. Only occasionally

e. Never

2. What would be your destination?

   a. _____

3. Why would OR wouldn't you ride this service?

   a. _____
   _____
   _____
   _____

4. If a fare is charged, what is the most you would pay per one-way trip to use the service?

   a. Less than a $1.00

   b. Between $1.00 and $2.00

   c. Between $2.00 and $4.00

   d. I would not pay

5. Please provide any comments or questions you may have on this service.

   a. _____
   _____
   _____
   _____

6. Are you a resident or student in Lake Forest?

   a. Yes

   b. No

## Local Service

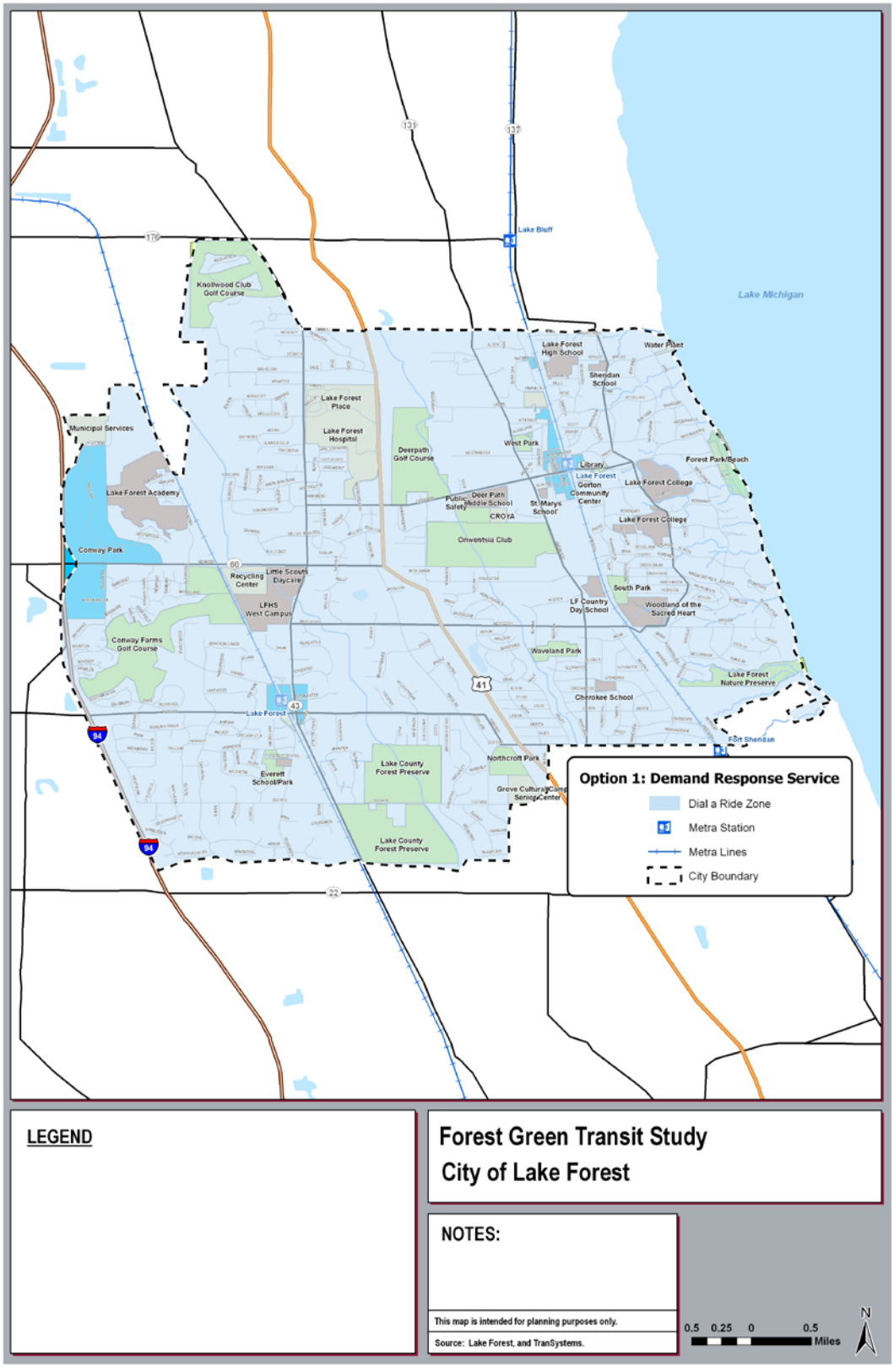
Two options are suggested for local service:
1. Demand Response
2. Flexible Circulator

Option 1: Demand Response

Demand response service is when a passenger reserves a trip in advance. It is commonly referred to as Dial-a-Ride service. A vehicle shows up at an arranged location and time to pick-up the passenger. The vehicle may pick-up or drop-off other passengers as it takes the passengers to their destination. This service differs from taxi service since passengers share trips.

You would be able to reserve a trip between 2-24 hours before you need to travel by calling a dispatcher and stating where you are going, what time you need to arrive, and when you need to return. You would then receive confirmation of what time you would be picked-up. A vehicle would then arrive within a small window of the scheduled pick-up to take you to your destination.

Service would be available anywhere in The City of Lake Forest and would operate Monday through Friday between 9:00am and 7:30pm.



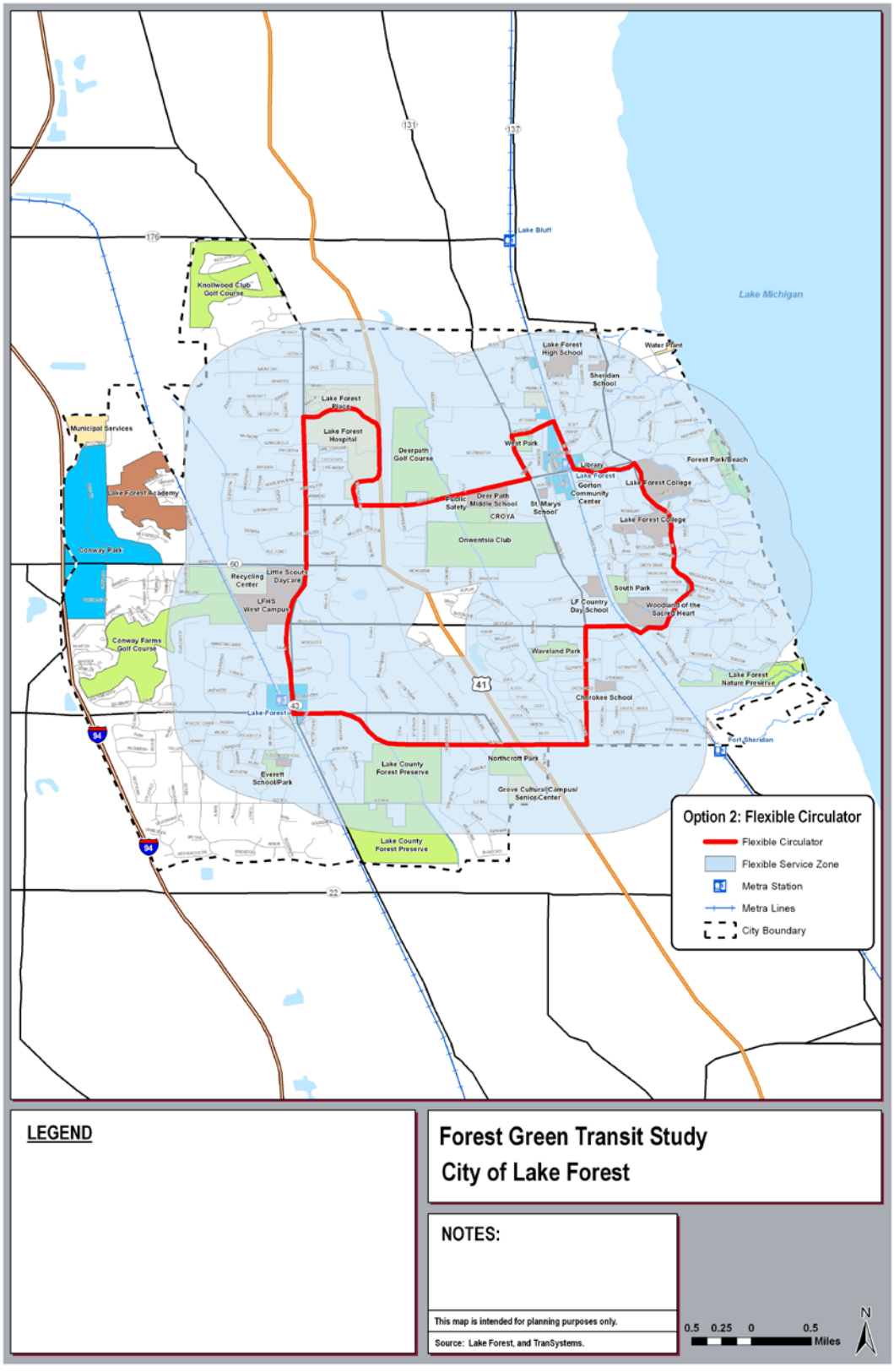

Option 2:

Flexible Circulator

Flexible route service is when a vehicle follows an established route and timetable, but it may travel off route to pick-up or drop-off passengers. This is also referred to as route deviation service. The vehicle returns to the designated routes within one block of the point where the route deviated. This ensures that all bus stops along a route are served and keeps the fixed route characteristic of knowing a transit vehicle will be on a route within a time range (the buses will not show up early, but may arrive a few minutes late due to deviations).

Buses would operate on a two-way loop through the City. The purpose of this is to shorten the time for a return trip from the initial destination. If all the buses operated in the same direction, then you may be required to travel a long distance for what would be a short trip if you could catch a bus in the opposite direction.

The clockwise bus would start at the Metra/UP-N Station travel on Western Avenue – Laurel Avenue – Green Bay Road – Deerpath Road – Waukegan Road – Everett Road/Old Elm Road – Green Bay Road – Westleigh Road – Sheridan Road – Deerpath Road – Western Avenue – end at the Metra/UP-N Station. The counterclockwise bus would reverse the routing.




Service

These services would operate Monday through Friday between 9:00am and 8:00pm.

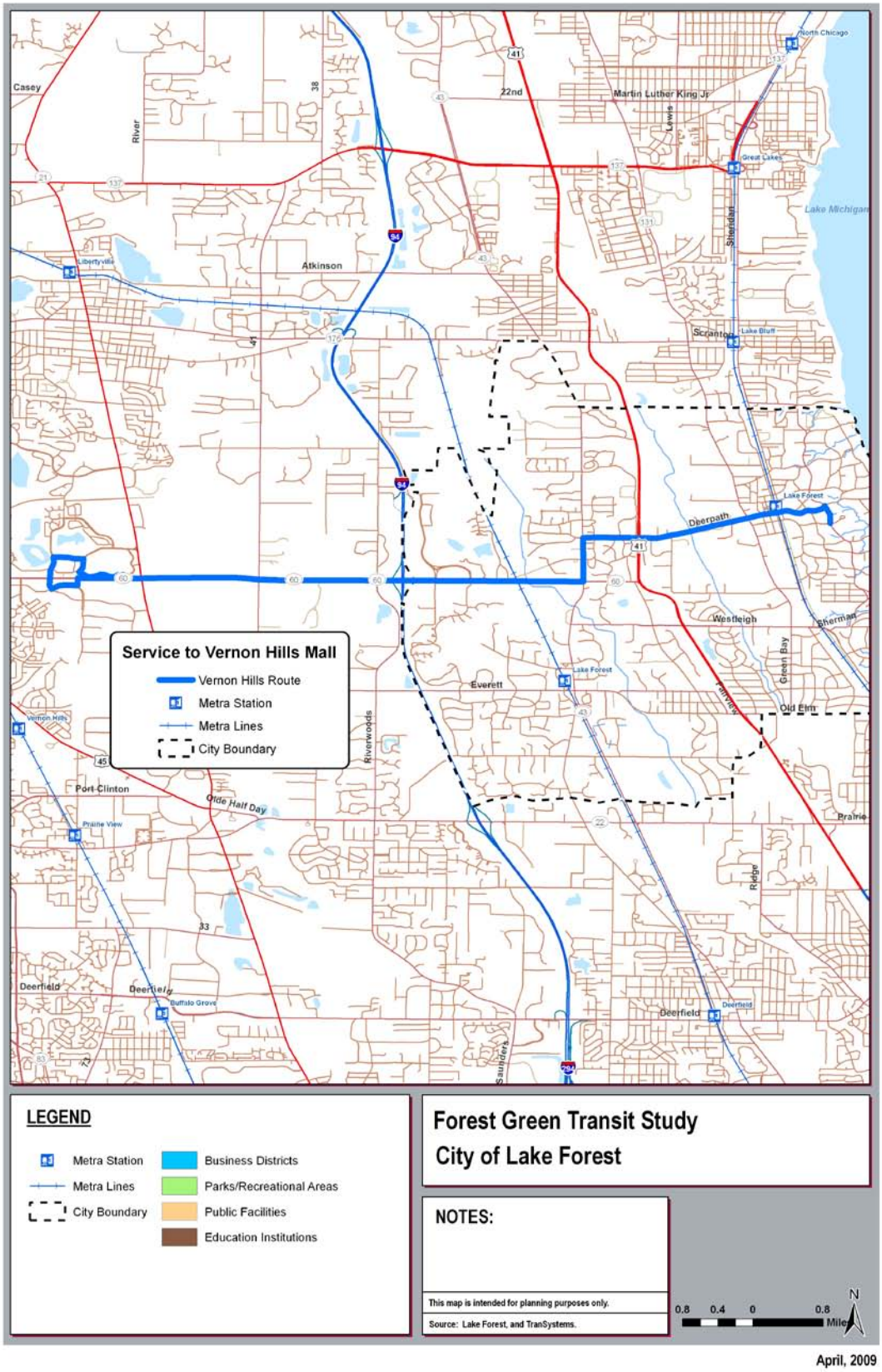
1. Which of the services would you be more likely to ride?
    a. Option 1: Demand Response (Dial-A-Ride)
    b. Option 2: Flexible Circulator
    c. I would not use either
2. I would ride this service:
    a. Daily
    b. Several times a week
    c. Once or twice a month
    d. Only occasionally
    e. Never
3. If you preferred Option 1: Demand Response OR Option 2: Flexible Circulator, please describe why preferred that option.
    a. _____
    _____
    _____
    _____
4. If you stated you would not use either service, please describe why.
    a. _____
    _____
    _____
    _____
5. If a fare is charged, what is the most you would pay per one-way trip to use the service?
    a. Less than a $1.00
    b. Between $1.00 and $2.00
    c. Between $2.00 and $4.00
    d. I would not pay
6. Please provide any comments or questions you may have on the local service.
    a. _____
    _____
    _____
    _____

## Regional Route

From earlier survey responses (Spring 2009), the data indicated there was an interest to use public transportation for shopping trips outside of Lake Forest. Forty-six percent of respondents would use the bus for shopping and 42% for social or recreational purposes.

This regional route would start at Lake Forest College and operate to Vernon Hills Mall and surrounding retail establishments.

The days and hours of service for this route have not been determined. Your responses to the following questions will help determine the days and hours of service.




1. I would ride this regional service route:

a. Weekly
b. Several times a month
c. Occasionally
d. Never

2. What time of day would you typically use this route? (Mark all that apply)
    a. Mornings (9:00am – 12:00 noon)
    b. Afternoons (12:00 noon – 6:00pm)
    c. Evenings (6:00pm – 10:00pm)
3. On which day(s) would you typically use this route? (Mark al that apply)
    a. Monday
    b. Tuesday
    c. Wednesday
    d. Thursday
    e. Friday
    f. Saturday
    g. Sunday
4. Why would you OR wouldn't you use this service?
    a. _____
    _____
    _____
    _____
5. If a fare is charged, what is the most you would pay per one-way trip to use the service?
    a. Less than a $1.00
    b. Between $1.00 and $2.00
    c. Between $2.00 and $4.00
    d. I would not pay
6. Please provide any comments or questions you may have on the regional route.
    a. _____
    _____
    _____
    _____

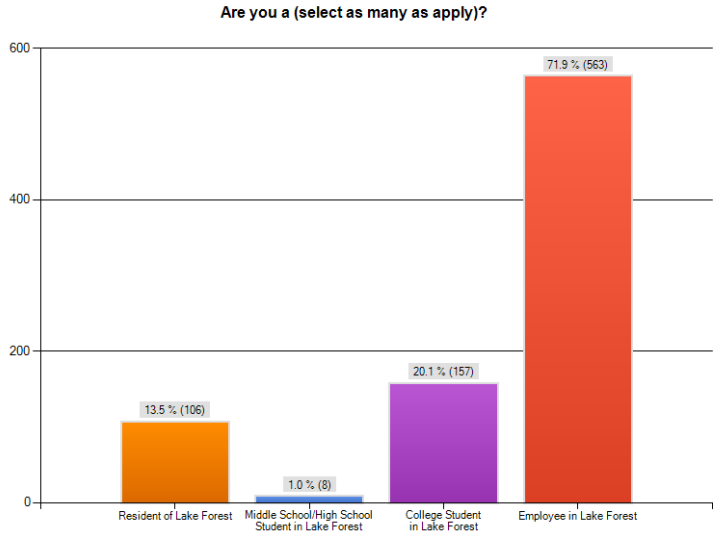
Thank you for participating in this survey. Please return the survey to:

Ms. Carina Walters
City of Lake Forest
220 E. Deerpath
Lake Forest, IL 60045
Fax: 847-615-4289

DEMOGRAPHIC

There were 787 responses to this survey, which are 113 more responses than the survey conducted in the spring of 2009 as part of the market analysis received. Seventy-two percent of the respondents are employees in Lake Forest, 20% are college students in Lake Forest, 14% are residents, and 1% middle school or high school students (Figure 33).

Figure 33




Over two-thirds (68%) of responses were from females (Figure 34). Forty-three percent of respondents are between the ages of 35 and 54, 22% between 18 and 24, 20% between 25 and 34, and 12% between 55 and 65. Only three percent of respondents were either older than 65 or younger than 18 (Figure 35).

Figure 34

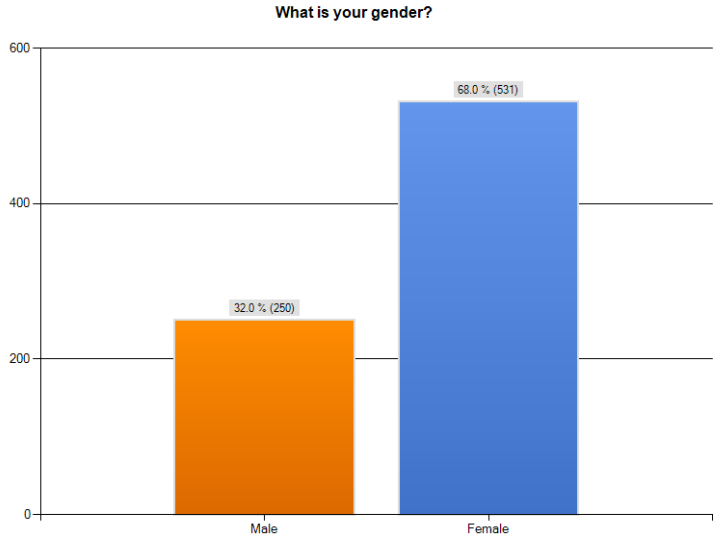
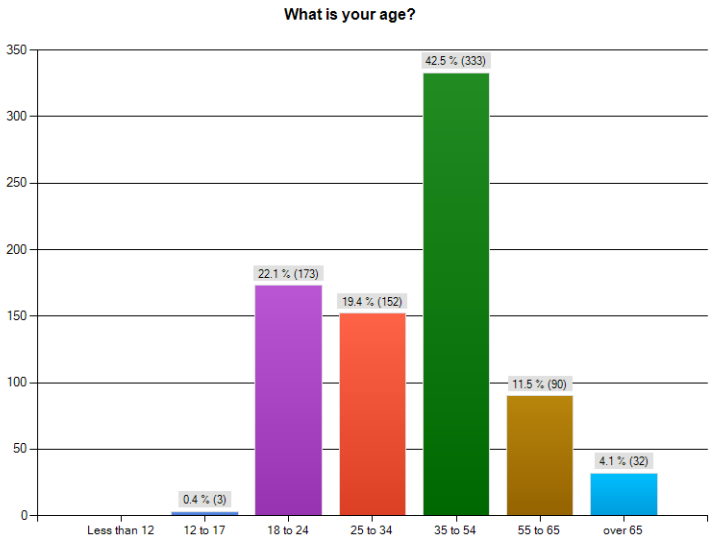
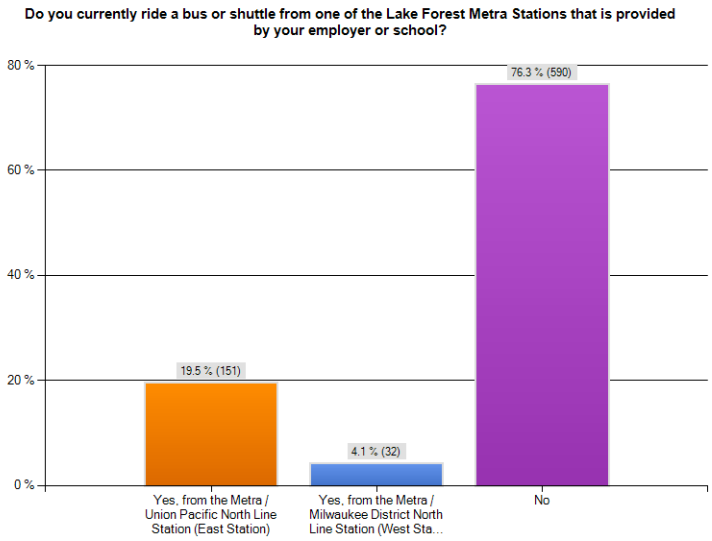


Figure 35




Twenty percent of respondents currently ride a shuttle from the Metra / Union Pacific North Line Station, while 4% ride a shuttle from the Metra / Milwaukee District North Line Station (Figure 36).

Figure 36



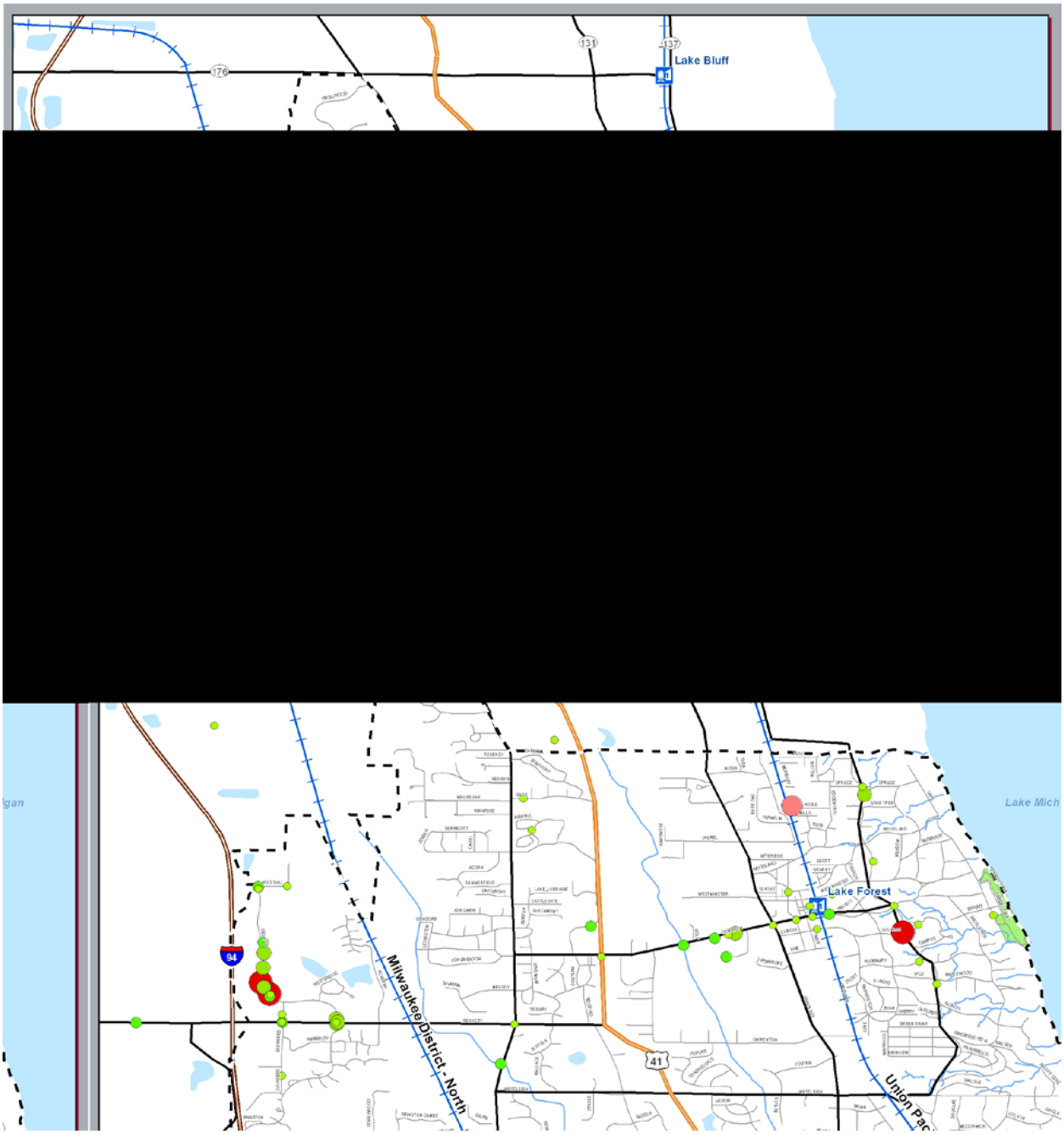

Summary of Demographic Analysis

Almost 75% of respondents are employees in Lake Forest indicating a strong interest in transportation alternatives to travel to work. Twenty percent of respondents are students at Lake Forest College. When asked if they currently ride a shuttle from one of the Lake Forest Metra Stations provided by their employer or school, 76% respondents replied that they do not. These people represent a large potential market for public transportation.

EMPLOYEE SERVICE

Six hundred and fifty-eight (658) respondents provided their work address or the closest intersection to where they work. The work locations of respondents are shown in Figure 37.

Figure 37: Work Location of Survey Respondents



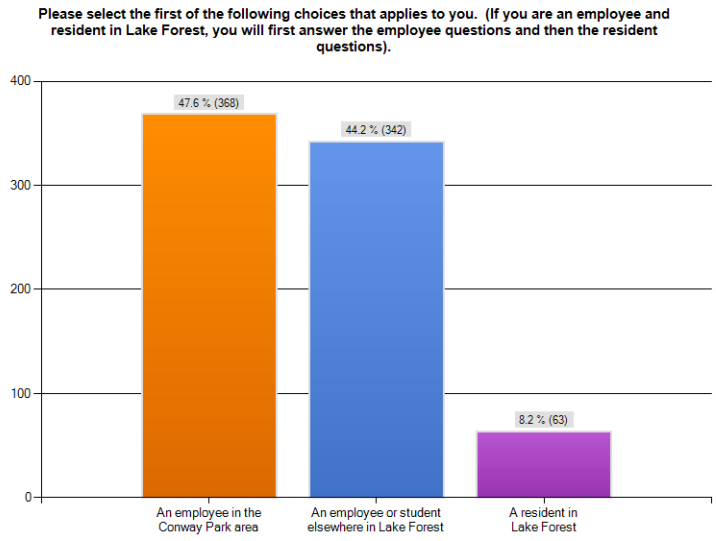
The number of responses by employer are shown in Table 13. No responses where received from HSBC or CDW. HSBC and CDW are currently served by Pace, but are located on the west side of I-94 outside Lake Forest city limits.

Table 13: Number of Responses by Employer

| Employer | Number of Responses | Number of Locations |
|---|---|---|
| Hospira | 163 | 4 |
| Lake Forest College | 118 | 1 |
| Trustmark Insurance | 105 | 1 |
| Lake Forest High School East Campus | 36 | 1 |
| Deer Path Middle School | 25 | 1 |
| City of Lake Forest | 23 | 5 |
| Brunswick | 22 | 1 |
| Tenneco | 17 | 1 |
| Lake Forest Graduate School of Management | 16 | 1 |
| Sheridan Elementary School | 14 | 1 |
| Pactiv Corporation | 12 | 1 |
| Lake Forest High School West Campus | 10 | 1 |
| Grainger | 9 | 1 |
| Everett Elementary School | 8 | 1 |
| Cherokee Elementary School | 7 | 1 |
| Takeda | 6 | 1 |
| CROYA | 4 | 1 |
| Lake Forest Hospital | 4 | 1 |
| Lake Forest Parks and Recreation | 4 | 1 |
| Lake Forest Place | 4 | 1 |

Survey respondents were asked if they are an employee in the Conway Park area or an employee or student elsewhere in Lake Forest so that they could provide feedback on the appropriate possible service design for employees. Forty-eight percent of respondents are employed in the Conway Park area, while 44% are an employee or student elsewhere in Lake Forest (Figure 38).

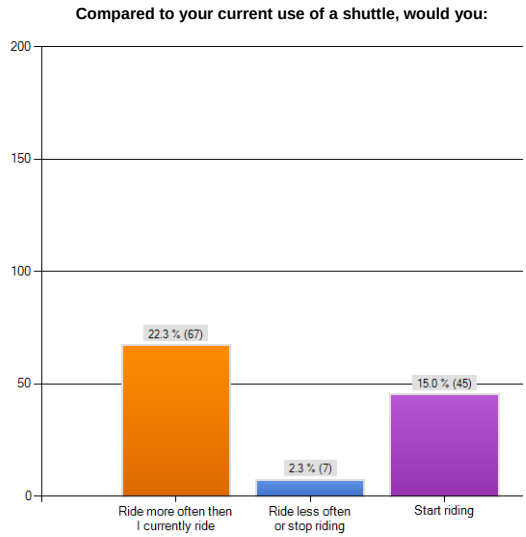
Figure 38




Conway Park Area Employees

The possible service to Conway Park area is two routes operating directly from Metra / UP-N station to Conway Park area and one route operating directly from the Metra / MD-N station to Conway Park area. After reviewing a map and description of this service, 45 employees responded they would start riding a shuttle, while 67 employees responded they would ride more often than they currently ride. Only 7 employees responded they would ride less often or stop riding (Figure 39).

Figure 39




The employees were asked why they would or wouldn't use the service. Reasons why they would use the service include:

- Shuttle goes directly to Conway Park from the Metra / UP-N Station
- Using the shuttle is better for the environment (use less gas and reduce congestion)

In addition to the potential users, there were 181 respondents that replied they would never use the service. Of these respondents, 103 stated they would not use it because of the following reasons:

- Faster to drive (27)
- Work irregular hours or the Metra schedule does not match their work hours (31)
- Live too far from public transit or do not ride Metra. (45)

Other reasons why they would not use the service included:

- No dedicated service to Conway Park from the Metra / MD-N Station
- Too long of a walk from bus stop to office building
- Have to drop-off or pick-up children at daycare or school
- Need car for doing errands
- Participant in a carpool or Pace Vanpool

The employees were asked what specific changes they would like made to the possible routes. Their suggestions included:

- Provide shuttle connections to more trains
    - Provide shuttle connections to the 3:24p.m. train at the Metra / UP-N Station
    - Provide connections to northbound trains that go to Kenosha
    - The shuttle needs to connect to more than 3 morning and 3 evening trains
- Provide earlier service during heavy snowstorms in order to arrive at the train station on time
- Provide a dedicated shuttle to Conway Park from the Metra / MD-N Station
- Provide a stop at Hospira building H3

- Do not use school buses
- Provide a shuttle from another Metra Station (Lake Bluff, Libertyville and Vernon Hills)
- Work with Metra to offer more trains leaving from the MD-N station in the evening

If a fare is charged for the service, 46% would pay between $1.00 and $2.00, 42% would pay less than $1.00, 21% would not pay for the service, and 7% would pay between $2.00 and $4.00.

Other comments included:

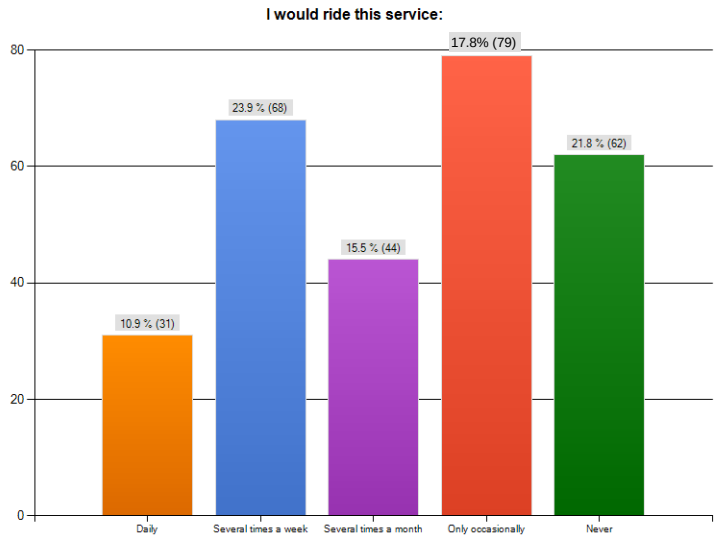
- Adjust the light at Route 60 and St. Mary intersection to reduce delays along Route 60
- Provide better communication regarding the bus service
- Re-open the exit to the expressway through the oasis

Employees or Students Elsewhere in Lake Forest

Two possible routes were designed to serve other employees or students in Lake Forest. One route operates from the Metra / MD-N station to the east side of Lake Forest and another operates from Metra / UP-N to the west side of Lake Forest. Both of the routes serve Lake Forest College, Lake Forest High School, Lake Forest Hospital, Lake Forest Place, and Deer Path Middle School.

After reviewing the possible service to elsewhere in Lake Forest, almost 100 employees or students responded that they would ride the service that was described in the survey daily or several times a week. An additional 44 employees responded that they would ride several times a month. One-hundred forty-one (141) employees responded that they would use the service only occasionally or never (Figure 40).

Figure 40




The employees were asked why they would or wouldn't use the service. Reasons why they would use the service included:

- Convenience
- Avoid driving or walking during bad weather
- Using the bus is better for the environment (use less gas and reduce congestion)

Reasons why they would not use the service included:

- No need to ride the service
- Lake Forest College and Lake Forest High School already provide a free shuttle / Will not pay to ride service
- Does not serve elementary schools for District 67

- Do not live near a Metra Station
- Arrive at work or leave work before service begins operating
- Does not come by my residence

If a fare is charged for the service, 38% would pay between $1.00 and $2.00, 32% would pay less than $1.00, 26% would not pay for the service, and 4% would pay between $2.00 and $4.00.

Other comments included:

- Provide bus connection to the 5:22p.m. express train from Highland Park Metra / UP-N Station to Chicago
- Allow bikes on the bus
- Do not charge college students a fare / bus service is covered in tuition
- Make the high school the first stop after departing the Metra / UP-N station so that employees are able to arrive to work on time

Summary of Employee Service Analysis

One hundred and twenty-two (122) employees in the Conway Park area responded they would start riding or ride more often if service was revised to operate directly from the train station. Employees that ride or could ride the Metra / MD-N line frequently requested that two routes also operate from Metra / MD-N station. Employees riding both lines requested earlier shuttle service that would connect to trains departing Lake Forest around 3:30 p.m.

Almost 100 employees or students responded that they would ride the service designed for employees in other areas of Lake Forest. There were 9 requests for service to District 67 elementary schools. Two of these requests stated several employees live in the city.

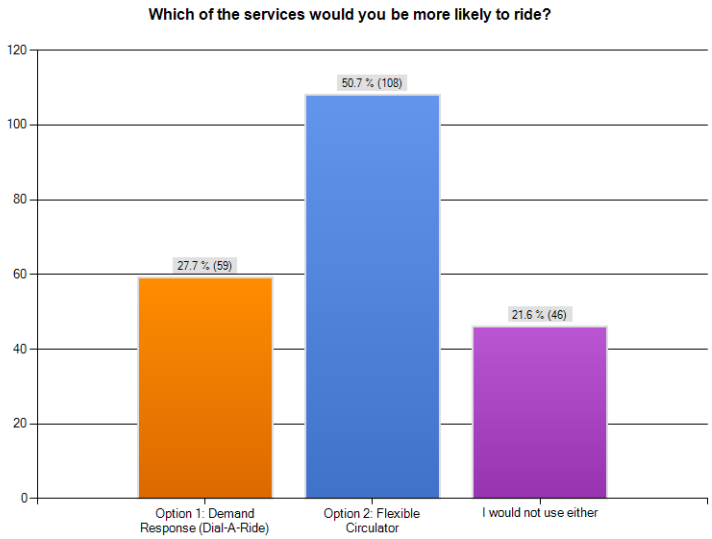
LOCAL SERVICE

Two options were presented for local service:

- Demand response service that allows a passenger to reserve a trip in advance.
- A flexible route where a vehicle follows an established route and timetable, but may travel off route to pick-up or drop-off passengers.

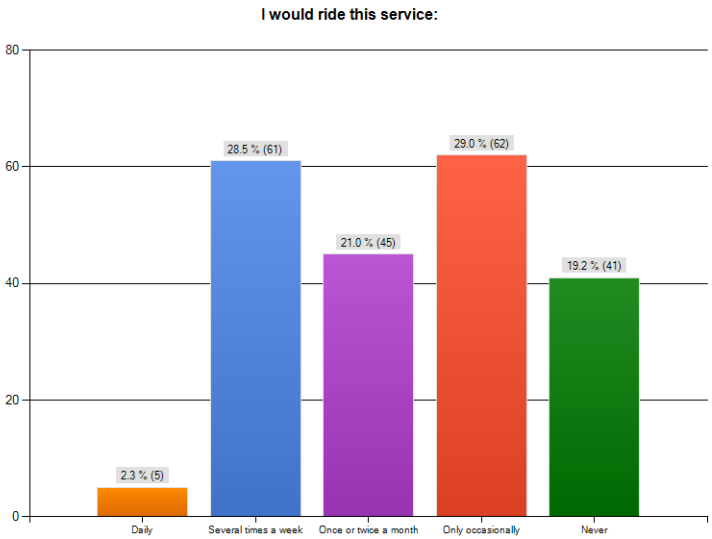
After reviewing the possible service designs for local service, 51% of 213 respondents replied they would be more likely to ride the Flexible Circulator service. Twenty-seven percent replied they would be more likely to use dial-a-ride and 22% replied they would not use either (Figure 41).

Figure 41




Twenty-nine percent (29%) of respondents would ride the service several times a week, 21% once or twice a month, 29% occasionally, and 2% would ride daily. Nineteen percent (19%) would never use the service (Figure 42).

Figure 42




Respondents were asked why they preferred demand response or flexible circulator service. The sixty-seven (67) respondents who preferred the flexible circulator provided the following reasons:

- Route serves the places I need to go
- Prefer buses with an established route or schedule
- Do not want to plan travel in advance or call in advance to reserve a trip
- The option can serve people who live slightly off of the route
- Consistency or constant operation

The thirty-eight (38) respondents that replied they preferred demand response service stated their reasons for selecting the option were:

- More convenient to be picked-up and dropped-off at home or work.
- Can schedule a trip when I want to travel
- Flexible circulator does not come close enough to home or work
- Saves fuel since the driver does not have to drive around with an empty bus

Respondents that replied they would not use either service were asked to describe why. Thirty-six (36) people answered this question and their responses can be summarized as:

- Service starts too late, ends too early or does not operate on weekends
- Service does not travel outside of Lake Forest
- Do not need the service; able to walk, bicycle, or drive
- Lake Forest College already provides a shuttle at no additional cost
- Service does not go by my home

If a fare is charged for the service, 44% would pay between $1.00 and $2.00, 22% would pay less than $1.00, 21% would not pay, and 13% would pay between $2.00 and $4.00.

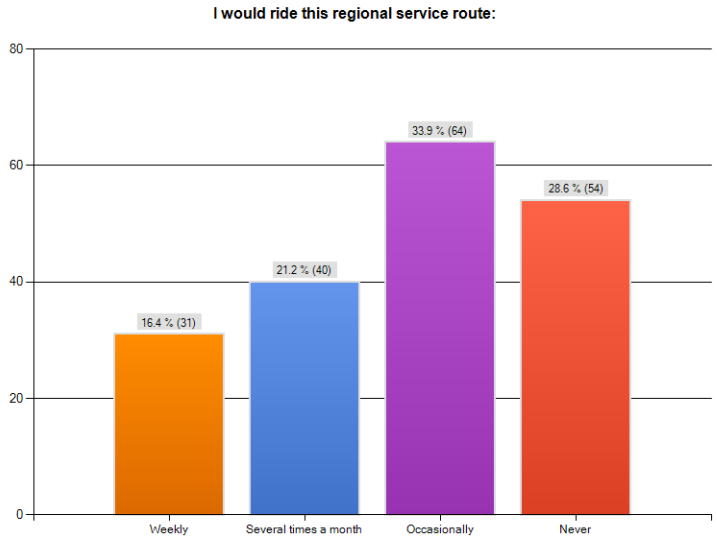
Summary of Local Service Analysis

Residents and students in Lake Forest preferred the flexible route option for possible local service. The respondents preferred busses on an established route and schedule. They did not want to have to call in advance to schedule a trip.

REGIONAL SERVICE

After reviewing the possible regional service connecting Lake Forest to the retail area of Vernon Hills, 64 people responded they would ride the service occasionally, 40 would ride several times a month and 31 would ride weekly. Fifty-four people responded they would not ride the service (Figure 43).

Figure 43




Questions were asked about which days and hours the regional service should operate. Friday, Saturday and Sunday received at least twice as many responses as other days of the week (Figure 44). Both 12:00p.m. - 6:00p.m. and 6:00p.m. - 10:00p.m. received the most responses (Figure 45).

Figure 44

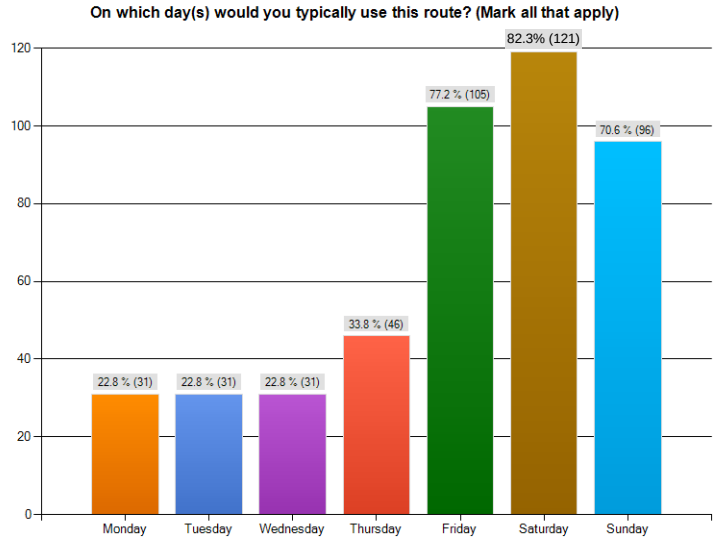
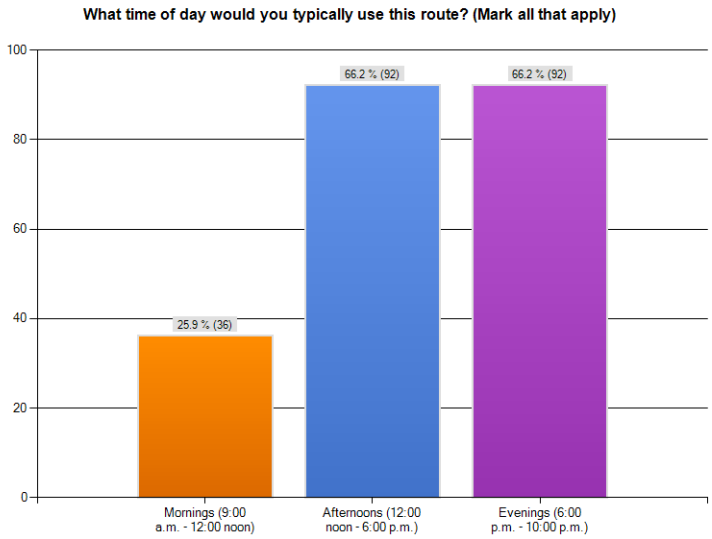


Figure 45




If a fare is charged for the service, 41% would pay between $1.00 and $2.00, 10% would pay less than $1.00, 18% would pay between $2.00 and $4.00 and 31% would not pay for the service. Approximately 80% of those replying they would not pay for the service are Lake Forest College students.

Other comments included:

- Prefer Lake Forest College's free shuttle service to Vernon Hills
- Prefer to drive since I own a car

Summary of Regional Service Analysis

Respondents preferred that this service operate on Friday, Saturday, and Sunday afternoons and evenings. Seventy people are willing to ride this service weekly or several times a month. The primary market for this service, Lake Forest College students, is unwilling to pay a fare to ride this service.

RECOMMENDED CHANGES TO SERVICE DESIGN

After reviewing the responses to the survey, it is recommended that the following changes be made to the possible service designs.

Conway Park Area Service

Operate two routes from the Metra / Milwaukee District North Line station. One could operate to Conway Park and Opus Place and the other route to HSBC, CDW, and Grainger. Having two routes from the Metra / MD-N station was a common request change to the potential transit service.

Begin service earlier to connect to the 3:24p.m. departure from the Metra / UP-N station and 3:20p.m. departure from the Metra / MD-N station. Earlier shuttles in the afternoons that connect to trains departing Lake Forest around 3:30p.m. were a common request.

Employee / Student Service to Other Areas of Lake Forest

Consider modifying the routes. The routes could be removed from the Lake Forest Hospital area and instead serve District 67 elementary schools. Only eight responses were received from Lake Forest Hospital or Lake Forest Place employees, while 29 responses were received from District 67 elementary school employees. Many of these employees commented that they would use the service if it went to their school. Sheridan School had the most employees respond (14), followed by Everett (8), and Cherokee (7).

Local Service

No changes to the local service are recommended. The Technical Advisory Committee needs to select either demand response or flexible route for further development as part of the implementation plan.

Regional Service

The regional route should operate on Fridays, Saturdays, and Sundays from 12:00p.m. to 10:00p.m.

# Appendix J: Cost and Ridership Estimation Methodology

A. Cost Estimating Methodology

The source of the input data is described as follows:

1. The recommend hours of service are based on a review of transit service to other regional airports.
2. Travel time was determined by fieldwork in estimating the one-way travel time.
3. A frequency of service every 30 minutes that matches the recommended South Shore Line frequency was selected.
4. The number of buses is a function of the one-way travel time and frequency.

These inputs were used to determine *daily vehicle hours*. *Daily vehicle hours* are estimated by multiplying the number of vehicles by the hours of service for each bus. The number of daily vehicle hours is multiplied by an estimated *cost per hour* to produce *the estimated daily cost.* The *cost per hour* is estimated to range from $75 - $100 per hour. This *cost per hour* was derived from recent experience of privately contracted shuttle services in Lake and McHenry Counties and information provided by Pace. It includes drivers' salaries, fuel, maintenance, insurance, and overhead costs.

The *estimated daily cost* was multiplied by 255 weekdays (365 days minus 52 Saturdays minus 52 Sundays minus the six major holidays per year) to determine the annual weekday cost. To estimate the annual Saturday cost, the estimated daily cost is multiplied by 52 Saturdays. To estimate the annual Sunday and holiday costs, the estimated daily cost is multiplied by 58 Sundays and holiday. The cost for weekdays was added to the cost for weekends to get the estimated annual operating cost.

B. Ridership Estimating Methodology

Two methodologies were used to estimate ridership for Lake Forest services. The first method examined responses to the "How often would you us this service" question on the on-line survey. It was assumed that 100% of daily responses would be on the bus each day, 60% of several times a week, 10% several times a month, and 5%of occasionally would be on the bus each day.

The other method used the average ridership per hour for comparable services. This estimate was multiplied by the number of revenue hours for each service. (Revenue hours equal the service hours multiplied by the number of vehicles.) The average ridership for comparable service is estimated through recent experiences with other systems.

The business park ridership estimate is based on the existing ridership. The existing ridership was used for the low estimate. Responses to the "Compared to your current shuttle use, would you" question on the on-line survey were used to create the high estimate.