



MULTIMODAL ANALYSIS SUMMARY OF EXISTING CONDITIONS

MAY 28, 2014

OVERVIEW

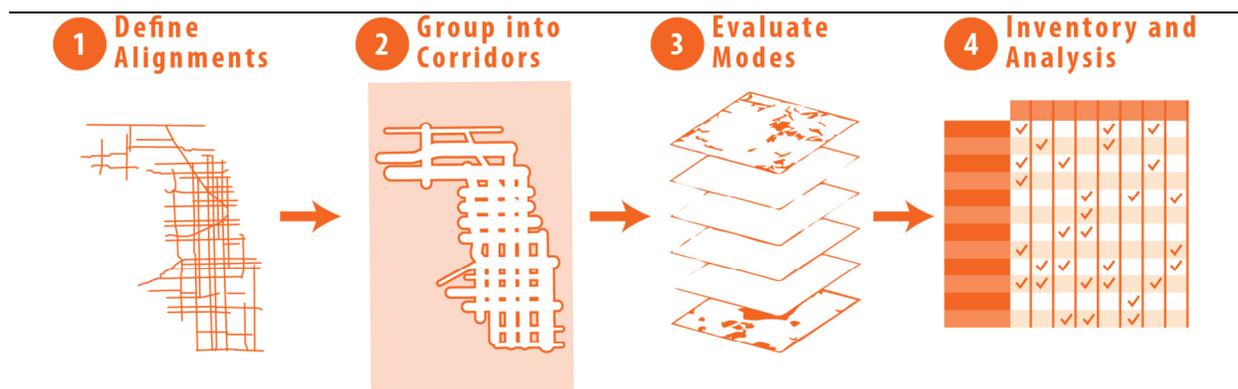
Cook County is the second most populous county in the United States with over 5.2 million residents and contains more than half the Chicago metropolitan region’s population, jobs, and businesses. The regional transportation network is a critical component of the region’s economy. Finding ways to enhance the movement of goods and to better connect area residents with employment opportunities is essential to maintaining the region as a national and international leader.

The Cook County transportation network is very complex due to the various and multiple layers of transportation services and providers. This complex nature often results in competing objectives which can result in modal conflicts. The Cook County 2040 Long Range Transportation Plan (LRTP) is focused on addressing these issues and enhancing the countywide and regional transportation system through *Connecting: Commerce, Communities, Counties through Collaboration, and Capital*.

The following describes the overall approach for analyzing the existing transportation network within Cook County. First, key roadway corridors are identified and a multimodal inventory of the corridors is conducted based on Economic, Roadway, Freight, Public Transportation and Non-Motorized information. The analysis is focused on identifying strengths/weaknesses, and ultimately opportunities to enhance, or expand, multimodal transportation services within Cook County and connections to surrounding counties.

The analysis begins with defining major roadway alignments with Cook County, then grouping the alignments into strategically important east-west, north-south and diagonal corridors, subsequently evaluating the various modes of transportation and concluding with an inventory analysis. Figure 3-1 illustrates the general multimodal analysis from defining alignments through inventory analysis.

Figure 3-1 | Project Multimodal Analysis Process / Steps



IDENTIFICATION OF MAJOR ROADWAY ALIGNMENTS AND CORRIDOR ORGANIZATION

Corridors were established based on the congruence of roadway travel patterns and the shared access of single or multiple roadway alignments to activity centers, communities, and other land use and transportation features. Roadway alignments were selected based on at least one, but usually a combination of the following criteria:

- ▶ Long, contiguous spans that traverse multiple communities and have a high amount of geographic coverage;
- ▶ High traffic volumes;
- ▶ High truck volumes;
- ▶ Proximity to transit services;
- ▶ Linkages among major hubs and activity centers;
- ▶ Equitable geographic distribution throughout the County; and,
- ▶ Existing or potential capacity for improvements

For example, each of 79th, 87th, and 95th Streets span the entire east-west width of southern Cook County and collectively provide vehicular and bus access to I-294 | Tri-State Tollway, the I-90 / 94 | Dan Ryan Expressway, three Metra lines and the CTA Red Line; therefore, all three alignments have been grouped together into one corridor.

Corridors have been refined to ensure that all areas of the County receive equal consideration. Ultimately, exact corridor boundaries are set based on a half mile buffer radiating from the center point of each outer-most roadway alignment that composes each corridor alignment. For instance, with the example of 79th, 87th, and 95th Streets – the corridor for these alignments includes a boundary that extends one half mile north of 79th Street and one half mile south of 95th Street.

In total, 24 overlapping corridors provide connectivity to the vast majority of Cook County. Figures 3-2 through 3-4 display the corridors and ultimately overall coverage.

- ▶ **East-West |** The majority of corridors (13) establish east-west connections and are designated by numbers 1 through 13 (Figure 3-2);
- ▶ **North-South |** A smaller set (7) comprise the north-south corridors and are designated by letters A through G (Figure 3-3); and
- ▶ **Diagonal |** An even smaller set of corridors (4) provide diagonal connectivity and are designated by letters H1 through H4 (Figure 3-4).

Figure 3-5 then shows the combined coverage area of all 24 corridors. It is important to note that the corridor analysis/inventory that is presented is used as a way to systematically analyze multimodal issues throughout Cook County. The intent of this process is not to focus the analysis strictly to the individual corridors. Instead, this process is used to identify opportunities that will be examined in greater detail in the next phase of the project and will be analyzed from a comprehensive, countywide perspective.

Figure 3-2 | East-West Oriented Analysis Corridors

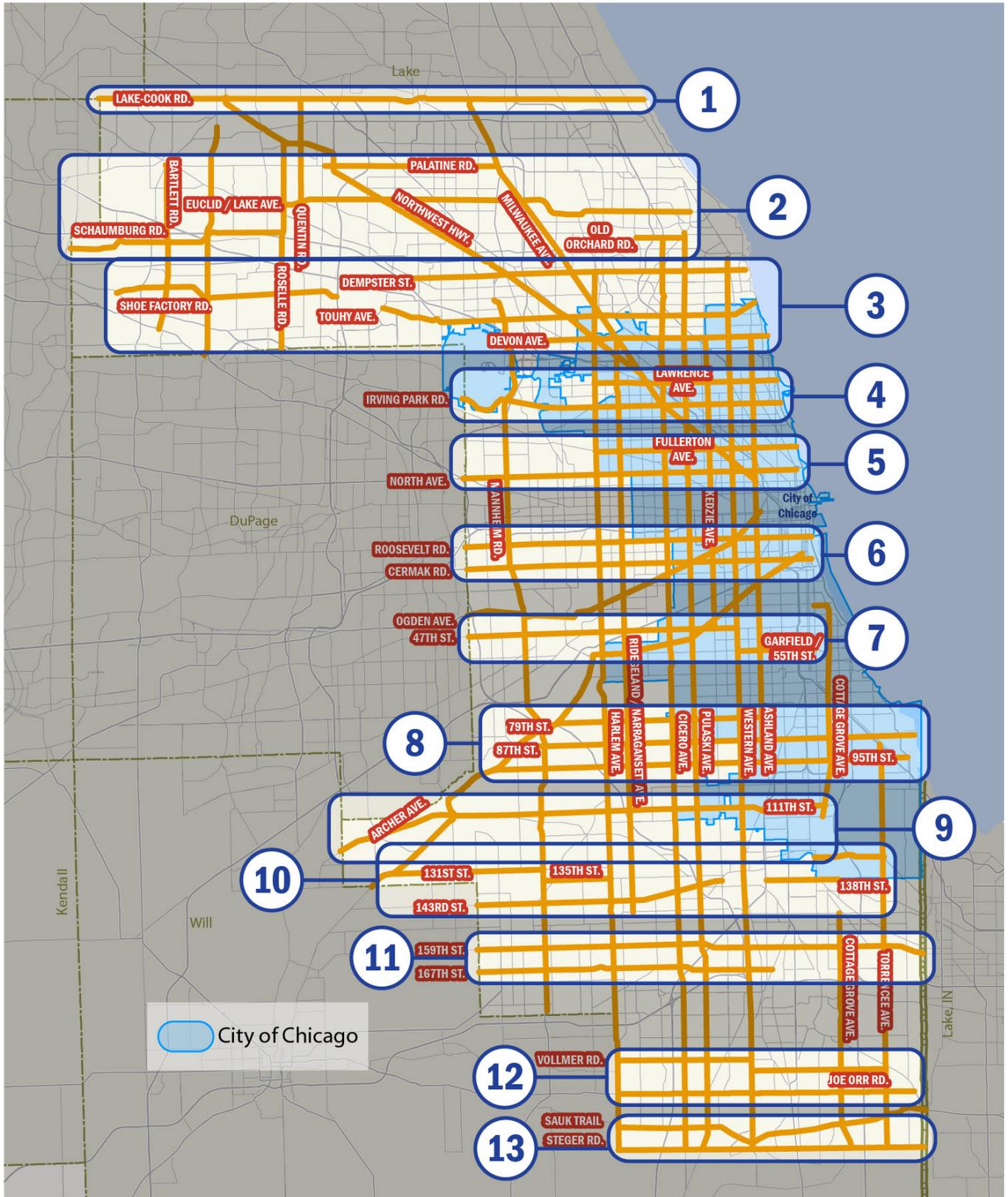


Figure 3-3 | North-South Oriented Analysis Corridors

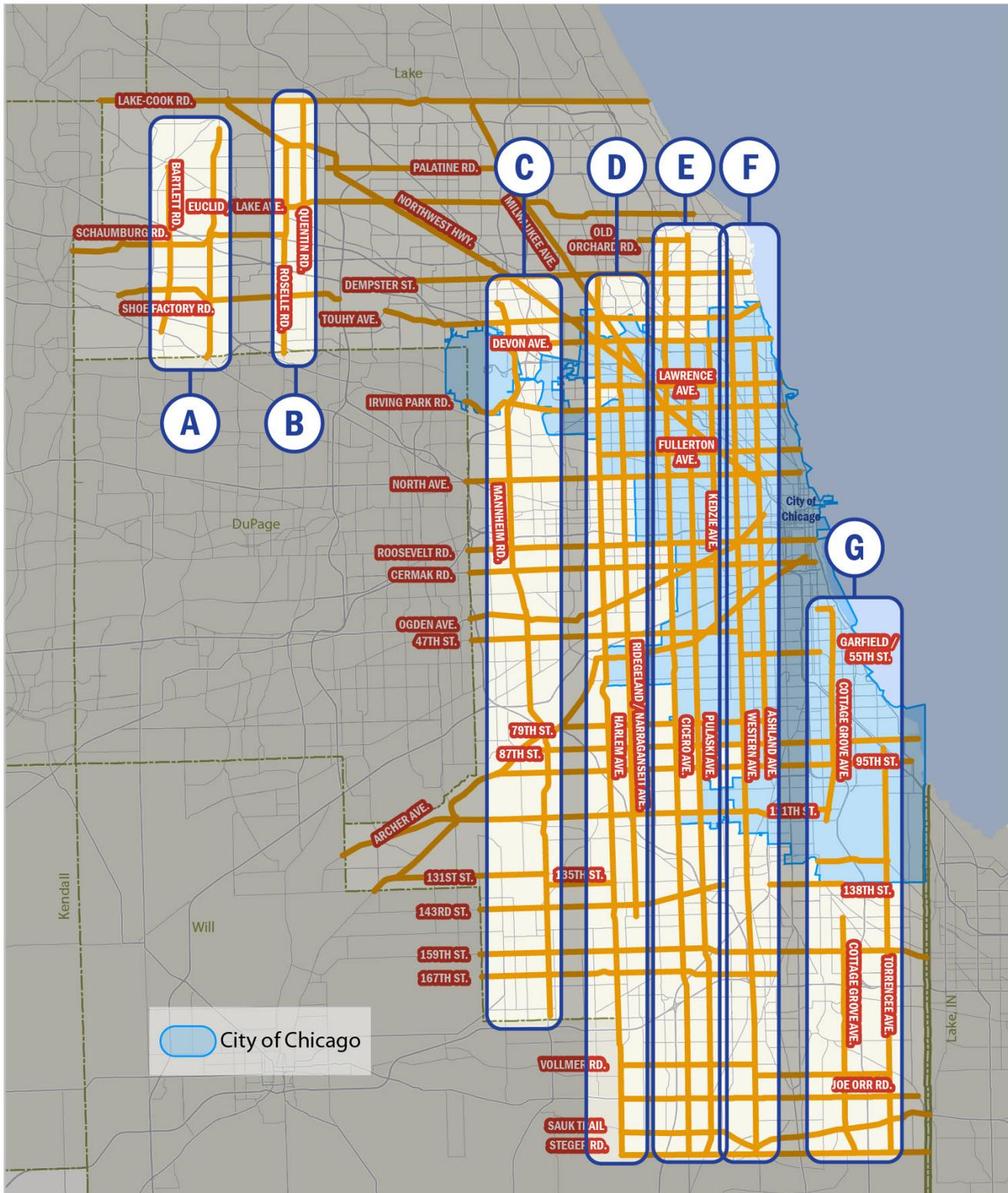


Figure 3-4 | Diagonally Oriented Analysis Corridors

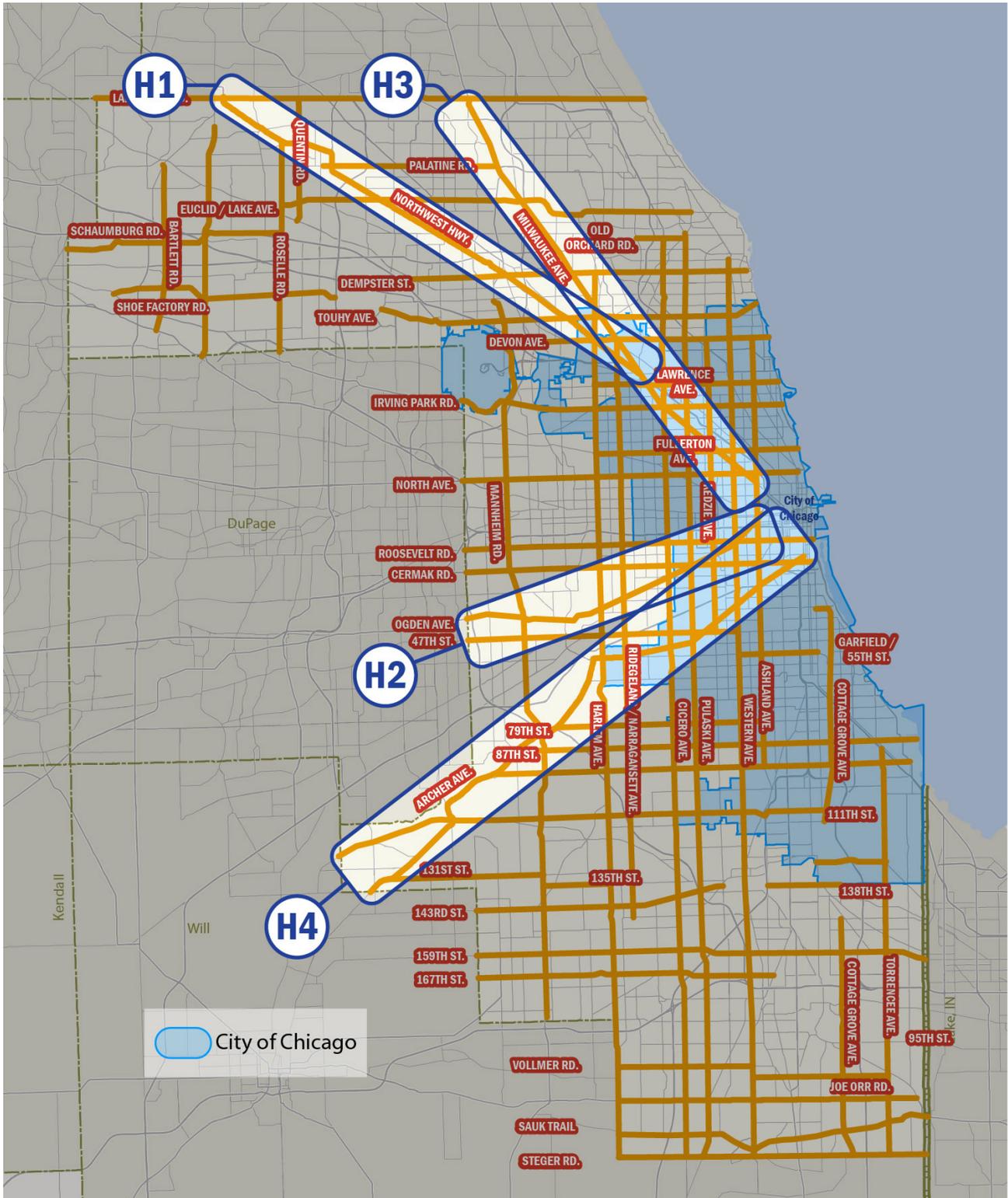
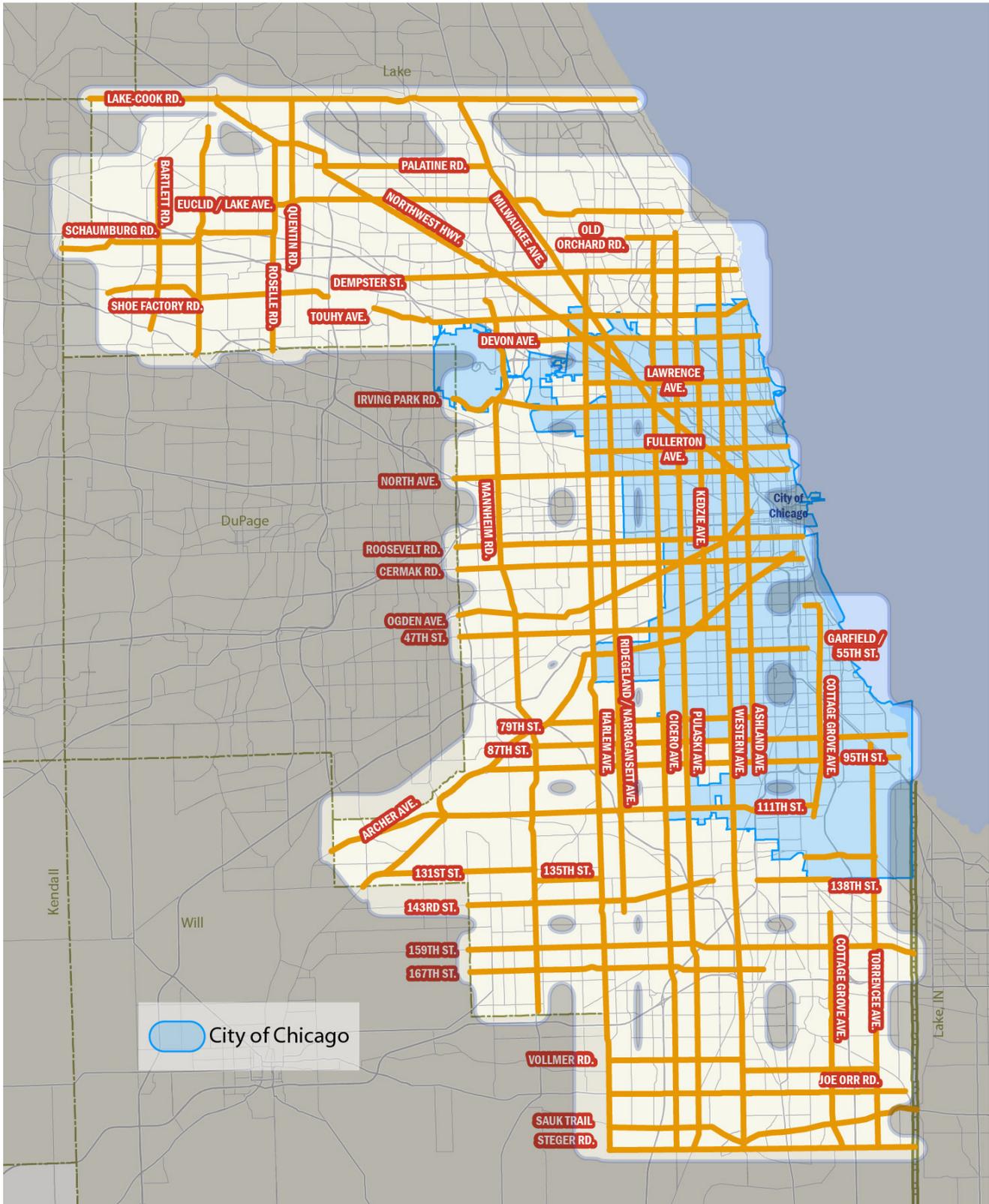


Figure 3-5 | Combined Coverage Area



MULTIMODAL INVENTORY AND ANALYSIS

The selected corridor alignments were analyzed using GIS to identify relevant information related to economic, roadway, freight, public transportation and non-motorized conditions within the half-mile buffer for each corridor. The elements considered in preparing the existing conditions analysis are as follows:

Economic

Two different criteria were selected to evaluate economic conditions for study area transportation corridors:

- ▶ **Number of jobs**
- ▶ **Percent of the total geographic area containing a high rate of unemployment** (calculated using CMAP subzone data where 14% or more of the people living in a given subzone are unemployed).

Roadway

Three main categories of analysis were selected for evaluating roadway conditions:

- ▶ **Annual Average Daily Traffic**
- ▶ **Roadway Ownership**
- ▶ **Percent of Roadway Congested** (calculated using CMAP data).

Freight

Five categories of analysis were selected for evaluating freight conditions:

- ▶ **Percent Truck Traffic**
- ▶ **Total Number of Intermodal Facilities**
- ▶ **Combined Railroad Mileage**
- ▶ **Number of Railroad Crossings**
- ▶ **Combined Waterway Facility Mileage**

Public Transportation

Six main categories of analysis were selected for evaluating public transportation conditions:

- ▶ **Number of CTA Bus Routes**
- ▶ **Number of Pace Bus Routes**
- ▶ **CTA Rail Station Boarding Information**
- ▶ **Number of Metra Stations**
- ▶ **Number of Top Eight (8) CTA Bus Routes**
- ▶ **Number of Top Ten (10) Pace Bus Routes**

Non-Motorized

Three categories of analysis were selected for evaluating non-motorized conditions:

- ▶ **Combined Regional Trail Miles**
- ▶ **Number of Forest Preserve Connections**
- ▶ **Bike Routes** (Active Transportation Alliance's (ATA) compilation of bikeable routes).

PRELIMINARY ANALYSIS OF CORRIDOR INVENTORY

A large matrix consisting of the corridor alignments and transportation and economic characteristics was created and populated. From this inventory, certain strengths, weaknesses, and opportunities became apparent – all of which will be addressed in the next phases of the LRTP analysis. The preliminary analysis of the corridor inventory is summarized below. When reviewing the summary, it will be useful to refer to Figures 3-2, 3-3, and 3-4 for the corridor alignments.

ECONOMIC

- ▶ The two corridors with the highest number of jobs include: Corridor F (Western/Ashland), which ranks first with 665,053 jobs followed by Corridor E (Cicero/Pulaski/Kedzie) with 588,028 jobs.
- ▶ Corridor 3 (Shoe Factory/Dempster/Touhy/Devon) contains the third highest concentration of jobs with 563,000 and is the most highly ranked of the East-West corridors on this measure.
- ▶ Corridor H4 (Archer Avenue) has the highest number of jobs among diagonal corridors at 523,512 and ranks fourth for jobs among all corridors.
- ▶ Among all corridors in the study area, Corridors 1 (Lake-Cook Road), 2 (Palatine/Euclid/Old Orchard/Golf), 3 (Shoe Factory/Dempster/Touhy/Devon), B (Roselle/Quentin), and H1 (Northwest Highway) have the lowest concentrations of high-unemployment areas. Essentially, overall employment is healthiest in the Northwest Municipal Conference’s service area.
- ▶ The six corridors with the highest unemployment are all located on Chicago’s south side and in south Cook County and include: the eastern parts of Corridors 6 (Roosevelt/Cermak), 7 (47th/Garfield), 8 (79th/87th/95th) and 12 (Vollmer/Joe Orr/Lincoln Highway), as well as the southern half of Corridor F (Western/Ashland) and most of Corridor G (Cottage Grove/Torrence), which has the highest proportion of high unemployment areas at 54 percent. Corridors E (Cicero/Pulaski/Kedzie) and F (Western/Ashland), which run through the City of Chicago, contain much more varied economic conditions, albeit with much larger absolute numbers of employed persons.
- ▶ Among diagonals, Corridor H1 (Northwest Highway) contains a very low level of unemployment with no sub zone areas reaching the 14 percent unemployment threshold.

ROADWAY

- ▶ In terms of jurisdiction, Cook County owns 99-100% of the following roadway alignments (100% unless otherwise indicated):
 - Corridor 3 (Shoe Factory Road)
 - Corridor 10 (131st Street)
 - Corridor 10 (135th Street)
 - Corridor 10 (138th Street)
 - Corridor 12 (Vollmer Road)
 - Corridor B (Roselle Road)
 - Corridor B (Quentin Road)
 - Corridor A (Bartlett Road) - 99%

Each of these segments provides maximum leverage for Cook County in terms of controlling potential future capital improvements.

- ▶ Other roadways where Cook County owns a majority of the roadway include:
 - Corridor 2 (Euclid Avenue) (92%)
 - Corridor 2 (Old Orchard Road) (91%)
 - Corridor F (Ashland Avenue) (83%)
 - Corridor 11 (167th Street) (78%)
 - Corridor 12 (Joe Orr Road) (67%)
 - Corridor 8 (87th Street) (61%)
 - Corridor 5 (Fullerton Avenue) (59%)
 - Corridor G (Ridgeland Avenue/Narragansett Avenue) (52%)
 - Corridor G (Cottage Grove Avenue) (52%)

Cook County also owns nearly half (48%) of Corridor F (Western Avenue), which is managed by the City of Chicago (as are Fullerton, 87th, and Ashland that are listed above).

- ▶ North Avenue (within Corridor 5) contains the single highest incidence of annual average daily traffic, with 33,605 vehicles per day traversing the east-west portion of Cook County. Each of Lake-Cook Road (all of Corridor 1), Touhy Avenue (within Corridor 3), Garfield/55th Street (within Corridor 7), Roselle Road (within Corridor B), Mannheim/LaGrange Road (all of Corridor C), Harlem Avenue (within Corridor D), and Cicero Avenue (within Corridor E) are traversed by more than 30,000 vehicles per day.
- ▶ Many of the above-mentioned roadway alignments are often traversed by even greater volumes that are 50 – 120% more vehicles than the average at peak count. For example, Corridor C (Mannheim/LaGrange Road) accommodates more than 73,000 vehicles per day, while Corridor H4 (Archer Avenue), Corridor E (Cicero Avenue), and Corridor 5 (North Avenue) each have maximum counts between 50,000 – 60,000 vehicles per day.

FREIGHT

- ▶ Corridor H4 (Archer Avenue), which parallels I-55, is the single-most freight-dominated corridor in Cook County with the largest combined length of railroad trackage totaling 619 miles, the largest number of intermodal facilities (48), the longest stretch of combined waterway facilities (36.9 miles), and the third highest number of railroad crossings (28). Archer Avenue also carries a significant amount of truck traffic at 17,500 heavy commercial vehicles (HCV) per day.
- ▶ The next highest total rail track lengths include Corridors E (Cicero/Pulaski/Kedzie – 532 miles), F (Western/Ashland – 531 miles), and G (Cottage Grove/Torrence – 588 miles). Each is a major freight corridor running north-south through Chicago and south Cook County. Combined, Corridors H4 (Archer Avenue), E (Cicero/Pulaski/Kedzie), F (Western/Ashland), G (Cottage Grove/Torrence), and 10 (130th/131st/135th/138th/143rd) represent half of all railroads miles in Cook County, indicating that freight rail is a dominant transportation component of southern and southwestern Cook County.
- ▶ Corridors E (Cicero/Pulaski/Kedzie), F (Western/Ashland), and G (Cottage Grove/Torrence) also rank in the top five corridors for number of intermodal facilities, which indicates that not only are freight rail connections an important feature of this area of Cook County, but so too is the connectivity for trucks, a fact reinforced by Corridor D (Harlem/Ridgeland) and E (Cicero/Pulaski/Kedzie) HCV count of more than 32,000 per day.

- ▶ To the extent that corridors contain data on truck volumes, Corridors 3 (Shoe Factory/Dempster/Touhy/Devon), 5 (Fullerton/North), and C (Mannheim/LaGrange) are also traversed by more than 32,000 HCV per day. Touhy Avenue has the highest HCV per day at over 40,000.
- ▶ Truck-related traffic not only increases roadway congestion for private vehicles, but also for buses. Corridor E (Cicero/Pulaski/Kedzie), for example, contains high volumes of truck traffic, intermodal facilities, rail mileage, railroad crossings, and bus riders. This type of congestion increases the difficulty of connecting the high number of high unemployment areas to job centers since public transit (via buses at least) becomes a time-consuming and hence less reliable mode of travel.

PUBLIC TRANSPORTATION

- ▶ Among the corridors analyzed, the highest transit use in Cook County can be found in the north-south Corridors E (Cicero/Pulaski/Kedzie) and F (Western/Ashland). These corridors rank:
 - Third and first respectively for the number of parallel and intersecting CTA bus routes.
 - Third and fifth for the number of Pace bus routes including six of Pace's top ten performing routes highlighting an opportunity to potentially enhance connections between CTA and Pace transit services.
 - Second and first for the number of CTA rail stations and monthly ridership – 31 stations for Corridor E (Cicero/Pulaski/Kedzie) and 51 stations for Corridor F (Western/Ashland) providing more than 2 million and nearly 5 million monthly transit trips respectively for the combined number of stations in each corridor.
 - Corridor F (Western/Ashland) ranks first for the number of Metra stations (30) followed by G (Cottage Grove/Torrence – 24), D (Harlem/Ridgeland – 19), C (Mannheim – 18) and E (Western/Ashland – 17).
- ▶ The highest concentration of Pace bus routes (58) including seven of its top ten can be found along Corridor D (Harlem/Ridgeland) which runs along the western edge of Chicago and far south and southwest portions of the County, just west of Corridors E (Cicero/Pulaski/Kedzie) and F (Western/Ashland). Together, these corridors highlight the need to improve north-south oriented services to increase regional mobility and link people with their final destinations.
- ▶ In an east-west direction, a similar aggregation exists along centrally located Corridors 4 (Lawrence/Irving Park), 5 (Fullerton/North) and 6 (Roosevelt/Cermak). Corridor 6 (Roosevelt/Cermak) contains the largest number of CTA rail stations among east-west corridors at 24 and of CTA bus routes at 34, while Corridor 5 (Fullerton/North) has the highest rail ridership at 1.92 million, followed closely by Corridor 4 (Lawrence/Irving Park) at 1.87 million and Corridor 6 (Roosevelt/Cermak) at 1.54 million. Though not among the top quarter of concentrations of Pace routes, Corridor 6 (Roosevelt/Cermak) still contains a large number (30 routes) and is one of the primary points of access to DuPage County. These corridors provide a high number of CTA bus and rail trips, many of which include multi-segment journeys from bus-to-rail along the Blue, Brown, Red, and Purple Line trains that are among the highest used train routes in the CTA system.
- ▶ While Corridor H4 (Archer Avenue) contains a relatively low number of parallel bus routes (ten), it is intersected by 45 CTA routes – tied with Corridor F (Western/Ashland) for intersecting routes. This corridor could present an opportunity for enhancing the efficient movement of passengers.

- ▶ Corridors 8 (79th/87th/95th) and 9 (111th Street) which cover the south and southwest sides of Chicago as well as southwest suburban communities in an east-west alignment contain the largest number of Metra stations (15 and 17 stations respectively).
- ▶ Corridors with noticeable absences of transit routes (bus, heavy rail, and commuter rail) include Corridors 1 (Lake-Cook Road), 11 (159th/167th), 12 (Vollmer/John Orr/Lincoln Highway), 13 (Sauk Trail/Steger), A (Barrington/Bartlett), and B (Roselle/Quentin). Each is located in an outlying part of Cook County, away from densely-developed areas, and with limited number of crossings with other corridors. Lower population density in these areas contributes to fewer viable transit options. Additionally, Corridors 11 (159th/167th), 12 (Vollmer/John Orr/Lincoln Highway), and 13 (Sauk Trail/Steger) include areas of high unemployment which could benefit from increased access to jobs.

NON-MOTORIZED

- ▶ Corridor 2 (Palatine/Euclid/Old Orchard/Golf) contains 128 miles of regional trails, which is more than 30 miles more than the next two highest corridors - Corridors 3 (Shoe Factory/Dempster/Touhy/Devon) and E (Cicero/Pulaski/Kedzie), both at roughly 97 miles). This corridor touches nine forest preserves which is the 2nd highest total (Corridor C (Mannheim/LaGrange) is the highest at 10 connections). Also noteworthy is that Corridor E (Cicero/Pulaski/Kedzie) contains a high number of alternative forms of transportation such as public transit, which provide a multimodal opportunity.
- ▶ Corridors 9 (111th Street), 10 (130th/131st/135th/138th/143rd), C (Mannheim/LaGrange), D (Harlem/Ridgeland), G (Cottage Grove/Torrence), and H4 (Archer Avenue) also contained significant non-motorized trail mileage, ranging between 50-75 miles each.
- ▶ Moreover, Corridor C (Mannheim/LaGrange) contains the highest number of Cook County Forest Preserves, with ten either wholly or partially within the corridor. Corridors 2 (Palatine/Euclid/Old Orchard/Golf) and 3 (Shoe Factory/Dempster/Touhy/Devon) also rank highly in terms of forest preserve connections, with nine and seven total forested areas respectively.
- ▶ While Corridor 2 (Palatine/Euclid/Old Orchard/Golf) contains a high inventory of trail miles and forest preserve connections, east-west connectivity is difficult because I-94 and I-294 present physical barriers.
- ▶ Corridor 13 (Sauk Trail/Steger) contains the fewest number of regional trail miles at 7.7, and only one forest preserve connection.
- ▶ Corridors 5 (Fullerton/North), 6 (Roosevelt/Cermak), 7 (47th/Garfield), F (Western/Ashland), and H2 (Ogden Avenue) also contain single forest preserve connections. While this issue has more to do with the prevalence and location of forest preserves rather than the placement of trail facilities, it does increase the importance of making the most out of each connection where there are so few available.

SUMMARY OF MULTIMODAL OPPORTUNITIES

The identification of strengths and weaknesses can be further analyzed to identify potential opportunities.

- ▶ When considering north-south corridors, Corridor F (Western/Ashland) contains the largest number of employed persons at 665,000, while also containing the second-highest proportion of high-unemployment areas at 38%. Corridor E (Cicero/Pulaski/Kedzie) is not far behind with 558,000 jobs and an unemployment rate of 32%. These corridors demonstrate how employment opportunities are concentrated in the northern portion of the corridor while unemployment is higher in southern Cook County. Therefore, there exists the potential to link together these two dichotomous economic concentrations along a common set of linear alignments.

Corridor F (Western/Ashland) warrants special consideration in terms of matching roadway capacity and ownership to transit investments. Since Cook County owns a majority of Ashland Avenue (83%) and close to a majority of Western Avenue (48%), capital improvements could be considered along either or both roadways that would allow the development of high-speed transit services such as bus rapid transit (BRT). Both roadways traverse the central north-south axis of Cook County, both are highly developed, and together they serve a geographic area with more employed persons (665,000) than any other corridor and connect to major activity centers/destinations.

- ▶ South Cook County's high percentage of intermodal facilities and rail lines presents an opportunity to invest in the transportation logistics and related manufacturing to increase accessibility, promote economic development, and better link residents to jobs that would be closer to home. The LRTP must make sure that area roads and bridges are in good condition and capable of handling the increasing traffic volumes that intermodal terminals can attract.
- ▶ Corridor 1 (Lake-Cook Road) provides the opportunity to shift more drivers to public transportation given: (1) the high number and concentration of jobs (nearly 100,000, many of which are office workers who generally have high rates of transit use), (2) very low unemployment rate, (3) high congestion, and (4) public transportation facilities (three Metra lines that bracket the employment center and a relatively small number of Pace routes (15) largely targeted to serve major employers). Most other east-west corridors with at least 30,000 vehicles per day (vpd) have much greater numbers of CTA, Metra, and Pace services. Therefore, an opportunity may exist to expand alternative modes of transportation and ultimately shift automobile riders to public transportation.

With only 10 miles of freight rail and four crossings, access in this corridor is dominated by automobile use. While land use and development patterns play a significant role in determining transportation choices, enhancing public transit and non-motorized facility connections in Corridor 1 (Lake-Cook Road) could help better tie this important east-west oriented section of the County into the north-south and diagonal alignments that connect with other important regions in Cook and Lake counties.

Corridor 1 (Lake-Cook Road) also provides an example of a highly-successful public-private enterprise that has attracted high volumes of public transit users via Pace's Shuttle Bug service. Using the key characteristics of this service as a template, other similar transit services could be developed and implemented where appropriate throughout Cook County, particularly in areas with high concentrations of office and/or industrial parks.

- ▶ Another major east-west corridor that could benefit from adding transit capacity is Corridor 10 (130th/131st/135th/138th/143rd), which contains three major roadway alignments that are 100% owned by Cook County: 131st, 135, and 138th Streets. Although this corridor is similar to Corridor 1 (Lake-Cook Road) in length and employment levels, eastern portions of this corridor include high-unemployment and could benefit from increased public transportation connections.

Corridor 10 (130th/131st/135th/138th/143rd) is heavily served by freight rail and waterway facilities, and contains a comparatively high number of Metra stations, ten. This could present a multimodal opportunity to connect more people in this and other corridors to freight-related industries via bus connections to Metra stations and other rail transit facilities.

- ▶ Corridor H4 (Archer Avenue), which serves as a major freight “spine” in Cook County, warrants special consideration in terms of rail and truck connectivity, particularly in regards to linking the many intermodal facilities with the region and beyond. This should include evaluating how traffic congestion on local roadways could be mitigated or otherwise factored into strategies for improving truck connectivity.
- ▶ Corridor G (Cottage Grove/Torrence) contains 28 intermodal facilities and the highest rail mileage which could potentially be leveraged to create new job opportunities in this corridor. This corridor also currently has the highest unemployment with 54% of the corridor having unemployment rates greater than 14%.
- ▶ Given the high number of jobs and overall good economic health of Corridor 3 (Shoe Factory/Euclid/Old Orchard/Golf) combined with the existence of a “transit desert” in this corridor, there exists an opportunity to better connect this source of employment to final travel destinations via enhanced public transportation services. Successful strategies might consider innovative efforts such as that of ISTHA and Pace which built dedicated bus lanes into the Jane Addams Expressway redesign.
- ▶ Corridor 5 (Fullerton/North) contains one of Chicago’s most ambitious non-motorized trail initiatives in recent years – the Bloomingdale Trail (The “606”) and Park, a 2.7 mile stretch of former elevated railroad that runs through the Logan Square, Humboldt Park, and West Town neighborhoods of the City. The City of Chicago is currently in the process of converting this abandoned rail line into a viable, vibrant, and attractive non-motorized facility that will serve the needs of bicyclists, pedestrians, and visitors alike.

One drawback of the existing plan for the trailway initiative is that it will terminate two blocks west of Central Avenue, and only be directly accessible to bicyclists and pedestrians who live in the surrounding community or are willing to travel along local streets, sidewalks, and bike paths to access it. While plans exist to connect the trail with the local area, there is little in the way for connecting this facility regionally with the rest of Chicago and Cook County in general.

Therefore, one of the greatest potential non-motorized opportunities for Cook County to consider involves studying potential connections between existing forest preserves, regional trails and suburban bike routes to the Bloomingdale Trail, which would greatly aid in tying together the regional trail system of Cook County with downtown Chicago and the highly-popular lakefront park and path system that spans multiple lakeshore communities in Cook County.

- ▶ Perhaps the greatest challenge facing freight transportation is congestion. Several rail bottlenecks in southern Cook and other parts of the County cause major delays in the delivery of freight products. This leads to increased reliance on trucks for delivery. However, this modal shift is adversely impacted by the traffic congestion, which extends beyond the rails to cause roadway delays.