



# Statewide Intercity Passenger Transportation in Illinois

***Prepared for:*** Illinois Department of Transportation

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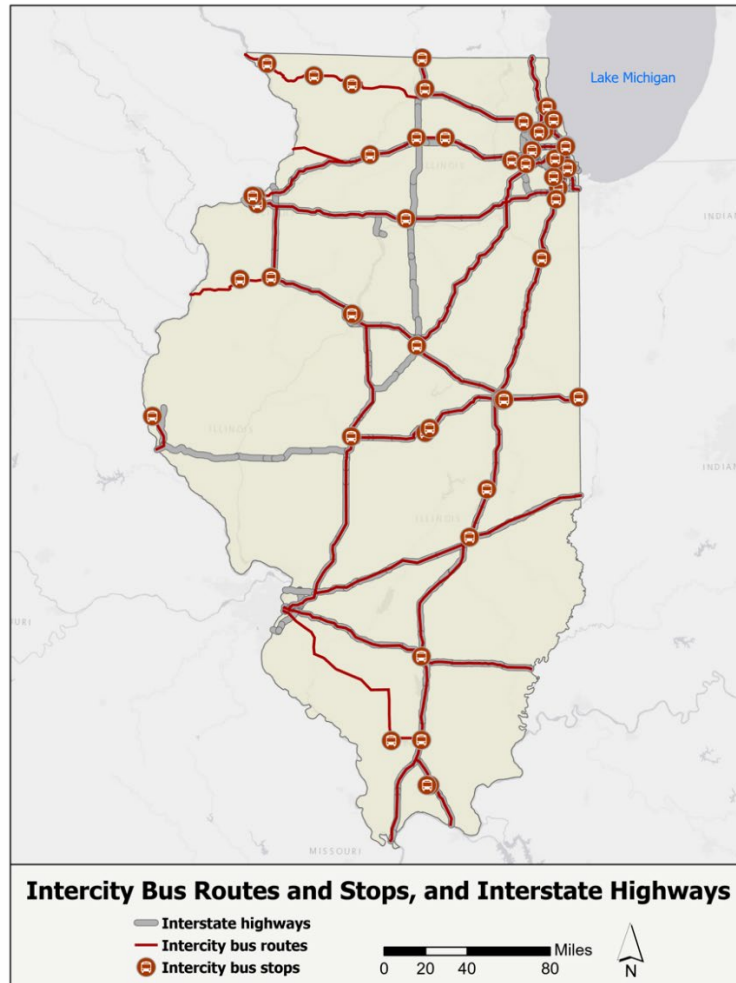
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*Final Report*

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## **Acknowledgement**

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## **Disclaimer**

The contents of this report reflect the view of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Illinois Department of Transportation or the Federal Transit Administration. This report does not constitute a standard, specification, or regulation.

## **Executive Summary**

The COVID-19 pandemic has affected all areas of life in the United States. For travel, the changes have been vast, whether for private vehicle use or public transit use. For the intercity bus industry, the pandemic changed operations in meaningful ways that have yet to return to previous levels – whether on the service or the demand side. This study set out to measure both the supply and the demand for intercity routes; however, the fluctuations in supply levels made that virtually impossible to quantify.

This study does, however, provide an overview of the history and current funding processes for intercity bus questions while performing modeling that shows where the greatest demand is for intercity bus services, both entirely within the State of Illinois and for routes that leave the state's borders. This study also provides considerable information about how feeder services improve connectivity to longer intercity bus routes, on a county-by-county level.

This study also interviews other state DOTs to gain insight into their use of 5311(f) intercity bus funding that the Federal Transit Administration provides. The industry at the moment is plagued by increasing costs, shortages of staff, and funding levels that have not kept up with those increasing costs. Due to a perceived difficulty in procuring this funding from the State of Illinois, some providers have avoided attempting to utilize this funding in Illinois entirely, choosing to pursue providing service in other states, some of which provide additional services to intercity bus operators. Investments in intercity bus marketing could also assist efforts to move passengers around the state.

While this study was greatly impacted by pandemic-led changes across the industry, there is important information here about 1) the processes by which 5311(f) funding is utilized; 2) suggested areas of investment, including buses, bus shelters, operating funding, user-side subsidies, new feeder services, and IT tracking of both intercity buses and feeder vehicles; and 3) modeling showing where demand exists for these services. Sixteen counties in Illinois have none of their population that is within a 25-mile radius of intercity bus services, even when considering the availability of feeder services that could transport people to a stop if it existed. Another seven counties have between 0 and 25% of their population that fall into this category. While the data here is current as of the time of the interviews in 2020 and 2021, it is worth re-assessing the current supply of intercity bus operators to determine the extent to which the noted demand is being met. These routes can and do change regularly, especially given the COVID-19 pandemic.

An additional study of supply would be beneficial, but at a time with so many changes in the industry, that may continue to be difficult to document.

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# 1 Introduction

Intercity bus travel is changing in the U.S. and in Illinois, and while the market has seen new entrants in recent years, it remains a consolidated industry. Although new technology has changed the industry, many of the old challenges still remain and rural communities continue to face the possibility of lost service. The lasting effects of reduced travel, depleted revenues, and contracted service stemming from the COVID-19 pandemic also have yet to manifest.

In 1991, the Federal Transportation Administration created the Non-urbanized Area Formula Program which included support for rural transportation, including intercity bus service. Since then, the Federal Transit Administration has continued to fund intercity bus travel in part to maintain service levels for transportation for rural areas. Subsequent surface transportation authorizations updated the program and have increased the amount of spending allotted to rural areas. States currently have to set aside 15% of their Section 5311 apportioned funds for intercity bus (as 5311(f)), unless they can certify that their intercity bus needs are adequately met after meeting with intercity bus providers.

The federal legislation allows for a variety of approaches to meeting rural transportation needs and allows diversion of the funds for other rural programs if a state's Governor certifies that no need exists for intercity bus funds. States that wish to certify that the state's needs are being met and avoid the 15% set-aside requirement are generally expected to conduct a statewide assessment of available intercity bus service and unmet needs.

In this light, the Illinois Department of Transportation (IDOT) commissioned the Urban Transportation Center (UTC) at the University of Illinois at Chicago (UIC) to conduct this study to assess whether intercity bus needs are being met in the State of Illinois. The research team conducted the study by: (a) reviewing including Federal Transit Administration requirements and IDOT's intercity bus policy; (b) surveying other state DOTs to document their experiences with intercity bus; (c) identifying common carriers that conduct scheduled service in Illinois including taxi companies that provide access to intercity bus; (d) surveying intercity bus companies operating in Illinois, including selected taxi companies; (e) performing a demand analysis in intercity bus corridors in Illinois; (f) proposing an intercity bus supply analysis methodology that was not realized due to lack of data; and (g) implementing an alternative deficiency analysis to assess the intercity bus needs in Illinois. The above research activities are documented in subsequent chapters.

## 1.1 Historical Background

Intercity bus and taxi services have been operating since the early 1900s, when the industry was largely informal but steadily growing. The **Motor Carrier Act of 1935** regulated carrier operations to mitigate

safety concerns and remain competitive with passenger rail. This Act gave the Interstate Commerce Commission (which had initially overseen rail concerns) some authority over the industry, including a mandate to set rates or fares for routes.

In 1982, following airline deregulation, the intercity bus industry was deregulated under the **Bus Regulatory Reform Act** (Kahn, 1990). The bill's proponents suggested that deregulation would help the contracting industry compete with other intercity travel modes, while critics worried it would lead to consolidation and loss of some small players. Five years after the bill's passage, these criticisms were validated when the industry's largest company, Greyhound, merged with Trailways. By 1990, Greyhound represented 85% of the industry's revenue. Even with this market share and industry hegemony, Greyhound eventually filed for bankruptcy and the Canadian firm Laidlaw purchased it.

In 1991, the President signed the Intermodal Surface Transportation Efficiency Act (**ISTEA**). This bill included a section on transportation support for non-urbanized areas, including Section 5311(f). This section stipulated that 15% of all federal funding for public transportation in non-urban areas be set aside for intercity bus service. Only a state's Governor could waive this provision if they certified that existing services adequately met the state's intercity travel needs.

The legislation in ISTEA was updated in 2005 with the passage of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (**SAFETEA or SAFETEA-LU**), which changed many of the formula programs that fund transportation projects. These programs distribute funding among the states and localities based on formulas which determine the allocations each state will receive. In the case of Section 5311, the two determining factors are "land area" (measured as the state's size in square miles) and "Other than urbanized population," which reflects the number of people living in communities with low populations (Federal Transit Administration, 2014). "SAFETEA-LU again greatly increased funding for rural transit, proportionally more than the increase for other Federal Transit Administration programs," (Federal Transit Administration, n.d. -a). This increase was not limited to funds for bus transport, but also other rural transport needs: "The Section 5311 program provides funding for public transportation projects serving areas that are outside of an urban boundary with a population of 50,000 or less. Funds may be used for capital, operating, planning, or technical assistance projects. These funds can support and enhance rural transit users' mobility needs. Section 5311 Program grants are intended to provide access to employment, education and health care, shopping and recreation," (California Department of transportation, n.d.).

Congress updated policy around rural bus support again in 2012 with the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21). "The Formula Grants for Rural Areas Program, codified at 49 U.S.C.

5311 (Section 5311), is authorized under the provisions set forth in the Moving Ahead for Progress in the 21st Century Act (MAP-21), Public Law 112-141. Under this program, the Secretary may make grants to assist states and local governmental authorities in financing capital, operating, planning, and job access and reverse commute projects, associated with providing public transportation in rural areas,” (Federal Transit Administration, 2014).

Congress passed the Fixing America's Surface Transportation Act (FAST Act) in 2015 as a follow-up authorization to MAP-21. They modified Section 5311 (which began in ISTEA), but it continued to serve the core purpose of supporting the overall mobility of people living in rural areas. The Federal Transit Administration describes the changes as follows:

1. All operating and capital costs can now be included without revenue offset when determining how much of the unsubsidized portion of privately provided intercity bus service that connects feeder service is eligible as in-kind local match,
2. Revenue from the sale of advertising and concessions may be used as local match.
3. Recipients may now use up to 20% of their 5311 allocation (previously 10%) for the operation of paratransit service, if certain conditions are met, (Federal Transit Administration, n.d. -b ).

## **1.2 Current State of Intercity Bus Services**

Firestine (2011) has shown a decline in the usage of intercity bus in the United States. In 2005, intercity bus rural coverage stood at 89% of the nation’s population; by 2010, that had decreased to 78%. A rural resident is defined as being covered by intercity transportation if they live within 25 miles of a bus station, ferry terminal, rail station, and a non or small hub airport. Total rural population coverage decreased from 71.5 million to 63.1 million residents over the same time period. Intercity bus creates key connections in urban cities, while ridership from rural residents is also a key aspect for the success of intercity bus. Intercity bus routes and stops are evaluated by providers (such as Greyhound) who still seek to gain profitable revenues through operating intercity bus service. This can present an issue in areas that have experienced population loss in recent years.

Illinois, in particular, has seen a loss of population in 93 of its 102 counties from July 2010 to July 2019. From the 2010 to 2020 census, Cook County alone saw a population decline of 80,866 residents. In that same time, using Census numbers, the State of Illinois showed a population decline of more than 18,000

people total.<sup>1</sup> In a 2014 study, estimated bus ridership (persons per week) originating in Chicago to destinations in Minneapolis, MN, Eau Claire, WI, Madison, WI, St. Louis, MO, Indianapolis, IN, and Milwaukee, WI was between 3,000 and 5,999 passengers (RSG, 2015). However, these ridership statistics do not reflect any potential impacts of recent (2014-2019) population declines statewide. Changes such as these can create challenges for the intercity bus industry, such as maintaining routes with low ridership numbers because those routes could affect the overall profitability of intercity bus providers.

More broadly, national trends within the intercity bus industry have given a sense of optimism and identified areas for improvement. A stronger economy in recent years has buoyed major intercity bus services, but low fuel prices has made it more difficult for intercity bus providers to compete with personal automobile and airline travel. At the beginning of July 2018, barrels of oil were around \$71 per barrel (West Texas Intermediate Crude), but prices dropped to about \$51 dollars per barrel near the end of 2018. Higher oil prices tend to impact the intercity bus industry positively because airline and automobile travel tend to use more fuel per passenger-mile compared to bus travel (Antolin, et al., 2019), incentivizing the use of intercity bus travel.

In addition, trends in technology and services have continued to push the intercity bus industry forward. Dynamic pricing and flexible scheduling have begun to be more frequently used by smaller intercity bus providers, allowing them to compete with larger carriers in the market. The movement away from conventional, regularly-scheduled service to more peak and “pop-up” (services offered only for brief intervals) through the use of “crowdsourcing” techniques has made it possible for providers such as OurBus and Flixbus to take advantage of periods of high demand and respond accordingly by adding service routes (Antolin, et al., 2019).

Providers are aware that passengers desire greater opportunities for connection. Rather than operating non-stop, intercity routes between two dense urban areas, companies are starting to emphasize additional stops within the larger metropolitan areas, serving urban neighborhoods, residential suburbs, and shopping centers (Antolin, et al., 2019). An example of this type of service is Greyhound Connect and its Chicago, IL, to Davenport, IA, route funded by Section 5311(f) and developed through a partnership between IDOT, Lee County, IL, and Greyhound (NIU Today, 2015). This route makes intermediate stops in Naperville, IL, (Route 59 Metra Station) and Northern Illinois University in DeKalb County, IL. This expands the route's

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<sup>1</sup> The Census Bureau then estimated it had undercounted the Illinois population and the state had actually grown by more than 250,000 people in the 2010-2020 decade. Certain metrics are only based on the Census data rather than the under/overcount estimates. See: <https://www.nbcchicago.com/news/local/illinois-undercounted-in-2020-census-actually-grew-to-13-million-the-states-largest-population-ever/2837753/>

targeted purpose; it acts as an intermodal connection at Naperville's Metra station and targets and connects Northern Illinois University student populations connecting from Chicago or Naperville to DeKalb County. Greyhound is one of many providers that has emphasized intermodal connections in recent years. In 2018, Megabus began selling airport shuttle services through its website; Florida provider RedCoach has service trips to airports; and Trailways of New York began selling bus-train transfer tickets with Provider (Antolin, et al., 2019).

The growth of online ticket purchasing services is another trend using technology to advance the intercity bus industry. As more customers become comfortable buying bus tickets online, operators may be able to reallocate resources otherwise spent on ticketing agents and facilities. For example, the increased use of curbside pickup by providers such as Megabus have forgone the necessity of physical infrastructure that has been traditionally used in the past (Klein, 2009).

The growth of online ticketing has also led to the growth of ticket sales aggregators such as Wanderu.com, BusTickets.com, Busbuster.com, and Comparabus.com. These aggregators sell tickets for multiple bus services on one site. This has made price competition more direct. In some cases, these aggregators assume the responsibility for marketing and sales of the majority of smaller operators' service, allowing these providers to create a robust online presence and access to a customer base they would not have otherwise. The introduction of aggregators also divorces marketing and sales from service operation, creating potential points of friction in service determination; aggregators may make decisions that affect operator sales without consultation with the providers, such as favoring competitors or not fully listing route information.

### **1.2.1 Administrative Burden on Providers/Grantees**

Administrative burden may impede communication with small intercity bus providers. Rural bus travel in Illinois and around the country is dominated by Greyhound, but if the state adopts a goal to encourage more diverse participation from smaller providers, the existing grant application and subrecipient structure may present participatory barriers. This burden may be partly responsible for a lack of the deployment of the full Section 5311(f) dollars by the State of Illinois. This problem is by no means limited to bus grantees; it was recently studied in the work *Administrative Burden: Policymaking by Other Means* (Herd and Moynihan, 2018). This wide-ranging study shows how common this issue can be in keeping funds from reaching grantees and argues this burden privileges those with the means to grapple with administrative tasks.

## 1.3 Regulatory Background

### 1.3.1 Federal Transit Administration

The Federal Transit Administration awards funds to all 50 states and federally recognized Native American Tribes for use on Intercity bus travel (Federal Transit Administration, 2014). Section 5311 covers formula grants for rural areas, a portion of which is designated for intercity bus travel. The formula process is illustrated in Figure 1.

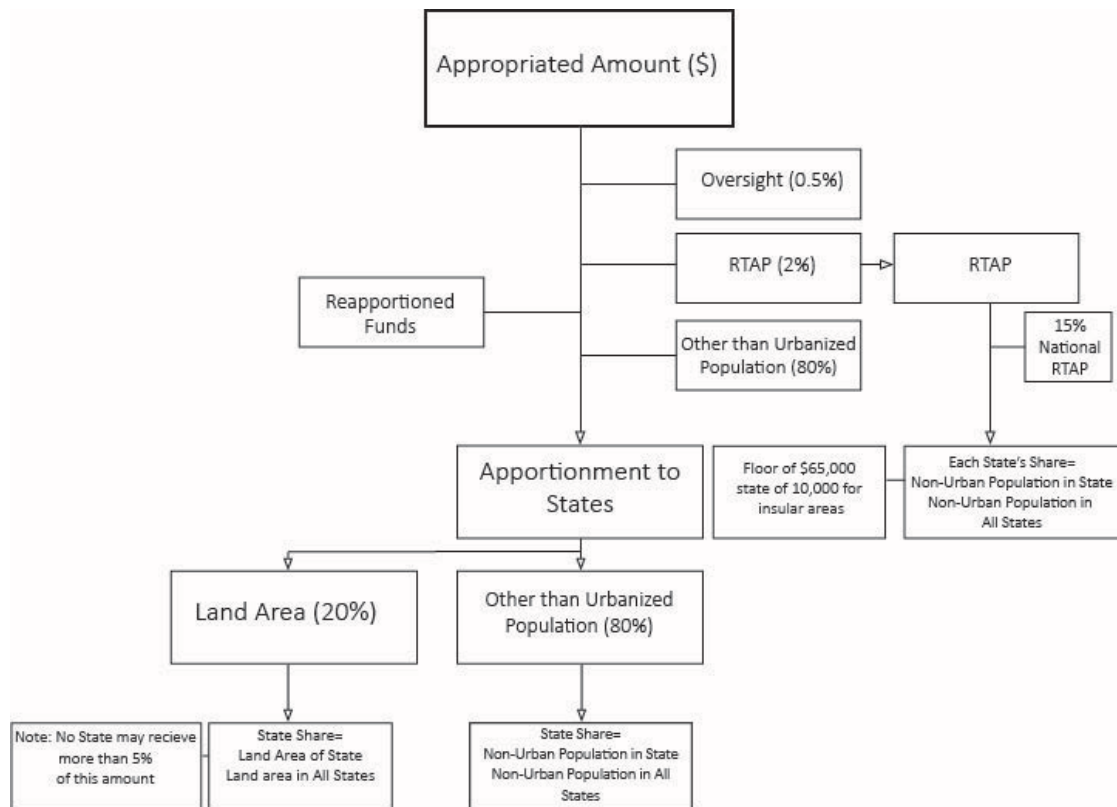


Figure 1: Adapted from *Section 5311 Formula Process of Appropriated Amounts* (Federal Transit Administration, n.d. -c)

Projects which receive funding from this program must include matching support from the state; the percent of this match depends on the nature of project. "The federal share is 80 percent for capital projects, 50 percent for operating assistance, and 80 percent for Americans with Disabilities Act (ADA) non-fixed route paratransit service," (Federal Transit Administration, 2014). The Federal Transit Administration also allows the local match requirement to originate from other federal grant funds. For example, federal agencies such as U.S. Department of Health and Human Services, U.S. Department of Labor, and U.S. Department of Housing and Urban Development are permitted by the Federal Transit Administration to

administer their federal grant funds as a local match requirement for Federal Transit Administration programs. Although this type of local match is permitted, the Federal Transit Administration makes the final eligibility determination for this kind of local match for Section 5311 (Federal Transit Administration, 2015).

Intercity bus travel is financially supported, in-part, by Section 5311. This mode of travel is defined as “Regularly scheduled bus service for the general public that operates with limited stops over fixed routes connecting two or more urban areas not in close proximity, that has the capacity for transporting baggage carried by passengers, and that makes meaningful connections with scheduled intercity bus service to more distant points, if such service is available” (Federal Transit Administration, 2014). While this definition applies to urban areas that are “not in close proximity,” this spatial relationship is not explicitly defined.

The Federal Transit Administration’s *Study of Intercity Bus Service* (U.S. Department of Transportation, 2005) further explains the regulations on and funding policies for intercity bus. This includes an explanation of interstate route funding and a description of “feeder services,” which do not connect urban areas: “Others are measures currently available to States, including under Federal Transit Administration’s Section 5311(f) rural intercity bus program, that warrant renewed or expanded emphasis, such as offering rural feeder service to intercity bus routes and improving coordination between adjacent States,” (Federal Transit Administration, 2014).

### **1.3.2 Illinois Commerce Commission**

The Illinois Commerce Commission (ICC) has a limited regulatory authority over intercity bus travel. The commission oversees licensing on routes that serve airports but it excludes: “carriers transporting passengers with fixed routes and schedules and charging on a per-passenger fixed charge basis and which do not include an airport as a point to be served on the route, in whole or in part,” (Illinois General Assembly, n.d.). The ICC is responsible for enforcing federal safety regulations, including requiring reporting on accidents that involve death, injury, and the destruction of property. The ICC also oversees how many continuous hours bus operators may drive. The Commission has no jurisdiction over rates for intercity bus routes, however, following passage of the Bus Regulatory Reform Act of 1982.

### **1.3.3 Illinois Department of Transportation**

The Illinois Department of Transportation (IDOT) administers the state’s Section 5311 program, awarding funds to subrecipients that support intercity bus transport. Conversely, the Governor may certify that intercity bus travel needs are adequately met by existing resources, allowing IDOT to reallocate these funds for other planning purposes in accordance with Federal Transit Administration policy.

State guidance is modeled on Federal Transit Administration regulations and stipulates eligible activities and service areas under the Section 5311 program. IDOT’s Section 5311 grant application form describes Eligible Service Areas this way:

“For the purpose of this provision, Federal Transit Administration defines intercity bus service as regularly scheduled bus service for the general public that operates with limited stops over fixed routes connecting two or more urban areas not in close proximity, that has the capacity for transporting baggage carried by passengers, and that makes meaningful connections with scheduled intercity bus service to more distant points, if such service is available. (Urban area is defined very broadly in 49 U.S.C. 5302(a)(16) as ‘an area that includes a municipality or other built-up place that ... is appropriate for a local public transportation system to serve individuals in the locality.’) Schedule information for intercity service is typically maintained in the Official Bus Guide (Russell's Guide),” (Illinois Department of Transportation, 2018).

#### **1.4 The Study Framework and COVID-19 Changes**

So far, this report has included an overview of the nationwide intercity bus services, summarizing the historical background and current service status, including regulatory framework of the intercity bus services. The rest of the report starts with the detailed literature review of the intercity bus studies that are done by other states in the country. The literature review also contains a review of related scholarly articles (Chapter 2). Then, the next chapter (Chapter 3) summarizes state DOT interviews conducted at the early stage of this study. The objective of this task was to gain an understanding of the current state of practice of state-level intercity bus service planning and strategies. This chapter starts with describing the adopted methodologies for the interviews and then move onto presenting the findings and discussion on findings.

From the following chapter, this will focus on the State of Illinois (Figure 2 presents the Illinois intercity bus network and interstate highway). Chapter 4 identifies the common carriers that operate in Illinois. This involves both the intercity bus companies and feeder services. After this identification process, the research team initiated the interview process of these intercity bus companies and feeder services. This interview process, including the methodology, findings, and discussion is categorically documented in Chapter 5.

After Chapter 5, the report is divided into two parts. Due to some unforeseen issues attributing to the global pandemic COVID-19, the research team had to pivot from the original study plan. Therefore, the organization of this report follows an unconventional approach to make sure all the investigation and analysis done by the research team is documented accordingly. To this end, part I (presented in Chapter 6)



documents the efforts that went into the traditional approach of intercity bus study. The traditional approach involves the demand and supply analyses that in turn can be used to identify the deficiency of intercity bus services. A completed demand analysis is presented in section 6.1. In section 6.2, we present the devised methodology for supply analysis. However, due to the lack of data unavailability, the supply analysis remained incomplete, and the research team was unable to continue with this traditional approach. Therefore, the part II (Chapter 7) presents an alternate approach in identifying the intercity travel deficiencies in Illinois. Finally, in Chapter 8, we present the aggregated findings from this study with the recommendations of future research.

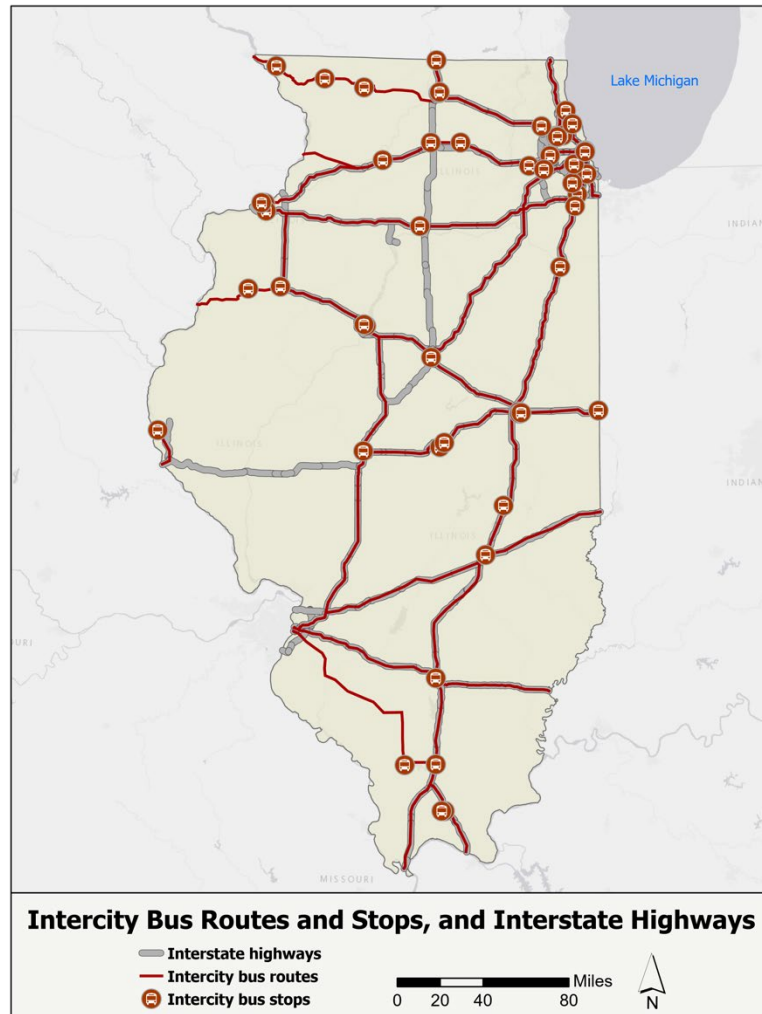


Figure 2: Illinois intercity bus network and interstate highway

## **2 Literature Review**

### **2.1 Sources and Methods**

This review encompassed the body of academic literature, governmental studies and resources, and not-for-profit analyses to identify past and current trends in intercity bus service and support. Findings were drawn from federal databases and academic summaries of the industry. Intercity bus studies by other state DOTs, often developed by or in concert with private consultants, offered potential avenues of study and recommendations for innovative improvements. Other academic and not-for-profit sources modeled consumer behavior and rider preferences. As the review progressed, five main themes emerged: intercity bus system and service characteristics; near-term industry outlook; rider characteristics and preferences; institutional challenges for Section 5311 funding provision; and potential service improvements and policy recommendations.

### **2.2 Previous Studies and Academic Research Summaries**

#### **2.2.1 Industry Profile and System Network**

Ridership has declined nationwide since 1970, although intercity travel (through both bus and rail modes) has had some increase since 2000 (Fravel et al., 2011; BTS, 2018). Rail and train ridership increased in both raw number of riders and passenger miles. Concurrently, vehicle miles traveled in private vehicles and the number of new cars sold also grew steadily since 2008. While mode fluctuated between 2000 and 2016, these modes represent a larger total population of travelers (BTS, 2018). Rural intercity travel, specifically, has declined by a small amount; although nearly 72 million rural residents (90% of total) had access to intercity air, bus, ferry, or rail transportation as of 2010. Intercity bus mode share was the largest, accounting for 78% of rural intercity service coverage (Firestine, 2011).

Despite the decline from the 1970s peak, some states continue to certify that their intercity bus needs are being met by existing providers. Over half of states exhibited intercity bus coverages exceeding 75%, with three (Hawaii, North Dakota, and West Virginia) reporting less than half their rural populations having access to intercity bus travel (Firestine, 2011). Fravel et al. (2011) posited that this may have to do with increases in funding, regulatory changes after SAFETEA-LU, and the introduction of the operator Megabus, among other reasons.

### 2.2.2 National Outlook

Antolin et al. (2019) developed an overview of existing and anticipated intercity bus industry trends, the change in providers, and thoughts on the outlook of intercity bus in the near future. The report included six trends in the outlook:

1. Major corridors were improved and strengthened by the U.S.'s recent strong economy despite fuel prices remaining low;
2. The advancement and utilization of technology platforms has helped smaller charter companies enter and compete in the intercity bus market alongside other well-established operators;
3. The shift to connecting metropolitan regions and establishing a larger network rather than only connecting urban centers has become a goal that would lead to more opportunities;
4. Trips made to and from college campuses, including trips made during college breaks, have helped to create new service for operators;
5. Partnerships with state-supported services and sustained federal funding has helped intercity bus growth; and
6. Multiple operators have provided customers with additional service options such as economy and premium trip options.

Diminishing revenues, low fuel prices, and competitive airline prices have been headwinds for the intercity bus industry, causing operators to take decisive actions. Greyhound completely removed its service from western provinces in Canada as well as its connection between Washington, D.C. and Maryland's Eastern Shore. Stagecoach, owner of Megabus, agreed to sell all of its North American operations, under the Coach USA brand, to Variant, a Californian private equity firm, for \$271.4 million. Variant also acquired Megabus in this agreement. Peter Pan also discontinued its local service, while Megabus eliminated one of its Northeastern regional routes.

Technological advancements, however, have allowed some smaller carriers to remain competitive. OurBus, a private operator, has employed "crowdsourcing" potential additional services directly from customers. Through this process, OurBus uses the data collected on its online platform to determine which days will have sufficient demand to cover operating costs and, after testing the service as a temporary, "pop-up" route, may commit to converting it to regular service (Antolin et al., 2019).

### 2.2.3 Modal Preferences and Rider Characteristics

According to BTS data on mode choice for “long trips,” defined as 50 or more miles, personal vehicles had close to a 90% mode share, while bus trips accounted for merely 2.1% of these trips. This disparity increased among rural trips, which may be due to a lack of transportation facilities, necessitating private vehicle ownership. Bus travel mode share was highest for trips between 500 and 749 miles. Long trips, on buses or otherwise, are not necessarily comparable to trips defined as intercity bus travel in Section 5311 as they may include trips that mostly pass through urbanized areas. (BTS, 2018).

Despite the mode share disadvantage, intercity bus passengers express satisfaction with the service. Generally, intercity bus riders are attracted to the mode due to competitive prices, lack of personal vehicle access, and convenience of travel. Further, these riders expressed high levels of satisfaction with the service. Eighty-seven percent of intercity bus passengers in Minnesota mentioned they either would or would probably consider using the service again and 57% rated the service a 9 or 10 out of a 10-point scale. Areas of high satisfaction for intercity bus passengers were driver professionalism, heating/air conditioning, availability of luggage space, and experience purchasing a ticket. Areas of low satisfaction were frequency, overall travel time, and availability of Wi-Fi and power outlets on the buses. (KFH and WBA, 2014).

Mattson (2016) developed a mode choice model to estimate demand for rural intercity bus services in North Dakota compared to automobile, rail, and air. The combination of a stated preference survey and a logit model resulted in individual, trip, and mode characteristics exhibiting a significant impact on mode choice. Other characteristics found in the study to be influential were gender, age, income, disability, trip purpose, party size, travel time, travel cost, and access distance. Individuals who were likely to choose a bus over an automobile expressed little opposition to traveling with strangers, were concerned with automobile safety, desired low-stress travel, were sensitive to travel costs, and were not sensitive to travel time. Automobile was the preferred mode choice when travelers valued a more predictable travel time and placed a higher value on cleanliness (Mattson, 2016).

Intercity rail often represents a modal competitor. In comparing fares, researchers found that bus passengers benefit more from advanced ticket purchases relative to train passengers as bus tickets prices tend to inflate at a higher rate than train tickets as the time between purchase and travel decreases. Additionally, providers may offer a wider range of fares in certain corridors (Taxpayers for Common Sense, 2017). This may be the result of increased competition within the bus industry that is not observed in passenger rail. Bus schedules also tend to have a wider range of departure times. When analyzing subsidies, passenger rail enjoys more robust levels of financial support, likely due to the higher capital cost demands

associated with rail infrastructure and rolling stock. Additionally, intercity bus has a smaller lifecycle environmental footprint compared to intercity rail (Lowell and Seamonds, 2013).

#### **2.2.4 Institutional and Regulatory Challenges**

When a state has little to no unmet intercity bus needs, and the cost for identified service improvements is low, states may find more flexibility forgoing federal sources. This may shift the financial responsibility towards agencies and operators, but it negates the need to comply with Section 5311 program requirements. The type of improvement identified may also influence this decision; Tennessee found that recommendations from a 2017 study “can be funded by existing intercity providers (infill stops and long-distance intercity bus routes) or by Section 5311 funding (rural intercity bus feeder routes),” (TranSystems, 2017).

The local funding match is a primary issue because ongoing local support is difficult to secure, jeopardizing private partner service expansion. Greyhound, for example, was moving away from using subsidies for longer routes because the provider was having trouble providing the match. “The corporate policy [at Greyhound] regarding Section 5311(f) changed to favor provision of the subsidies to rural transit systems to provide integrated feeder services that would connect with the remaining main-line services,” (Fravel, et al., 2011). These transit systems, however, may wish to focus on other areas of service in higher demand. Many of these operators need to serve a commuting ridership and the most convenient scheduling for those travelers may not always be conducive to intercity travel. Service providers also complained that unless the fare box recovery was robust, there was no local funding to provide the match. (Fravel, et al., 2011).

#### **2.2.5 Recommendations for Service Improvements**

Key areas for prioritization among states typically include maintaining existing intercity bus coverage, increasing marketing and public awareness of the service, increased funding for vehicles, passenger facilities, and amenities, and service expansion where feasible. Among other actionable items, the development of performance measures and metrics help to provide a state with concrete benchmarks against which to evaluate network connectivity and service, particularly in the areas of service availability, awareness, and efficiency (KFH and WBA, 2014).

Improvements to intermodal connectivity and service experience were also common recommendations to increase intercity bus demand. Potential improvements in intermodal connectivity mostly related to savings in time and cost. These may include activities such as offering timed transfers for feeder services from remote counties using real-time technology as well as offering intermodal trip discounts to transferring

passengers. Most passengers desire decreased travel times and costs, and solutions catering to those desires are expected to increase ridership. (HDR et al., 2012).

In Kansas, officials have explored collaborating with statewide and or nationwide commercial franchises such as McDonald's, Walmart, and TA Travel Centers of America. (HDR et al., 2012). With curbside pick-up locations gaining in popularity in recent years, such partnerships may not only create new stops/routes (if desired) but also foster a sense of safety owing to high foot traffic and visibility, increasing the willingness for passengers to wait for service.

Many states recognize the need to increase and hone marketing efforts. Focusing on university students as a target market is potential opportunity. For example, the state of Kansas boasts over 200,000 students enrolled in a college or university across the state, yet 89% of students surveyed had never taken intercity bus (HDR et al., 2012). Based off this sizeable potential demand, one of the proposed solutions for marketing, branding, and awareness could be to create an intercity bus marketing strategy specifically for college students.

While the literature review produced some insight into recent planning and policy considerations by state DOTs to maintain and improve intercity bus coverage, the breadth of resources was limited to only a few states. Additional information from other states were needed to better gauge national practices. State DOTs were thus solicited for participation in an online survey to better understand the particular intercity bus characteristics and challenges of each state in a more uniform manner. Methodology for the survey instrument development, outreach efforts, and survey results are explained further in Chapter 3.

### 3 Survey of State Departments of Transportation

To gain a better understanding of how other states DOTs approach their intercity bus program, our research team deemed it necessary to administer an online survey to all state DOTs to obtain results on the various application of strategies and goals, relationships to intercity bus providers, distribution of funding, and data collection methods from other state DOTs. The collection and analysis of neighboring and non-neighboring state DOTs allowed us to evaluate the differences and commonalities in our intercity bus programs and ultimately help guide the recommendations that will improve Illinois' Section 5311(f) program in the years to come.

#### 3.1 Methodology

A state DOT online survey was generated using Qualtrics survey software and was distributed to 49 state DOTs. Survey responses were collected over a four-month period between March 9, 2020 and June 19, 2020; survey distribution, invitation reminders, and analysis of survey responses was conducted on Qualtrics' platform. One state DOT opted out from the online survey prior to circulation. Thirty-four (70%) of the 49 invited state DOTs participated in the online survey, while only 1 (2%) state DOT declined participation after survey was distributed. Individual survey participation and survey participation by Federal Transit Administration region is shown in Figure 3 and **Table 1** respectively.

State DOT online survey is composed of the four following segments:

1. Overview
2. Funding & Carriers
3. Strategies & Goals
4. Performance Measures (PMs) & Data Collection

Survey findings for the listed segments are described further in the following sections, while the complete list of survey questions can be found in "Appendix A: Interview Scripts". The survey questionnaire is vetted by the Institutional Review Board (IRB) of University of Illinois at Chicago (Protocol # 2016-0402).

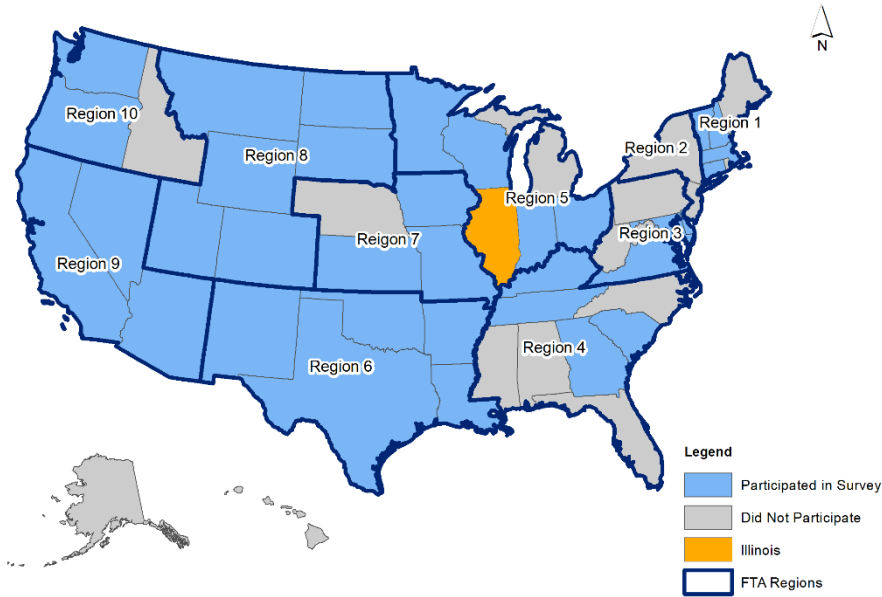


Figure 3: Map of State DOT Online Survey Participation.

Table 1: Online Survey Participants by Federal Transit Administration Region.

Federal Transit Administration Region	Number invited	Number participated	Response rate
Region 1 (CT, MA, ME, NH, RI, VT)	6	4	67%
Region 2 (NY, NJ)	2	0	0%
Region 3 (DE, MD, PA, VA, WV)	5	2	40%
Region 4 (AL, FL, GA, KY, MS, NC, SC, TN)	8	4	50%
Region 5 (IL, IN, MI, MN, OH, WI)	5	5	100%
Region 6 (AR, LA, NM, OK, TX)	5	5	100%
Region 7 (IA, KS, MO, NE)	4	3	75%
Region 8 (CO, MT, ND, SD, UT, WY)	6	6	100%
Region 9 (AZ, CA, HI, NV)	4	3	75%
Region 10 (AK, ID, OR, WA)	4	2	50%
Total	50	34	68%



## **3.2 State DOT Online Survey Findings**

### **3.2.1 Overview**

The objective for this segment of the state DOT online survey was to understand the respondents' primary goals of their individual Section 5311(f) intercity bus programs. Seventy-six (76%) of respondents identified primary goals; many state DOTs have multiple goals in common for their intercity bus programs. Three prominent primary goals are: enhance access to rural areas (96%), encourage and facilitate the most efficient use of Section 5311(f) funds (69%), and improve intercity bus coordination efforts (69%). Primary goals least common among respondents are increase participation of intercity bus providers (31%) and increase investments in intercity bus services (19%).

### **3.2.2 Federal Funding and Carriers**

It was necessary to understand the use of Section 5311(f) funding as well as carrier relationships from participating state DOTs in order to gain insight as to how IDOT may improve its distribution of funding as well as improve its professional relationship with intercity bus carriers. More than half of respondents disburse funding directly to intercity bus carriers and rural public transit providers, while only two respondents disburse funds to governmental agencies. The most frequently specified carriers are Greyhound and Jefferson Lines.

When asked to identify the types of intercity bus eligible activities that their state DOTs support through funding, the most frequently selected were planning and marketing for intercity bus transportation (61%), operating grants through purchase of service agreements (52%), and coordination of rural connections between small public transportation operations (43%). Less than one third prioritized capital investments and only one engaged in user-side subsidies and demonstration projects. In addition to low engagement in user-side subsidies, more than a quarter of respondents subsidize 0% of intercity bus routes within their state, and only 27% of respondents subsidize at least 50% or more. Three state DOTs subsidize 100% of their intercity bus routes.

More than three-quarters (88%) of respondents provide funding to private intercity bus carriers and the majority of those private carriers have used their granted funding for operations, capital, and marketing costs. Ten respondents (42%) stated they even provide funding to carriers that receive funding from other state or local governmental authorities and/or non-profit organizations. In most cases, this means they are receiving funding from neighboring state DOTs.

Lastly, between 2015 and 2019, about 40% of respondents experienced difficulty spending the 15% required apportionment of Section 5311(f) funding due to reasons cited as loss of carriers and feeders, lack

of matching funds, high farebox recovery for carrier, and route operational difficulties and cost. Only two state DOTs declared that their intercity bus needs are met.

### **3.2.3 Strategies and Goals**

According to 84% of respondents, an existing area of emphasis for their state DOT intercity bus program is operating subsidies, with marketing and support projects (28%) and capital projects (24%) to follow. Although there is already emphasis in these areas, state DOTs also plan to focus on a variety of strategies to improve their intercity bus service that includes better coordination with intercity bus services across state lines, promote intermodal station/terminal projects, and working with planning organizations, local governments, and providers to determine strategies. One respondent noted that they plan to secure a larger 5311 apportionment to improve its intercity bus system. When considering goals, objectives, and/or measures, most (two-thirds or more) measure their success through the following factors; improved ridership, promotion of service or extension to high need areas, and improved marketing. Additionally, one-third of state DOTs have not issued any requests for proposals (RFP) to help improve their intercity bus system.

There is also a wide range of challenges in coordinating with private carriers and meeting local and state intercity bus goals. Most common challenges respondents noted were a lack of coordination between private carriers, lack of connection between providers, and carriers staying in compliance with federal regulations. Respondents indicated fewer issues (or less of a focus on) supporting service across state lines.

### **3.2.4 Performance Measures and Data Collection**

Almost every DOT tracks ridership (95%) and passenger-miles traveled (82%) for intercity bus data. About one-third records the number of *intrastate* passengers, while fewer than 20% track elements such as interstate passengers, travel time, and passenger load. Respondents also reported value in placing GPS systems on feeder service providers that then syncs with private carriers to coordinate transfers. Another respondent stated that as of recently, they now require their intercity bus providers to track and report intrastate miles and passenger pick-up/drop-offs.

## **3.3 Summary of Major Findings**

From the elaborate discussion on the findings from state DOTs survey in this chapter, several key points are listed below:

- Around 70% of the states have participated in the online survey launched by the research team.

- The majority of interviewed states (96%) share the goal that their Section 5311(f) funding will “enhance access to rural areas.”
- In the majority of the cases, this funding is disbursed directly to the carriers and providers.
- In recent years, many states have experienced difficulty in spending the appointed Section 5311(f) funding mainly due to the loss of carriers and feeders within the states.

In the following chapter, we describe the process of common carrier identification. For this, we take insights gathered from the state DOT survey and expand it to the Illinois intercity carriers. The state DOT survey was particularly important in identifying the common carriers in the time of COVID-19, which in turn helps us narrow down the area and resources regarding Illinois intercity carriers.

## **4 Identification of Common Carriers of Illinois**

The objective of this chapter is to present the identification process and the identified common carriers that provide service throughout Illinois. This involves both passenger bus carriers and feeder services. The identified carriers are contacted in the later stages of this study to garner information about their services. The service information from the carriers is necessary to identify the available supply of intercity passenger transportation services in Illinois.

The intercity bus carriers primarily serve large urban areas. The smaller and rural places within Illinois are minimally served by these large carriers. In order to maintain the connectivity from rural small places to these large carriers, there exist some community transportation services (known as feeders). According to the Federal Transit Administration, feeders coordinate rural connections between small transit operations and intercity bus carriers. Feeders provide more meaningful connections with scheduled intercity bus service to more distant points (Federal Transit Administration, 2014). In general, feeder service can be defined as a service that provides a connection between two points where there is no existing fixed route service through a bus (Pagano et al., 2001). Therefore, to get a clear picture of the available intercity transportation supply, it is also important to create an inventory of such rural community transportation providers along with the existing carrier services. This chapter also includes the identification of such feeders.

To this end, the identification of common carriers that serve Illinois is divided into two parts. In the first part, the research team identifies the large bus carriers or companies that are common for intercity travels in Illinois. We describe this in section 4.1. The second part, which is described in section 4.2, is dedicated for the identification of feeder services.

### **4.1 Intercity Passenger Bus Carriers/Companies**

In order to identify the intercity bus operations serving Illinois, we resort to the national publication of bus schedules - Russell's Official National Motor Coach Guide, February 2020 (Russell's Guides, Inc., 2020). Additionally, we use insights from "Making Connections: 2020 Outlook for the Intercity Bus Industry" by the Chaddick Institute for Metropolitan Development (Schwieterman and Antolin, 2020), the inventory gathered in the previous version of the Intercity bus study of Illinois (Pagano et al., 2001), and Intercity Bus Atlas by the Bureau of Transportation Statistics (Bureau of Transportation Statistics, 2021). Our identification efforts also take heed to the insight gathered from state DOT officials, and preliminary discussion with numerous bus service executives. Based on an exhaustive search, we compile an initial

candidate list of 13 carriers that serve Illinois. The list of these 13 carriers along with their publicly available information is included in “Appendix C: List of Identified Carriers”.

In terms of service area, the gathered carriers are diverse in nature. Their coverage area varies from international to only Illinois. Four of the 13 carriers operate internationally. Some carriers operate within the USA by connecting state to state. Among these USA-based carriers, some provide service to multiple cities in a state, while some may serve only one city for some states. There are also carriers who mainly operate in Illinois. Among them, some are privately owned family business. Besides regular scheduled bus services on fixed routes, some of these carriers also serve as charter bus service providers. In addition, our extensive identification process included one company that serves as a facilitator of other bus companies. This technological service company does not own or operate any of the vehicles, rather it works with qualified charter bus firms to run their services. The following pie chart shows a distribution of accumulated intercity carriers based on their coverage area.

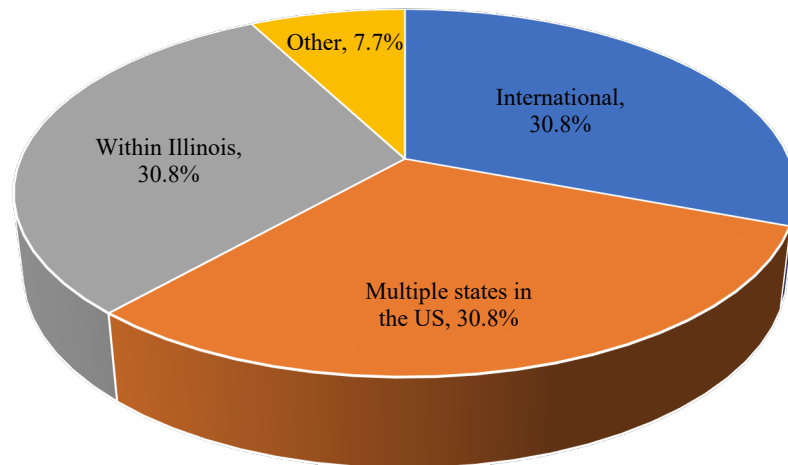


Figure 4: Distribution of carriers based on coverage area.

## 4.2 Feeder Service Identification

Feeder service is an important element for statewide intercity traveling, especially for the rural areas with no direct connection with intercity bus stops. In order to evaluate the availability of supply in a state-level intercity bus supply analysis, feeder services have to be included in the overall analysis. For this study, we attempt to identify all the available feeders in the State of Illinois. Taking the Federal Transit Administration definition as the reference, we try to accumulate the available feeder providers county by

county. This involves an extensive web search and review of available and relevant literature. For the county level, we also search individual county-level administrative websites to find any reference of county transportation that may fall into the criteria of feeder service. After a thorough investigation, we accumulate a preliminary list of 56 feeder services that are (or were) available in Illinois. These feeders are presented in Figure 5 according to their location. A more rigorous subsequent vetting leaves us with a shorter list of 48 feeders (listed in “Appendix C: List of Identified Carriers”) that we find eligible to be considered in the supply analysis of this study. The main reason for the exclusion of the 8 feeders is that they do not connect with the intercity bus stops. The inclusion of these 8 feeders would not affect intercity bus supply.

It can be the case that a feeder provides service beyond the county where it is headquartered. However, for the purposes of this study, we assume the city and county where the head office or main branch is located as the geographical location of the service. After this step of identifying and geocoding the feeder service location, we categorize them based on service type, feeder type, coverage area, etc. These categorizations are described below.

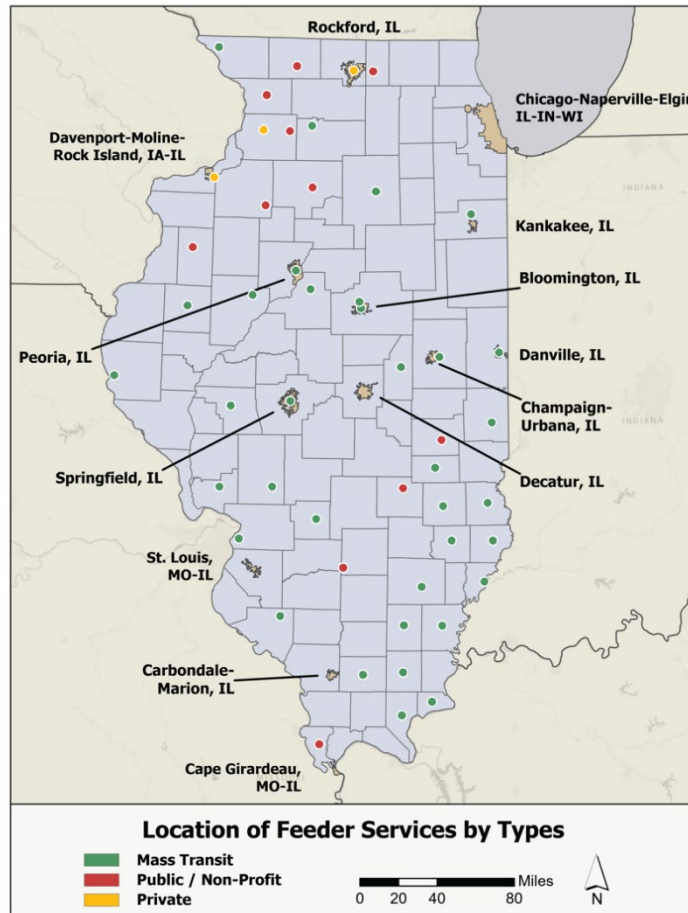


Figure 5: Location of different feeder services.

#### **4.2.1 Feeder Type**

The accumulated list of feeders can be categorized into three types. They are - 1) Mass transit, 2) Private, and 3) Public/non-profit. Mass Transit is any public entity providing inter-city and intra-city/county transit services. They are unlikely to be 5311(f) recipients. The public/non-profit is mostly reserved for on-demand/subscription services sponsored by a public agency or a nonprofit organization. They are often related to senior services/health services, but the services are for any member of the public who wishes to use them. The private services are basically non-public entities that did not fit in the above – taxi services generally fall in this category. The identification of feeder type is important since it narrows down the possible candidates for 5311(f) recipients.

#### **4.2.2 Service Type**

Depending on the service type, feeder services can be broadly categorized into two groups – 1. Demand Response and 2. Scheduled. According to the Federal Transit Administration, Demand Response service can be defined as “a transit mode comprised of passenger cars, vans or small buses, operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.” The Federal Transit Administration also characterized such “demand response” operations as - a) the vehicles do not operate over a fixed route or on a fixed schedule (exception can be made on a temporary basis to satisfy a special need), and b) the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted mid-route to pick up other passengers. Under the above characteristics, a Demand Response operation can be - i) many origins - many destinations, ii) many origins - one destination, iii) one origin - many destinations, and iv) one origin - one destination (Federal Transit Administration, 2020). Two terms – “curb-to-curb” and “door-to-door” are often used to describe such Demand Response services. Despite both of them being under the grouping of Demand Response, there are some subtle differences. In the case of a service characterized as “curb-to-curb”, the passenger usually waits outside their home and wait for the driver to arrive at the curbside. The driver stops in front of the curb and helps the passenger onto the vehicle. When arrived at the destination, the drivers may help the passenger get out of the vehicle. On the other hand, in the case of a “door-to-door” service, it includes all the features described in “curb-to-curb” with the added benefit of taking the passengers to the door of their destination. This type of service is often perceived as comparatively safer (Ride EMT, 2021).

Based on these two service types, we categorize the accumulated feeders into 3 types. They are - 1) on-demand, 2) scheduled, and 3) both scheduled and on-demand. On-demand services are the Demand Response services as defined earlier. We also find some feeders that serve in both scheduled and on-demand

manners. We place them in our fourth category. In the case of a feeder with on-demand services, one of the eligible activities for using the 5311(f) fund is to offer extended hours of service in order to offer a better and increased connection with other scheduled intercity services. If feasible, the feeder service has the opportunity to provide access to the intercity rail and air mode services as well.

### 4.2.3 Location

The accumulated feeders’ location is determined based on where their main branch or head office is located. With this consideration, the feeders can be categorized into two clusters - feeders located in Metropolitan Statistical Areas and feeders located outside of Metropolitan Statistical Areas (MSA). These areas can be defined as an area containing a recognized population nucleus, including at least one city with 50,000 or more inhabitants, and adjacent communities that have a high degree of integration with that nucleus which is mainly determined by the U.S. Census Bureau (U.S. Census Bureau, 2021). The identification of the feeder’s location is necessary because it will serve as a reference point when we investigate the exact coverage area for each of the feeders. With the exact coverage area, whether a feeder provides any connection with other intercity services can easily be determined. A summary of 48 feeders that are retained for further supply analysis is presented in the following table. This table shows the cross-classification of the feeders based on their categorization described above.

Table 2: Summary of available feeder service.

	MSA				Non-MSA				Grand Total
	On-demand	Scheduled	Scheduled and on-demand	MSA Total	On-demand	Scheduled	Scheduled and on-demand	Non-MSA Total	
<b>Mass Transit</b>	7	2	7	16	4	8	1	13	<b>29</b>
<b>Private</b>	4			4	3			3	<b>7</b>
<b>Public/Non-Profit</b>	4			4	7		1	8	<b>12</b>
<b>Grand Total</b>	<b>15</b>	<b>2</b>	<b>7</b>	<b>24</b>	<b>14</b>	<b>8</b>	<b>2</b>	<b>24</b>	<b>48</b>



## 5 Interviews of Service Providers

This chapter will describe the efforts made to speak directly with a set of intercity transit providers within Illinois, in order to investigate the needs of multiple intercity transit providers throughout Illinois as they relate to Section 5311(f) funding and federal operating requirements. A particular priority was to evaluate their opinions about the intercity bus program and gain their views on participation in a set list of eligible funded activities. The ultimate purpose of the survey was to learn their actual needs for service provision, gain an insight into how well Section 5311(f) funding was serving those needs, and what may need to change to ensure the most effective support for intercity and rural bus service within Illinois.

### 5.1 Sampling Strategy

A list of intercity carriers operating within or through Illinois was developed as part of this study. This list was developed through internet research, along with the use of independent publications, such as Russell's Guide. (This identification process is described in more detail in Chapter 4.) The carriers were initially contacted via email in March of 2020 and invited to participate in a telephone interview, with follow-up correspondence sent on March 17, April 30, and May 20. Of the thirteen companies initially contacted, a total of eight carriers consented to interviews. These companies then received advance copies of the interview questions for their review. The interviews lasted roughly one hour in length and were conducted between March 19, 2020, and June 8, 2020. All participants were presented with the same interview framework.

Table 3: Sample set of Illinois intercity carriers and feeder service providers

	Bus companies	Feeder services
Number of carriers identified	13	48
Number of carriers contacted	13	27
Number of carriers interviewed	8	8

### 5.2 Interviews of Active Intercity Bus Companies

The survey was divided into four main sections:

- General Information
- Eligible Activities
- Challenges and Constraints

- Conclusions

Each of these is described in turn below. Discussion will be segregated between private companies and not-for-profit agencies (local, rural operators).

### **5.2.1 General Information**

Nature of Organization and Service Type: Four of the eight private companies surveyed provide intercity service. Two of the companies interviewed use interline bus agreements with carriers to reach off-network destinations. One provider is an online service aggregator that coordinates the ticketing and online presence for subcontracted carriers that provide the actual service. The final provider surveyed is a not-for-profit entity that primarily offers Demand Response local and regional bus services to smaller communities in central Illinois.

Recipients of 5311 grants operate most public transportation at the local level. These agencies offer transit services for the general population in addition to providing paratransit services to the elderly (persons 60 years or older) and people with disabilities. All the rural providers surveyed receive 5311 funds, which are distributed by the Federal Transit Administration through annual allotments to each state for public transportation projects in non-urbanized areas (areas with populations of 50,000 or less). The Illinois Department of Transportation's Office of Intermodal Project Implementation distributes this funding in Illinois. This grant offers federal assistance to local organizations wishing to provide rural transportation service by reimbursing up to 80 percent of the sponsoring agency's capital and administrative costs and up to 50 percent of the net operating costs. The agency must then agree to provide transit to all patrons who request service, regardless of age or physical disability.

The recipients of this grant chiefly operate a Demand Response public transportation system, which is designed to carry passengers from their origin to a specific destination (generally curb-to-curb or door-to-door service), sometimes requiring advanced reservations (often at least 24 hours' notice). This type of service relies on actual customer demand, allowing routes, timetables, and the size of vehicles to vary accordingly.

Under Section 5311(f), the state must use 15 percent of its annual apportionment to support intercity bus service, unless the governor certifies that the state's needs are already being met. The providers who receive these funds have the capacity to support partial-fixed routes or fixed-route deviations, with employment and human services being the leading destinations for patrons.

Service Area: The carriers operating within Illinois that agreed to be interviewed offer a sizeable network of routes across the state. Two of them operate only one route within Illinois, and four of them operate

multiple routes. An additional two providers interviewed do not directly operate any routes within Illinois; one is a rail carrier that employs interline agreements with bus carriers, and the other is a service aggregator that contracts with carriers for service.

Fleet Size: Information on fleet size varied among the companies interviewed. Two providers have no vehicles of their own, as they work with third-party carriers to provide service. Of the carriers surveyed that provided information, the average fleet size was 47 vehicles. Five of the carriers operated standard 55-passenger motor coaches, with four of them operating additional smaller vehicles, of 24 seats or similar size, for smaller routes. One carrier operated “medium to super medium duty” buses that are generally more suited to the Demand Response service that it operates for smaller communities.

Expansion Plans: Any plans by providers to expand service have been disrupted by the extended COVID-19 crisis. While some of the providers expressed interest in potential expansion, and one had been exploring a new intercity route across central Illinois before the onset of the crisis, none had active plans to expand service. Two carriers had cut or eliminated intercity service, citing a lack of State financial support. Several companies indicated that they were primarily concerned with either restoring service to pre-COVID-19 levels or retaining their previous interline connections.

Considerations cited by carriers as affecting expansion plans included demand along a potential route, the availability of vehicles and maintenance capacity, any need for capital investment, and the presence of competing service.

## 5.2.2 Eligible Activities

Section 5311(f) supported activities: Intercity carriers were asked their views on a set list of activities eligible for Section 5311(f) support, described in Table 4:

Table 4: Aggregated findings from interviews of intercity carriers.

<b>Activities</b>	<b>Aggregated Findings</b>	<b>Responsibility/opportunity for support</b>
Planning and marketing for intercity bus transportation	Many providers expressed interest in support for planning and marketing. More than one company indicated they did not have enough staff to conduct speculative market research, so they were in favor of additional support for both access to market information and staff to conduct market research.	Carriers, with opportunity for financial and informational support by State and Federal agencies.
Joint use stops and depots	Providers expressed some interest, though one carrier noted that the nature of a stop or depot will vary greatly from	Carriers and local municipalities, with Federal financial support.

	market to market and will be met with varying degrees of local reception.	
Demonstration projects (testing out new routes)	Providers expressed some interest, but Federal support was vital for their consideration of demonstration projects, as carriers cannot absorb the risk in their current condition.	Federal and State governments, and regions, municipalities, and/or institutions that desire the service.
Coordination of rural connections between small public transportation operations and intercity bus carriers	Several carriers expressed interest in coordination, though one indicated that it was not interested in further efforts, due to prior bad experiences with local public transport carriers that did not coordinate with trips, or otherwise match their service schedule requirements.	State regulatory bodies, local governments, others that may have power to induce local companies to cooperate with intercity carriers.
Modification of existing routes to meet intercity requirements	Interviewees said little about this option, and what was said generally reflected reluctance. As one provider observed, any such changes had to justify not only the added cost, but the additional running time on the schedule, its consequent effect on customers farther along the route, and whether competing carriers were making the same stops.	Outside of regulatory intervention (to induce all carriers to make a stop) or financial support, there appear to be few reasonable options, especially since the effect on running time and customer experience cannot be overcome by money.
Addition of new intercity bus routes	There appeared to be little interest in adding new routes. Providers made general statements about pursuing new routes if a clear opportunity was seen, and as noted before, many carriers do not have the staff or means to explore new markets and routes.	These may need to be treated similarly to pilot routes, as noted above, with financial support from Federal, State, and interested local/private sources to help establish a route.
Operating assistance to support specific intercity bus route segments	Interviewees strongly endorsed operating assistance to rural intercity service, especially since the ability to cover operating losses with charter and tour income has been lost during the current pandemic.	Federal, State, and regional/local financial support.
Applications of Intelligent Transportation System (ITS) technology for coordinated information and scheduling	Carriers were generally interested in ITS technology, although two of the providers indicated that they were subservient to a larger, interstate carrier as a bridge connection, and as such they were required to use the interstate carrier's software.	Federal support for capital investment in IT equipment/software to improve intercity service. (Tax law changes regarding IT depreciation may help as well.)

Other activities: In addition, interviewees also expressed general interest (without offering greater detail) in the following options for 5311(f) support:

- Capital grants for intercity bus shelters

- Operating grants through purchase-of-service agreements
- User-side subsidies (subsidies to riders)
- Additions of new services on existing intercity bus qualifying routes (including feeder service)
- Business extension plans

Two of the providers interviewed indicated that they did not qualify for 5311(f) support. One did not qualify, being a rail carrier, but partnered with qualifying bus carriers for interline connections and service substitution. The other did not qualify because, as an online service aggregator rather than an actual carrier, it did not have a DOT number. However, it was willing to partner with a qualifying carrier.

All the providers identified capital needs that would aid their service. Several indicated a need for new buses, generally to assist in expanding service or to replace obsolete motor coaches beyond their usable lives. Another provider noted they reduce their dependence on hiring out third-party buses for meeting service demands at peak times. Facilities such as bus stops and maintenance facilities were also strongly identified as important. Technology was generally identified as important for ticketing, interline, and feeder service coordination.

Two of the larger providers considered themselves more-or-less set with their own planning and marketing programs, while the others all indicated that they were focused on low-level, self-directed marketing (primarily through social media) and expressed interest in assistance for more “conventional” or professional marketing programs.

None of the providers received municipal funding, although several did indicate they received funding from counties that they served. Several of them indicated that they received 5311(f) funding from other states, but none indicated that they received such funds from Illinois. There were several complaints about the cumbersome process involved in attaining Section 5311(f) funding from Illinois.

### **5.2.3 Challenges and Constraints**

The carriers were asked to describe their experiences with a series of potential impediments to service commonly identified among intercity bus carriers and to identify any other external factors restricting their ability to improve service. Survey questions generally focused on potential constraints from regulatory requirements, matching fund sources, interstate competition supported through other state intercity bus programs, and state and local policies and governance.

Providers were surveyed for their experiences in compliance with several regulations governing 5311(f) recipients. Such conditions may impede providers’ service by increasing cost of capital purchases,

restrict the number of eligible equipment vendors, or limit the available labor force. These mandates of the IDOT intercity bus program are:

- ADA compliance/wheelchair access
- Compliance with Buy American Act
- Protection of Labor
- Compliance with the Substance Abuse Program

Despite these requirements, none of the providers indicated that these were prohibitive to participating in the intercity bus program. Multiple carriers indicated that all (or a substantial number) of their vehicles were equipped with wheelchair lifts, or it was specified of any subcontractors they employed. One provider reported that they had no wheelchair lift-equipped buses but would require them if funding were available.

No providers indicated any problems with meeting matching fund requirements, though one observed that, as a public carrier, they had to ensure that matching funds came only from operating revenues. Several carriers indicated emphatically that the 50% match for operating assistance is no longer adequate for subsidized rural service, especially when their ability to cover operating losses through tour and charter service has been lost to the COVID crisis.

One carrier reported past conflicts with a now-defunct rival carrier (that had previously dominated the market for one of the provider's new routes), while another identified a specific competitor that was provided state-owned buses by the State of Michigan, allowing them an advantage over Illinois-based companies that do not receive similar support. An online service-aggregation company reported general hostility from other carriers; that had gradually waned as the company and its services had become more recognized. A national carrier reported issues related to operating costs for joint-use station facilities.

Other issues preventing implementation of new service: The most identified hindrance to new service was state and local policies. Illinois' policy on 5311(f) funding was seen universally as unduly cumbersome compared to other states and had discouraged several carriers from applying for it. It was also criticized for failing to deliver on promised CARES Act relief funding to carriers. One carrier complained of inconsistency from IDOT in its implementation and support of intercity service. Costs of implementation and the ability to support service were also cited, along with a general industry-wide shortage of bus drivers. Of course, the ongoing COVID-19 pandemic and its associated restrictions were also cited prominently as hindering new service.

## **5.2.4 Ideas for Intercity Bus Funding**

The carriers interviewed were asked for any ideas they had for service improvement opportunities that should be considered for Section 5311(f) eligibility. Many of the ideas they presented offered potential benefits, not just for individual carriers, but the industry as a whole:

- Creation of a universal bus tracking database, showing location and schedule status, for common use by public transit operators, instead of proprietary systems among individual operators that may not convey timely information.
- Interoperable ticket scanning among carriers.
- Media campaigns to promote bus ridership.
- Promoting the expansion of funding to support small, urban areas which may benefit from intercity connections but are otherwise not considered for existing sources.

## **5.2.5 Major Findings**

Several principal issues were cited by one or more of the interviewed carriers, and have been distilled into the following key points:

- Illinois funding processes are too cumbersome to be of value to many carriers.
- Capital assistance is needed for new vehicles and new route trials.
- Other states offer capital support to bus carriers, including the use of state-owned buses. These buses are used on routes into Illinois, which leaves Illinois-based carriers at a disadvantage.
- Operating assistance for rural service must be increased, as the current level of funding is no longer sustainable.
- Long-term or dedicated guarantees of funding will be needed for additional routes or service to be considered.

The above findings as reflected by the carriers are indicative of systemic issues that the carriers had been struggling with over a long period of time. At the same time, pandemic-induced disruptions also affected service provision. Those issues are presented in the following bullet points.

- Primary concern of intercity carriers at present is to survive the COVID-19 crisis and recover to their pre-pandemic financial and ridership levels.
- Before COVID-19, carriers had the option of using the charter and tour revenues to cover capital replacements and offset operating losses; with those services being sidelined due to the pandemic, that option is no longer available to the carriers.

### **5.3 Survey of Feeder Services**

A list of potential feeders has been identified in the previous stages of this study. This list was developed primarily through searches of public resources, such as Yellow Pages and the internet, for communities along the intercity carrier routes. The identification process and a preliminary summary of the identified feeders are described in Chapter 4 in greater details. The process of the survey of feeder service focused on the identified 48 feeders that are eligible to be included in the supply analysis. The primary objective of this survey was to evaluate the representation of feeder services within Illinois, and the level of connection between MSAs (Metropolitan Statistical Areas) and non-MSA places within and adjacent to Illinois. Two subgoals were set when determining those feeder services selected for interview and inclusion in the study:

1. To determine geographic distribution, with a strategy of selecting at least one feeder service operator in each Illinois county that contains an identified operator. This policy ensured that every affected county was represented in the study and enabled a more thorough distribution of service representation throughout the state.
2. To determine reliability of service or coverage, with a strategy of prioritizing public operators that offer fixed routes or other regular services. Such rural operators offer a more consistent schedule for intercity connections; in addition, they frequently receive additional federal, state, or regional funding to support their operations in provision of reliable local and intercity connections.

The survey of feeder services comprised of phone interviews with customized interview scripts – in sessions that lasted no more than ten minutes. The interview scripts are included in the “Appendix A: Interview Scripts.” After several cycles of attempted contacts over three months, a total of eight feeder services consented to interviews.

#### **5.3.1 Interviews of Feeder Service carriers**

Feeder service is defined as that which makes meaningful connections with scheduled intercity bus service to more distant destinations. It must be open to the general public but is not required to have the same characteristics as intercity bus service; for instance, it may be Demand Response instead of a defined scheduled fixed route, and it does not require the same vehicle size or provisions as intercity bus service. Examples of feeder service costs eligible for 5311(f) coverage include marketing and extended hours of service to make connections with scheduled intercity bus service. Service that only incidentally stops at an intercity bus facility as part of a larger route, without regard for scheduled connections, is eligible for Section 5311 coverage as public transportation but is not considered as intercity feeder service.



As with intercity carriers, the feeder services interviewed have been hit hard by the ongoing COVID-19 crisis, and many of them had reduced all service solely to trips directly related to COVID-19 or other medical purposes. After synthesizing the information gathered from phone interviews, we have compiled an aggregated finding in the following table. As noted above in Table 3, these findings represent eight of the forty-eight feeder services identified for the study.

Table 5: Aggregated findings from the survey of feeder service.

<b>Topic</b>	<b>Findings</b>	<b>Responsibility/opportunity for support</b>
Subscription service vs. Demand-Response	Six of eight carriers identified themselves as offering demand-response service only. The remaining two operated on a combination of subscription-service and demand-response services.	Financial support for service expansion, if desired.
Towns/cities/counties served	Four of the eight providers surveyed indicated that they only served two counties, with three others indicating three counties served. One indicated that it served a total of five counties. Two other providers indicated that they served three additional counties on a one-way “to-but-not-from” basis.	Federal/State support for connecting service to intercity bus stations.
Service to intercity stops and stations	Six of eight carriers interviewed stated that they did provide service to intercity stops and stations. Two indicated that they did not, with no further explanation given.	This circumstance may be outside of “support” from higher governmental agencies.
Type of charge(s) made for service	All eight providers interviewed indicated that they charged for service based on dependent variables, primarily based on trip distance, generally offering a fixed price for local travel within a given community and a differential based on travel outside of the community. Two providers indicated that they maintained a price differential based on age, with discounts offered to minors and the elderly. Four providers additionally indicated that certain service had fares based on dedicated stops and times.	Financial support for service helping elderly/disabled/indigent populations.
Service hours	Five of the eight feeder companies interviewed offered weekday service hours outside of regular business hours, in both early morning and late evening hours. One provider offered service only within regular business hours, another offered service at all hours and all days, and one did not provide information. Three providers offered service on Saturdays.	This is not likely to be open to financial support, as rural areas are not likely to have high demand for service outside of “normal” travel hours, with the exception of job centers/factories that may start/end shifts at any hour.
Average monthly ridership	Ridership information was very limited. Three feeder services claimed to provide	IDOT provides support to 5311-funded agencies for IT-

	<p>thousands of rides per month but did not specify amounts related directly to intercity service apart from aggregate data. One provider specified 60 riders per week (roughly 240 per month), but also did not specify an intercity versus aggregate breakdown. Two additional providers cited three and twelve riders carried, respectively. The final two providers interviewed had no ridership information to offer.</p>	<p>related capital equipment and software that tracks ridership and other potentially useful ridership information.</p>
Quantity of vehicles?	<p>The feeder services interviewed had a wide range of fleet sizes. Two carriers indicated that they had only two vehicles (with one planning to acquire a third), one indicated a fleet of twelve vehicles, while the remaining four carriers that identified fleet sizes reported fleets ranging from 17 to 20 vehicles.</p>	<p>IDOT provides capital support for vehicle purchases to 5311-funded agencies. For those agencies, maintenance costs are an operational expense IDOT also supports.</p>
Demand for additional service, and service that cannot be provided due to financial/labor/capital constraints.	<p>Of the eight feeder providers interviewed, five indicated seeing a demand for additional service, while two indicated no such demand, and one gave no information. Two stated openly that much of their ridership had been curtailed by COVID-19, as they were providing only medically related transport for the duration of the crisis. One feeder stated that it could not provide additional service due to financial, labor, or capital constraints, while two others reported having capital constraints to their service through a lack of ADA-compliant vehicles.</p>	<p>While capital support would likely help to a degree, this is another circumstance that may be outside of conventional forms of governmental assistance.</p>
Passengers declined service per month	<p>Five of the feeders were able to give information on declined passengers. One carrier estimated a range of 15-100 declined passengers before the onset of COVID-19, another estimated thirty declined passengers per month, yet another estimated roughly twenty per month during COVID-19 conditions, and two more cited fewer than ten rejections per month. Once carrier indicated that declined service generally was due to requested trips that exceeded company service territory or were not covered under a specific funding program. Three other carriers had no information, with one of them indicating that they were accepting only medical-related trips under COVID-19 conditions.</p>	<p>Not enough information was available to discern areas of potential support. More information would be needed on the nature of the declined service.</p>

Source(s) of funding	Six of the feeder services indicated that they were publicly funded through various agencies. Three of the interviewees reported receiving support through Section 5311(f) funds. The other two were private taxi companies, so it is likely that they did not receive public funding. However, this was not verified by the company.	Increased ease of access to Section 5311(f) funds through state agencies, including simplification of the application process.
General feedback regarding connections or coordination with Intercity stops/stations	One carrier observed that some passengers were clearly expecting a one-seat or one-trip ride from their intercity carrier and had not expected to transfer to a connecting feeder. Another mentioned that some passengers would proactively tell the carrier that they needed to make a connection with a bus or train at a specific time, and on some occasions the bus would arrive ahead of schedule. Whether this resulted in a failed connection was not made clear.	Some of this may be outside the realm of this report.

**5.4 Effect of the Ongoing COVID-19 Crisis**

The data collection process was hindered substantially by the effects of the ongoing COVID-19 crisis. Many regional bus carriers experienced a substantial decrease in ridership, through both a general decline in intercity travel due to state and local restrictions, and a reduction in trip capacity due to imposed social distancing requirements. As these restrictions were extended from weeks into months, nearly all of the state’s intercity bus carriers were forced to reduce service, then suspend service indefinitely, with an unknown number of carriers ceasing operations altogether. These same restrictions affected the ability to collect data for analysis. Interviews with carriers had to be carried out remotely via telephone interviews instead of in person, and the carriers’ service and ridership were already being impacted by the travel and distancing restrictions at the time of the data collection process. Subsequent attempts to contact these carriers for additional data resulted in minimal responses and no additional data. This lack of complete data, and the lack of normal service conditions, ultimately made it impossible to pursue a traditional approach to supply analysis.

## **6 Part I: Traditional approach**

### **6.1 Demand Analysis**

The demand for intercity bus travel in rural Illinois can be attributed to the population size and the characteristics of the city. Traveling through intercity bus can be mainly divided into two categories. First, the demand for travel from one relatively large city to another. This “large city” can be defined by the Metropolitan Statistical Area. According to the U.S. Census Bureau, a Metropolitan Statistical Area (MSA) is a “core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core.” In the United States, Metropolitan Statistical Areas are usually delineated by the U.S. Office of Management and Budget. The current delineated Metropolitan Statistical Areas are based on the application of 2010 standards that say that a Metropolitan Statistical Area must have at least one urbanized area with a population of 50,000 or more (U.S. Census Bureau, 2021). Therefore, for the intercity bus demand analysis, it is important to investigate the demand for travel between Metropolitan Statistical Areas. Such a Metropolitan Statistical Area can be both within and outside of the state border. Secondly, the demand for intercity buses comes from relatively small cities to the nearest large city. Such small cities are outside of Metropolitan Statistical Areas and have populations between 2,500 and 50,000. It is important to look for demand on routes outside of Metropolitan Statistical Areas because when determining 5311(f) eligibility, *a service must connect a Metropolitan Statistical Area to an area outside of a Metropolitan Statistical Area.*

Therefore, while looking into the demand for intercity bus travel in rural Illinois, we categorically investigate MSA-to-MSA travel demand and non-MSA to MSA travel demand. Based on numerous criteria and calculation assumptions, we divide the entire demand analysis into several categories. At first, we discuss the methodology adopted for this demand analysis and data used, and then we move into the numerous categories that are considered in this study. While discussing each of these categories, at first, we introduce the category and outline the assumption taken. Then, we present our result in both tabular and diagrammatic format.

#### **6.1.1 Methodology**

The devised methodology in this study is based on one of the previous iterations of the intercity bus study (Pagano et al., 2001). In this study, we use the population and the distance between city pairs to estimate the demand potential. Ideally, if the generated trips from each of the corresponding cities were known, we could have calculated the trip distribution among the city pairs. However, in the absence of that,

we resort to estimate the demand potential between city pairs and use these potentials as indicators to rank the city pairs relatively from having the highest demand potential to the lowest.

Our adopted methodology involved the gravity approach; a general formulation of the gravity model can be written as:

$$T_{ij} = \frac{GA_iA_j}{d_{ij}^2} \quad (1)$$

Where,

- $T_{ij}$  Number of trips between zone  $i$  to zone  $j$
- $A_i$  A measure of the attractiveness of zone  $i$
- $A_j$  A measure of the attractiveness of zone  $j$
- $d_{ij}$  Distance between zone  $i$  and zone  $j$
- $G$  A proportionality constant

If we want to rank numerous city pairs based on the gravity model, we can leverage Eq. 1. We can use the gravity model equation to estimate the interactivity potential and use this interactivity potential as an indicator for demand potential. The equation can be as follows:

$$S_{ij} = \frac{T_{ij}}{G} = \frac{A_iA_j}{d_{ij}^2} \quad (2)$$

Where,

- $S_{ij}$  Interactivity potential between zone  $i$  to zone  $j$

The interactivity potential is a function of the measure of the attractiveness of two corresponding city pairs. Now, if we assume the population as this measure of attractiveness, then Eq. (2) can be modified as:

$$S_{ij} = \frac{P_iP_j}{d_{ij}^2} \quad (3)$$

Where,

- $P_i$  Population of zone  $i$
- $P_j$  Population of zone  $j$

The interactivity potential estimated with Eq. (3) is considered as an indicator of demand potential for the corresponding city pair.

The underlying assumption of such a gravity-based approach to estimate the demand potential between a two-city pair is that the intensity of demand between a two-city pair would be proportional to the population masses and inversely proportional to the squared distance between the two places. In the absence of traditional demand forecasting based on actual trips generated, we resort to such a gravity-based method to estimate the demand potential that serves as the pseudo travel demand of two places.

### 6.1.2 Categorization of Places in Illinois

We divide the State of Illinois into two groups – MSA and non-MSA places. As described earlier, MSAs can be of multiple categories based on their geographic location: internal, partial, and external MSA. For this analysis, we select 26 MSAs. Among them, nine are internal, four are partial and the rest of the 13 are external. The criteria for selecting the external MSAs are – MSAs that are fully outside of Illinois but within 50 miles of the state border. These categorizations are shown in the upper level of Figure 6. While dealing with an MSA we focus on the city with the highest population – the “principal city.” The consideration of the principal city instead of the entire MSA is attributed to the notion that inter-MSA travel is produced from and attracted towards the largest city within an MSA. For each of the internal and external MSAs, there is a principal city. These internal and external MSAs, along with their principal cities, are listed in Table 6 and illustrated in Figure 7.

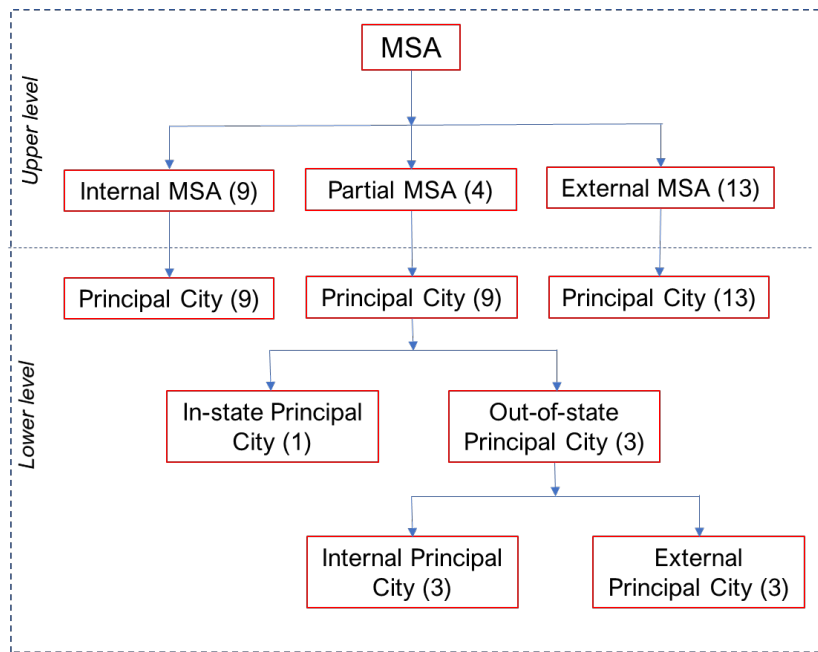
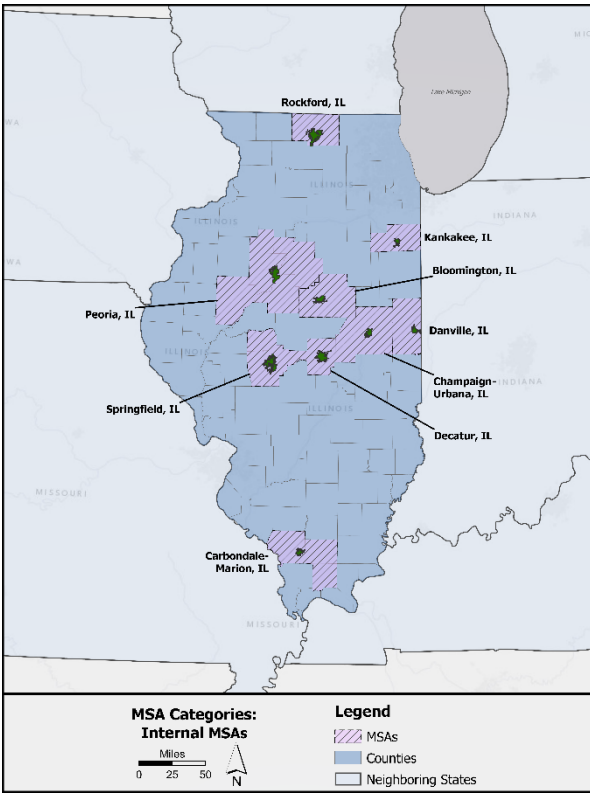


Figure 6: MSA categorization.

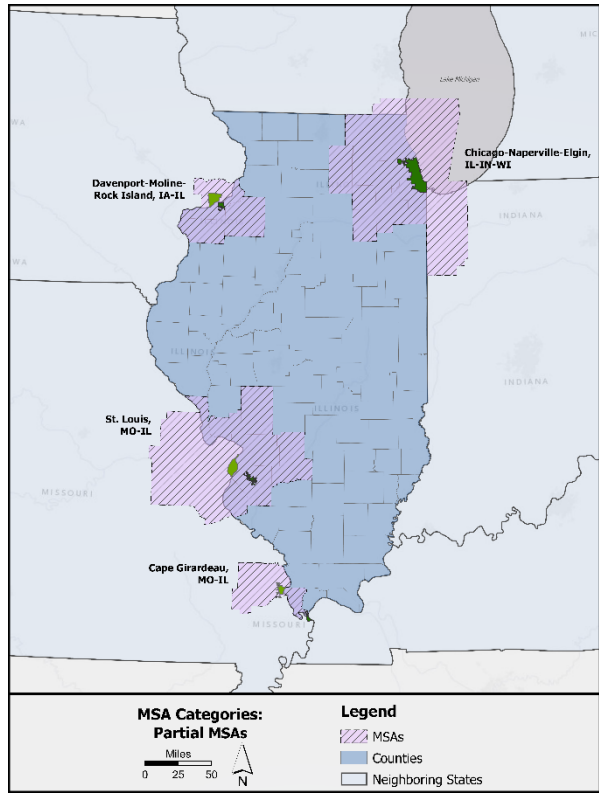
As for the partial MSAs, principal cities for some MSAs can be outside the State of Illinois. Therefore, we list two principal cities for the partial MSAs. One is the internal principal city – the most populous city among in-state cities within an MSA. Another one is the external principal city – the most populous city among the out-of-state cities within an MSA.

Table 6: MSAs with their principal cities.

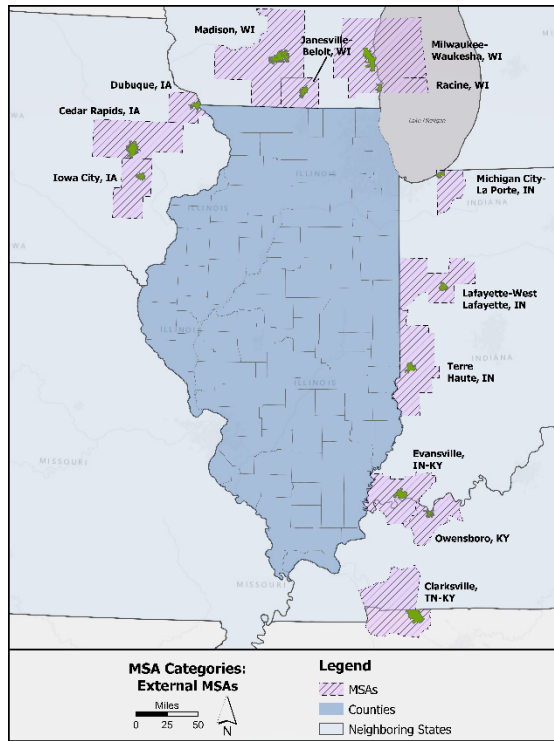
<b>MSA type</b>	<b>MSA name</b>	<b>Actual Principal city</b>	<b>Internal Principal city</b>	<b>External Principal city</b>
Internal	Decatur, IL	Decatur, IL	-	-
	Danville, IL	Danville, IL	-	-
	Springfield, IL	Springfield, IL	-	-
	Rockford, IL	Rockford, IL	-	-
	Peoria, IL	Peoria, IL	-	-
	Kankakee, IL	Kankakee, IL	-	-
	Bloomington, IL	Bloomington, IL	-	-
	Champaign-Urbana, IL	Champaign, IL	-	-
	Carbondale-Marion, IL	Carbondale, IL	-	-
External	Cedar Rapids, IA	Cedar Rapids, IA	-	-
	Clarksville, TN-KY	Clarksville, TN	-	-
	Dubuque, IA	Dubuque, IA	-	-
	Evansville, IN-KY	Evansville, IN	-	-
	Iowa City, IA	Iowa City, IA	-	-
	Janesville-Beloit, WI	Janesville, WI	-	-
	Lafayette-West Lafayette, IN	Lafayette, IN	-	-
	Madison, WI	Madison, WI	-	-
	Michigan City-La Porte, IN	Michigan City, IN	-	-
	Milwaukee-Waukesha, WI	Milwaukee, WI	-	-
	Owensboro, KY	Owensboro, KY	-	-
	Racine, WI	Racine, WI	-	-
	Terre Haute, IN	Terre Haute, IN	-	-
Partial	Chicago-Naperville-Elgin, IL-IN-WI	Chicago, IL	-	-
	Davenport-Moline-Rock Island, IA-IL	Davenport, IA	Moline, IL	Davenport, IA
	Cape Girardeau, MO-IL	Cape Girardeau, MO	Cairo, IL	Cape Girardeau, MO
	St. Louis, MO-IL	St. Louis, MO	Belleville, IL	St. Louis, MO



(a)



(b)



(c)

Figure 7: (a) Internal MSAs, (b) Partial MSAs, and (c) External MSAs.



With the estimated demand potential indicators for all the associated city pairs, we rank them in descending order. While making such a ranking, we divide the city pairs into three categories. The categories are: 1) internal MSA to internal MSA; 2) internal MSA to external MSA; and 3) non-MSA places to nearest MSA.

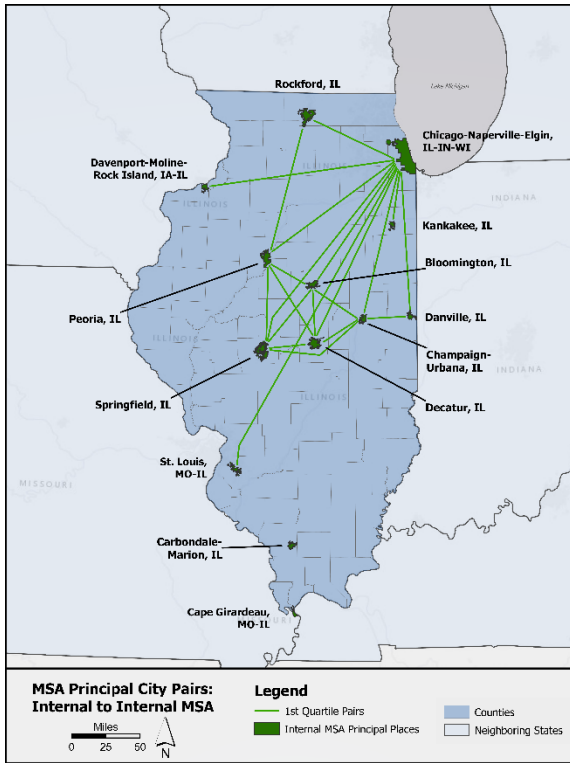
In the subsequent three sections, we describe each of these categories in detail along with their estimated demand potential.

### **6.1.3 Internal MSA to Internal MSA Analysis**

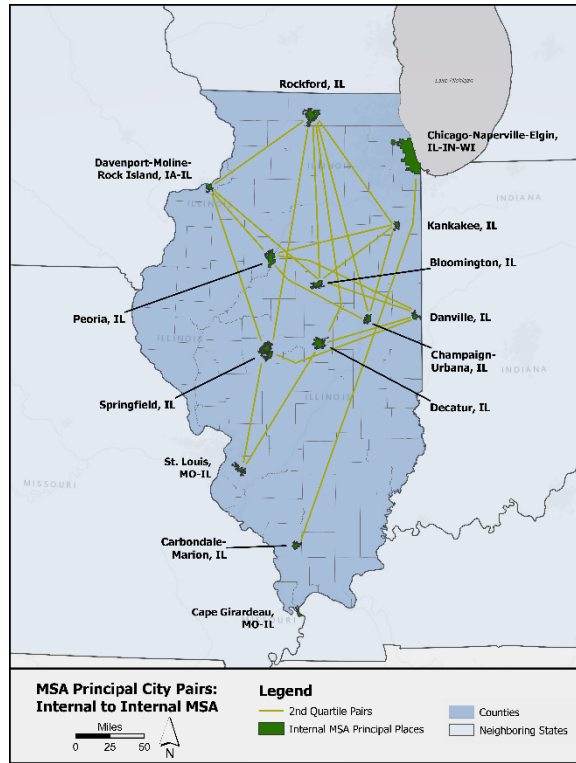
In the first category, we consider the demand from internal MSA to internal MSA. For an MSA to be in the “internal” category, we consider that any MSA that is either entirely or partially within Illinois’ borders. In this category, we have included a total of 13 MSAs. Among these 13 MSAs, nine are entirely within Illinois, and the other four are partially within Illinois. To calculate the interactivity potential between any two pairs of these MSAs, we consider the demographics of the principal city within an MSA instead of the entire MSA. (For the internal MSAs, we consider the actual principal cities; for partial MSAs, we consider the internal principal cities as listed in Table 6.) Since the objective of this category is to gauge the demand potential for internal MSAs, we only consider the cities within Illinois. Therefore, for partial MSAs, we consider the cities that are within Illinois, regardless of the possibility that a partial MSA’s largest city may be outside the Illinois.

According to this consideration, for the three partial MSAs with principal cities outside of Illinois, i.e., Davenport-Moline-Rock Island, IA-IL; Cape Girardeau, MO-IL; and St. Louis, MO-IL, we consider the internal principal cities - Moline, IL; Cairo, IL; and Belleville, IL, respectively. For these three partial MSAs, we do take their actual principal cities into account in the second category (internal to external MSA demand analysis, as described in the following section). This consideration does not affect another partial MSA - Chicago-Naperville-Elgin, IL-IN-WI, since the largest city (in terms of population) within this MSA is Chicago, which is already within Illinois.

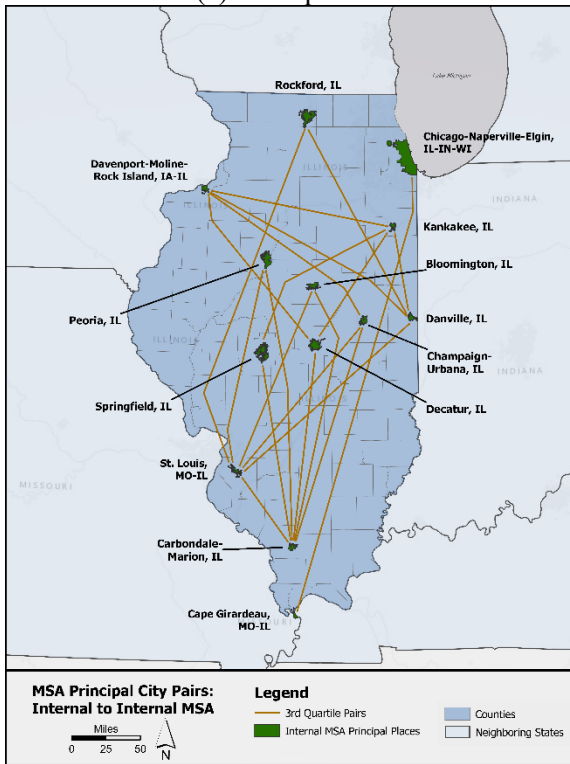
For demand analysis, we consider the 78 city pairs that can be generated by combining these 13 MSAs. Then, for each of these city pairs, we calculate the interaction potential using Eq. 3 as described earlier. With this interactivity potential, we rank all 78 city pairs in descending order of interactivity potential. Based on these ranks, the city pairs are grouped into four quartiles, where the first quartile indicates the pairs of cities with the highest demand potential and the fourth indicates the lowest. In Figure 8, each of the four quartiles is presented in separate maps. In Table 7, we present the ranking of all 78 city pairs considered for this internal-to-internal MSA analysis along with the assigned quartile. Here, the principal city from each MSA is considered.



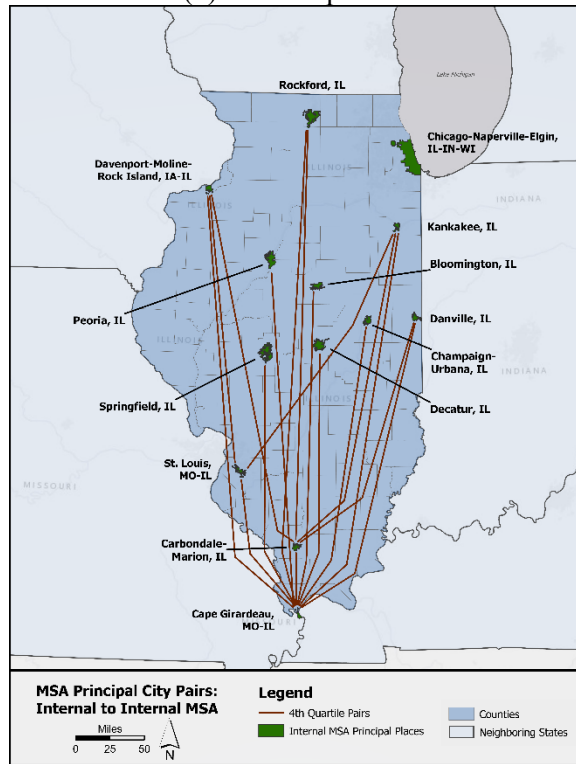
(a) First quartile



(b) Second quartile



(c) Third quartile



(d) Fourth quartile

Figure 8: Four quartiles of internal MSA to internal MSA travel demand.

Table 7: Ranking of the internal MSA principal city pairs.

<b>Rank (global)</b>	<b>O-D pairs in the first quartile</b>	<b>Rank (global)</b>	<b>O-D pairs in the second quartile</b>	<b>Rank (global)</b>	<b>O-D pairs in the third quartile</b>	<b>Rank (global)</b>	<b>O-D pairs in the fourth quartile</b>
1	Chicago-Rockford	21	Peoria-Rockford	41	Decatur-Belleville	61	Danville-Moline
2	Chicago-Kankakee	22	Champaign-Peoria	42	Carbondale-Belleville	62	Moline-Belleville
3	Chicago-Peoria	23	Moline-Peoria	43	Peoria-Belleville	63	Carbondale-Rockford
4	Bloomington-Chicago	24	Carbondale-Chicago	44	Danville-Kankakee	64	Cairo-Carbondale
5	Champaign-Chicago	25	Bloomington-Rockford	45	Decatur-Kankakee	65	Kankakee-Belleville
6	Chicago-Springfield	26	Moline-Rockford	46	Champaign-Belleville	66	Carbondale-Danville
7	Chicago-Decatur	27	Belleville-Springfield	47	Danville-Rockford	67	Carbondale-Moline
8	Chicago-Danville	28	Champaign-Rockford	48	Champaign-Moline	68	Carbondale-Kankakee
9	Bloomington-Peoria	29	Rockford-Springfield	49	Kankakee-Springfield	69	Cairo-Belleville
10	Chicago-Moline	30	Champaign-Kankakee	50	Moline-Decatur	70	Cairo-Springfield
11	Decatur-Springfield	31	Bloomington-Danville	51	Bloomington-Belleville	71	Cairo-Decatur
12	Champaign-Decatur	32	Danville-Decatur	52	Carbondale-Springfield	72	Cairo-Champaign
13	Bloomington-Champaign	33	Decatur-Rockford	53	Rockford-Belleville	73	Cairo-Peoria
14	Bloomington-Decatur	34	Bloomington-Kankakee	54	Carbondale-Decatur	74	Bloomington-Cairo
15	Peoria-Springfield	35	Kankakee-Rockford	55	Carbondale-Champaign	75	Cairo-Rockford
16	Champaign-Danville	36	Kankakee-Peoria	56	Carbondale-Peoria	76	Cairo-Danville
17	Bloomington-Springfield	37	Moline-Springfield	57	Cairo-Chicago	77	Cairo-Moline
18	Chicago-Belleville	38	Bloomington-Moline	58	Moline-Kankakee	78	Cairo-Kankakee
19	Decatur-Peoria	39	Danville-Peoria	59	Bloomington-Carbondale		
20	Champaign-Springfield	40	Danville-Springfield	60	Danville-Belleville		

#### 6.1.4 Internal MSA to External MSA Analysis

In this second category of demand analysis, we gauge the demand potential for the internal MSAs to external MSAs. For this, we consider the centroids of the principal cities within each MSA as the reference point, similar to the previous approach. Internal MSAs are the eight MSAs within the State of Illinois. The external MSAs fall outside of Illinois but within 50 miles of the border. In the case of an external MSA, if the centroid of the principal city of that MSA is within the 50 miles, we include them in the external MSA category. We have found 13 such external MSAs to include in this analysis (listed in Table 6).

In addition to these internal and external MSAs, there exist four partial MSAs. Among these four, three have their actual principal city located outside the state border. Therefore, they have two principal cities – internal principal city and external principal city. We develop three separate assumptions to examine these three partial MSAs accommodating their internal and external principal cities. Based on each of these assumptions, we have three different sets of demand analysis for internal to external MSAs. These three assumptions are:

- Assumption 1: considering partial MSAs as both internal and external categories
- Assumption 2: considering partial MSAs as internal only
- Assumption 3: considering partial MSAs as external only

It should be noted here that, we do not include the partial MSA of Chicago-Naperville-Elgin, IL-IN-WI. The principal city of this MSA is Chicago which is the primary destination in the Midwest. Therefore, the calculation of the interaction potential between Chicago and any other external MSAs would simply examine the potential demand for travel to Chicago from these places. In other words, this demand potential would be highly biased towards the trips that are generated outside of the state. Since the objective of this study lies on only Illinois cities and not out-of-state cities, the interaction potentials of Chicago with other external MSAs are not calculated.<sup>2</sup>

##### 6.1.4.1 Partial MSAs as both internal and external

Three partial MSAs: Davenport-Moline-Rock Island, IA-IL; Cape Girardeau, MO-IL; and St. Louis, MO-IL, are considered as both internal and external categories. When considering them as internal, we take the centroid of the internal principal city as the reference point. On the other hand, the centroid of the external principal city is considered as the reference point when a partial MSA is considered as external. Both of these internal and external principal cities are listed in Table 6.

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<sup>2</sup> See 2001 Illinois ICB study for more on this.

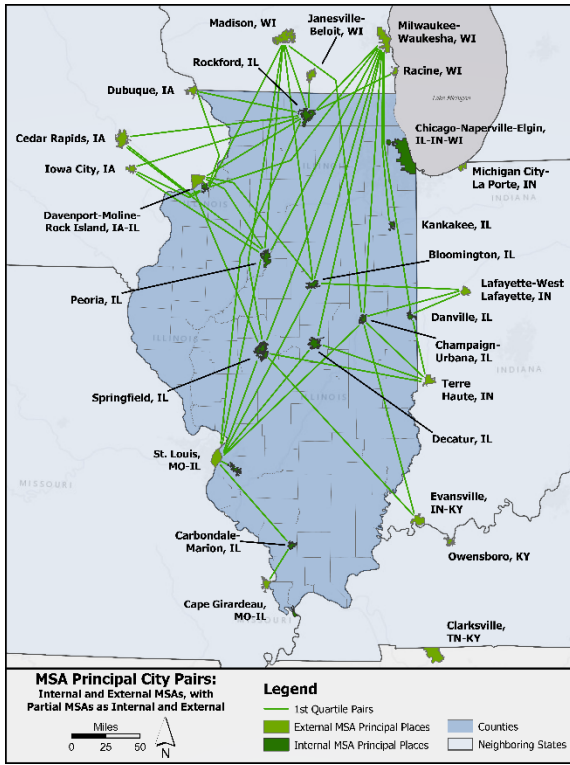
In the internal category, we have included nine internal MSAs along with three partial MSAs. For the external category, a total of 16 MSAs are considered, where 13 are completely outside of Illinois (within the 50-mile radius threshold) and the rest of the three are partially outside. Considering 12 internal MSAs and 16 external MSAs identified for this category of demand analysis, we have a total of 192 city pairs. Similar to the previous category, we calculate the interaction potential for each of these city pairs which in turn is used to rank the demand potential of these 192 city pairs. Figure 9 shows the maps containing four quartiles. The list of these city pairs is also presented in Table 8 along with their rank and quartile.

#### 6.1.4.2 Considering partial MSAs as internal only

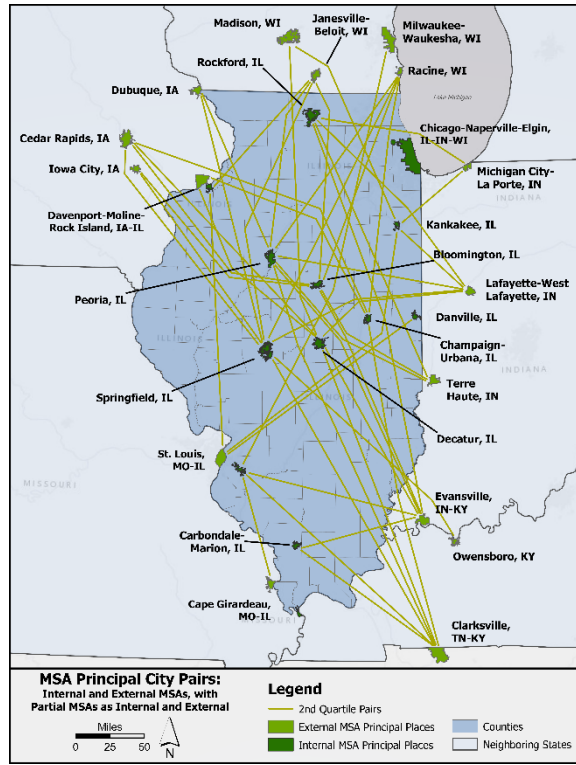
In this approach, we consider the partial MSAs as internal MSAs. In this consideration, for each MSA, we only consider the cities that are within the Illinois state border. Therefore, in this analysis, we have a total of 12 internal MSAs (as listed in the first column of Table 3) to be considered. On the other side, for the external MSAs, we only consider the MSAs that are completely outside of the Illinois border. This gives us 13 external MSAs. Therefore, we perform this analysis with 12 internal MSAs and 13 external MSAs. As mentioned earlier, we take the centroid and demographics of the principal cities as the references. This gives us a total of 156 city pairs. Following the same procedure as mentioned earlier, we calculate the demand potential – which in turns is used to rank these city pairs. Based on the ranking, we divide the city pairs into four quartiles. The city pairs, along with their corresponding ranking and quartiles, are listed in Table 9. We also present these city pairs in Figure 10.

#### 6.1.4.3 Considering partial MSAs as external only

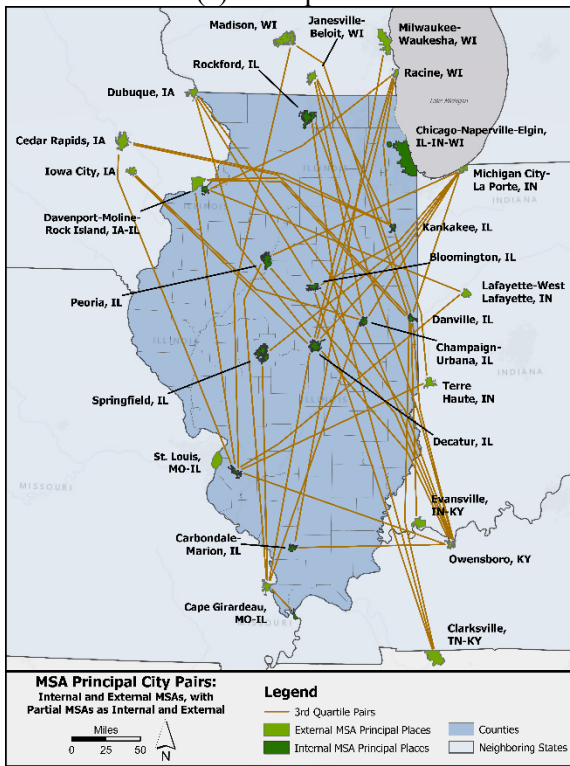
In this case, we consider the partial MSAs as external MSAs. Since the principal places of these three partial MSAs lie outside the Illinois border, considering them as external MSAs, their actual principal places are considered in this analysis. Therefore, we have only 10 internal MSAs to be considered here along with 16 external MSAs. This gives us in total 160 city pairs. Using the demographics of corresponding principal places, we calculate the demand potential and rank them in descending order. This gives us four quartiles. We present these city pairs along with their rank and quartiles in Table 10. These city pairs are also illustrated in Figure 11 with an appropriate indicator for quartiles.



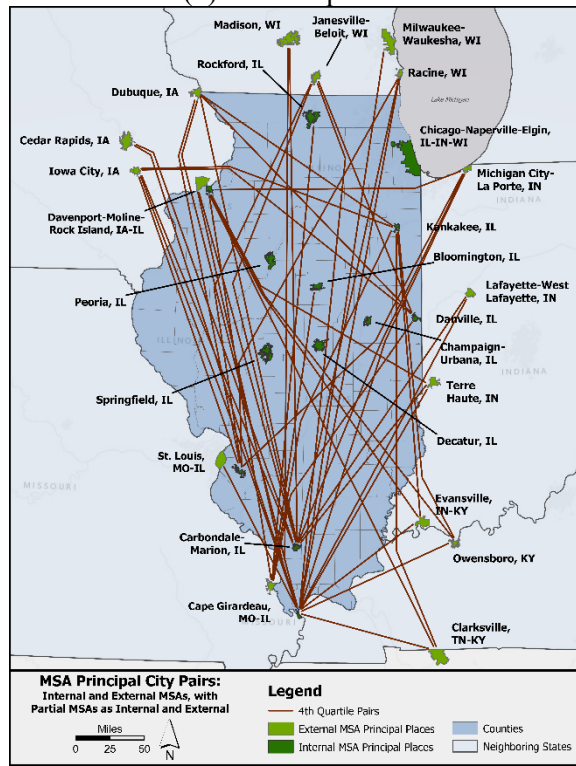
(a) First quartile



(b) Second quartile

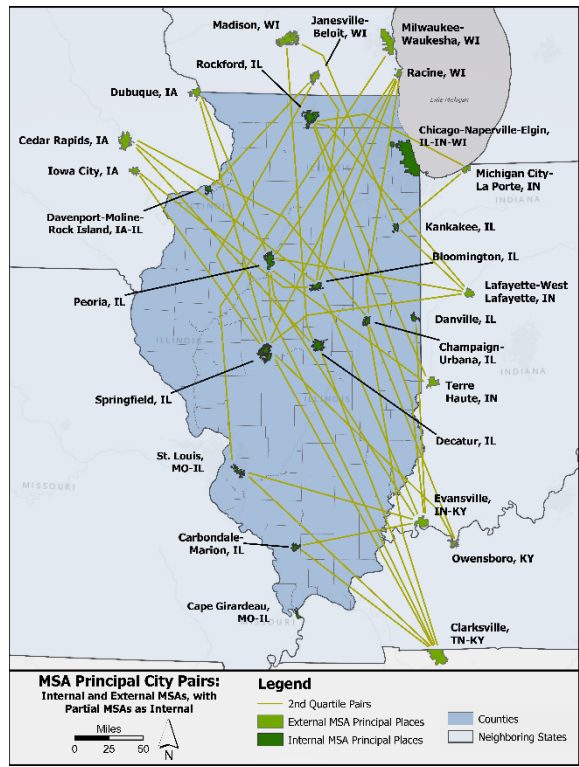
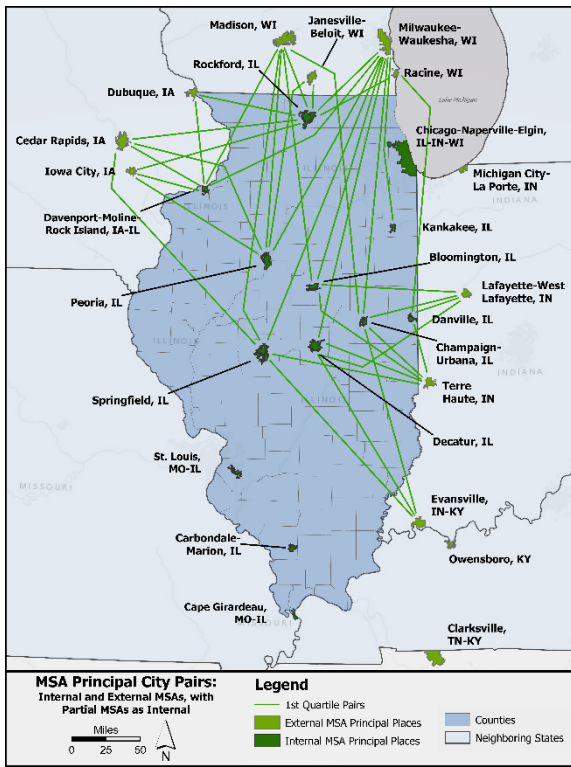


(c) Third quartile



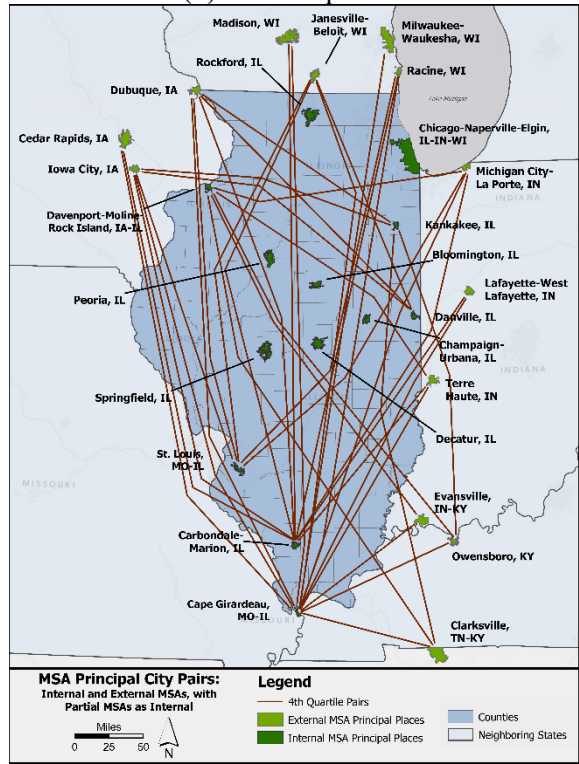
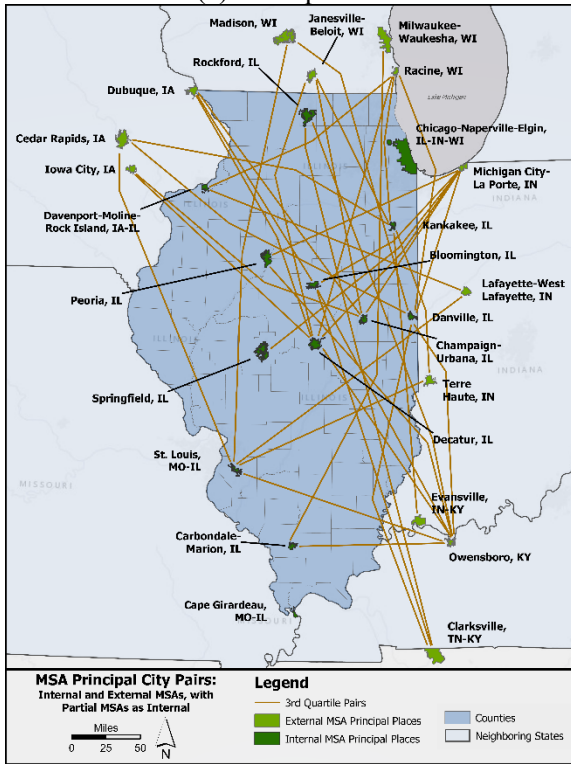
(d) Fourth quartile

Figure 9: Quartiles for internal to external MSAs considering partial MSAs as both internal and external.



(a) First quartile

(b) Second quartile

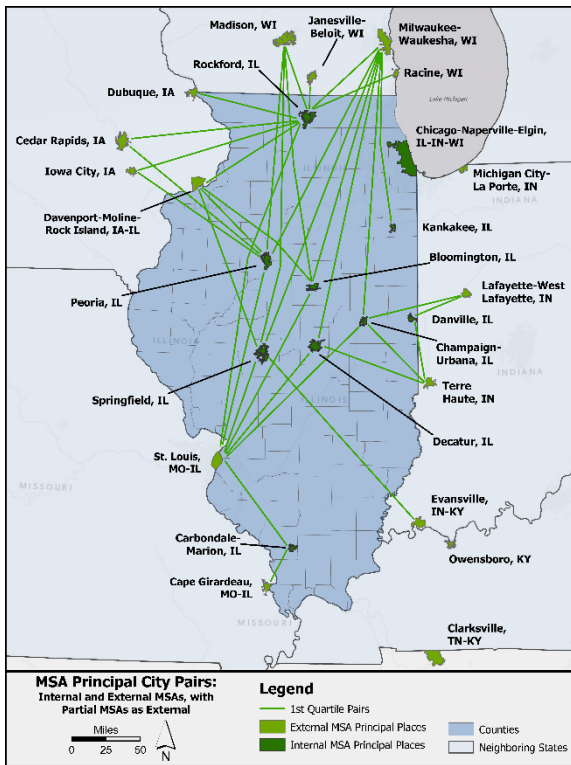


(c) Third quartile

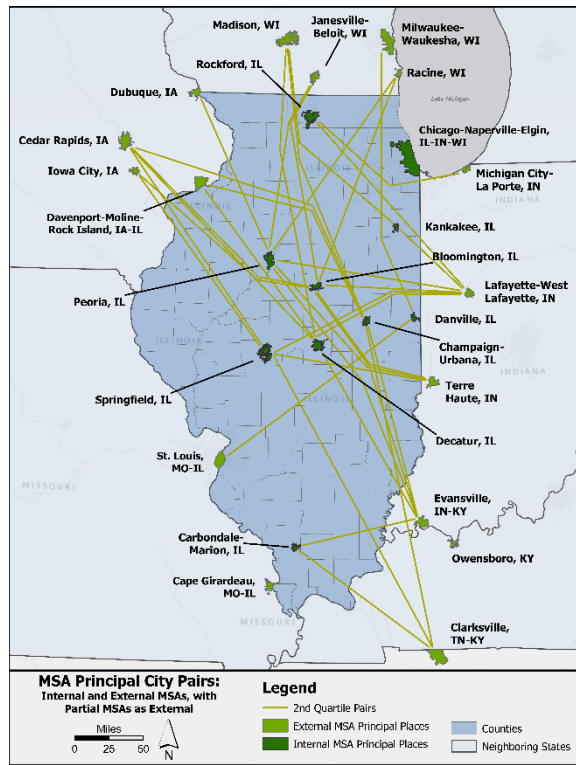
(d) Fourth quartile

Figure 10: Quartiles for internal to external MSAs considering partial MSAs as internal.

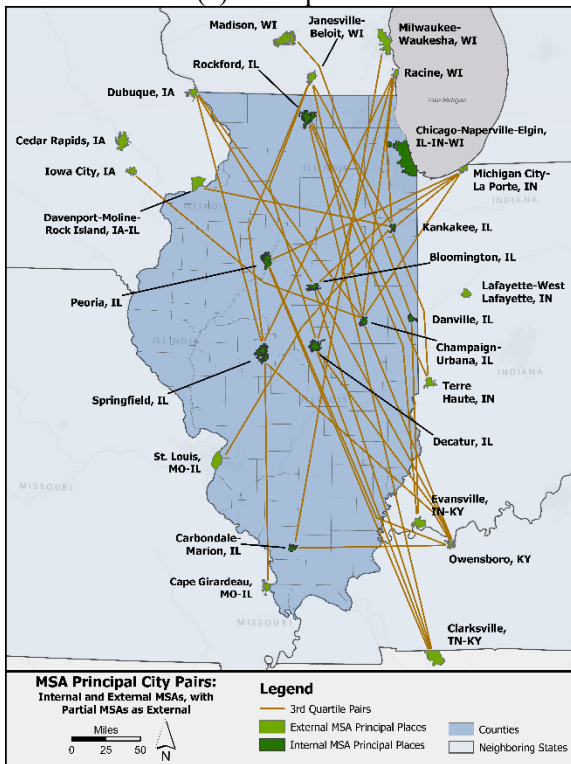




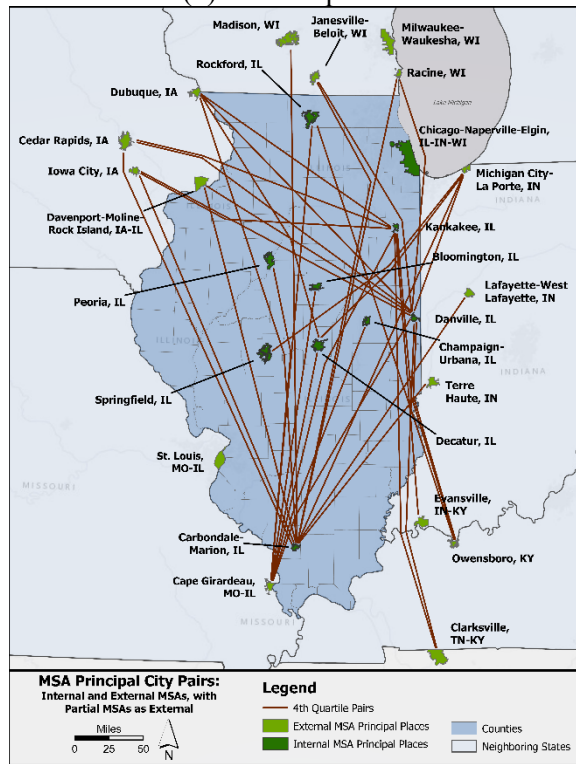
(a) First quartile



(b) Second quartile



(c) Third quartile



(d) Fourth quartile

Figure 11: Quartiles for internal to external MSAs considering partial MSAs as external.



Table 8: Ranking of internal to external city pairs under assumption 1.

Rank (global)	O-D pair in the first quartile	Rank (global)	O-D pair in the second quartile	Rank (global)	O-D pair in the third quartile	Rank (global)	O-D pair in the fourth quartile
1	Moline, IL-Davenport, IA	49	Springfield, IL-Cedar Rapids, IA	97	Danville, IL-Evansville, IN	145	Kankakee, IL-Evansville, IN
2	Belleville, IL-St. Louis, MO	50	Bloomington, IL-Terre Haute, IN	98	Champaign, IL-Owensboro, KY	146	Carbondale, IL-Terre Haute, IN
3	Rockford, IL-Milwaukee, WI	51	Decatur, IL-Lafayette, IN	99	Champaign, IL-Janesville, WI	147	Bloomington, IL-Cape Girardeau, MO
4	Rockford, IL-Janesville, WI	52	Peoria, IL-Janesville, WI	100	Bloomington, IL-Dubuque, IA	148	Moline, IL-Evansville, IN
5	Rockford, IL-Madison, WI	53	Decatur, IL-Evansville, IN	101	Springfield, IL-Cape Girardeau, MO	149	Belleville, IL-Iowa City, IA
6	Springfield, IL-St. Louis, MO	54	Peoria, IL-Lafayette, IN	102	Champaign, IL-Iowa City, IA	150	Danville, IL-Janesville, WI
7	Rockford, IL-Racine, WI	55	Peoria, IL-Dubuque, IA	103	Decatur, IL-Iowa City, IA	151	Moline, IL-Terre Haute, IN
8	Peoria, IL-Milwaukee, WI	56	Kankakee, IL-Lafayette, IN	104	Kankakee, IL-Racine, WI	152	Kankakee, IL-Iowa City, IA
9	Peoria, IL-Davenport, IA	57	Decatur, IL-Madison, WI	105	Danville, IL-Madison, WI	153	Rockford, IL-Cape Girardeau, MO
10	Decatur, IL-St. Louis, MO	58	Rockford, IL-Lafayette, IN	106	Champaign, IL-Michigan City, IN	154	Cairo, IL-St. Louis, MO
11	Rockford, IL-Davenport, IA	59	Champaign, IL-Davenport, IA	107	Bloomington, IL-Clarksville, TN	155	Kankakee, IL-Dubuque, IA
12	Peoria, IL-St. Louis, MO	60	Carbondale, IL-Evansville, IN	108	Peoria, IL-Michigan City, IN	156	Carbondale, IL-Madison, WI
13	Bloomington, IL-Milwaukee, WI	61	Decatur, IL-Davenport, IA	109	Rockford, IL-Clarksville, TN	157	Moline, IL-Clarksville, TN
14	Champaign, IL-St. Louis, MO	62	Springfield, IL-Lafayette, IN	110	Decatur, IL-Owensboro, KY	158	Danville, IL-Iowa City, IA
15	Champaign, IL-Milwaukee, WI	63	Moline, IL-St. Louis, MO	111	Decatur, IL-Racine, WI	159	Kankakee, IL-Clarksville, TN
16	Champaign, IL-Terre Haute, IN	64	Bloomington, IL-Cedar Rapids, IA	112	Bloomington, IL-Michigan City, IN	160	Moline, IL-Michigan City, IN
17	Danville, IL-Lafayette, IN	65	Rockford, IL-Michigan City, IN	113	Moline, IL-Racine, WI	161	Carbondale, IL-Lafayette, IN
18	Rockford, IL-Dubuque, IA	66	Peoria, IL-Racine, WI	114	Kankakee, IL-Davenport, IA	162	Cairo, IL-Clarksville, TN
19	Bloomington, IL-St. Louis, MO	67	Springfield, IL-Iowa City, IA	115	Decatur, IL-Janesville, WI	163	Danville, IL-Dubuque, IA
20	Moline, IL-Cedar Rapids, IA	68	Danville, IL-St. Louis, MO	116	Champaign, IL-Dubuque, IA	164	Carbondale, IL-Davenport, IA
21	Carbondale, IL-St. Louis, MO	69	Peoria, IL-Terre Haute, IN	117	Kankakee, IL-Terre Haute, IN	165	Belleville, IL-Racine, WI
22	Springfield, IL-Milwaukee, WI	70	Springfield, IL-Clarksville, TN	118	Carbondale, IL-Owensboro, KY	166	Carbondale, IL-Cedar Rapids, IA
23	Peoria, IL-Madison, WI	71	Peoria, IL-Evansville, IN	119	Cairo, IL-Cape Girardeau, MO	167	Belleville, IL-Dubuque, IA
24	Champaign, IL-Lafayette, IN	72	Bloomington, IL-Evansville, IN	120	Peoria, IL-Owensboro, KY	168	Belleville, IL-Janesville, WI
25	Rockford, IL-Cedar Rapids, IA	73	Belleville, IL-Evansville, IN	121	Carbondale, IL-Milwaukee, WI	169	Kankakee, IL-Owensboro, KY
26	Moline, IL-Iowa City, IA	74	Kankakee, IL-Madison, WI	122	Kankakee, IL-Janesville, WI	170	Moline, IL-Owensboro, KY
27	Carbondale, IL-Cape Girardeau, MO	75	Carbondale, IL-Clarksville, TN	123	Belleville, IL-Terre Haute, IN	171	Danville, IL-Cape Girardeau, MO
28	Moline, IL-Milwaukee, WI	76	Bloomington, IL-Iowa City, IA	124	Belleville, IL-Madison, WI	172	Cairo, IL-Evansville, IN
29	Decatur, IL-Milwaukee, WI	77	Champaign, IL-Cedar Rapids, IA	125	Bloomington, IL-Owensboro, KY	173	Carbondale, IL-Iowa City, IA
30	Kankakee, IL-Milwaukee, WI	78	Decatur, IL-Cedar Rapids, IA	126	Decatur, IL-Dubuque, IA	174	Moline, IL-Cape Girardeau, MO
31	Danville, IL-Terre Haute, IN	79	Belleville, IL-Milwaukee, WI	127	Belleville, IL-Davenport, IA	175	Belleville, IL-Michigan City, IN
32	Peoria, IL-Cedar Rapids, IA	80	Belleville, IL-Cape Girardeau, MO	128	Danville, IL-Davenport, IA	176	Carbondale, IL-Racine, WI
33	Moline, IL-Madison, WI	81	Champaign, IL-Clarksville, TN	129	Belleville, IL-Owensboro, KY	177	Carbondale, IL-Janesville, WI
34	Rockford, IL-St. Louis, MO	82	Bloomington, IL-Racine, WI	130	Decatur, IL-Cape Girardeau, MO	178	Kankakee, IL-Cape Girardeau, MO
35	Springfield, IL-Davenport, IA	83	Bloomington, IL-Janesville, WI	131	Springfield, IL-Michigan City, IN	179	Carbondale, IL-Dubuque, IA
36	Bloomington, IL-Davenport, IA	84	Moline, IL-Janesville, WI	132	Belleville, IL-Cedar Rapids, IA	180	Cairo, IL-Owensboro, KY
37	Rockford, IL-Iowa City, IA	85	Champaign, IL-Racine, WI	133	Danville, IL-Clarksville, TN	181	Carbondale, IL-Michigan City, IN
38	Peoria, IL-Iowa City, IA	86	Rockford, IL-Terre Haute, IN	134	Rockford, IL-Owensboro, KY	182	Cairo, IL-Milwaukee, WI
39	Bloomington, IL-Madison, WI	87	Decatur, IL-Clarksville, TN	135	Decatur, IL-Michigan City, IN	183	Cairo, IL-Terre Haute, IN
40	Decatur, IL-Terre Haute, IN	88	Rockford, IL-Evansville, IN	136	Champaign, IL-Cape Girardeau, MO	184	Cairo, IL-Madison, WI
41	Springfield, IL-Madison, WI	89	Peoria, IL-Clarksville, TN	137	Kankakee, IL-Cedar Rapids, IA	185	Cairo, IL-Lafayette, IN
42	Springfield, IL-Evansville, IN	90	Kankakee, IL-Michigan City, IN	138	Peoria, IL-Cape Girardeau, MO	186	Cairo, IL-Davenport, IA
43	Moline, IL-Dubuque, IA	91	Springfield, IL-Owensboro, KY	139	Danville, IL-Racine, WI	187	Cairo, IL-Cedar Rapids, IA
44	Champaign, IL-Madison, WI	92	Kankakee, IL-St. Louis, MO	140	Danville, IL-Michigan City, IN	188	Cairo, IL-Iowa City, IA
45	Bloomington, IL-Lafayette, IN	93	Springfield, IL-Janesville, WI	141	Moline, IL-Lafayette, IN	189	Cairo, IL-Racine, WI
46	Danville, IL-Milwaukee, WI	94	Springfield, IL-Dubuque, IA	142	Danville, IL-Cedar Rapids, IA	190	Cairo, IL-Janesville, WI
47	Springfield, IL-Terre Haute, IN	95	Springfield, IL-Racine, WI	143	Belleville, IL-Lafayette, IN	191	Cairo, IL-Dubuque, IA
48	Champaign, IL-Evansville, IN	96	Belleville, IL-Clarksville, TN	144	Danville, IL-Owensboro, KY	192	Cairo, IL-Michigan City, IN

Table 9: Ranking of internal to external city pairs under assumption 2.

Rank (global)	O-D pair in the first quartile	Rank (global)	O-D pair in the second quartile	Rank (global)	O-D pair in the third quartile	Rank (global)	O-D pair in the fourth quartile
1	Rockford-Milwaukee, WI	40	Peoria-Lafayette, IN	79	Champaign-Janesville, WI	118	Carbondale-Terre Haute, IN
2	Rockford-Janesville, WI	41	Peoria-Dubuque, IA	80	Bloomington-Dubuque, IA	119	Moline-Evansville, IN
3	Rockford-Madison, WI	42	Kankakee-Lafayette, IN	81	Champaign-Iowa City, IA	120	Belleville-Iowa City, IA
4	Rockford-Racine, WI	43	Decatur-Madison, WI	82	Decatur-Iowa City, IA	121	Danville-Janesville, WI
5	Peoria-Milwaukee, WI	44	Rockford-Lafayette, IN	83	Kankakee-Racine, WI	122	Moline-Terre Haute, IN
6	Bloomington-Milwaukee, WI	45	Carbondale-Evansville, IN	84	Danville-Madison, WI	123	Kankakee-Iowa City, IA
7	Champaign-Milwaukee, WI	46	Springfield-Lafayette, IN	85	Champaign-Michigan City, IN	124	Kankakee-Dubuque, IA
8	Champaign-Terre Haute, IN	47	Bloomington-Cedar Rapids, IA	86	Bloomington-Clarksville, TN	125	Carbondale-Madison, WI
9	Danville-Lafayette, IN	48	Rockford-Michigan City, IN	87	Peoria-Michigan City, IN	126	Moline-Clarksville, TN
10	Rockford-Dubuque, IA	49	Peoria-Racine, WI	88	Rockford-Clarksville, TN	127	Danville-Iowa City, IA
11	Moline-Cedar Rapids, IA	50	Springfield-Iowa City, IA	89	Decatur-Owensboro, KY	128	Kankakee-Clarksville, TN
12	Springfield-Milwaukee, WI	51	Peoria-Terre Haute, IN	90	Decatur-Racine, WI	129	Moline-Michigan City, IN
13	Peoria-Madison, WI	52	Springfield-Clarksville, TN	91	Bloomington-Michigan City, IN	130	Carbondale-Lafayette, IN
14	Champaign-Lafayette, IN	53	Peoria-Evansville, IN	92	Moline-Racine, WI	131	Cairo-Clarksville, TN
15	Rockford-Cedar Rapids, IA	54	Bloomington-Evansville, IN	93	Decatur-Janesville, WI	132	Danville-Dubuque, IA
16	Moline-Iowa City, IA	55	Belleville-Evansville, IN	94	Champaign-Dubuque, IA	133	Belleville-Racine, WI
17	Moline-Milwaukee, WI	56	Kankakee-Madison, WI	95	Kankakee-Terre Haute, IN	134	Carbondale-Cedar Rapids, IA
18	Decatur-Milwaukee, WI	57	Carbondale-Clarksville, TN	96	Carbondale-Owensboro, KY	135	Belleville-Dubuque, IA
19	Kankakee-Milwaukee, WI	58	Bloomington-Iowa City, IA	97	Peoria-Owensboro, KY	136	Belleville-Janesville, WI
20	Danville-Terre Haute, IN	59	Champaign-Cedar Rapids, IA	98	Carbondale-Milwaukee, WI	137	Kankakee-Owensboro, KY
21	Peoria-Cedar Rapids, IA	60	Decatur-Cedar Rapids, IA	99	Kankakee-Janesville, WI	138	Moline-Owensboro, KY
22	Moline-Madison, WI	61	Belleville-Milwaukee, WI	100	Belleville-Terre Haute, IN	139	Cairo-Evansville, IN
23	Rockford-Iowa City, IA	62	Champaign-Clarksville, TN	101	Belleville-Madison, WI	140	Carbondale-Iowa City, IA
24	Peoria-Iowa City, IA	63	Bloomington-Racine, WI	102	Bloomington-Owensboro, KY	141	Belleville-Michigan City, IN
25	Bloomington-Madison, WI	64	Bloomington-Janesville, WI	103	Decatur-Dubuque, IA	142	Carbondale-Racine, WI
26	Decatur-Terre Haute, IN	65	Moline-Janesville, WI	104	Belleville-Owensboro, KY	143	Carbondale-Janesville, WI
27	Springfield-Madison, WI	66	Champaign-Racine, WI	105	Springfield-Michigan City, IN	144	Carbondale-Dubuque, IA
28	Springfield-Evansville, IN	67	Rockford-Terre Haute, IN	106	Belleville-Cedar Rapids, IA	145	Cairo-Owensboro, KY
29	Moline-Dubuque, IA	68	Decatur-Clarksville, TN	107	Danville-Clarksville, TN	146	Carbondale-Michigan City, IN
30	Champaign-Madison, WI	69	Rockford-Evansville, IN	108	Rockford-Owensboro, KY	147	Cairo-Milwaukee, WI
31	Bloomington-Lafayette, IN	70	Peoria-Clarksville, TN	109	Decatur-Michigan City, IN	148	Cairo-Terre Haute, IN
32	Danville-Milwaukee, WI	71	Kankakee-Michigan City, IN	110	Kankakee-Cedar Rapids, IA	149	Cairo-Madison, WI
33	Springfield-Terre Haute, IN	72	Springfield-Owensboro, KY	111	Danville-Racine, WI	150	Cairo-Lafayette, IN
34	Champaign-Evansville, IN	73	Springfield-Janesville, WI	112	Danville-Michigan City, IN	151	Cairo-Cedar Rapids, IA
35	Springfield-Cedar Rapids, IA	74	Springfield-Dubuque, IA	113	Moline-Lafayette, IN	152	Cairo-Iowa City, IA
36	Bloomington-Terre Haute, IN	75	Springfield-Racine, WI	114	Danville-Cedar Rapids, IA	153	Cairo-Racine, WI
37	Decatur-Lafayette, IN	76	Belleville-Clarksville, TN	115	Belleville-Lafayette, IN	154	Cairo-Janesville, WI
38	Peoria-Janesville, WI	77	Danville-Evansville, IN	116	Danville-Owensboro, KY	155	Cairo-Dubuque, IA
39	Decatur-Evansville, IN	78	Champaign-Owensboro, KY	117	Kankakee-Evansville, IN	156	Cairo-Michigan City, IN

Table 10: Ranking of internal to external city pairs under assumption 3.

Rank (global)	O-D pair in the first quartile	Rank (global)	O-D pair in the second quartile	Rank (global)	O-D pair in the third quartile	Rank (global)	O-D pair in the fourth quartile
1	Rockford-Milwaukee, WI	37	Champaign-Madison, WI	73	Champaign-Racine, WI	109	Decatur-Dubuque, IA
2	Rockford-Janesville, WI	38	Bloomington-Lafayette, IN	74	Rockford-Terre Haute, IN	110	Danville-Davenport, IA
3	Rockford-Madison, WI	39	Danville-Milwaukee, WI	75	Decatur-Clarksville, TN	111	Decatur-Cape Girardeau, MO
4	Springfield-St. Louis, MO	40	Springfield-Terre Haute, IN	76	Rockford-Evansville, IN	112	Springfield-Michigan City, IN
5	Rockford-Racine, WI	41	Champaign-Evansville, IN	77	Peoria-Clarksville, TN	113	Danville-Clarksville, TN
6	Peoria-Milwaukee, WI	42	Springfield-Cedar Rapids, IA	78	Kankakee-Michigan City, IN	114	Rockford-Owensboro, KY
7	Peoria-Davenport, IA	43	Bloomington-Terre Haute, IN	79	Springfield-Owensboro, KY	115	Decatur-Michigan City, IN
8	Decatur-St. Louis, MO	44	Decatur-Lafayette, IN	80	Kankakee-St. Louis, MO	116	Champaign-Cape Girardeau, MO
9	Rockford-Davenport, IA	45	Peoria-Janesville, WI	81	Springfield-Janesville, WI	117	Kankakee-Cedar Rapids, IA
10	Peoria-St. Louis, MO	46	Decatur-Evansville, IN	82	Springfield-Dubuque, IA	118	Peoria-Cape Girardeau, MO
11	Bloomington-Milwaukee, WI	47	Peoria-Lafayette, IN	83	Springfield-Racine, WI	119	Danville-Racine, WI
12	Champaign-St. Louis, MO	48	Peoria-Dubuque, IA	84	Danville-Evansville, IN	120	Danville-Michigan City, IN
13	Champaign-Milwaukee, WI	49	Kankakee-Lafayette, IN	85	Champaign-Owensboro, KY	121	Danville-Cedar Rapids, IA
14	Champaign-Terre Haute, IN	50	Decatur-Madison, WI	86	Champaign-Janesville, WI	122	Danville-Owensboro, KY
15	Danville-Lafayette, IN	51	Rockford-Lafayette, IN	87	Bloomington-Dubuque, IA	123	Kankakee-Evansville, IN
16	Rockford-Dubuque, IA	52	Champaign-Davenport, IA	88	Springfield-Cape Girardeau, MO	124	Carbondale-Terre Haute, IN
17	Bloomington-St. Louis, MO	53	Carbondale-Evansville, IN	89	Champaign-Iowa City, IA	125	Bloomington-Cape Girardeau, MO
18	Carbondale-St. Louis, MO	54	Decatur-Davenport, IA	90	Decatur-Iowa City, IA	126	Danville-Janesville, WI
19	Springfield-Milwaukee, WI	55	Springfield-Lafayette, IN	91	Kankakee-Racine, WI	127	Kankakee-Iowa City, IA
20	Peoria-Madison, WI	56	Bloomington-Cedar Rapids, IA	92	Danville-Madison, WI	128	Rockford-Cape Girardeau, MO
21	Champaign-Lafayette, IN	57	Rockford-Michigan City, IN	93	Champaign-Michigan City, IN	129	Kankakee-Dubuque, IA
22	Rockford-Cedar Rapids, IA	58	Peoria-Racine, WI	94	Bloomington-Clarksville, TN	130	Carbondale-Madison, WI
23	Carbondale-Cape Girardeau, MO	59	Springfield-Iowa City, IA	95	Peoria-Michigan City, IN	131	Danville-Iowa City, IA
24	Decatur-Milwaukee, WI	60	Danville-St. Louis, MO	96	Rockford-Clarksville, TN	132	Kankakee-Clarksville, TN
25	Kankakee-Milwaukee, WI	61	Peoria-Terre Haute, IN	97	Decatur-Owensboro, KY	133	Carbondale-Lafayette, IN
26	Danville-Terre Haute, IN	62	Springfield-Clarksville, TN	98	Decatur-Racine, WI	134	Danville-Dubuque, IA
27	Peoria-Cedar Rapids, IA	63	Peoria-Evansville, IN	99	Bloomington-Michigan City, IN	135	Carbondale-Davenport, IA
28	Rockford-St. Louis, MO	64	Bloomington-Evansville, IN	100	Kankakee-Davenport, IA	136	Carbondale-Cedar Rapids, IA
29	Springfield-Davenport, IA	65	Kankakee-Madison, WI	101	Decatur-Janesville, WI	137	Kankakee-Owensboro, KY
30	Bloomington-Davenport, IA	66	Carbondale-Clarksville, TN	102	Champaign-Dubuque, IA	138	Danville-Cape Girardeau, MO
31	Rockford-Iowa City, IA	67	Bloomington-Iowa City, IA	103	Kankakee-Terre Haute, IN	139	Carbondale-Iowa City, IA
32	Peoria-Iowa City, IA	68	Champaign-Cedar Rapids, IA	104	Carbondale-Owensboro, KY	140	Carbondale-Racine, WI
33	Bloomington-Madison, WI	69	Decatur-Cedar Rapids, IA	105	Peoria-Owensboro, KY	141	Carbondale-Janesville, WI
34	Decatur-Terre Haute, IN	70	Champaign-Clarksville, TN	106	Carbondale-Milwaukee, WI	142	Kankakee-Cape Girardeau, MO
35	Springfield-Madison, WI	71	Bloomington-Racine, WI	107	Kankakee-Janesville, WI	143	Carbondale-Dubuque, IA
36	Springfield-Evansville, IN	72	Bloomington-Janesville, WI	108	Bloomington-Owensboro, KY	144	Carbondale-Michigan City, IN

### 6.1.5 Non-MSA Place to Nearest MSA Principal Place

Non-MSA places are areas within Illinois, but outside of MSAs, and constrained to a population bound of 2,500 to 50,000, as set by the United States Census. Eighty-nine such places exist in Illinois. At the first step of this analysis, we have identified the closest MSA for each of these 89 non-MSA places, as shown in the following table. While measuring this shortest distance, we take the centroidal distance from a non-MSA place to the principal place of an MSA. We consider all the internal, external, and partial MSAs that we have identified in the previous two categories. The idea here is that these smaller non-MSA places would have an attraction towards an MSA for access to intercity bus service. According to the concept of central place theory, cities exist in a hierarchy, with smaller cities serving as a market area for larger urban areas. In Illinois, those smaller places are the non-MSA places and the large urban places are the nearest MSA (principal city of an MSA) (Pagano et al, 2001).

It should be noted here that we did not consider the MSA – Chicago-Naperville-Elgin, IL-IN-WI – for this analysis. Our preliminary investigation reveals that if we consider the principal city of this MSA – Chicago – in this analysis, the city pairs that contain Chicago usually come at the first quartile of the demand potential ranking, thus creating a bias towards Chicago. However, most residents of non-MSA places would not travel to Chicago for goods and services available closer at hand. According to intervening opportunity theory, these small city residents are more likely to travel to the closest city having such goods and services available (Pagano et al., 2001).

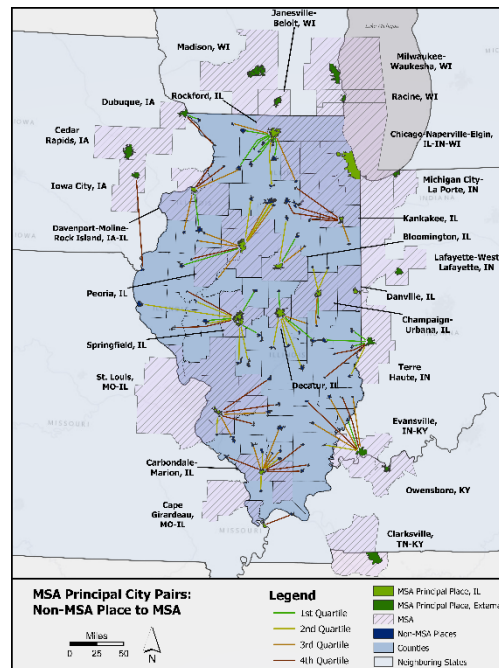


Figure 12: Quartiles for non-MSA places to nearest MSA.

Table 11: Non-MSA places and their nearest MSAs along with demand ranking and assigned quartile.

First quartile			Second quartile			Third quartile			Fourth quartile		
Non-MSA place	Nearest Principal city	Rank (Global)	Non-MSA place	Nearest Principal city	Rank (Global)	Non-MSA place	Nearest Principal city	Rank (Global)	Non-MSA place	Nearest Principal city	Rank (Global)
Freeport	Rockford, IL	1	Paxton	Champaign, IL	23	Fairbury	Bloomington, IL	45	Chester	Carbondale, IL	67
Davis Junction	Rockford, IL	2	Quincy	Springfield, IL	24	Olney	Evansville, IN	46	Ottawa	Kankakee, IL	68
Byron	Rockford, IL	3	Sullivan	Decatur, IL	25	Spring Valley	Peoria, IL	47	Harrisburg	Carbondale, IL	69
Rochelle	Rockford, IL	4	Litchfield	Springfield, IL	26	Lake Holiday	Rockford, IL	48	Fulton	Moline, IL	70
Jacksonville	Springfield, IL	5	West Frankfort	Carbondale, IL	27	Arthur	Decatur, IL	49	Pittsfield	Springfield, IL	71
Taylorville	Springfield, IL	6	Peru	Peoria, IL	28	Lena	Rockford, IL	50	Bushnell	Peoria, IL	72
Dixon	Rockford, IL	7	Streator	Bloomington, IL	29	Benton	Carbondale, IL	51	Sumner	Evansville, IN	73
Lincoln	Springfield, IL	8	Gibson City	Champaign, IL	30	Arcola	Champaign, IL	52	Morrison	Moline, IL	74
Paris	Terre Haute, IN	9	Carmi	Evansville, IN	31	Knoxville	Peoria, IL	53	Casey	Terre Haute, IN	75
Clinton	Decatur, IL	10	Princeton	Peoria, IL	32	Monmouth	Moline, IL	54	Dwight	Kankakee, IL	76
Oregon	Rockford, IL	11	Mendota	Rockford, IL	33	Watseka	Kankakee, IL	55	Flora	Evansville, IN	77
Sterling	Rockford, IL	12	Hillsboro	Springfield, IL	34	Havana	Peoria, IL	56	Rushville	Springfield, IL	78
Galesburg	Moline, IL	13	LaSalle	Peoria, IL	35	Centralia	Belleville, IL	57	Savanna	Dubuque, IA	79
Galena	Dubuque, IA	14	Du Quoin	Carbondale, IL	36	Abingdon	Peoria, IL	58	Nashville	Belleville, IL	80
Tuscola	Champaign, IL	15	South Jacksonville	Springfield, IL	37	Sparta	Belleville, IL	59	Salem	Belleville, IL	81
Pontiac	Bloomington, IL	16	Beardstown	Springfield, IL	38	Fairfield	Evansville, IN	60	Vandalia	Belleville, IL	82
Mount Carmel	Evansville, IN	17	Pana	Decatur, IL	39	Pinckneyville	Carbondale, IL	61	Marseilles	Kankakee, IL	83
Mattoon	Decatur, IL	18	Robinson	Terre Haute, IN	40	Lawrenceville	Evansville, IN	62	Eldorado	Carbondale, IL	84
Mount Morris	Rockford, IL	19	Anna	Carbondale, IL	41	Mount Vernon	Carbondale, IL	63	Newton	Terre Haute, IN	85
Marshall	Terre Haute, IN	20	Red Bud	Belleville, IL	42	Oglesby	Peoria, IL	64	McLeansboro	Carbondale, IL	86
Charleston	Terre Haute, IN	21	Shelbyville	Decatur, IL	43	Christopher	Carbondale, IL	65	Hamilton	Iowa City, IA	87
Macomb	Peoria, IL	22	Effingham	Decatur, IL	44	Rock Falls	Moline, IL	66	Sheridan	Kankakee, IL	88
									Metropolis	Cairo, IL	89

## 6.2 Supply Analysis

The supply involves the availability of intercity bus services to accommodate the intercity travel demand. To identify the available supply, we need to identify the available operators. This includes both the intercity carriers and feeders that serve as a connector between more remote and rural areas to the intercity bus stops. This task was done before and a detailed discussion of this identification and processing process is included in Chapter 4. To quantify the actual supply, we need to dig deeper into the actual service and schedule of these identified operators. We discuss the methodology involved here in the following section.

### 6.2.1 Methodology

The idea of supply analysis is to create a comparative ranking of the city pairs based on their available supply of intercity transit services. For this, we are to consider the same city pairs that are considered in the demand analysis. These ranked cities will be divided into four quartiles, as were demand potential rankings. This will enable us to make a comparison of city pairs by matching them from demand potential ranking to the supply ranking. *If the demand and supply quartiles for a city pair do not match, then there exist some discrepancies.* For example, if the demand quartile is higher than the supply quartile, then the supply for intercity bus services for that city pair is deficient. On the other hand, if the supply quartile is higher than the demand quartile, then the supply exceeds the demand.

To create the supply ranking for each of the city pairs, we need to calibrate a measure of service that contains all the necessary attributes of intercity bus travel. To calibrate this level of service, first we need to identify five attributes that pertain to each city pair. These attributes are:

1. **Trips per day:** For all the city pairs considered, trips per day between them are required. This includes trips in both directions.
2. **Travel time:** Travel times between two city pairs. If there exist multiple trips between city pairs and each of them takes a varied amount of travel time, then we take an average of travel times of all trips.
3. **Ride fare:** Price for one-way rides when traveling between a city pair.
4. **Number of transfer:** Number of transfers necessary for traveling between a city pair.
5. **Waiting time in transfer:** For waiting time in transfer, we take the total waiting time if there are multiple transfers in one trip.

These five attributes need to be identified for each of the city pairs considered in the analysis. If there exist multiple providers in between a city pair, we average them. After identifying these attributes for all city pairs, the next step is to quantify the relative importance of each of these attributes. Factor analysis is a statistical analysis technique that is often used as a dimensionality reduction tool by producing variable importance by assigning a relative loading factor to each of the associated attributes. Factor analysis is often applied in public transportation research to estimate the service quality measure, especially to derive the variable importance (Eboli and Mazzulla, 2007; De Oña et al., 2013; Hadiuzzaman et al., 2019). For this study, this technique is appropriate to devise a ranking that can produce the relative importance of each of these attributes related to the measure of service (Bai et al., 2015).

From the factor analysis, we will get a value for each of the five attributes which represents the relative importance for that variable. Now, let's consider the variables pertained to each of the five attributes are represented by  $v_1, v_2, v_3, v_4, v_5$  and their corresponding factor analysis values are  $f_1, f_2, f_3, f_4, f_5$ . Now, for a city pair  $ij$ , the supply potential  $s_{ij}$  can be calculated as:

$$s_{ij} = \sum_{k=1}^5 v_k^{ij} f_k \quad (4)$$

## 6.2.2 Impact of COVID-19 and Need for an Alternate Approach

The global pandemic COVID-19, like many other public and private sectors, adversely affects the intercity passenger transit service throughout the country. As evident from the Illinois carrier interviews, the intercity passenger bus services and feeder services operations are seriously hampered by the pandemic. The effect of COVID-19 is discussed elaborately in Chapter 5. Nevertheless, some of the major impacts are:

- Almost all intercity passenger bus carriers experienced a substantial decrease in ridership due to the general decline in intercity travel caused by state and local restrictions
- The federally mandated social distancing requirements reduced trip capacity for all public transportation sectors.
- The service was cut down to a significant extent and in some cases, services were suspended completely.
- Due to a significant number of personnel layoffs in the transportation sector, it was difficult for existing personnel to make time for the research team.

Due to these adverse effects of the pandemic, the research team was unable to acquire the necessary data for supply analysis, thus unsuccessful in implementing the originally planned and devised methodology as described in the previous section. The research team made a series of repeated attempts to gather relevant scheduling information from the carriers to complete the supply analysis. IDOT officials also attempted to reach out to solicit study participation, to no avail. The COVID-19 pandemic made the overall intercity transportation operation so dire that the research team did not get any response from any carriers. Due to this, the research team has to halt this analysis at this point. If data is available in the near future, the supply analysis can be completed with the devised methodology. After the supply analysis is complete, the completed demand analysis can be readily applied to identify the intercity bus service deficiency in Illinois.

In the absence of supply analysis data, the research team had to pivot to another direction to identify the intercity bus service deficiency. The part II of this report (which is described in Chapter 7) discusses the alternate approach to the traditional demand and supply backed deficiency analysis in greater detail.



## **7 Part II: Alternative Approach for Deficiency Analysis**

The traditional deficiency analysis with demand and supply analysis for intercity bus transportation is not available as aforementioned in the previous chapter. Due to the impact of COVID-19 and absence of the information, this section utilizes an alternative approach to discuss intercity bus transportation deficiency in Illinois.

Intercity bus transportation services in Illinois are mainly provided by 13 bus carriers as described in the Chapter 4. The intercity bus routes which pass through many cities and towns in Illinois connect to five adjacent states of Illinois: Wisconsin, Iowa, Missouri, Kentucky, and Indiana. Most of the large cities in Illinois are connected by the current intercity bus routes, including the City of Chicago, Rockford, and Peoria. However, there are still gaps in intercity bus transportation services in Illinois. The purpose of this alternative approach for deficiency analysis is to understand the coverage of the current intercity bus transportation services in Illinois. The analysis examines how percentages of population in each county and the entire State of Illinois are covered by the current intercity bus routes and stops. The analysis will also enable researchers to identify where gaps in the intercity bus services are present and provide an implication for further intercity and interstate transportation plans.

### **7.1 Data and Methodology**

#### **7.1.1 Data**

This analysis uses data which comes from several sources. For the population and its characteristics, the 2019 American Community Survey (ACS) 5-year estimate data from the U.S. Census Bureau is used. This analysis is conducted at the census tract level. The census tract is one of the smallest level of geographies available for this approach among ACS datasets to analyze the population and its characteristics. Thus, the deficiency analysis has been conducted at the census tract level, while the presentation of the result is at the county level for better visibility. Note that to match census tracts with counties, we use the 2019 census tract and county TIGER (Topologically Integrated Geographic Encoding and Referencing) GIS data from the U.S. Census Bureau (Figure 13).

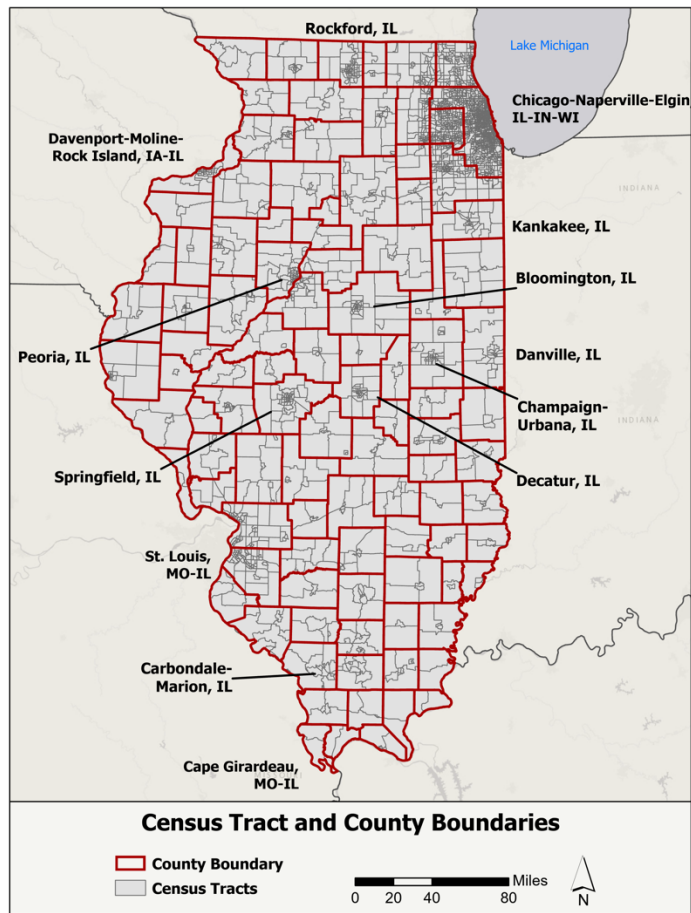


Figure 13: Illinois census tracts and counties.

Data for intercity bus routes and stops in Illinois is from National Intercity Bus Atlas from the Bureau of Transportation Statistics (current as of January 2019). We also use feeder service providers in Illinois for the deficiency analysis. The list of the feeder service providers is from Chapter 4; the list was collected from websites of the feeder service providers, including county websites.

### 7.1.2 Methodology

This alternative deficiency analysis for intercity bus transportation in Illinois utilizes the methodology used in an access to intercity transportation interaction map of Bureau of Transportation Statistics (BTS)<sup>3</sup> and Spear and Weil (1999). We first, created buffer areas from the intercity bus stops and then identified the

<sup>3</sup> <https://data.bts.gov/stories/s/Rural-Access-to-Intercity-Transportation/gr9y-9gjq/>

census tracts within the buffer areas. Next, we aggregated the population within the buffer areas and computed the proportion of population within the buffer areas at the county level in Illinois.

The alternative deficiency analysis introduces two scenarios with four accessible distances to intercity bus stops for creating buffer areas and computation of the proportion of population within the coverage. The intercity transportation map of BTS uses 25 miles from intercity bus stops for the accessible distance while Spear and Weil (1999) determine 10 miles as a reasonable distance to access intercity bus stops. Based on the literature review, we create and test four buffers which are 10, 15, 20, and 25-mile radii from the intercity bus stops and compare those results to see differences.

The deficiency in intercity bus transportation is examined with the two scenarios: the intercity bus scenario with four buffer areas and the intercity bus and feeder service scenario with four buffer areas. The feeder services aforementioned in the Chapter 4 is assumed in the analysis to be able to support intercity bus transportation by connecting home to intercity bus stops. The feeder services provide transportation services from an origin to a destination on their route or where a rider wants to go in the case of on-demand service. The destination can be the services, including but not limited to hospitals, shopping malls, or restaurants. The feeder service transportation can be classified in two types: operating fixed routes with scheduled time or providing on-demand service (paratransit). Our assumption is added to these. If people who live outside of the buffer areas can access intercity bus stops via either type of the feeder services, this analysis treats the service areas of the feeder services as within buffer areas in the scenarios.

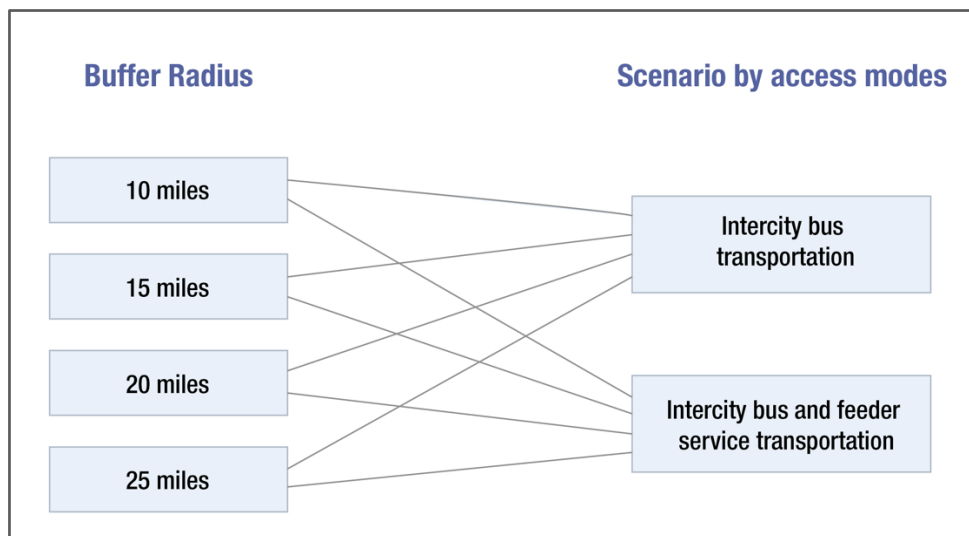


Figure 14: Combination of scenarios and buffer areas for alternative deficiency analysis

Figure 14 shows the combination of the scenarios tested in the alternative deficiency analysis for intercity bus transportation in Illinois. This analysis estimates the percentage of population covered by the service areas as following assumptions.

- Buffer radius for accessible distances to intercity bus stops
  - The four different radii from 10 miles to 25 miles (by 5-mile increments) are used as accessible distances to intercity bus stops based on previous studies regarding the buffer analysis (Intercity transportation map of BTS, Spear and Weil, 1999).
  - The created buffer areas are used to identify population and locations covered by the intercity bus transportation.
- Scenarios by modes to access to intercity bus stops
  - Intercity bus transportation: The service areas of intercity bus transportation are the created buffer areas from bus stops.
  - Intercity bus transportation and feeder services: The service areas of intercity bus transportation include both of the buffer areas from bus stops and service areas of feeder services if the feeder services connect to intercity bus stops.

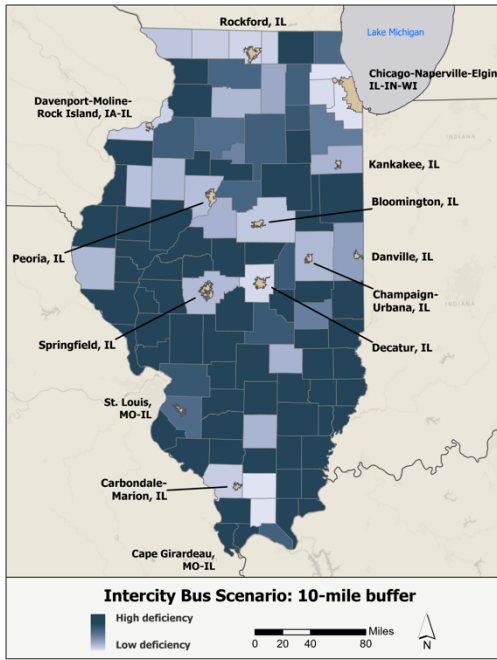
## **7.2 Results**

The results of the alternative deficiency analysis show the percentages of population in counties that can access intercity bus transportation by scenarios and buffer radii. Each scenario first identifies census tracts within buffer areas for intercity bus scenarios (or service areas for feeder service scenarios), and then the population of census tracts within the service areas is aggregated. The percentage of the aggregated population over the total population in each county is computed. If feeder services connect to intercity bus stops, their service areas, the entire county or adjacent counties by service availability in the case of on-demand (paratransit) feeders, are counted as being covered by intercity bus transportation.

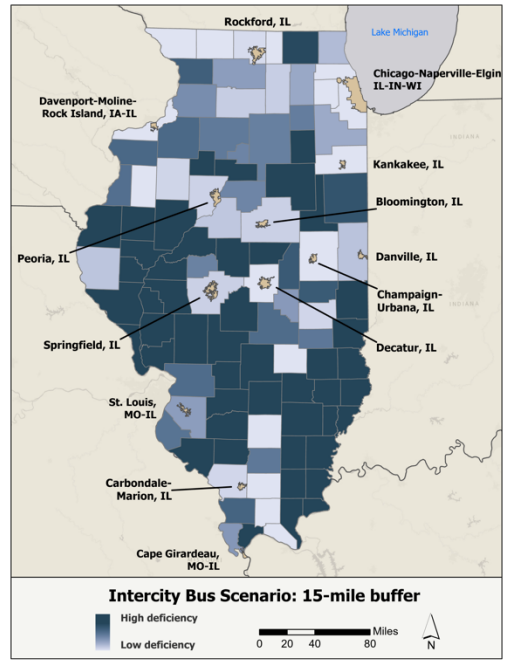
### **7.2.1 Results of Intercity Bus Scenarios**

Figure 15 shows the result of the intercity bus transportation scenario by four accessible distances to bus stops. The first map shows the percentage of population within 10-mile buffer from the bus stops, documented by county. The other maps show the percentages of population's access to intercity bus within 15, 20, and 25-mile buffers, respectively. A lighter color signifies there is a lower deficiency of the intercity bus transportation. In other words, a lighter color signifies there is a greater percentage of the population covered by ICB routes. The darker color means there is a higher deficiency, meaning less access.

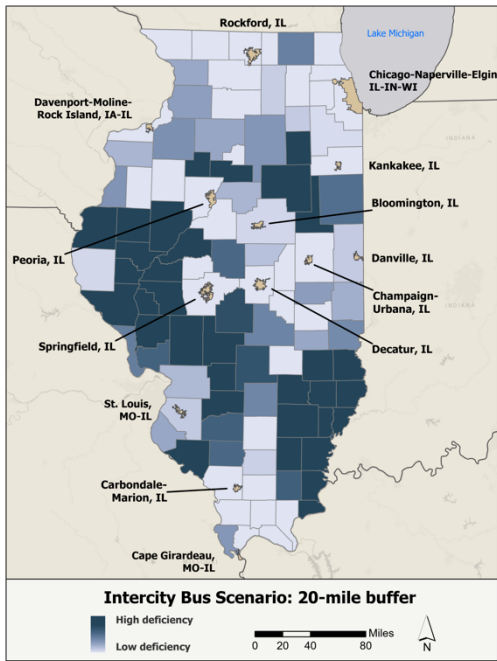
The map for the 10-mile buffer radius (Figure 15-a) shows a few low deficiency counties located in northern, central, and southern areas in Illinois. However, many of the counties, especially those without an MSA, are highly deficient in intercity bus transportation. The percentage of populations within the catchment areas increases as the radius of the buffers expands. In the 15-mile buffer map (Figure 15-b), compared with the 10-mile buffer, the percentage covered by intercity bus transportation increases in northern and central counties while no major changes are seen in west-central or southern Illinois counties. Areas in the Peoria-Bloomington-Champaign corridor become better served in the 20-mile map (Figure 15-c), but there still exists a fair amount of need in the west-central portion and the southeast portion of the State. In the 25-mile map (Figure 15-d), many counties become lighter color. The counties in west-central and southeast regions in Illinois are still darker color even in this 25-mile scenario; this signifies low accessibility to intercity bus transportation service in these regions.



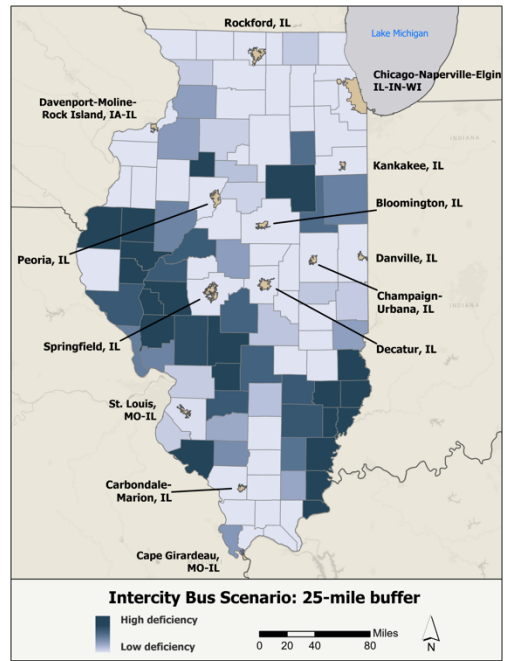
(a) 10-mile buffer radius



(b) 15-mile buffer radius



(c) 20-mile buffer radius



(d) 25-mile buffer radius

Figure 15: Results of alternative deficiency analysis - intercity bus scenario.

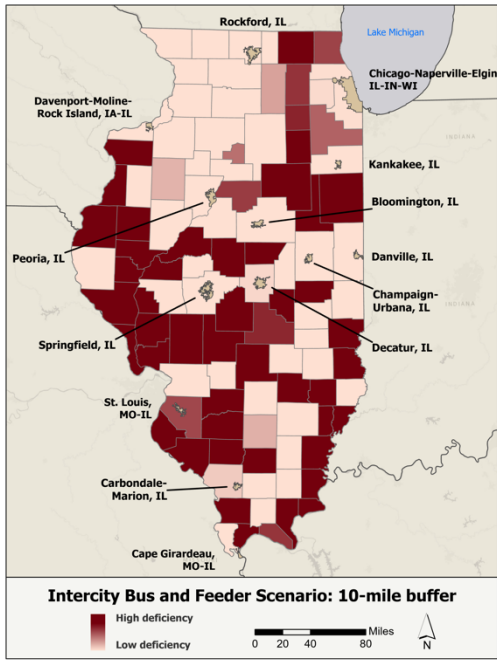
## 7.2.2 Results of Intercity Bus and Feeder Service Scenarios

The four maps in Figure 16 show the results of the alternative deficiency analysis with intercity bus transportation and feeder services. The four results are from four different buffer miles like Figure 15. As aforementioned, if feeder service connects to intercity bus stops, the service areas of the feeder service, at the county level in this analysis, are regarded as catchment areas of the intercity bus transportation. The combination of intercity bus and feeder services is regarded in this study as available options for intercity transportation for the people without using a car. In the consideration of very few public transit options and large distance to intercity bus stops from home in rural areas, feeder service is a very significant and practical mode to access to destinations or places for transfer.

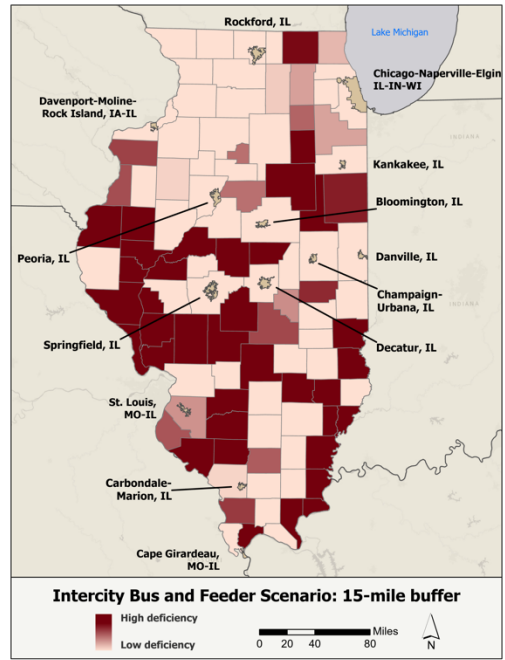
The four maps in Figure 16 show more lighter counties, signifying lower deficiency than the maps with only intercity bus transportation in Figure 15. The 10-mile buffer map (Figure 16-a) denotes certain areas as accessible regions for intercity bus transportation (lighter color). This demonstrates that feeder services support intercity bus transportation effectively in those counties more than the other counties. The increasing buffer radius makes more lighter counties on the maps. On the fourth map, the 25-mile buffer map (Figure 16-d), most of northern, east-central, and southern Illinois, including areas near St. Louis, are fully covered by intercity bus in coordination with feeder services.<sup>4</sup> However, the gap revealed in the intercity bus scenario still remains. The counties from western to southeastern regions in Illinois are still in high deficiency of intercity bus transportation.

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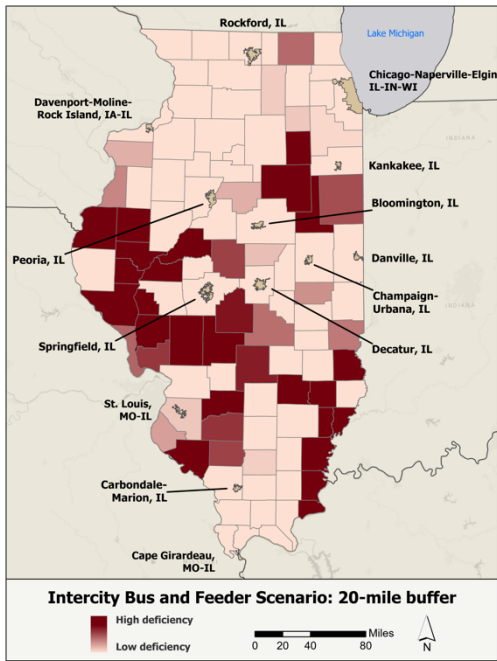
<sup>4</sup> It is worth reiterating that this is with a 25-mile buffer and does not consider feeder trips that may be denied or delayed, leading to potential missed connections that at times can make utilizing these ICB services less than practical.



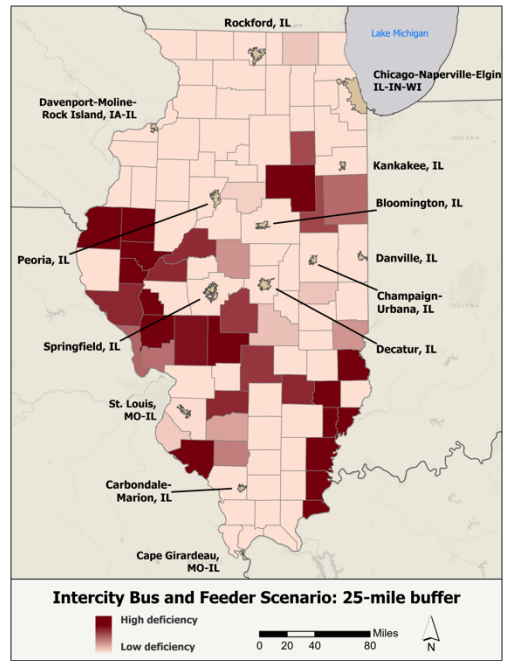
(a) 10-mile buffer radius



(b) 15-mile buffer radius



(c) 20-mile buffer radius



(d) 25-mile buffer radius

Figure 16: Results of alternative deficiency analysis - intercity bus and feeder service scenario



### 7.2.3 Summary of the Number of Counties by Percentages of Covered Areas

Figure 17 summarizes the results of the above maps (Figure 15 and Figure 16) by classifying the counties by the percentage of population accessible to intercity bus transportation. The classifications are divided into four groups; 0-25%, 25-50%, 50-75%, and 75-100% of the total population in a county who are covered by buffer areas or service areas.

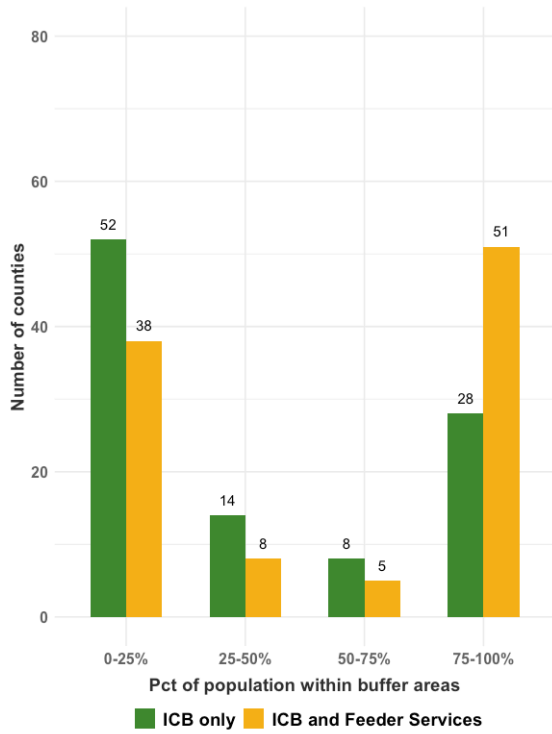
In the 10-mile buffer analysis,<sup>5</sup> among 102 counties in Illinois, 69 counties are classified in the first group (0 to 25%) from the current intercity bus transportation while more than 75% of counties' population is covered by current routes and stops in 23 counties. The combination of intercity bus and feeder services decreases the number of counties in the first group (0-25%) to 48 and increases the counties in the fourth group (greater than 75%) from 23 to 48, which is more than double. However, almost the half of Illinois counties are still in the first group of counties where less than 25% of the county's population can access the current intercity bus transportation.

As the buffer radius increases from 10 miles to 15 miles (Figure 17-a), the number of counties in the first group (0 to 25%) decreases from 69 to 52 in the intercity bus scenario and from 48 to 38 in the intercity bus and feeder service scenario, and the number in the fourth group (greater than 75%) increases from 23 to 28 and from 48 to 51, respectively. In the 20-mile buffer analysis (Figure 17-b), the number of counties in the fourth group (46) exceeds the number in the first group (38) in the intercity bus scenario. Additionally, more than 75% of the counties' population in 64 counties in Illinois are accessible to intercity bus transportation with the support of feeder services.

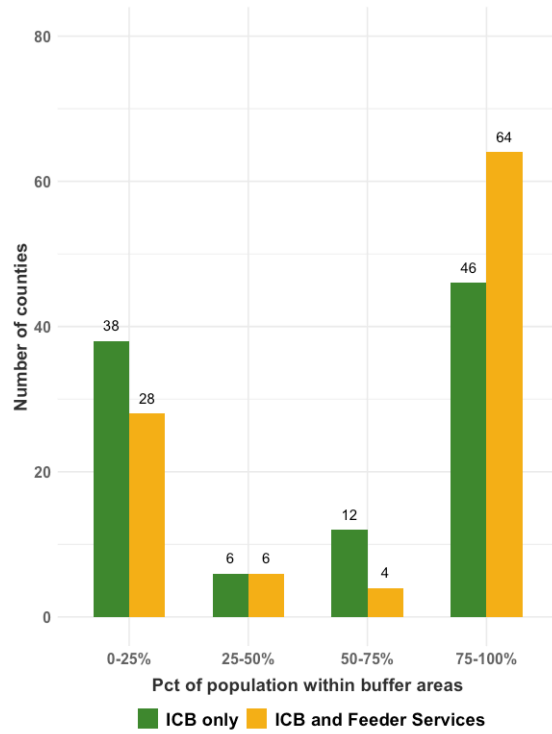
The 25-mile buffer analysis (Figure 17-c) shows that 69 counties have more than 75% of their population served by ICB when considering both ICB routes and feeder service. Despite the great increase in the number of counties in the third and fourth groups, 28 counties in the intercity bus scenario and 23 counties in the intercity bus and feeder service scenarios still remain in the lowest percentage served category (0-25%).

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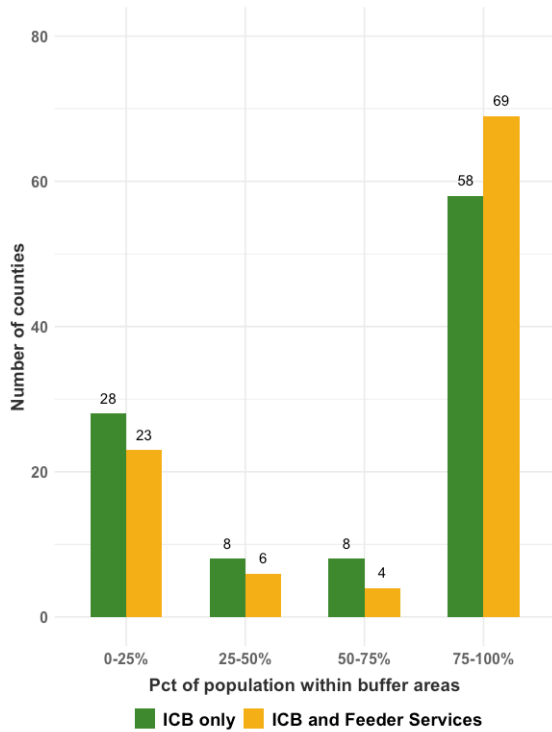
<sup>5</sup> The chart for the 10-mile buffer is unavailable. The information is in the paragraphs here. For a chart comparing all four of the buffers, see Figure 18.



(a) 15-mile buffer radius



(b) 20-mile buffer radius



(c) 25-mile buffer radius

Figure 17: Summary of the number of counties by percentages of population within buffer areas

Figure 18 shows the percentages of the population aggregated at the state level within buffer areas or service areas by the mode and radius mile scenarios. About 70% of Illinois’ population lives in the 10-mile buffer areas from the intercity bus stops and about 77% of the population lives in the service areas accessible to intercity bus transportation with the support of feeder services. The rates increase as the radius goes to 25 miles. Almost all population in Illinois can access to intercity bus transportation in the 25-mile scenarios: approximately 94% in the intercity bus and 96% in the intercity bus and feeder service scenario. There is a relatively large gap in the 10-mile scenarios between two modes (intercity bus vs. intercity bus and feeder services) by about 8%. The gap gradually decreases by increasing the radius and greatly declines in the 25-mile scenario as about 1.5%. This shows that the impact of the feeder services decreases as the buffer radius increases.

The fact that almost all population (94% and 96%) are covered by the intercity bus transportation, but 28 and 23 counties are still in the first group (0-25%, Figure 17-d) indicates the high deficiency occurs in less-populated, rural counties. This shows about 5% of population in high deficiency of the intercity bus transportation are concentrated in 28 or 23 counties, depending on whether feeder services are considered.

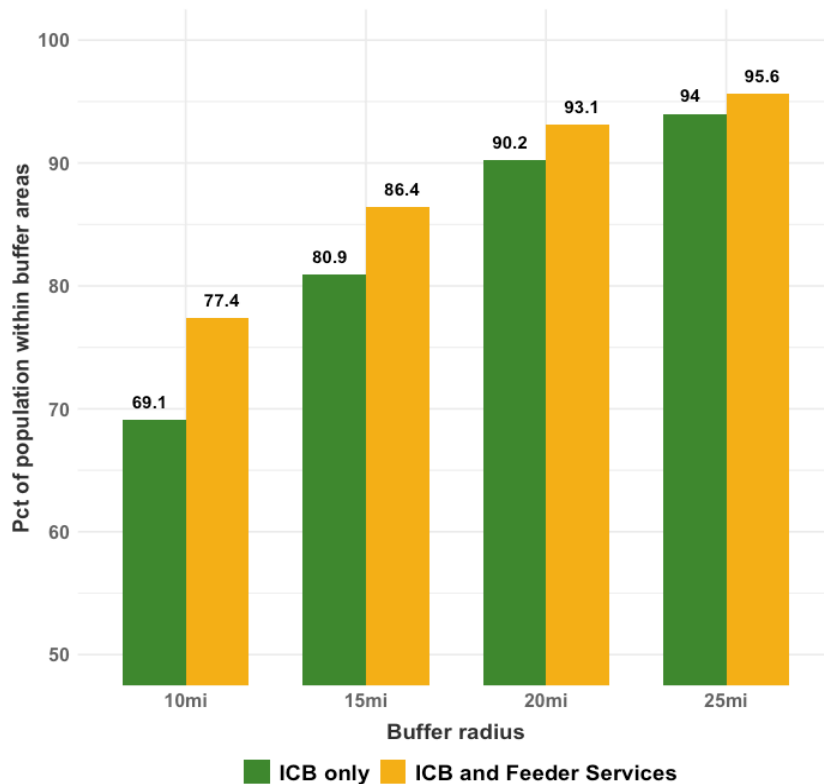


Figure 18: Summary of percentages of population in Illinois by buffer radius and mode.

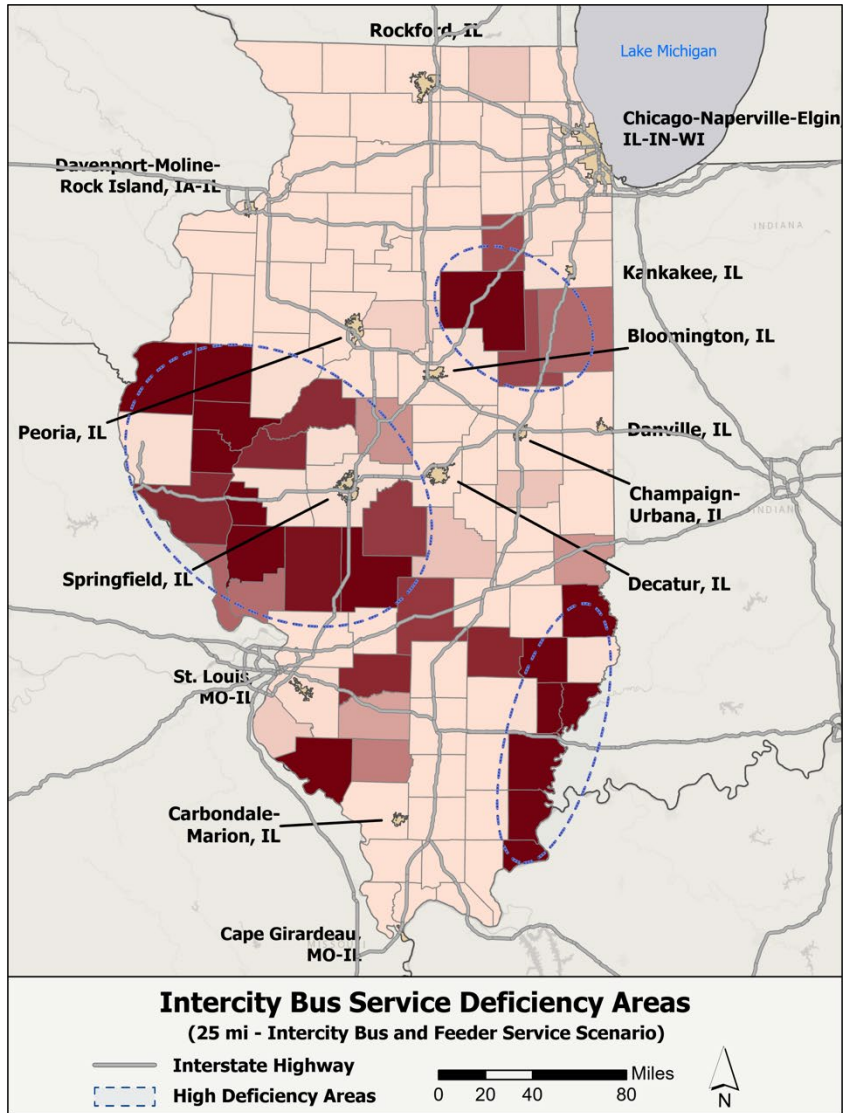


Figure 19: High deficiency areas in the 25-mile radius and intercity bus and feeder service scenario.

Table 12: High deficiency counties.  
(25-mile radius and intercity bus and feeder service scenario)

County	County population	% of county population in buffer areas from bus stops
Brown	6,628	0
Crawford	18,972	0
Edwards	6,455	0
Gallatin	5,064	0
Greene	13,132	0
Hancock	17,983	0

Hardin	3,939	0
Livingston	36,040	0
McDonough	30,479	0
Montgomery	28,828	0
Randolph	32,295	0
Richland	15,766	0
Schuyler	6,953	0
Scott	5,005	0
Wabash	11,546	0
White	13,868	0
Macoupin	45,463	7.1
Pike	15,672	17.1
Clay	13,287	17.4
Clinton	37,634	17.4
Cass	12,493	18.0
Mason	13,621	19.2
Fayette	21,565	24.6

Figure 19 shows deficiency areas in intercity bus services based on the analysis result of the 25-mile buffer of the intercity bus and feeder service scenario. The darker colored counties in the map represent lower percentage of population (at the census tract level) in the 25-mile buffer areas with the combination of feeder services. The high deficiency, darker colored, counties are roughly clustered in the three areas in Illinois: around Springfield including Macoupin, Montgomery, and Brown counties, Livingston and around counties, and White and around counties.

Table 12 summarizes the counties where less than 25% of the population is covered by the 25-mile buffer from the intercity bus stops with feeder services. None of the residents in the sixteen counties can access intercity bus transportation based on the current scenario, even after consideration of feeder services such as paratransit service to connect to any intercity bus stop in the county. As previously mentioned, all of the high deficiency counties where at least 75% of population is unable to access ICB transportation are rural counties whose population is less than 50,000.

## 8 Findings

The intercity bus transit industry has been declining in recent years mainly due to the diminishing revenue, low fuel prices, and reduced airfare prices. However, some modern technological advancements have kept some carriers competitive. Nationally, long trips (50 miles or more) are dominated by private vehicles (more than 90%), whereas bus mode share is 2.1%. This disparity is even more intense in rural areas, mainly due to the lack of public transportation facilities. The existing literature suggests the prioritization of existing intercity bus coverage and improvements of the intermodal connectivity to meet the intercity travel demand. Some other prioritization areas include increasing marketing and public awareness of the service; increased funding for vehicles, passenger facilities, and amenities; service expansion where feasible; and development of performance measures and metrics.

Around 70% of states participated in the online survey launched by the research team. The majority of interviewed states (96%) have a common goal for their individual Section 5311(f) intercity bus funding, i.e., to “enhance access to rural areas.” In most cases, this funding is disbursed directly to the carriers and providers. In recent years, many states have experienced difficulty in spending their apportioned Section 5311(f) funding mainly due to the loss of carriers and feeders within the states.

An exhaustive search of available intercity carriers and yielded 13 intercity bus companies and 56 feeder services providing their services in Illinois. The research team set out to contact all of them to identify the exact nature of their services and schedules. This interview process was seriously hampered by the ongoing COVID-19 pandemic. The research team managed to conduct interview with a few carriers; however, the team was unable to extract the necessary service and schedule information even with numerous follow-ups mainly due to the reduced/abandoned services during the pandemic. Interviews with the intercity carriers reveals that they regard the application process for State of Illinois funding as too cumbersome to be of use, preferring instead to use revenue from charter and tour service to cover capital investment and operating losses. The COVID-19 crisis has deprived them of that stream of revenue, leaving them struggling to remain in business. Additionally, other states provide more direct support to their intercity bus operators, even going so far as to provide state-owned buses and allowing their use in intercity service. This leaves Illinois-based carriers at a disadvantage.

In order to identify the intercity travel demand, the research team adopted a gravity-based demand potential estimation model that ranked the Illinois city pairs from highest demand potential to lowest to identify intercity travel demand. This model showed that cities within the northern region of Illinois usually have higher demand potential. On the other hand, the cities in the lower and southern regions of Illinois have lower demand potential. Given COVID-19 and a lack of intercity bus carrier data, the deficiency of

intercity bus transportation is examined using an approach that the Bureau of Transportation Statistics (BTS) and Spear and Weil (1999) used. The results of the alternative deficiency analysis show that most of northern, central, and southern counties in Illinois have low deficiency for intercity bus transportation while the counties from the western to southeastern regions in Illinois have a high deficiency for intercity bus transportation. The results also show that approximately 6% of Illinois' population in the intercity bus scenario have difficulty accessing intercity bus transportation using the 25-mile buffer analysis. The 28 counties among Illinois' 102 are still in the high deficiency group (0-25% group in Figure 17-d). These show the 6% of population in high deficiency of the intercity bus transportation are concentrated in the 28 less-populated, rural counties.

## **8.1 Recommendations**

Despite the identified deficiencies from the analysis, it can be concluded that the results indicate a fairly good coverage of intercity bus service in Illinois. At the same time, there is a small percent of the population that cannot be reasonably served by the existing ICB services. The effects of the pandemic are likely to be felt for a considerable duration and it is uncertain how this will impact the percent of people still unserved in Illinois. Therefore, these findings should be reaffirmed under more normal circumstances with more comprehensive and granular supply data. To that end, the service and schedule of every intercity operator should be collected in a post-pandemic scenario. The feeders should be interviewed to identify their exact coverage areas and service types. These will contribute to the supply analysis, thus completing the traditional approach of intercity bus needs. In addition, a follow up study is highly recommended to further investigate the effect of the pandemic on Illinois' intercity bus service industry and how the operators are adapting to the changed circumstances.

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## **Appendix A: Interview Scripts**

### **Script 1: State DOT interview script**

#### **Section 1: Introduction of Project**

Illinois residents, whose travel needs extend beyond adjoining neighborhoods or between a city and its suburbs, participate in intercity travel. They depend on public transportation that private businesses and public agencies provide. In the many rural communities that Amtrak and airlines do not currently serve, intercity bus is often the only long-distance public transportation option connecting riders to larger, more densely populated cities. The Illinois Department of Transportation (IDOT) is involved in intercity passenger services are part of its objective to provide for a balanced transportation system for residents, visitors, and businesses.

The proposed study shall examine Illinois passenger transportation services and recommend strategies to improve the provision of such services. The University of Illinois at Chicago's (UIC's) Urban Transportation Center (UTC) proposes the following tasks to meet the following study objectives: (a) review the Federal Transit Administration requirements and existing IDOT Policy; (b) document the experiences of other states; (c) identify the common carriers that conduct scheduled service in the state; (d) survey the intercity transportation providers operating in Illinois; (e) conduct an intercity transportation carrier supply analysis; (f) conduct an intercity transportation demand analysis; (g) conduct a needs analysis; identify intercity transportation service options and enhancements; (i) determine whether intercity needs have been adequately met or recommend a program of improvements for IDOT to undertake.

#### **Section 2: Consent Process**

- Overview of the project, intended results of the interview and for the overall project
- Describe IRB mandates to protect the interviewer/interviewee
- Ask for consent to record interview
- Commence sections of interview questions
- Conclude interview questions and provide final statements

### Section 3: Interview Questions

#### Part 1: Overview of DOTs Intercity Bus Status

1. Which state does your Department of Transportation (DOT) represent?

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2. Please state your title/role within your DOT.

- a. Program Manager
- b. Intercity Bus Project Manager
- c. Section 5311 Program Manager
- d. Transit Planner
- e. Community Planner
- f. Other (please specify)

3. Please describe your duties/responsibilities designated within your role and or duties/responsibilities pertaining to your DOT's intercity bus program.

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4. How many full-time employees (FTE) within your DOT (including yourself) are solely dedicated to intercity bus duties and responsibilities?

- a. 0.0
- b. 0.5
- c. 1
- d. 2
- e. 3
- f. 4
- g. 5
- h. Other (please specify)

5. Which of the following are primary goals of your state's intercity bus program? (select all that apply)

- a. Enhance access to rural areas
- b. Create access to unserved rural areas
- c. Increasing investments in intercity bus services
- d. Encourage and facilitate the most efficient use of Section 5311(f) Funds
- e. Improvement of intercity bus coordination efforts
- f. Increase participation of intercity bus providers
- g. Increase participation of feeder services

#### Part 2: Funding and Carriers

1. To whom does your DOT disburse Section 5311(f) funding? (select all that apply)
  - a. Rural Counties

- b. Rural Municipalities
  - c. Rural public transit providers
  - d. Private carriers (please specify)
  - e. Governmental agencies (please specify)
  - f. Other(s) (please specify)
2. Which of the following types of eligible activities has your DOT recently supported using Section 5311(f) funds? (select all that apply)
- a. Planning and marketing for intercity bus transportation
  - b. Capital grants for intercity bus shelter
  - c. Joint-use stops and depots
  - d. Operating grants through purchase-of-service agreements
  - e. User-side subsidies and demonstration projects
  - f. Coordination of rural connections between small public transportation operations
  - g. Other(s) (please specify)
3. In 2019, how many applications did you receive from carriers applying to receive Section 5311(f) funding?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
4. Over the last 5 years (2015-2019), the number of submitted applications received by carriers to receive Section 5311(f) funding has:
- a. Increased
  - b. Decreased
  - c. Stayed the same
5. Please describe your evaluation process and criteria for 5311(f) applications.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
6. In terms of total intercity bus route mileage, what percentage of privately provided intercity bus routes are unsubsidized versus subsidized? *For example, if your state has two intercity bus routes. One is 50 miles and is subsidized with 5311(f) funds. The other is 75 miles and is not subsidized. Therefore, your state subsidizes 40% of total route miles.*
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
7. How many intercity bus carriers (grantees) offer services in your state?
- a. 0
  - b. 1
  - c. 2
  - d. 3
  - e. 4
  - f. I am unsure
  - g. Other (please specify)

8. Are all the intercity bus carriers in your state privately operated?
- a. Yes
  - b. No
  - c. I am unsure

If “Yes” or “I am unsure”, skip to Question 10.

9. How many intercity bus carriers are privately operated in your state?

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10. Over the past 5 years (2015-2019), the number of private carriers in your state has:
- a. Increased
  - b. Decreased
  - c. Stayed the same
  - d. I am unsure

11. Please list the private carriers that have entered/exited your states intercity bus system over the past 5 years (2013-2018).

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12. Do you provide Section 5311(f) funding for private carriers? If so, how many?
- a. Yes
  - b. No

If “No”, skip to question 13.

13. Please list the private carriers that receive Section 5311(f) funding from your DOT

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14. Of the private carriers that your DOT provides Section 5311(f) funding to, please list the eligible activities they apply their awarded funds toward.

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15. Do you provide Section 5311(f) funding to carriers that receive funding from other public/governmental agencies related to intercity bus?
- a. Yes
  - b. No
  - c. I am unsure

If “No” or “I am unsure”, skip to question 17.

16. Please list the public/governmental agencies from which these carriers receive intercity bus funding in addition to Section 5311(f) funding provided by your DOT.

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17. Over the past 5 years (2015-2019), the number of intercity rural stops for your intercity bus system have:

- a. Increased
- b. Decreased
- c. Stayed the same
- d. I am unsure

18. In 2019, did your state experience difficulty spending the 15% required apportionment of Section 5311 funds for intercity bus?

- a. Yes
- b. No

If “No”, skip to question 17.

19. Can you please describe the reasons your state has had difficulty spending the 15% required apportionment of Section 5311 funds for intercity bus for 2018.

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20. Over the past 5 years, did your state experience difficulty spending the 15% required apportionment of Section 5311 funds for intercity bus?

- a. Yes
- b. No

If “No” skip to question 19.

21. Can you please the reasons your state has had difficulty spending the 15% required apportionment of Section 5311 funds for intercity bus over the past 5 years.

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22. Could your state more fully spend its 15% apportionment for 5311(f) funding if destinations could be not only intercity bus transfer points but also rail, ferry, and airport destinations?

- a. Yes
- b. No
- c. I am unsure
- d. Other (please specify)

23. Has your DOT ever transferred funds from other programs to supplement your Section 5311 Intercity Bus apportionment?

- a. Yes

- b. No
- c. I am unsure

If “No” or “I am unsure”, skip to question 25.

24. Please list the programs that have transferred funds to supplement your state’s Intercity Bus program.

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25. Has your DOT determined that the intercity bus needs of your state have been adequately met and the results were certified by the Governor?

- a. Yes
- b. No
- c. I am unsure

If “No” or “I am unsure”, skip to question 27.

26. What year(s) were your state’s intercity bus needs determined to have been met and how often do you evaluate your state’s intercity bus needs are being adequately met?

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27. Do you plan on evaluating your state’s intercity bus needs, and if so when?

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28. If you have determined that your intercity bus needs have been *partially* met, what percentage of your required 5311 annual apportionment was actually used for Intercity Bus?

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**Part 3: Strategies & Goals of Intercity Bus System**

1. Which of the following strategies does your DOT plan to use to improve its Intercity Bus system? (select all that apply)

- a. Better coordination for intercity bus services across state lines
- b. Increased subsidized operations
- c. Improve coordination between intercity bus services and Amtrak
- d. Intermodal station/terminal projects
- e. Other(s) (please specify)



2. Which of the following would your DOT consider using as goals, objectives, and or measures to improve your state’s intercity bus system? (select all that apply)
- a. Intercity bus routes to areas of high need and demand
  - b. Improving current or creating new intermodal stations
  - c. Additional stops along current intercity bus routes
  - d. Improve ridership
  - e. Improve marketing
  - f. Partner with other private carriers
  - g. Create a statewide schedule/timetable that all carriers/feeder services can input their information

3. Which of the following areas are emphasized by your intercity bus program? (select all that apply)
- a. Operating subsidies
  - b. Capital Projects
  - c. Marketing and Support Projects
  - d. Other(s) (please specify)

4. Please list the areas that have been established as service priorities.

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5. Have you issued any requests for proposals (RFPs) to improve your Intercity Bus system?
- a. Yes
  - b. No

If “No” Skip to question 7.

6. Please list the most recent RFP that has been issued to improve your state’s Intercity Bus system.

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7. Which of the following incentives have been offered to private companies to transport passengers to targeted geographies? (select all that apply)
- a. Tax Credits
  - b. Tax Vouchers
  - c. Other(s) (please specify)

8. Does your DOT enter in purchase-service agreements with private carriers?
- a. Yes
  - b. No

9. What are some of your challenges in coordinating with private carriers and meeting current local and state intercity bus goals? How have you tried to address them?

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10. What are your state’s challenges to supporting intercity bus service across state boundaries and how have you attempted to address those challenges?

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11. Does your state provide outreach or education to service providers about 5311(f) funding?

- a. Yes
- b. No
- c. I am unsure

If “No” or “I am unsure”, skip to Part 4.

12. Please describe the methods of outreach and or education that your state provides to service providers regarding Section 5311(f) funding.

**Part 4: Performance Measures and Data Collection**

1. From whom do you collect your data, including publicly available and private sources, utilized for the purposes of your state’s intercity bus system?

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2. Do you track any of the following data? (select all that apply)

- a. Ridership
- b. Passenger-miles traveled
- c. Passenger load
- d. Passengers only traveling within your state
- e. Passengers only traveling through your state
- f. Volume to capacity ratio
- g. Travel time
- h. Percentage of trips requiring transfer(s)
- i. Average scheduled transfer time
- j. Other(s) (please specify)

3. Is there any other data and or performance measures/metrics, you believe could improve your state’s intercity bus system?

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**Part 5: Conclusion**

1. In order for us to further understand the intercity bus system of your state, can you please tell us of relevant published reports/materials by your organization, or direct us to appropriate websites/online sources?

- a. Intercity Bus Route Map
  - b. Intercity Bus State Plan
  - c. Intercity Bus Reports/Case Study
  - d. Intercity Bus Funding Reports
  - e. Others? Please specify
2. Can you recommend any other individual(s) or agencies (public or private) we should contact to understand your state's intercity bus system? Please include an email or other contact information.

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3. May you provide us an organizational chart and or position description to better understand the role and responsibilities the state's DOT with intercity bus?

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End of Interview

## **Script 2: Intercity carrier interview script**

### **Section 1: Introduction of Project**

We are conducting a study for the Illinois Department of Transportation (IDOT) to determine unmet intercity bus needs that may require Illinois' intercity bus funds. As part of our research, we are contacting intercity bus transportation providers operating within Illinois to better understand intercity bus services leading to improved connectivity and service in Illinois.

### **Section 2: Consent Process**

- Describe the project's overview and the intended results of the interview and the overall project
- Describe IRB mandates to protect the interviewer and interviewee
- Ask for consent to record the interview
- Begin interviewing
- Conclude interview questions and provide final statements

### **Section 3: General Questions**

- 1) How many vehicles are in your fleet?
  - a. *Follow-Up Question:* How many of those vehicles operate within Illinois?
- 2) What type of vehicles are in your fleet (Buses? Minivans? Other?)
- 3) How many people work in your organization?
  - a. *Follow up Question:* How many are operators? How many administrators? How many schedulers?
- 4) Which Illinois counties do you serve?
  - a. *Follow-Up Question:* How many of your fleet's vehicles operate across Illinois county boundaries? Wouldn't all of their vehicles serve more than one county?
- 5) Do your fixed route services remain the same throughout the year or do they vary according to demand?
  - a. *Follow-Up Question:* Do you incorporate a type of demand response service?
- 6) What is your current ridership?
  - a. *Follow-Up Question:* Has ridership increased/decreased in 2019? Has ridership increased/decreased over the last 5 years (2015-2019)?
  - b. *Follow-Up Question:* What is your current ridership of regularly scheduled or fixed service? This could be trips per month or riders per month.

- 7) How many passenger trips originated within Illinois in 2019?
  - a. Follow-Up Question: How many passenger trips originated and ended within Illinois in 2019?
  - b. Follow-Up Question: How many passenger trips began in Illinois but ended outside the state in 2019?
  
- 8) Have you looked at expanding your existing service?
  - a. *Follow-Up Question:* Have you conducted a study of market potential?
  - b. *Follow-Up Question:* Have you ever considered adding more frequent service on your existing fixed routes?
  
- 9) Do you have future plans to expand or create additional routes? (Please specify the new routes and the cities they would include.)
  
- 10) What, if anything, has prevented you from implementing new services?

#### **Section 4: Eligible Activities**

The Illinois Department of Transportation (IDOT) has a program that offers funds to support intercity bus service. It provides funds for various activities, including operations, capital, and marketing.

- 1) Are there any intercity bus eligible activities your organization would be willing to apply for intercity bus funding?
- 2) Which of the following activities is your organization considering in participating? (Please choose all that apply.)
  - a. Addition of new services on existing intercity bus qualifying routes (including feeder service)
  - b. Modification of existing routes to meet intercity requirements
  - c. Addition of new intercity bus routes
  - d. Business expansion plans
  - e. Operating assistance to support specific intercity bus route segments
  - f. Applications of ITS technology for coordinated information and scheduling
- 3) Are there any capital needs (a long-term cost like equipment or facilities as opposed to a daily operational cost like labor, fuel, or maintenance) that would help you add or expand intercity bus service? (Please explain and give specifics where possible.)

- 4) Are there any planning or marketing needs that would help your intercity bus service or would lead you to consider offering additional intercity service? (Please explain and give specifics where possible.)
- 5) Are there any other activities that you would be interested in applying for Section 5311(f) funding? (What are some examples of these activities?)
- 6) Is there any additional intercity bus funding that you receive from other state or local government authorities and or nonprofit organizations?

### **Section 5: Challenges & Constraints**

The Federal government has a variety of restrictions attached to accepting government assistance. These include:

- Requiring carriers to be wheelchair accessible
  - Requiring compliance with the Buy American Act, which requires products and components to be made in the U.S.
  - Requiring Protection of Labor – The grantee must protect employee interests if accepting Federal assistance. (The grantee must recognize any union/ organization set up for transit employees' benefit. The Secretary of Labor must certify this arrangement.)
  - Requiring compliance with the Substance Abuse Program, which pertains to wellness programs, substance abuse counseling, and random drug testing.
- 1) Do these restrictions pose a problem in accepting government assistance or participating in IDOT's intercity bus program?
    - a. *Follow-Up Question:* Would these restrictions keep you from applying for funding?
  - 2) The Federal share for operating assistance is 50% for capital projects and 80% for project administration. Would your organization have a problem supplementing the remaining costs and/or identifying matching funds?
  - 3) How would you prefer to see Section 5311(f) intercity bus funding used for your business?

### **Section 6: Conclusion**

- 1) Are there any other organizations (intercity bus carriers, intercity bus stakeholders, etc.) you believe we should speak to in our study?
- 2) Is there any general feedback you would like to provide on the Section 5311(f)

Intercity Bus Program and or IDOT's involvement with the Intercity Bus Program?

Thank you so much for your time, we appreciate your feedback. Your opinions will help shape our study of intercity bus travel in Illinois.

### **Script 3: Feeder service interview script**

#### **Section 1: Consent Process**

Hello,

This is .... I am calling from the University of Illinois at Chicago.

We are conducting a study for the Illinois Department of Transportation (IDOT) to determine unmet intercity bus needs that may require Illinois' intercity bus funds. I'm collecting Data on the transportation services provided within rural Illinois.

If you have some time, I would like to ask you a few questions that will take approximately 10 minutes.

Is that okay with you?



Now, I will read you your rights of confidentiality and privacy which is required by the University to protect you:

You understand that your participation in this study is entirely voluntary and that you can withdraw from the study at any time without penalty. The study team will exclude your name from any reports and will maintain your privacy whether you choose to participate in the study or not.

You understand that your participation in this study will not pose any physical risks to you personally and that you can skip any questions that you are not comfortable answering.

You understand that you will not directly benefit from participating in the study, but that the study may be of benefit to governments, organizations, and individuals interested in improving their state's intercity bus system.

If you have any questions about this study, feel free to ask them now or anytime throughout the study by contacting:

Dr. P.S. Sriraj, Director  
Urban Transportation Center  
University of Illinois at Chicago  
Phone: (312) 413-7568  
e-mail: [sriraj@uic.edu](mailto:sriraj@uic.edu)

If you have any questions about your rights as a research subject, you may write or call

OPRS at the following address:  
Office for the Protection of Research Subjects (OPRS)  
1737, W. Polk Street, M/C 672  
203 Administrative Office Building  
Chicago, Illinois – 60612.  
Phone: (312) 996 1711 or toll free: 866-789-6215  
Email: [uicirb@uic.edu](mailto:uicirb@uic.edu)

By agreeing to participate in the study, you are giving Dr. Sriraj, and his associates, permission to present this work in written and oral form, without further permission from you.

If you agree, please say “**I agree**”.

If you do not agree, please say “**I do not agree**”.

Any questions before we begin the interview?

### Mass Transit & Public/Non-Profit Feeders Script

- 1) Can you tell me your name and position in the organization?
- 2) Do you provide transportation service to \_\_\_\_\_? (name of nearest non-MSA/MSA –  
*dependent on location of feeder*)
  - a. *Follow-up Question:* Do you provide transportation from \_\_\_\_\_? (name of  
nearest non-MSA/MSA previously stated)

If Interviewee answers “yes” to Question 2, skip to Question 4. If interviewee answers “no”, proceed  
to Question 3.

- 3) Would you go to \_\_\_\_\_ (name of nearest non-MSA/MSA previously stated) for an  
additional charge?

If interviewee answered “no” to Question 2 and has answered Question 3, end interview.

- 4) How would you describe your transportation service? Subscription-based or demand response?  
Please describe it.

- 5) Is your service open to the public?

- 6) What towns, cities, and counties do you serve?

- 7) Do you provide service to Amtrak, Greyhound and/or other intercity bus stops or stations?

- a. *Follow-Up Question:* About how many trips per month to these stations? (Rough estimate  
or accurate # is acceptable)

- 8) How much do you charge for your service?

- 9) What are your service hours?

- 10) What is your average ridership? (total per month)

- 11) How many vehicles do you have?

- 12) Is there demand for more service?

- a. *Follow-up question:* Is there additional service your company would like to provide but is  
unable to due to either financial, labor, or capital constraints?

- 13) How many persons a month do you decline? (total per month)

- 14) How are you funded? Privately or Publicly?

- 15) Are you a Section 5310, 5311, or 5311(f) recipient?

- a. *Follow-up question:* If yes, how do you use those funds?

- b. *Follow-up question:* If not currently a Section 5311(f) recipient, would you be interested  
in applying?

16) Any general feedback you would like to provide in regards to connections/coordinating with intercity bus stops and stations?

Private

- 1) Can you tell me your name and position in the organization?
- 2) Do you provide transportation service to \_\_\_Randolf, Perry, Union, Franklin counties \_\_\_\_\_? (name of nearest non-MSA/MSA – *dependent on location of feeder*)
  - a. *Follow-up Question:* Do you provide transportation from \_\_\_\_\_? (name of nearest non-MSA/MSA previously stated)

If Interviewee answers “yes” to Question 2, skip to Question 4. If interviewee answers “no” to Question 2, proceed to Question 3.

- 3) Would you go to \_\_\_\_\_ (name of nearest non-MSA/MSA previously stated) for an additional charge?

If interviewee answered “no” to Question 2 and has answered Question 3, end interview.

- 4) What towns, cities, and counties do you serve?
  - a. *Follow-up Question:* Do you offer county wide transportation?
  - b. *Follow-up Question:* Is there a specific geographical boundary you service? If so, do you accept requests to pick up passengers outside your geographical boundary?
- 5) Do you provide service to Amtrak, Greyhound, intercity bus stops, train stations, or airports?
  - a. *Follow-Up Question:* What is the frequency of this service? Daily, weekly, and monthly.

- 6) Approximately what are your fares from these specific locations?

From: -----	To: -----	\$:-----
From: -----	To: -----	\$:-----
From: -----	To: -----	\$:-----
From: -----	To: -----	\$:-----
From: -----	To: -----	\$:-----

- 7) Is there demand for more service?
- 8) Are you aware of Section 5311(f) funding?
  - a. Are you interested in applying for Section 5311(f) funding?
- 9) Any general feedback you would like to provide in regards to connections/coordinating with intercity bus stops and stations?

## **Appendix B: Interview Transcriptions**

### **Provider 1 – Interview Summary**

Project: Statewide Intercity Passenger Transportation for Illinois

Interview Date: 05/05/20

Interviewer(s): P.S. Sriraj, Paul Metaxatos, Casey Brazeal, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Provider’s Thruway Service (intercity bus, shuttle services, vans, taxis, mass transit services, commuter rail, and ferry services) transports 1.5-1.6 million passengers per year nationwide. Provider does not directly operate intercity bus service and works with intercity bus carriers in the form of two contract agreements: dedicated service agreements & interline ticketing agreements. Provider only has interline ticketing agreements with intercity bus carriers in Illinois. Overall ridership has remained steady over the past few years and the Provider is not planning to implement any bus routes of their own in the near term. This is due to limited resources and not having the legal mandate to do so. Provider is interested in serving communities that currently don’t have intercity bus service but would need to partner with IDOT to implement new service.

#### **Key Points**

- No current dedicated service contract in the State of Illinois.
- In Illinois, Provider has interline agreements with Burlington Trailways, Peoria Charter, Coach USA - Van Galder, Wisconsin Coach – Coach USA, Greyhound, and Executive Transportation.
- Historically, a lot of times Provider would sell bus tickets in combination with train tickets, but they are moving towards selling bus tickets without always having to buy a train ticket.
- In some cases, Provider will provide a “minimum revenue guarantee” where a guaranteed minimum level of tickets will be sold, and this can help make the service commercially viable.
- Providing bus service through the Provider rail program can be cost-effective for DOTs because Provider can get a good price for the service and they can leverage the power of their website, ticketing system, 24/7 contact center, and relationship to services such as Wanderu, Savers, and Concur.
- Bus/rail stations and stops is a key opportunity for the state DOT to coordinate improvement.

**Eligible Activities** – Provider has not nor is a current recipient of Section 5311 or Section 5311(f) funding and it would be the intercity bus carriers that Provider contracts with that would receive this type

of funding. If Provider were to receive Section 5311 funding, they would be interested in all eligible activities and particularly in train station improvement.

### **Key Points**

- Recommendation: a universal bus tracking for all public transportation in a database so customers can track their bus.
- Provider is working on ticketing scanning that would be universal across different intercity bus carriers. Greyhound is also working on this.
- The only funding that is provided to Provider, besides the federal government, is from the State of Illinois and IDOT.
- The bus network doesn't have the same visibility and they were looking at radio and social media campaigns to raise awareness of the bus route.

**Challenges & Constraints** – Provider has been more aggressive in recent years towards providing matching funds for capital grant applications to state DOTs and matching funds is required to come from generated revenue. An interviewee observed that one of the main challenges/constraints is “modal silo thinking” - the local transit system, intercity rail system, and intercity bus system operate separately and are not necessarily thought about together, and this can be a potential opportunity IDOT can invest and improve upon. Also, Provider needs state partners because Federal law does not allow Provider to start a dedicated Provider bus route and sell bus-only tickets without a train ticket, unless the state or local government is a partner that is providing the funding. Lastly, the COVID-19 pandemic has affected advertising for one of Provider's new intercity bus routes and has put at risk future bus routes as well as the intercity bus and rail network and it will take some time for Provider to gain back its ridership to normal levels.

### **Key Points**

- ADA compliance, Protection of Labor, and Substance Abuse Program do not pose problems to Provider as most of these requirements fall upon the intercity bus carriers with which they have contracts agreements with.
- Interviewee also thinks that intercity bus companies are fiscally challenged. The largest intercity bus carrier Greyhound has been divesting a lot of their real estate, and Greyhound no longer operates the western part of Canada and has not been replaced.
- Provider spent something like \$40-50 million to switch from paper ticket to online, which eliminated 30 million paper tickets a year.

- Provider was on track to cover 100% or more of its operating cost from ticket revenue and earned revenue and state contract service, and instead they will lose hundreds of millions in operating cost due to the COVID-19 pandemic.

### **Provider 2 – Interview Summary**

**Project:** Statewide Intercity Passenger Transportation for Illinois

**Interview Date:** 06-02-2020 @ 9:00 AM

**Interviewer(s):** Dr. P.S. Sriraj; Elliott Lewis; Jean-Paul Manzanarez

**General Introduction** – Operates intercity service through six Midwestern states, operates rural service in many areas, and connects with other intercity carriers to enable service across continental U.S./Canada and through other rural areas. Has 65 bus drivers and roughly 70 support employees. Does not change schedules but adds extra coaches to specific runs as ridership demands. Operated six routes in Illinois pre-COVID, now down to three. Company was forced to cut service in Illinois due to operating losses and lack of state funding but is open to restoring service if the state could cover the operating deficit.

#### **Key Points**

- Operates mostly 55-56 passenger coaches with wheelchair lifts, and several more with fewer seats for added leg room. Operated 39 coaches pre-COVID, now operates 26.
- Provider has state-funded coaches from Iowa and Missouri, and previously had one additional one from Colorado. All other coaches are company owned.
- 35% of company’s route-miles are in Illinois. Ridership within a state is not tracked unless the state requires it for subsidy purposes.
- Company does not publish its timetables, as it considers them “confusing”. Schedule information is provided as part of their online ticket-purchase process.
- They have only one employee to conduct marketing, and no time or staff for studying potential markets.

**Eligible Activities** – They are not a Section 5311(f) recipient in Illinois, but are one in Iowa, Nebraska and Missouri. They are interested in feeder service (and are partaking in a similar study in Nebraska); however, they are an interline bridge partner with a nationwide bus carrier, and as such are subservient to their partner’s schedule. They are interested in all activities except for Intelligent Transportation System

technology, as their interline agreement requires them to use their nationwide partner's reservation system. All other activities were subject only to funding and requirements for drivers.

### **Key Points**

- Funding from Illinois requires a level of accounting and reporting for which they are not equipped. Also, as a non-Illinois company, they must apply as a third party with an in-state partner. No other state requires such third-party application.
- They had previously tried working with a regional feeder in Ottumwa, Iowa roughly ten years ago, but had problems with missed connections and schedule conflicts that left passengers stranded and dropped the connection. They have not repeated the project.
- They need capital assistance to replace motor coaches, and company vehicles that transport drivers for mid-route reliefs. Cannot replace them when they are currently operating at a loss.
- They currently use free advertising such as Facebook and paid targeted advertising as funds allow. They are open to anything else that will help spread awareness of their service.
- They receive 5311(f) funding from Iowa, Missouri and Nebraska, and CARES funding from all states in which they operate, except for Illinois.

**Challenges & Constraints** – ADA presents a problem for adding extras, as extra buses must be ADA-compliant and not all their buses have wheelchair lifts. They have no problem with matching funds for a capital grant. Lack of support from Illinois means that they may have to cut additional Illinois service if the deficit cannot be covered.

### **Key Points**

- They would like to use their non-ADA-compliant buses for extras and require only the scheduled-service buses (to which extras are added) to be ADA-compliant.
- They had one competitor, on a Chicago-Michigan route, that was able to use newer buses owned by the State of Michigan, which left them at a disadvantage.
- Illinois' state-specific application requirements for 5311(f) funding are not based on Federal guidelines or observed by any other states within carrier's service territory.
- Operating losses were previously covered with charter and tour revenue, which is now gone due to the COVID crisis.
- States need to fund rural operations and provide capital supports, or service will be cut, and carriers will go out of business.



### **Provider 3 – Interview Summary**

**Project:** Statewide Intercity Passenger Transportation for Illinois

**Interview Date:** 06/08/20 @ 1:00 PM CDT

**Interviewers:** Paul Metaxatos, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Provider is a nationwide bus carrier that also coordinates with other bus carriers and Provider to help extend its service area. Views other carriers as complements rather than “enemies” or rivals. Most of its service expansion today consists of adding service to existing routes rather than developing new route mileage. Their routes are dominated by the needs of the major markets, which has an effect on service provided to lesser markets regardless of demand.

#### **Key Points**

- Operates 54-seat motor coaches reconfigured to 50 seats for passenger comfort. Owns or leases all of its own buses.
- Base service schedules operate throughout the year and are augmented with supplementary service (generally additional sections on existing runs) during the summer or as needed.
- Operates a wide variety of stops, including company-owned stations, “concession” stations, flagstops, and shared facilities with other carriers. Every stop is different because every market is different, and they are more welcome in some communities than others.
- Pursues intermodal connections wherever they see an opportunity.
- Interlines actively with many smaller carriers around the country.

**Eligible Activities** – Provider is a 5311(f) recipient in 19 states and has subsidies for capital equipment (mainly buses) in several more. They do not receive capital or marketing support from Illinois. They have received support for new route pilot projects, one of which is now a subsidized regular route. They are interested in all eligible activities, provided they are supported by either subsidy or operating revenue.

#### **Key Points**

- Any change to service must justify itself, not only in terms of operating costs, but effects on travel time elsewhere along the route.
- They receive operating grants but not user-side subsidies.
- They manage their own nationwide marketing plan and trip planning algorithms, in part to ensure that a passenger is not left stranded en route.

**Challenges & Constraints** – None of the Federal mandates for funding are a constraint.

### **Key Points**

- Company has no problem providing matching funds.
- Contracting process within Illinois is very cumbersome compared to other states.
- Nationwide travel had dropped by 80% due to the COVID crisis, and they were currently concerned only with survival and reconstruction of their ridership to pre-crisis levels.

### **Provider 4 – Interview Summary**

Project: Statewide Intercity Passenger Transportation for Illinois

Interview Date: 05/12/20 @ 4:00 PM CT

Interviewer(s): Paul Metaxatos, Casey Brazeal, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Currently 60-70% of their transportation consists of bus transportation compared to transporting passengers in sedans and limousines and operating about 70 vehicles. They have two intercity bus routes: 1) Chicago to Bloomington, IN & 2) Chicago to Urbana-Champaign. They do not have ridership information and overall intercity bus stops have stayed the same and they're not looking to add any stops or routes.

### **Key Points**

- They have 45 buses that range from a 14-passenger to a full-sized motor coach.
- The Chicago-Bloomington line started in January. It has one vehicle and is managed by a separate contractor.
- C-U route has three stops: Champaign, Northern Suburbs, Chicago. Customers can buy a ticket on the Provider's website and the route is managed in-house. This route started in 2018 and only runs on weekends.

**Eligible Activities** – They are not a Section 5311(f) recipient, but if they were they would be interested in all eligible activities except "Capital grants for intercity bus shelters". They believe that if there's capital available it's much easier to expand. Right now, they're going organically through developing the route and planning/marketing and investing money into advertisements through Google and Facebook

### **Key Points**

- The way they started those routes (C-U to Chicago & Chicago to Bloomington, IN) they saw some interest between clients and started marketing to students. They didn't see a huge

increase in interest. Starting in the 2019 school year though, they doubled their regular riders. They would expand if they saw the need.

- If there was direct assistance from a DOT or even outreach from their end to expand knowledge about the service would help.
- If they knew the number of students (and who they are) in one of the campuses that need to go to Chicago, they could market it much easier.
- They receive no public funding or assistance.

**Challenges & Constraints** – At the moment, they don't have any accessible vehicles, but if there is funding available there would be no problem in obtaining ADA vehicles. If they could use Section 5311(f) funding, they would prefer it to go towards capital on ADA accessible vehicles and marketing and advertising. As well a portion to cover operational costs related to the intercity bus route. Overall, their lack of ridership is their main concern for both routes, and they feel like right now they can only rely on word of mouth and advertising to increase ridership.

#### **Key Points**

- Provider would have no problem providing matching funds.
- They don't experience any challenges with other intercity bus carriers.
- Champaign-Urbana to Chicago costs about \$25. Bloomington to Chicago fluctuates and is set by their service partner, but average price is about \$45-60.
- The main advantage of this company is they have the data to know where a route may be more successful. Interviewee is pleased with their performance on that side. He thinks they had discussions about the Provider managing the Champaign-Urbana route as well but that wasn't ever finalized.
- Their smaller vehicles are higher-end, luxury vehicles so it might not be economically feasible to implement feeder/taxi like services.

#### **Provider 5 – Interview Summary**

Project: Statewide Intercity Passenger Transportation for Illinois

Interview Date: 5/29/2020

Interviewer(s): P.S. Sriraj, Paul Metaxatos, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Interviewee is Vice President of Retail; has been with provider for ten years and the parent company for sixteen years. Oversees pricing, scheduling, marketing, and customer service needs. Also oversees the scheduling and driver rostering process and is always looking for areas to improve. Routes operated out of Chicago included service to Atlanta, Dallas, Indianapolis, Minneapolis, Omaha, Washington, Boston, Moline, New York City, Rockford, California, and Canada. Additionally, the provider also operated a 5311(f) supported contract service for the Commonwealth of Virginia. At the time of the interview, the company had suspended most of their Midwestern routes, including all intercity service within Illinois.

### **Key Points**

- Before the COVID-19 crisis, Provider operated roughly 200 buses in U.S. and twenty more in Canada, all of them in constant rotation through service and routes.
- Provider has 500 drivers and 41 administrators, some of whom also work with other carriers owned by the parent company that operate out of common terminals. The parent company has roughly 5,000 employees.
- Scheduled route services vary according to demand, generally on a seasonal basis, but also sometimes on a day-by-day basis.
- Stop types vary from curbside to major transportation centers shared with other carriers.
- Stops and service extensions have been added to existing service, but no “new” routes have been created.
- Expressed interest in increasing first-mile/last-mile service but considers themselves hindered by inadvertent competition among carriers and non-compatible reservation and back-office computer systems among carriers.
- Provider seldom sees transfers made by passengers due to length of trips and does not offer transfers as part of its trip-planning process.
- No studies of market potential have been made in recent years; provider would first consider demand, then fleet and maintenance availability versus need for new investment, and competing service already in place.

**Eligible Activities** – Provider is interested in any and all activities eligible for intercity bus funding, particularly any that will allow coordination with feeders for first-mile/last-mile service and interline reservations with other carriers.

### **Key Points**

- Vehicles are their first priority for capital needs, followed by passenger facilities and technology.
- Provider is interested in any information that would indicate unmet demand or service opportunities, and marketing help.

**Challenges & Constraints** – Provider observes all of the restrictions attached to accepting government assistance. Every bus on the provider’s network, and those of their subcontracting services, is wheelchair accessible. They would like to see 5311(f) funding also applied to operating costs, especially on rural routes.

**Key Points**

- Matching funds have not been a problem for the provider in the past.
- Competition among bus carriers is intense outside of the Chicago market, particularly in the northeast, and carriers are having to compete with inexpensive gasoline and air fares in addition to each other.
- Provider recommends speaking to the American Bus Association.
- Provider has had a great relationship with Virginia on their state-subsidized service and is glad to see that the State of Illinois and IDOT are studying intercity bus service.

**Provider 6 – Interview Summary**

Project: Statewide Intercity Passenger Transportation for Illinois

Interview Date: 03/19/20

Interviewer(s): P.S. Sriraj, Paul Metaxatos, Casey Brazeal, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Provider is an online sales and marketing company that creates contracts with local operators to run services such as intercity bus routes and commuter routes. They do not directly own any of the buses or provide any direct bus transportation. They currently work with 40 operators across the country. Two of those operators work in the Midwest (1 in Illinois and 1 in Indiana). Their Illinois operator is also a part of this study; they only have one intercity bus route within Illinois and that is their Chicago to Indianapolis route. Most of the operators they work with are medium sized (5-15 buses) where their smallest buses can carry 25 passengers and their larger buses can carry about 50 passengers. Provider’s staff size about 50 people with 1-2 people dedicated to scheduling and most of their staff is centralized to area in which they operate the most.

## **Key Points**

- Schedules are proposed to the operators and are created with a mix of forecasting and operator constraints.
- Their schedules can change somewhere between 10 to 20 times per year
- The Chicago – Indianapolis route was an opportunity since the previous dominant service lost its government subsidy.
- Crowdsourcing routes are created when at least 100 people make requests for a route. There have been instances where such a route has been created and has not been found to be feasible later on.
- Provider now tends to stay away from suburban commuter service because they don't see profitability in those routes.
- Chicago – Indianapolis route has about 60 people and does 1 round trip per day.
- Their busiest corridor is New York – Washington, D.C. has about 200-1000 passengers/day.
- Provider was supposed to launch this month a last-mile taxi service that was supposed to be in competition to Uber and Lyft.
- The number of curbside stops has increased over the past 5 years, and they operate in 65 cities.
- Provider considers three critical points for any market opportunity: 1) market has to be large enough 2) Avg. fare per mile 3) internal study of the market and potential routes

**Eligible Activities** – Provider has been told by their attorneys that they are not eligible for any Section 5311 funding because neither they nor their operators have a DOT number. There is a route called the “Virginia Breeze” in which the operators approached the Virginia Department of Transportation and proposed a deal to subsidize a route and include a major national bus carrier as a web partner in the contract where the carrier would be responsible for ticket sales. This could be a method that this company could follow to obtain Section 5311(f) funding.

## **Key Points**

- Provider feels that they have grasped and understood how to create and work with operators in terms of intercity bus routes so they are now focused on 1) increasing business expansion (i.e., turning 3 routes into 4 routes) and 2) tackling last-mile problem with the launch of a taxi service that would connect passengers at their destination to wherever else they need to go once they have arrived.
- Prioritizing new routes for Provider depends on:

- Financial terms that operators are demanding
- Avg. fare per mile
- Proximity to existing hubs

**Challenges & Constraints** – Operational constraints fall upon the operators that Provider works with. Provider is responsible for making sure operators stay compliant by looking at DOT records, but there is not much they can do in terms of enforcement. Provider also receives general hostility from competitors that can be observed in terms of pricing wars and lack of willingness to share stops at stations/terminals even if the stop is not committed to any one particular intercity bus company. This has improved though since the Provider’s name recognition has grown over the years. A lot of their challenges come from state and local governments. Some states require public utility applications to run any intercity bus routes and the terms require to submit any application when prices and schedules change, but in order to be successful in the intercity bus industry there needs to be experimentation with prices and scheduling in order to be profitable. Also, some of those states require intercity bus carriers to ask for permission before discontinuing service which causes some carriers to run at a loss. This scares off not only the Provider, but other companies as well that wish to establish business in those states.

#### **Key Points**

- Most of their operators have not applied for Section 5311(f) funding.
- Applications for bus routes are meant for bus operators that have a DOT number. The more operators there are, the more applications that must be completed, and the more complicated the application process can become.
- Overlapping permits can be seen as congestion.
- Business in the state of California is not feasible for them due to the restrictions.
- New York and Pennsylvania have some of those restrictions mentioned.
- The Provider has worked well with the Chicago Department of Transportation. CDOT understood their business plan with multiple operators, and they even expedited their applications.

**Conclusion** – Provider believes that some cities are struggling to maintain bus services, but they are too large to receive rural funding, yet not yet large enough to manage their own system. Also, it would be helpful if IDOT and other DOTs would be able to include non-operators in their Intercity Bus Program.

#### **Key Points**

- Flixbus is a company they recommend we speak to. They are similar to the Provider and also want to establish a nationwide intercity bus system in competition to Greyhound.
- They haven't really explored pop-up routes/crowdsourcing routes with rural college campuses in Illinois (U of I – Urbana Champaign), but they also believe U of I is already well served.
- They wouldn't explore implementing a route from Chicago to Milwaukee because they believe that route is well served via rail, but they would explore the option of Milwaukee to O'Hare.
- Provider has spoken with the federal government, but not much has gone beyond that.

### **Provider 7 – Interview Summary**

Project: Statewide Intercity Passenger Transportation for Illinois

Interview Date: 4-9-2020 @ 9:00 AM

Interviewer(s): P.S. Sriraj, Casey Brazeal, Jean Paul Manzanarez

**General Introduction** – Provider operates line-haul service on two routes from Chicago's O'Hare Airport to Peoria and Champaign-Urbana. They carry over 3 million passengers (combined charter and line-haul) per year, and their ridership has increased by 480% since 2011. Scheduled base service is 10 runs per day, with additional augmentation for special events nine times per year. They must coordinate between charter and line-haul services so as not to oversell the available buses; they maintain dispatchers and fleet coordinators in each of their base cities for this purpose. The line-haul service takes priority on a seasonal basis, and third-party charters with partner carriers are arranged as needed. Typical run time is 3 to 3-1/2 hours and they do not wish to add additional stops.

#### **Key Points**

- Operates a total of 72 buses, ranging from 55-passenger intercity motor coaches to 15-passenger "transit" buses.
- Company's internal ticket sales program is designed to accommodate on-the-fly division of service during peak load events.
- Intermodal stops are used in larger cities but are regarded as unsafe by students. Three on-campus stops are used in Champaign-Urbana. Suburban Chicago stops are made in parking lots, or curbside, without permits. O'Hare Airport requires a permit.
- Schedules are refined both annually and from real-time information; if needed, they will notify customers to arrive early or late for scheduled buses.
- A Decatur-Champaign route had been under consideration prior to COVID; a Champaign-Indianapolis test route proved unsuccessful.



- Service has been cut drastically since March due to the COVID crisis; the Urbana-Champaign route has been cut from 10 daily trips to three, and the Peoria route has been eliminated altogether due to lack of ridership. Of 140 employees, 130 had been laid off at the time of interview.

**Eligible Activities** – They are not a Section 5311(f) recipient, and do not serve rural areas, but are interested in IDOT funding. They have a low profit margin but operate the line-haul service because it has a good following and helps their charter business. They do have capital needs, but do not want to raise ticket prices.

### **Key Points**

- Routes and service are chosen based on demand through ticket sales; in particular, sales missed due to sold-out capacity.
- They want to buy more buses, to reduce dependence on third-party buses; they also want additional parking and modern traffic equipment.
- They already generate much attention from marketing operations and have little need to advertise new routes.
- They receive no public funding or assistance.

**Challenges & Constraints** – Provider sees no problem with meeting government assistance requirements. They would use any intercity bus funding received to improve existing service and expand ADA compliance. They have been stretching existing assets as much as possible to support service and are limited in implementing new service only by money and perceived risk involved.

## **Provider 8 – Interview Summary**

**Project:** Statewide Intercity Passenger Transportation for Illinois

**Interview Date:** 03/23/20

**Interviewer(s):** P.S. Sriraj, Paul Metaxatos, Casey Brazeal, Elliott Lewis, Jean Paul Manzanarez

**General Introduction** – Provider is a rural public transportation agency and non-profit organization that operates in nine Illinois counties (DeWitt, Ford, Iroquois, Kankakee, Livingston, Logan, Mason, McLean). Their organization is composed of about 50 total employees and operate in three of the largest counties in the state. Their fleet bounces between super-medium to medium duty. Ridership has increased exponentially due in large part by becoming eligible for the Downstate Operating Assistance Program

(DOAP) as well as taking on new counties to operate within. Ridership might decrease this year because before this fiscal year they provided Head Start transportation for 3 years in two of their counties and now an agency has shut down all transportation without notice. IDOT has recently defunded Provider's intercity service route (*Pontiac to Bloomington*). This route ran 3 to 4 loops per day with an east-west connector. This intercity bus route started in December and is already not proceeding as planned. Provider does help make connections with intercity bus carriers (Greyhound, Burlington, Peoria Charter) and they believe they do a good job of connecting with Amtrak stations.

### **Key Points**

- One employee reviews and looks to make certain that resources in 8 of 9 counties are being used properly. This is done with an in-house software program.
- Many of their routes require super-medium vehicles.
- Provider offers deviated fixed routes (DFR) and the deviated fixed routes remain the same throughout the year.
- DOAP has helped increase wages to almost all employees by \$2 and to help provide employee benefits.
- Iroquois and Kankakee Counties would always opt for more service.
- Provider has transportation partners in Livingston County, so if any of those partners were to stop providing transportation services then that would probably increase Provider's ridership.
- Provider does not operate service across state borders.
- Intercity bus route stops take many forms for Provider, including restaurants, community centers, community buildings, or stations.
- It takes 6 months to 1 year to build trust with routes and then people become very dependent on the established bus system and routes.

**Eligible Activities** – Provider shows interest in capital grants, but they are unable to be used unless it also involves intercity bus service. Operating assistance is also of interest because it would help make meaningful connections with rural residents that really need the service. Provider would apply for Section 5311(f) funds again in the future if funds were guaranteed for a few years (3-5) to give rural residents time to establish trust with routes and the system. Marketing through word of mouth is important in rural areas and relationships and reputation is important as well. If they had known that their intercity bus route would be defunded, Provider would have done more marketing efforts in a traditional manner. Provider also has a strict budget, and the intercity bus route was defunded because funding was projected to not be spent, but

if they had spent all of the funding they received, Provider would not have had enough funds for other essentials such as payroll.

### **Key Points**

- They do not have interest in purchase of service agreements with for-profit intercity bus carriers.
- Small towns are losing intercity bus business. For example, Peoria Charter no longer stops in Pontiac, IL, but they stop in Bloomington, IL.
- Provider was rewarded money in Kankakee County to connect with Greyhound to build bus shelters and they are moving forward with those bus shelters. This was not a large financial commitment.
- Most of their matches comes from service contracts and they also have a yearly fundraiser for counties, townships, and villages to donate funds.

**Challenges & Constraints** – Provider does not have any challenges or experiences restrictions with the wheelchair accessibility, Buy American Act, Protection of Labor, or Substance Abuse Program. Provider is underfunded for Section 5311 and have not had an increase in Section 5311. Since DOAP grows at 10% per year and creates a surplus, they are looking for assistance to meet the DOAP match and Section 5311(f) funds could help meet the match. Provider believes intercity bus carriers have their own agendas and having intercity bus meetings where rural public transportation companies and intercity bus carriers can speak directly to one another can be beneficial and is critical to have. They do not have trouble acting as a feeder service for intercity bus carriers.

### **Key Points**

- Provider is interested in the following: direct operating subsidy to public carriers to provide service to routes not serviced by private carriers, direct capital subsidy to public carriers, and planning assistance.
- Provider is not interested in the following: direct operating subsidy to private carriers and direct capital subsidy to private carriers.
- Provider must receive funds through counties, so they are a subrecipient of Section 5311 and Section 5311(f). Its counties receive the funding, and they in turn distribute funds to the Provider.
- They have a formal intergovernmental agreement with McClean County connecting them to subsidiary counties.

- Provider submits requests to 3 grantees: McLean, Logan, and Kankakee Counties.
- Logan County and Mason County have intergovernmental agreements.
- Amount received from grantees varies and funds could be federal or state.

**Conclusion** – Overall, IDOT needs to come up with an overarching vision that includes long-term planning for Section 5311(f) and needs to be committed to it.

**Key Points**

- Some of the most important stakeholders represent transportation challenged populations. For example, those with disabilities.
- Urban to urban should be investigated as well.

## Appendix C: List of Identified Carriers

Table C1: Intercity carriers

Intercity Carriers	Contacts
Greyhound	P.O. Box 660362, Dallas. TX 75266
Stage Coach Group: Megabus	Inquiries@megabus.com
Stage Coach Group: Coachlines	No information found.
Amtrak	1 Massachusetts Avenue NW, Washington, DC 20001. 1-800-USA-RAIL
Peoria Charter Bus (PCC)	info@peoriacharter.com
Indian Trails	109 E. Comstock Street, Owosso MI 48867. (800) 292-3831
Trailways	info@trailwaysny.com
Barons Bus	1-888-378-3823
OurBus	1-844-800-6828
Burlington Trailways	906 Broadway Street, West Burlington, IA 52655. (319) 753-2864
Miller Transportation (Hoosier Ride)	(800) 544-2383
Show Bus	(815) 945-8500
M&M Limousine	(847) 257-2111

Table C2: Feeder services.

Feeder service name	Feeder type	Location city	Location county	Route type	Website	Phone no
Bond County Transit	Mass transit	St. Louis	Bond	scheduled and on-demand	<a href="https://www.bondcountyttransit.org">https://www.bondcountyttransit.org</a>	
Champaign-Urbana Mass Transit District (MTD)	Mass transit	Champaign	Champaign	scheduled and on-demand	<a href="https://mtd.org/">https://mtd.org/</a>	
Connect Transit	Mass transit	Bloomington	McLean	scheduled and on-demand	<a href="https://www.connect-transit.com/">https://www.connect-transit.com/</a>	
County Link	Mass transit	Peoria	Peoria	scheduled	<a href="https://www.ridecitylink.org/about/countylink/">https://www.ridecitylink.org/about/countylink/</a>	
CRIS Rural Mass Transit District	Mass transit	Danville	Vermillion	scheduled and on-demand	<a href="https://www.ruraltransits.org/">https://www.ruraltransits.org/</a>	
Danville Mass Transit	Mass transit	Danville	Vermillion	scheduled and on-demand	<a href="http://www.ridedmt.org/">http://www.ridedmt.org/</a>	
Fulton County Rural Transit	Mass Transit	Canton	Fulton	on-demand	<a href="http://www.fultonco.org/fulton-county-rural-transit/">http://www.fultonco.org/fulton-county-rural-transit/</a>	
Jo Daviess County Transit	Mass Transit	Galena	Jo Daviess	on-demand	<a href="https://www.jodaviesscountytransit.com/">https://www.jodaviesscountytransit.com/</a>	(815) 777-8088
Lee Ogle Transportation System	Mass Transit	Dixon	Lee, Ogle	on-demand	<a href="http://lotsil.org/">http://lotsil.org/</a>	(888) 239-9228 (815) 288-2117 (815) 288-9236
Macoupin County Public Transportation	Mass Transit	St. Louis	Macoupin	on-demand	<a href="https://mcpd.net/macoupin-county-transit/">https://mcpd.net/macoupin-county-transit/</a>	
Madison County Transit	Mass Transit	St. Louis	Madison	scheduled and on-demand	<a href="http://www.mct.org">http://www.mct.org</a>	
Marshall-Stark Transportation	Mass Transit	Peoria	Marshall, Stark	on-demand	<a href="https://tricitytrpc.org/transportation/transit/">https://tricitytrpc.org/transportation/transit/</a>	
North Central Area Transit (NCAT)	Mass Transit	Ottawa	La Salle	on-demand	<a href="https://ridencat.com/">https://ridencat.com/</a>	833-433-6228 815-313-8169
Piatt County Public Transportation	Mass Transit	Champaign	Piatt	on-demand	<a href="https://www.piattran.org/">https://www.piattran.org/</a>	
Quincy Transit Lines	Mass Transit	Quincy	Adams	scheduled and on-demand	<a href="https://www.quincyil.gov/explore/quincy-transportation/quincy-transit/senior-citizen-transportation">https://www.quincyil.gov/explore/quincy-transportation/quincy-transit/senior-citizen-transportation</a>	217-224-3535

					<a href="https://www.quincycil.gov/explore/quincy-transportation/quincy-transit">https://www.quincycil.gov/explore/quincy-transportation/quincy-transit</a>	
Rides Mass Transit - Edgar County	Mass Transit	Paris	Edgar	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Cumberland County	Mass Transit	Greenup	Cumberland	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Saline County	Mass Transit	Harrisburg	Saline	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Hamilton County	Mass Transit	McLeansboro	Hamilton	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Jasper County	Mass Transit	Newton	Jasper	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Lawrence County	Mass Transit	Lawrenceville	Lawrence	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Wayne County	Mass Transit	Fairfield	Wayne	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
Rides Mass Transit - Williamson County	Mass Transit	Marion	Williamson	scheduled	<a href="https://www.ridesmtd.com/routes-by-county/offices/">https://www.ridesmtd.com/routes-by-county/offices/</a>	
River Valley Metro Mass Transit District	Mass transit	Kankakee	Kankakee	scheduled	<a href="https://www.rivervalleymetro.com/">https://www.rivervalleymetro.com/</a>	
Sangamon/Menard Area Regional Transit	Mass Transit	Springfield	Menard, Sangamon	on-demand	<a href="https://co.sangamon.il.us/departments/s-z/smart">https://co.sangamon.il.us/departments/s-z/smart</a>	
Show Bus	Mass Transit	Bloomington	McLean	scheduled and on-demand	<a href="https://www.showbusonline.org/index.html">https://www.showbusonline.org/index.html</a>	(800) 525-2454
Tri-County Rural Transit	Mass Transit	St. Louis	Calhoun, Jersey	on-demand	<a href="http://ilvalley-edc.org/transportation/">http://ilvalley-edc.org/transportation/</a>	
West Central Mass Transit District	Mass Transit	Jacksonville	Morgan	on-demand	<a href="https://wcmtd.org/">https://wcmtd.org/</a>	217-245-2900
We Care, Inc	Mass transit	Peoria	Tazewell	on-demand	<a href="https://www.wecareofmorton.com/services/transportation/">https://www.wecareofmorton.com/services/transportation/</a>	
Abilities Plus (Henry County Public Transportation)	Public/Non-Profit	Kewanee	Henry	on-demand	<a href="http://www.abilitiesplus.org/">http://www.abilitiesplus.org/</a> <a href="http://www.ride-hcpt.com">http://www.ride-hcpt.com</a>	
Boone County Public Transportation	Public/Non-Profit	Rockford	Boone	on-demand	<a href="http://www.keenage.org/paratransit.html">http://www.keenage.org/paratransit.html</a> <a href="https://www.boonecountyil.org/residents/transportation/index.php">https://www.boonecountyil.org/residents/transportation/index.php</a>	
Bureau & Putnam Area Rural Transit (BPART)	Public/Non-Profit	Princeton	Bureau	on-demand	<a href="https://www.ridebpart.org/">https://www.ridebpart.org/</a>	(877) 874-8813
Carroll County Transit	Public/Non-Profit	NA	Carroll	on-demand	<a href="https://www.carroll-county.net/carrollcountytransit">https://www.carroll-county.net/carrollcountytransit</a>	815-244-1800 815 244-0011 815-821-3776
Central Illinois Agency on Aging, Inc	Public/Non-Profit	Peoria	Peoria	on-demand	<a href="https://ciaoa.net/node/269">https://ciaoa.net/node/269</a>	
Central Illinois Public Transportation	Public/Non-Profit	Effingham	Effingham	on-demand	<a href="https://www.cefseoc.org/transportation-cipt">https://www.cefseoc.org/transportation-cipt</a> <a href="http://www.visiteffinghamil.com/Home/Components/BusinessDirectory/BusinessDirectory/685/286">http://www.visiteffinghamil.com/Home/Components/BusinessDirectory/BusinessDirectory/685/286</a>	1-855-755-CIPT(2478)
Dial-A-Ride Rural Public Transportation Program (Coles County Council on Aging)	Public/Non-Profit	Charleston	Coles	on-demand	<a href="http://www.dialaridetranisit.org/about.html">http://www.dialaridetranisit.org/about.html</a>	217-639-5169 800-500-5505
Pretzel City Area Transit	Public/Non-Profit	Freeport	Stephenson	on-demand	<a href="https://www.pretzelcitytransit.com/">https://www.pretzelcitytransit.com/</a>	(815) 232-6200
Shawnee Mass Transit District	Public/Non-Profit	Cape Girardeau	Alexander	on-demand	<a href="https://shawneemtd.com/">https://shawneemtd.com/</a>	
South Central Transit	Public/Non-Profit	Centralia	Marion	on-demand	<a href="http://southcentraltransit.org/">http://southcentraltransit.org/</a>	618-532-8076
Warren Achievement Center (Warren County Public Transportation)	Public/Non-Profit	Monmouth	Warren	scheduled and on-demand	<a href="http://www.warrencountyil.com/about-us/public-transportation">http://www.warrencountyil.com/about-us/public-transportation</a>	(309) 734-3131 (309) 734-6001
Whiteside County Public Transportation (WCPT)	Public/Non-Profit	Sterling	Whiteside	on-demand	<a href="https://ridewcpt.net/">https://ridewcpt.net/</a>	815-625-7433

Act II Transportation	Private	Rock Island	Rock Island	on-demand	<a href="https://actiitransportation.com/daily-shuttle-to-chicago-airports/">https://actiitransportation.com/daily-shuttle-to-chicago-airports/</a>
All Star Taxi	Private	Peoria	Peoria	on-demand	<a href="https://website--46678821292376188672-taxiservice.business.site/">https://website--46678821292376188672-taxiservice.business.site/</a>
Coles County Transportation	Private	Charleston	Coles	on-demand	<a href="https://www.colescountytrans.com/">https://www.colescountytrans.com/</a> (217) 345-7433
Effingham Taxi	Private	Effingham	Effingham	on-demand	<a href="https://www.effinghamtaxi.com">https://www.effinghamtaxi.com</a> (217) 342-3119
R.C. Smith Transportation	Private	Morrison	Whiteside	on-demand	<a href="https://www.rcsmithtransportation.com/">https://www.rcsmithtransportation.com/</a> 800-443-7226 815-772-7226
Rockford Rides	Private	Rockford	Winnebago	on-demand	<a href="https://www.rkfdrides.com/limo-service-rockford">https://www.rkfdrides.com/limo-service-rockford</a>
Spee-Dee Transportation	Private	Rockford	Winnebago	on-demand	<a href="https://www.speedeetaxirockford.com/4091754.html">https://www.speedeetaxirockford.com/4091754.html</a>

## Appendix D: Results of Alternative Deficiency Approach by Scenario

### D-1. Result of the 10-mile buffer scenario by county

County	Total Population	Pop within ICB buffer	Pct of pop within ICB buffer	Pop within ICB and feeder buffer	Pct of pop within ICB and feeder buffer	Pct group of ICB	Pct group of ICB and feeder
ADAMS	66,085	52,766	79.9	66,085	100.0	75-100%	75-100%
ALEXANDER	6,260	0	0.0	6,260	100.0	0-25%	75-100%
BOND	16,589	0	0.0	16,589	100.0	0-25%	75-100%
BOONE	53,537	49,708	92.9	53,537	100.0	75-100%	75-100%
BROWN	6,628	0	0.0	0	0.0	0-25%	0-25%
BUREAU	33,122	11,254	34.0	33,122	100.0	25-50%	75-100%
CALHOUN	4,830	0	0.0	0	0.0	0-25%	0-25%
CARROLL	14,466	0	0.0	14,466	100.0	0-25%	75-100%
CASS	12,493	0	0.0	0	0.0	0-25%	0-25%
CHAMPAIGN	209,922	168,520	80.3	209,922	100.0	75-100%	75-100%
CHRISTIAN	32,931	0	0.0	0	0.0	0-25%	0-25%
CLARK	15,716	0	0.0	0	0.0	0-25%	0-25%
CLAY	13,287	0	0.0	0	0.0	0-25%	0-25%
CLINTON	37,634	0	0.0	0	0.0	0-25%	0-25%
COLES	51,353	23,480	45.7	51,353	100.0	25-50%	75-100%
COOK	5,198,275	5,155,855	99.2	5,155,649	99.2	75-100%	75-100%
CRAWFORD	18,972	0	0.0	0	0.0	0-25%	0-25%
CUMBERLAND	10,836	0	0.0	10,836	100.0	0-25%	75-100%
DE KALB	104,366	75,418	72.3	75,415	72.3	50-75%	50-75%
DE WITT	15,932	0	0.0	0	0.0	0-25%	0-25%
DOUGLAS	19,623	0	0.0	0	0.0	0-25%	0-25%
DU PAGE	929,060	904,883	97.4	904,904	97.4	75-100%	75-100%
EDGAR	17,407	0	0.0	17,407	100.0	0-25%	75-100%
EDWARDS	6,455	0	0.0	0	0.0	0-25%	0-25%
EFFINGHAM	34,137	26,317	77.1	34,137	100.0	75-100%	75-100%
FAYETTE	21,565	0	0.0	0	0.0	0-25%	0-25%
FORD	13,270	0	0.0	0	0.0	0-25%	0-25%
FRANKLIN	38,923	0	0.0	0	0.0	0-25%	0-25%
FULTON	35,092	0	0.0	35,092	100.0	0-25%	75-100%
GALLATIN	5,064	0	0.0	0	0.0	0-25%	0-25%
GREENE	13,132	0	0.0	0	0.0	0-25%	0-25%
GRUNDY	50,666	0	0.0	0	0.0	0-25%	0-25%
HAMILTON	8,176	0	0.0	8,176	100.0	0-25%	75-100%
HANCOCK	17,983	0	0.0	0	0.0	0-25%	0-25%
HARDIN	3,939	0	0.0	0	0.0	0-25%	0-25%
HENDERSON	6,809	0	0.0	0	0.0	0-25%	0-25%
HENRY	49,267	10,368	21.0	49,267	100.0	0-25%	75-100%
IROQUOIS	27,812	0	0.0	0	0.0	0-25%	0-25%
JACKSON	57,977	52,262	90.1	52,260	90.1	75-100%	75-100%
JASPER	9,594	0	0.0	9,594	100.0	0-25%	75-100%
JEFFERSON	37,985	29,730	78.3	29,731	78.3	75-100%	75-100%
JERSEY	21,937	0	0.0	0	0.0	0-25%	0-25%
JO DAVIESS	21,588	18,753	86.9	21,588	100.0	75-100%	75-100%
JOHNSON	12,494	12,494	100.0	12,494	100.0	75-100%	75-100%
KANE	531,376	119,979	22.6	119,985	22.6	0-25%	0-25%
KANKAKEE	110,637	86,489	78.2	110,637	100.0	75-100%	75-100%
KENDALL	126,054	19,843	15.7	19,841	15.7	0-25%	0-25%



KNOX	50,508	40,421	80.0	40,422	80.0	75-100%	75-100%
LA SALLE	109,737	24,732	22.5	109,737	100.0	0-25%	75-100%
LAKE	701,473	209,554	29.9	209,530	29.9	25-50%	25-50%
LAWRENCE	16,033	0	0.0	16,033	100.0	0-25%	75-100%
LEE	34,389	27,515	80.0	34,389	100.0	75-100%	75-100%
LIVINGSTON	36,040	0	0.0	0	0.0	0-25%	0-25%
LOGAN	29,003	0	0.0	0	0.0	0-25%	0-25%
MACON	105,528	101,155	95.9	101,159	95.9	75-100%	75-100%
MACOUPIN	45,463	0	0.0	0	0.0	0-25%	0-25%
MADISON	264,776	43,893	16.6	264,776	100.0	0-25%	75-100%
MARION	37,743	0	0.0	37,743	100.0	0-25%	75-100%
MARSHALL	11,679	0	0.0	11,679	100.0	0-25%	75-100%
MASON	13,621	0	0.0	0	0.0	0-25%	0-25%
MASSAC	14,219	3,358	23.6	3,359	23.6	0-25%	0-25%
MCDONOUGH	30,479	0	0.0	0	0.0	0-25%	0-25%
MCHENRY	307,714	0	0.0	0	0.0	0-25%	0-25%
MCLEAN	172,578	151,433	87.8	172,578	100.0	75-100%	75-100%
MENARD	12,306	0	0.0	12,306	100.0	0-25%	75-100%
MERCER	15,589	0	0.0	0	0.0	0-25%	0-25%
MONROE	34,168	0	0.0	0	0.0	0-25%	0-25%
MONTGOMERY	28,828	0	0.0	0	0.0	0-25%	0-25%
MORGAN	34,247	0	0.0	34,247	100.0	0-25%	75-100%
MOULTRIE	14,641	0	0.0	0	0.0	0-25%	0-25%
OGLE	51,025	13,994	27.4	51,025	100.0	25-50%	75-100%
PEORIA	182,770	152,164	83.3	182,770	100.0	75-100%	75-100%
PERRY	21,251	0	0.0	0	0.0	0-25%	0-25%
PIATT	16,401	2,930	17.9	16,401	100.0	0-25%	75-100%
PIKE	15,672	0	0.0	0	0.0	0-25%	0-25%
POPE	3,220	0	0.0	0	0.0	0-25%	0-25%
PULASKI	5,510	0	0.0	0	0.0	0-25%	0-25%
PUTNAM	5,721	2,857	49.9	2,857	49.9	25-50%	25-50%
RANDOLPH	32,295	0	0.0	0	0.0	0-25%	0-25%
RICHLAND	15,766	0	0.0	0	0.0	0-25%	0-25%
ROCK ISLAND	143,873	132,683	92.2	143,873	100.0	75-100%	75-100%
SALINE	23,994	0	0.0	23,994	100.0	0-25%	75-100%
SANGAMON	196,861	160,698	81.6	196,861	100.0	75-100%	75-100%
SCHUYLER	6,953	0	0.0	0	0.0	0-25%	0-25%
SCOTT	5,005	0	0.0	0	0.0	0-25%	0-25%
SHELBY	21,737	3,771	17.4	3,771	17.4	0-25%	0-25%
ST CLAIR	262,338	83,082	31.7	83,082	31.7	25-50%	25-50%
STARK	5,447	0	0.0	5,447	100.0	0-25%	75-100%
STEPHENSON	45,093	40,677	90.2	45,093	100.0	75-100%	75-100%
TAZEWELL	133,195	102,370	76.9	133,195	100.0	75-100%	75-100%
UNION	16,968	0	0.0	0	0.0	0-25%	0-25%
VERMILION	77,563	51,844	66.8	77,563	100.0	50-75%	75-100%
WABASH	11,546	0	0.0	0	0.0	0-25%	0-25%
WARREN	17,146	14,499	84.6	17,146	100.0	75-100%	75-100%
WASHINGTON	14,058	0	0.0	0	0.0	0-25%	0-25%
WAYNE	16,402	0	0.0	16,402	100.0	0-25%	75-100%
WHITE	13,868	0	0.0	0	0.0	0-25%	0-25%
WHITESIDE	56,016	0	0.0	56,016	100.0	0-25%	75-100%
WILL	689,315	302,594	43.9	302,609	43.9	25-50%	25-50%
WILLIAMSON	67,102	67,102	100.0	67,102	100.0	75-100%	75-100%
WINNEBAGO	284,819	267,416	93.9	284,819	100.0	75-100%	75-100%
WOODFORD	38,700	10,295	26.6	10,294	26.6	25-50%	25-50%

D-2. Result of the 15-mile buffer scenario by county

County	Total Population	Pop within ICB buffer	Pct of pop within ICB buffer	Pop within ICB and feeder buffer	Pct of pop within ICB and feeder buffer	Pct group of ICB	Pct group of ICB and feeder
ADAMS	66,085	57,008	86.3	66,085	100.0	75-100%	75-100%
ALEXANDER	6,260	3,885	62.1	6,260	100.0	50-75%	75-100%
BOND	16,589	0	0.0	16,589	100.0	0-25%	75-100%
BOONE	53,537	53,537	100.0	53,537	100.0	75-100%	75-100%
BROWN	6,628	0	0.0	0	0.0	0-25%	0-25%
BUREAU	33,122	14,063	42.5	33,122	100.0	25-50%	75-100%
CALHOUN	4,830	0	0.0	0	0.0	0-25%	0-25%
CARROLL	14,466	3,254	22.5	14,466	100.0	0-25%	75-100%
CASS	12,493	0	0.0	0	0.0	0-25%	0-25%
CHAMPAIGN	209,922	209,922	100.0	209,922	100.0	75-100%	75-100%
CHRISTIAN	32,931	0	0.0	0	0.0	0-25%	0-25%
CLARK	15,716	0	0.0	0	0.0	0-25%	0-25%
CLAY	13,287	0	0.0	0	0.0	0-25%	0-25%
CLINTON	37,634	0	0.0	0	0.0	0-25%	0-25%
COLES	51,353	48,391	94.2	51,353	100.0	75-100%	75-100%
COOK	5,198,275	5,198,275	100.0	5,198,275	100.0	75-100%	75-100%
CRAWFORD	18,972	0	0.0	0	0.0	0-25%	0-25%
CUMBERLAND	10,836	4,413	40.7	10,836	100.0	25-50%	75-100%
DE KALB	104,366	94,495	90.5	94,493	90.5	75-100%	75-100%
DE WITT	15,932	0	0.0	0	0.0	0-25%	0-25%
DOUGLAS	19,623	3,620	18.5	3,620	18.5	0-25%	0-25%
DU PAGE	929,060	929,060	100.0	929,060	100.0	75-100%	75-100%
EDGAR	17,407	0	0.0	17,407	100.0	0-25%	75-100%
EDWARDS	6,455	0	0.0	0	0.0	0-25%	0-25%
EFFINGHAM	34,137	34,137	100.0	34,137	100.0	75-100%	75-100%
FAYETTE	21,565	0	0.0	0	0.0	0-25%	0-25%
FORD	13,270	0	0.0	0	0.0	0-25%	0-25%
FRANKLIN	38,923	16,088	41.3	16,087	41.3	25-50%	25-50%
FULTON	35,092	0	0.0	35,092	100.0	0-25%	75-100%
GALLATIN	5,064	0	0.0	0	0.0	0-25%	0-25%
GREENE	13,132	0	0.0	0	0.0	0-25%	0-25%
GRUNDY	50,666	0	0.0	0	0.0	0-25%	0-25%
HAMILTON	8,176	0	0.0	8,176	100.0	0-25%	75-100%
HANCOCK	17,983	0	0.0	0	0.0	0-25%	0-25%
HARDIN	3,939	0	0.0	0	0.0	0-25%	0-25%
HENDERSON	6,809	2,382	35.0	2,382	35.0	25-50%	25-50%
HENRY	49,267	14,671	29.8	49,267	100.0	25-50%	75-100%
IROQUOIS	27,812	3,605	13.0	3,604	13.0	0-25%	0-25%
JACKSON	57,977	54,828	94.6	54,829	94.6	75-100%	75-100%
JASPER	9,594	0	0.0	9,594	100.0	0-25%	75-100%
JEFFERSON	37,985	37,985	100.0	37,985	100.0	75-100%	75-100%
JERSEY	21,937	0	0.0	0	0.0	0-25%	0-25%
JO DAVIESS	21,588	21,588	100.0	21,588	100.0	75-100%	75-100%
JOHNSON	12,494	12,494	100.0	12,494	100.0	75-100%	75-100%
KANE	531,376	379,674	71.5	379,668	71.5	50-75%	50-75%
KANKAKEE	110,637	110,637	100.0	110,637	100.0	75-100%	75-100%

KENDALL	126,054	56,433	44.8	56,434	44.8	25-50%	25-50%
KNOX	50,508	47,400	93.9	47,402	93.9	75-100%	75-100%
LA SALLE	109,737	51,350	46.8	109,737	100.0	25-50%	75-100%
LAKE	701,473	573,069	81.7	573,103	81.7	75-100%	75-100%
LAWRENCE	16,033	0	0.0	16,033	100.0	0-25%	75-100%
LEE	34,389	31,068	90.3	34,389	100.0	75-100%	75-100%
LIVINGSTON	36,040	0	0.0	0	0.0	0-25%	0-25%
LOGAN	29,003	0	0.0	0	0.0	0-25%	0-25%
MACON	105,528	105,528	100.0	105,528	100.0	75-100%	75-100%
MACOUPIN	45,463	0	0.0	0	0.0	0-25%	0-25%
MADISON	264,776	85,724	32.4	264,776	100.0	25-50%	75-100%
MARION	37,743	0	0.0	37,743	100.0	0-25%	75-100%
MARSHALL	11,679	0	0.0	11,679	100.0	0-25%	75-100%
MASON	13,621	0	0.0	0	0.0	0-25%	0-25%
MASSAC	14,219	14,219	100.0	14,219	100.0	75-100%	75-100%
MCDONOUGH	30,479	0	0.0	0	0.0	0-25%	0-25%
MCHENRY	307,714	10,381	3.4	10,370	3.4	0-25%	0-25%
MCLEAN	172,578	158,439	91.8	172,578	100.0	75-100%	75-100%
MENARD	12,306	5,885	47.8	12,306	100.0	25-50%	75-100%
MERCER	15,589	4,584	29.4	4,585	29.4	25-50%	25-50%
MONROE	34,168	13,043	38.2	13,042	38.2	25-50%	25-50%
MONTGOMERY	28,828	0	0.0	0	0.0	0-25%	0-25%
MORGAN	34,247	0	0.0	34,247	100.0	0-25%	75-100%
MOULTRIE	14,641	9,237	63.1	9,237	63.1	50-75%	50-75%
OGLE	51,025	33,325	65.3	51,025	100.0	50-75%	75-100%
PEORIA	182,770	169,431	92.7	182,770	100.0	75-100%	75-100%
PERRY	21,251	0	0.0	0	0.0	0-25%	0-25%
PIATT	16,401	2,930	17.9	16,401	100.0	0-25%	75-100%
PIKE	15,672	0	0.0	0	0.0	0-25%	0-25%
POPE	3,220	0	0.0	0	0.0	0-25%	0-25%
PULASKI	5,510	0	0.0	0	0.0	0-25%	0-25%
PUTNAM	5,721	2,857	49.9	2,857	49.9	25-50%	25-50%
RANDOLPH	32,295	0	0.0	0	0.0	0-25%	0-25%
RICHLAND	15,766	0	0.0	0	0.0	0-25%	0-25%
ROCK ISLAND	143,873	143,873	100.0	143,873	100.0	75-100%	75-100%
SALINE	23,994	0	0.0	23,994	100.0	0-25%	75-100%
SANGAMON	196,861	180,481	91.7	196,861	100.0	75-100%	75-100%
SCHUYLER	6,953	0	0.0	0	0.0	0-25%	0-25%
SCOTT	5,005	0	0.0	0	0.0	0-25%	0-25%
SHELBY	21,737	6,997	32.2	6,997	32.2	25-50%	25-50%
ST CLAIR	262,338	170,959	65.2	170,966	65.2	50-75%	50-75%
STARK	5,447	0	0.0	5,447	100.0	0-25%	75-100%
STEPHENSON	45,093	45,093	100.0	45,093	100.0	75-100%	75-100%
TAZEWELL	133,195	116,406	87.4	133,195	100.0	75-100%	75-100%
UNION	16,968	4,393	25.9	4,393	25.9	25-50%	25-50%
VERMILION	77,563	66,336	85.5	77,563	100.0	75-100%	75-100%
WABASH	11,546	0	0.0	0	0.0	0-25%	0-25%
WARREN	17,146	17,146	100.0	17,146	100.0	75-100%	75-100%
WASHINGTON	14,058	0	0.0	0	0.0	0-25%	0-25%
WAYNE	16,402	0	0.0	16,402	100.0	0-25%	75-100%
WHITE	13,868	0	0.0	0	0.0	0-25%	0-25%
WHITESIDE	56,016	30,869	55.1	56,016	100.0	50-75%	75-100%
WILL	689,315	500,598	72.6	500,581	72.6	50-75%	50-75%
WILLIAMSON	67,102	67,102	100.0	67,102	100.0	75-100%	75-100%

WINNEBAGO	284,819	274,799	96.5	284,819	100.0	75-100%	75-100%
WOODFORD	38,700	19,483	50.3	19,482	50.3	50-75%	50-75%

### D-3. Result of the 20-mile buffer scenario by county

County	Total Population	Pop within ICB buffer	Pct of pop within ICB buffer	Pop within ICB and feeder buffer	Pct of pop within ICB and feeder buffer	Pct group of ICB	Pct group of ICB and feeder
ADAMS	66,085	62,760	95.0	66,085	100.0	75-100%	75-100%
ALEXANDER	6,260	3,885	62.1	6,260	100.0	50-75%	75-100%
BOND	16,589	0	0.0	16,589	100.0	0-25%	75-100%
BOONE	53,537	53,537	100.0	53,537	100.0	75-100%	75-100%
BROWN	6,628	0	0.0	0	0.0	0-25%	0-25%
BUREAU	33,122	23,323	70.4	33,122	100.0	50-75%	75-100%
CALHOUN	4,830	2,179	45.1	2,179	45.1	25-50%	25-50%
CARROLL	14,466	10,407	71.9	14,466	100.0	50-75%	75-100%
CASS	12,493	0	0.0	0	0.0	0-25%	0-25%
CHAMPAIGN	209,922	209,922	100.0	209,922	100.0	75-100%	75-100%
CHRISTIAN	32,931	2,857	8.7	2,858	8.7	0-25%	0-25%
CLARK	15,716	8,528	54.3	8,528	54.3	50-75%	50-75%
CLAY	13,287	0	0.0	0	0.0	0-25%	0-25%
CLINTON	37,634	0	0.0	0	0.0	0-25%	0-25%
COLES	51,353	51,353	100.0	51,353	100.0	75-100%	75-100%
COOK	5,198,275	5,198,275	100.0	5,198,275	100.0	75-100%	75-100%
CRAWFORD	18,972	0	0.0	0	0.0	0-25%	0-25%
CUMBERLAND	10,836	7,710	71.2	10,836	100.0	50-75%	75-100%
DE KALB	104,366	94,495	90.5	94,493	90.5	75-100%	75-100%
DE WITT	15,932	13,470	84.6	13,471	84.6	75-100%	75-100%
DOUGLAS	19,623	12,658	64.5	12,659	64.5	50-75%	50-75%
DU PAGE	929,060	929,060	100.0	929,060	100.0	75-100%	75-100%
EDGAR	17,407	13,075	75.1	17,407	100.0	75-100%	75-100%
EDWARDS	6,455	0	0.0	0	0.0	0-25%	0-25%
EFFINGHAM	34,137	34,137	100.0	34,137	100.0	75-100%	75-100%
FAYETTE	21,565	2,794	13.0	2,795	13.0	0-25%	0-25%
FORD	13,270	0	0.0	0	0.0	0-25%	0-25%
FRANKLIN	38,923	35,682	91.7	35,681	91.7	75-100%	75-100%
FULTON	35,092	0	0.0	35,092	100.0	0-25%	75-100%
GALLATIN	5,064	0	0.0	0	0.0	0-25%	0-25%
GREENE	13,132	0	0.0	0	0.0	0-25%	0-25%
GRUNDY	50,666	0	0.0	0	0.0	0-25%	0-25%
HAMILTON	8,176	0	0.0	8,176	100.0	0-25%	75-100%
HANCOCK	17,983	0	0.0	0	0.0	0-25%	0-25%
HARDIN	3,939	0	0.0	0	0.0	0-25%	0-25%
HENDERSON	6,809	4,097	60.2	4,097	60.2	50-75%	50-75%
HENRY	49,267	28,409	57.7	49,267	100.0	50-75%	75-100%
IROQUOIS	27,812	9,715	34.9	9,715	34.9	25-50%	25-50%
JACKSON	57,977	57,977	100.0	57,977	100.0	75-100%	75-100%
JASPER	9,594	0	0.0	9,594	100.0	0-25%	75-100%
JEFFERSON	37,985	37,985	100.0	37,985	100.0	75-100%	75-100%
JERSEY	21,937	5,300	24.2	5,300	24.2	0-25%	0-25%
JO DAVIESS	21,588	21,588	100.0	21,588	100.0	75-100%	75-100%

JOHNSON	12,494	12,494	100.0	12,494	100.0	75-100%	75-100%
KANE	531,376	531,376	100.0	531,376	100.0	75-100%	75-100%
KANKAKEE	110,637	110,637	100.0	110,637	100.0	75-100%	75-100%
KENDALL	126,054	112,183	89.0	112,188	89.0	75-100%	75-100%
KNOX	50,508	50,508	100.0	50,508	100.0	75-100%	75-100%
LA SALLE	109,737	67,227	61.3	109,737	100.0	50-75%	75-100%
LAKE	701,473	701,473	100.0	701,473	100.0	75-100%	75-100%
LAWRENCE	16,033	0	0.0	16,033	100.0	0-25%	75-100%
LEE	34,389	34,389	100.0	34,389	100.0	75-100%	75-100%
LIVINGSTON	36,040	0	0.0	0	0.0	0-25%	0-25%
LOGAN	29,003	8,461	29.2	8,460	29.2	25-50%	25-50%
MACON	105,528	105,528	100.0	105,528	100.0	75-100%	75-100%
MACOUPIN	45,463	0	0.0	0	0.0	0-25%	0-25%
MADISON	264,776	212,427	80.2	264,776	100.0	75-100%	75-100%
MARION	37,743	19,291	51.1	37,743	100.0	50-75%	75-100%
MARSHALL	11,679	0	0.0	11,679	100.0	0-25%	75-100%
MASON	13,621	0	0.0	0	0.0	0-25%	0-25%
MASSAC	14,219	14,219	100.0	14,219	100.0	75-100%	75-100%
MCDONOUGH	30,479	0	0.0	0	0.0	0-25%	0-25%
MCHENRY	307,714	144,953	47.1	144,964	47.1	25-50%	25-50%
MCLEAN	172,578	163,406	94.7	172,578	100.0	75-100%	75-100%
MENARD	12,306	12,306	100.0	12,306	100.0	75-100%	75-100%
MERCER	15,589	12,232	78.5	12,233	78.5	75-100%	75-100%
MONROE	34,168	24,212	70.9	24,211	70.9	50-75%	50-75%
MONTGOMERY	28,828	0	0.0	0	0.0	0-25%	0-25%
MORGAN	34,247	0	0.0	34,247	100.0	0-25%	75-100%
MOULTRIE	14,641	14,641	100.0	14,641	100.0	75-100%	75-100%
OGLE	51,025	51,025	100.0	51,025	100.0	75-100%	75-100%
PEORIA	182,770	182,770	100.0	182,770	100.0	75-100%	75-100%
PERRY	21,251	6,291	29.6	6,290	29.6	25-50%	25-50%
PIATT	16,401	16,401	100.0	16,401	100.0	75-100%	75-100%
PIKE	15,672	0	0.0	0	0.0	0-25%	0-25%
POPE	3,220	4,203	100.0	4,203	100.0	75-100%	75-100%
PULASKI	5,510	5,510	100.0	5,510	100.0	75-100%	75-100%
PUTNAM	5,721	5,721	100.0	5,721	100.0	75-100%	75-100%
RANDOLPH	32,295	0	0.0	0	0.0	0-25%	0-25%
RICHLAND	15,766	0	0.0	0	0.0	0-25%	0-25%
ROCK ISLAND	143,873	143,873	100.0	143,873	100.0	75-100%	75-100%
SALINE	23,994	5,180	21.6	23,994	100.0	0-25%	75-100%
SANGAMON	196,861	196,861	100.0	196,861	100.0	75-100%	75-100%
SCHUYLER	6,953	0	0.0	0	0.0	0-25%	0-25%
SCOTT	5,005	0	0.0	0	0.0	0-25%	0-25%
SHELBY	21,737	10,705	49.3	10,705	49.3	25-50%	25-50%
ST CLAIR	262,338	232,852	88.8	232,851	88.8	75-100%	75-100%
STARK	5,447	0	0.0	5,447	100.0	0-25%	75-100%
STEPHENSON	45,093	45,093	100.0	45,093	100.0	75-100%	75-100%
TAZEWELL	133,195	133,195	100.0	133,195	100.0	75-100%	75-100%
UNION	16,968	16,968	100.0	16,968	100.0	75-100%	75-100%
VERMILION	77,563	69,157	89.2	77,563	100.0	75-100%	75-100%
WABASH	11,546	0	0.0	0	0.0	0-25%	0-25%
WARREN	17,146	17,146	100.0	17,146	100.0	75-100%	75-100%
WASHINGTON	14,058	3,203	22.8	3,202	22.8	0-25%	0-25%
WAYNE	16,402	0	0.0	16,402	100.0	0-25%	75-100%

WHITE	13,868	0	0.0	0	0.0	0-25%	0-25%
WHITESIDE	56,016	36,855	65.8	56,016	100.0	50-75%	75-100%
WILL	689,315	665,555	96.6	665,534	96.6	75-100%	75-100%
WILLIAMSON	67,102	67,102	100.0	67,102	100.0	75-100%	75-100%
WINNEBAGO	284,819	284,819	100.0	284,819	100.0	75-100%	75-100%
WOODFORD	38,700	30,329	78.4	30,329	78.4	75-100%	75-100%

#### D-4. Result of the 25-mile buffer scenario by county

County	Total Population	Pop within ICB buffer	Pct of pop within ICB buffer	Pop within ICB and feeder buffer	Pct of pop within ICB and feeder buffer	Pct group of ICB	Pct group of ICB and feeder
ADAMS	66,085	66,085	100.0	66,085	100.0	75-100%	75-100%
ALEXANDER	6,260	3,885	62.1	6,260	100.0	50-75%	75-100%
BOND	16,589	0	0.0	16,589	100.0	0-25%	75-100%
BOONE	53,537	53,537	100.0	53,537	100.0	75-100%	75-100%
BROWN	6,628	0	0.0	0	0.0	0-25%	0-25%
BUREAU	33,122	30,283	91.4	33,122	100.0	75-100%	75-100%
CALHOUN	4,830	2,179	45.1	2,179	45.1	25-50%	25-50%
CARROLL	14,466	12,943	89.5	14,466	100.0	75-100%	75-100%
CASS	12,493	2,246	18.0	2,246	18.0	0-25%	0-25%
CHAMPAIGN	209,922	209,922	100.0	209,922	100.0	75-100%	75-100%
CHRISTIAN	32,931	8,401	25.5	8,401	25.5	25-50%	25-50%
CLARK	15,716	10,480	66.7	10,479	66.7	50-75%	50-75%
CLAY	13,287	2,313	17.4	2,313	17.4	0-25%	0-25%
CLINTON	37,634	6,551	17.4	6,552	17.4	0-25%	0-25%
COLES	51,353	51,353	100.0	51,353	100.0	75-100%	75-100%
COOK	5,198,275	5,198,275	100.0	5,198,275	100.0	75-100%	75-100%
CRAWFORD	18,972	0	0.0	0	0.0	0-25%	0-25%
CUMBERLAND	10,836	10,836	100.0	10,836	100.0	75-100%	75-100%
DE KALB	104,366	104,366	100.0	104,366	100.0	75-100%	75-100%
DE WITT	15,932	15,932	100.0	15,932	100.0	75-100%	75-100%
DOUGLAS	19,623	17,182	87.6	17,182	87.6	75-100%	75-100%
DU PAGE	929,060	929,060	100.0	929,060	100.0	75-100%	75-100%
EDGAR	17,407	15,509	89.1	17,407	100.0	75-100%	75-100%
EDWARDS	6,455	0	0.0	0	0.0	0-25%	0-25%
EFFINGHAM	34,137	34,137	100.0	34,137	100.0	75-100%	75-100%
FAYETTE	21,565	5,298	24.6	5,299	24.6	0-25%	0-25%
FORD	13,270	4,222	31.8	4,223	31.8	25-50%	25-50%
FRANKLIN	38,923	38,923	100.0	38,923	100.0	75-100%	75-100%
FULTON	35,092	17,458	49.8	35,092	100.0	25-50%	75-100%
GALLATIN	5,064	0	0.0	0	0.0	0-25%	0-25%
GREENE	13,132	0	0.0	0	0.0	0-25%	0-25%
GRUNDY	50,666	16,685	32.9	16,684	32.9	25-50%	25-50%
HAMILTON	8,176	3,050	37.3	8,176	100.0	25-50%	75-100%
HANCOCK	17,983	0	0.0	0	0.0	0-25%	0-25%
HARDIN	3,939	0	0.0	0	0.0	0-25%	0-25%
HENDERSON	6,809	6,809	100.0	6,809	100.0	75-100%	75-100%
HENRY	49,267	31,058	63.0	49,267	100.0	50-75%	75-100%
IROQUOIS	27,812	13,178	47.4	13,177	47.4	25-50%	25-50%
JACKSON	57,977	57,977	100.0	57,977	100.0	75-100%	75-100%
JASPER	9,594	9,594	100.0	9,594	100.0	75-100%	75-100%
JEFFERSON	37,985	37,985	100.0	37,985	100.0	75-100%	75-100%
JERSEY	21,937	10,732	48.9	10,732	48.9	25-50%	25-50%

JO DAVIESS	21,588	21,588	100.0	21,588	100.0	75-100%	75-100%
JOHNSON	12,494	12,494	100.0	12,494	100.0	75-100%	75-100%
KANE	531,376	531,376	100.0	531,376	100.0	75-100%	75-100%
KANKAKEE	110,637	110,637	100.0	110,637	100.0	75-100%	75-100%
KENDALL	126,054	126,054	100.0	126,054	100.0	75-100%	75-100%
KNOX	50,508	50,508	100.0	50,508	100.0	75-100%	75-100%
LA SALLE	109,737	109,737	100.0	109,737	100.0	75-100%	75-100%
LAKE	701,473	701,473	100.0	701,473	100.0	75-100%	75-100%
LAWRENCE	16,033	0	0.0	16,033	100.0	0-25%	75-100%
LEE	34,389	34,389	100.0	34,389	100.0	75-100%	75-100%
LIVINGSTON	36,040	0	0.0	0	0.0	0-25%	0-25%
LOGAN	29,003	19,033	65.6	19,032	65.6	50-75%	50-75%
MACON	105,528	105,528	100.0	105,528	100.0	75-100%	75-100%
MACOUPIN	45,463	3,210	7.1	3,210	7.1	0-25%	0-25%
MADISON	264,776	237,768	89.8	264,776	100.0	75-100%	75-100%
MARION	37,743	31,956	84.7	37,743	100.0	75-100%	75-100%
MARSHALL	11,679	9,858	84.4	11,679	100.0	75-100%	75-100%
MASON	13,621	2,610	19.2	2,610	19.2	0-25%	0-25%
MASSAC	14,219	14,219	100.0	14,219	100.0	75-100%	75-100%
MCDONOUGH	30,479	0	0.0	0	0.0	0-25%	0-25%
MCHENRY	307,714	272,727	88.6	272,727	88.6	75-100%	75-100%
MCLEAN	172,578	172,578	100.0	172,578	100.0	75-100%	75-100%
MENARD	12,306	12,306	100.0	12,306	100.0	75-100%	75-100%
MERCER	15,589	15,589	100.0	15,589	100.0	75-100%	75-100%
MONROE	34,168	30,758	90.0	30,758	90.0	75-100%	75-100%
MONTGOMERY	28,828	0	0.0	0	0.0	0-25%	0-25%
MORGAN	34,247	0	0.0	34,247	100.0	0-25%	75-100%
MOULTRIE	14,641	14,641	100.0	14,641	100.0	75-100%	75-100%
OGLE	51,025	51,025	100.0	51,025	100.0	75-100%	75-100%
PEORIA	182,770	182,770	100.0	182,770	100.0	75-100%	75-100%
PERRY	21,251	11,819	55.6	11,820	55.6	50-75%	50-75%
PIATT	16,401	16,401	100.0	16,401	100.0	75-100%	75-100%
PIKE	15,672	2,683	17.1	2,683	17.1	0-25%	0-25%
POPE	3,220	4,203	100.0	4,203	100.0	75-100%	75-100%
PULASKI	5,510	5,510	100.0	5,510	100.0	75-100%	75-100%
PUTNAM	5,721	5,721	100.0	5,721	100.0	75-100%	75-100%
RANDOLPH	32,295	0	0.0	0	0.0	0-25%	0-25%
RICHLAND	15,766	0	0.0	0	0.0	0-25%	0-25%
ROCK ISLAND	143,873	143,873	100.0	143,873	100.0	75-100%	75-100%
SALINE	23,994	16,975	70.8	23,994	100.0	50-75%	75-100%
SANGAMON	196,861	196,861	100.0	196,861	100.0	75-100%	75-100%
SCHUYLER	6,953	0	0.0	0	0.0	0-25%	0-25%
SCOTT	5,005	0	0.0	0	0.0	0-25%	0-25%
SHELBY	21,737	18,732	86.2	18,733	86.2	75-100%	75-100%
ST CLAIR	262,338	256,801	97.9	256,803	97.9	75-100%	75-100%
STARK	5,447	0	0.0	5,447	100.0	0-25%	75-100%
STEPHENSON	45,093	45,093	100.0	45,093	100.0	75-100%	75-100%
TAZEWELL	133,195	133,195	100.0	133,195	100.0	75-100%	75-100%
UNION	16,968	16,968	100.0	16,968	100.0	75-100%	75-100%
VERMILION	77,563	77,563	100.0	77,563	100.0	75-100%	75-100%
WABASH	11,546	0	0.0	0	0.0	0-25%	0-25%
WARREN	17,146	17,146	100.0	17,146	100.0	75-100%	75-100%
WASHINGTON	14,058	10,126	72.0	10,126	72.0	50-75%	50-75%
WAYNE	16,402	2,572	15.7	16,402	100.0	0-25%	75-100%
WHITE	13,868	0	0.0	0	0.0	0-25%	0-25%

WHITESIDE	56,016	36,855	65.8	56,016	100.0	50-75%	75-100%
WILL	689,315	685,788	99.5	685,799	99.5	75-100%	75-100%
WILLIAMSON	67,102	67,102	100.0	67,102	100.0	75-100%	75-100%
WINNEBAGO	284,819	284,819	100.0	284,819	100.0	75-100%	75-100%
WOODFORD	38,700	35,797	92.5	35,798	92.5	75-100%	75-100%

D-5. Matching key (crosswalks) between census tract IDs and counties