



**Urban
Transportation
Center**

Increasing Mobility Through Enhanced Transit Connectivity

By: The Urban Transportation Center at the University of Illinois at Chicago

James C. LaBelle
Principal Investigator
Senior Research Specialist
The Urban Transportation Center
jlabelle@uic.edu
jimlabelle51@gmail.com

Sheena F. Frève
Assistant Investigator
Research Specialist
The Urban Transportation Center
sfreve@uic.edu

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The views within this document are those of the authors alone.

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Introduction – Seeking Integrated, Ubiquitous and Affordable Mobility for All

The Chicago metropolitan area has one of the most extensive public transit systems in the United States, yet there are many places in the region where people do not have convenient access to transit service. To address that deficiency, this paper identifies practical ways to give more travel options to people in areas that are underserved by transit, including people who are unable to own or rent a car or have physical limitations that prevent them from driving.

People who live without a car in underserved areas may have to rely on others for rides or find ways to patch together inconvenient and time-consuming transit trips. The fortunate ones may find jobs and shops within walking distance. Lacking that, they can't access jobs and other opportunities and help grow the economy. If the Chicago region is to be a place where everyone has the opportunity to succeed, it must enable everyone to fully access those opportunities.

The research for this paper has been guided by this goal: everyone in the Chicago area should have integrated, ubiquitous and affordable mobility options, while public and private resources are used efficiently and effectively toward that end.

It is understood that current transit funding is not even adequate to maintain the existing system, much less expand transit to all of the areas that are underserved. Lacking an extraordinary new public commitment, funding will not be sufficient to add all of the new transit lines or bus service expansions listed in the region's comprehensive plan.

While limited funding is a major challenge, it can also stimulate creative approaches to enhance mobility without major capital investments. With that in mind, this paper identifies innovative uses of technology, partnerships, tailored services, policies and organizational steps that might be practically applied to enable more people to move about easily and efficiently without needing to own a car. It considers methods of connecting and improving transit that have been successful in other places, and ways to make the most of new and emerging technology-enabled services.

This paper builds upon previous Urban Transportation Center research that analyzed transit service availability and accessibility to employment¹. It is also supported by work on accessibility by the Center for Neighborhood Technology (CNT), which in 2014 identified "transit deserts" where inadequate transit service limits access to jobs, with particularly hard impacts on lower income residents.²

¹ "Analysis of Transit Quality of Service and Employment Accessibility for the Greater Chicago, Illinois, Region," by Inshu Minocha, P. S. Sriraj, Paul Metaxatos, and Piyushimita (Vonu) Thakuriah, Urban Transportation Center, College of Urban Planning and Public Affairs, University of Illinois at Chicago, *Transportation Research Record: Journal of the Transportation Research Board*, No. 2042, 2008, pp. 20–29

² "Transit Deserts in Cook County," Center for Neighborhood Technology, 2014

The sections that follow include, first, an overview of transit challenges in the Chicago area. That is followed by a review of the changing world of transit in the region, including some public transit innovations, emerging technology, rideshare services and the possible impact of autonomous vehicles. Then there is a discussion of good ideas from other places that might be beneficial if implemented in the Chicago area. Finally, several policies and actions are presented that could help achieve mobility for all. Among them is a proposal to turn our transit organizations into mobility agencies to more fully address the region's mobility needs.

Section 1: Metropolitan Chicago's Public Transit Challenges and Limitations

The Chicago area public transit system – among the largest and most extensive in the nation – continues today as a vital part of the region's economy thanks to a pivotal public referendum and several public funding measures. The watershed moment was a referendum approved in 1973 by 50.5 percent of the region's voters, with 71% of Chicago voters in favor and 68% of suburban voters opposed.³ At that time, the rail and bus systems serving the Chicago area, like many throughout the nation, were facing financial collapse. The referendum created the Regional Transportation Authority (RTA) and committed public financial support that saved the Chicago Transit Authority (CTA, which had existed since 1945) and led to public ownership of much of the region's commuter rail and suburban bus systems.

In 1983 the RTA Act was extensively amended to remove operating responsibilities from the RTA and establish the Commuter Rail Board (Metra) and Suburban Bus Board (Pace) to join the CTA as the region's transit operating agencies. The RTA now describes itself as the unit of local government charged with regional financial and budgetary oversight, funding and transit planning for the Service Boards – CTA, Metra, Pace bus and Pace Americans with Disabilities Act (ADA) Paratransit Service; it also provides rider services, including online and telephone travel planning assistance and travel training for seniors and people with disabilities.⁴

Now the RTA region's transit system provides more than two million rides each weekday on bus and rail services in Cook, DuPage, Kane, Lake, McHenry, and Will Counties. The region's system covers approximately 3,700 square miles and serves approximately 8.4 million residents. The RTA's regional system is the second largest transit system in the country by passenger miles traveled, behind only New York, and the third largest in the country by ridership, behind only New York and Los Angeles.⁵

The Chicago region would be a less healthy, more congested place without its public transit system. However, the transit system faces serious challenges and many areas lack adequate transit service. It will require creativity and innovation to overcome the challenges and enable everyone to fully access the region's jobs and opportunities.

³ Northeastern Illinois Public Transit Task Force Report, March 31, 2014, page 41

⁴ Ibid

⁵ RTA website rtachicago.org, About Us - April 22, 2016

Funding barely supports current operations, and does not meet service expansion or capital needs.

The 1973 referendum that created the RTA authorized it to collect various taxes including either a gasoline tax, which was initially chosen by the RTA, or a sales tax, which the RTA adopted in the late 1970s to replace the gas tax as its primary regional revenue source. The 1983 legislation authorized state funding through a public transportation fund, and 2008 legislation increased the sales tax and authorized the City of Chicago to levy a real estate transfer tax to support the CTA. As a result, transit operating funds now come from a combination of the sales tax, real estate transfer tax, transit fares and the State's Public Transportation Fund (which equals about 30 percent of the RTA sales tax).⁶

The only annual source of capital funds for transit has been the federal government. The State of Illinois has periodically approved bond issues for transit capital, but that has been sporadic. Illinois has not increased the motor fuel tax since 1991. There is no regional source of funds dedicated to transit capital investment, but agencies have done what they could with limited resources. For example, the City of Chicago maintains the subways (which it owns) and has allocated some TIF funds to CTA station improvements. The CTA has committed some sales tax receipts to guarantee repayment of some bonds. Metra has said it will use some of its planned fare increases to invest in infrastructure and replace railcars.

"Value capture" – using increased tax receipts from property benefitting from public improvements to pay for them – has long been suggested as one means of raising funds for transit improvements. For the first time in Illinois, legislation was enacted in June 2016 authorizing the City of Chicago to use value capture to fund certain improvements on the CTA Red Line and the area near Union Station. It is expected that the value capture revenue would provide matching funds that are critical to securing federal grants for the projects.⁷ If the use of value capture proves successful there, it could lead to its use for other projects.

Other means of innovative financing are continually being explored, including inviting private companies to build, own and operate new transportation facilities. The CTA was seeking firms interested in various projects and it remains to be seen what might be done. IDOT is considering public-private partnerships for various projects including building an express toll lane on the I-55 Stevenson Expressway. Other projects will likely emerge as a means to use private capital to build needed facilities. One of the keys to success for any project is to have a stream of revenue that can make it financially feasible.

Meanwhile, the current amount of transit funding is not adequate to maintain and rebuild the existing system. Lacking an extraordinary new public commitment or engagement of private capital, the needed funds will not be available to invest in many new transit lines or bus service expansions.

⁶ Ibid

⁷ "New TIF districts may greenlight Belmont flyover, other transit projects," by Mary Wisniewski, Chicago Tribune, July 6, 2016, found at <http://www.chicagotribune.com/news/local/breaking/ct-rahm-emanuel-tifs-cta-20160706-story.html>

Several efforts are underway to advocate for increased funding. CNT launched its Transit Future campaign a few years ago to encourage Cook County to raise revenue to invest in transit service expansion.⁸ Cook County has not yet acted on that proposal. In 2016 the Metropolitan Planning Council (MPC) estimated that Illinois has an unfunded transportation need of \$43 billion, including \$12 billion needed for Chicago area mass transit.⁹ MPC called on the State to increase the motor fuel tax and vehicle registration fees to raise the needed funds, and formed the Accelerate Illinois coalition to advocate for the changes. The Transportation for Illinois Coalition (TFIC) has continually promoted increased transportation funding; there have been some significant successes but funding levels for transit remain far short of meeting capital needs. The Illinois General Assembly passed a resolution proposed by TFIC to place a Constitutional Amendment on the November 2016 ballot to require certain state transportation revenues to be used for transportation purposes; it is thought that such a guarantee could make it easier to gain support for new funding.

Although capital funding for transit is inadequate, a 2009 RTA survey indicated a broad base of support for transit investment. Support even came from those who do not take transit. Survey respondents gave the highest scores among several choices to the statement “Improving transit infrastructure is as good a use of tax dollars as improving roads”.¹⁰

RTA system ridership has been flat or declining in recent years.

Despite general public support for transit investment, 2015 ridership was 634.9 million, down slightly from 636.5 million in 2014 and 4.9 percent below its peak of 666.1 million in 2012. Overall ridership has grown at an average of less than one percent per year since its lowest point in 1997. Ridership in 2015 was 4.9 percent greater than the 605.3 million 2005 and 15.6 percent greater than the 549.3 million in 1997.¹¹ (Comparisons before 1997 are not possible, as CTA began counting rail-to-rail transfers that year; allowing for that change of perhaps 20 million or more, it appears that 1997 system ridership of 549.3 million was the lowest level in RTA history.)¹²

The biggest changes between 2005 and 2015 were in the CTA system, where bus ridership declined somewhat while rail increased substantially. CTA bus ridership was 274.3 million in 2015, down from 305.5 million in 2005 and 288.9 million in 1997, while CTA rail ridership increased from 151 million in 1997 to 186.8 million in 2005 and 241.7 million in 2015. Meanwhile, Metra increased gradually from 71.6 million in 1997 to 76.1 million in 2005 and 81.6 million in 2015. Pace total ridership was virtually the same in 2015 as it was in 1997; it had 37.9 million in 1997, dropped slightly to 36.9 million in 2005,

⁸ See *transitfuture.org* website

⁹ Metropolitan Planning Council, “Illinois has a \$43 billion transportation deficit,” Transportation Crisis Factsheet, May 2016

¹⁰ Regional Transportation Authority Travel Market Analysis – Final Report, prepared by Cambridge Systematics for the RTA, September 21, 2010, section 3, page 14

¹¹ RTA website *rtachicago.org*, April 22, 2016, RTAMS - [Data and Updates](#)

¹² RTA website, April 22, 2016, RTAMS - [Data and Updates](#), RTA System Ridership

and nudged up to 37.3 million in 2015 including 33.1 million bus and 4.2 million ADA riders (Pace became responsible for all regional ADA service in 2008).¹³

There are several possible explanations for the flat or declining transit ridership. The economy and gas prices are factors, and more people are working remotely. In the past 20 years, much of the region's population growth has occurred in suburban areas where development densities are less amenable to transit and there is less transit service, while population has declined in Chicago where transit service is well established. Employment growth has not always happened in places with frequent transit service. Some other reasons are discussed below.

The region's highly dispersed and varied travel markets challenge the transit system.

Periodically the RTA conducts a market analysis of travel in the six-county region. The last one, in 2009, examined the combined responses of 13,000 regional households to the Chicago Metropolitan Agency for Planning (CMAP) Household Travel Tracker survey and a 2009 RTA-commissioned attitudinal survey of riders and non-riders. The analysis showed that more than 26 million trips are made on an average weekday in the region. The RTA concluded that the region's travel patterns are highly geographically dispersed with over 60% of travel occurring within the suburban region. While transit accounts for approximately 6% of all trips, 38% of households in the region report using transit over the course of a regular week. Transit accounts for 14% of work trips."¹⁴

That analysis showed that transit's share of trips also varies quite dramatically by the geographic orientation of the trip. Transit's share was 42 percent of traditional commute trips (defined as those trips to the Chicago Central Business District (CBD) from residential locations elsewhere, as well as trips to the rest of the City of Chicago from suburban residential locations). Transit's share was 28 percent of work trips that occur entirely within the CBD or entirely within the City of Chicago. Transit was just 12 percent of reverse commute trips (defined as the trips from Chicago CBD households to Chicago workplaces elsewhere and trips from the rest of the City of Chicago to suburban employment locations). Suburban work trips made entirely within suburban regions had an extremely low transit share of about 1 percent. The reverse and suburban work trip markets account for 65 percent of total work trips in the region, yet the market share of transit in those two markets is just 2 percent. The report concluded, "This calls for better understanding the characteristics of the reverse and suburban markets, and improving transit in the region to better serve these two markets."¹⁵

¹³ Ibid

¹⁴ Regional Transportation Authority Travel Market Analysis – Final Report, prepared by Cambridge Systematics for the RTA, September 21, 2010, section 3, page 14

¹⁵ Ibid, section 2, page 29

Transit use is greatly affected by its availability and reliability.

The 2009 RTA Market Analysis found that 55 percent of non-riders responding to its attitudinal survey reported that transit was not available to them for their most common trip. The survey attempted to understand the availability of and familiarity with transit for respondents who stated that they never rode transit. It found that almost 30 percent of current non-riders stated that transit was available to them and that they were at least somewhat familiar with the use of transit. About 15 percent of the non-riders stated that they were unfamiliar with the use of transit, even though they believed transit was an option for their most common trip. Another 35 percent of non-riders said that while they were familiar with the use of transit, it was not available to them for their most common trip in the week. The remaining 20 percent stated that they were neither familiar with transit nor was transit a viable option for their most common trip.¹⁶

The survey asked about barriers to taking transit for individuals who reported never having used transit. The response to the barriers question was generally sparse, but prompted several interesting observations about all non-riders:¹⁷

- The most frequent reason for not using transit is the lack of service between the desired origin and destination.
- The second most frequent reason is the rather long distance between the transit stop and the home. In other words, poor transit access appears to be a major deterrent for non-riders.
- The necessity for a private automobile for work purposes is the third major deterrent to transit use.
- Indirect service, longer travel times, and difficult egress are the other major deterrents for transit travel.
- Transit cost does not appear to be a major deterrent for transit use.
- Safety concerns do not appear to be a prominent reason for transit non-use.
- Travel ambience and the need to control it do not appear to be a reason for not using transit.

When the results are segmented by availability and familiarity, the following key findings surface:

- Long travel times, reliability of transit service, and too many transfers appear to be the key deterrents for respondents who stated never riding transit despite being familiar with transit and despite availability of transit.
- The need for a vehicle at work and a long distance to access transit appear to be the major deterrents for respondents who stated that transit is available to them but that they are not familiar with the use of transit.

¹⁶ Ibid, section 3, page 8

¹⁷ Ibid

- For respondents who stated that transit was not available to them, lack of connectivity between their home and destination was expectedly the biggest deterrent.

Consistent with those findings, the 2014 Northeastern Illinois Public Transit Task Force report listed these barriers:

- *Commutes via transit to suburban employers can be long, inconvenient, and impractical.* Infrequent Metra service, inconvenient Pace routes, and long connections can make transit an unreliable option to suburban employment destinations. According to the Brookings Institution, even though 82% of the region's neighborhoods have some kind of transit service, only 23% of regional residents and 12% of suburbanites can use it to reach a typical job by a 90-minute or less one-way ride. For example, a resident of Altgeld Gardens (on Chicago's south side) can reach only 8,201 jobs requiring an Associate's Degree or less within a half-hour transit ride. A commute from Altgeld Gardens to Oak Brook requires almost two hours of bus and train rides.
- *It is even harder to use much of the system for non-commute trips.* The frequencies of the system are designed for the journey to work, but the commute is only one out of every five trips a household makes. Nationally, two out of every three transit trips are non-work trips. Many Metra lines have headways of two hours or longer on the weekend. Numerous transit agencies in other regions that increased off-peak service found that ridership increased both during peak and off-peak periods. In 2013, weekend ridership on the MTA in New York increased to 5.8 million, its highest level since 1946.
- *Transit remains inconvenient for the disabled and mobility challenged.* The legacy nature of Chicago's rail infrastructure requires retrofits at many stations to meet universal design standards and to accommodate people with disabilities. The region has made excellent efforts, but much work remains. On the CTA Red Line, despite two major upgrade programs, more than a third of the stations remain inaccessible.
- *The pre-tax transit benefit is underutilized and poorly communicated.* Federal law allows employees to purchase transit passes with pre-tax income without any cost to their employer. But according to the Commuter Benefit Impact Survey for 2010, only 22% of companies within the Loop offer commuter benefits to their employees. Although the RTA has promoted this benefit, many human resource providers do not offer it and many employees do not understand how it works, if they know that it exists at all."¹⁸

The 2009 RTA report concluded that current non-riders who said transit was available and who are generally familiar with the use of transit constitute the easiest segment to target for inducing future

¹⁸ Northeastern Illinois Public Transit Task Force Report, March 31, 2014, pages 22 - 30

transit use. Doing this would entail addressing their barriers by improving the real or perceived transit time reliability, and ensuring coordinated transfers.¹⁹

There are many areas in the region where transit service is not adequate.

The 2014 Northeastern Illinois Public Transit Task Force report included these observations about gaps in service:

- *Significant portions of the region are underserved by transit.* Every county within the RTA region possesses neighborhoods with the density of population and employment or low car ownership to support broader service. However, that service does not exist in many places. (CNT has described such areas as “transit deserts”.²⁰) Although regional and local plans have recognized these gaps and proposed significantly increased connectivity, northeastern Illinois lags in widespread implementation.
- *Four out of the five largest employment centers are poorly served by rapid transit.* Although the systems converge in the Chicago Loop, the next largest suburban employment corridors along I-90 and I-88, representing more than a quarter-million jobs and several Fortune 500 companies, have inconsistent transit access. By 2011, these areas totaled over 210,000 jobs along the Jane Addams Tollway near O’Hare and over 90,000 jobs in and around Oak Brook.
- *The design of suburban office parks discourages efficient transit.* Where there is a higher density of jobs it can be more economical to provide fast, frequent transit service. In the Chicago urban core, the number of jobs per acre is more than four times higher than office parks along I-90 and I-88. It can be difficult to serve office parks and big box centers built around large parking lots. Pace provides many customized routes to suburban employers, but service can be infrequent and confusing.²¹

Maps of some of the gaps in service are included in the Appendix.

Divided transit system governance, planning and implementation make service integration difficult.

Since the restructuring of the RTA in 1983, Chicago area transit governance, planning and implementation have been divided among the RTA, CTA, Metra and Pace. Operating authority is assigned to the Service Boards (CTA, Metra and Pace) and the RTA has financial oversight, planning and customer service functions. CMAP is also involved as the federally designated Metropolitan Planning

¹⁹ Ibid

²⁰ See flyer, “Transit Deserts in Cook County”, at transitfuture.org website

²¹ Northeastern Illinois Public Transit Task Force Report, March 31, 2014, pages 22 - 30

Agency responsible for approving the regional transportation plan and transportation improvement program that allocates federal funds to transit projects in the region. In 2008, when the Illinois General Assembly authorized increases in taxes for the RTA and CTA, it included a set of reforms intended to achieve a more integrated and accountable transit system.²² However, the governance structure continued to divide authority among the four transit boards.

The greatest challenge posed by the current system of governance is that it slows progress toward creating a seamless transit experience for customers. The Northeastern Illinois Public Transit Task Force noted that while the CTA, Metra, and Pace can serve their customers efficiently, from a regional perspective they fall short. In a letter to the Task Force, Urban Transportation Center Director (since retired) and former RTA Executive Director Steve Schlickman discussed what happens in the current structure: “It is often very hard to determine which transit agency should take the lead responsibility to achieve a solution. The complexities of the governance structures, service overlap, capital project planning and implementation, equities in the allocation of funding, etc., frequently results in two or more of the transit agencies pointing the finger of blame at each other.”²³ The task force concluded that “we do not have an integrated transit system ..., we have three independent transit services that operate and manage their assets and serve the geographies they have been assigned.”²⁴

The task force further noted that the region’s comprehensive plan, *GO TO 2040*, prepared by CMAP calls for coordinated planning and action. However:

- There is no comprehensive set of goals for transit in the region that is utilized and measured throughout the system. The RTA has broad strategic goals, and does compile performance data on a large number of indicators. But these data are not evaluated to assess performance or used to drive decisions about priorities and resource allocations to achieve system goals.
- While planning occurs at the RTA as well as at the individual service boards, better coordination of planning and coordinated implementation of individual plans is needed to address system-wide goals.
- The current structure creates redundant service and gaps in service. Agencies are doing more to coordinate with each other, but synchronization is difficult under the current structure, and coordination tends to be only on a project-by-project basis.

²² Stephen Schlickman, former Executive Director of the RTA, “Brief History of the Evolution of the RTA in Northeastern Illinois”, presentation at UIC Forum - Best Practices in Regional Transit Governance, January 6, 2015, at Urban Transportation Center, University of Illinois Chicago

²³ Northeastern Illinois Public Transit Task Force Report, March 31, 2014, pages 22 - 30

²⁴ Ibid

- *GO TO 2040* sets two goals for transit – increased ridership and job accessibility – but no mechanism currently exists to coordinate planning and investments to achieve those outcomes.²⁵

This overview of the region’s transit system challenges and limitations underscores the need to seek mobility solutions that might be implemented with a limited amount of public funds, or by private firms with the aid of supportive public policies. Several such ideas are discussed in Section 4 of this report.

Section 2 will review some Chicago area public transit service innovations in response to changing needs and markets, and Section 3 will discuss the rapid growth of privately funded technology and rideshare services, and the prospect of autonomous vehicles.

²⁵ Ibid, page 44

Section 2: Public Transit Innovations in Response to Changing Needs and Markets

A number of innovations are being made by public transit agencies to address the challenges outlined in Section 1. This section discusses the importance of maintaining the fixed route system, the implementation of new fare technology, several transit innovations, and the role of public-private organizations like Transportation Management Associations.

Continued maintenance and thoughtful expansion of fixed route transit service is vital to attract and serve riders.

The Chicago region's extensive rail lines and bus routes are the essential bones of the transit system and must be maintained. CTA's rail and bus systems and Metra's commuter rail network are fixed route services. Pace also operates fixed route bus service. CTA, Metra and Pace, with support from the RTA, continually strive to improve and expand those services, redesign routes, provide safer and more efficient vehicles, coordinate service schedules and add customer conveniences like WiFi and power access.

Constant attention to detail and maintaining and upgrading service is vital and deserves support. However, as noted in the previous section, many people live in places that lack convenient access to the transit system. The focus of this paper is on finding ways to fill the gaps in those services and improve mobility for everyone.

Adoption of Electronic Fare Technology is a Major Positive Step.

A significant recent accomplishment has been the development and implementation of Ventra fare payment technology by CTA, Pace and Metra. The CTA developed and owns the Ventra open fare, account-based payment system, and launched it in 2014. Following the installation of Ventra, the CTA was joined by Metra and Pace in developing the multi-transit system app, which launched in November 2015. By July 2016 the app had been downloaded more than 700,000 times and customers used it to purchase more than \$55 million in fares across CTA, Metra and Pace.²⁶

The Ventra app is the first in the nation that allows customers to pay for rides on multiple transit systems with just one app. The CTA says this provides riders with a "one-stop shopping" experience that essentially puts both a Ventra vending machine and a Metra ticket vending machine in customers' pockets. Now CTA, Pace and Metra riders can use pre-loaded Ventra cards to purchase tickets; CTA and

²⁶ "Chicago Transit Authority Wins 2016 APTA Innovation Award for Ventra App," 7/29/2016 CTA Press Release, found at: <http://www.transitchicago.com/news/default.aspx?Month=&Year=&Category=2&ArticleId=3566>

Pace customers can use their Ventra cards to directly pay for their fares as they board a bus or pass through a turnstile; and Metra riders can use the Ventra app on most smartphones to purchase virtual tickets and display them to conductors on the train.

The app offers a wide range of functions including account management, loading of transit value/passes, account notifications and integrated mobile ticketing on Metra. It also provides access to real-time transit tracker information for CTA, Metra and Pace all in one place. Future phases are expected to offer additional services and conveniences.

Public support was important in creating the multi-transit Ventra system. The RTA's Innovation, Coordination and Enhancement (ICE) program provided funding for the app's development. The ICE fund was created by the State in the 2008 RTA funding legislation. Development of an integrated fare system had been advocated by legislators and civic groups for many years, and legislation was enacted mandating development of an integrated fare payment system.

Adoption of common fare technology, while a very positive step in making transit use more convenient, is important in two other ways: 1) it can generate data (as illustrated by Divvy, discussed later) to enable transit agencies to gain better understanding of their customers and tailor services to meet their needs; and 2) as the transit agencies get more comfortable with sharing technology, it could lead them to more readily share information and work out the many details involved in crafting a completely integrated fare system in which a customer can see all the travel options and pay for several linked trips with a single tap on a computer or smartphone.

Protected bike lanes, Divvy, LoopLink, Jitneys and other innovations are reshaping Chicago transit.

In cooperation with the CTA and its efforts to upgrade and enhance the transit system, the City of Chicago has invested in numerous transit improvements using Tax Increment Finance and other funds. It has funded new and renovated CTA stations, new and improved bike facilities and development of upgraded bus lanes and facilities. Bike lanes, Divvy, Loop Link and Jitneys are among the innovations and will be discussed here.

Bike lanes

For the past few years, the City of Chicago has had an ambitious bike lane program and become a leader in creating facilities for safe and efficient bicycling. The Chicago Department of Transportation (CDOT) reports that Chicago's on-street bike network consists of over 225 miles of barrier protected bike lanes, buffer protected bike lanes, conventional bike lanes, marked shared lanes and

neighborhood bike routes. The growth of bike facilities is guided by the [Streets for Cycling Plan 2020](#), a plan to build a continuous network of 645 miles of on-street bikeways throughout Chicago.²⁷

The overall system includes neighborhood bike routes that utilize residential streets, crosstown routes that use collector and arterial roadways, and spoke routes that connect all corners of the City to Downtown. Currently there are 18.5 miles of barrier protected bike lanes, which are located next to the curb and use physical barriers such as parked cars and bollards to separate bicyclists from motorists. There are also 67 miles of buffer protected bike lanes, which are similar to conventional bike lanes but have extra space to keep cyclists separated from motorists in travel lanes and also keep cyclists further from parked vehicles and opening doors.²⁸

CDOT engages volunteers to conduct bike counts. For example, the 2015 Spring Downtown counts took place on Tuesday, May 12 and Saturday, May 16h with the help of 38 volunteers. The counts were held between 7 - 9 AM and 4 - 6 PM at 19 locations on Tuesday and 12 - 2 PM at 14 locations on Saturday. Volunteers counted 9,383 people riding bikes at those times, a 28 percent increase compared to spring of 2014. A growing share of bicyclists are Divvy bikeshare riders: 21% of bicyclists counted in Spring 2015 were riding Divvy bikes, up from 16% in 2014.²⁹

Divvy

The Divvy bikeshare program, launched by CDOT in 2013, has grown dramatically with ridership exceeding 3.2 million trips in 2015.³⁰ Divvy consists of a fleet of specially designed, heavy-duty bikes locked into a network of docking stations located throughout the city. Divvy bikes can be rented from and returned to any station in the system, and the network is designed with twice as many docking points as bicycles in order to always have a dock available for returning a bike. CDOT reports that adding these stations gives Divvy the largest service area of any bike share system in North America, covering 87 square miles, and ridership increased 30% between 2014 and 2015.

Divvy is meant as a transit system that provides an easy, affordable option for quick trips around Chicago. Riders must first purchase an Annual Membership (\$99 annual fee or \$9.95 per month) or a 24-Hour Pass (\$9.95). Because Divvy is intended for quick trips, the membership fee covers unlimited 30-minute trips. Escalating overtime fees of \$1.50 to \$8.00 per half hour are charged for trips over 30 minutes.

CDOT owns the Divvy bikes, stations and vehicles. Funding for the program has come from federal grants and the City's Tax Increment Financing program. In 2016 a state grant enabled Divvy to expand

²⁷ See <http://chicagocompletestreets.org/streets/bikeways/> and links on website hosted by Chicago Department of Transportation

²⁸ *ibid*

²⁹ See http://chicagocompletestreets.org/wp-content/uploads/2013/06/Spring-2014-Quartely-Bike-Count-PDF_RevisedKP.pdf

³⁰ See <http://divvybikes.tumblr.com/>

to Oak Park and Evanston. To operate Divvy, CDOT has a contract with [Motivate](#), a firm that also operates [bikeshare](#) programs in Washington D.C., Arlington, Virginia, Boston, New York, San Francisco, Columbus, Chattanooga and Melbourne, Australia. The system is solar powered and wirelessly integrated using technology provided by [Public Bike System Company \(PBSC, also known as Bixi\)](#). [Blue Cross and Blue Shield of Illinois](#) was recruited as a major sponsor of Divvy, and there are several local station sponsors.

Because Divvy registration is completely digital, detailed analytical data has been generated for more than six million trips, totaling more than 13 million miles by Divvy riders, since Divvy's launch in 2013. The data can be accessed at [DivvyBikes.com/data](#). The trip data is anonymized, but shows which stations riders travel between, on which days, and at which times. For example, the data reveals that the average Divvy member takes 83 trips per year, has an average trip length of almost 2 miles, and an average trip lasts 16.56 minutes. It shows that Navy Pier is the top destination regardless of the day of the week. During the work week, the top destinations show many riders are focused on getting in and out of the Loop during rush hour. Major transit hubs, such as Union Station and Ogilvie Transportation Center, rank high on the top ten station destinations for riders. During the weekends, however, Chicagoans and visitors prefer to head almost exclusively to Lake Michigan and major cultural attractions.

An additional 175 new stations were added to the system in 2015, increasing the number to 475 from the previous year's 300 stations. Another major expansion is taking place in 2016, adding 75 stations in Chicago and adding stations in Oak Park and Evanston. The system will expand into new neighborhoods that include Austin and Garfield Park on the west side; Burnside, Chatham, Greater Grand Crossing, Brighton Park and Englewood on the south side; and Rogers Park on the far north side. After this expansion there will be a total of 571 stations and approximately 5,700 bikes.³¹

Loop Link

Loop Link, launched by CDOT and the CTA in December 2015, is a noticeable and innovative transportation upgrade in downtown Chicago on Washington, Madison, Clinton and Canal Streets that moves buses efficiently through the Loop between Union and Ogilvie Metra stations on the west and Michigan Avenue on the east. All CTA bus routes that use these streets use dedicated bus lanes and bus-only traffic signals at some intersections to help keep buses separate from general traffic and on schedule. Loop Link is designed to improve the speed and reliability of buses carrying almost 25,000 passengers daily through the Loop and connecting them on seven routes to all corners of the city. It offers safety benefits by organizing travel lanes and reducing conflicts between vehicles, buses, bicyclists and pedestrians. Cars have two dedicated travel lanes, helping them avoid bus and bicycle traffic.

³¹ See <https://www.divvybikes.com> and links

Special features include: larger and longer covered stations with more seating and equipped with bus tracking monitors that notify riders when the next bus is arriving; raised platforms that allow passengers to board and exit CTA buses more easily and speed up the boarding process; well-marked dedicated bus lanes that enable faster and more reliable trips; protected bike lanes with bike traffic signals that make biking through the Loop safer and more comfortable; and more sidewalk space for pedestrians as bus shelters are located away from walkways.³²

Jitneys

In 2012, Chicago legalized jitneys and developed a process to license and regulate jitney vehicles, drivers and services. Jitneys typically offer a lower-cost transportation option for low-income and often non-English speaking populations. Commonly known as share taxis in other parts of the world, jitneys are a hybrid between a taxi and a bus. They are typically privately owned and tend to run along a fixed route with set stops, but will often stop when hailed.

The new ordinance limits jitneys to vehicles under eight passengers. Jitneys must operate at a flat rate and cannot refuse service to residents within the neighborhoods in which they operate. They can operate unscheduled service, but it must be along prescribed routes or within specified neighborhoods. They cannot pick up passengers at the airports, Navy Pier, McCormick Place or certain other locations frequented by taxis.³³ Drivers must be licensed as chauffeurs and must operate registered public passenger vehicles.³⁴

Jitneys have operated in parts of Chicago for many decades, but the 2012 ordinance recognizes them as an important part of urban mobility. Because they operate at a smaller scale, their costs are lower than traditional transit. They are more flexible than traditional transit; private operators can change and customize routes as needed. Often jitneys serve particular populations of non-native English speakers, allowing a more comfortable environment for those trying to navigate the city without knowing the language. Sometimes they can also be more convenient than traditional transit – making slight deviations from the route as needed to provide door-to-door service when requested. Finally, they are typically cheaper than other transit options and tend to operate in lower-income neighborhoods. They provide another important transportation option to those who most need it and are least likely to be able to afford their own vehicle.

Jitneys are a more modest alternative to newer transit services like Uber and Lyft and particularly their carpooling offshoots. Like such companies, jitneys complement transit, providing service where transit is lacking or does not provide a direct route to a common destination. However, unlike these newer

³² Loop Link information is found at <http://www.transitchicago.com/looplink/>

³³ Municipal Code of Chicago, Title 9 Vehicles, Traffic and Rail Transportation, Chapter 9-114 Public Passenger Vehicles Other than Taxicabs, Article 5 Jitney Car Services.

³⁴ “Public Chauffeurs Rules and Regulations,” City of Chicago Department of Business Affairs and Consumer Protection Public Vehicle Operations Division, Effective May 1, 2008, Amended December 3, 2012.

services jitneys are less expensive and don't require a smart phone. Chicago's Mayor Emanuel has argued that services like Uber and Lyft give Chicagoans more choices, increase competition and provide jobs and transportation within the South Side and West Side where cabs can be reluctant to go. These same benefits are offered by jitneys, but with an even lower cost to riders.

Serving lower density areas is difficult; Pace has made several innovations to fill gaps in suburban transit.

Faced with responsibility to serve several million people in a sprawling six-county service area, Pace has added a variety of innovative services to fill the many gaps in suburban transit service. Pace was created by the 1983 RTA Act and in 1984 began unifying the numerous suburban bus agencies, renewing bus garages and fleet, and making fares, branding and management consistent throughout the region.³⁵ Pace has continually designed and redesigned its bus routes to best use its resources. It has also developed a variety of innovative services resulting from several strategic and long range planning efforts. Pace calls its current plan – *Vision 2020: Blueprint for the Future* – the biggest transit initiative ever proposed for Chicago's suburbs.³⁶ Funding limitations have slowed the plan's implementation, but Pace continues to use it as the basis for creating faster, more convenient and understandable service.

Public-Private Partnerships

From the beginning, Pace has had to use all kinds of partnerships to manage and grow its services. While Pace directly operates fixed route service for 85 percent of the system's suburban ridership, it also has contracts with two private transit providers for fixed route service in 33 different communities.³⁷ It partnered with numerous local governments in creating and growing its vanpool, dial-a-ride and call-n-ride services, and has contracts to provide fixed route service for a few communities.

The Lake-Cook Transportation Management Association (TMA) Shuttle Bug is a particularly interesting partnership that has been encouraged and supported by the RTA, Pace and Metra. It will be discussed in more detail later.

³⁵ Pace website Homepage, www.pacebus.com, accessed July 13, 2016

³⁶ *ibid*

³⁷ Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, page 12 and 13, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

Arterial Rapid Transit (Pulse)

The CTA bus system provides a grid network of connected routes supplemented by a number of express services to hard to reach locations. On the other hand, the multiple bus systems taken on by Pace had historically been designed for movement within particular community areas. *Vision 2020* proposed redesigning bus routes to provide faster, more logical arterial rapid transit connections between primary suburban employment centers. It calls the redesigned arterial system *Pulse*, and plans to launch the Milwaukee line in 2017 to provide faster service through the use of technology and time-saving design elements for daily customers on the northwest side of Chicago and the Village of Nilens.³⁸

Express Bus Service

Pace plans to implement expanded express service on the Jane Addams Memorial Tollway (I-90) in the northwest suburbs in late 2016 through a collaborative project with the Illinois Tollway, which incorporated park-n-ride lots and other transit supportive elements into the reconstruction of the Jane Addams. Bus-on-Shoulder express bus service had a successful pilot on I-55 with the Illinois Department of Transportation, and efforts are being made to bring the program to other area highways, including the Edens and Bishop Ford expressways.³⁹

Paratransit

Paratransit service is the general term for a "demand-response" service in which a passenger must reserve a ride in advance. Unlike fixed-route service, in which buses travel the same route in a regular pattern and pick up any waiting passengers, paratransit vehicles make only pre-arranged trips for riders who are eligible for the particular service. Pace provides several different types of paratransit service, listed below.

- ADA Paratransit

ADA paratransit service is required by the federal Americans with Disabilities Act and is provided for customers whose disability or health condition prevents them from using CTA and/or Pace fixed route services for some or all of their travel. Only persons who are [certified](#) by the RTA as a

³⁸ Letter from Chairman Richard A. Kwasneski, Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

³⁹ *ibid*

person with a disability are eligible to ride ADA Paratransit. Trips are only provided within three-quarters of a mile of fixed route service during normal fixed route hours and days.

Pace started serving people with disabilities several years before it was required by the Americans with Disabilities Act. In 2006, the Illinois legislature made Pace the region's paratransit provider, including taking on responsibility for ADA paratransit in Chicago that had previously been managed by the CTA. The move made Pace one of the largest providers of paratransit service in the United States.⁴⁰

ADA paratransit is door-to-door service using fully accessible vehicles the customer schedules a day in advance by calling a special phone number. Demand for paratransit service has increased dramatically over the years. In 2016, total paratransit ridership is expected to reach 4.518 million trips, 5.1% more than 2015. Likewise, the amount of funding needed has greatly increased. To address that growing need and meet federal requirements, the Illinois legislature amended the RTA Act in 2011 to establish the ADA Fund at a level of \$115 million for 2012 with future allocations based on program requirements. The 2016 allocation is \$151.487 million; that comes off the top before the RTA divides funds among CTA, Metra and Pace.⁴¹

ADA paratransit is costly to provide, at more than \$30 per trip, but customers pay \$3.00. While all other Pace farebox revenues must cover 30 percent of operating costs, just 10 percent of ADA paratransit costs must be covered by fares. Regional ADA Service operating expenses will reach \$174.798 million in 2016—up 7.2% from 2015, but fare revenues will only be \$14.811 million. The 10 percent recovery ratio will be achieved by using capital cost exemption credits allowed by the RTA.⁴²

If some riders who are physically able were to choose riding on the fixed route system instead of ADA paratransit, it would substantially reduce subsidy costs. It could also be beneficial to the rider – no reservations are required to take the bus or train, all ADA riders and seniors are eligible for 50 percent discounted fares, and by law seniors and people with disabilities who are enrolled in the Illinois Department on Aging's Benefit Access Program are allowed to take fixed route trips for free. Pace's fixed route system is entirely accessible to people with disabilities.⁴³ CTA buses and Metra trains are also accessible, but not all CTA and Metra stations are ADA accessible. The RTA offers a [training program](#) for those who wish to learn how to ride a fixed route.

⁴⁰ Pace website Homepage, www.pacebus.com, accessed July 13, 2016

⁴¹ Pace 2016 Regional ADA Paratransit Operating Budget Summary, page 27, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

⁴² *ibid*

⁴³ Found at <http://www.pacebus.com/sub/paratransit/> accessed July 18, 2016

- Vanpools

Pace established one of the largest vanpool programs in the nation and became the regional ridesharing administrator for Northeastern Illinois in 2006, bringing coordination of carpools into the program. PaceRideShare.com is the web portal for these services, inviting commuters to create a profile and gather information on others with similar travel patterns in order to form carpools or vanpools. The program provides passenger vans for groups of five to 14 people, allowing them to commute to and from work together. Pace reports that the program continues to grow and expects to have 726 vans in service by the end of 2016 providing 1.952 million annual rides.⁴⁴

The Vanpool program is comprised of three elements: the Vanpool Incentive Program, Employer Shuttle, and Advantage.

Vanpool Incentive Program (VIP) – Pace invites groups of five to 14 employees who live and work near one another and share similar schedules to form a group to use a Pace van to get to and from work. Each rider pays a monthly fare based on distance and number of participants, to cover all costs of the vanpool including fuel, maintenance, insurance, tolls, roadside assistance, and van washes. One of the participants volunteers to be the primary driver. He or she does not pay a fare and also receives 300 personal miles a month. Backup drivers receive a \$10 per month discount.⁴⁵

This is the core element of the vanpool program and is projected to achieve a ridership level of nearly 947,000 rides with 307 vans in service by the end of 2016. Pace includes purchase of vans in its annual capital budget. The fare recovery performance for this program is very positive, budgeted at 127.7% for 2016, which means that revenues for the program exceed operating costs.⁴⁶

Employer Shuttle Program – Pace offers vans to employers in the Pace service area to provide work-related passenger trips and shuttle employees to and from nearby transit connections with CTA, Metra, and Pace facilities. Pace charges the company \$750 per month per van, or a reduced rate of \$600 to not-for-profit companies and agencies. Employers furnish the drivers. With prior approval from Pace, the employer may charge riders/participants an administrative fee to cover costs associated with the operation of the shuttle service.⁴⁷ Pace has 17 shuttle

⁴⁴ Pace 2016 Regional ADA Paratransit Operating Budget Summary, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

⁴⁵ http://pacebus.com/sub/vanpool/traditional_vanpool.asp

⁴⁶ Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

⁴⁷ http://pacebus.com/sub/vanpool/employer_shuttle.asp

vans in service in 2016, unchanged from 2015. The 2016 budgeted recovery rate for this program is 126.42%.⁴⁸

Advantage Program – Since 1994 Pace has offered the Advantage Program as a transit alternative for individuals with disabilities who commute on a regular basis to worksites or rehabilitative workshops supported by qualifying not-for-profit human service organizations. Pace charges qualifying organizations \$401 per month per van to provide work-related transportation service to persons with disabilities.⁴⁹ It is an alternative for those unable to use the regular ADA paratransit service or those living outside the 3/4 mile ADA service area. Pace estimates there are 402 Advantage vans in service in 2016. The 2016 budgeted recovery rate for the Advantage program is 42.56%.⁵⁰

Dial-a-Ride

Dial-a-Ride service is available in a large portion of the Pace service area through 64 dial-a-ride projects. Each program has its own rules on fares, geographic boundaries and passenger eligibility. Many Dial-A-Ride services are open to the general public, but some only serve senior citizens or persons with a disability. Nearly all service is provided with Pace-owned paratransit vehicles.

Pace has service agreements and financial partnerships with villages and townships for the operation cost of the dial-a-rides. In most cases Pace contracts with private providers to operate the dial-a-rides, but in some cases the local partner operates the service. Pace provides a subsidy of \$3.00 per trip or 75% of deficit, whichever is less. The 2016 Pace budget for local dial-a-ride provides \$20.392 million for service throughout the six county region.⁵¹

Several efforts have been made to overcome some of the geographic restrictions in the Dial-a-Ride programs:⁵²

Ride DuPage – In 2004 the Ride DuPage program was implemented. The program coordinates paratransit operations which were previously operated and dispatched by numerous private and public organizations. Pace coordinates dispatching and provides service through a mix of transportation providers. Program costs are offset by local subsidies and federal grant funding.

⁴⁸ Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

⁴⁹ http://pacebus.com/sub/vanpool/advantage_van.asp

⁵⁰ Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

⁵¹ ibid

⁵² ibid

Ride in Kane – In 2008 Ride in Kane was implemented to coordinate paratransit operations through a centralized call center and provide service through a mix of transportation providers. It is funded by a combination of federal grant funding and local share agreements.

In 2010 Pace initiated pilot projects in northwest Lake County and southeast McHenry County to coordinate paratransit services among and between dial-a-ride, ADA, and fixed route services.

Call-n-Ride

In 2008, Pace launched its first Call-n-Ride program in West Joliet and now it is available in nine areas. Call-n-Ride service is a reservation-based, curb-to-curb service that picks up riders and takes them anywhere within a designated geographic service area. Fares for the service are the same as the local Pace fixed route fare. This service is similar to Dial-a-Ride, except that everyone is eligible to ride and passengers need to call to reserve a trip only one hour in advance.⁵³

Pace currently has nine Call-n-Rides throughout the region, each with its own phone number and hours.

- Arlington Heights - Rolling Meadows -- Weekdays 6:10am - 6:30pm
- Batavia -- Weekdays 6:30am - 6:50pm
- Round Lake Area -- Weekdays 6:00am - 6:15pm
- Southeast Aurora -- Weekdays 6:10am - 6:30pm; Saturdays 7:10am - 6:30pm
- St. Charles - Geneva – Weekdays 5:30am - 7:00pm; Saturdays 8:00am - 6:30pm
- Tinley Park -- Weekdays 6:40am-6:33pm
- Vernon Hills - Mundelein -- Weekdays 6:00am - 6:15pm
- West Joliet -- Weekdays 6:00am - 6:15pm
- Wheaton - Winfield – Weekdays 6:30am - 6:45pm⁵⁴

Dial-a-Ride and Call-n-Ride have been positive steps to improve mobility and meet some of the need for first and last mile connections to the fixed route system, but they are only available in some areas. The next chapter will consider a variety of ideas that might be useful to enable everyone in the region to move about without needing to own a car.

Transportation Management Associations (TMAs) can play a helpful role.

Transportation Management Associations (TMAs) have been beneficial in promoting travel demand management (TDM) including engaging businesses to seek expanded transit options and bridge the

⁵³ http://www.pacebus.com/sub/schedules/call_n_ride.asp

⁵⁴ ibid

gap between fixed transit routes and employment locations. TMAs can be particularly useful in suburban areas that lack the coverage and frequency of transit that the CTA provides in its service area.

A 2009 CMAP report concluded that suburban Transportation Management Associations can have substantial positive impacts on travel behavior. The report states that in many cases, travel demand management would be much more difficult or infeasible without the assistance of a TMA.⁵⁵ For example, the TMA of Lake Cook has focused corporate leadership on providing alternative travel options for the TMA's member employers, including expanded city-to-suburb and suburb-to-suburb commuter rail service and stations, and a national-model shuttle service from commuter rail stations to employment sites. The CMAP report said such coordination between so many businesses and government agencies is possible only with the deliberate, systematic efforts of a TMA or similar organization.⁵⁶

Several TMAs were formed in the late 1980s and early 1990s to encourage development and implementation of travel demand strategies, with encouragement and support from public officials and transit agencies. There was a TMA in the I-88 corridor in the early 1990s but it didn't last too long; it did not have a shuttle program. Two TMAs exist today – the TMA of Lake-Cook whose dues-paying members include businesses in the Lake-Cook Road area, and the Prairie Stone TMA where all business tenants at the Sears corporate campus and office park in Hoffman Estates automatically become members.

TMAs can yield tangible benefits. According to a CMAP analysis, by 2000 the TMA of Lake Cook had increased the alternative (non-single occupant vehicle) mode share to 14% for 50,000 employees along suburban Lake-Cook Road in the Highland Park, Deerfield, Glencoe and Northbrook area,⁵⁷ while the Prairie Stone TMA had achieved a 19% alternative mode share for more than 7,000 employees.⁵⁸ By comparison, comparable areas without active TMAs had lower alternative mode shares: 10% for 56,000 employees in the 22nd Street-Butterfield Road corridor in the Oak Brook and Oakbrook Terrace

⁵⁵ CMAP, Travel Demand Management Strategy Paper, by Jose Rodriguez, author, and Tom Murtha, co-author, March 2009, page 11

⁵⁶ CMAP Travel Demand Management Strategy Paper, by Jose Rodriguez, author, and Tom Murtha, co-author, March 2009, page 12

⁵⁷ Ibid and Regional Transportation Authority. "2000 Work Trip Flows." *Regional Transit Asset Management System*. www.rtams.org. Defined destination (work site) custom geography zones 209, 5994, 5995, 5996, 5997, 5998, 5999, 6000, 6001, 6002, 6003, 6004, 6005, 6006, 6007, 6008, 6009, 6010, 6021, 6023, 6024, 6027, 6028, 6078, 820, 821, 822, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919; all origins.

⁵⁸ Ibid. RTA defined destination zones 256, 257, 258

area,⁵⁹ and 11% for 39,000 employees in the I-88 corridor in the Naperville, Aurora, and Warrenville area.⁶⁰

TMA of Lake – Cook

The TMA of Lake-Cook was first conceived in 1989 by Lake County and RTA leaders to collaborate with businesses to advance travel demand management strategies. The Lake County Division of Transportation hired and housed the executive director, and a few years later Baxter agreed to provide office space. The TMA has continually provided leadership and coordinated business engagement and advocacy related to transportation needs on the Tollway and State and local roads affecting movement in their area. When a new Metra Milwaukee District North Line station at Lake-Cook Road was being planned, a CMAQ grant enabled the TMA to plan and launch the Shuttle Bug in 1996.

- Shuttle Bug Program

The Shuttle Bug program is a public-private partnership between the TMA of Lake-Cook, Pace Suburban Bus, Metra Commuter Rail and area businesses to provide convenient shuttle service connections between participating businesses and Metra stations. Door-to-door service is provided on fully accessible Pace buses. Employees of participating firms ride free using their Blue Ventra passes.

Pace is the operator of the shuttle buses, and operating costs are split between Pace (25%), Metra (25%) and TMA companies (50%). Pace provides the shuttle buses with capital funds secured through the RTA. It would need additional capital funds to expand the program.

The Shuttle Bug began with six smaller vans and now there are 13 routes serving 40 companies carrying employees to and from Metra stations on the Milwaukee North, Union Pacific North, and the Union Pacific Northwest lines. In addition to the regular peak hour service, Pace also operates a midday shuttle for Takeda with Baxter and Discover participating in the summer months. The shuttles serve the communities of Buffalo Grove, Deerfield, Glenview, Northbrook, Des Plaines, Lake Forest, Mettawa, and Riverwoods in Cook and Lake County, Illinois.

The Shuttle Bug service grew from 110 rides per day when it opened in 1996 to 500 per day in 1998 and 800 per day in 2001.⁶¹ By 2008, the Shuttle Bug provided 1700 shuttle rides per

⁵⁹ Ibid. RTA defined destination zones 209, 5994, 5995, 5996, 5997, 5998, 5999, 6000, 6001, 6002, 6003, 6004, 6005, 6006, 6007, 6008, 6009, 6010, 6021, 6023, 6024, 6027, 6028, 6078, 820, 821, 822, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919.

⁶⁰ Ibid. RTA defined destinations zones 209, 5994, 5995, 5996, 5997, 5998, 5999, 6000, 6001, 6002, 6003, 6004, 6005, 6006, 6007, 6008, 6009, 6010, 6021, 6023, 6024, 6027, 6028, 6078, 820, 821, 822, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919

day.⁶² Among riders, 72% drove alone to work before taking the shuttle; 15% of riders “would not be able to get to work without the shuttle service.”⁶³

Shuttle Bug ridership has declined in the last couple years, to about 1100 daily trips in 2015.⁶⁴ TMA staff suggest several factors might have contributed to the decline: 1) changing work schedules enabling more people to work at home more often; 2) low gas prices leading some to drive instead of using transit; and 3) competition from private transportation firms that can quickly tailor upgraded services to meet an employer’s unique demands. Several TMA member companies have contracted with private transportation firms for such specialized services.⁶⁵

In its mission to provide more transit options where they are currently lacking, the RTA is encouraging expansion of Shuttle Bug services to other areas and is funding a study to test the idea. The first such pilot is a Shuttle Bug route launched in 2015 in the DuPage County community of Downers Grove. It provides service between north Downers Grove and the Belmont Metra BNSF Station. It is hoped that this route is the first of several that will test the expansion of Shuttle Bug services beyond the Lake Cook area. The RTA and TMA are now working on market development in northwest Cook County and the Oak Brook area.⁶⁶

⁶¹ Timothy Jackson and Tom Murtha. “A Synopsis of CMAQ Demonstration Projects: Demonstration Projects funded by the Congestion Mitigation and Air Quality Improvement Program in Northeastern Illinois, Fiscal Years 1992-2001.” Chicago Area Transportation Study Working Paper 01-10. May 2001. Posted at <http://www.catsmpo.org/workingpapers/01-10.pdf>. Accessed January, 2009.

⁶² TMA of Lake Cook. “TMA Shuttle Program” http://www.tmalakecook.org/shuttle_overview.html. Accessed January, 2009; updated 2008 counts from personal email communications, cited in CMAP Travel Demand Management Strategy Paper, *ibid*, page 12 .

⁶³ *Ibid*

⁶⁴ TMA of Lake-Cook, 2015 Annual Report, page 2

⁶⁵ Interview with Bill Baltutis and Tim Grzesiakowski, TMA of Lake-Cook, July 11, 2016

⁶⁶ TMA of Lake-Cook, 2015 Annual Report, page 2

Section 3: New Technology and the Emergence of Transportation Network Companies

In spite of the many efforts by public transit agencies to creatively respond to changing needs, there remain gaps in service and many areas lack adequate access to opportunities. This section reviews a variety of private sector initiatives to fill those gaps and find business opportunities in doing so. There has been rapid development of transportation technology, digital data and web-based smartphone applications in the last few years. Anyone with a smartphone in most of the Chicago area can now book an individual or shared ride, be picked up in minutes and taken to their destination, and pay online without cash. Development of user-focused transportation technology and emergence of companies like Uber, Lyft, Via and Moovel are simultaneously disrupting the traditional model of transit and expanding mobility options.

Rapidly evolving and competing transportation network companies are helping many more people get around.

It is an energized, competitive transportation technology environment that feeds innovation. A number of startup companies have moved into this field. It can be expected that new companies will continue to arise, try new ideas, and some might succeed. Customers have flocked to ride hailing and ridesharing services. Uber, Lyft and Via will be mentioned here.

Uber and Lyft

Uber has become the biggest transportation network company serving the Chicago area, and Lyft is its main competitor. Uber's service area is much larger than Lyft's, but Lyft extends north into southern Wisconsin while Uber's service ends at the border. Uber extends much farther south and west of the Chicago region than Lyft. Each has grown its service as the market develops, so it is likely that their service areas will continue to change.

Uber currently offers a variety of on-demand car-hailing services in the Chicago market – UberX, UberXL, UberTaxi, UberSelect, UberBlack, UberSUV and a pilot of the shared ride UberPool program that has been launched in a few other major cities. Lyft offers all of its services in Chicago – Lyft, Line and Plus. Lyft is the standard ridesharing service. Line is similar to UberPool, and Plus is akin to UberSelect in which the passenger can be guaranteed a nicer vehicle, perhaps with more room. Uber and Lyft generally price rides at less than comparable cab fares, but Uber uses variable surge pricing that is higher during busy periods as a way to manage supply and demand.

Lyft Line and UberPool let passengers share rides with other customers on routes that might vary somewhat for prices less than traditional Lyft or UberX rides. The new Pool and Line rides also may be cheap enough to make sense for someone comparing the cost of a \$2.25 CTA ride against a \$5 shared UberPool or Lyft Line ride.

Uber is [also piloting UberCommute](#), which allows people driving to work to take along a passenger and recoup some of their commuting costs without becoming full-fledged Uber drivers. Prices for these riders will be even lower than UberPool.

Though Uber and Lyft have existed in Chicago since 2011 and 2013 respectively, both companies said the city needed to build a critical mass of riders before shared rides could begin to reach their potential. Chris Taylor, an Uber general manager said recently, “You have to have an ecosystem: You have to have enough drivers, you have to have enough riders, you have to have enough people going in the same direction to be able to pair them up effectively. Chicagoans have all kind of adopted Uber enough that there are enough of them going in the same direction that we can pair people really well.” In January 2016 the company said 1.2 million unique users took an Uber trip in Chicago in the last three months.⁶⁷

So far neither Uber nor Lyft appear to be profitable, but they are growing fast and have attracted a great deal of capital. Bloomberg and Forbes report that although both Uber and Lyft have soared in terms of revenue, their losses have kept pace. Bloomberg⁶⁸ reported that Lyft lost \$127 million in the first half of 2015. Forbes reported that Uber in that same period collected \$3.63 billion in what they refer to as “bookings” (rides before the driver’s cut is subtracted), yielding net revenue of \$663.2 million and net losses of \$987.2 million.⁶⁹

Via

Via initiated a shared-destination, carpool-like service in November 2015 in a limited area in Chicago. Its service is comparable to UberPool and LyftLine. Their initial service area for pickups and drop-offs – east of Canal Street between Division Street and Congress Parkway – soon expanded to the West Loop and will likely continue to expand to meet market demand.

People can request a ride through the Via app, and the app matches them with a driver heading to a similar destination. Riders are then directed to a nearby corner to be picked up in a van or SUV with up to four other riders. Unlike Lyft and Uber, Via is only in service from 6:30 am -9:00 pm. All rides are

⁶⁷ “Ridesharing, apps could fill remaining gaps in Chicago transit,” Big Ideas 2016, Chicago Tribune, January 21, 2016 Meg Graham, Reporter, Blue Sky Innovation

⁶⁸ Newcomer, Eric. “Leaked Lyft Financials Show the Struggles of Being No. 2 Behind Uber.” Bloomberg Technology. Web. February 20, 2016.

⁶⁹ Solomon, Brian. “Leaked: Uber’s Financials Show Huge Growth, Even Bigger Losses.” Forbes. Web. February 20, 2016.

priced at \$5 for those who prepay using the app, and \$7 for single rides not prepaid, although rides were recently listed at \$3.99 on their website. As an added benefit, Via allows individuals to pay using their pre-tax commuter benefit debit cards.

CEO Daniel Ramot founded Via with Oren Shoval in New York in 2012. They modeled the company after van services in Israel called “sheruts,” which allow travelers to cheaply travel major streets with more stops than the bus system. Ramot said the company picked Chicago as its second market because it has the “right amount of density” and a population that is transit-savvy but might be frustrated with the system. “We fill in the gaps in the existing transit system. We think of the [Via] vehicle as a dynamic bus rather than a private taxi you’d be sharing with another person.” He said pickup time is typically around five minutes, and “every member contributes to the efficiency of the system by walking just a little bit so that the vehicle doesn’t have to make a large detour to pick them up. Via has that unique place where you really want to be taking the bus, but you’d have to switch or change two or three times, and it just doesn’t work in terms of how long it’s going to take.”⁷⁰

Digital applications and connected technology give people easier access to transportation information and services.

The rapid growth of ridesharing has been enabled by development of sophisticated technology, and the next generation of that technology aims to enable consumers to use and pay for multiple modes of transportation for a single trip.

Moovel

Moovel is one such technology company, and its evolution exemplifies the rapidly changing business environment. It began as two companies – RideScout, of Austin, Texas and Portland, Oregon-based GlobeSherpa. [RideScout was acquired](#) by Car2Go North America LLC in 2014, which itself is run by German company Moovel GmbH, a division of [Daimler AG](#) (the company that owns Mercedes-Benz). In 2015 [RideScout bought GlobeSherpa Inc.](#), a Portland-based transportation payments software platform developer. The two were operated as separate business units until April 2016, when [Daimler AG merged GlobeSherpa and RideScout](#) into a new business called Moovel North America, based in Austin.⁷¹

Moovel’s expressed aim is to bring mobility solutions for public and alternative transportation options to North American cities through two distinctive but complementary products: moovel transit and

⁷⁰ “Via, UberPool launch competing rideshare services in Chicago,” Chicago Tribune, Blue Sky Innovation Section, November 17, 2015, Meg Graham, Reporter

⁷¹ “RideScout trip-planning app to soon be obsolete,” Austin Business Journal, Jul 29, 2016, [Michael Theis](#), Staff writer

RideTap. Their merger announcement stated, “We want all forms of transportation, from public transit to rideshare to on-demand ride apps, to break out of their silos and become organized into one well-connected experience, with public transit as the foundational core. Transportation is no longer just a question of options, but of convenience and ease of use.”⁷²

Moovel seeks to organize and connect all transportation information and booking/payment options for transportation providers, app companies, and consumers through two products:

- Moovel transit: Formerly GlobeSherpa’s TransitSherpa platform, moovel transit is a suite of mobile ticketing and payment solutions for public transit authorities. CTA, Pace and Metra are reportedly among its U.S clients.
- Software Development Kit (SDK): Currently operating in private beta, RideTap is piloting its first program in Portland, Ore. through the TriMet Tickets mobile app, where riders can request a Lyft or reserve a car2go. It is intended to allow any app to leverage a network of transportation partners in one easy integration enabling people using apps with RideTap installed to easily find nearby multi-modal ride options and other information based on where they are right now.⁷³ Moovel initially used the RideScout application, which used Google Maps as its base layer of information. Based on a user’s location and desired destination the app would compare the cost of driving a car, renting a bike, riding one’s own bike (in calories), transit, and various rideshare/taxi services. The app is intuitive to use, but has lacked data from the main rideshare players, Uber and Lyft, posing a barrier to its full utility. In August 2016 Moovel converted to using its own application which is similar to the RideScout app, and removed RideScout from its offerings.⁷⁴

TransLoc

The TransLoc Rider app allows transit riders to know where their bus is and when it will get to the bus stop. It is a product of Durham startup TransLoc, which announced in January 2016 that it is partnering with Uber. In March TransLoc reported receiving \$8 million from investors including Ford Chairman Bill Ford’s Fontinalis Partners.⁷⁵

⁷² “RideScout and GlobeSherpa Merge to become *moovel North America*,” Business Wire, April 14, 2016

⁷³ *ibid*

⁷⁴ “RideScout trip-planning app to soon be obsolete,” Austin Business Journal, Jul 29, 2016, [Michael Theis](#), Staff writer

⁷⁵ “TransLoc scores \$8M from Ford chairman’s VC, others,” Triangle Business Journal, TECHFLASH Mar 31, 2016, Lauren K. Ohnesorge, Staff Writer <http://www.bizjournals.com/triangle/blog/techflash/2016/03/transloc-scores-8m-from-ford-chairmans-vc-others.html>

Under the partnership with Uber, when users put a destination into TransLoc Rider they will receive options that include walking, transit and Uber rides. TransLoc Rider began incorporating Uber's technology in mid-February in Raleigh-Durham and Memphis.⁷⁶

TransLoc Rider is reportedly the official public transit app for more than 135 municipal, university and corporate agencies. The company also offers products that collect data and run reports on the performance of a transit network and send real-time updates to riders.⁷⁷

Other New Apps

Uber's growth has also spawned some other new apps. One example is an app called Quxsi, developed by Chicago-based startup Engaged Interactive that calculates whether an Uber with surge pricing is cheaper or more expensive than a cab. Users punch in the route and the surge denominator (the premium that Uber charges during busy periods) and Quxsi shows them a comparison of fares. Another app, SurgeProtector, lets users see how far they'd have to walk to be picked up without a surge price.⁷⁸

More progress is expected on new apps and services that better integrate payments and customer information. Quxsi plans to build an app that helps consumers coordinate multi-leg trips, for example, a commuter riding a Divvy bike to a CTA "L" station, the train to work, then a Lyft back to the CTA, with each leg of the trip requiring a different app, card or key. In early 2016 Quxsi co-founder Matt Banach said, "This year is going to be all about continued integration of transportation as a whole. People are going to want to have all of this stuff in one place."⁷⁹

All of the action in application development could lead to the next generation beyond [Ventra](#), expanding on Ventra's mobile pay capability to one day enable travelers to coordinate and pay for multiple modes of transportation.

Ridesharing services are filling gaps in transit service and might positively affect transit ridership.

The ridehailing and ridesharing services are sometimes viewed unfavorably by transit agency professionals. However, their continued growth can be attributed to needs that exist and the limited capacity of the transit system to meet them. Chicago area transit ridership was flat or declining before

⁷⁶ "Durham startup TransLoc announces partnership with Uber," News & Observer, January 11, 2016 <http://www.newsobserver.com/news/business/article54103140.html>

⁷⁷ "Durham startup TransLoc announces partnership with Uber," News & Observer, January 11, 2016 <http://www.newsobserver.com/news/business/article54103140.html>

⁷⁸ "How Quxsi and other apps are responding to the surge of Uber -- Mobile apps show rates during Uber surge times," Chicago Tribune, Blue Sky Innovation, Meg Graham, Reporter, December 10, 2014

⁷⁹ "Ridesharing, apps could fill remaining gaps in Chicago transit," Big Ideas 2016, Chicago Tribune, January 21, 2016 Meg Graham, Reporter, Blue Sky Innovation

the recent surge of companies like Uber and Lyft, so the growth of ridesharing cannot be the only factor. However, the relationship between ridesharing and transit use needs further study.

Lyft has a highly-publicized effort called Friends with Transit in which they have compiled statistics from many cities, statements from public leaders and advertisements around transit stations. On the Friends with Transit site, Lyft says that 25% of its Chicago-area rides begin or end near a transit station, 22% of weekend rides occur in off-peak transit hours (midnight to 5 am) and that 63% of Lyft rides start or end in areas underserved by transit.⁸⁰

Uber's Edmonton, Canada office produced similar statistics as Lyft's Friends with Transit initiative, describing origins and destinations in areas that are underserved by transit.⁸¹ One indication of Uber's desire to coordinate with local transit services is the acquisition of TransLoc which has the goal of directly combining trip planning between transit and Uber. "Our mission is to make mass transit from last resort for some, to first choice for all," TransLoc CEO Doug Kaufman said in a statement. "The partnership with Uber will help advance us toward this goal and make public transit a viable option for everyone, not just people who live within a quarter of a mile of a stop."⁸²

A 2016 report by the Shared Use Mobility Center (SUMC) and the American Public Transportation Association (APTA) suggests that ridesharing and transit are complementary:

- "The more people use shared modes, the more likely they are to use public transit, own fewer cars, and spend less on transportation overall. 'Supersharers'—people who routinely use several shared modes, such as bikesharing, carsharing (e.g. car2go or Zipcar), and ridesourcing (e.g. Lyft or Uber)—save the most money and own half as many household cars as people who use public transit alone.
- Shared modes complement public transit, enhancing urban mobility. Ridesourcing services are most frequently used for social trips between 10pm and 4am, times when public transit runs infrequently or is not available. Shared modes substitute more for automobile trips than public transit trips."⁸³

The report said, "As new shared-use services proliferate in cities across the nation, one debate that has continued to surface is whether shared mobility is good or bad for public transit. With the rapid rise of disruptive technologies like ridesourcing, many people have questioned whether public transit will have to make significant changes to the way it operates. On one hand, shared mobility may take riders off transit for some trips. On the other hand, by enabling people in more places to easily get around

⁸⁰ "Friends with Transit." Lyft website accessed February 20, 2016, <http://take.lyft.com/friendswithtransit/>

⁸¹ "Uber and Public Transit: Working Hand in Hand in Edmonton," Uber website accessed February 21, 2016, <https://newsroom.uber.com/canada/uber-and-public-transit-working-hand-in-hand-in-edmonton/>

⁸² "Durham startup TransLoc announces partnership with Uber," News & Observer, January 11, 2016

⁸³ Shared Mobility and the Transformation of Public Transit, Research Analysis, by Shared-Use Mobility Center (SUMC), prepared for American Public Transportation Association, March 2016, page 4

without owning a car, it may be creating an entirely new group of transit riders. Overall, it seems shared-use services have the potential to expand regional mobility and—in some cases— provide service with more flexibility and lower capital costs than traditional rail and bus. SUMC has interviewed local transportation officials from around the country to determine their level of interaction with shared-use modes and the possibilities for integration. The opinions many of these stakeholders shared are in line with the early evidence in this area, which suggests that shared-use mobility complements public transit.”⁸⁴

A 2016 Morgan Stanley analyst report seems to concur. It says ride-hailing services could actually lead more people to use public transportation, especially when autonomous cars become a reality. It predicts that if policymakers incorporate ridesharing and self-driving car technology into their plans, rather than competing with it for market share, ride-hailing services could decrease the cost of public transit while increasing the number of people who use it. “A future dominated by shared, driverless cars linked via ride-hailing apps may sound like a world without traditional forms of mass transit,” the authors write. “But we don’t believe it will be.”⁸⁵

An earlier 2014 working paper by Lisa Rayle, Susan Shaheen, et al, based on 380 surveys collected in spring 2014 from three ridesourcing “hot spots” in San Francisco, concluded that ridesourcing serves a previously unmet demand for convenient, point-to-point urban travel. It concluded further that although taxis and ridesourcing share similarities, ridesourcing wait times are markedly shorter and more consistent than those of taxis, while ridesourcing users tend to be younger, own fewer vehicles and more frequently travel with companions. It found that ridesourcing appears to substitute for longer public transit trips but otherwise complements transit, and impacts on overall vehicle travel are ambiguous.⁸⁶

A 2015 Volpe Center report was cautious, saying “The growth of these technology-driven mobility choices raises larger questions about their impacts on congestion, other modes, and emissions, as well as their economic impacts on cities and individuals. Preliminary analysis shows that users tend to be younger, own fewer vehicles, and travel with companions. The effects may be beneficial, if moving away from a car ownership model encourages more multimodal travel. For example, on-demand ride services may increase the accessibility of public transit by bridging gaps in first- and last-mile coverage. These services could also be considered a vital part of a portfolio of travel options that includes bike-sharing, public transit, and walking. On the other hand, concerns exist that if on-demand ride services become too convenient or too inexpensive (especially if automated vehicles are used), they may end

⁸⁴ Shared Mobility and the Transformation of Public Transit, Research Analysis, by Shared-Use Mobility Center (SUMC), prepared for American Public Transportation Association, March 2016

⁸⁵ “The Biggest Beneficiary Of Ride-Hailing Services Might Be Public Transit”, [Ryan Grenoble](#), The Huffington Post, June 1, 2016

⁸⁶ “App-Based, On-Demand Ride Services: Comparing Taxi and Ridesourcing Trips and User Characteristics in San Francisco”, a working paper by Lisa Rayle, Susan Shaheen, Nelson Chan, Danielle Dai, and Robert Cervero, University of California, Berkeley, August 2014

up displacing trips by transit and non-motorized modes, resulting in higher VMT and more congestion.”⁸⁷

Ridehailing and ridesourcing services will continue to evolve, and technology will continue to spawn firms that deliver more customer-focused services and apps. Research so far suggests that there is a symbiotic relationship between those services and public transit. Despite whatever competitive concerns there might be, transit agencies, local governments and private companies will need to find ways to work together constructively to best serve the public’s mobility needs.

Autonomous vehicles will likely have a major impact and plans need to consider that scenario.

The next big game-changer on the horizon is the rapid development of autonomous vehicle technology. Several major auto companies as well as companies like Google, Apple and Uber are investing heavily in autonomous vehicles and there have been successful tests. It is expected that autonomous vehicles will be available within ten years, and perhaps sooner for some public transit vehicles.

It is likely that transportation network companies will incorporate autonomous vehicles into their fleets, offering the potential for a network of shared-ride autonomous vehicles that can operate at lower cost and therefore at a more affordable price. It will affect both public and private transit, and blur the lines between them.

The 2015 Volpe Center report says recent advances in robotics, machine vision, machine learning, sensor technologies and computers have brought automated vehicles out of the realm of science fiction. Major automakers, suppliers and new market entrants such as software companies have announced plans to release partially or fully automated vehicles within a decade. One forecast suggests there will be 54 million automated vehicles worldwide by 2035.

The report says, “Automated vehicles have the potential to reshape transportation, and they represent both opportunities and challenges. Putting technical and institutional challenges aside, the expected benefits could be quite substantial. These benefits could include crash avoidance, reduced energy consumption and vehicle emissions, reduced travel times, improved travel time reliability and multimodal connectivity, and improved transportation system efficiency and accessibility, particularly for persons with disabilities and older Americans. The benefits for applying this technology to public transit have been less frequently discussed but could be substantial as well, particularly for applications that could provide low cost first- and last-mile mobility, with potentially dramatic improvements in the reach of transit networks.

⁸⁷ 2015 OST-R Transportation Technology Scan: A Look Ahead, December 2015, US Department of Transportation, John A. Volpe National Transportation Systems Center, pages 9 - 11

- Vehicle sharing could become a much more attractive option, as shared automated vehicles could provide door-to-door service, and the current challenge of situating vehicles where they are needed could be overcome by the vehicles relocating themselves.
- There could be significant productivity and workforce impacts, affecting both the number of jobs and the skills required. Transportation agencies will likely continue to find that information technology skills are increasingly important.
- Current ridesourcing operations (e.g., Uber) could dramatically reduce costs and may become serious competition for transit in some (lower density) situations. However, they may also provide a supplemental service to mass transit and could provide a low-cost solution for paratransit. Planners and policymakers will need careful policy analysis to manage these complex dynamics to arrive at desired outcomes.”⁸⁸

⁸⁸ 2015 OST-R Transportation Technology Scan: A Look Ahead, December 2015, US Department of Transportation, John A. Volpe National Transportation Systems Center, pages 9 - 11

Section 4: Innovative Ideas to Enhance Transit and Improve Mobility

Following a review of innovative strategies that have been used by transit systems and governments around the United States to improve mobility and increase transit ridership, the ideas listed in this section are offered for consideration. They have been collected with the current tight fiscal environment in mind – they can be implemented without a large capital investment for infrastructure. Most would seek to apply resources the region currently has – or the partners that are available – to creatively expand transit ridership and improve mobility. It is hoped that the ideas listed here might prompt other creative thinking and collaboration to implement new mobility enhancement strategies.

Prioritize Easy Use of Technology to Enhance Transit and Improve Mobility

Recent technological advances have created transportation breakthroughs that are significantly altering how people travel. Real-time data availability allows travelers and delivery companies to optimize their routes. Apps alert users to the arrival of the next bus or train. Digital maps allow an instantaneous comparison of travel by walking, transit, biking, or driving.

Even more significant changes to the industry are just around the corner. Emerging Intelligent Transportation Systems will use information to reduce congestion and accidents. The advent of self-driving vehicles will change public transportation, personal vehicle ownership and car services in ways we don't fully understand.

Transportation providers should work to stay at the forefront of new technology in order to make a better, faster, safer, more convenient trip for all travelers. At the same time, they must keep in mind that while 64% of Americans now own smartphones, that leaves more than one-third who do not.⁸⁹ Those who do not own smartphones must also be taken into account when planning and developing new technology.

Aggressively pursue development of an integrated app that enables users to plan, book, and pay for trips across multiple travel modes.

One of the most transformational new technologies available is the transportation app that provides real-time arrival information, mapping, directions, and ticketing for users. While still evolving, the ideal tool would provide information on every mode along with the ability to compare cost and travel times

⁸⁹ "U.S. Smartphone Use in 2015," Pew Research Center, April 1, 2015, <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>

and allow ticket purchasing for each mode all through a single app. Although this technology is just emerging, the Chicago transit agencies could aim to be at the forefront of the movement to offer a fully integrated app that enables users to plan, book, and pay for trips across multiple travel modes. The next generation of the Ventra app would be an ideal venue to deploy such technology.

The most profound implication of an all-inclusive transit app is that it would unify the transportation network for users. Rather than travelers stitching together trips on their own, such an app presents a cohesive network. While the pieces may be managed by multiple providers, the riders experience it as a seamless trip. In simplifying the transportation network in this way, transit will attract more riders by making travel without a car easier.

A secondary benefit of such an app is that it has the potential to be easily customizable according to the user's preferences. Settings can be changed to allow only certain modes or to rank trip options according to particular selections. For example, in addition to cost or length of trip, users could prioritize trips by fewest emissions, most calories burned, or fewest transfers. In addition, the data collection enabled by such an app would allow transportation providers to better understand traveler behavior and plan for system improvements.

While the single, unified tool envisioned here does not yet exist, there are some apps currently offered that are getting close:

- GoLA: The GoLA app is multi-modal, customizable, and allows the purchase of certain services. Options for travel include public transport, taxi, FlitWays, Lyft, ZipCar, biking, bikesharing, parking, and driving, among others. The app lets you choose which modes you are interested in. When planning a trip, you can rank the options by which is the fastest, cheapest, or greenest. Currently the ability to book through the app varies with each partner.
- The TriMet ticketing app in Portland, Oregon connects users with other nearby mobility options such as Lyft and car2go. Users can book a Lyft or reserve a vehicle through the TriMet app.
- TransitApp, which is used in 125 metropolitan areas around the world, provides transit scheduling, routing, and real-time information, but also shows bikeshares, allows car2go reservations, or lets users e hail an Uber vehicle.

Until a fully integrated app is available, there are other technological solutions that transportation providers could implement now, as discussed below.

[Provide links to other transportation modes on the official transit ticketing app.](#)

The CTA, Metra, and Pace currently offer the Ventra app which offers real-time arrival information for all three modes and allows the user to purchase tickets for any of the three services. The joint Ventra card was a huge accomplishment and took many years of study before it was brought to fruition. The

transit providers could expand the app to link to other modes of transportation, particularly those that would be of use to transit riders.

Currently travelers in areas of the region that lack adequate transit service might choose to drive themselves or possibly walk, bike, take Uber, Lyft, Via, taxi, carshare, bikeshare, or use another mode of transportation. An app that at least linked to these other options would be a first step toward providing a unified experience for travelers.

In Atlanta, the MARTA transit app links directly to Uber as part of a joint “last mile campaign” they are offering together. On DART’s mobile GoPass app, users can connect to taxis, Zipcar, Uber, and Lyft, although they cannot yet pay for those services through GoPass.

In addition to other transportation services, a transit app could provide access to a wide variety of information and services that would be useful for riders: maps, station information, events (and directions) commuter rewards programs, savings calculators, and even a calorie burner calculator. The idea is to make it as easy as possible for a traveler to get where they need to go without driving their own car. In this way, car ownership can be reduced and transit ridership will grow.

Develop an “all inclusive” Traveler Information or 511 website

The Chicago region, perhaps spearheaded by CMAP, RTA or IDOT, could implement an integrated 511 traveler information phone system, website and app to provide an easily accessible one-stop site for multimodal travel information within the metropolitan region. Such a system would provide information on all types of travel to commuters and visitors to optimize their transportation decision-making and ensure they are aware of all travel opportunities at their disposal.

Metropolitan Chicago transportation agencies already have much traveler information available online and through smartphone apps. However this information is spread across dozens of websites run by IDOT, CTA, RTA, Metra, Pace, and others. Counties, townships, and Transportation Management Associations have their own websites that include the transportation services they provide. Google and Waze offer driving, biking, transit, and walking directions, but don’t have information on supplementary services. The information is there – if you know where to look. A consolidated source of information would provide both visitors and residents with all these resources in one convenient location, allowing them to make the best possible travel decision for each trip.

In 2000 the Federal Communications Commission (FCC) designated 511 as a traveler information phone number with the intent that across the country any traveler could call 511 and get information

about traffic, transportation options, travel conditions, or ask for roadside assistance. The Federal government did not mandate the implementation of 511, but it did provide deployment guidance and funding for planning 511 systems. Currently, thirty-nine states have a 511 traveler information system; some states offer multiple 511 systems in order to provide information to each metropolitan region. Although Illinois received 511 planning funds, it never deployed a 511 system.

Over time and as technology has changed, the interest in 511 as a telephone traveler information service has waned and the number of calls annually has plateaued. At the same time, in most states 511 has evolved from a phone number into a website and, most recently, a smartphone app. The majority of 511 systems, in addition to a call-in line, now have a corresponding website, mobile website and/or app to provide traveler information in whatever format the user prefers.

A 2009 report on Transit, Call Centers, and 511 encouraged 511 traveler information system providers to include multimodal options, particularly in areas with more than one transit provider. The report noted, “Significant benefits are most likely realizable primarily in certain environments—those with multiple transit providers and significant numbers of travelers who make day-to-day mode choice decisions based on a combination of traffic and transit information.”⁹⁰ The report noted several benefits of including transit in 511:

- 1) It advances the general principles of interagency, multimodal coordination,
- 2) It will be useful to travelers who value consolidated traffic, transit, and multi-agency transit information, and
- 3) It will help new residents or visitors who may find 511 easier than the phone numbers for individual transit customer service centers.⁹¹

Although the 2009 report focused on transit, ideally a 511 system would take a completely multi-modal approach in order to serve every traveler. The best examples of 511 information systems are ones that serve as a one-stop-shop for regional traveler information, allowing the traveler to learn about all travel options in one place. For example, the San Francisco Bay area’s 511 website includes information on traffic conditions, transit trip planning, commuter benefits programs, tolls, freeway assistance, transit disruptions, airports, carpooling, carsharing, biking, walking, telecommuting, real-time transit departures, parking, and announcements for area transportation providers.

⁹⁰ Transit Cooperative Research Program Report 134, “Transit, Call Centers, and 511: A Guide for Decision Makers.” 2009. Page vi.

⁹¹ Ibid. Page 4.

Strengthen Partnerships and Incorporate Transportation Options that Complement Transit

Transportation today includes a mix of public and private providers. When they work together, the traveler benefits. Innovative partnerships are springing up around the country where public agencies and private firms are joining together to provide services that neither could offer as well on their own.

Partner with TNCs to Make it Easier for People to Get Around

While some assume that transportation network companies (TNCs) are transit's competitors, evidence suggests that the services are complementary and that partnering together would benefit both. Research by the Shared Use Mobility Center⁹² and Morgan Stanley⁹³ found that together ride-hailing services and transit could reduce car ownership which then has the potential to increase ridership for both services over time. It is this logic that has caused some government agencies to not only partner with TNCs, but to actually subsidize their trips in certain circumstances.

The Pinellas Suncoast Transit Authority (PSTA), which provides bus service in the St. Petersburg and Clearwater areas in Florida, launched the Direct Connect pilot project with Uber and United Taxi in February 2016. Within the pilot areas, a traveler who uses Uber or United Taxi to reach a bus stop will receive a 50% discount on the Uber or taxi fare, up to three dollars. PSTA pays the difference to Uber or United Taxi. The Direct Connect partnership operates in the area of a previously underperforming bus route which was discontinued. Cost for the bus route was \$160,000 annually while PSTA has budgeted \$40,000 for six months of Direct Connect.⁹⁴

In a similar pilot, the Southeastern Pennsylvania Transportation Authority launched a pilot program with Uber for the summer of 2016. Under the program, SEPTA is discounting Uber rides by 40%, up to ten dollars, if they leave from or go to one of eleven suburban rail stations. The eleven stations are among SEPTA's busiest and have limited parking available or constraints due to construction.

The City of Altamonte Springs in Florida has also launched a pilot program with Uber. During the one year project, the City pays 20% of all trips that begin and end within city limits and 25% of trips that start or end at the Altamonte Springs SunRail station (provided the entire trip is within city limits). The City hopes the project will help alleviate traffic congestion, improve connectivity to regional transit,

⁹² Shared Mobility and the Transformation of Public Transit, Research Analysis, by Shared-Use Mobility Center (SUMC), prepared for American Public Transportation Association, March 2016

⁹³ "The Biggest Beneficiary Of Ride-Hailing Services Might Be Public Transit", [Ryan Grenoble](#), The Huffington Post, June 1, 2016

⁹⁴ "Pinellas Suncoast Transit Authority rolls out plan to pay half its passengers' Uber tabs in East Lake and Pinellas Park," Caitlin Johnston, Tampa Bay Times, February 22, 2016, <http://www.tampabay.com/blogs/baybuzz/psta-and-uber-team-up/2266318> accessed on July 7, 2016.

offer flexible transportation options, and assess ways that technology and ride-sharing can be utilized to meet future transportation needs.

While subsidizing all TNC trips in the region would not be rational or practical for metropolitan Chicago, a targeted approach similar to SEPTA's pilot project could benefit travelers and transit alike. A partnership between Chicago-area transit providers and ride-hailing companies could focus on getting travelers to transit stops that are likely to have first or last mile constraints. Stations could be targeted for inclusion if they have parking constrictions, limited or non-existent connecting service, or connecting service that is only available during certain hours of the day.

In addition to providing subsidies where it makes sense, transit providers could work closely with Transportation Network Companies to offer joint promotions or coordinated service during special events or high-traffic situations. By working together to plan for such high-profile situations, transit providers can both ease congestion and promote alternatives to driving.

One instance of this type of partnership is the Dallas Area Rapid Transit (DART) working together with Uber and Lyft. For example, DART anticipated a high volume of traffic for the 2016 Dallas St. Patrick's Day Parade and Festival. Dallas added trains and capacity for the event, but also partnered with Uber and Lyft to provide first and last mile connections to transit. Both Uber and Lyft offered discounts for the occasion. The increased train service and ride-hailing discounts were promoted jointly.

By joining with TNCs to target anticipated high-volume, high-traffic events, transit agencies can provide travelers with a positive traveling experience, perhaps reaching those who are not customarily transit riders. Sports events, festivals, parades, and holidays all provide the opportunity to reach those who do not typically take transit. Moreover, planning for such events together not only allows for joint-promotion, but also enables a more holistic strategy for transportation management – which means less congestion and a better travel experience for all attendees.

Metra recently requested bids from taxi and ride-share companies to compete to be Metra's official ride-provider partner. The selected firm could have its name displayed at stations and on trains, timetables and Metra's website, and be allowed to display information at downtown and suburban stations. It appears that the arrangement is not expected to result in any subsidies. Metra officials reportedly hope to generate extra funds as one way to help balance the agency's budget.⁹⁵ It would be desirable if the final arrangement could include provisions to incentivize the selected firm to take more people to and from stations and thereby increase Metra ridership.

⁹⁵ "Metra Exploring Partnership with Ride Service," Daily Herald, 7/28/2016, [Marni Pyke](#), reporter

Partner to provide flex bus service, where buses deviate from a fixed route and operate similar to a taxi.

Transit agencies in the region could partner with companies like Via or Bridj to provide flexible, dynamic shared rides within particular locations. Via currently operates in Chicago and New York, and Bridj operates in Kansas City and other cities. These types of services are distinctive in that they route all shared trips based on demand, resulting in a more efficient trip than transit, but at or near the same price point.

Bridj and Via operate in more limited areas than typical TNCs. Travelers within those zones can use the company's app to choose the time they want to leave and are then provided with a pick-up spot. Typical fares range from \$2 to \$6, pricing that is closer to transit fare than a cab ride or TNC fare. Via initially charged \$4.99 per ride in a limited area of Chicago but expanded its service area and recently advertised \$3.99 fares. Via CEO Daniel Ramot explains, "We fill in the gaps in the existing transit system. We think of the vehicle as a dynamic bus rather than a private taxi you'd be sharing with another person."⁹⁶

In Kansas City, Bridj has partnered with the local transit agency to expand ridership options. The Kansas City Bridj service is the result of a public-private collaboration between the Kansas City Area Transportation Authority, Bridj, and Ford Transit Vans. Known as Ride KC, the one-year Bridj pilot program uses Ford Transit vans to provide Bridj service between the Kansas University medical area, Hospital Hill, downtown Kansas City, and River Market. The areas served are flexible and may change based on rider demand. The service is priced at \$1.50 per ride, the same fare as the local bus service.

Former CDOT Commissioner Gabe Klein is an advisor to Bridj and explains how this type of service fits an underserved middle ground for transportation: "You have got these high-cost, high-flexibility services, whether it be to own your own car which is the most prevalent, or taxi or Uber for instance, and then you've got the really low-cost, low flexibility services which is typically like the bus . . . and there's this big gap in the middle where people are craving more flexibility and they're willing to pay a little bit more for it particularly if they don't have to switch modes."⁹⁷

⁹⁶ "Via, UberPool launch competing rideshare services in Chicago," by Megan Graham, Chicago Tribune, Blue Sky Section, November 17, 2015.

⁹⁷ "Is Ride Sharing's Next Stop a Bus?" by Jason Shueh, Government Technology Magazine, November 21, 2014, retrieved from http://www.govtech.com/transportation/Is-Ride-Sharings-Next-Stop-a-Bus.html?utm_source=related&utm_medium=direct&utm_campaign=Is-Ride-Sharings-Next-Stop-a-Bus on July 13, 2016.

A partnership with an agency such as Via, which is currently operating in Chicago, or Bridj could allow the region's transit agencies to provide service in areas that are currently underserved. The flexibility, dynamic scheduling, and heavy reliance on real-time data offered by such companies make them ideal partners for trial service through a pilot project. Such a partnership would expand transit's reach without a large capital investment by the public agencies themselves.

Expand Transit by Offering Services that Provide Convenience, Flexibility, and Last Mile Services

When people think of transit they probably think of buses and commuter rail, perhaps light rail, trolleys, or bus rapid transit. Yet, transit can take many shapes, and the more flexible the offerings the greater variety of travelers they will benefit and serve. Development patterns have changed immensely since the region's first transit routes were founded; transit must change too in order to keep meeting the needs of residents, businesses, and travelers.

Aggressively expand ridesharing by going beyond traditional commuting vanpools to target schools, communities, and neighborhoods.

Pace offers one of the largest vanpool programs in the country, operating over 700 vanpools annually. The traditional vanpool allows a group of five to thirteen people who live and work near each other to share a commute in a Pace van. There is no cost to the driver, but the passengers pay a monthly fee.⁹⁸ While the vanpool program is quite successful, it also offers potential for growth.

The Pace vanpool is the fifth largest in the country in terms of unlinked passenger trips according to the National Transit Database (2014). However, the leaders, Los Angeles and Seattle, provide nearly twice as many trips and operate almost double the number of vehicles as Pace (see Figure 1). Seattle in particular has a robust vanpool program with 1.12 vanpool trips per capita compared to .22 in the Chicago region. The contrast is even more stark when other vanpool providers in those regions are taken into account. In the Seattle urbanized area, Snohomish County Community Transit and Pierce County Transit add another 925,000 and 907,000 trips respectively. In Los Angeles, the Orange County Transportation Authority vanpool provides an additional 1,224,000 trips.⁹⁹

⁹⁸ Pace Vanpool Programs, Traditional Vanpool, http://www.pacebus.com/sub/vanpool/traditional_vanpool.asp

⁹⁹ National Transit Database, 2014 Service Statistics, <https://www.transit.dot.gov/ntd/ntd-data>

Figure 1: 2014 Vanpool Ridership

System Name	Urbanized Area Name	Vanpool Unlinked Passenger Trips	Vehicles Operated in Maximum Service	Urbanized Area Population	Vanpool Trips Per Capita
Los Angeles County MTA	Los Angeles-Long Beach-Anaheim, CA	3,983,621	1,339	12,150,996	0.33
King County Department of Transportation - Metro Transit	Seattle, WA	3,414,783	1,390	3,059,393	1.12
Metropolitan Transit Authority of Harris County, Texas	Houston, TX	2,436,893	720	4,944,332	0.49
San Diego Association of Governments	San Diego, CA	2,145,413	740	2,956,746	0.73
Pace - Suburban Bus Division	Chicago, IL-IN	1,923,184	712	8,608,208	0.22

Source: National Transit Database 2014 Service Statistics

Pace has been innovative in working to expand the vanpool program and offer transportation beyond traditional bus service. It offers employer shuttles for companies in its service area to provide work-related passenger trips, including special rates for non-profits. It provides a Metra feeder program of vanpools that take riders to commuter rail stations. It provides vans for human service organizations to transport those with disabilities to work. Pace also offers a Commuter Toolkit to help employers establish a commuter program to reduce travel by single occupancy vehicles.

Pace has also been successful in partnering with local Transportation Management Associations (TMAs) to provide additional transit options. As noted earlier, Pace partners with the TMA of Lake-Cook, Metra, and area businesses to operate the Shuttle Bug program. The Shuttle Bug provides service to more than thirty companies on fourteen routes and connects to stations on three Metra lines as well as the CTA Yellow Line. It is the largest employer sponsored transit program in Northeastern Illinois.¹⁰⁰

Some additional innovations that Pace could use to expand the Vanpool program include:

- **Community Vans:** Provide non-commuting vanpool trips for community members. In King County, WA, community members travel together to popular destinations during the day, evening, or weekend. Trips are preplanned by a local transportation coordinator and can range from trips to the grocery store to special events.¹⁰¹
- **Worker/driver buses:** Upgrade to buses on vanpool routes where demand is available. Kitsap Transit in Washington offers a program in which workers at the Puget Sound Naval Shipyard and Submarine Base drive one of thirty-five bus routes to the bases in the morning and going

¹⁰⁰ TMA of Lake-Cook, About the TMA Shuttle Bug Program, <http://www.tmalakecook.org/shuttle-bug/about-the-shuttle-bug>

¹⁰¹ King County Metro Online Rideshare, Community Van, <http://metro.kingcounty.gov/tops/van-car/programs/community-van/>

home at night. The buses are available to any paying passengers (not just base employees). The drivers are all employees at the shipyard or base and are also paid for their service as drivers.¹⁰²

- **No Cost Monthly Trial:** Pace offers new riders three days to try vanpooling at no cost. However, three days is not necessarily enough time for a rider to feel comfortable with a new service. Pace could offer a free month of vanpooling to new riders, as is done in Ada County, Idaho.¹⁰³
- **TripPool:** Use a real-time mobile app to arrange vanpool trips to transit connections. Offered in King County, WA, TripPool does not require a regular commitment like Pace’s Metra feeder program, but uses an app to provide more flexible vanpool service to and from transit stations.¹⁰⁴
- **Allow Occasional Riders:** When vanpools are not full, allow one time or occasional riders to ride at a set fare. The Missoula Ravalli Transportation Management Association in Montana allows occasional riders when space is available. These riders are charged according to a separate fee structure.¹⁰⁵ This could allow trial use for potential riders.
- **SchoolPool:** Establish a program to facilitate carpooling students to local schools. King County in Washington State enables schools and parents to set up a carpooling system to commute to school.¹⁰⁶ SchoolPool programs in Denver¹⁰⁷ and Boulder, CO¹⁰⁸ and Miami, FL,¹⁰⁹ assist parents in grouping children to walk, bike, carpool, ride the bus, or ride public transportation together.

A 2012 study on vanpool innovation by the Community Transportation Association found that one of the factors in a successful vanpool program is involvement of area employers¹¹⁰. It may be that vanpools are so prolific in Washington State due to the Commute Trip Reduction law which requires certain employers to encourage employees to reduce single occupancy vehicle commutes. Employers can incorporate ride-matching, vanpools, and vanpool subsidies into their Commute Trip Reduction programs.

Pace is to be commended for operating a large and successful vanpool program. With further innovation, the vanpool program can continue its growth. Additional partnerships with local employers

¹⁰² Kitsap Transit, Worker/Driver Buses, <http://www.kitsaptransit.com/service/workerdriver-buses>

¹⁰³ Ada County Highway District, Commuteride Club Red, <http://www.commuteride.com/vanpool/>

¹⁰⁴ King County Metro Online, Rideshare, TripPool, <http://metro.kingcounty.gov/tops/van-car/programs/trippool/>

¹⁰⁵ “Innovative Vanpool Programs,” Community Transportation Association, Transportation to Work: A Toolkit for the Business Community, August 2012,

<http://web1.ctaa.org/webmodules/webarticles/articlefiles/InnovativeVanpoolPrograms.pdf>

¹⁰⁶ King County Metro Online, Rideshare, SchoolPool, <http://metro.kingcounty.gov/tops/van-car/programs/schoolpool/>

¹⁰⁷ WayToGo, A Program of DRCOG, SchoolPool, <http://www.waytogo.org/getting-around/schoolpool>

¹⁰⁸ Boulder Valley School District and the Schoolpool Program,

<http://www.bvsd.org/transportation/toschool/Documents/General%20Schoolpool%20letter%20for%20website.pdf>

¹⁰⁹ South Florida Commuter Services, GoSchoolPool, <http://www.1800234ride.com/goschoolpool>

¹¹⁰ “Transportation to Work: A Toolkit for the Business Community – Innovative Vanpool Programs,” Community Transportation Association, August 2012.

<http://web1.ctaa.org/webmodules/webarticles/articlefiles/InnovativeVanpoolPrograms.pdf>

and TMAs could greatly expand ridership; the Shuttle Bug program is a model to emulate. A Commute Trip Reduction law similar to Washington State (as discussed later) would increase awareness of transportation options and require a more thoughtful approach to transportation decision-making by employers.

Expand the Guaranteed Ride Home program by providing it to all alternative transportation users who complete the registration process.

The Chicago region's transit providers could offer a Guaranteed Ride Home (GRH) program that reimburses non-single occupancy vehicle travelers for alternative transportation expenses who must leave work at an irregular time. Travelers are given confidence that in the event of an emergency or other unforeseen circumstances, they will be able to reach home in a timely manner without great expense.

Currently in the Chicago region, only the Pace vanpool program offers a GRH program for its participants, with a maximum annual reimbursement of \$125 per year. Working overtime is not an applicable justification for use of the program. It is also offered on a piecemeal basis throughout the region. For example, the City of Naperville offers GRH services for its residents who typically commute via Metra and Pace when bus service is not available from Naperville Metra station. Specific employers may also offer GRH to employees as part of their Transportation Demand Management programs.

Although its use in the region is currently limited, GRH programs are proven to be an effective strategy to reduce commuting in single occupancy vehicles. One survey found that 59% of rideshare and transit patrons considered a GRH program important in their decision to use an alternative mode of transportation.¹¹¹

Research has also found that GRH programs are very cost effective. In a sense, they are similar to low cost insurance coverage because they provide reassurance to commuters that they have a backup method of getting home in case of an emergency, but in actuality the utilization rate of such programs is very low. One study found that only about 1% of the 6,000 eligible rideshare participants used the GRH program offered by a TMA in Los Angeles.¹¹² According to a separate nationwide survey, the average use of GRH services was about thirteen rides per hundred eligible participants each year.¹¹³

¹¹¹ Guaranteed Ride Home: A Backup For Commuters Who Use Alternative Modes, Victoria Transport Policy Institute, Updated June 11, 2014, <http://www.vtpi.org/tdm/tdm18.htm>

¹¹² Fundamentals About A Guaranteed Ride Home Program, University of South Florida, retrieved from <http://www.nctr.usf.edu/clearinghouse/grhfund.htm> on July 15, 2016.

¹¹³ Ibid.

In Minneapolis, Metro Transit offers a free GRH program to any commuters who take transit, carpool, vanpool, walk, or bike to work or school at least three times a week. Participants must register for the program ahead of time. Eligible trips include unexpected overtime, illness, the illness of a family member who needs care, and when a vanpool or carpool driver must leave early or stay late. Participants can use a taxi, TNC, rental car, or other transportation provider and will receive reimbursement from Metro Transit. The service can be used four times a year or up to \$100 in value, whichever comes first.

The Washington, D.C. Council of Governments offers a similarly inclusive GRH Program. The program is available to those who use transit, vanpool, carpool, bike, or walk at least twice a week. The service can be used for personal emergencies and unscheduled overtime. If one of these events occurs, participants simply call the GRH program dispatcher who will make the necessary travel arrangements. Participants can use the service up to four times each year.

A Guaranteed Ride Home program in the Chicago metropolitan area would provide extra security for commuters who use alternative transportation – for pedestrians who left late and are nervous to walk in the dark, for cyclists with mechanical issues, for bus or train riders who must suddenly get home when there are no scheduled departures. Guaranteed Ride Home programs are proven to be both cost effective and important to providing confidence to commuters using alternative means of transportation. In addition to providing all riders with a limited number of guaranteed rides home, another possibility would be to subsidize additional rides home that exceed that limit.

Provide curb-to-curb flexible minibus or van service (similar to paratransit) for the general public in areas that do not have the demand or density to warrant regular bus service.

Pace could provide a more coordinated, consistent demand-response service to all residents in the region who do not have access to regular transit service. Demand–response transit services typically operate in areas where the density or demand for transit is not enough to warrant a regular bus route. Sometimes known as call-n-ride or flex service, demand-response programs provide curb-to-curb flexible minibus or van service for the general public in areas without other transit options.

Demand-response services are usually offered in less dense areas around a metropolitan region or in more rural areas. Regions are often divided into smaller, more manageable areas, each with their own provider. In demand-response programs, travelers typically must reserve their trip ahead of time by calling the provider for their region. A minibus or van will then collect the passenger at the scheduled time, either at their home or within a short walk. In most cases, the fare is the same as other transit services offered by the agency and it often includes a transfer to regular bus or train service. Travel is usually limited to operating within a set area that does not overlap with regular transit routes.

Demand-response services allow extension of the transit system without implementing set bus routes or investing in expensive assets or infrastructure. It allows the transit agencies the flexibility to scale service as needed. It allows commuters in transit deserts to access the system while at the same time letting the transit provider test the market for additional service.

Pace's most well-known demand-response program is ADA paratransit that provides rides for disabled passengers throughout the region. However, Pace also offers varying Dial-a-Ride services in conjunction with a number of local governments in the region. The hours, eligibility rules, prices, and service restrictions vary for each municipality or township. For the most part, these services are only available to seniors or those who are disabled. In some cases, the service also extends to the general public, but often at a higher cost. The fares are not coordinated with the region's Ventra fare card. Often service is limited to specific destinations, such as shopping centers or medical facilities.¹¹⁴

Transit providers in some other regions offer demand-response service that is more inclusive to the general population and better coordinated with other existing transit service:

- In Minneapolis/St. Paul, Transit Link provides small bus service for the public throughout the seven-county region when regular transit isn't available. The dial-a-ride service is meant to augment regular routes and will transfer riders between service areas and to regular transit routes. Fares are based on distance and transfers to most regular transit services are free.¹¹⁵
- Montreal has an extensive system of shared taxis, or taxibuses, to connect commuters to regular bus routes and rail lines. Riders can pay using their transit pass. The taxibuses stop at set locations and riders must call to arrange pickup prior to their desired departure time. On certain routes during rush hour, the taxibuses are synchronized with the bus service.¹¹⁶
- In Kansas City, the RideKC Flex Service offers buses that deviate from a fixed route and operate like a taxi. Riders must arrange service 24 hours ahead of time, but can place a standing order for service to the same location daily, weekly, or monthly with one call.¹¹⁷
- Demand Area Response Transit (DART) is a service operated by Metro in King County, Washington. The buses are smaller than typical transit buses, but are equipped with wheelchair lifts and bike racks. While they operate on fixed-routes, they can deviate off route upon the advanced request of a rider. The fares are the same as other Metro transit services and the system's transit pass, the ORCA card, is also accepted. Reservations must be made online or by

¹¹⁴ Pace Dial-a-Ride Service Directory, http://www.pacebus.com/sub/paratransit/sd_dial_a_ride.asp

¹¹⁵ Transit Link, Metro Transit, <http://www.metrotransit.org/transit-link>

¹¹⁶ Shared Taxibus, Société de transport de Montréal, <http://www.stm.info/en/info/networks/bus/collective-taxi>

¹¹⁷ Flex Service, RideKC, <http://ridekc.org/rider-guide/flex-service>

phone from two hours to 30 days in advance. Standing reservations can be made for up to 30 days at a time.¹¹⁸

- The Denver Regional Transportation District's Call-n-Ride program is a personalized bus service that travels in select areas. Reservations can be made on a one-time basis or using a subscription service for recurring trips. Some routes offer regularly scheduled stops and times during rush hour and rides by reservation during other times of the day. The RTD's standard transit fares apply and RTD passes and tickets are accepted on Call-n-Ride service.¹¹⁹
- The Alameda-Contra Costa Transit District in California recently launched a one year pilot program called AC Transit Flex. The program takes existing scheduled, fixed-route bus service and turns it into on-demand service. Riders schedule their trips by phone, website, or app up to 30 minutes before their expected departure and recurring trips can be booked up to three months in advance. They choose a bus stop along the existing route. The standard transit fare applies and day passes or the Clipper card transit pass apply.¹²⁰

Demand-response services have been around a long time and typically rely on older technology – for example, scheduling by phone. AC Transit Flex, DART, and the Denver Call-n-Ride can be booked online. New technology will continue to facilitate demand-response services, enabling them to become more efficient and customer-friendly. Companies like Via and Bridj, as discussed earlier, already exemplify a faster and more modern version of demand-response service. They would serve as ideal partners in expanding such service (as Kansas City has already done).

While some demand-response service currently exists in the Chicago region, it varies greatly by location, eligibility, and cost. One of the benefits of demand-response service is that it is very scalable, from Montreal's taxibuses to Denver's buses that have enough demand to run regularly scheduled routes during commuting hours. The flexibility of demand-response service is a benefit to both commuters and transit agencies. The result is more commuters can have access to the entire transit network.

Creating a uniform demand-response service across the region would require a change in funding and policies from the current piecemeal approach. Its effect on farebox recovery requirements will need to be considered, and supportive State policies and funding would be needed.

¹¹⁸ Demand Area Response Transit DART Service, King County Metro Online, <http://metro.kingcounty.gov/tops/bus/dart/>

¹¹⁹ Call-N-Ride, Regional Transportation District, <http://www.rtd-denver.com/callNRide.shtml>

¹²⁰ AC Transit Flex, AC Transit, <http://www.actransit.org/flex/>

Provide circulator transit service in neighborhood downtowns or business districts with connecting Pace, Metra, or CTA service.

Urban circulators are short transit routes that connect urban destinations and promote a mixed-use, dense environment. Urban circulators are often streetcars or trolley lines, but can also simply be bus routes. A typical circulator will operate in a closed loop of three miles or less.

Some transportation experts are critical of circulators, as they can have low ridership if they are routed in a less dense area. The very concept of a circulator means that only the immediate population of people and businesses will be able to take advantage of its relatively short route. The location must not only be dense, but have other points of interest and transit connections. Ideally, a circulator will connect business districts, bus and rail lines, hospitals, schools, and shopping and employment centers.

The Federal Government has recently promoted urban circulator systems through the Department of Transportation's Livability Initiative. In 2010, \$280 million in discretionary funds were made available through the New Starts/Small Starts Program for fixed-guideway circulator and bus livability projects that met certain livability and sustainability criteria.¹²¹ Federal guidelines noted the goal of supporting projects that would "provide a transportation option that connects urban destinations and fosters the redevelopment of urban spaces into walkable mixed use, high density environments."¹²² Chicago was awarded nearly \$25 million for its Central Area Transitway, which later became Loop Link.¹²³ Although Loop Link builds on existing bus routes to improve their efficiency and improve travel times, it offers the same benefits as an urban circulator – linking transit connections and other destinations and facilitating urban travel in a dense corridor.

Urban circulators have seen somewhat of a revival, perhaps in response to federal support. Other new or existing projects that received funding included:

- The Manchester, New Hampshire Health Care Circulator, creating a route to connect medical and employment facilities
- The St. Louis Loop Trolley Project, building a two-mile, nine-stop urban streetcar route
- The Maryland South County Circulator, purchasing additional buses to expand existing service
- The Charlotte Streetcar Start Project, building a 1.5 mile streetcar starter route with six stops
- The Cincinnati Streetcar Project, constructing a six mile route with 18 stops
- The Fort Worth Streetcar Loop, constructing a 2.5 mile one-way loop with 20 to 25 stops

¹²¹ FTA Activities That Promote Environmental Sustainability, Federal Transit Administration, retrieved from <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/transit-environmental-sustainability/fta-activities-on-july-21>, 2016

¹²² Federal Register, Vol. 76, No. 43, Friday, March 4, 2011, pp. 12217-12218, <https://www.gpo.gov/fdsys/pkg/FR-2011-03-04/pdf/2011-4873.pdf>.

¹²³ Federal Transit Administration, Urban Circulator/Bus and Bus Livability Project Descriptions, July 8, 2010, <https://www.transit.dot.gov/funding/grants/urban-circulatorbus-and-bus-livability-project-descriptions>

Examples of some more established urban circulators include the Denver 16th Street Mallride and the Portland Streetcar. Denver's 16th Street Mallride is a free bus that opened in 1982 at the same time as the 16th Street Mall. The Mall is a pedestrian promenade lined with store, restaurants, and office buildings. The Mallride bus is the only vehicle allowed on the Mall and it transports travelers up and down the 1.4 mile length from Denver's Union Station to Civic Center Station, stopping at each block. During high ridership periods (rush hour and lunch), the buses run about every light cycle, resulting in a bus on each block. The Mallride has proven so successful that the Regional Transportation District recently launched a free MetroRide circulator bus. This service, geared more towards commuters, also provides service from Union Station to Civic Center Station, but travels an alternate route and makes fewer stops, shortening the end-to-end trip time.

Portland's Streetcar began service in 2001 with a 4.8 mile round trip route. Portland now has about 16 miles of streetcar track, and the heart of the system is two loops which connect the business district, industrial district, shopping, and Portland State University. One loop runs clockwise and the other counterclockwise. Although the entire length of the route is longer than a typical circulator, the routes running in opposite directions through the urban core, connecting to shopping, rail stations, bus stops, and other destinations serve as a virtual downtown circulator for travelers.

The Village of Schaumburg offers a free trolley service operated by Pace, known as the Woodfield Trolley, to facilitate travel to some of its major shopping destinations. Stops include the Woodfield Mall, Ikea, and the Woodfield Village Green. It connects with such locations as the Schaumburg Renaissance Hotel and Convention Center, Roosevelt University, and the Northwest Transportation Center which provides links to other bus routes.

Circulators will not work in every location, but are a tool that should be taken advantage of under the right circumstances. For example, the Village of Oak Park has blue and green line CTA service, a Metra station, and several bus routes, but it is extremely difficult to navigate around the Village by transit alone. Furthermore, with two hospitals, a thriving and walkable shopping district, and several tourist destinations (devoted to Ernest Hemingway and Frank Lloyd Wright), there are multiple points of interest. If neighboring Forest Park and River Forest are included, there are additional Metra and CTA stations, another walkable shopping district, and two universities. A circulator service could provide access for residents, students, tourists, and employees alike.

Circulator service also lends itself well to university campuses and office parks, although the cost can be prohibitive. As the technology becomes available, circulators in these types of locations could be ideal for using autonomous transit vehicles. The Contra Costa Transportation Authority in California already has plans to launch a self-driving bus pilot project at a suburban office park. Low speed autonomous shuttles are already being used in Finland, France, Italy, Spain, and Switzerland in similar

types of closed environments.¹²⁴ As such technology is developed, it could be deployed first in business parks and universities and then in more traditional urban circulator routes, making such service more cost effective.

Embrace Policies that Make Transit More Affordable for those Who Need It

Transit is not fulfilling its purpose if people can't afford to use it. Similarly, transit may be some travelers' only affordable option, but what if it doesn't take them where they need to go? Transportation means access to jobs, education, healthcare, and services. Transit agencies and local governments should work together to ensure that these opportunities are accessible to all residents, particularly when income is a barrier.

Provide transportation subsidies that allow all of the region's low-income residents access to jobs and opportunities.

The region's transit providers could improve the subsidy programs currently offered to income-qualified residents in areas with transit to make them more efficient and cost-effective. They could also offer programs that provide subsidies for alternative transportation in areas without transit. Such discounts would allow low income travelers better access to jobs and opportunities throughout the region.

There are several programs in the region that provide free or reduced transit fares or offer alternative transportation to certain residents. The RTA offers reduced fare permits for all seniors, persons with disabilities, veterans, and Medicare card holders.¹²⁵ The Illinois Department on Aging Benefit Access Program also provides Free Transit Ride cards to seniors and persons with disabilities who meet income eligibility guidelines.¹²⁶ There are also discounted or free transit fares for children, students, and military personnel.

For the low-income population there are programs for workforce development, homeless services, human service delivery, and youth services which provide lower income residents with transportation assistance. With funding provided by such organizations as the Chicago Department of Family and Support Services, the Chicago Housing Authority, and the Chicago-Cook Workforce Partnership, social

¹²⁴ "Self-Driving Buses Arriving in California in 2016," by James Ayre, Clean Technica, October 8, 2015, retrieved from <http://cleantechnica.com/2015/10/08/self-driving-buses-arriving-california-2016/> on July 22, 2016.

¹²⁵ Regional Transportation Authority, Reduced Fare Permits, <https://www.rtachicago.com/rider-resources/reduced-fare/reduced-fare-permits> accessed 7/22/2016.

¹²⁶ Illinois Department on Aging, Benefit Access Program Benefits, <http://www.illinois.gov/aging/BenefitsAccess/Pages/default.aspx> accessed 7/22/2016.

service agencies purchase Ventra tickets and cards to provide program participants access to jobs and other opportunities. This service can allow low-income residents to attend job training, go on interviews, or get to doctor appointments.

While social service agencies supplying Ventra tickets to low-income residents are providing a hugely important service, they face a myriad of problems in administering this program. Disposable tickets, which are most appropriate for their purposes receive a fifty cent limited-use media fee. A recent report by the Chicago Jobs Council on social service agencies' experiences with Ventra found that the fee diverts over \$280,000 from transit assistance annually.¹²⁷ Further, the report found that it's difficult for social service agencies to order tickets in bulk. The process is onerous, the tickets can take months to arrive, and the tickets have only a limited life span before expiring.

For those living in areas with little or no transit service, many local governments offer subsidized taxi services. However, these services are typically reserved for seniors or those with disabilities, and are not necessarily available for low-income residents. For example, municipalities and townships such as Evanston, Addison, Elmhurst, Palatine, and many others provide subsidized taxi service for seniors and residents with disabilities, in some cases on an income-eligible basis.

Some regions have developed programs to provide transportation or subsidies to low-income residents when transit is not available. For example:

- The Los Angeles Immediate Needs Transportation Program provides either a transit subsidy or subsidized taxi service for residents with a transportation need who have limited resources. The program is funded by the Los Angeles County Metropolitan Transportation Authority and it is administered by non-profits and government agencies who distribute taxi coupons and transit tokens and passes.¹²⁸
- In Florida, the Pinellas County Transportation Disadvantaged Program is a state-funded program that provides low-income residents with either a reduced-cost bus pass or subsidized taxi service for those who do not have access to the bus system.¹²⁹
- The Wooster, Ohio Subsidized Transportation Program uses contracted private taxi companies to allow low-income residents to travel at a discounted fare.¹³⁰

¹²⁷ "The Hidden Cost of Ventra: The Impact of the Ventra Fare System on Chicago Social Service Providers," pp. 4, Chicago Jobs Council, May 2016.

¹²⁸ Immediate Needs Transportation Program, Los Angeles county Metropolitan Transportation Authority, https://www.metro.net/projects/immediate_needs_transport_pgm/

¹²⁹ Pinellas Suncoast Transit Authority Pinellas County Transportation Disadvantaged Program, <http://www.psta.net/tdprogram.php>

¹³⁰ City of Wooster Subsidized Transportation Program, http://www.woosteroh.com/sites/default/files/Transportation%20Assistance%20Guidelines_0.pdf

- Intercity Transit in Olympia, Washington offers a program called Village Vans that provides free transportation for work-related activities to low-income job seekers in the region. Transportation is offered to interviews, training sites, childcare centers, and jobs.¹³¹

In areas with transit, the transit providers together with the Ventra operator should embrace the Chicago Jobs Council’s recommendations to eliminate the fifty cent fee on paper tickets, modernize the bulk ordering process, expand the hours of student-rate transit, expand student discounts to adults in education and training programs, and provide a fifty percent discount for fares to workforce and homeless service providers.¹³² In areas without transit, a comparable subsidy program using taxis, TNCs, or other services would allow low-income residents to access jobs, training, and other opportunities. The state should support these types of fare policies and expand the currently available fare subsidy programs to help provide economic opportunity to low-income residents.

Plan and organize strategically to effectively prioritize mobility and capitalize on emerging technologies.

In this time of rapid technological advancement, the region’s transit agencies would be well served to consider restructuring in order to be as flexible and responsive as possible. Ideally, the agencies would be organized to creatively and judiciously incorporate new technology, respond rapidly to the changing needs of travelers, and keep up with evolving federal priorities to best take advantage of funding opportunities. Agencies need to be nimble and adaptable, continually learning about changing mobility needs and seeking better ways to meet them.

Create an Office of Technological Opportunity headed by a Chief Innovation Officer.

To best capitalize on new and emerging transportation technology, the region’s transit agencies could establish offices of Technological Opportunity responsible for researching and deploying new transportation technologies. Alternatively, a joint Office of Technological Opportunity could pursue transportation innovations across all transit providers while at the same time exploring how those technologies could be applied to joint ventures and cross-agency opportunities.

As technology and use of data evolves at an ever increasing pace, it can be difficult for even the most progressive organizations to keep up. The array of potential “game changing” technological advances

¹³¹ Intercity Transit, Village Vans, <http://www.intercitytransit.com/traveloptions/villagevans/Pages/default.aspx>

¹³² “The Hidden Cost of Ventra: The Impact of the Ventra Fare System on Chicago Social Service Providers,” pp. 7-8, Chicago Jobs Council, May 2016.

on the horizon will require expert navigation. To know what technologies will have staying power, how they can be used to measurably improve mobility, and how to invest in them will require constant attention.

In New York, the Transportation Reinvention Commission recently issued a report recommending the Metropolitan Transportation Authority create an Office of Technological Opportunity. (The Commission was a special advisory board to help the MTA develop a capital plan that prepares it to face the challenges of a changing world, state, region and climate.) It recommended the Office be responsible for systematically identifying and promoting future technological and digital data enhancements.¹³³

The Los Angeles County Metropolitan Transportation Authority recently created an Office of Extraordinary Innovation (OEI) and hired Joshua Schank, former CEO of the Eno Center for Transportation, to lead its efforts. OEI was created to facilitate transportation transformation, open the MTA to innovation, and partner with others to deliver transportation programs sooner. It is designed to explore innovative solutions in financing, public-private partnerships, project delivery, joint development, security, technology, and operations. OEI will incubate and implement new and creative ideas with the goal of improving “mobility, customer experience, environment and safety through innovative low-cost approaches.”¹³⁴

The San Francisco Municipal Transportation Agency’s Office of Innovation leads that organization’s efforts to develop a next generation transportation policy framework, working under the premise that the future of the transportation system will be a multimodal shared resource. The Office is responsible for responding to emerging transportation technologies and public/private partnerships. It plans to certify providers who meet certain standards pertaining to safety, affordability, accessibility, availability, interoperability, and sustainability, rewarding them with priority right of way access.

The future of transportation is uncertain. It is difficult to predict how new and developing technologies will impact transit operations, ridership or demand. However, it should be a priority of every transit provider to stay abreast of changes in order to invest wisely and prepare for the future. Designating an office with this responsibility would encourage partnerships and foster an environment that breeds innovation across all modes to improve mobility.

¹³³ “A Bold Direction for Leading Transportation in the Next 100 Years,” MTA Transportation Reinvention Commission, November 2014.

¹³⁴ “Los Angeles Metro’s Office of Extraordinary Innovation,” Los Angeles Regional Investors Conference, Metro, April 1, 2016.

Section 5: Policies and Actions to Achieve Integrated, Ubiquitous and Affordable Mobility for All

When the RTA, CTA, Metra and Pace were created, not much thought was given to technology and the needs of pedestrians, cyclists, or people with disabilities. The focus then was on building, maintaining and operating trains and buses.

It is a much different world now. Beginning in the 1990s, Federal laws were enacted that began recognizing other types of mobility needs (e.g., the Americans with Disabilities Act and transportation bills -- ISTEA, TEA-21, SAFETEA-LU, MAP-21 and now the FAST Act). In recent years there has also been an explosion of transportation technology. Cashless payment systems like Ventra are being implemented. New technology-enabled transportation services are using their own cashless systems to offer a variety of mobility options, from carsharing and bikesharing to app-based ridesourcing services.

More dramatic changes are in store when autonomous driverless technology makes its way into the mainstream. In a recent panel discussion, Mike Brown, Commissioner, Transport for London said the lines between public and private transportation will become increasingly blurred as ridesharing services adopt driverless autonomous vehicle technology.¹³⁵

The region's transit agencies were not given the tools to thrive in this new environment when they were created. To achieve the goal of integrated, ubiquitous and affordable mobility for all, it is important to freshly consider the role of public transit agencies, their mission and operation, and how they are organized and funded.

Redefine public transit agencies as Mobility Agencies.

In a 2016 report, APTA and the Shared Use Mobility Center called for transforming public transportation agencies into mobility agencies. They said "shared modes will continue to grow in significance, and public entities should identify opportunities to engage with them to ensure that benefits are widely and equitably shared. Public transit agencies should seize opportunities to improve urban mobility for all users through collaboration and public-private partnerships, including greater integration of service, information and payment methods."¹³⁶

A mobility agency in the Chicago metropolitan area would have several purposes:

¹³⁵ Mike Brown, Commissioner, Transport for London, remarks at the Chicago Forum on Global Cities, panel discussion on Global Transportation Hubs, June 2, 2016, at Spertus Institute, Chicago, IL

¹³⁶ Shared Mobility and the Transformation of Public Transit, Research Analysis, by Shared-Use Mobility Center (SUMC), prepared for American Public Transportation Association, March 2016, page 4

- Make it easy for people to move about by any means. This will require coordination among public transit services, carsharing, ridesourcing, shuttles, bikesharing and any other personal mobility modes. Early examples of this include the San Francisco Municipal Transportation Agency and several agencies in Seattle that are transforming themselves into mobility managers, with responsibilities that go beyond a public utility model of transit provision or a streets department.¹³⁷
- Engage technology-enabled mobility services to support mobility for all. It should regularly consider how technology-enabled mobility services can enhance mobility and be effectively integrated with public transit to gain maximum benefit. SUMC says transit agencies should “lay the groundwork for strong public-private partnerships and targeted investments in the mobility system, including public transit and shared modes,” and “explore opportunities and challenges for public transportation as they relate to technology-enabled mobility services, including suggesting ways that public transit can learn from, build upon, and interface with these new modes.”¹³⁸
- Make it easy for everyone to understand and use the system. The mobility agency should be the best source of information about mobility options. It should ensure that travel information from the various public and private sources is convenient, integrated and easy to access. While not stifling innovation, it should make sure that information and apps for any new services are linked and integrated with the rest of the system.
- Ensure that people who face barriers related to cost, technology, technical knowledge or disability have convenient access to information, schedules, booking and means of payment. It should expand on the training RTA offers now to spread awareness and train people on how to use the full range of mobility options.
- Develop a rational and fair system of regulations affecting personal mobility. The mobility agency can play an important role in considering what types of regulations will best help achieve the goal of ubiquitous, integrated and affordable mobility for all. Toward that end, it would recommend appropriate regulations and review and advise state and local governments on existing and proposed regulations. There has been a good deal of disagreement and contention over regulations (for example, the debate leading to enactment of the ordinance regulating rideshare companies in Chicago), and a mobility agency could provide a helpful perspective on behalf of the public.
- Integrate fare payment systems. Ventra has been an important step in making fare payment easier, and carsharing services have been added to Ventra. But more is needed. The easy

¹³⁷ Shared Mobility and the Transformation of Public Transit, Research Analysis, by Shared-Use Mobility Center (SUMC), prepared for American Public Transportation Association, March 2016, pages 30 - 33

¹³⁸ Ibid

payment system should be expanded to include all transportation modes. It should be integrated with the Tollway's I-Pass system. It should enable people to make a single payment for a series of linked trips, not only between Pace, Metra and CTA, but also Divvy bikes, taxis, rideshare and ridesourcing services.

- Develop policies, procedures and funding methods to enable the subsidy of linked rides, to ensure affordable and equitable access to all mobility options. Some agencies have begun testing this concept, such as the Pinellas Suncoast Transit Agency's pilot to partially subsidize transit-linked ridesourcing trips, or King County Metro Transit's emergency ride home program.¹³⁹
- Take the lead to ensure that mobility information is shared, widely available and effectively used. The mobility agency should support the development and adoption of shared-mobility information standards, and aid in developing common standards for payment, storage of customer information and privacy. It should ensure data reciprocity from the private sector, which benefits greatly from use of open public data. SUMC says that ideally, public authorities should actually own and maintain cross-modal data in an integrated system.¹⁴⁰ This idea deserves further study.
- Create a network of mobility managers of regional, municipal and public transit agencies and large employers to: a) communicate and coordinate mobility efforts across departmental, jurisdictional and public/private lines; b) use data available from all sources, including new technology, to more accurately measure all trips that are not taken by a personal vehicle; and c) advocate for open data and adoption of shared-mobility information standards.

Legislation will be needed to define the regional mobility agency and provide it and other transportation agencies the appropriate means to carry out that broader mobility mission. The roles of both the RTA and CMAP should be carefully considered in designing the regional mobility agency. The RTA is the region's transit oversight agency and CMAP is the region's comprehensive planning agency and is the federally designated Metropolitan Planning Organization (MPO) that prepares the region's transportation plan and approves projects for federal funding.

¹³⁹ Shared Mobility and the Transformation of Public Transit, Research Analysis, March 2016, Ibid

¹⁴⁰ Ibid

Mobility for all should be the goal, and performance metrics should reflect that.

Currently, the key metrics for the RTA, CTA, Metra and Pace are to maintain an overall balanced budget and a system-wide 50 percent farebox recovery ratio, as required and defined by statute. Compliance is a condition for receiving state transit funding.¹⁴¹ The agencies regularly report transit system ridership, and the RTA reports on nineteen performance measures of service delivery, service coverage, efficiency, system condition and financial performance.¹⁴² However, private transportation services do not share their ridership data with the RTA, so broader data about non-personal auto trips is not reported.

Current metrics that are focused solely on operational measures such as route ridership, unlinked trips or passenger revenue miles are not sufficient. SUMC says the metrics should take into account “the whole mobility picture, including reductions in solo car trips and increases in linked, multimodal trips.”¹⁴³

Thought must be given to creating appropriate mobility metrics. Metrics that focus on mobility rather than just transit could also include:

- Percentage of the population using alternatives to single occupancy vehicles to commute
- Overall vehicle miles traveled and vehicle miles traveled per capita
- Average commute travel time, regardless of mode
- Share of earnings spent on transportation by low income households
- Emissions generated by transportation and transportation emissions per capita
- Percentage of development within a half mile of transit

Ideally, metrics would include benchmarks and targets to track progress towards the goals – for example, a percentage increase or decrease from the prior year, depending on the measure.

One challenge in setting metrics is that there could be other causes for achieving the measured result. For example, total trips by all modes other than solo car trips could be a good metric, if accurate data can be gathered. However, a number of factors beyond the control of transit agencies could affect solo car trips, including gasoline prices, tolls and land development patterns.

CMAP now collects data and reports on a number of mobility metrics and is by statute the place where data about the region is collected. It should develop a robust set of goals and metrics for all forms of personal mobility and collect the necessary data. That will require data sharing agreements with private transportation firms; legislation might be needed to bring about the necessary data sharing while respecting proprietary rights and confidentiality.

¹⁴¹ 70 ILCS 3615/ Regional Transportation Authority Act, ARTICLE IV. FINANCES, Sec. 4.01. Budget and Program.

¹⁴² See, for example, 2013 Regional Report Card, Regional Transportation Authority, Division of Finance and Performance Management, 2014

¹⁴³ Shared Mobility and the Transformation of Public Transit, Research Analysis, March 2016, Ibid

Transit agencies should be rewarded for progress toward achieving mobility for all.

Mobility metrics are important, but to make them work there needs to be a system in place that rewards achieving the desired results. As a first step, CMAP should use its authority as the MPO to develop criteria for funding programs and projects based on the broader set of mobility metrics.

Beyond that, some regional transit funding should be based on achievement of mobility metrics. Legislation will be needed to accomplish this. To prepare for that, CMAP and the RTA should develop suitable metrics, with advice from the Service Boards, experts and public.

One of the objectives of metric-based rewards would be to use public funds most effectively to increase mobility. It would also be aimed at reducing single occupancy auto trips.

A task force should be formed to consider the mobility agency concept.

A task force is needed to fully develop the mobility agency idea, craft an implementation strategy, consider whether some funding might be based on mobility metrics, and draft appropriate authorizing legislation. It would be appropriate for the MPO Policy Committee to take the lead in considering this proposal, with the active involvement and cooperation of CMAP. The MPO represents all of the region's transportation agencies and includes some private representatives. Its transportation committee gains advice and views from a range of public, private, civic and community interests.

Creation of a mobility agency and the accompanying policies, institutional assignments, coordination, cooperation and public-private engagement can be important steps to help innovation flourish and move toward ubiquitous, integrated and affordable mobility for all.

Thoughtful funding programs can facilitate innovative transit and add mobility options.

Public funding is crucial in building and maintaining the transit system and developing new approaches to improve mobility.

At the State level, for example, a public referendum led to legislation that created the RTA and provided for its funding. Passage of Public Act 95-0708 in January 2008¹⁴⁴ restructured RTA governance and oversight responsibilities, and directed resources to address critical needs and support policy priorities. That legislation illustrates how funding policies can support transit innovation. To enable core transit services of CTA, Metra and Pace to survive, it increased the RTA sales tax, authorized a Real

¹⁴⁴ Illinois Public Act 0708 can be found at <http://www.ilga.gov/legislation/publicacts/fulltext.asp?Name=095-0708>

Estate Transfer Tax (RETT) for the CTA in Chicago, and increased the State contribution to the Public Transportation Fund. It also targeted some funds to specific priorities:

- Guaranteed annual funding for the provision of the Regional ADA Paratransit Service (initially \$100 million with future allocations based on program requirements).
- Created a Suburban Community Mobility Fund (with a \$20 million annual allocation to Pace) for the provision of non-traditional transit services including dial-a-ride, vanpool, ridesharing, reverse commute, bus rapid transit, and other innovative services that enhance suburban mobility.
- Allocated \$10 million annually to the RTA for an Innovation, Coordination and Enhancement (ICE) fund.
- Created a South Suburban Cook Job Access Fund (\$7.5 million annually to Pace) for the provision of services in south Cook County that focus on employment opportunities.

Federal programs have been crucial in providing annual allocations for transit capital including buses, trains and facilities. There are also some programs that have supported transit innovation. For example:

- The Congestion Mitigation/Air Quality Program (CMAQ) is the largest with a current five-year program of \$582 million, which CMAP allocates to a wide variety of projects including some transit improvements.¹⁴⁵ (The RTA provides matching funds for eligible transit projects.)
- The Transportation Alternatives Program (TAP) primarily supports bike and pedestrian facilities.
- The Job Access and Reverse Commute (JARC) Program is designed to increase access to jobs and employment related activities.
- The New Freedom Program encourages service and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the Americans with Disabilities Act.¹⁴⁶

Local investments to support transit and mobility are also very important. For example, counties and municipalities improve and maintain sidewalks and bike paths, and work with the transit agencies to provide better train stations and bus stops. The City of Chicago is building an extensive bike lane system and has allocated Tax Increment Financing funds to build CTA stations. Cook County annually allocates money for transit. Many townships and some municipalities have invested in dial-a-ride programs.

¹⁴⁵ <http://www.cmap.illinois.gov/mobility/strategic-investment/regional-transportation-programs>

¹⁴⁶ Pace 2016 Suburban Service Budget and 2016 Operating & Capital Program 2016-2018, Business Plan for Operations and 2016-2020 Capital Business Plan and Regional ADA Paratransit Budget, found at http://www.pacebus.com/pdf/Pace_Budget/2016_Budget_Book.pdf

A Commute Trip Reduction Law could expand mobility options.

Washington State’s Commute Trip Reduction Law is a prime example of how thoughtful policies and legislation can be effective in improving mobility and reducing congestion.

In 1991, the Washington State Legislature passed the Commute Trip Reduction (CTR) Law in order to mitigate congestion, improve air quality, and reduce petroleum consumption. The law requires large employers in urban areas to develop programs that encourage employees to use alternatives rather than driving to work alone. The CTR Law was supplemented in 2006 by the CTR Efficiency Act which requires local governments in urban areas to offer commute trip reduction training and technical assistance for employers.

CTR only impacts the more congested areas of the state and within those areas it only targets employers with 100 or more full-time employees. Statewide, the CTR Law affects over a thousand worksites and more than 500,000 commuters. Commute alternatives to driving alone can include riding public transit, carpooling or vanpooling, active transportation such as biking or walking, or modifying work habits with compressed work schedules or telecommuting.

The CTR Law has been effective. Between 2007 and 2014, the drive-alone trip rate at CTR worksites decreased from 65.7% to 63.1%. This represents approximately 14,500 cars left off the streets each day. In the same time period, overall vehicle miles traveled at CTR sites declined by about 33 million each year. Fuel consumption declined by 1.6 million gallons annually which translates into a GHG emission reduction of 14,700 tons.¹⁴⁸

Both the CTR Law and the CTR Efficiency Act allow local governments and employers flexibility in implementation. Local governments set ordinances for commute trip reduction within their jurisdictions. Employers can take advantage of city or county CTR programs or they can develop their own program as long as it falls within the local government’s guidelines.

CTR By the Numbers ¹⁴⁷	
1,000+	Number of worksites participating in the state's CTR program
530,000+	Number of participating CTR commuters statewide
\$59	Amount CTR helped save each central Puget Sound rush-hour commuter in 2009
154 million	Statewide vehicle miles reduced since 2007
\$30 million	Cumulative monthly amount CTR participants save on transportation

¹⁴⁷ Washington State Commute Trip Reduction Overview, Source: <http://www.wsdot.wa.gov/Transit/CTR/overview.htm> accessed 7/1/2016.

¹⁴⁸ “2015 Report to the Legislature,” Washington State Commute Trip Reduction Board. http://www.kingcounty.gov/~media/transportation/CommuteSolutions/images/CTR_Report_to_the_Legislature_2015_file.ashx?la=en

In Seattle, employers must designate an Employee Transportation Coordinator to administer the CTR program for their company. They must develop a CTR program, track drive alone rates, and submit a program report to the City every two years. Information on the company's CTR program must be distributed to all new employees and to every employee twice a year. Programs can include such elements as: bike racks and showers, ride-matching services, alternative or flexible work schedules, reward or incentive programs, vanpool vehicles, and more.¹⁴⁹

The flexibility of the law has also spurred creativity in its application. For example, employers have provided funds to equip home offices or provided mortgage discounts for employees to move closer to work¹⁵⁰. Microsoft provides its own shuttle service. Children's Hospital & Regional Medical Center hires specialists to counsel employees on commute options and loans free bicycles to employees who bike to work at least twice a week. Some companies offer subsidized transit passes or will even pay employees a monthly bonus if they use an alternative method of transportation.¹⁵¹

In recognizing the role that employers play in the transportation system, Washington State has engaged them as partners in reducing congestion. Without such encouragement, employers might not consider the way in which they influence transportation – in choosing a location, providing parking, and setting work hours and policies. The CTR Law compels employers to acknowledge their role in transportation and makes them vested partners with government in finding solutions to congestion and air quality issues. At the same time the CTR Efficiency Act gives the employers the local government support they need to make their programs successful.

A commute trip reduction law could be a helpful step to enable more people to move about more easily in the Chicago area.

¹⁴⁹ Seattle Commute Trip Reduction Requirements, http://www.seattle.gov/waytogo/ctr_req.htm accessed July 1, 2016.

¹⁵⁰ "How Washington State Convinced Big Companies to Dramatically Reduce Drive-Along Commutes," by Eric Jaffe, The Atlantic, published April 6, 2015, <http://www.citylab.com/cityfixer/2015/04/how-washington-state-convinced-big-companies-to-dramatically-reduce-drive-alone-commutes/389658/> accessed July 1, 2016.

¹⁵¹ "Puget Sound-area commuters are getting creative to avoid rising gas prices," Seattle Times, Published July 1, 2008, <http://www.seattletimes.com/seattle-news/puget-sound-area-commuters-are-getting-creative-to-avoid-rising-gas-prices/> accessed July 6, 2016.

Conclusion

This report began with the intent to provide better mobility options to people who live or work in parts of the Chicago region lacking adequate transit service. Our research scanned the United States to identify interesting innovations that have been successfully implemented or are being currently tested. Several of those ideas from other places are discussed in Section 4. Providing a context for considering those ideas involved a thought process that included a few other steps.

We first needed to understand the Chicago region's current transit system challenges, non-transit riders and gaps in service, and that research is summarized in Section 1. Research then focused on transit innovations being implemented by public agencies in the Chicago area, and several of the innovations are described in Section 2.

Our attention was quickly drawn to the rapidly growing and evolving array of technology, transportation network companies and smartphone apps that are filling some of the gaps in transit service and expanding mobility for many people. Section 3 summarizes that research and briefly considers the prospect and potentially enormous impact of autonomous vehicles.

All of the research and ideas presented in this report would have limited value without supportive policies and actions. Section 5 proposes several possible changes in policies, organizations, funding and statutes that could make it easier to implement the best ideas and create an integrated system of transit and mobility services.

As the region's transportation leaders contemplate innovations to enhance personal mobility, it is worth taking a cue from automakers who are looking toward a technology-driven future, one where they increasingly acknowledge that getting around may not require owning a car.

The New York Times reported in May 2016 that Toyota and Volkswagen are investing in technology start-ups that are working to change the way people travel by car. Toyota has formed a partnership with Uber, and Volkswagen has invested million in the startup European ridehailing company Gett. In January, General Motors invested in Lyft, with a focus on developing networks of autonomous vehicles. Ford is redoing its Dearborn, Michigan headquarters into a Silicon Valley-like campus of green buildings connected by self-driving shuttles. And Fiat Chrysler and Google agreed to produce a test fleet of driverless minivans. Both BMW and Mercedes-Benz have started to pilot ride services. Apple, which is working on its own autos project, invested \$1 billion in Didi Chuxing, a Chinese ride-hailing company.¹⁵²

The Times report continues:

“In some American cities, small groups of people are already choosing not to own cars by relying on ride-hailing services like Uber, through which consumers can order a ride through their

¹⁵² “Automakers Befriend Start-Ups Like Uber, Girding Against a Changing Car Culture,” by Mike Isaac and Neal E. Boudette, May 24, 2016 New York Times.

smartphone, and car-sharing companies like Zipcar, where they essentially pick up a car whenever they need to drive one. Eventually, self-driving cars will be a reality, which would let Uber and others field fleets of driverless vehicles that can operate around the clock and further cut the cost of ride services.

“Ride-sharing has huge potential in terms of shaping the future of mobility,” Shigeki Tomoyama, senior managing officer of Toyota, said in a statement about partnering with Uber. “We would like to explore new ways of delivering secure, convenient and attractive mobility services to customers.”

Karl Brauer, an analyst at Kelley Blue Book, said auto companies are investing in companies like Uber “to be ahead of the curve” if they do shake up car ownership down the road. “History has shown that if you wait for the market to decide, you’re dead.”¹⁵³

It is hoped that this research will aid state, regional and local transportation leaders in their efforts to be ahead of the curve and innovate to achieve integrated, ubiquitous and affordable mobility. If that is done, everyone will be able to access the region’s opportunities and fully contribute to building our economy.

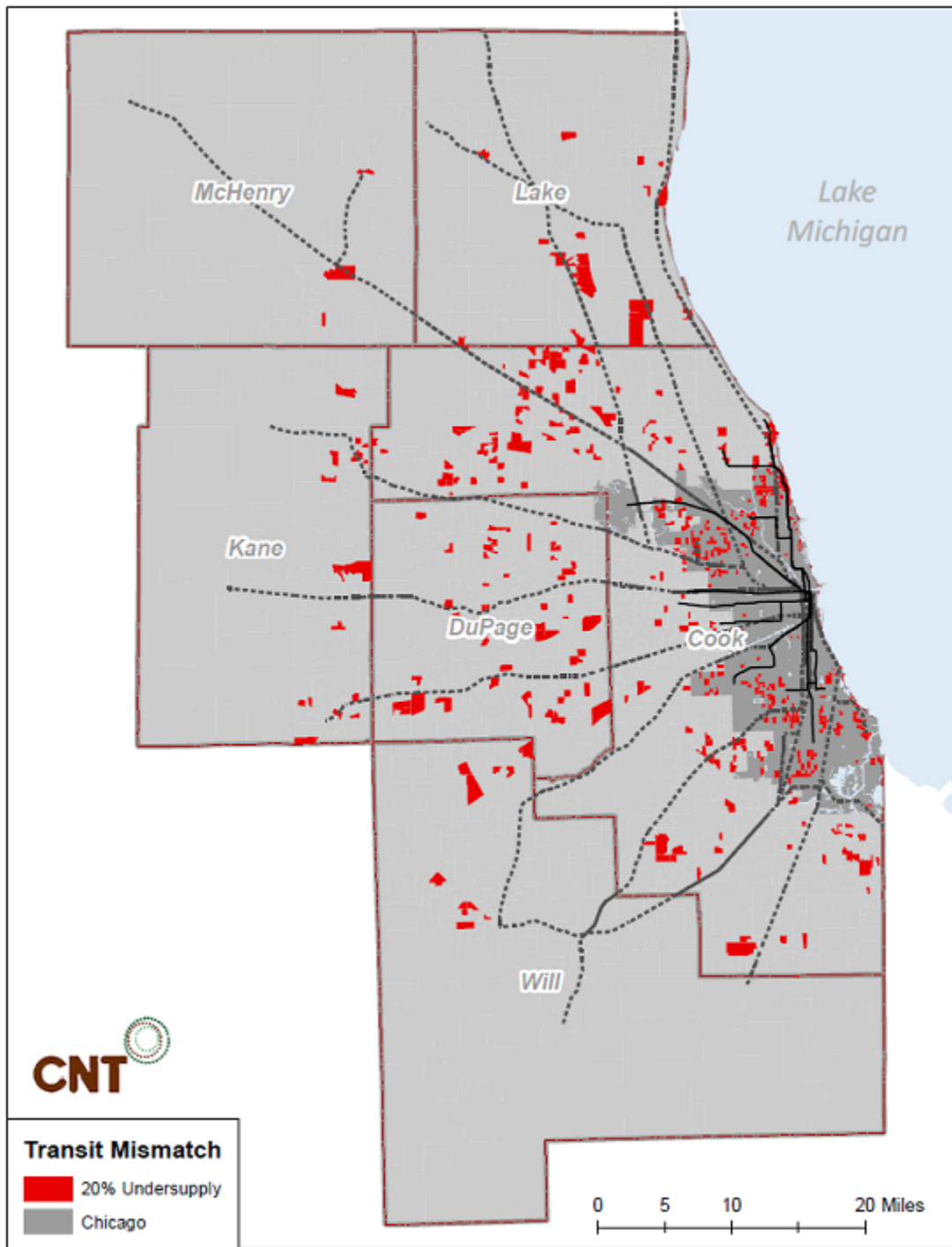
¹⁵³ Ibid

Appendix

The maps on the following pages were prepared by CNT for the Northeastern Illinois Public Transit Task Force. They illustrate the disconnect between existing transit routes and places where people live and work.¹⁵⁴

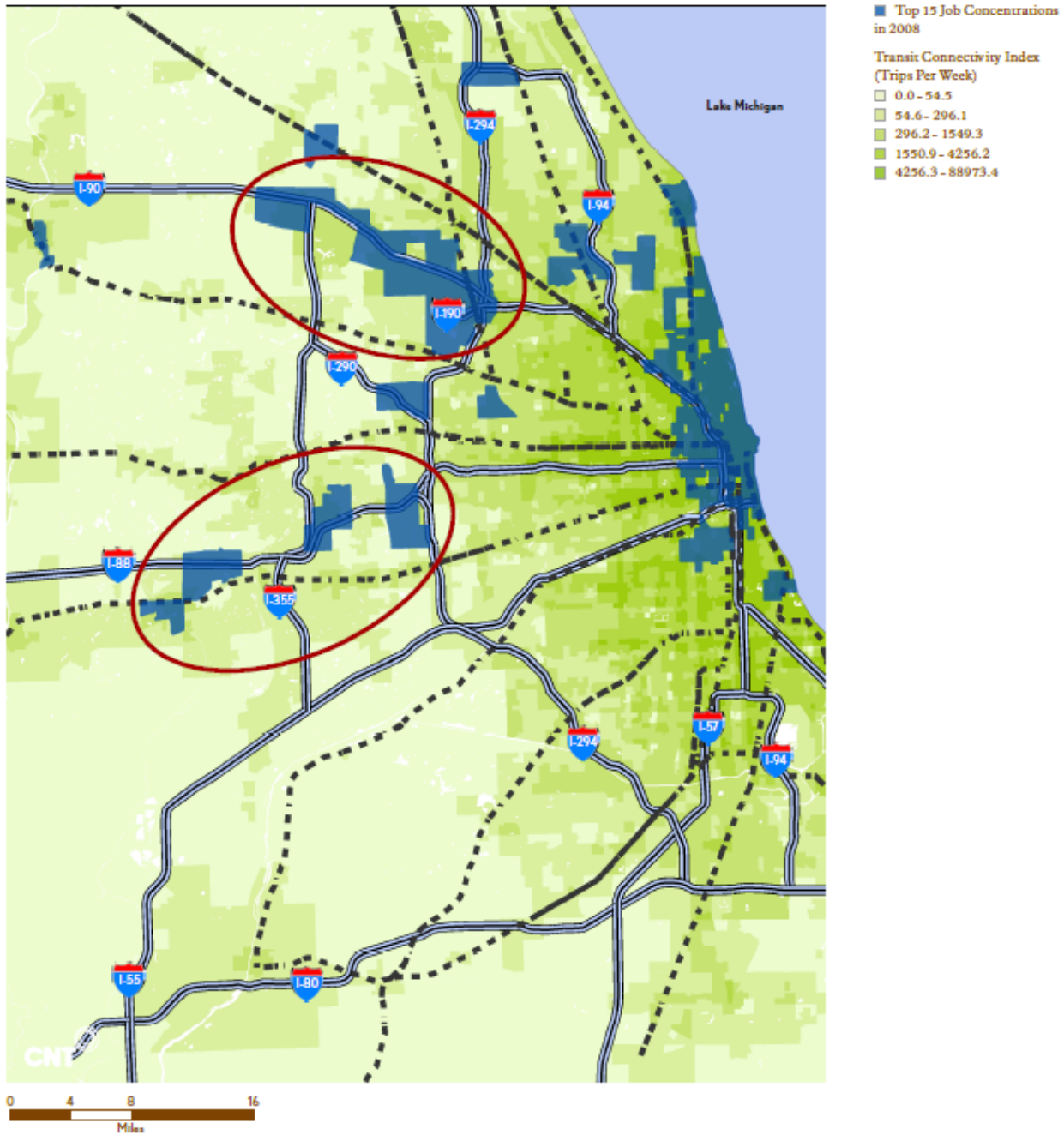
¹⁵⁴ Northeastern Illinois Public Transit Task Force Report, March 31, 2014, pages 22 – 30, and “Transit Deserts in Cook County”, at transitfuture.org

Projected mismatch between transit supply and transit demand¹⁵⁵



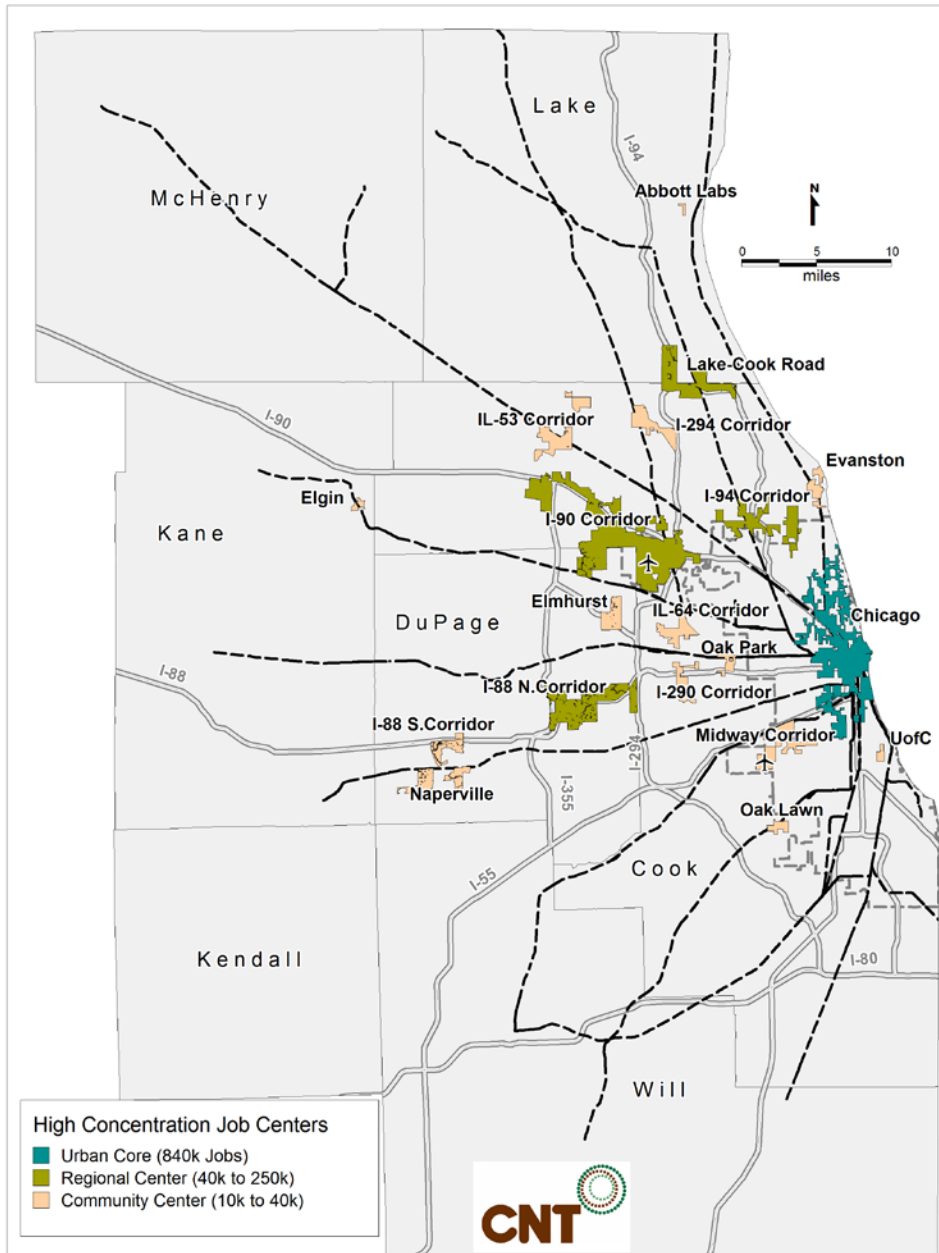
¹⁵⁵ Ibid

Transit connectivity and 15 largest employment centers in the Chicago region in 2008¹⁵⁶



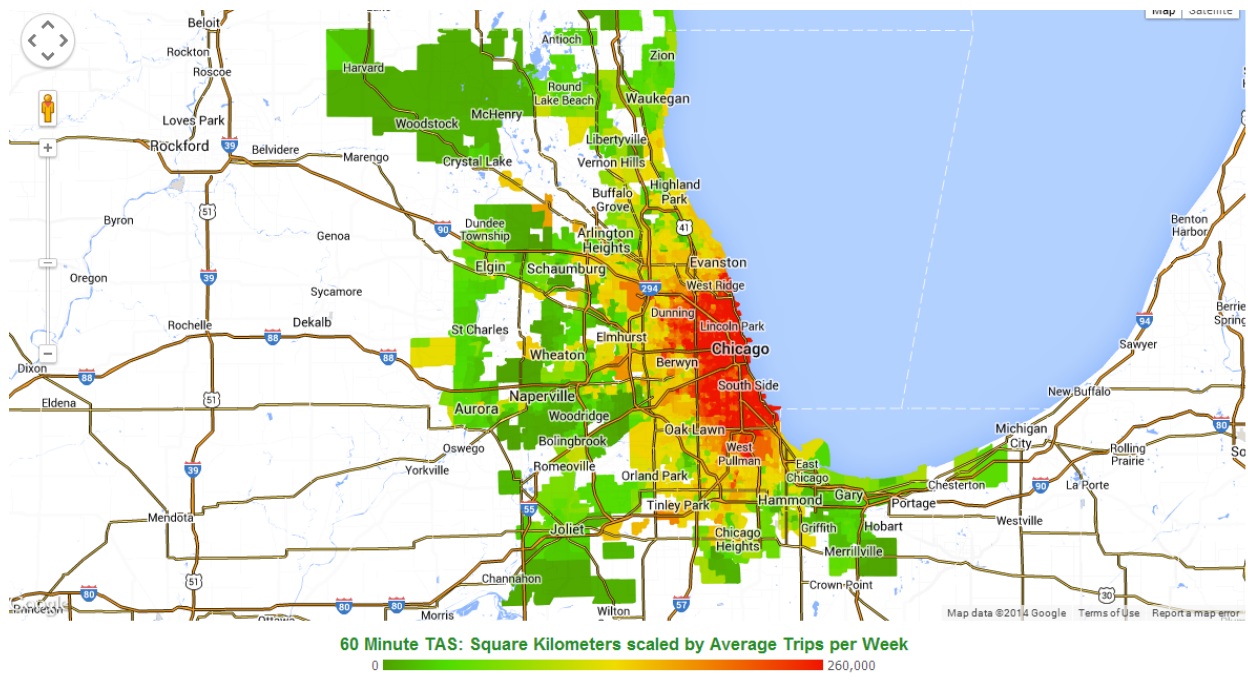
¹⁵⁶ Ibid.

Employment clusters and transit infrastructure in northeastern Illinois, 2011¹⁵⁷



¹⁵⁷ Ibid.

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