

ON TO 2050 COMPREHENSIVE REGIONAL PLAN

Draft
for public
comment

This draft document will be available for public comment from June 15 to August 14, 2018. Submit comments at www.cmap.illinois.gov or by email using the subject line "ON TO 2050 Public Comment" to ONTO2050@cmap.illinois.gov. Or comment by mail to Chicago Metropolitan Agency for Planning, Attention: ON TO 2050 Public Comment, 233 South Wacker Drive, Suite 800, Chicago IL 60606, or by phone to 312-454-0400.

An online version of the ON TO 2050 Draft for Public Comment as well as a downloadable PDF of the plan and its technical appendices can be found at www.cmap.illinois.gov/onto2050. Design will change for the final release of ON TO 2050 in October 2018.

Contents

- The Principles 1**
- Resilience..... 1
- Inclusive Growth..... 3
- Prioritized Investment..... 6
- The Region Today..... 9**
- COMMUNITY 16**
- Strategic and sustainable development 17
 - Target infill, infrastructure, and natural area investments 17*
 - Invest in disinvested areas 25*
- Reinvestment for vibrant communities 32
 - Support development of compact, walkable communities..... 33*
 - Match regional and local housing supply with the types that residents want 40*
 - Improve natural resources through the redevelopment process..... 45*
- Development that supports local and regional economic strength 50
 - Develop tax policies that strengthen communities and the region 50*
 - Incorporate market and fiscal feasibility into planning and development processes 56*
 - Align local economic development planning with regional goals..... 61*
- PROSPERITY 67**
- Robust economic growth that reduces inequality 68
 - Pursue regional economic development 68*
 - Support the region’s traded clusters 73*
 - Prioritize pathways for upward economic mobility 78*
 - Enhance economic innovation 86*
- Responsive, strategic workforce and economic development 90
 - Conduct regional planning for human capital 90*
 - Align local economic development planning with regional goals..... 96*
 - Reform incentives for economic development 100*
 - Expand data-driven approaches in the workforce and education systems..... 103*
- ENVIRONMENT 107**
- A region prepared for climate change 108
 - Plan for climate resilience..... 109*
 - Intensify climate mitigation efforts..... 115*
- Integrated approach to water resources 119
 - Protect and enhance the integrity of aquatic systems..... 120*
 - Reduce flood risk to protect people and assets..... 129*
 - Coordinate and conserve shared water supply resources..... 137*
- Development practices that protect natural resources 144
 - Improve natural resources through the redevelopment process..... 145*
 - Integrate land preservation into strategic growth efforts 150*
- GOVERNANCE 162**
- Collaboration at all levels of government..... 164
 - Use collaborative leadership to address regional challenges 164*
 - Encourage partnerships and consolidation..... 168*
 - Coordinate infrastructure operations and maintenance..... 174*
- Capacity to provide a strong quality of life..... 178

<i>Develop tax policies that strengthen communities and the region</i>	178
<i>Build local government capacity</i>	185
Data driven and transparent investment decisions	189
<i>Base investment decisions on data and performance</i>	190
<i>Improve access to public information through technology and transparency</i>	195
MOBILITY	198
A modern, multimodal system that adapts to changing travel demand	199
<i>Harness technology to improve travel and anticipate future impacts</i>	200
<i>Make transit more competitive</i>	211
<i>Maintain the region’s status as North America’s freight hub</i>	221
A system that works better for everyone.....	230
<i>Leverage the transportation network to promote inclusive growth</i>	231
<i>Improve travel safety</i>	236
<i>Improve resilience of the transportation network to weather events and climate change</i>	241
Making transformative investments	245
<i>Fully fund the region’s transportation system</i>	246
<i>Enhance the region’s approach to transportation programming</i>	256
<i>Build regionally significant projects</i>	258

The Principles

The Chicago region has a tradition of seizing its destiny rather than leaving the future to chance. Because current trends show that the region is falling behind its peers, we must address our challenges collaboratively to ensure metropolitan Chicago's status as a global center of commerce.

According to many measures, our progress has stalled for reasons that are complex but by no means irreversible. By systematically addressing such factors, as a region we can make tangible progress toward broad, lasting prosperity and quality of life. Most important, while we possess the assets necessary to succeed, we must coordinate our efforts region-wide to make true progress.

In developing this ON TO 2050 comprehensive regional plan, CMAP spent approximately three years working with partners to conduct extensive research, issue more than two dozen reports, and engaged over XX,000 residents of the seven-county region. The plan affirms and builds on the recommendations of its predecessor, GO TO 2040, to offer more specific direction where needed and identify additional priorities. The plan process identified three clear, overarching principles:

Inclusive Growth: We must provide economic opportunity for all residents and communities.

Resilience: We must prepare for future changes, both known and unknown.

Prioritized Investment: We must carefully target resources to maximize benefit.

These principles will inform every recommendation in ON TO 2050's five chapters of Community, Prosperity, Environment, Governance, and Mobility.

Resilience

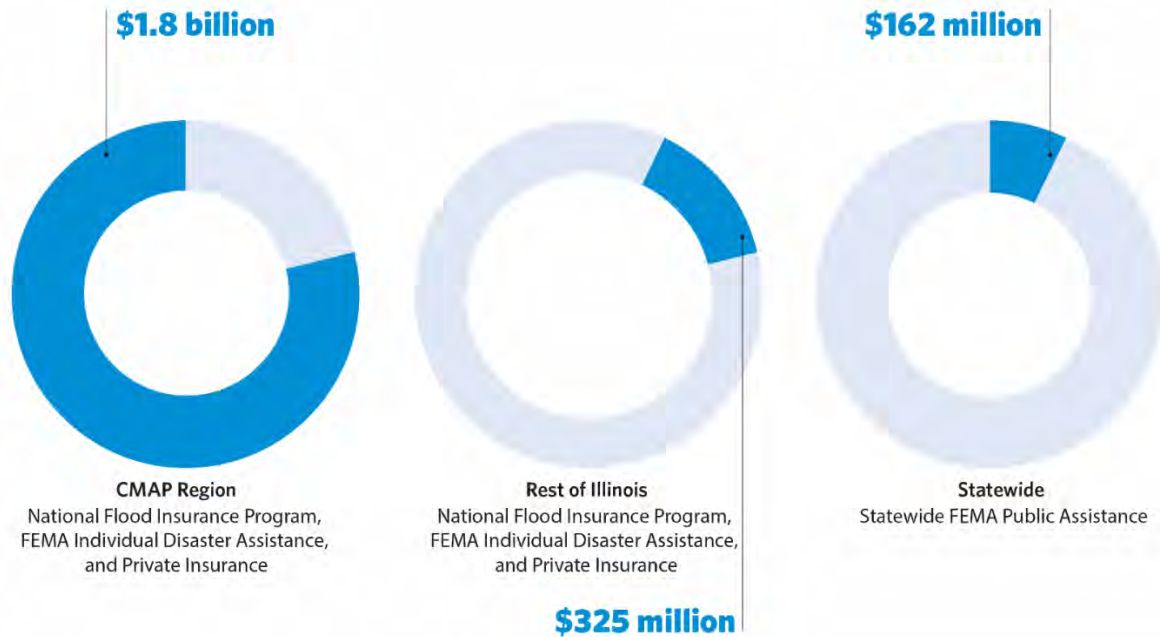
To remain strong, metropolitan Chicago requires communities, infrastructure, and systems that can thrive in the face of future economic, fiscal, and environmental uncertainties.

By achieving "Resilience," our communities can prepare for and recover from acute shocks and chronic stresses. This requires making infrastructure, natural systems, and social structures more durable. In addition to rebounding quickly from, for instance, stronger storms and frequent flooding, a resilient region can actually capitalize on these challenges. To cite one

example, if extreme heat causes pavement to buckle, it can be replaced not only by a road more resistant to extreme temperatures, but one also built to mitigate flooding and ensure reliable, weather-resistant transportation.

Select flooding damage payments, 2007-14

Note: These totals represent a fraction of damage costs.
 Source: 2015 Illinois Department of Natural Resources Report for the Urban Flooding Awareness Act.



"Resilience" refers to much more than climate change. Many communities lack the capacity -- for example, revenue, staff, expertise, equipment, and other resources -- to effectively implement local and regional goals. By pooling resources, deploying new technologies, and training staff, resilient municipalities can plan collaboratively to provide essential services even as federal and state support continues to diminish. Funding from the State of Illinois will continue to play a crucial role -- though quite an uncertain one, due to fiscal conditions -- in our region's prosperity.

Working closely together to achieve economic resilience, our region's communities can also prepare for inevitable challenges as global markets spur a transition to new types of work in emerging industries.

In 2015, the state sent \$2 billion less in revenues to local governments statewide, compared to 2000.

Our region and its communities must anticipate and adapt to future challenges -- both known and unknown -- driven by climate, commerce, technology, and other factors.

Inclusive Growth

Regions that offer economic opportunity for residents regardless of race, income, or background enjoy longer, stronger periods of prosperity and fewer, shorter periods of economic stagnation.

Metropolitan Chicago simply cannot thrive when so many people and places are left behind. Despite our many enviable assets, we fall short of ensuring economic opportunity for all residents. Though also true of many other regions, this unfortunate reality is particularly evident here according to numerous measures based on race or ethnicity. For a stronger, more equitable future, our region needs to ensure every resident and community has the ability to fully contribute to and benefit from the economy. By taking deliberate, concerted steps region-wide, together we can make progress toward inclusive growth across all seven counties and 284 municipalities.

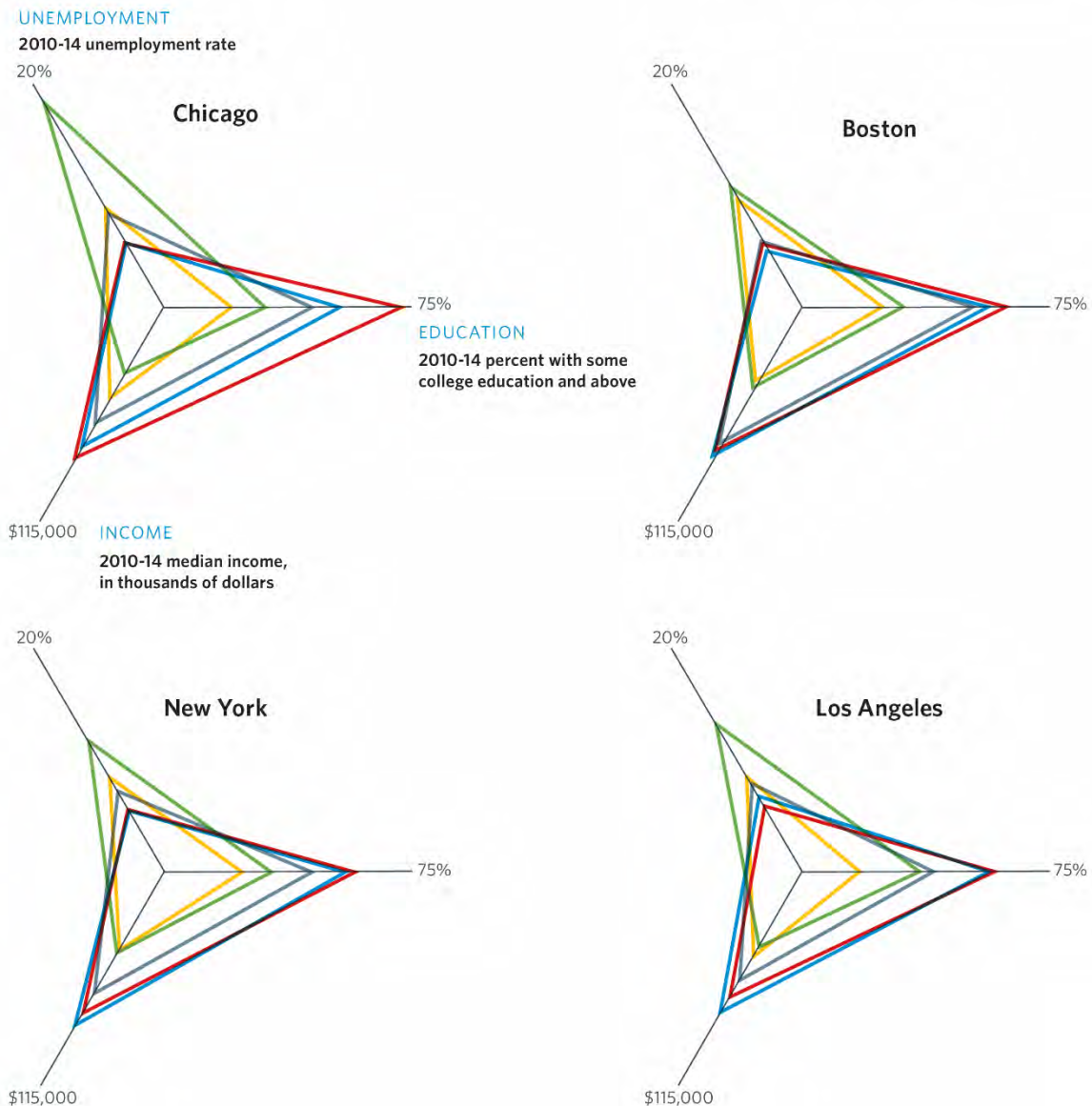


Disparate outcomes by race/ethnicity in select metropolitan statistical areas, 2012-16

- Black
- Hispanic
- White
- Asian
- Regional average

Note: Unemployment is for population age 16 and above. The Bureau of Labor Statistics provides regional unemployment rates used in other CMAP products. Census unemployment is behind current rates, but is the most appropriate source to analyze unemployment by race.

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey Data, 1-year estimates, 2016 and 5-year estimates, 2012-16; Note: 2014 inflation adjusted dollars; median incomes rounded to the nearest thousand.



Inequity persists when the location of someone’s home, their race or ethnicity, or socioeconomic status determine their economic success, health, and overall quality of life. This inequality manifests strongly along racial lines, and often can be traced to racially discriminatory policies and practices such as redlining, exclusionary zoning, school segregation, and predatory

lending.¹ Residents also experience health disparities depending on where they live and work. Promoting inclusive growth can disrupt these patterns and help the region be stronger and more successful economically.

To compete in the global economy, we must tap the full potential of all our workers, businesses, and infrastructure. Currently, a substantial portion of the region's human capital -- embodied in the talents and skills of excluded residents -- is being wasted. Paired with other strategies to capitalize on the region's economic assets, emphasizing inclusive economic initiatives can help restart long-term growth and increase prosperity across the region.

Strategies for inclusive growth can also help the region attract and retain a diverse populace. Having recently lost population -- particularly among low and moderate income residents and black residents -- we must take intentional, proactive steps to open doors in communities where opportunity hasn't knocked for generations.

¹ Redlining refers to the now illegal practice of refusing to provide loans or other financial services in neighborhoods with certain demographic characteristics, such as having a high proportion of residents or business owners of color. The practice derives its name from maps developed by the federal Home Owners Loan Corporation in the 1930s, which outlined high minority or low income areas in red. For several decades, these maps were used by the Federal Housing Administration as well as banks and lending institutions to determine loan eligibility, effectively segregating neighborhoods and limiting access to wealth for minorities. For more information, see: Encyclopedia of Chicago, "Redlining", <http://www.encyclopedia.chicagohistory.org/pages/1050.html>

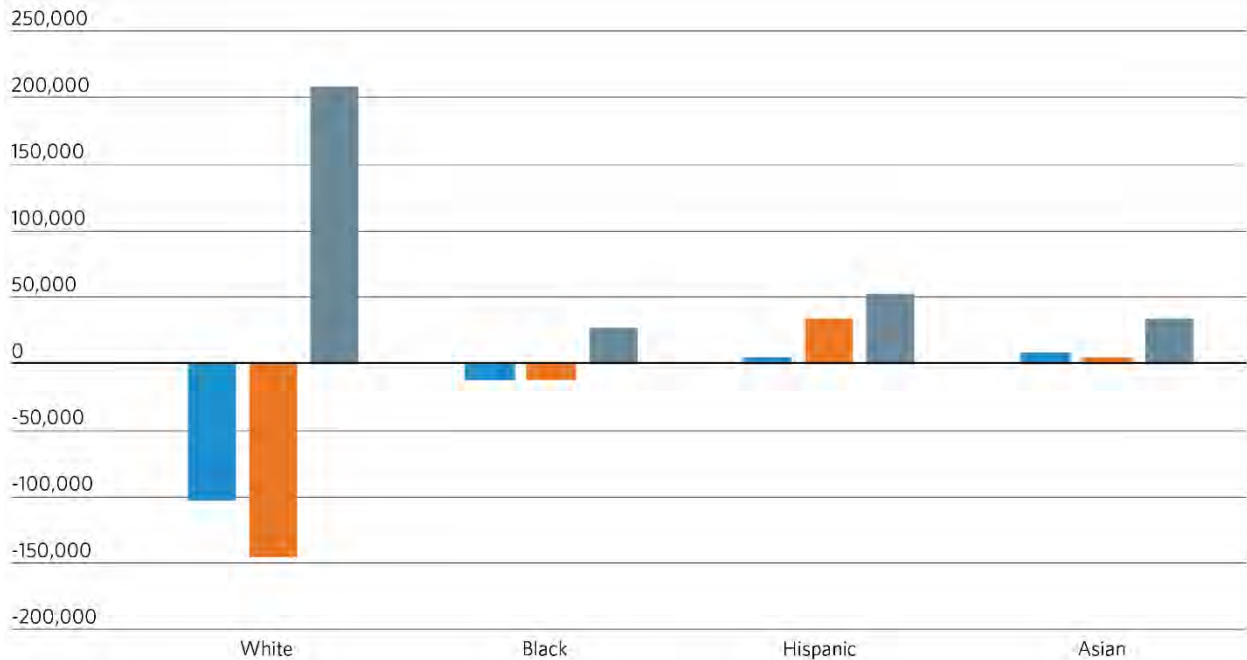


Estimated change in households by income level and race and ethnicity, Chicago Metropolitan Statistical Area, 2005-15

- Low
- Middle
- High

Note: Low income is less than 60 percent of area median income, moderate income is 60-140 percent of area median income, and high income is more than 140 percent of area median income.

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey data.



Regionally, inequity also takes a toll on communities themselves, many of which have not recovered from the recession. Despite making prudent budget choices, too many municipalities find their tax base limited by disinvestment's effects. Combined with decreasing federal and state support, this lack of capacity can make it difficult for municipalities to provide essential services. Inclusive growth can help such communities stem these trends and control their own destiny.

Long-term regional prosperity requires economic opportunity for all residents and communities.

Prioritized Investment

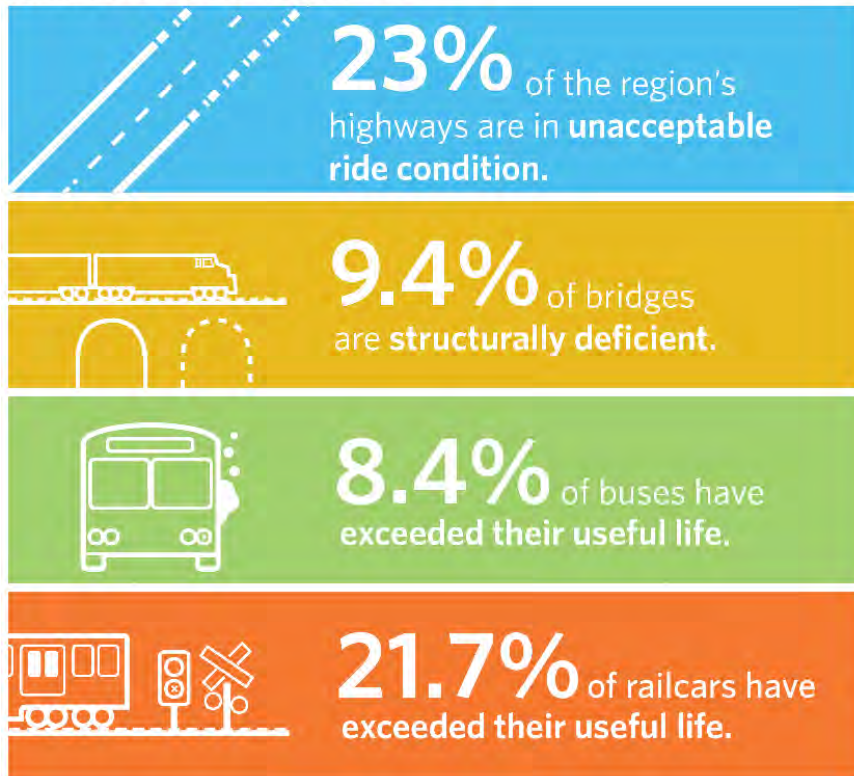
In any era, metropolitan Chicago requires wise stewardship of public revenues to maximize regional benefits. Especially when federal and state funding becomes less sufficient year by year, we must ensure "Prioritized Investment" for infrastructure, development, and the economy to maximize regional benefits.



Prioritized investment extends beyond transportation infrastructure, to the built environment, technical assistance, and other public resources. For decades, funding of public services and infrastructure at all levels of governments has been stagnant or diminishing, yet costs continue to rise. Due to the need of new support for transportation in particular, ON TO 2050 identifies a number of alternatives to our state's and region's antiquated sources of revenue. We require funding methods sustainable and flexible enough for operating and maintaining a modern system of roads, transit, and freight, whose needs could continually shift due to emerging technologies and economic realities.

Investment in metropolitan Chicago's existing transportation assets is needed to keep our region and Illinois competitive in the global economy. Maintenance and modernization of highways, bridges, and transit infrastructure will be a central focus of ON TO 2050 and its development.

Source: Chicago Metropolitan Agency for Planning
www.cmap.illinois.gov/mobility/explore, 2016.



Coordinating investment broadly -- by linking transportation with housing, or targeting public expenditures to attract private resources, among other examples -- is also essential for effectively using limited resources. To maximize the benefit of precious transit resources, for instance, requires land use decisions that support residential and commercial development so people can live and work near bus or train service. Similarly, stormwater management investments can meet multiple goals by also offering recreational options and improving water quality.

Above all, prioritized investment requires close coordination across implementing agencies responsible for providing technical assistance or selecting projects transparently based on clear, measurable objectives. To improve the existing system, we must address the backlog of transportation, water, and other infrastructure in need of repair or replacement, opting for expansion projects only when they meet clear regional objectives.

We must carefully target public resources to maximize regional benefits for mobility, the economy, and quality of life for all residents.

The Region Today

Metropolitan Chicago’s residents, businesses, and institutions continue to create ideas, art, and commercial products that reach around the world. Over the last decade, our region has experienced significant economic, demographic, technological, environmental, and fiscal changes, and the future promises even more substantive shifts. We must also rebuild and modernize aging infrastructure at a time when travel patterns are changing, with potentially profound effects. Uncertainties about the State’s fiscal condition and federal priorities mean that we must fund our own needs. To thrive, we must face today’s opportunities and challenges, build on the region’s many resources, and prepare to take advantage of future change.

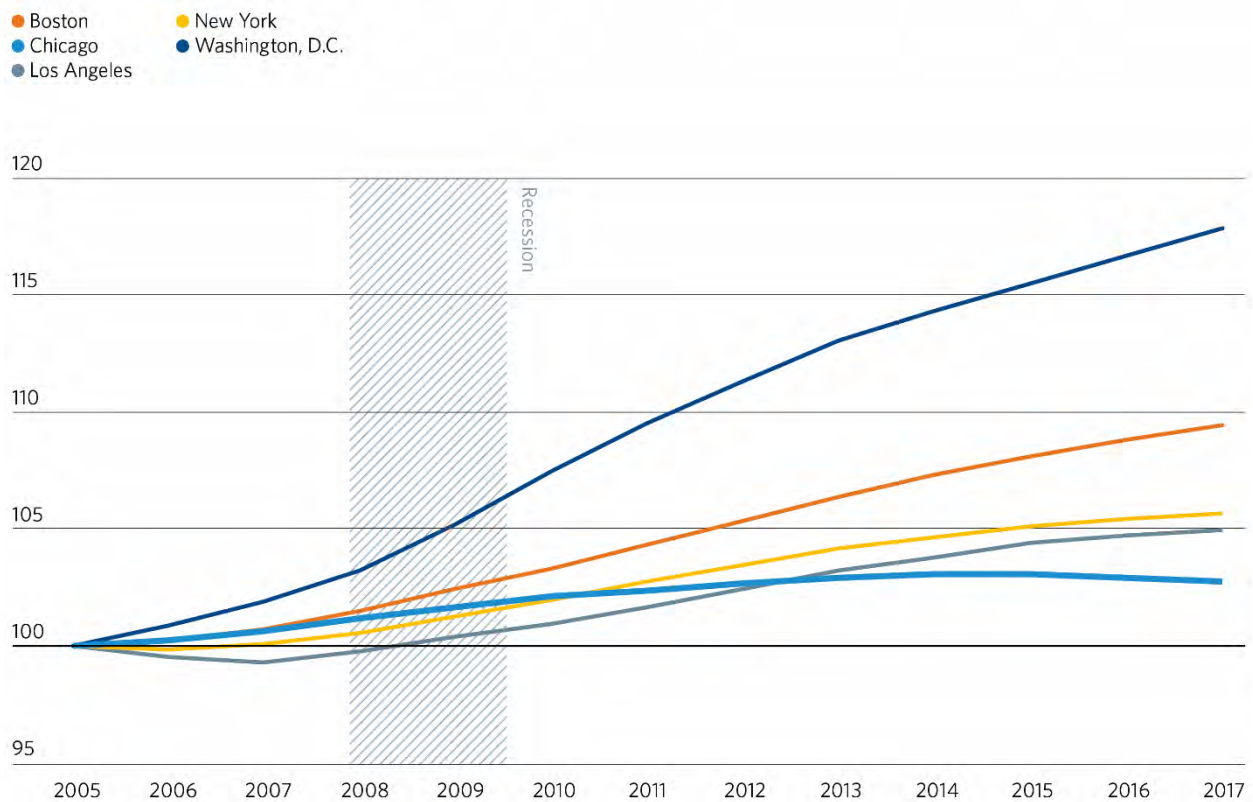
Economic challenges and assets

Today, our population growth has stagnated and economic growth lags behind peer regions. Despite recent population losses, CMAP forecasts that the region will add 2.3 million new residents and 920,000 new jobs by 2050. ON TO 2050 lays out a vision help the region get back on track and thrive again.

Cumulative population change in select metropolitan statistical areas, 2005-17

Note: Indexed to year 2005

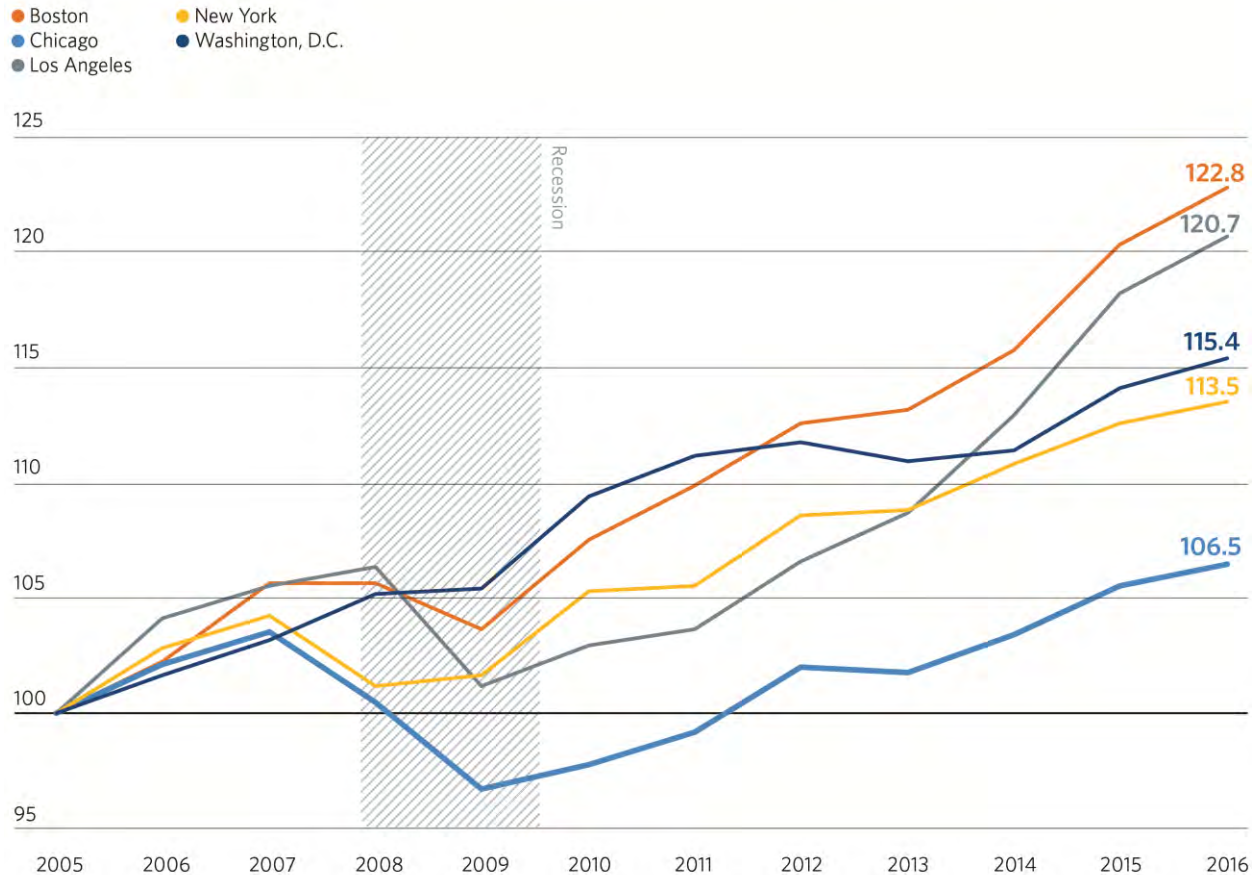
Source: Chicago Metropolitan Agency for Planning analysis of U.S. Population Estimates Program data.



Cumulative real gross regional product growth in select metropolitan statistical areas, 2005-16

Note: Index year 2005.

Source: Chicago Metropolitan Agency for Planning analysis of U.S. Bureau of Economic Analysis data.



Nevertheless, the region is endowed with tremendous assets. Businesses here from industries as diverse as finance, health, and manufacturing have access to a diverse, well-educated, and globally connected workforce. The region’s unemployment rate continues to improve, and our businesses produce more goods and services year after year.

Widespread racial and economic disparities

Economic outcomes in our region frequently reflect racial lines of demarcation. Residents of color, particularly black residents, often experience lower incomes and higher unemployment. Some communities become caught in a cycle of disinvestment, unable to promote economic development, invest in infrastructure, and otherwise serve their residents. A growing body of research supports the idea that racial and economic inclusion bolster regional economic strength. International research suggests that reducing inequality by even 10 percent can increase the extent and durability of periods of growth by 50 percent. Making investments in inclusive growth will help the whole region succeed.

Decreasing federal, state, and local revenues

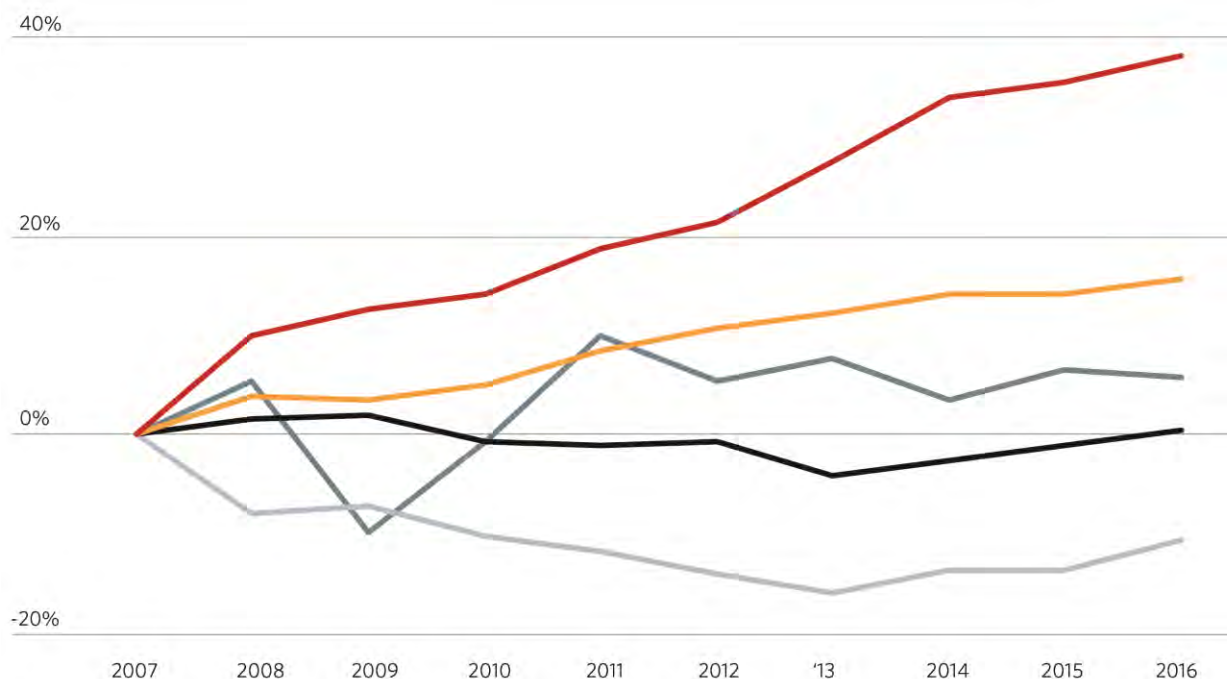
Insufficient funding presents a central challenge to achieving an enviable quality of life and economic vitality for all. Due to shrinking federal and state revenues, local governments struggle to implement their priorities. While many have made do with less by pooling resources with other governments, cutting staff, or leveraging technology to be more efficient, many governments have also begun to cut core services. Without new revenues for infrastructure and increased collaboration among governments, progress on regional priorities will be impeded.

Selected federal and state transportation revenues indexed to 2007

- Federal revenues
- State motor vehicle registration fee revenue
- State motor fuel revenue
- Selected transportation system operating costs
- Consumer price index for all urban consumers

Note: Percent change since 2007. Federal transportation revenue excludes revenue for 2009 from the American Recovery and Reinvestment Act. Transportation operating costs include those incurred by IDOT's District One, Illinois Tollway, RTA, and all transit service boards.

Source: Chicago Metropolitan Agency for Planning analysis of Illinois Department of Transportation data, Illinois Office of the Comptroller data, Regional Transportation Authority data, and data derived from state/regional resources tables.



Aging and obsolete infrastructure

In the absence of adequate, timely investments in our infrastructure, transportation and water systems are decaying. The standard lifespan of expressways is 50 years, but many of our facilities were built in the 1950s and 1960s. Significant capital funding shortages in the transit system limit our region's ability to provide accessible, high quality service. The region's water infrastructure was also developed decades ago, with replacement needed to reduce water loss or replace lead pipes. Stormwater infrastructure is not always sufficient for today's rain levels and will particularly struggle in the face of storms with increased intensity. Asset management and other performance-based investment approaches can help, but cannot succeed unless

paired with new revenues. At current funding levels, the condition of these systems is declining -- and the costs to repair them increasing -- every day.

[GRAPHIC TO COME: Informational graphic showing water loss in the CMAP region.]

Changing climate

The climate is changing at a global scale, with significant implications for the built environment, economy, ecosystems, and people of this region. We have a substantive resource in the water access provided by Lake Michigan, and high quality natural areas to help reduce the progress of climate change. These assets may help the region thrive as other parts of the nation struggle. To ensure continued success will necessitate re-envisioning how road, water, and energy infrastructure is built and maintained, preserving and protecting natural and agricultural areas, implementing stormwater best management practices, and creating social networks and resources to give residents tools to withstand climate impacts.

Opportunities and pitfalls of swiftly changing technology

New information technology and data processing capacity are having far-reaching effects. Road and transit agencies can better track current conditions, reroute drivers or transit service, and manage their networks. Businesses can enhance processes and supply chains to gain a competitive edge. Residents have growing options to get around without owning a car, to work from anywhere, and purchase goods. These technologies will also change the nature of work, demanding new skills and different training for today and tomorrow's workers.

An aging and diversifying population

People are living longer lives in general. To provide a strong quality of life for our growing senior population, the region will need to continue adapting transit services, capitalize on emerging transportation and communication technology, and create more places with amenities and services in easy reach.



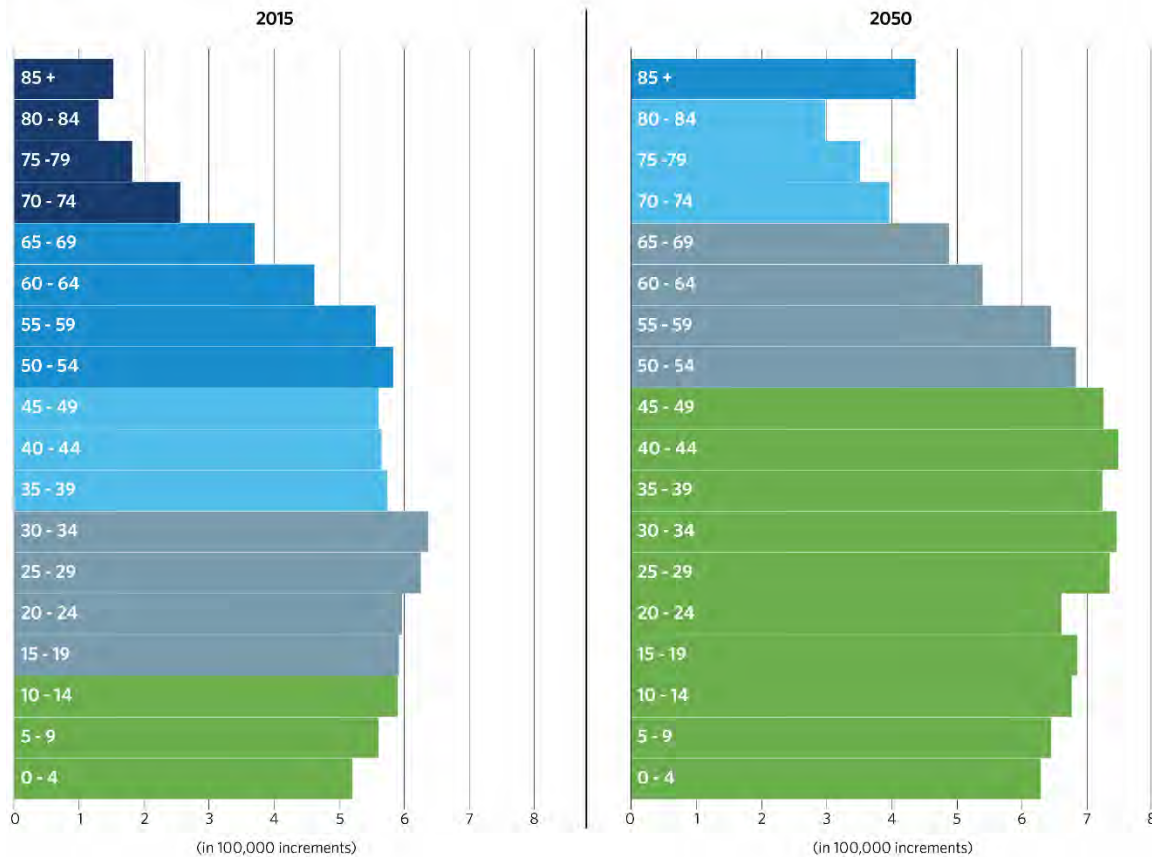
Population change by age group and generation, 2015 estimate and 2050 forecast

Note: CMAP may provide minor updates and adjustments to the forecast prior to ON TO 2050 approval.

Age groups by generation name and years born

- Silents/Traditionals (1931-45)
- Baby Boomers (1946-65)
- Gen X (1966-80)
- Millennials (1981-2000)
- Gen Z and later (2001+)

Source: Chicago Metropolitan Agency for Planning draft ON TO 2050 socioeconomic forecasts.



Our population is also diversifying. If current trends continue, the region’s population will be comprised of a majority of persons of color within the next decade. Diversity is an economic strength that the region can capitalize on, while taking steps to ensure access to economic opportunity for all residents.

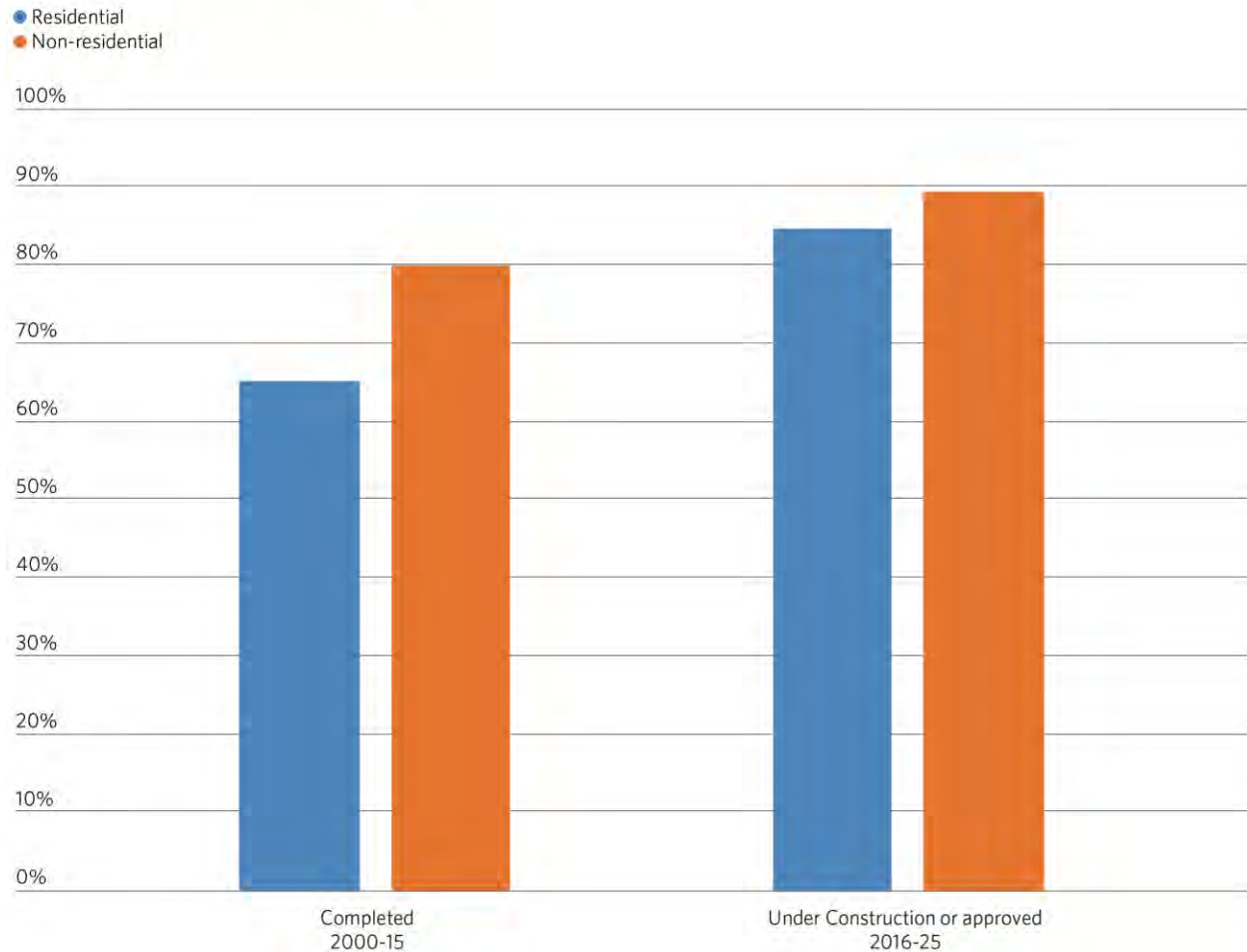
Demand for different places to live and work

The region will always be successful by providing many types of places to live, from dense urban nodes, to suburban residential neighborhoods, to rural towns. But the region must also accommodate increased demand for places where a car is optional and residents can walk to shopping, entertainment, and services. While development since 2000 has not concentrated in areas with strong transit availability, buildings under construction today throughout the region

are increasingly located in areas with access to transit, or with substantial existing development and infrastructure.

Proportion of development occurring within highly and partially infill supportive areas, completed and under construction/approved

Source: Chicago Metropolitan Agency for Planning analysis of Northeastern Illinois Development database.



Limited progress on sustainable development

Communities are beginning to recognize the need to ensure that new development is fiscally and economically sustainable, as recent patterns of land development have worsened public funding constraints. While the region’s population grew 4.6 percent from 2000-15 and total jobs remained essentially flat, our developed area expanded by nearly 12 percent, an area equal to the City of Chicago. The region also preserved 61,500 acres of open space from 2001-15. However, progress on effectively addressing the combination of economic development, conservation, and fiscal sustainability has been mixed.

ON TO 2050 Principles

The region also has proven its ability to collaborate on addressing complex problems. To succeed in a changing future, we will need to coalesce around initiatives that promote strong communities, a good quality of life, and economic opportunity and success. The principles guide the recommendations of the plan and offer solutions to the region's key challenges.

Inclusive Growth: We must provide economic opportunity for all residents and communities.

Resilience: We must prepare for future changes, both known and unknown.

Prioritized Investment: We must carefully target resources to maximize benefit.

COMMUNITY

Strengthening where we live

ON TO 2050 will make the region and its communities stronger by targeting resources, improving planning, encouraging collaboration on fiscal and economic issues, preserving high quality open space and agricultural assets, and promoting housing choice.

[GRAPHIC TO COME: Photos of changing development in the region.]

ON TO 2050 continues our region's emphasis on reinvesting in communities and infrastructure, while also offering new guidance to enhance quality of life. Supportive initiatives by many actors will collectively enable progress toward these goals. Some communities have a wealth of expertise and resources for these initiatives, while others struggle to raise revenues for basic services. Reinvestment can be complex and costly. Progress will require targeted, coordinated action by transportation, funding, land use, housing, environmental, and economic development programs that are sometimes disconnected. ON TO 2050 envisions comprehensive action by municipalities, CMAP, counties, Councils of Governments, the State of Illinois, transportation providers, the federal government, and civic organizations to support local decision making and continue to foster high quality places through 2050.

ON TO 2050 also emphasizes preserving high quality lands and implementing sustainable development patterns with fiscally responsible expansion. Many communities make expansion a high priority. Such growth can be implemented in ways that preserve natural assets and reduce long-term costs. Continued land preservation conserves our natural assets today and for future generations. Implementing new development in ways that make efficient use of existing and new infrastructure will limit long-term costs and support resilience.

Creating and sustaining vibrant communities can help the region compete and thrive, offering residents and business many choices for where to live and work. Increasingly here and nationwide, people want diverse, walkable, and accessible communities with popular amenities, in both urban and suburban locations. Meeting this demand will also support transit and ease commutes. Most importantly, the region cannot succeed without concerted investment in communities that have been left behind to rebuild jobs, amenities, and resources. Investment for continued economic growth and success for the entire region should include investments in communities with limited resources for rebuilding infrastructure and amenities needed for jobs, housing choices, and healthy living.

This chapter outlines recommendations to promote:

1. **Inclusive growth** by rebuilding communities, increasing local revenues, and enhancing local government capacity and expertise.

2. **Resilience** by preserving high quality natural areas, incorporating sustainable practices into all development, and leveraging data and expertise to plan for market realities, infrastructure needs, and fiscal stability.
3. **Prioritized investment** in and careful expansion of our built environment.

Strategic and sustainable development

From 2000-15, the region expanded its developed footprint by nearly 12 percent, an area equal in size to the City of Chicago. Over the same period, employment remained flat, population increased by 4.6 percent, and many opportunities for infill development remained untapped. While local and state governments as well as nonprofits preserved 61,500 acres of open space, significantly more land was developed. To reduce costs, conserve land, and promote quality of life while meeting the economic, transportation, and housing needs of a growing population, the region must change the way it invests in infrastructure and development.

Strategic investment in new development is imperative in a climate of constrained resources. That investment must happen not only in places that are already centers of activity, but also in those that are rich with potential yet suffer from long-term disinvestment. These communities still have many assets, including their residents. The region will add 2.3 million residents and 900,000 jobs by 2050. Investing in careful growth is imperative to help the entire region prosper.

Target infill, infrastructure, and natural area investments

A thoughtful, holistic approach to development can help all parts of the region thrive. To make this approach possible, partners across sectors and at multiple levels must carefully invest both funds and expertise. Such targeting can make reinvestment less challenging, encourage better alignment between infrastructure improvements and planned development, and accommodate strategic new development that minimizes impacts on agricultural and natural areas.

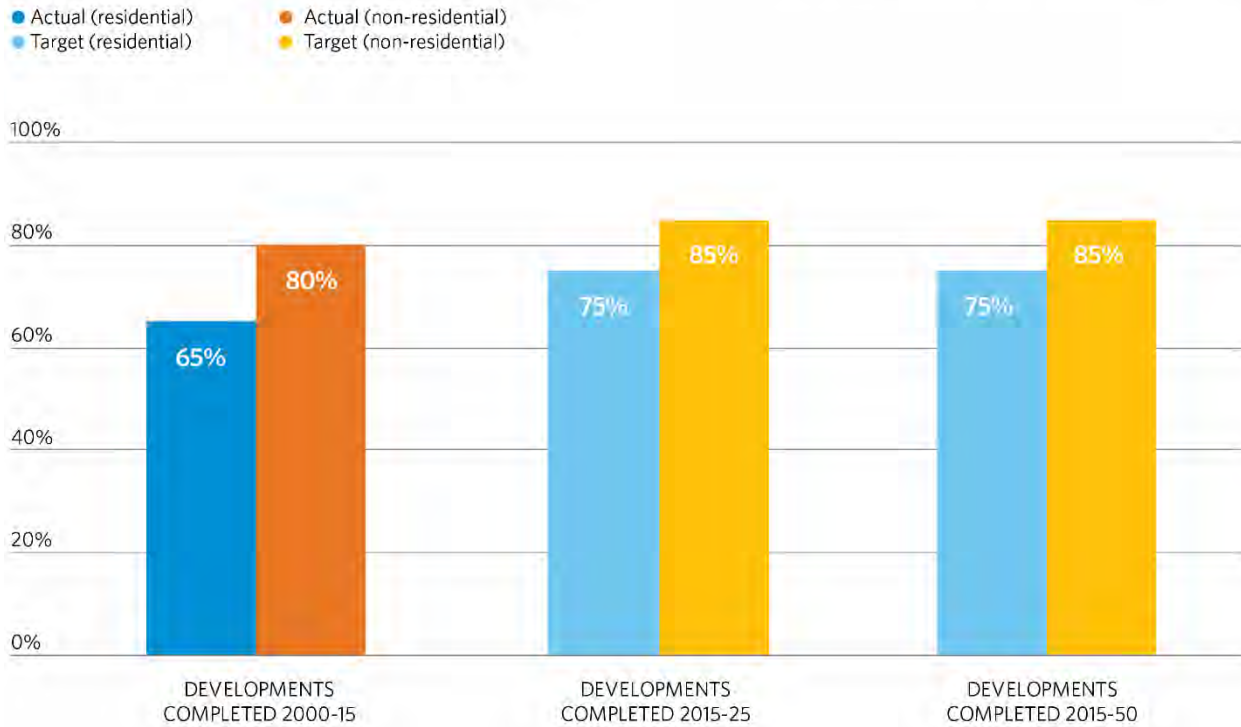
ON TO 2050 sets a target for 75 percent of residential development and 85 percent of non-residential development to occur within highly and partially infill supportive areas, which have existing development, residents, businesses, and infrastructure.² Reinvesting in areas with existing services and infrastructure has broad regional benefits. Local governments and transportation providers incur fewer infrastructure and service costs. Businesses often have access to a larger pool of potential customers and workers. Residents can reach a broader set of options for work, recreation, and services via transit, car, or bike. Reaching this target will require a wholesale shift in how the region's governments and private entities approach planning and development, from reinvigorating commercial corridors and residential

² Chicago Metropolitan Agency for Planning snapshot report, "Infill and TOD," 2017, <http://www.cmap.illinois.gov/documents/10180/0/Infill+and+TOD+Snapshot+Report.pdf/4273b7d1-0a16-4c2f-a93e-dce1c2a472fd>.

neighborhoods, to building up mixed-use centers, to focusing resources near transit and existing transportation nodes.

Share of new development occurring in highly and partially infill supportive areas

Source: Chicago Metropolitan Agency for Planning analysis of Northeastern Illinois Development Database.



The region has had mixed results in encouraging new investment in already-developed areas, particularly areas with access to transit and other resources. While development under construction today is clearly changing -- and beginning to align with ON TO 2050 goals -- catching up on infill is imperative to achieve transit ridership and congestion goals. Focusing assistance and investment resources in areas that communities have identified as a priority can make the best use of constrained funding. Whether via private development, public infrastructure, or other means, reinvestment is most effective when it is consistent with regional goals as well as local plans and regulations, coordinated with other funding sources, and linked with supportive public programs. By strategically targeting investments toward community main streets and economic centers where infrastructure already exists, we can maximize the impact both of those new expenditures and of the earlier ones when such areas were originally developed. Communities that have a clear, realistic vision for future investment are ideally situated to maximize the potential impact of such an approach.

While aligning plans and regulations is important, it does not always attract reinvestment by itself. Infill sites, even vacant ones, can pose problems for developers. The complex early stages of project development can deter investors: assembling multiple small parcels with fragmented

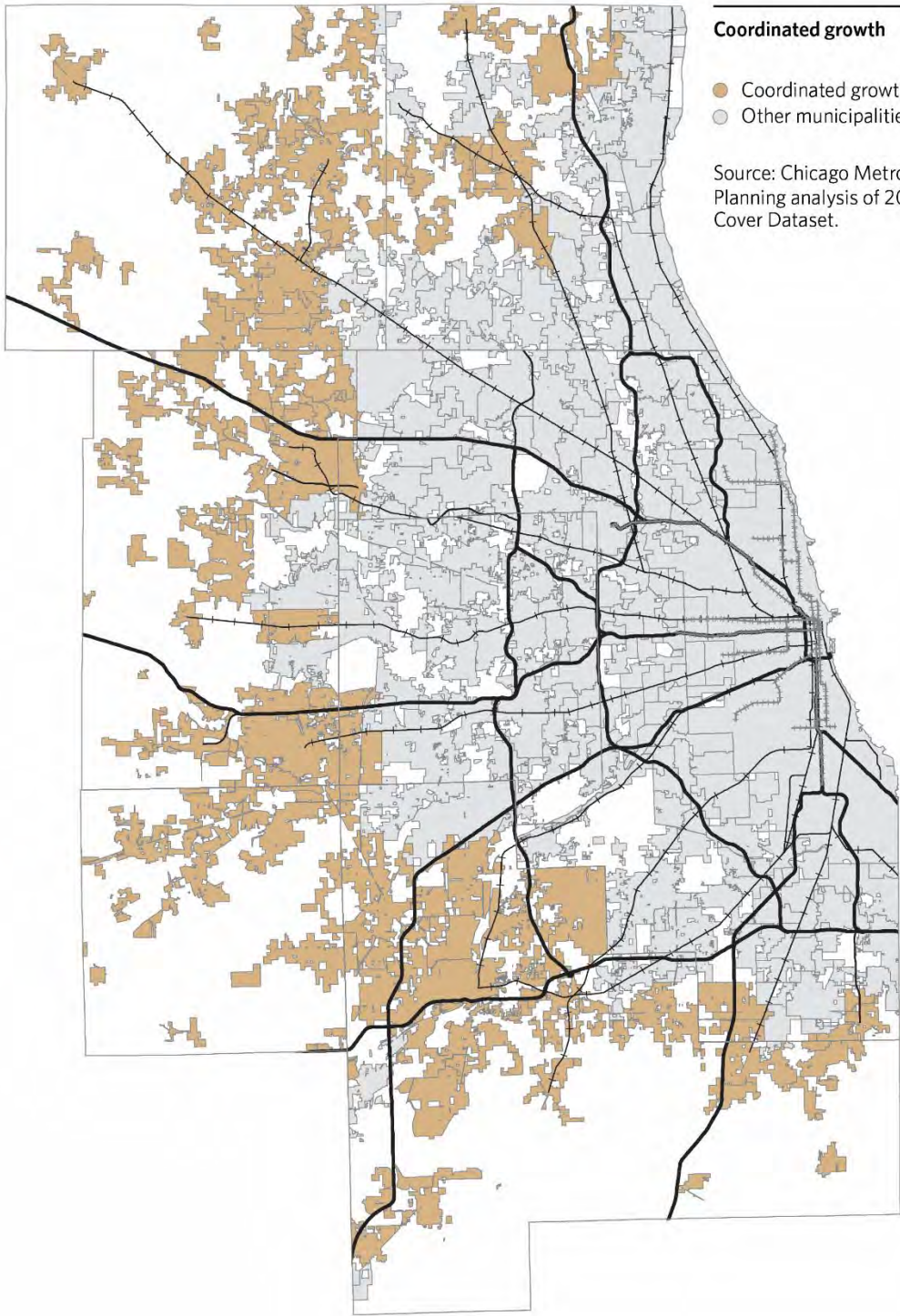
ownership, developing land under multiple regulatory jurisdictions, and remediating environmental contamination are all costly and complicated barriers. Along with the need to coordinate with neighbors who will be affected by the redevelopment, these challenges can make it difficult for communities to attract private investment.

When multiple agencies coordinate diverse technical knowledge and funding sources, development becomes more feasible and beneficial. For example, making multi-agency investments related to industrial development -- such as reconstruction of an intermodal truck corridor while targeting nearby brownfields for environmental remediation and addressing localized flooding problems through construction of green infrastructure -- would be more likely to spur successful industrial or logistics development than if these investments were made in isolation.

A broad, sustained approach to increase reinvestment must also reflect the Chicago region's strong tradition of local land use control and multitude of public, nonprofit, and private interests. The region has many places worthy of new investment. Existing community main streets, mixed-use centers, and bus or rail transit nodes need added businesses, residents, and supportive development to thrive and support well-functioning transit. Disinvested areas, which have experienced a long-term loss of people and jobs, can benefit from coordinated, intentional, and systemic investment by public and private actors. The region's office and industrial centers house the industries that connect our economy to the world, and they need continued reinvestment to continue to grow as the economy changes.

[GRAPHIC TO COME: Illustrations of prototypical potential TRA types before and after reinvestment: a main street, an office center, a disinvested area.]

At the same time, the region will continue to expand. Development on agricultural, natural, and other open lands at the region's perimeter can help achieve community goals, but can incur substantive costs. Communities should consider the long-term benefits and costs of new development, whether that be associated with building and maintaining new infrastructure, market viability for the remaining agricultural uses, or consumption and degradation of natural assets. Areas with potential for new development -- termed Coordinated Growth Areas -- can carefully expand in ways that require less infrastructure, improve short- and long-term fiscal impacts, and promote quality of life. Strategically planning for conservation of natural areas and key agricultural lands, combined with sensitive development practices, enhances both natural and built environments.



Coordinated growth

- Coordinated growth area
- Other municipalities

Source: Chicago Metropolitan Agency for Planning analysis of 2011 National Land Cover Dataset.



[GRAPHIC TO COME: Coordinated Growth Local Strategy Map interactive feature highlighting natural and agricultural areas where there is development pressure and illustrating best practices in preservation and development.]

The following describes strategies and associated actions to implement this recommendation.

Create a program to focus resources in Targeted Reinvestment Areas

In concert with partners, CMAP should create a Targeted Reinvestment Area (TRA) process for municipalities and counties to designate locations for infill, infrastructure, affordable housing, and other types of assistance and funding. As part of the agency's familiar planning and infrastructure funding processes, it should not aim to replace effective systems, but rather to adapt them to maximize investment impacts. This program would also have to complement broader initiatives such as asset management, which can also enhance decision making.

Preliminary steps in establishing a TRA program include building consensus among partners on the types of areas where investment should be targeted. The ON TO 2050 planning process has identified three types of areas that municipalities and counties, civic organizations, transportation providers, and other stakeholders consider most important for reinvestment: employment centers; mixed-use downtowns, main streets, and bus and rail transit stops; and disinvested areas. Further definition of the scope and criteria unique to each of these types is necessary to begin establishing a program to direct resources toward those locations. Experience with similar programs in other regions has shown that the most effective approach is locally driven, as local governments and community groups submit target areas for designation provided that they meet certain parameters.

CMAP should lead this effort while convening many others to participate because the agency cannot fully implement a TRA program on its own. There are many public agencies, nonprofit groups, and private entities that contribute to investment decisions in the Chicago region. Coordinating investment implies a multitude of agencies and investors working together to support beneficial development that is consistent with local plans. This is not a novel concept in the Chicago region; most, if not all, significant redevelopment and construction projects already include multiple layers of funding and financing. But by communicating proactively and setting priorities jointly, these agencies can make the best use of our limited investment dollars.

Finally, although TRAs offer an opportunity to focus numerous resources and drive change, the program would not preclude implementation of other substantive needs outlined in ON TO 2050. Investment and assistance should still occur throughout the region in ways that support the priorities of the plan. For example, planning for the Coordinated Growth Areas described in the *Environment* chapter can help communities improve development patterns and infrastructure investment. Similarly, collaboration across communities on issues like economic development or truck routing may incorporate TRAs and many other areas.

CMAP should work with partners, including local governments, Illinois Housing Development Authority (IHDA) and housing authorities, Illinois Department of Transportation (IDOT) and other transportation agencies, financial institutions, community development financial institutions (CDFIs), regional land banks, stormwater management agencies, and philanthropic, nonprofit, and civic organizations to specify criteria for designating mixed-use centers (including bus and rail transit station areas), disinvested areas, and employment and industrial centers as TRAs.

CMAP and partners should adapt and integrate existing policies and programs within their respective organizations to direct technical assistance and funding toward areas designated as TRAs.

After the program is established, *local governments* should identify and propose to *CMAP* any areas within their boundaries that might fit TRA criteria.

CMAP should direct funds such as the Congestion Mitigation and Air Quality Improvement (CMAQ) program, the Transportation Alternatives Program (TAP), and the Surface Transportation Program (STP), as well as technical assistance through Local Technical Assistance (LTA) toward qualifying TRAs.

Plan for future development when approving near-term infrastructure and development proposals

As highlighted throughout ON TO 2050, a lack of adequate infrastructure can hinder investment. Given this, communities planning for future densities should take those added households and businesses into account when creating or renewing infrastructure. For example, Pace and Niles have coordinated land use planning for the Milwaukee Avenue corridor with the creation of the Pulse Milwaukee line, thereby linking near-term transit improvements with long-term land use planning. Many benefits flow from such forethought. First, communities that create the street, pedestrian, and bike networks to support future plans demonstrate to the market that the area is primed for further investment. Second, making infrastructure investments prior to or concurrent with development can reduce the cost and timeline of projects, as going back to provide that infrastructure later is typically more costly and complicated. Finally, communities can build and design improvements that can be expanded if needed with greater prudence.

Communities should consider local development proposals in a similar light, recognizing that what is approved today affects the possibilities of what will be proposed in the future. If a community wants to see additional development but current proposals do not help build toward that, that community should consider such proposals with caution. Communities should focus on whether or not the proposal is a transitional use (something likely to go away once the area develops) or a permanent use (something likely to remain in place even after development). Tying development goals to infrastructure provision and near-term approvals



can help rural communities and urban neighborhoods alike. In expanding areas, assessing long-term fiscal impact is also critical. Local governments should consider long-term goals when making infrastructure investment and development decisions and align zoning and building regulations to support those goals. See the recommendation to *Incorporate market and fiscal feasibility into planning and development processes* for more information.

Protect agricultural and natural land through local planning processes

As the region's population grows, valuable agricultural and natural resources will continue to face development pressure, particularly in locations within or adjacent to municipal boundaries, as highlighted in the Coordinated Growth local strategy map. Identifying agricultural and natural lands in local, county, and regional planning and development efforts signals their importance and helps communities recognize the contributions of such lands to local and regional economies, ecosystems, and character. For example, Kane and McHenry counties identify agricultural and natural lands in their future land use maps. While their plans acknowledge that anticipated population growth could result in the conversion of undeveloped land, much of the existing agricultural and natural land cover is anticipated to remain in its current use. These plans also direct new development toward locations with or adjacent to existing infrastructure.

Municipalities and counties can also leverage their regulatory processes to improve the relationship between development and agricultural and natural resources. For example, updating development ordinances can support preservation of valuable natural assets and the corridors between them, and minimize the impact of new development on agricultural and natural resources. Local governments can use a number of different strategies, including agricultural and natural resource zoning districts, modernized definitions and standards relating to agriculture and natural resources, updated protection measures within subdivision ordinances, and provisions for long-term stewardship of protected open space. Conservation-oriented development and clustering can help preserve natural resources while accommodating broader community goals for development. Even without clustering, development can be designed to protect the existing natural resources and use them as inherent assets of the site. This strategy also appears in the *Environment* chapter under the recommendation to *Integrate land preservation into strategic growth efforts*.

Local governments should use the Conservation Areas local strategy map and the Key Agricultural Lands local strategy map, when available, to inform local planning and development efforts.

CMAP and partners should quantify the agricultural system's contribution to the regional and local economies to better inform local economic development strategies, land use planning, and transportation investments.

CMAP should refer to the Conservation Areas local strategy map to inform long-range transportation planning and programming.

Local governments should adopt conservation-oriented development standards and avoid development on key natural areas.

Local governments should conduct detailed development site inventories of natural resources and first attempt to avoid, reduce, and then mitigate the natural resource impacts of development through actions such as protecting existing assets and conservation areas.

CMAP should investigate conservation design practices that work best with agricultural activities.

Evaluate future infrastructure costs when considering development expansion

In an era of limited resources, growing communities should carefully weigh the long-term costs of maintaining and replacing infrastructure against the fiscal benefits of new development. A lack of full-cost pricing and declining federal and state support have left many communities struggling to maintain infrastructure already in place. Some municipal costs, including roads, water and wastewater, stormwater, and fire protection, are more dependent on the location and density of development than others. For example, lot size, minimum block length, and street design standards influence the length and width of streets and the corresponding density of development that provides financial support for the eventual maintenance and replacement of those streets. While future land use plans and zoning and subdivision ordinances dictate the development pattern, the planning process rarely factors in the long-term financial impacts of those requirements or considers the costs of that additional infrastructure within the context of the municipality's existing liabilities. Avoiding unnecessary future infrastructure and maintenance costs will enable communities to prioritize investment toward other community objectives. Regarding long-term financial health, communities can minimize their infrastructure maintenance costs by limiting expansion and building more compactly when they do extend roads and sewers to new locations. This strategy also appears in the *Environment* chapter under the recommendation to *Integrate land preservation into strategic growth efforts*.

Local governments should consider existing road, water, and wastewater infrastructure capacity in decisions about the intensity and extent of new development.

Local governments should review and revise development standards with attention to long-term maintenance costs associated with different development patterns.

Local governments should collect adequate taxes and fees per the findings of fiscal impact analyses to cover the cost of infrastructure and services over the lifespan of new development.

CMAP should explore ways to encourage development standards that minimize long-term maintenance costs and consider incentives for such practices through existing transportation

and infrastructure funding programs.

Invest in disinvested areas

Some parts of our region have experienced a persistent, long-term lack of market investment, leading to declining property values, tax receipts, employment, and population. Markers of economic disconnection and disinvestment exist in every county of the region, frequently appearing around older subregional job centers like Joliet, Aurora, Elgin, and Waukegan. Long-term patterns -- including the historical segregation of housing by race, as well as market shifts in residential and commercial demand -- have contributed to economic struggles in some areas. The multi-faceted and persistent nature of such disinvestment often outstrips the ability of any one community to respond effectively. Regardless of their assets, disinvested areas generally struggle to meet the core requirements of market feasibility, with exceptionally weak demand, a lack of anchors or agglomeration potential, negative reputation, and/or a lack of developer confidence in public sector capacity or market feasibility.^{3,4} Disinvestment can constrain municipal revenues as fewer and fewer residents and businesses remain to pay taxes.⁵ Residents who are unable or unwilling to move -- many seniors and low income households, for example -- may make up a larger share of the community. These residents may also suffer poorer health than those who live in areas with more access to resources.

Disinvested areas broadly refers to both Economically Disconnected Areas (EDAs) and struggling commercial and industrial areas. EDAs have a concentration of low income and minority or limited English proficiency residents, while disinvested commercial and industrial areas have experienced a loss of economic activity over a sustained period. Both types of areas have substantive overlap. Solutions to promote vital places and new market-driven investment complement those targeted to promote economic opportunity for residents. ON TO 2050 also identifies strategies to build the assets and capacity of the region's under-resourced communities. These combined individual, built environment, and community driven solutions are required to comprehensively promote inclusive growth.

[GRAPHIC TO COME: Local Strategy Map interactive feature showing the drivers of disinvested and Economically Disconnected Areas.]

Disinvestment also affects the ability of municipalities to serve their residents and businesses. A low base of property, sales, and other taxes can lead to higher property tax rates in communities

³ Kapple, K and Jacobus, R in Pindus, Wial, and Wolman (ed.s), "Retail Trade as a Route to Neighborhood Revitalization" *Urban and Regional Policy and Its Effects*, Volume 2 (2009): 19-69. See <http://www.rjacobus.com/resources/archives/Retail%20Trade%20Proof.pdf>.

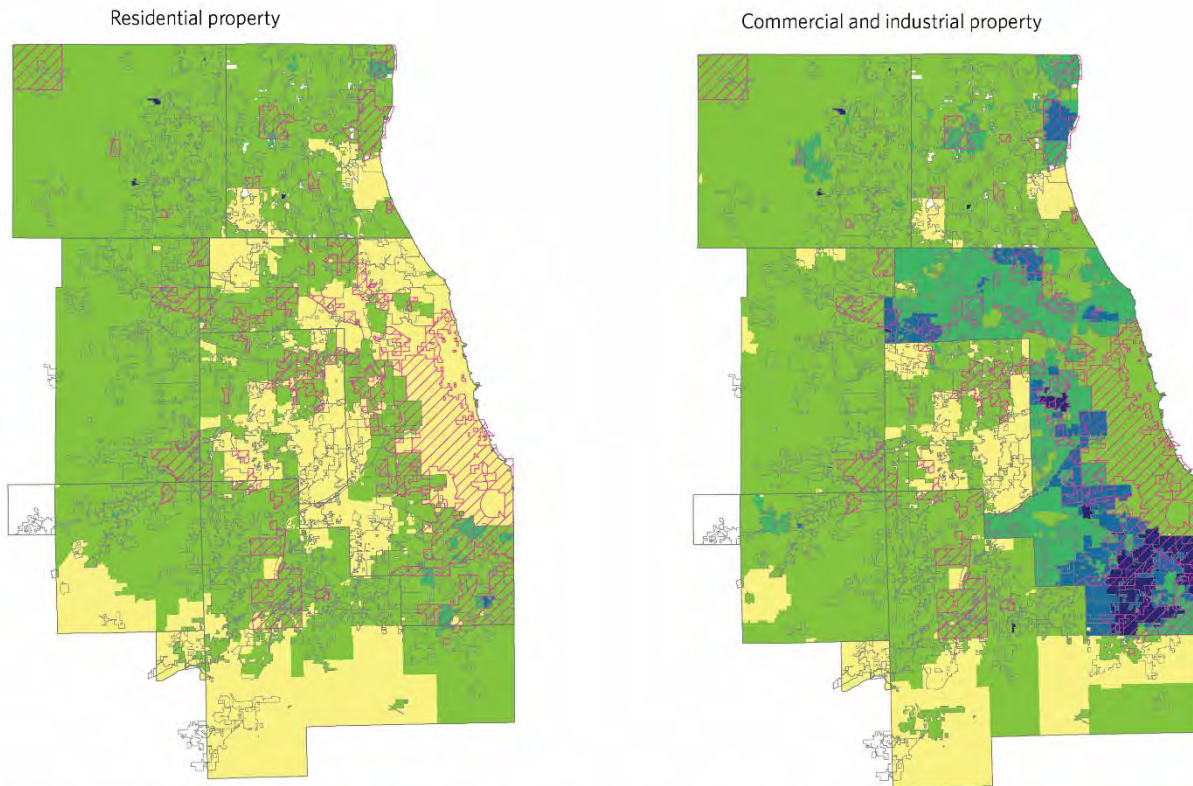
⁴ Artz, Georgeanne M., Younjun Kim, and Peter Orazem, "Does agglomeration matter everywhere? New firm location decisions in rural and urban markets." *Journal of Regional Science*, Volume 56, Number 1 (2016): 72-95. See <https://cba.unl.edu/outreach/bureau-of-business-research/academic-research/documents/kim/agglomeration.pdf>.

⁵ Maciag, Mike, "Demographics can spell trouble for a city's finances." *Governing*. September 15, 2016. See <http://www.governing.com/topics/finance/gov-census-demographics-cities-fiscal.html>.

struggling with economic development, furthering a lack of attention and investment from the private sector.⁶ A mismatch between local property values and revenue requirements creates these high property tax rates in disinvested areas, and local policies like Cook County property tax classification can exacerbate the disparities. The resulting municipal revenue constraints can leave communities with fewer resources to invest in local infrastructure or public services, again furthering a cycle of disinvestment. The map below highlights the disproportionately high tax rates in many of the region’s struggling communities.

Effective composite property tax rates in Northeastern Illinois, 2014

- ◌ Economically disconnected and disinvested areas
- Less than 2.5%
- 2.5% - 4.99%
- 5% - 7.49%
- 7.5% - 9.99%
- 10% or greater

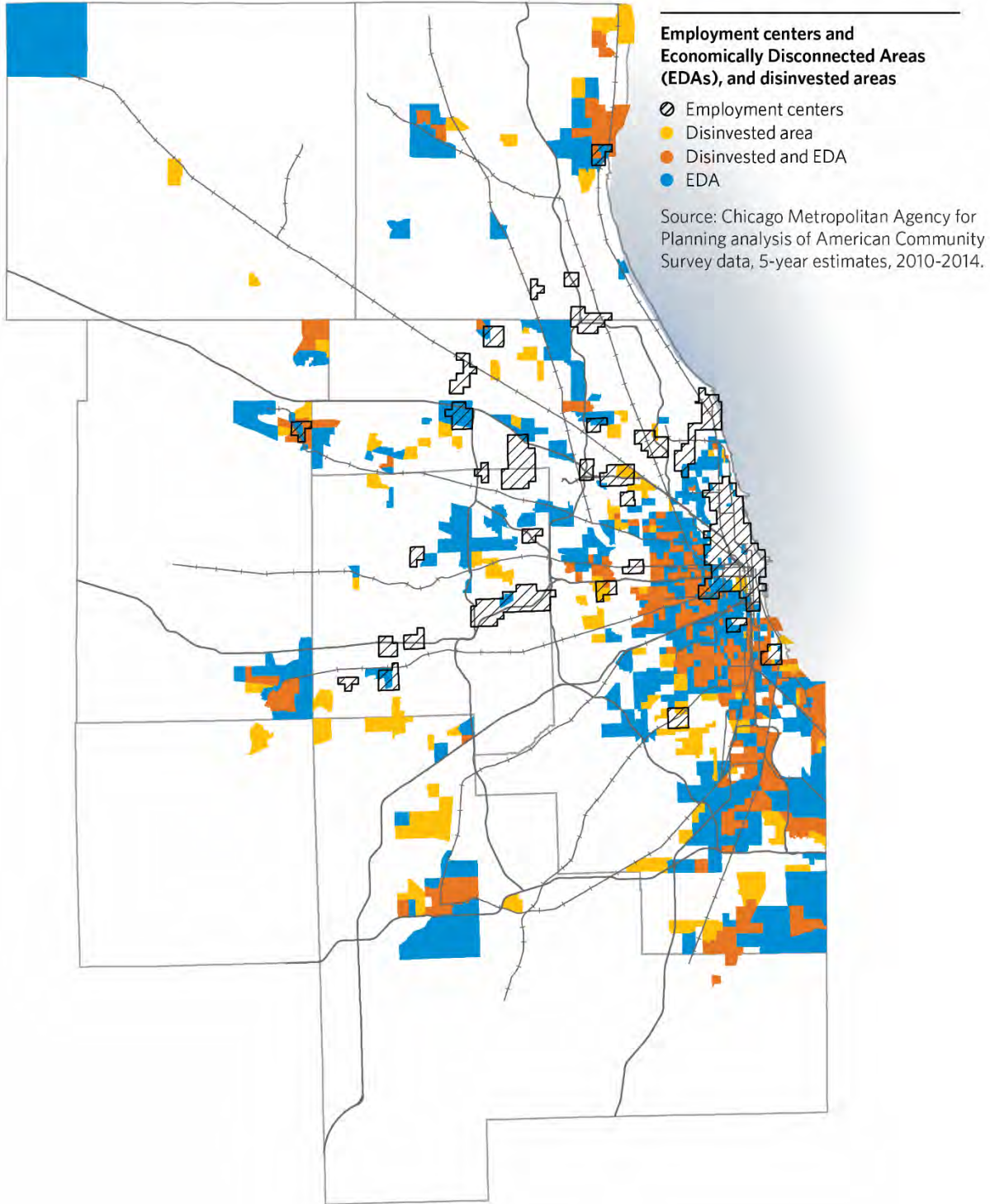


Source: Chicago Metropolitan Agency for Planning analysis of Community Reinvestment Act data on small loans made to businesses, 2007 and 2015 (accessed through the Woodstock Institute); county assessor data aggregated from parcel to tract level by property class, 2010 and 2015; Illinois Department of Employment Security data, 1970, 1980, 1990, 2000, and 2015; and American Community Survey data, 5-year estimates, 2011-2015.

⁶ Chicago Metropolitan Agency for Planning, “Property tax burden in the Chicago region,” November 28, 2017, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/property-tax-burden-in-the-chicago-regi-2.

As highlighted elsewhere in ON TO 2050, lack of access to economic opportunity limits the ability of many talented and skilled residents to succeed. In particular, residents of disinvested areas, especially on the South and West sides of Chicago and in the south suburbs, often have to travel longer distances or take slower transportation options to reach high quality employment opportunities, education, training, and services. Recent analysis shows that residents of some EDAs and disinvested areas spend 58 hours more per year than the average resident commuting to work.⁷ A critical part of promoting inclusive growth is helping to build economic opportunity and vibrant nodes within disinvested areas that have a historical lack of private investment. Most disinvested areas were economically thriving in the past and still have strengths to build upon. Many have highly desirable infrastructure assets, particularly public transit. Rebuilding disinvested areas will be critical to long-term regional prosperity by ensuring that jobs and economic opportunities are available in communities where economically disconnected residents live.

⁷ Chicago Metropolitan Agency for Planning, “Travel patterns in Economically Disconnected Area clusters,” January 25, 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/travel-patterns-in-economically-disconnected-area-clusters.



To achieve the vision of a region where all communities can thrive, CMAP and partners must pursue new solutions for disinvested areas. Given the conditions common in many disinvested areas, these solutions must differ substantially from typical, market-based planning and investment practices. While the TRA program would provide some needed tools and resources for disinvested areas, it will not suffice on its own. The following section highlights the additional relationship building, research, and coordination needed to relink these areas to the region's economy. Strong and meaningful engagement of residents of disinvested must be at the core of all such work.

The following describes strategies and associated actions to implement this recommendation.

Identify new solutions and target existing resources in disinvested areas

While the proposed TRA program would help direct resources to disinvested areas, their unique challenges require a coordinated set of solutions. Many current drivers of disinvestment are structural -- owing to historical federal or state policy or to private sector investment strategies -- and are so persistent as to require regional scale solutions. Previous CMAP tax policy research has highlighted the benefits of reforming state tax policy while ensuring continuation of state support for local governments and phasing out property tax classification in Cook County to improve fiscal outcomes for municipalities with low tax bases or with poor fiscal conditions.⁸ The federal government has recently created Opportunity Zones as one option to promote new investment.⁹ New federal, state, and regional solutions will be required to overcome persistent lack of private capital and market-driven investment in these communities.

In other cases, the solutions will be more local, leveraging best practices and new partnerships. New research and best practice development could offer guidance on successful implementation of fast-track demolition programs, or assess available federal, state, or county incentives for utility in disinvested areas. One area for substantial work is land banking. Land banks bring important skills to address the vacancy and abandonment prevalent in disinvested areas. South Suburban Land Bank Development Authority (SSLBDA) and the Cook County Land Bank Authority (CCLBA) were formed to mitigate the effects of concentrated vacancies of residential, commercial, and industrial property. All of work within disinvested areas must be rooted in active and continual engagement of residents of EDAs and disconnected areas.

CMAP and partners should identify new regulatory, program, and incentive tools that would be beneficial to weak market areas in northeastern Illinois.

⁸ Chicago Metropolitan Agency for Planning, "Property tax burden in the Chicago region," November 28, 2017 http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/property-tax-burden-in-the-chicago-regi-2.

⁹ U.S. Department of the Treasury, Opportunity Zones, <https://www.cdfifund.gov/Pages/Opportunity-Zones.aspx>.



Regional land banks should work with CMAP and other partners to promote strategic investment in disinvested areas.

CMAP and partners should align road, stormwater, transit, and similar infrastructure investments to address the unique needs of disinvested areas.

CMAP and partners should collaborate on technical assistance, funding, research, legislative, and other initiatives to provide a comprehensive set of solutions to catalyze growth in low market areas.

Target assistance in rapidly changing areas to preserve affordability, quality of life, and community character

In adding more than 2.3 million more residents and 920,000 new jobs between now and 2050, our region will see some areas experience rapid new development. As covered under the TRA goal, CMAP understands the need for targeted technical assistance to such areas. Yet the impacts of rapid growth differ across the region. In disinvested areas, such investment may bring greater access to amenities and/or services. Yet such growth may also rapidly increase property values, potentially leading to displacement of existing residents, businesses, and community networks. Such displacement can, among other negative impacts, harm the health of affected residents. Communities can implement short- and long-term strategies to support their goals and assist existing and new residents in their neighborhood. This strategy also appears in the *Governance* chapter, under the recommendation to *Build local government capacity*.

CMAP and partners should identify disinvested areas experiencing rapid new development pressures and offer planning assistance.

Local governments should identify and implement policies and regulatory strategies to preserve affordability, quality of life, and community character.

Build local capacity to compete for infrastructure investments

A lack of adequate infrastructure can hinder reinvestment, posing particular challenges for disinvested communities whose limited financial capacity may impair their access to regional and federal transportation resources. Accessing these resources requires not only matching local funds, but also significant and costly predevelopment investments (e.g., feasibility studies, engineering designs) that can make projects infeasible for some low capacity municipalities. In addition to the TRA program, disinvested areas need creative approaches to removing the financial barriers that prevent them from accessing some transportation funding programs. New funding would address the difficulty low capacity communities have in entering and staying in the “pipeline” to build needed infrastructure projects. The recently started Invest in Cook program offered by Cook County offers one example of helping low income communities

fund needed infrastructure improvements.¹⁰ Through the program, communities can pay for planning and feasibility studies, engineering, right-of-way acquisition, and construction associated with transportation improvements sponsored by local and regional governments and private partners.

Transportation funders should develop creative approaches to removing the financial barriers that prevent disinvested areas from accessing some transportation funding programs.

IDOT should expand its transportation development credit program to apply to federal aid projects and direct funding assistance to preliminary engineering for priority projects in disinvested areas.

IDOT should direct funding to preliminary engineering for priority projects identified in LTA or other planning studies for EDAs or low capacity communities

The Metropolitan Water Reclamation District (MWRD) should continue offering matching funds to disinvested areas to support floodplain buyouts.

MWRD should explore prioritized stormwater management planning assistance to identify future capital projects in disinvested areas.

County stormwater agencies should explore opportunities to create programs that provide matching funds and planning assistance for capital needs in disinvested areas.

Municipalities with disinvested areas should work with financial institutions to apply for low cost loans for broadband, sewer, and other infrastructure that qualifies under the Community Reinvestment Act (CRA).

Build municipal, nonprofit, and private sector capacity

Addressing the myriad of challenges in disinvested communities requires concentrated, comprehensive resources. While investment and assistance from state and regional entities are critical to forge a new path for disinvested communities, building the capacity of communities, institutions, businesses, and residents of disinvested areas can sustain long lasting change. Lack of staff, funding, technical knowledge, and other resources can limit the ability of municipalities with a high proportion of disinvested areas to interrupt the cycle of disinvestment or meet their economic and quality of life goals.

Capacity building is also required for the private sector. Small businesses in low market areas could benefit from education on and connections to educational and financial resources. Creating a pipeline of local developers and business owners is also important. Beyond large

¹⁰ Cook County, Invest in Cook, <https://www.cookcountyil.gov/investincook>.

scale, national firms, few developers have the requisite combination of skill, interest, and capacity to build projects in disinvested areas. Given this, the region needs more programs like the Chicago Urban League's Chicago Contractor Development Program (CCD) to grow and strengthen small-scale developers and contractors.¹¹ Many mission-driven affordable housing developers -- like Preservation for Affordable Housing (POAH) or Hispanic Housing Development Corporation -- also provide capacity-building opportunities for smaller firms by intentionally including emerging firms and subcontractors in their projects. This strategy also appears in the *Governance* chapter, under the recommendation to *Build local government capacity*.

CMAP and partners like the Federal Reserve Bank of Chicago should work to bring banks and lending institutions together with municipalities to ensure that weak market communities have access to capital and financial services that support economic development.

Local governments should build relationships with financial institutions to access the resources they provide under the CRA.

Local governments should build their expertise about available capital and financial resources, develop a plan to attract those resources, and help businesses and residents to apply for these resources.

Community Development Commissions (CDCs), nonprofit housing developers, and larger municipalities should employ and cultivate smaller scale, minority and women-owned businesses to build their capacity.

Foundations and advocacy groups should continue to explore grants and other funding opportunities to help small-scale developers bridge funding gaps.

CMAP and partners should target technical assistance, trainings, and other assistance to municipalities in low income or low market areas.

Reinvestment for vibrant communities

The region's population overall is growing older and more diverse, businesses' location preferences are changing, and more residents want to live in walkable communities. Strong, livable places offer a range of housing, transportation, employment, and amenity options to meet these changing needs. While their character varies according to local goals, vibrant destinations and communities attract activity and investment. Strategies to shape these communities build on each other and also contribute to regional resilience. For example, compact development patterns support cost-effective transit service and also facilitate walking and biking; transit and non-motorized options, in turn, improve mobility and public health and

¹¹ Chicago Urban League, "Chicago Contractor Development Program," 2016, <http://www.thechicagourbanleague.org/page/463>.



also reduce GHG emissions; these prioritized investments reduce infrastructure costs and promote fiscal sustainability. Fostering strong places throughout the region provides many opportunities for improving quality of life and economic results for the region's residents and businesses.

The following recommendations help implement this goal.

Support development of compact, walkable communities

ON TO 2050 carries forward the GO TO 2040 recommendation to build walkable communities with a variety of services, amenities, and transportation options. These places also often serve as vibrant nodes, offering community gathering spaces and a strong local identity. Continuing to support compact, walkable communities will help meet increasing demand for these places, support transit and existing communities, improve the health of residents, and broadly promote a high quality of life. Such places exist throughout the region, from suburban downtowns and small town main streets to urban neighborhoods.

In the future, more people might want to live in dense, walkable communities due to two key societal shifts. CMAP's 2050 socioeconomic forecast estimates that the number of residents age 60 and older will nearly double between now and 2050.¹² As baby boomers downsize and our senior population continues to grow through 2050, many seniors might prefer places with accessible and walkable amenities.¹³ At the same time, consumer preference surveys and recent home buying trends indicate a growing desire for mixed-use communities with walkable amenities in both urban and suburban areas.^{14,15} Density and pedestrian accessibility are also critical for an area's ability to support high quality transit service. The chart below illustrates a sea change in the types of housing being built in the region, moving from predominance of single-family detached units to an equal balance of the multi-unit developments more typically found in compact, walkable places.

¹² Chicago Metropolitan Agency for Planning, "Draft ON TO 2050 socioeconomic forecast," 2016, <http://www.cmap.illinois.gov/onto2050/socioeconomic-forecast>.

¹³ Chicago Metropolitan Agency for Planning, "Aging in place white paper," 2016, <http://www.cmap.illinois.gov/documents/10180/74848/Aging%20in%20Place%20White%20Paper/94b4305c-4586-4bd3-acf1-e177194f8820>.

¹⁴ Urban Land Institute, "Housing in the evolving American suburb," 2016, <http://uli.org/wp-content/uploads/ULI-Documents/Housing-in-the-Evolving-American-Suburb.pdf>.

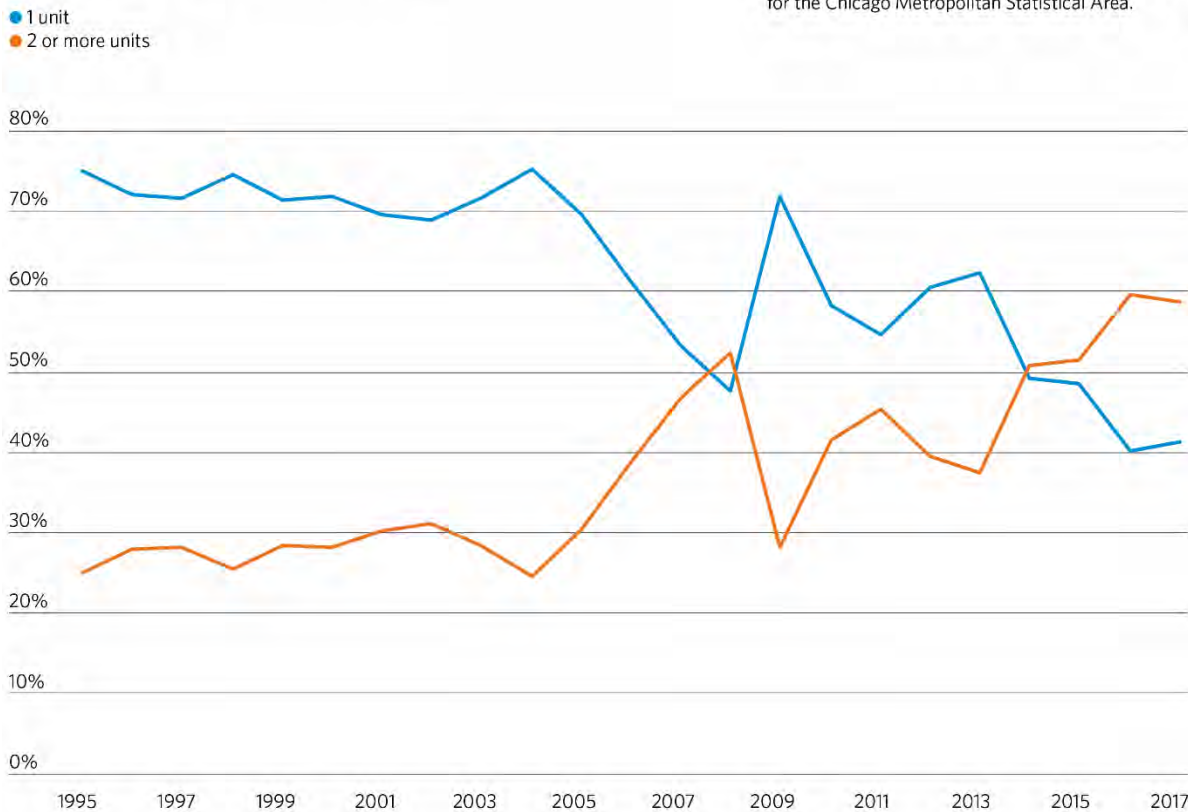
¹⁵ Braff, Danielle, "Chicagoland renters and buyers are itching for walkable suburbs. Enter 'surban.," Chicago Tribune, May 17, 2018, <http://www.chicagotribune.com/classified/realestate/ct-re-0520-walkable-suburbs-20180515-story.html>.



Proportion of permitted new housing units in the Chicago MSA, by units in structure

Note: Economic impact analysis includes both direct and indirect effects.

Source: Chicago Metropolitan Agency for Planning analysis of U.S. Census annual building permit data for the Chicago Metropolitan Statistical Area.



CMAP anticipates continued technological innovations that will increase transportation options and improve connectivity between transportation modes. Increased data and communication technology will allow residents to use a bus for one leg of a trip, a shared bike for another, and a vehicle for yet another (see the recommendation to *Harness technology to improve travel and anticipate future impacts* in *Mobility* for more information). This increases transportation options, limits the need for a personal vehicle, and aids creation of walkable places. Recognizing the potential for such change, CMAP included Walkable Communities as one of the five Alternative Futures during ON TO 2050 plan development. Walkability varies widely across the region and different approaches will be needed to best improve the environment for pedestrians.

[GRAPHIC TO COME: Local Strategy Map interactive feature illustrating walkability levels in the region and best practices to improve walkability.]

Adaptation will be needed to ensure that compact places work for a range of modes and uses. Rapidly changing technology is resulting in multiple demands on the street and street edge. The popularity of online shopping has brought more trucks into all types of neighborhoods, at all times of day. Increased use of shared mobility -- from bikeshare to companies like Uber and Lyft -- has created competition for limited street frontage. While best practices exist for creating

complete streets, minimizing parking demand, promoting compact development, and safely accommodating all users, the types of transportation uses and the types of places that people want are changing swiftly. Yet long-term policies and guidelines often still prioritize movement of automobiles over pedestrians, bicyclists, and transit without consideration of development context, contributing to a poor balance among competing users that can render a place less safe and inviting. By considering the full range of users and uses from the beginning of infrastructure projects, transportation implementers will be able to avoid unintentional conflicts, such as street furniture that makes it harder for a pedestrian or physically impaired resident to get to the bus. The City of Evanston took this “full range” approach when planning for Sheridan Road.¹⁶ Improvements along the corridor included not only roadway resurfacing/reconstruction and the installation of new water main and storm sewer, but also numerous bicycle and pedestrian safety improvements.

[GRAPHIC TO COME: Rendering illustrating a streetscape adapted to new mobility options while preserving walkability and character.]

In addition to its negative impact on walkability, parking remains an important determinant of development outcomes. Too much parking reduces the space available for denser homes or businesses and may increase the overall cost of a development, while too little parking can limit access and potentially deter some types of investment. Pricing of parking is also a major part of the equation. Communities can price parking to increase local revenues and manage parking demand. Carefully planned and appropriately priced parking facilities can increase transit ridership, as shown in the graphic below based on the recent CMAP Transit Ridership Growth Study.¹⁷ Overall, community plans must balance meeting parking needs and supporting all transportation modes in walkable places. Local governments, transit providers, counties, IDOT, CMAP, and others hold important powers that can be used to create the compact, walkable communities that many residents increasingly want.

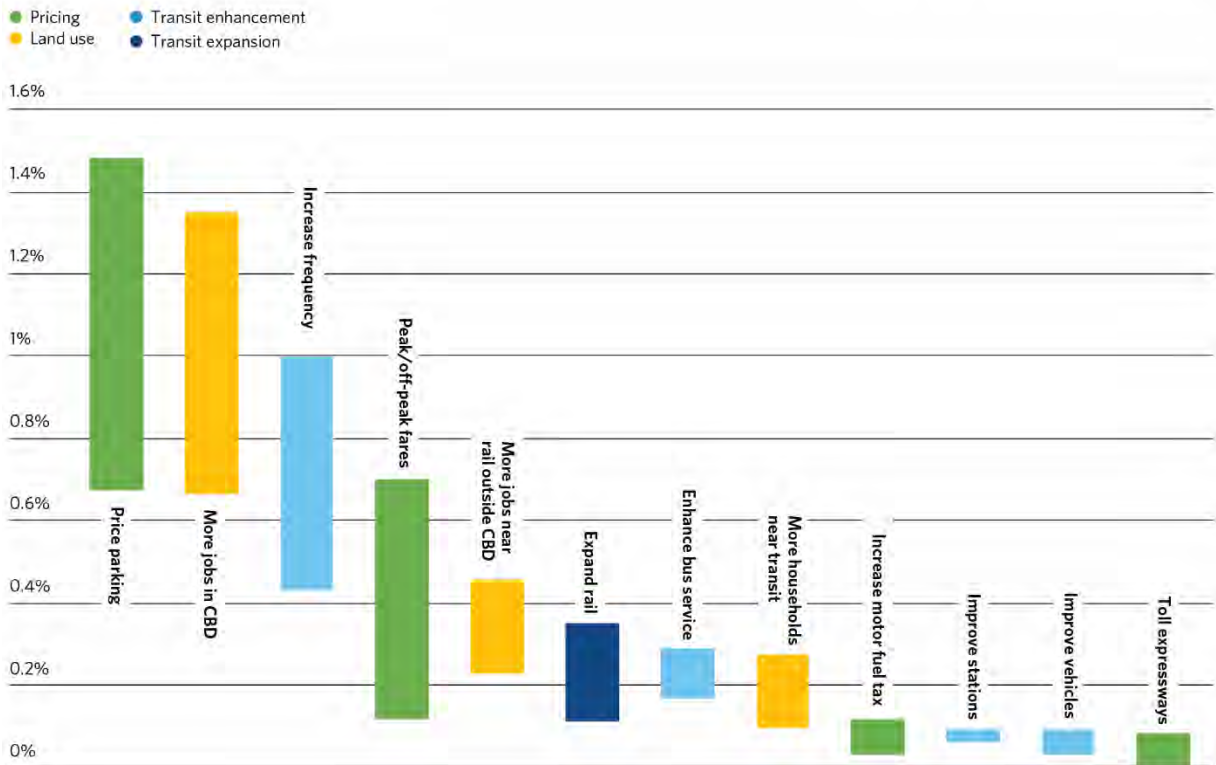
¹⁶ City of Evanston, “Final phase of Chicago/Sheridan improvement project begins April 9,” March 27, 2018, <https://www.cityofevanston.org/Home/Components/News/News/2873/17>.

¹⁷ Chicago Metropolitan Agency for Planning, “Transit Ridership Growth Study,” 2017, http://www.cmap.illinois.gov/documents/10180/0/Transit+Ridership+Growth+Study_final.pdf/21bca990-9e7a-4af9-8ec1-6b8c8b11fd16.



Gain in mode share at low and high levels of strategy implementation, 2015

Source: CMAP Transit Ridership Growth Study.



Note: the design of this graphic will be updated in the final plan

The following describes strategies and associated actions to implement this recommendation.

Adapt the street and sidewalk to emerging developments in transportation

Urban neighborhoods, suburban downtowns, and commercial corridors must serve many types of travel and uses, from pedestrians to trucks and from mom-and-pop stores to mixed-use developments. These interactions are becoming more complex due to online shopping and associated deliveries, increased biking and walking, and mobility innovations like ride hailing companies and dockless bikeshare. Transit vehicles, loading zones, bicycles, and parking all compete for dedicated right of way on the street network. Without careful planning, unintentional conflicts can arise on the street network and on the sidewalk, such as when street furniture or bike parking makes it harder for someone with disabilities to navigate, or for people to access bus stops.

Accommodating such varied needs in limited urban space is complex, but many solutions exist. Given the fast pace of change in mobility today, CMAP and partners can play a role in monitoring changes and establishing best practices for design, pricing, and shared uses. CMAP should work with communities to pilot new approaches and establish strategies to support

public transit and preserve vibrant, equitable, accessible, and walkable communities. This strategy also appears in the *Mobility* chapter under the recommendation to *Harness technology to improve travel and anticipate future impacts*.

Improve safety for all users in downtowns and main streets

Walkable downtowns and community nodes require infrastructure that prioritizes safety and movement of pedestrians, bicyclists, and other vulnerable users. Providing a protected, friendly environment for all also promotes the success and vitality of placemaking and community building efforts. The region has implemented many best practices to promote safety. Pedestrian countdown signals, better road markings, protected left turn phases, designs that lower left turn speeds, and traffic-calming treatments all improve the safety of pedestrians at intersections, but more needs to be done. Roadway redesigns that lower speeds and allocate space to pedestrians, bicyclists, and transit -- often referred to as Complete Streets -- can maintain vehicular throughput while making roads safer for all users. Effective lighting, distinct pavement markings, improved signs, less complicated intersections, pedestrian refuge islands, and all-red clearance intervals can improve safety for all ages and users. The most effective pedestrian improvements require connectivity with surrounding developments to ensure functionality. Please see the *Improve travel safety* recommendation in the *Mobility* chapter for more information on safety across all modes.

Actively manage parking

The amount and location of parking influences the character, form, function, and flow of our communities. Too much or poorly designed parking can make walking and bicycling unpleasant and unsafe, add to flooding and pollution problems, make housing more expensive, and reduce transit use. At the same time, in some places, parking is necessary to support local businesses. Planning for parking needs and pricing parking to manage demand can support businesses, raise local revenues, and help create compact, walkable communities. Configuring parking appropriately can promote walkability and access. All day parking for employees, commuters, or residents can compete with the short turnaround spaces needed for many retail, restaurants, and services. Communities may choose to reconfigure existing parking to meet these varying needs.

Recognizing the importance of parking management, CMAP developed a *Parking Strategies to Support Livable Communities Toolkit* that encourages communities to consider a wider array of solutions than just adding more parking.¹⁸ Valuable interventions include pricing on-street parking to manage demand in dense areas, reducing or eliminating minimum parking requirements, and setting maximum parking limitations in some locations. Through the LTA program, CMAP has also helped Berwyn, Hinsdale, and Wicker Park-Bucktown develop plans to identify and implement the right parking management practices for their neighborhoods.

¹⁸ Chicago Metropolitan Agency for Planning, "Parking strategies to support livable communities," 2012, <http://www.cmap.illinois.gov/documents/10180/96911/StepByStep3.pdf/39fa6452-2e19-4691-87bd-abac8b06c248>.

This strategy also appears in the *Mobility* chapter under the recommendation to *Make transit more competitive*.

Local governments should reduce or eliminate minimum parking requirements, or set maximum parking limitations in some locations, such as near transit.

Local governments should price on-street parking to manage demand in dense areas.

CMAP should monitor the implementation of active parking management approaches around the region to understand trends, approaches, and outcomes.

Local governments, CMAP, and Metra should analyze current and future parking supply and demand at rail transit stations to evaluate the potential for alternative land uses and parking allotments to enable transit oriented development (TOD).

Plan for transit-supportive land uses

The region cannot meet its transit ridership goals without supportive development near bus and rail. Linking transit, housing, and land use was a focus of GO TO 2040 and continues to be an important part of ON TO 2050. Planning for the complex, interrelated nature of these issues can bring many quality of life and economic benefits to the region. Yet, as highlighted in the ON TO 2050 Infill and TOD snapshot report, such linkages are only being created sporadically, which limit the potential positive benefits to bus and rail transit ridership.¹⁹ As CMAP identified in the Transit Ridership Growth Study, the region is not on track to meet the transit use goals set in GO TO 2040. Placing housing near transit is critical, but emerging research shows that placing employment near transit may have an even stronger impact on the success of transit. Planning for bus and rail transit-supportive land uses must also involve enhancing pedestrian and bike connections to transit, thereby making it easier and safer for employees and residents near transit corridors to walk or bike to rail or bus stations. Pace has established transit supportive guidelines focused on non-rail transit in suburban communities. This strategy also appears in the *Mobility* chapter under the recommendation to *Make transit more competitive*.

Municipalities and counties should update plans, zoning codes, and development regulations to require greater densities and mixed uses near rail stations and along high-priority bus corridors with a preference toward employment rich land uses.

Roadway agencies and municipalities should require developers to consult with transit agencies to verify that proposed developments do not negatively affect existing or planned transit service.

¹⁹ Chicago Metropolitan Agency for Planning, "Transit Ridership Growth Study" 2017, http://www.cmap.illinois.gov/documents/10180/0/Transit+Ridership+Growth+Study_final.pdf/21bca990-9e7a-4af9-8ec1-6b8c8b11fd16.

Municipalities and counties should prioritize capital projects that enhance pedestrian and bicycle access to rail and bus service.

Transit agencies should strategically consider new transit investments, including bus and rail stops, which further the planning and development work of municipalities and counties.

CMAP and partners should offer additional consideration when allocating federal funding sources such as CMAQ, TAP, and STP for jurisdictions that actively plan for densities to support transit service.

Implement best practices in placemaking

Placemaking is a multi-faceted approach to the planning, design, programming, and management of community spaces that seeks to capitalize on local assets in an effort to improve quality of life. This includes spaces both public and private and devotes attention to elements that contribute to a sense of place including architecture, historic preservation, public art, street life, and others. Placemaking creates a welcoming environment and helps support meaningful social interaction. It improves feelings of comfort and safety, increases the visibility of vibrant community spaces, and enhances marketing, branding, and communication. When done well, placemaking efforts draw in both locals and tourists, thereby attracting additional investment and generating a sense of pride, helping to increase community engagement and participation. Though difficult to quantify, this sense of connection between people and the spaces they inhabit creates a region of vibrant communities.

Placemaking can come in many different shapes and sizes and is vital in small towns, suburban communities, and urban neighborhoods. Numerous placemaking best practices already exist in our region. Placemaking helps develop a stronger sense of community and build a better basis for future community outreach. This outreach benefit is multiplied when placemaking is inclusive, creating a space or event in which all can participate. The region's best examples of placemaking are innovative, providing something unique that helps set apart a place and create a destination. The best examples are also continuous, places that open year round and have a strong long-term plan for programming and funding. For example, Three Oaks Recreation Area, near Crystal Lake, is a large-scale outdoor recreation facility created through the reuse of a former gravel quarry. While attendance is strongest in warm weather for watersports, beaches, and hiking, many of the quarry's gravel mounds now serve as sledding hills, helping to attract visitors year-round. Communities in the region should use these best practices when undertaking their own placemaking efforts. To find more information, please see the ON TO 2050 Placemaking report.²⁰

²⁰ Chicago Metropolitan Agency for Planning, "Placemaking," 2018, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/placemaking>.

Match regional and local housing supply with the types that residents want

The region's housing supply must adapt to meet global shifts and local needs that include an aging population, increasing diversity, and changing family living patterns. As demographics change, so does the type and location of the housing that people want. Research found that the market can be impeded from meeting such changes in demand by various barriers, including both the community's lack of alignment between planning, zoning, and approvals processes and the extent to which its residents accept proposed housing choices.²¹

[GRAPHIC TO COME: Informational graphic showing barriers to housing choice.]

The current lack of sufficient housing options makes our residential market vulnerable to shifting demand, contributes to concentrated poverty, and hurts the health of residents. The disconnect between the housing that people want and what is available undermines the regional economy. In the CMAP region, as in many others across the nation, minorities and people in poverty are often concentrated geographically. According to recent analysis by the Metropolitan Planning Council, the Chicago region has the fifth highest combination of racial and economic segregation among the 100 largest U.S. regions.²² This combined segregation by race and income is highly detrimental to residents within these geographies and to the entire region because of negative consequences associated with concentrated poverty.²³ For example, health researchers have found that where people are born, grow up, live, work, and age has a major impact on physical, mental, and behavioral health outcomes.²⁴ To compete in the future, metropolitan Chicago must make full use of all its resources, especially its residents. Yet because our region struggles to build a sufficient amount of good, affordable housing with access to employment and services, the deleterious effects of concentrated poverty continue. To name just one outcome, the fact that residents of EDAs are less likely to be homeowners limits the region's potential for wealth building, which in turn limits the financial resources available for local and regional initiatives.²⁵

By 2050, residents in our region should have the ability to find a good, affordable home that fits each household's preferences, including proximity to jobs, transportation, and other amenities,

²¹ Urban Land Institute, "Yes in My Backyard", 2017, <https://americas.uli.org/wp-content/uploads/sites/125/ULI-Documents/State-Housing-Policy-Report-2017.pdf>.

²² Metropolitan Planning Council, "The Cost of Segregation," www.metroplanning.org/costofsegregation.

²³ Chicago Metropolitan Agency for Planning, *Fair Housing and Equity Assessment*. November 2013, p 11. <http://www.cmap.illinois.gov/documents/10180/198094/Chicago%20Region%20FHEA%20November%202013%20HUD%20Submission.pdf/b0c6946e-4425-49fe-8d0a-f336903bc464/#page=59>.

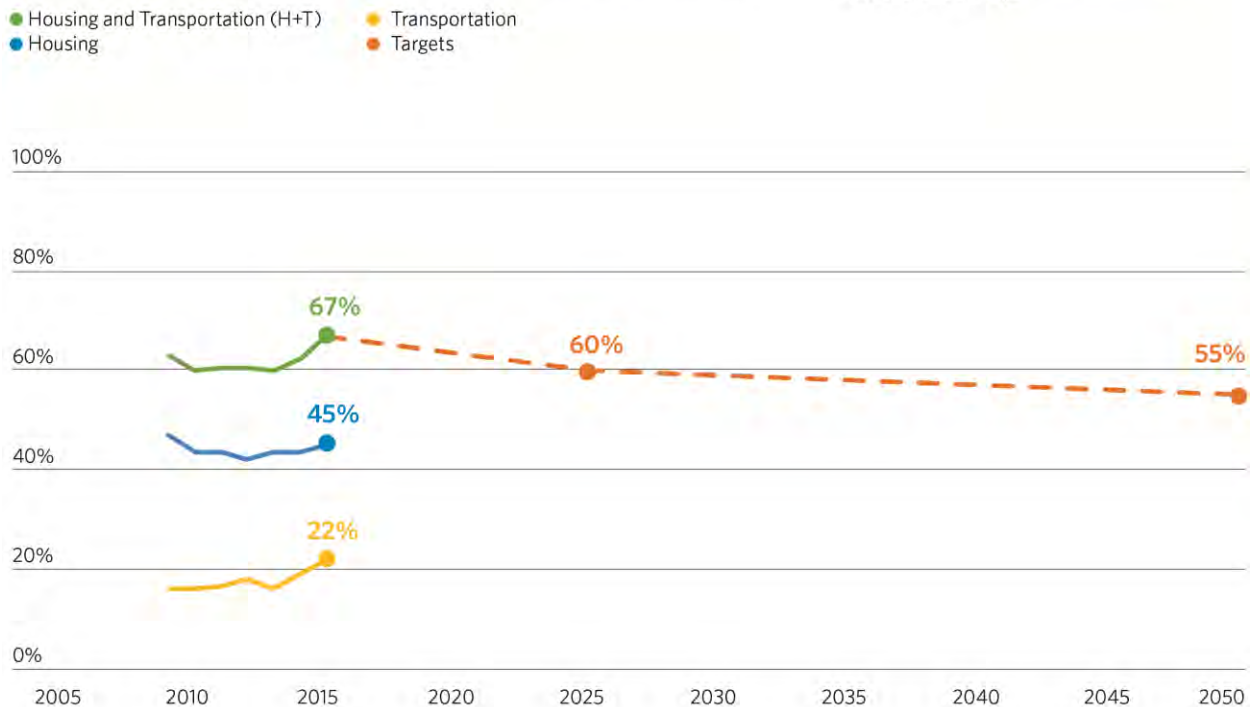
²⁴ World Health Organization, "Social determinants of health," http://www.who.int/social_determinants/sdh_definition/en/.

²⁵ Chicago Metropolitan Agency for Planning, "Economically Disconnected Area clusters in the CMAP region," January 25, 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/economically-disconnected-area-clusters-in-the-cmap-region.

throughout all stages of life. Today, transportation costs are rising and commutes for low income residents are long. ON TO 2050 sets a goal of limiting housing and transportation costs for low and moderate-income residents, to improve housing choice and quality of life. To reach that vision, stakeholders throughout the region must address barriers that prevent the market from meeting the demand of current and future residents. Housing choice will help make our residential stock resilient in the face of changing demand, help reduce concentrated poverty, and improve affordability for all residents, including low- and moderate-income households.

Percentage of income spent on housing and transportation by moderate- and low-income residents

Source: Chicago Metropolitan Agency for Planning analysis of public-use microdata from the Bureau of Labor Statistics Consumer Expenditure Surveys.



The following describes strategies and associated action to implement this recommendation.

Create and disseminate best practices for promoting community consensus

Addressing barriers to housing choice requires support from municipal leaders, community-based organizations, and residents. Such buy-in can be hard to get. No individual organization in our region has the alignment of mission and capacity to single handedly cultivate support for expanded housing options in general, and for affordable housing in particular. Certainly, CMAP alone does not. But the work of Impact DuPage, DuPage United, and Lake County United shows promise, and all three rely on a similar approach: creating local support for additional housing types through grassroots organizing often led by religious organizations, social service providers, and concerned residents.

Religious organizations, social service providers, and concerned residents throughout the region should be encouraged to form local grassroots organizations that galvanize support for the development of a broader range of housing types.

Partners should monitor the success of these nascent community consensus efforts and share lessons learned as those in other parts of the region embark on their own efforts.

Align zoning, approval processes, building codes, and inspections to generate more housing options

Changes in demographics and consumer behavior are transforming the types, locations, and price points of people's housing preferences. Evidenced in the earlier chart showing the proportion of permitted new housing units in the Chicago Metropolitan Statistical Area by units in structure, the region is changing from building mostly single-family detached units to an equal balance of the multi-unit developments over the last 20 years. To prepare for continued shifts, communities should be planning for future housing needs. By planning to forge consensus on which housing types should be developed locally, communities may avoid the contentiousness that can ensue when the public reviews a specific development proposal that has caught residents by surprise. Such planning can also help local leaders understand the relationship between community desires and market realities. And especially when the plans cross jurisdictions, they can help multiple communities come together to create unified responses to mutual challenges. The recently developed Regional Housing Solutions website provides local stakeholders with proven market-specific tools to address pressing local housing issues.²⁶

Yet planning alone is not enough. Meeting regulatory requirements is often a sequential process, with the cost of each added step driving up home prices. Through zoning, entitlement processes, and building codes and inspections, municipalities' and counties' choices shape the types of housing that can be built and preserved. These and other regulations can limit housing options that the market might otherwise provide. Sometimes these effects are the intentional or necessary results of community health and safety regulations or the outcomes of an established local vision. But in many cases, the regulatory barriers are unintentional and have consequences that the community does not desire. To gain the full benefit of good planning, communities must align zoning codes, entitlement processes, and potentially building codes and inspection processes with the local vision established through good planning.

Local governments should plan for future housing needs, and in doing so, considering how demographics and consumer preferences may create the need for a greater range of housing types. After establishing that housing vision, the local government should align local zoning, entitlements, and building code content and processes to promote that vision.

²⁶ Regional Housing Solutions website, 2017, <https://www.regionalhousingsolutions.org>.



CMAP, the Metropolitan Mayors Caucus, and the Metropolitan Planning Council should investigate prevalent local building code amendments and code enforcement processes that impede development of a range of housing types.

In partnership with the Metropolitan Mayors Caucus and the Metropolitan Planning Council, CMAP should help communities create local housing plans and align them with zoning, entitlement, and building code content and processes, including across jurisdictions when possible.

Plan for housing that supports aging in place for the region’s growing senior population

Between 2015 and 2050, CMAP projects that the region’s senior population will increase by 880,000 people. Residents over the age of 75 are anticipated to more than double.²⁷ An aging population will significantly influence housing in the region. Some households will want to move to smaller, more age-friendly units, while many seniors will prefer to remain in their current homes. Still others may want to move to communities with more amenities in walking distance, including bus and rail service. Housing planning is an important part of ensuring that communities offer a diversity of options that allows seniors to find new homes that meet their needs, while also supporting programs and systems that can help seniors successfully live in their existing homes. These programs can both address issues in the home, like the Handyman program offered by the Northwest Housing Partnership, and outside the home, like Evanston’s reduced fare taxi program.^{28 29} See CMAP’s Aging in Place whitepaper for a set of housing and community strategies to support the region’s growing senior population.³⁰

Municipalities and counties should plan for and permit housing types that support aging in community for the region’s growing senior population, such as mixed-use housing, transit oriented housing, accessory dwelling units, co-housing, and multi-generational housing.

Local governments and civic organizations should implement local efforts to help seniors age in place, such as handyman programs and home safety assessments.

²⁷ Chicago Metropolitan Agency for Planning, “Draft ON TO 2050 Socioeconomic Forecast,” 2016, <http://www.cmap.illinois.gov/onto2050/socioeconomic-forecast>.

²⁸ Northwest Housing Partnership Handyman Program, <http://www.nwhp.net/nwhp-programs/>.

²⁹ The City of Evanston’s Subsidized Taxicab Program, <https://www.cityofevanston.org/residents/senior-services/subsidized-taxicab-program>.

³⁰ Chicago Metropolitan Agency for Planning, “Aging in Place Whitepaper,” 2016, <http://www.cmap.illinois.gov/programs/local-ordinances-toolkits/aging-in-place>.



Continue to improve the efficiency and effectiveness of housing subsidy programs

While smaller in comparison with the private lending market, a number of federal, state, and local subsidy programs (Community Development Block Grant, Illinois Housing Trust Fund, Low Income Housing Tax Credits etc.) are also critical to financing of housing. In an age of limited resources, including cuts to some of these funding sources in recent years, the managers of federal, state, and local subsidies should continue to improve the efficiency, effectiveness, and coordination of their programs.

Housing program managers should continue improving their efficiency to make scarce funds go farther, including exploring opportunities to partner in meeting various administrative requirements, such as the development of consolidated plans, fair housing plans, and funding applications.

Housing program managers should coordinate funding priorities and selection criteria, such as the definition of "opportunity areas," to reduce duplication, simplify the application process, and better align funding decisions.

CMAP should continue to provide technical assistance to such organizations in improving administrative efficiency as well as encouraging coordination with other funds to improve effectiveness.

Reform state and federal regulations that negatively affect development of diverse housing types

Markets that fund housing are the most critical piece of the resource puzzle and important arbiters of housing stock and availability. While decisions on individual loan applications obviously influence what is built or rehabilitated, many factors underlie those decisions, including federal funding and regulatory determinations, along with the risk perceptions of public and private funders. National research shows that federal housing rules favor homeowners over renters and single-family homes over multifamily homes, creating policies that prevent markets from responding to changing demand.³¹ For example, the U.S. Department of Housing and Urban Development (HUD), Federal Housing Administration (FHA), and Fannie Mae and Freddie Mac programs limit the amount of non-residential space allowed within developments as a condition for receiving federal financing or loan guarantees, thereby making it difficult to finance construction and renovation of low-rise, mixed-use buildings. Many private lenders use risk assessment criteria based on the federal regulations, meaning that mixed-use projects not seeking federal financing or loan guarantees can still be affected. While many different laws and regulations influence the market, it is not yet clear which are most influential in our region. CMAP will determine which aspects of federal regulations are the

³¹ Chicago Metropolitan Agency for Planning, "Housing Choice Strategy Paper," 2017, <http://www.cmap.illinois.gov/documents/10180/516053/Expanding+Housing+Choice+strategy+paper/dbfeddfe-a977-4408-b6b0-e81f0f158039>.

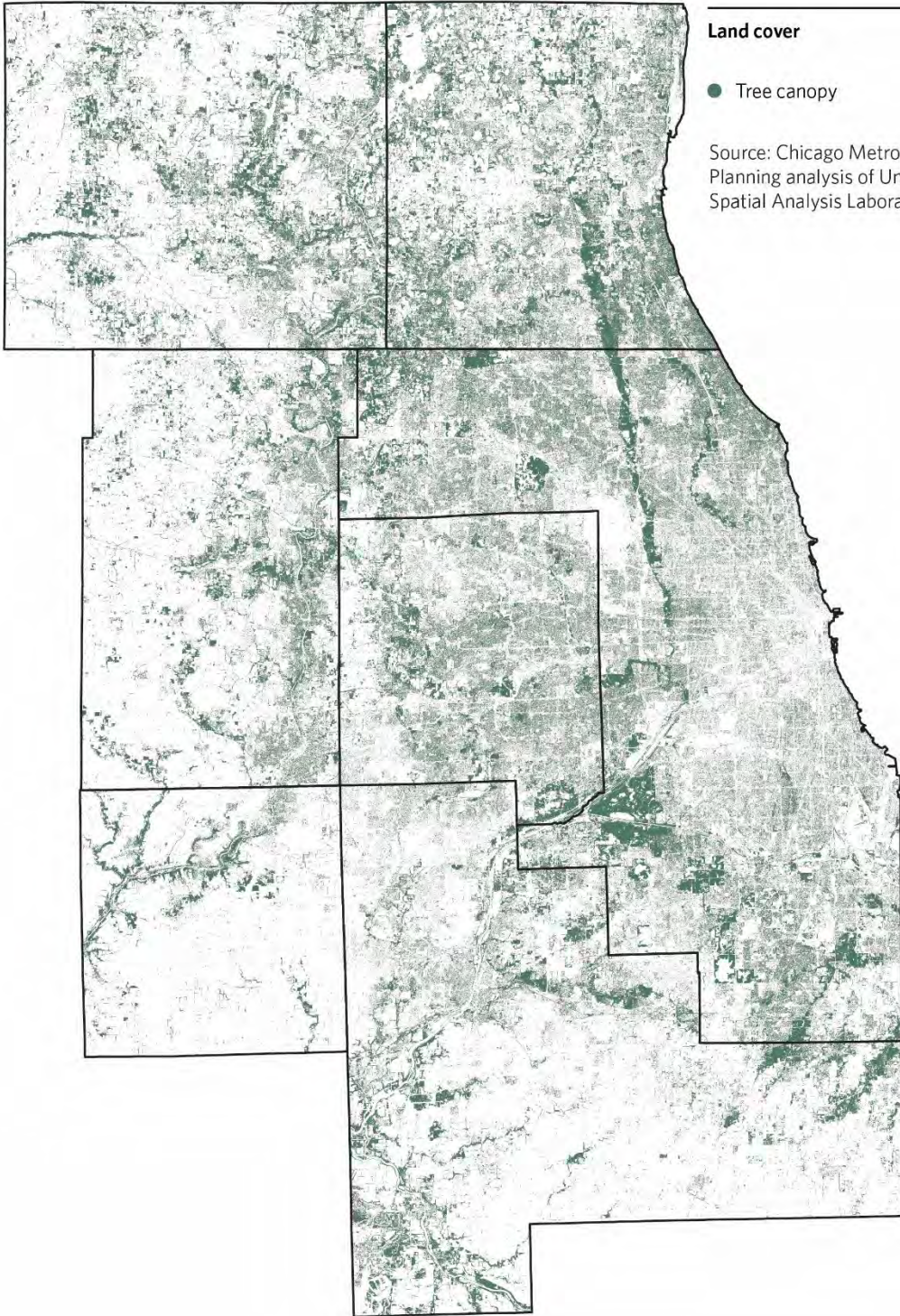


most substantial barriers to the pursuit of housing choice and promotion of compact, mixed-use housing in metropolitan Chicago and outline local, regional, state, and federal strategies to address these barriers.

Improve natural resources through the redevelopment process

Infill and redevelopment can provide a variety of benefits, such as leveraging and making efficient use of existing infrastructure and services, promoting walkability, spurring investment in disinvested or stagnant growth areas, and helping to preserve key agricultural and natural lands by accommodating growth in already developed locations. The redevelopment process also presents unique opportunities to conserve, restore, and enhance natural resources at infill locations and to increase climate resilience.

Given that most development happened before the advent of today's best practices, redevelopment can help tackle some of the region's most persistent environmental challenges. For example, remediating brownfield sites when conditions are favorable provides environmental and social benefits; however, current funds for these initiatives are limited. In addition, building renovations and construction of new buildings can result in improved environmental performance through the use of energy- and water-efficient systems and appliances, renewable energy, water reuse, recycled and sustainable materials, and other sustainable approaches.



Land cover

- Tree canopy

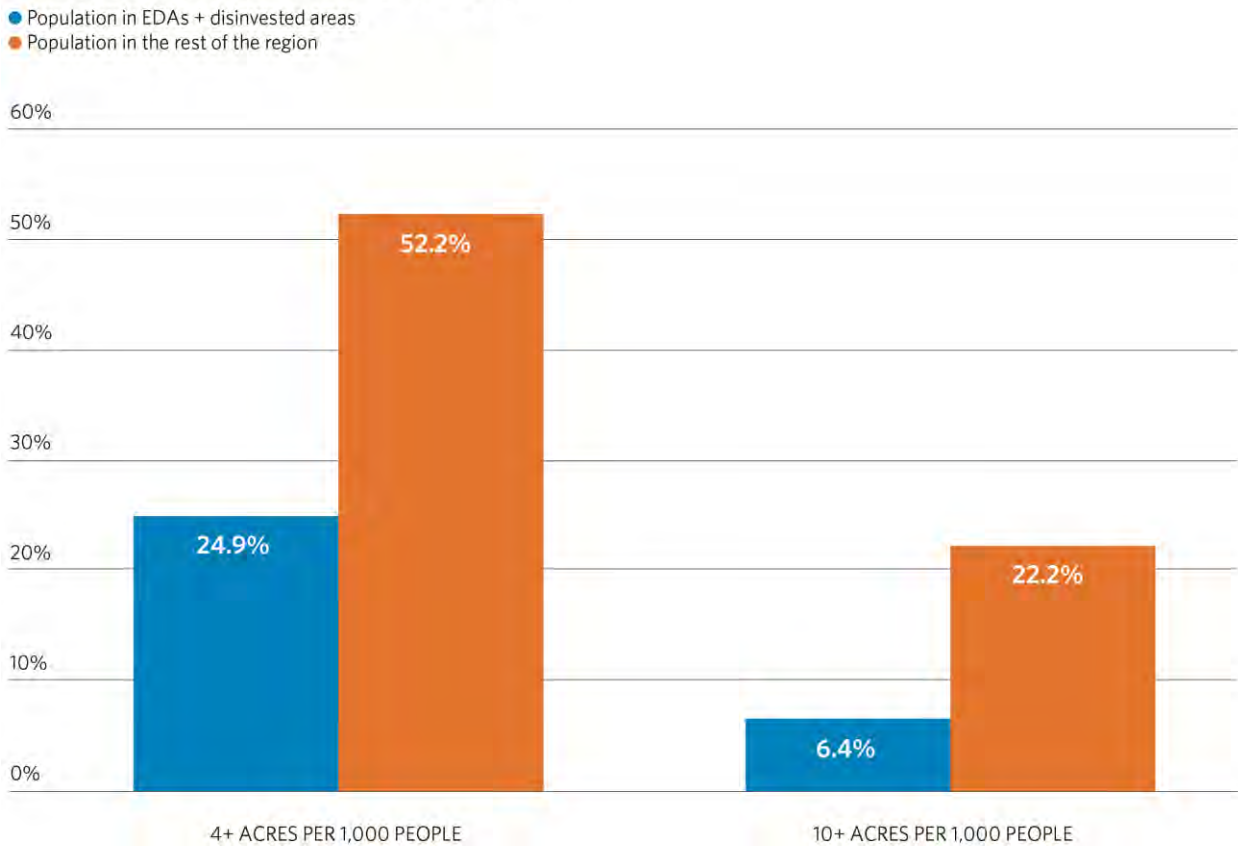
Source: Chicago Metropolitan Agency for Planning analysis of University of Vermont Spatial Analysis Laboratory, 2010.



In addition, strategy development for ON TO 2050 has highlighted other environmental issues related to climate change and flooding, water quality, community greening and placemaking, and impacts to vulnerable populations that are particularly important to address during the redevelopment process. Climate change -- and the associated exacerbation of urban heat island effects and flooding -- underscores the importance of expanding green infrastructure, tree canopy, and other community greening strategies. With regard to underserved populations, review of the GO TO 2040 access to parks indicator revealed that the region's EDAs have far lower access to parks than economically connected areas: in 2013, 28.6 percent of the population in EDAs had access to four or more acres of parkland per 1,000 residents, compared to 53.8 percent in other areas. As EDAs redevelop, making a concerted effort to provide park space will help to reduce this disparity over time.

Access to parks (4+ acres per 1,000 people), within Economically Disconnected Areas (EDAs) and disinvested areas, rest of region, 2013

Source: Chicago Metropolitan Agency for Planning Land Use Inventory 2013 and the U.S. Census Bureau's 2010 Census.



This recommendation also appears in the *Environment* chapter.

The following subsection describes strategies and actions to implement this recommendation.

Apply sustainable development practices to the redevelopment process

Each redevelopment site represents an opportunity to enhance the environmental performance of a property and contribute to local and regional natural resource enhancement. Many aspects of development proposals, such as building design, landscape choices, and site planning, can improve climate resilience, water conservation, stormwater management, and water quality. Expansion of site-scale greening -- particularly with native and drought- and flood-tolerant landscape materials and trees -- can help to mitigate the urban heat island effect, retain stormwater, and promote carbon sequestration. Avoiding redevelopment in flood-prone areas interrupts the cycle of escalating and recurring damages. Local governments can be proactive about addressing flooding challenges by going beyond county requirements to require stormwater best management practices on smaller parcels. Encouraging green infrastructure practices as the first design option and enabling rainwater harvesting and reuse can help address concerns from neighbors that redevelopment could exacerbate existing stormwater problems.

Despite these real benefits, integration of sustainable practices in redevelopment is often perceived as more difficult or expensive. The most common example is with stormwater, where small sites may be severely constrained from meeting detention requirements. Yet the application of green infrastructure designs like permeable paving or bioswales can be incorporated in a variety of settings. For property owners with space or other site constraints, credits and trading programs can provide flexibility and increase implementation. In the stormwater example, trading programs allow eligible properties to meet a portion of their stormwater requirements by buying "credits" from other property owners. These programs could lead to dramatic improvements, especially if off-site installations are located within the same water- or sewer-shed and the infill site does not create downstream impacts. Municipalities can also take advantage of larger-scale redevelopment efforts to either make adjacent infrastructure improvements that relate to climate resilience, such as burying overhead utility lines, installing street trees, or building sewer capacity or shared stormwater solutions, or require developers to do so.

Local governments should revise zoning, building, energy, and stormwater regulations to ensure sustainable development practices are implemented through redevelopment, retrofits, and adaptive reuse of buildings and property.

County stormwater agencies should follow Cook and DuPage efforts and establish fee-in-lieu programs for detention and volume control for constrained infill sites to address existing flooding and water quality issues.

Address environmental challenges that disproportionately affect specific populations and disinvested areas

As documented by the environmental justice movement, environmental issues tend to have disproportionate impacts on specific populations, including people who are low income, of color, or have limited English proficiency. For instance, these residents are frequently affected by the environmental hazards arising from the disproportionate location of brownfields,

landfills, and freight and industrial facilities within their communities. Similarly, research suggests that those who might be at increased exposure to heat waves include people of color, residents with limited English proficiency, those with family income below the poverty line, the elderly, children, and those with existing health conditions.³²

Other challenges, ranging from repetitive flooding to lead exposure in drinking water lines, could also be due to a lack of investment and maintenance that are particularly acute in disinvested areas. As infrastructure managers work to balance budgets or address the backlog of deferred maintenance, higher service fees can be particularly difficult for low income residents to absorb. In general, more research is needed to determine the impacts of environmental issues on different population groups and meaningful strategies to address them. Any such effort must deeply engage the affected communities to ensure that solutions reflect local needs.

CMAP and partners should explore the impacts of high-priority issues -- such as climate change, water loss and pricing, repetitive flooding, brownfields, and air pollution -- on vulnerable populations and disinvested areas, while engaging affected populations to collaboratively develop and implement solutions.

CMAP and partners should align green and gray infrastructure investments to address the unique needs of disinvested areas.

Increase community greening efforts and expand neighborhood parks

Community greening involves increasing the amount of green coverage, including recreational or passive park space, community gardens, landscaping and tree canopy,³³ and green infrastructure. This can be particularly valuable in walkable downtowns, along major commercial corridors, and in other areas with an extensive impervious surface. Community greening efforts can achieve numerous benefits, including greater climate resilience, stormwater management, habitat, reduced heat island effect, and improved physical and mental health. GO TO 2040 recommended retrofitting developed areas with green infrastructure, which contributes to overall community greening, and these practices were explored in greater detail in the ON TO 2050 Integrating Green Infrastructure strategy paper.³⁴

Local governments, park districts, and other partners should expand and improve access to neighborhood parks and community gardens, particularly in EDAs.

³² The U.S. Environmental Protection Agency (<https://www.epa.gov/heat-islands/heat-island-impacts>) provides research related to climate vulnerability.

³³ The Chicago Regional Trees Initiative, <http://chicagorti.org/interactivemap>.

³⁴ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, 2016, "Integrating Green Infrastructure," <http://www.cmap.illinois.gov/onto2050/strategy-papers/green-infrastructure>.

Local governments, park districts, and other partners should incorporate green infrastructure and other green strategies into neighborhood parks, school yards and properties, corporate and office campuses, and other open lands to achieve multiple co-benefits.

Local governments, park districts, and transportation agencies should expand urban forestry efforts to protect existing trees and to increase and diversify the tree canopy.

Local governments, transportation agencies, and landowners should incorporate site-scale green infrastructure, trees, landscaping, etc. into non-park spaces, including street right of ways, parking lots, and private property.

Development that supports local and regional economic strength

Through their role in planning for and regulating development, municipalities, and counties support small but significant pieces of regional markets for commercial and industrial developments, many of which house companies that make up the region's economic base. Cumulatively, these choices affect transportation costs, congestion, and commutes. Local governments attach higher priority to certain types of economic development for many reasons, from meeting local employment goals, to quality of life concerns, to the potential for fiscal benefit. The interaction of local and regional markets and tax policy can limit the revenue potential of some communities. As a result, some local governments struggle to maintain infrastructure in a state of good repair, provide desired services, or ensure that staff and elected officials have the training and resources to be effective and innovative.

ON TO 2050 encourages providing support for industries that connect the region to the global economy, increasing local cooperation on economic development, and changing tax policies at the state and local level to support more development types and provide local governments with more paths to success. These strategies can also reduce competition and overbuilding of some development types, lowering costs and improving fiscal outcomes for the region.

The following recommendations help implement this goal.

Develop tax policies that strengthen communities and the region

The region needs a tax system that provides ample opportunity for local governments to generate revenue that supports their plans, goals, and desired development patterns. Under the current tax structure, communities without sales tax generating businesses or dense commercial development often have few revenue options sufficient to cover the cost of public services and infrastructure.³⁵ To further promote retail, some local governments limit space for development

³⁵ Chicago Metropolitan Agency for Planning, "Tax Policies and Land Use Trends," March 2017, <http://www.cmap.illinois.gov/documents/10180/517351/Tax+Policy+and+Land+Use+strategy+paper/30b90429-1af9-4903-ad29-b75ed1dc94e0>.

that does not generate sales taxes or other major revenues. For example, some communities exclude non-sales tax generating businesses from commercial areas. These choices reflect local preferences, but have large effects on the region's built environment and ability to support economic activity at the regional scale. While often producing lower revenues, office and industrial development provide support for industries ranging from manufacturing, to goods movement, to business services, to corporate headquarters. Many communities aspire to promote these regionally beneficial industries, but current tax structures do not always offer options for municipalities to recoup the costs of these developments. For example, manufacturing facilities often produce little property tax revenue and generate truck traffic that imposes high wear and tear on local roads.

[GRAPHIC TO COME: Informational graphic showing the interaction of local fiscal impacts, regional economic impacts, and development outcomes.]

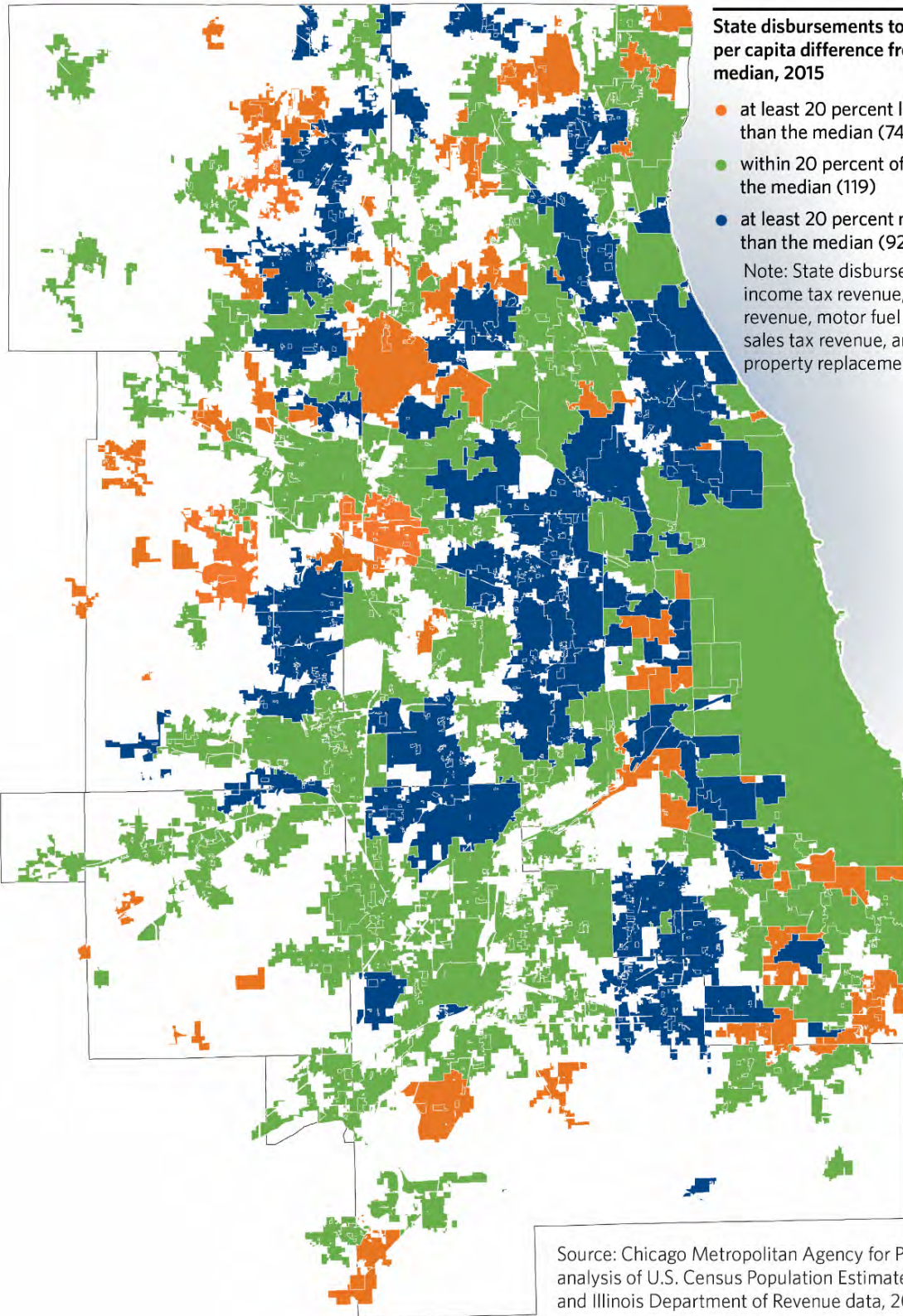
Tax policies have a broad impact on the ability of local jurisdictions to provide services and keep infrastructure in a state of good repair. Individual municipal revenues depend on land use mix, size of the tax base, and state and local tax structure. Local policies on and willingness to match fees and taxes to service costs also play a role. For example, DuPage County consistently implements user fees such as development impact fees and a county-wide MFT. Costs grow from a combination of interrelated factors: locally defined needs, the amount and condition of infrastructure, and long-term debt and obligations.

ON TO 2050 sets a target for reducing the number of municipalities that receive comparatively low levels of state revenues. State statutory criteria for revenue disbursements, like sales or motor fuel taxes, can create wide divergence in revenues among municipalities.³⁶ State criteria to distribute funds to local governments vary from population, to retail sales, to lane miles, to other factors. These criteria do not take into account municipalities that may have a very low tax base compared to costs for basic services, nor do they account for infrastructure condition.³⁷ In addition, the state's own financial situation has caused local governments to experience reduced funding and increased uncertainty. State funds play a crucial role in local government budgets, but the State has not modernized its tax system nor developed a long-term plan to pay for its obligations. The map below illustrates the differences in state revenues distributed to municipalities in 2015. ON TO 2050 envisions that all municipalities will receive these state funds at levels greater than 80 percent of the regional median level by 2050.

³⁶ Chicago Metropolitan Agency for Planning, PLACEHOLDER FOR FORTHCOMING POLICY UPDATE

³⁷ Chicago Metropolitan Agency for Planning, "Evaluation of State Transportation Revenue Sharing with Local Governments," 2014, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/evaluation-of-state-transportation-revenue-sharing-with-local-governments.





State disbursements to municipalities, per capita difference from the median, 2015

- at least 20 percent less than the median (74)
- within 20 percent of the median (119)
- at least 20 percent more than the median (92)

Note: State disbursements include: income tax revenue, use tax revenue, motor fuel tax revenue, sales tax revenue, and personal property replacement tax revenue.

Source: Chicago Metropolitan Agency for Planning analysis of U.S. Census Population Estimates, 2015 and Illinois Department of Revenue data, 2015.



Communities with a low tax base and limited options for increasing revenue often face a sustained or recurring cycle of disinvestment. Many areas with lower tax disbursements overlap with EDAs, which perpetuates inequities and reduces opportunities for people and places to thrive. Achieving regional growth that includes EDAs may hinge on their residents and businesses having access to programs and services that many communities sometimes take for granted. Communities where revenues are low relative to their needs may struggle to fund municipal operations and infrastructure without imposing high tax rates, which further discourage commercial and residential development and cause the local tax base to grow more slowly than the cost of public services.³⁸ This cycle of disinvestment is self-reinforcing and also drives the adoption of high tax rates that can be a significant burden on low income residents.

In Cook County, property tax classification is an additional factor that drives up commercial and industrial property tax rates, hurting disinvested communities in particular. This may discourage business investment in Cook County in favor of opportunities elsewhere. By using a higher assessment ratio for businesses than residences, this system allocates a higher share of the property tax burden to businesses -- a policy that does not exist in the collar counties -- deterring reinvestment and hindering resulting growth in the property tax base. In many communities, high commercial and industrial tax rates present a barrier to attracting development, even when infrastructure and infill opportunities are plentiful. By reforming its classification system, Cook County could grow the tax base over time and reduce the tax burden on residents, mitigating potential increased residential rates.³⁹

Regionally, the current tax system does not always support the multijurisdictional nature of many industrial and office employment areas, which often cluster geographically and cross jurisdictional lines.⁴⁰ The infrastructure that serves these centers can extend through many communities and is maintained by a complex web of jurisdictions. The region's municipalities need additional tax structure and transportation funding options to support the service and infrastructure needs of these locally and regionally desired land uses. Additionally, the growing prevalence of internet sales may increase truck traffic on the entire roadway system, including roads serving warehousing and distribution businesses and residential customers receiving deliveries.

³⁸ Chicago Metropolitan Agency for Planning, "Municipal Capacity," 2017, http://www.cmap.illinois.gov/documents/10180/794571/Municipal+Capacity+Strategy+Paper_November+2017.pdf/923744b1-951a-ce16-609e-724c9e260fb7.

³⁹ Chicago Metropolitan Agency for Planning, "Property tax burden in the Chicago region," 2017, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/property-tax-burden-in-the-chicago-regi-2.

⁴⁰ Chicago Metropolitan Agency for Planning, "Freight land use clusters in northeastern Illinois," 2016, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/freight-land-use-clusters-in-northeastern-illinois.

Local governments do have options to better support their communities through local action, particularly through imposing user fees to support specific services and infrastructure. Since 2013, for example, Downers Grove has generated revenue for stormwater improvements by imposing a fee weighted toward properties that have the greatest impact on that system.

Finally, the State of Illinois has not taken steps to modernize the tax system for current technologies and economic patterns. Its reliance on MFTs to fund the Illinois transportation system is becoming outmoded as vehicle efficiency improves and fuel consumption drops. Illinois also has a narrow sales tax base focused on tangible goods and few services, which is inefficient in an economy with increasing market demand for consumer services. See the recommendation to *Fully fund the region's transportation system* in the *Mobility* chapter for a discussion of the potential to reform the sales tax to support the RTA sales tax as well as local governments.

This recommendation also appears in the *Governance* chapter.

The following describes strategies and associated actions to implement this recommendation.

Develop new funding solutions to support the multijurisdictional nature of development and infrastructure

The state and region should evaluate and pursue revenue sources, infrastructure cost sharing, realignment of existing revenues, and tax policy shifts that take into account the multijurisdictional nature of retail, office, and industrial development. Movement of goods and people that supports the region's economy must efficiently traverse multiple municipal boundaries and transportation networks. Yet many impediments could be surmounted, for example, through dedicated funding for local truck routes, tax base sharing to support retail agglomerations, prioritizing funding for improving commute options, increased local contributions for some infrastructure expansions, and other options. This work should build on CMAP's and partners' growing understanding of asset management, fiscal impacts, and subregional and regional markets to identify innovative revenue solutions or better align existing revenues to support infrastructure needs.

Reform tax policies to sustain economically beneficial land uses and support local infrastructure

CMAP should continue to facilitate a regional perspective on the interaction of tax policy, land use, the economy, and communities' prosperity. Assistance for local jurisdictions to improve planning processes and coordination can help, but it does not address systemic issues. Through policy changes such as phasing out assessment classification in Cook County, broadening the sales tax base, changing state revenue sharing disbursement criteria, and identifying new options to support office and industrial development, a reformed tax system could reduce market distortions and better support desired development and goals of the region's communities, even in the face of a changing retail landscape.



The State of Illinois should expand the sales tax base to additional services in a manner that helps communities create a more balanced land use mix, improves horizontal equity, minimizes economic distortions, and mitigates the cascading nature of sales taxes.

Cook County should phase out the property tax classification system to reduce commercial and industrial properties' current burden, which deters development and creates pressure for higher taxes overall.

The State of Illinois should reform state revenue sharing disbursement criteria to reduce wide divergences across municipalities and allow each municipality to support its own desired mix of land uses.

CMAP should coordinate with partners to promote tax policy changes to support better land use outcomes, including to conduct public education as well as legislative outreach.

The State should engage in fiscally sustainable practices to ensure a stable business climate and guarantee the reliability of state support to the region, including for local governments, transit agencies, and nonprofit service providers.

Local governments should implement user fees

User fees and full cost pricing can help communities recoup the cost of providing road, parking, water, sewer, and other infrastructure. User fees should build on asset management, capital improvement planning, and other initiatives to ensure that infrastructure spending is a high priority to meet local needs and provide the strongest benefits. Among the region's many examples of user fees and full cost pricing, some communities are addressing the increasing costs of stormwater management with dedicated taxes, stormwater utility fees, or special service areas. Similarly, a number of communities have used CMAP's LTA program to plan for and price their parking garages and metered spaces, making more effective use of tangible and fiscal assets.

All public utilities should adopt full cost pricing so they can sustainably fund operations and ongoing maintenance. While some local governments may choose to discount some services to meet local priorities, instead matching revenues to the cost of services will help the region's communities achieve stable funding and greater resilience. These initiatives should provide options that account for the affordability needs of lower income residents.

Local governments should develop stormwater utility fees to assess the true cost of stormwater infrastructure and improve flood control infrastructure.



Local governments should implement user fees to fund transportation infrastructure improvements, such as local MFTs or fees to address freight needs.

The State should approve statute changes that allow non-home rule governments to impose additional types of user fees.

Local governments should assess infrastructure costs to calibrate fees and taxes on development, parking, water, sewer, and other needs, both to cover current expenses and to create stable funding for the long term.

Local governments that face significant affordability barriers to full cost pricing of water, and other utilities should consider consolidating services with a neighboring community to reduce overall costs and provide options for low income residents.

Incorporate market and fiscal feasibility into planning and development processes

CMAAP experience in the LTA program, feedback from communities on training needs, and interviews with local developers indicate that many plans do not reflect market and fiscal realities over the short and long-term. Lack of market understanding draws out and even halts development processes, leading to potential conflict when community change does not meet residents' expectations. Lack of understanding of long-term expenses leads many communities to a mismatch between needs and costs, resulting in increased taxes or fees or declining services and infrastructure. These issues compound at the regional scale, leading to overbuilding and a backlog of local infrastructure needs. Underpinning plans with market and fiscal analyses is necessary when the state and region increasingly face limited fiscal resources, and it can help the region continue to thrive with prioritized investment in infrastructure and development.⁴¹

The types of places that residents and businesses want changes over time, such as the current growing preference for walkable places spurring more housing in suburban downtowns, growth of service industries, and the resulting shift in employment types, or the decline in large-format retail due to changing consumer patterns.⁴² Major demographic shifts also change market demand; as the region's population ages, demand for varied housing types to support aging in community will continue to grow. Planning for current market understanding as well as these major shifts in the context of local and regional goals can help local governments create successful plans.

⁴¹ Chicago Metropolitan Agency for Planning, "Alternative futures -- constrained resources: Memorandum to CMAAP Committees," May 2017, <http://www.cmap.illinois.gov/documents/10180/0/Constrained+Resources+memo/9e9557dc-cc41-4e7f-8f04-92b3363e9c0e>.

⁴² Urban Land Institute and PwC, "Emerging trends in real estate: United States and Canada 2018," 2017, <https://americas.uli.org/wp-content/uploads/sites/125/ULI-Documents/EmergingTrendsInRealEstate2018.pdf>.

Markets transcend jurisdictional boundaries, which means that thriving municipalities and counties take a subregional and regional perspective when planning for their ability to support various types of development. Market support for development types such as commercial, office, and residential is closely aligned with population and employment densities, regional and national economic trends, and the major infrastructure, workforce, and built environment assets of a subregion.

[GRAPHIC TO COME: Bird's eye view illustration of various market types, infrastructure networks, and local boundaries.]

As with market potential, lack of a full understanding of the mid- and long-term fiscal implications of cumulative development decisions can limit local governments' ability to implement community goals. Planning for development must strongly incorporate planning for both local fiscal impact as well as costs to supporting jurisdictions. This is a particularly important consideration for communities at the developing edge of the region, who must align expansion proposals with the immediate and long-term cost of the new infrastructure required to support that development. Communities often recoup the costs of near-term needs, like new stoplights or water main extensions. Some communities, such as Romeoville, recoup costs of infrastructure investment through exactions from new development. However, these same communities may not have the data and expertise to properly assess cumulative infrastructure costs of development. When a disconnect occurs between near-term development approvals, tax and fee schedules, and long-term maintenance and replacement costs, local decision makers may face challenges in maintaining or upgrading their infrastructure without substantively and disruptively increasing taxes and fees.⁴³ Built-out communities face different challenges than growing communities, with the former able to leverage a stock of existing infrastructure to support development, even if that infrastructure must eventually be reconstructed. Increased use of fiscal impact analysis as well as asset management programs can help communities better link goals to costs, improving planning processes and outcomes.

[GRAPHIC TO COME: Informational graphic on asset management.]

Assessing the potential public costs of and market for planned development is critical for each phase of planning, from site-specific initiatives to comprehensive plans. Basing plans purely on potential fiscal outcomes without tying those outcomes to market realities can lead to overbuilding of some development types and construction of underutilized public infrastructure, leaving communities with the costs of supporting development without revenues to match. In particular, the state distribution of retail taxes to municipalities based on sales made within their jurisdictions may lead some municipalities to promote excessive retail construction, which results in high vacancy rates. Among the broad local and regional impacts,

⁴³ Chicago Metropolitan Agency for Planning, "Tax policies and land use trends," 2017, <http://www.cmap.illinois.gov/documents/10180/517351/Tax+Policy+and+Land+Use+strategy+paper/30b90429-1af9-4903-ad29-b75ed1dc94e0>.

metropolitan Chicago is home to 4.1 percent of all U.S. retail square footage, and 5.8 percent of vacant retail.⁴⁴ By balancing fiscal and market considerations development can be resilient.

The following describes strategies and associated actions to implement this recommendation.

Strengthen local and regional market feasibility in planning efforts

Community goals for specific types of retail, office, or industrial development do not always match regional economic trends or subregional market potential. Markets for real estate or particular industries do not align with municipal boundaries. To foster achievable goals, communities should incorporate market analysis into planning processes, using technical analysis to inform objectives. A market analysis should assess current and forecasted demographic trends, recent development and absorption activity, competitive existing development, industry mix, existing assets and infrastructure, and similar factors. This analysis can help local governments set near and long-term goals in the planning process. Local governments may need to plan for new infrastructure or some types of development to generate other desired developments, such as increasing housing units to support downtown restaurants or retail. Similarly, planned industrial may require new truck routes and infrastructure to limit impacts on adjacent uses.

Local governments should incorporate market analysis into all planning processes, but particularly in developing comprehensive, strategic, and subarea plans and in considering economic development incentives.

Local governments should plan for markets that cross community boundaries, including partnering with jurisdictions within the same markets when developing economic development and land use plans.

Local governments, business organizations, and other key partners should implement best practices for subregional economic development to better support markets-driven development, reduce costs, and implement local and regional goals.

CMAP and partners such as the Urban Land Institute (ULI) should provide educational materials and training about market-feasible planning and development to local governments.

CMAP should provide subject matter expertise and technical assistance to communities that are collaborating to plan for subregional and regional markets.

⁴⁴ Chicago Metropolitan Agency for Planning analysis of 3rd Quarter 2017 data provided by CoStar.

Incorporate long-term infrastructure costs into development and expansion decisions

Planning for long-term costs can make the best use of the region's limited infrastructure dollars and leverage our existing road, pedestrian, water, stormwater, and utility systems. Local governments often have strong practices in place to assess the immediate impacts and costs of new development. Many rely on development impact fee schedules and negotiated compensation for parks and trails, water or sewer connections, and other amenities. They often require formal fiscal impact analysis for larger development proposals. However, communities may require assistance to estimate, plan for, and build community support for addressing longer term infrastructure costs, such as with stormwater infrastructure. Many communities are also reluctant to raise taxes and fees to cover the costs of the new infrastructure and services. Increasing regional and local data on infrastructure condition can help communities better plan for the fiscal impacts of individual and cumulative development decisions, reducing costs over the long term. While these strategies apply throughout the region, they are particularly important in areas at the edge of the region, where new infrastructure and communities are being built.

Local governments should plan for infrastructure needs of the whole community through a capital improvement plan, including an assessment of the long-term maintenance costs generated by existing and planned developments.

Local governments should develop transportation, water infrastructure, and other asset management systems to fully implement performance-driven investment practices and make the best use of the region's limited resources.

Partners and CMAP should develop materials and trainings to help local governments understand how their land use choices affect local revenues.

CMAP and partners should assist with transportation data collection and asset management pilot projects, eventually expanding to a region-wide program.

COGs and CMAP should develop trainings to assist all of the region's local governments in implementing and improving asset management systems over the long term.

Partners and CMAP should research best practices and leverage its growing resources on age and condition of the region's infrastructure to develop methods for local governments to assess mid and long-term impacts of major or cumulative development processes.



Municipalities and counties should recoup the public costs of supporting new development

Development-specific revenues are important: They ensure that everyone who benefits from a municipal service or public infrastructure helps pay for it. Communities should work with developers and businesses to ensure adequate funding for public infrastructure as development is approved. All communities should emulate municipalities and counties across the region that use agreements with developers to fund infrastructure improvements.⁴⁵

There are many best practice strategies available. Communities with existing development might work with businesses that would specifically benefit from improved infrastructure to fund those investments via special districts or fees. Recapture agreements with developers help local governments recoup expenditures on prior infrastructure improvements. Communities should work with developers of projects expected to have a significant impact on municipal operations or infrastructure costs to cover these costs.

As part of development approvals, local governments also often approve the construction of new infrastructure. This new infrastructure will eventually incur long-term maintenance and reconstruction costs. Local ordinances govern the extent and type of infrastructure that new developments require. Closely evaluating what infrastructure is truly required to support development can help reduce costs in the long-term.

Partners such as ULI, Government Finance Officers Association, and others should provide assistance to local jurisdictions in assessing the short and long-term fiscal impacts of development.

Municipalities and counties should employ development-specific revenues to reduce public costs of new development.

Local governments should perform fiscal impact analysis to properly employ development-specific revenues and associated agreements.

Local governments should review their development ordinances to ensure that road, water, and other infrastructure requirements are appropriately scaled to support development and optimize long-term costs and needs.

CMAP, and partners such as ULI and the MMC should provide materials on best practices in fiscal impact assessment and assessing costs in development approval processes.

⁴⁵ See, for example, the case study on the Village of Romeoville in the Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Tax Policies and Land Use Trends," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/tax-policy-land-use>.

Align local economic development planning with regional goals

Collaboration across communities to support regional goals can make efficient use of limited fiscal resources by supporting industries that connect us to the global economy. Through their role in planning for and regulating local development, local governments support small but significant pieces of regional markets for retail, office, industrial, and other development types, which house the industries that form the base of the region's economy. These cumulative local decisions create the region's communities and economic centers with broad impacts on infrastructure needs, commute patterns, goods movement, and overall regional economic success. At the same time, the economic assets that make up communities' core competitive advantage often extend across jurisdictional boundaries.

Individual communities may find it challenging to play their pivotal role in planning for the region's economy. The region has some examples of planning for workforce development or forming coalitions to support specific industries.⁴⁶ But, local plans often focus on land use and development types, with less consideration of their contributions to regional economic growth and prosperity. Communities respond to the direct concerns of residents and businesses by assessing how solutions fit with community character and goals, public service costs, tax revenue impacts, or traffic and parking impacts. In comparison to economic impacts, fiscal considerations may play an outsized role in development decisions and investments. CMAP research has indicated that economic development that supports higher wage jobs and induces employment region-wide may not generate significant levels of municipal revenue given current local tax policies.⁴⁷ For example, globally traded industries often operate in office or industrial development types, but some local planning efforts are not geared toward these land uses.

⁴⁶ Chicago Metropolitan Agency for Planning, "Manufacturing in the Golden Corridor: Golden Corridor Advanced Manufacturing Partnership," 2014, <http://www.cmap.illinois.gov/documents/10180/113409/Final+Manufacturing+in+the+Golden+Corridor+Existing+Conditions+Report.pdf/efc4ec4d-a6c9-4fe7-8d02-7fd5c3afe1ad>.

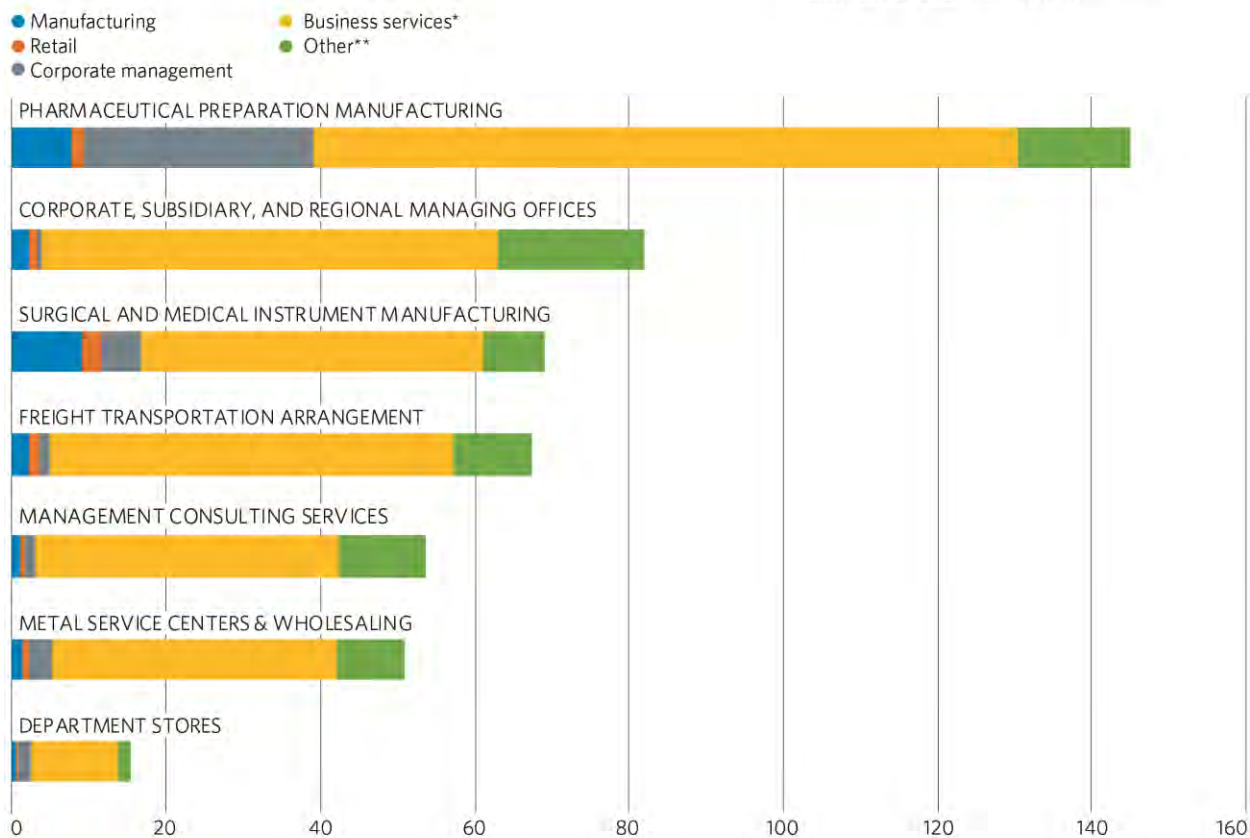
⁴⁷ Chicago Metropolitan Agency for Planning, "Fiscal and economic impact analysis of local development decisions," January 2014, <http://cmap.is/2mfrlPw>.



Number of additional jobs supported in the region from an increase of 100 jobs in manufacturing , retail, or office development, by sector

Note: Economic impact analysis includes both direct and indirect effects.

Source: Chicago Metropolitan Agency for Planning analysis of Economic Modeling Specialists International data (Emsi 2018.1)



* Includes wholesale trade; transportation and warehousing; finance and insurance; real estate, rental, and leasing; professional, scientific, and technical services; administrative, support, waste management, and remediation services

** Includes agriculture, forestry, fishing, and hunting; mining, quarrying, oil and gas extraction; utilities; construction; information; educational services; health care and social assistance; arts, entertainment, and recreation services; accommodation and food services; government; other services

Many governments provide economic development incentives to specific businesses that already intend to locate within the region or submarket. Officials use incentives to subsidize revenue-generating development, compete with another jurisdiction, or compensate for weak spots in their overall business environment. This activity can result in public expenditures for limited economic gain.⁴⁸ Many communities do provide incentives to developments that meet local and regional goals such as increasing particular types of employment, promoting infill, remediating brownfields, and/or encouraging mixed-use development.⁴⁹ Given limited fiscal resources, the region's communities should coordinate to support regionally beneficial

⁴⁸ Nathan M. Jensen, "Job creation and firm-specific location incentives," *Journal for Public Policy* 37,1 (2017).

⁴⁹ Chicago Metropolitan Agency for Planning, *Fiscal and Economic Impact Analysis of Local Development Decisions*, January 2014, <http://cmap.is/2mfriPw>.

industries and to target incentives for development of regional and local economic benefit. Communities can reduce costs by planning together and pursuing initiatives like establishing boundary agreements, sharing services or infrastructure to mutually support new development, or sharing revenues from specific developments.

This recommendation also appears in the *Prosperity* chapter.

The following describes strategies and associated actions to implement this recommendation.

Proactively coordinate local economic development efforts

Economic development achieves the most when municipalities, counties, and other partners work together across jurisdictional borders. The region's communities collectively share in and build up our competitive advantages of a skilled workforce, extensive transportation infrastructure, and strong quality of life. Local governments, economic development entities, and others could improve outcomes, expand staff expertise and resources, and reduce costs by partnering on services like business expansion, retention, and attraction. Many jurisdictions with lower fiscal or staff capacity may need assistance for initial collaborations. CMAP, the region's counties, universities, and civic organizations can play a substantive role in helping local governments collaborate. Nationally, many examples of successful partnerships to meet local and regional goals exist. In Cuyahoga County, Ohio, the hyper-competitive environment created by municipalities' pursuit of income tax revenue led to a non-compete agreement to encourage intraregional cooperation for business development.⁵⁰ The Denver region implemented a similar agreement in 1987.⁵¹ For additional information, see the ON TO 2050 Tax Policies and Land Use Trends strategy paper.⁵²

Local governments should implement best practices for subregional economic development to reduce costs and achieve broader economic goals.

CMAP and partners like ULI and the Chicago Regional Growth Corporation (CRGC) should research case studies and best practices for subregional coordination of economic development. Examples include non-compete agreements, joint economic development initiatives, infrastructure and service sharing, tax base sharing, boundary agreements, and other initiatives.

⁵⁰ Cuyahoga County, "Business Attraction & Anti-Poaching Protocol," http://regionalcollaboration.cuyahogacounty.us/pdf_regionalcollab/en-US/AntiPoachingProtocol.pdf.

⁵¹ Chicago Metropolitan Agency for Planning, "Reorienting State and Regional Economic Development: Lessons Learned from National Examples," 2014, <http://cmap.is/%202ITAonC>.

⁵² CMAP ON TO 2050 strategy paper, "Tax Policies and Land Use Trends," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/tax-policy-land-use>.

CMAP and partners should help municipal coalitions to plan for local economic development, focusing on sub-regions that have common planning needs and goals for business expansion, human capital, freight movement, and similar issues with strong relevance to the region's economy.

CMAP should help local governments to plan for and invest in multijurisdictional transportation investments that best support economic productivity.

CMAP, MPC, counties, and COGs should facilitate new partnerships between municipalities and develop materials illustrating the benefits of coordinating on shared economic development priorities.

Align incentives with local and regional goals, anticipated outcomes, and tradeoffs

Most businesses choose their locations based primarily on workforce, access to transportation, quality of life, business environment, and other assets, giving much less weight to tax incentives.⁵³ In light of limited public funds, state and local jurisdictions should provide incentives only when a business relocation or retention would substantively advance local and regional goals related to quality of life and economic development. As CMAP research has shown, best practices exist for how, where, and when to apply incentives for maximum public benefit.⁵⁴ ON TO 2050 recommends the targeted use of incentives for developments that support regional economic goals, such as increasing employment in traded clusters, reinvesting in infill sites, or encouraging mixed-use development near transit.

Local governments should establish criteria to ensure that economic development incentives fit with local and regional economic goals. The policies should maximize broad benefits and minimize the use of incentives that are only for fiscal gain to the community.

CMAP and partners such as ULI and MPC should provide best practices and model economic development policies for communities.

Local governments should proactively establish economic development agreements with neighboring communities to reduce intraregional competition via incentives, and reduce public costs.

⁵³ Joseph M. Phillips and Ernest P. Goss, "The effect of state and local taxes on economic development: A meta-analysis," *Southern Economic Journal* (1995): 320-333. Grant Thornton, *The 10th Annual-Manufacturing Climates Study* (1989): Chicago: Grant Thornton.

⁵⁴ Chicago Metropolitan Agency for Planning, "Reorienting State and Regional Economic Development: Lessons Learned from National Examples," 2014, <http://cmap.is/%2021TAonC>.

The State of Illinois and local governments should enhance data on tax credits and incentives provided at all levels of government and consistently evaluate the expenditures and outcomes of incentive programs such as sales tax rebates, EDGE, TIF, property tax abatements, Enterprise Zones, and others.

The State of Illinois should incorporate regional priorities into its strategic economic development planning and provide only assistance or incentives that align with those priorities.

Enhance economic development expertise of municipal staff and officials

Municipal economic development initiatives seek to build vibrant places, enhance job centers and commercial corridors, or retain and build existing industries. Such local efforts vary greatly in scope, from small-scale main street improvements to redevelopment of major office and industrial subcenters. Regardless of its scale, each activity needs municipal staff and elected officials with the knowledge and resources to carry out strategies appropriately, including infrastructure investment, economic development planning, business development, and incentives.

Municipal staff and officials interviewed through the ON TO 2050 planning process emphasized the need for more skill building resources and guidance on economic development best practices.⁵⁵ New trainings and resources can also build on the incentive, market, and fiscal feasibility recommendations of ON TO 2050, helping to improve local planning, development, and investment processes. In partnership with COGs, counties, civic organizations, and universities, CMAP should provide technical assistance for communities to build local capacity for economic development planning.

CMAP and partners such as ULI should provide tools to help local governments effectively use incentives, taking into account the full costs of related public services, initial infrastructure improvements, and future infrastructure maintenance.

Partners and CMAP should provide guidance to local partners on best practices for zoning, permitting, development regulation, market analysis, tax incentives, and transportation funding that support economic productivity and reduce market barriers.

Partners, educational institutions, and CMAP should establish regular trainings, networking events, and other resources to promote best practices on joint economic development initiatives, economic development planning, incentive policies, market analysis, business attraction and retention, and related topics.

⁵⁵ Chicago Metropolitan Agency for Planning, "ON TO 2050 Alternative Futures Engagement Summary," 2017, <http://www.cmap.illinois.gov/documents/10180/776689/ON+TO+2050+Alt+Futures+Engagement+Summary.pdf/7e55dc3f-192c-b5a6-ef00-d4b49e9cfdbc>.

CMAP and MMC should explore partnerships like the Southern Illinois University Edwardsville team that leads the Illinois Basic Economic Development Course to create similar offerings tailored for staff and elected officials.⁵⁶

⁵⁶ Southern Illinois University Edwardsville, "Illinois Basic Economic Development Course," <http://www.bedcillinois.com/about-us.html>.

PROSPERITY

Growing the economy

Developed and emerging economies around the world have been transformed in recent years by new technologies, advances in freight and logistics, and evolving consumer demand. These trends and climate change will increasingly shape global commerce. Metropolitan Chicago is well-positioned not just to withstand these complex factors but to seize new opportunities due to our strengths among a range of industries and our diverse and skilled population. The region is also endowed with the preeminent North American freight hub, active and engaged civic leadership, and world-class institutions of education and research.

[GRAPHIC TO COME: An illustrated graphic will demonstrate the connections among global competition, regional economic development, and local prosperity.]

ON TO 2050 seeks to improve our region's ability to adapt in a changing global economy and to thrive by reducing economic inequality. Metropolitan Chicago needs to improve opportunities for employment and robust economic output while taking deliberate steps to ensure prosperity for all. These goals -- economic opportunity and growth -- are inextricably linked. As our prolonged slow growth continues to lag behind peer regions, lower- and moderate-income residents are leaving to seek economic opportunity elsewhere. Sustaining broad economic growth requires improving the region's business environment to enable industries and workers alike to compete globally and prosper locally.

While healthy competition within the region has its benefits, emerging opportunities and challenges increasingly require a regional approach for economic and workforce development to capitalize on our distinctive assets. Human capital -- among the most important determinants of regional economic vitality -- transcends jurisdictional boundaries. Amid stagnant growth in the labor force, institutions of higher education and research help to retain and develop the region's innovative talent. Business expansion depends on reaching markets around the world with goods and services that can compete successfully in the global economy.

ON TO 2050, as a whole, seeks to ensure metropolitan Chicago's future economic success. The recommendations in this chapter address the initial steps in workforce and economic development that are necessary to achieve broad prosperity. Investments in such activities must be inclusive, prioritized, and responsive to market shifts and economic outcomes. Metropolitan Chicago's lagging growth underscores the need to organize currently diffuse policies and programs and, when appropriate, to align local objectives with regional goals. It also accentuates the need for widespread, coordinated actions rooted in the needs of particular communities and industries. Several strategies seek to ensure that residents can access opportunity and thrive in the workforce. While these recommendations are geared toward addressing needs of the working-age population, the importance of equitable access to high quality pre-school through secondary education cannot be overstated.

This chapter describes recommendations to promote:

1. **Inclusive growth** by broadening opportunities for innovation and promoting pathways for upward economic mobility.
2. **Resilience** by taking a regional approach to economic development and better preparing the workforce for future economic shifts.
3. **Prioritized investment** in coordinated economic and workforce development activities.

Robust economic growth that reduces inequality

The region is endowed with extensive assets, including its people, industries, educational and research institutions, infrastructure, and location. Yet, the region has experienced prolonged slow growth. During 2001-16, overall economic productivity here increased on average just 0.8 percent annually, coupled with just 0.2 percent annual employment growth.⁵⁷ Across numerous metrics, the region has consistently lagged behind peers and national averages. Advancing the region's economic goals requires action now to bolster a range of private and public initiatives already underway on a regional level. Moreover, economic opportunity and prosperity remain out of reach for many residents, particularly for black and Hispanic residents. New research underscores the role of economic inequality in impeding metropolitan Chicago's ability to start and sustain stronger growth. In short, state and local governments, the private sector, and educators need to pursue continuous improvements to excel in a modern economy. Smart, inclusive, coordinated strategies can ensure that metropolitan Chicago remains a destination for business activity, innovation and invention, and diverse human capital.

Pursue regional economic development

Advancements in information, transportation, and manufacturing technology are opening new market opportunities for the region's diverse workforce and industries. Nonetheless, global trends are interacting with concerning regional trends in demographics and fiscal uncertainty to constrain economic growth for metropolitan Chicago. Economic data reveal prolonged slow growth,⁵⁸ a widening gap in performance between the region and its peers, and a significant share of residents with limited economic opportunities.⁵⁹ Given today's economic realities, metropolitan Chicago must reassess conventional tactics and better coordinate strategies to help firms and industries compete globally.

⁵⁷ Chicago Metropolitan Agency for Planning analysis of Bureau of Economic Analysis and Economic Modeling Specialists International data.

⁵⁸ Chicago Metropolitan Agency for Planning ON TO 2050 snapshot, "Regional Economy and Clusters: Building on Our Strengths," 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/economic-clusters>.

⁵⁹ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Inclusive Growth," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/inclusive-growth>.

[GRAPHIC TO COME: A series of data charts will provide information on the Chicago region's of economic performance over time.]

In an evolving global economy, metropolitan areas are the unmatched engines of economic growth. In 2016, metropolitan economies generated more than 80 percent of the world's output⁶⁰ and nearly 90 percent in the U.S.⁶¹ Yet the Chicago region's performance -- across productivity, employment, wages, opportunity, innovation, and other indicators -- remains mixed and in some cases lackluster.⁶² Since 2001, the region has consistently lagged behind peers and the national average in overall economic and productivity growth, and its growth during 2009-16 ranked just 67th among the 100 largest U.S. metropolitan economies.⁶³ While the region's industries have made significant strides in responding to global competition, research provides new insights into the forces -- such as persistent economic inequality -- that are hampering metropolitan Chicago's ability to start and sustain stronger growth. Catching up to the pack requires a coalition of political, civic, and business leaders to implement strategies that will raise the region's global competitiveness and economic vitality.

Many factors contribute to a region's success, like the quality of its infrastructure, workforce, diverse and advanced industries, civic leadership, and institutions of education and research. These assets are at the core of our competitive advantage as a global economic center and serve as the foundation of future economic opportunity and growth. Today, people, goods, services, knowledge, and capital move across borders with growing frequency. Increasingly complex supply chains extend globally, and some employers can more easily access a worldwide workforce. Strategies to achieve the region's economic goals must be similarly nimble and responsive in a changing global economy.

Despite our economy's metropolitan breadth, many approaches and tools to support economic development remain siloed to local jurisdictions, limiting the potential of strategies for broad economic growth.⁶⁴ These tactics often neglect the position of individual communities in a larger economic landscape, with core assets flowing across state borders in a Midwestern megaregion. Coordination across jurisdictions can enhance traditional economic development services like business expansion, retention, and attraction. Improved analytical techniques and planning tools can supplement local knowledge, develop shared opportunities, and

⁶⁰ Jesus Leal Trujillo and Joseph Parilla, "Redefining Global cities: The seven types of global metro economies," Brookings Institution (2016), https://www.brookings.edu/wp-content/uploads/2016/09/metro_20160928_gcities.pdf.

⁶¹ Chicago Metropolitan Agency for Planning analysis of Bureau of Economic Analysis data on GDP per metropolitan area, 1-year estimates, 2016.

⁶² Chicago Metropolitan Agency for Planning Regional Economic Indicators website, 2017, <http://www.cmap.illinois.gov/programs/regional-economic-indicators/trends>.

⁶³ Chicago Metropolitan Agency for Planning analysis of U.S. Bureau of Economic Analysis data.

⁶⁴ Organization for Economic Co-operation and Development, *OECD Territorial Reviews: The Chicago Tri-State Metropolitan Area, United States*, 2012, <http://www.oecd.org/unitedstates/oecdterritorialreviewsthechicagotri-statemetropolitanarea.htm>.

complement competitive interests among the region's counties and municipalities. Ideally, these efforts would inform local and state policy reform. With sustained engagement, the State of Illinois could play a more effective role in leveraging its resources to support economic development that implements regional goals.

[GRAPHIC TO COME: An illustrated graphic will demonstrate an array of economic development activities that can be enhanced by regional coordination.]

Regional leaders have taken some steps to better coordinate and collaborate around strategies to grow the region's economy. Launched in January 2018, the CRGC is an important first step toward collaboration among the county board chairs of Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties and the Deputy Mayor of City of Chicago.⁶⁵ The organization's initial scope includes a small staff, board of directors with region-wide representation from diverse businesses and economic development professionals, and financial commitments for the first three years. CRGC will need to identify initial opportunities for impactful work and to secure sustainable, long-term funding as a basis for continued multijurisdictional collaboration.

The following describes strategies and associated actions to implement this recommendation.

Support development of an entity with the mandate and resources to implement a regional economic growth strategy

Overcoming metropolitan Chicago's prolonged slow growth and uneven access to opportunity will require a shared vision for the regional economy. Initial success under the CRGC can help demonstrate the benefits of collaboration among the region's political and economic development leaders. With sustained private sector engagement and institutional support, CRGC can play a critical role in focusing economic development activities and marshaling resources to address issues that cut across the region's diverse industries and communities. Such initiatives include improving freight movement in the region, integrating data and information systems for rigorous market analysis, and assembling support for prioritized, multijurisdictional infrastructure investments. Regional coordination among economic development organizations (EDOs) should especially emphasize cluster-oriented strategies by convening business leaders and partners like anchor institutions to address shared, sector-specific challenges. This strategy also appears in the *Governance* chapter, under the recommendation to *Use collaborative leadership to address regional challenges*.

CMAP and partners should continue to support CRGC's initial endeavors by assisting in convening regional stakeholders, providing research and data, and securing financial support, as appropriate.

⁶⁵ Cook County, "Chicago Regional Growth Initiatives," 2013, <https://www.cookcountyil.gov/content/regional-initiatives>.

County and municipal EDOs should develop a shared vision for the regional economy that articulates our strongest economic assets and competitive advantages in support of regional marketing and branding. CRGC or similar entity can help to facilitate related analysis and strategy development.

CRGC or a similar entity should help county and municipal officials pursue shared goals across jurisdictional boundaries that complement their respective strengths and competitive advantages.

CMAAP should continue to research and articulate the benefits of intergovernmental collaboration through responsive data and analysis on the regional economy's performance.

Expand global market reach

The majority of economic growth is occurring abroad and opening new market opportunities that can support prosperity at home. Like peer regions, metropolitan Chicago has relied on exports and foreign investment to help sharpen its economic competitiveness since the 2007-09 recession.⁶⁶ The region's manufacturing exports increased by nearly 37 percent during 2005-16, beating growth rates in New York and Los Angeles.⁶⁷ Yet many small- and medium-sized businesses here do not currently export their specialized or high quality products and services. Foreign direct investment can also fortify the region's connections to global markets. Coordinated efforts have already yielded positive results in expanding, retaining, and attracting such investments, which improve businesses' access to capital and global markets.⁶⁸

In responding to the pressures of global competition, the Chicago region must enhance its credibility and saliency as a center for international business development. Research has found that racial and ethnic diversity and openness to immigrants strongly contribute to regional growth in employment and productivity by broadening the talent pool available to businesses.⁶⁹ Metropolitan Chicago should leverage not only its diverse industry mix and institutions, but also its diverse residents who have formal and informal connections worldwide.

CRGC or a similar entity should facilitate ongoing analysis and strategy development for reaching global markets that builds consensus among the region's many stakeholders.

⁶⁶ Brad McDearman and Ryan Donahue, "The 10 Lessons from Global Trade and Investment Planning in U.S. Metro Areas," Brookings Institution (2015), <https://www.brookings.edu/wp-content/uploads/2016/06/TenLessons.pdf>.

⁶⁷ Chicago Metropolitan Agency for Planning Regional Economic Indicators website, 2017, <http://www.cmap.illinois.gov/economy/regional-economic-indicators/trends/>.

⁶⁸ The Chicago Council on Global Affairs, "Foreign Direct Investment: Globalizing Chicago's Economic Development Plans," (2012): 34.

⁶⁹ Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future," *Federal Reserve Bank of Cleveland Working Paper* 20 (2006).



CRGC or a similar entity should support the development of a comprehensive foreign trade and investment strategy for the region, including leveraging existing export relationships and positioning the region strategically for foreign direct investments, mergers, and acquisitions.

CRGC or a similar entity -- in partnership with economic development organizations, business associations, and chambers of commerce -- should coordinate efforts to market the region and convey its dynamic economy, infrastructure, and institutional assets; diverse and skilled workforce; and other assets.

CRGC or a similar entity -- in partnership with counties and municipalities -- should expand technical assistance and other supports for export activity by small- and medium-sized businesses, such as assistance in navigating the customs process, access to global customers, and export financing.

The State of Illinois should collaborate with regional stakeholders to implement a strategy for the region's economic growth

The State of Illinois and metropolitan Chicago can do more to align economic development efforts across units of government, consistent with rigorous market analysis.⁷⁰ In 2013, the Illinois General Assembly passed a law requiring the Department of Commerce and Economic Opportunity (DCEO) to develop a statewide, five-year strategic plan for economic development that leverages and enhances existing programs and incentives.⁷¹ The initial plan was developed with minimal engagement of stakeholders from our region despite its outsized role in the state's economy. Meaningful engagement of local leaders from across the state could improve future planning processes and implementation. Ongoing strategic planning can identify where stakeholders should focus public investments based on the region's priorities, unique assets, and complex challenges. Moreover, the plan and subsequent implementation could be strengthened by differentiating supports to the very diverse economies across Illinois. Emerging challenges and opportunities may warrant new or expanded economic development activities. However, the State should work to alleviate and reduce challenges that administrative processes and regulatory actions can address. Examples may include regulatory barriers, fiscal and tax policies, permitting processes, education and workforce development, and physical infrastructure. Activities should be tailored as appropriate to sustain a more stable and reliable environment for business.

⁷⁰ Chicago Metropolitan Agency for Planning report, "Reorienting State and Regional Economic Development: Challenges and Opportunities for Metropolitan Chicago," 2017, <http://www.cmap.illinois.gov/programs/innovation/economic-development>.

⁷¹ Illinois General Assembly, Public Act 98-0397.

The State of Illinois should identify and plan for the distinct needs of its regional economies, allocating resources and developing policies to reflect their unique scale, opportunities, and challenges.

The State of Illinois should coordinate the delivery of its direct services, programs, and financial assistance for economic development with regional organizations and stakeholders.

The State of Illinois should pursue transparent, accountable practices that ensure investments for economic development produce improved results.

The State of Illinois and regional organizations should seek opportunities to collaborate for economic development across state boundaries, as appropriate.

The State of Illinois must provide a stable fiscal environment to improve the overall business climate

At every level, government should support a healthy economy by investing in public goods, ensuring fiscal stability, and avoiding uncertainty for businesses and investors. Yet recurring gridlock in state government demonstrates that Illinois has not yet found political consensus on how to address significant unfunded liabilities or modernize the tax code to maintain current services. Persistent state and local fiscal uncertainty undermines metropolitan Chicago's business environment. Business investment and development strategies can take several years to implement, and firms desire stable, predictable tax rates and government services that enable them to forecast operational costs. Over time, the State of Illinois' fiscal condition can erode the advantages of operating in the Chicago region.

State-level fiscal concerns can also negatively affect planning and revenues at the local level. Local governments may not be able to rely on federal and state revenues for future capital investment, economic development, and other activities.⁷² The State of Illinois should implement fiscally sustainable practices to ensure a stable business environment and guarantee the reliability of state support for local governments, education and training providers, transit agencies, and nonprofit service providers.

Support the region's traded clusters

An industry cluster is a group of firms, related stakeholders, and supportive institutions that gain productive advantages from close geographic proximity and related economies of scale.⁷³ As groups of related industries grow and develop, clustering can help lower business costs and increase the extent and benefits of specialization. Deeper labor pools, better access to customers

⁷² Chicago Metropolitan Agency for Planning Policy Update, "Revenue trends for transportation funding in the Chicago region," http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/revenue-trends-for-transportation-funding-in-the-chicago-region.

⁷³ Michael Porter, "Clusters and the New Economics of Competition," *Harvard Business Review* (1998).

and suppliers, knowledge spillovers -- these and other advantages are derived from an environment of balanced competition and collaboration. As a result, specialized industry clusters embedded in metropolitan regions worldwide spur significant economic activity that forges broad economic opportunity and growth.⁷⁴ Even in uncertain economic conditions, the competitive advantages of clusters effectively make the case for why a business would choose or need to operate in the Chicago region. A mounting body of research shows that these efficiencies boost a region's job growth, wages, patenting, and startup activity.⁷⁵ In particular, traded clusters -- those selling products and services in markets outside of the region -- have an outsized potential to grow our economy. Traded clusters account for just one-third of the region's employment but half its income and demonstrate higher rates of productivity, wages, and patenting.⁷⁶

[GRAPHIC TO COME: An illustration will provide information on traded industry clusters and the benefits of cluster initiatives.]

The Chicago region realizes significant economic returns through its diverse areas of strength, with employment concentrations above the national average in the majority of traded clusters. Yet the changing global economy has led to declining employment in almost all traded clusters since 2001.⁷⁷ While many factors contribute to industry trends over time, differences between trends here and elsewhere in the U.S. illustrate our region's relative competitiveness. For example, only a small handful of metropolitan Chicago's traded clusters grew regional employment at or ahead of national averages, most notably Business Services and Medical Devices. The performance of other relatively large clusters has been more mixed, pairing declining employment totals with continued specialization in the national context. Such clusters include Financial Services, Food Processing and Manufacturing, and Metal Manufacturing.

[GRAPHIC TO COME: A series of data charts will show change in metropolitan Chicago's traded industry clusters between 2001-2017.]

Economic realities are making it increasingly essential that businesses and related public or private institutions work together to support further cluster growth and employment concentration in the region. Regional efforts can address shared, sector-specific challenges like the steepening competition from globalization and the accelerating pace of technological and

⁷⁴ Stuart S Rosenthal and William C. Strange, "Evidence on the nature and sources of agglomeration economies," *Handbook of regional and urban economics* 4 (2004): 2119-2171.

⁷⁵ Christian Ketels, "Recent research on competitiveness and clusters: what are the implications for regional policy?" *Cambridge Journal of Regions, Economy and Society* 6, no. 2 (2013).

⁷⁶ Chicago Metropolitan Agency for Planning ON TO 2050 snapshot, "Regional Economy and Clusters: Building on Our Strengths," 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/economic-clusters>.

⁷⁷ Chicago Metropolitan Agency for Planning ON TO 2050 snapshot, "Regional Economy and Clusters: Building on Our Strengths," 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/economic-clusters>.

market changes. Cooperation can also support multiple planning goals like organizing employers and social service providers to implement a regional career pathway system.

The following describes strategies and associated actions to implement this recommendation.

Convene industry leadership and support coordination of cluster initiatives

Clusters occur naturally in the economy as related businesses and institutions enhance productivity through advantages of proximity and interconnectivity. To build their own productivity and resilience, many regions have begun forming cluster initiatives that more deliberately bring together resources to tackle common concerns. Formal initiatives, directed by the needs and interests of the area's businesses, can provide comprehensive support around the accelerated growth of a specific cluster. Such initiatives include the [Chicago Metro Metals Consortium](#) and the [Chicagoland Food and Beverage Network](#). Cluster support can take many forms, such as enhancing educational and training offerings or addressing specialized infrastructure needs. As a result, strategies depend on the unique contexts in which industries operate at regional and sub-regional levels. Private sector leaders -- in partnership with public officials -- have a critical role to play in guiding policy and planning for cluster-oriented economic development. For traded clusters in particular, initiatives should create opportunities for businesses to expand into markets nationally and internationally.

Conduct additional analysis of the region's globally traded clusters

Successful economic development depends on improving the region's competitiveness as a place to do business by increasing the productivity of regional economic assets, including existing firms and workers. Clusters provide a framework for better organizing the many public policies and investments already directed toward economic opportunity and growth. Doing so requires a more detailed understanding of specialized clusters present in northeastern Illinois, and of their unique, often-multijurisdictional needs. Building on momentum from the private sector, this research should aim to serve as a basis for convening industry leadership and identifying initial opportunities for high-impact, cross-cutting collaboration.

CMAP and research partners should continue to analyze globally traded clusters and research the unique transportation, land use, innovation, and human capital needs of specialized clusters.

CMAP and research partners should provide guidance to local partners on best practices for zoning, development, transportation investments, and other tactics that support traded cluster growth.

CMAP and research partners should explore the use of innovative analytical techniques and planning tools for traded cluster-oriented economic development in local and sub-regional plans.

Pursue inclusive growth by prioritizing clusters that support regional economic opportunity

Inclusive economic growth can improve wages and living standards for the average resident and achieve high participation in a skilled workforce. Yet proponents of cluster-oriented economic development and inclusive growth too often operate in parallel without acknowledging their joint interests. Due to their economic benefits, cluster initiatives can generate economic activity that improves outcomes in underserved or lower income areas, and an emphasis on decreasing inequality could further boost productivity and competitiveness. Likewise, a regional approach to prioritizing cluster support can decrease inequality by raising the demand for labor⁷⁸ and increase the effects of policies aimed to spread opportunity.⁷⁹ Economic development organizations and partners should take an active role in cluster initiatives, in part to ensure they implement strategies to support inclusive growth. CMAP and partners can make initial efforts to identify and prioritize support to clusters that promote equitable growth in different and diverse parts of the region.

Analyze the planning needs and opportunities of local clusters

Cluster-oriented economic development tends to focus on traded clusters because they serve national and global markets and have significantly higher levels of productivity, wages, and patenting.⁸⁰ Some research has also begun to explore the role and needs of industry clusters that serve local businesses and residents. These local clusters provide the economic foundations that businesses in traded clusters rely on to operate. For example, such clusters provide most local healthcare services, education and training, utilities, industrial and vehicle repair services, and local commercial and personal services. These clusters tend to appear in metropolitan areas across the U.S. at concentration levels proportionate to a region's population and the traded businesses they service.⁸¹

Both traded and local clusters have discrete functions in the regional economy and distinct infrastructure, land use, and employment needs.⁸² Local business-to-business clusters, such as those selling industrial products and commercial services, depend on a transportation system that moves goods efficiently within the region. They also tend to boast higher levels of minority

⁷⁸ Manuel Pastor, Peter Dreier, Eugene Grigsby III, and Marta López-Garza, "Growing Together: Linking Regional and Community Development in a Changing Economy," Shelterforce (1998): 2.

⁷⁹ Raj Chetty, David Grusky, Maximillian Hell, Nathaniel Hendren, Robert Manduca, and Jimmy Narang, "The Fading American Dream: Trends in Absolute Income Mobility Since 1940 (Non-Technical Summary)" (2016) http://www.equality-of-opportunity.org/assets/documents/abs_mobility_summary.pdf.

⁸⁰ Chicago Metropolitan Agency for Planning ON TO 2050 snapshot, "Regional Economy and Clusters: Building on Our Strengths," 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/economic-clusters>.

⁸¹ Mercedes Delgado, Richard Bryden, Samantha Zyontz, "Categorization of Traded and Local Industries in the U.S. Economy," Cluster Mapping Methodology, 2014, <http://clustermapping.us/content/cluster-mapping-methodology>.

⁸² Chicago Metropolitan Agency for Planning Policy Update, "The Chicago region's local industry clusters," October 2015, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/the-chicago-region-s-local-industry-clusters.

ownership and are well-represented in underserved or lower income areas.⁸³ Additional cluster-oriented strategies -- such as opening up institutional and corporate procurement chains to a more diverse set of suppliers -- can reflect the broad set of opportunities within local clusters. Further analysis of the region's local industry clusters will help formulate plans to address their challenges and opportunities.

Analyze and plan for the human capital needs of clusters

Many of metropolitan Chicago's clusters first emerged based on location advantages unique to the region like its central location in the agricultural and industrial Midwest, strong access to a variety of resources, and dense freight infrastructure.⁸⁴ These remain some of the region's strongest competitive advantages. Today, a skilled and adaptable workforce is increasingly important to sustaining and growing the region's traded clusters. Their continued competitiveness will require coordinated, demand-driven approaches to education and workforce investments. Partnerships between the private and public sectors can help align training programs and hiring practices to ensure clusters have the talent to meet industry shifts.

Human capital is critical to improving the productivity and growth of each cluster, as well as the region as a whole. The value of deep talent pools extend beyond individual firms, as the exchange of ideas within a cluster contributes to higher levels of innovation and productivity. To capitalize fully on the region's human capital, public and private institutions should continue to foster specialized networks that lead to knowledge spillovers and increase opportunities for innovation. These efforts will require employers to form stronger partnerships with the region's universities and other institutions of higher education and research.

Cluster organizations, business associations, chambers of commerce, and other industry groups should prioritize strategies that support the accumulation of human capital in the region, such as cooperation among firms and interaction with education and research institutions.

Cluster organizations, business associations, chambers of commerce, and other industry groups should work with workforce partners to connect priority populations with supportive services that enable better access to education and employment opportunities.

Adult education and workforce training providers -- with the support of industry -- should coordinate training programs.

⁸³ Jonathan Holifield, Adam Kamins, Teresa Lynch, "Inclusive clusters," *Economic Development Journal* 11,4 (2012), http://masseconomics.com/wp-content/uploads/2013/02/Inclusive_Clusters.pdf. See also *Executive Summary: Linking Regional Economic Clusters with Target Urban Places*, conducted in partnership by Mass Economics, RW Ventures, Bookman, Capraro Associates, and Jones Lang LaSalle.

⁸⁴ Thomas Brenner and André Mühlig, "Factors and Mechanisms Causing the Emergence of Local Industrial Clusters: A Summary of 159 Cases," *Regional Studies* 47, 4 (2013), 480-507.

CMAP, cluster organizations, and regional EDOs should assist in the articulation of career pathways in key traded clusters.

CMAP should provide data and analysis on job market dynamics in traded clusters.

Leverage existing resources, relationships, and institutions to support industry innovators

When complementary firms operate in close proximity, frequent interactions on a variety of levels prompt knowledge spillovers as workers and firms learn from one another without incurring high costs. For example, dense supply chains allow businesses to work directly with their suppliers to customize and improve the inputs required to pursue new ideas. Firms in a cluster are thus better poised to anticipate trends and to adapt their operations by implementing innovations. Cluster-oriented strategies can help spur innovative activity by leveraging existing assets to support new-to-market or new-to-firm innovations. With an educated and experienced workforce, metropolitan Chicago's traded clusters increasingly compete by offering high value-added, customized, or made-on-demand products and services to a growing global customer base. For businesses to maintain a competitive advantage, the region must commit to investing in new innovations and partnerships that keep our economy at the forefront of such industry trends. Various stakeholders in any given cluster have the capacity to form partnerships that facilitate such idea exchange.

Economic development organizations should develop tools to support and foster dense, specialized networks for sourcing supplies, talent, customers, early-stage financing, ideas, services, and other business inputs.

CRGC or a similar entity -- in partnership with local EDOs -- should lead efforts to connect regional businesses to their respective innovation ecosystems and assist the dissemination of new technologies and processes.

CRGC, economic development organizations, business associations, and chambers of commerce should provide technical assistance to regional businesses on implementing new advances and reaching global markets.

Federal and state economic development agencies should continue to provide resources and expand support for regional cluster-oriented strategies.

Prioritize pathways for upward economic mobility

Barriers that impede residents from fully participating in the regional economy undercut metropolitan Chicago's primary source of growth -- its human capital. Numerous measures of economic well-being by race and ethnicity show how the region falls short of ensuring equitable

opportunity for all residents, and thus falls short of performing to its full potential.⁸⁵ Black and Hispanic residents in particular experience persistent disparities in educational attainment, employment, household income, and other indicators. Over time, these challenges limit the pace and durability of the region's economic growth, while also impeding efforts to reduce poverty or create opportunity.

[GRAPHIC TO COME: A series of data charts will provide information on persistent disparities in economic outcomes among metropolitan Chicago's residents by race/ethnicity.]

Racial and economic inclusion is integral to our continued growth and development. Research increasingly demonstrates the connection between reducing racial inequality and achieving stronger and more sustained economic growth. The International Monetary Fund has found that lowering income inequality in a region by 10 percent lengthens periods of growth by 50 percent.⁸⁶ Apart from the need for a skilled workforce, the Federal Reserve Bank of Cleveland has found that growth in regional productivity depends most on ethnic diversity, racial inclusion, minority-owned businesses, and low levels of income inequality.⁸⁷ In contrast, persistent inequality undermines a community's resilience in the face of uncertain future economic shifts. During 2006-10, income inequality was one of the most effective ways of predicting a county's risk of entering into recession,⁸⁸ and recent research shows that higher levels of wealth inequality can increase the severity of a recession.⁸⁹

Rates of labor force participation among the region's black residents during 2005-16 were at least five percentage points below any other group.⁹⁰ Metropolitan Chicago had nearly 150,000 young adults ages 16-24 years (12.1 percent) disconnected from both work and school in 2015, including 22.9 percent of young black residents.⁹¹ Many of these young adults have a high school diploma but require substantial remedial education, as well as options to intersperse learning and income. As skills demand evolves, low graduation rates among low-income and entry-level workers undermine training programs that could help them to enter and remain in

⁸⁵ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Inclusive Growth," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/inclusive-growth>.

⁸⁶ Andrew Berg and Jonathan Ostry, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" *International Monetary Fund Staff Discussion Note* (2011). DOI: <http://dx.doi.org/10.5089/9781463926564.006>.

⁸⁷ Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future," *Federal Reserve Bank of Cleveland Working Paper* (2006):20.

⁸⁸ Paul Lewin, Philip Watson, and Anna Brown, "Surviving the Great Recession: the influence of income inequality in US urban counties," *Regional Studies* (2017): 1-13.

⁸⁹ Dirk Krueger, Kurt Mitman, and Fabrizio Perri, 2016, "Macroeconomics and household heterogeneity," in *Handbook of Macroeconomics*, John B. Taylor and Harald Uhlig (eds.), Vol. 2, Amsterdam: Elsevier B.V. / North-Holland, pp. 843–921.

⁹⁰ Chicago Metropolitan Agency for Planning analysis of American Community Survey data, 2005-16.

⁹¹ Sarah Burd-Sharps, Kristen Lewis, Rupsha Basu, Rebecca Gluskin, Laura Laderman, and Marina Recio, *Promising Gains, Persistent Gaps: Youth Disconnection in America*. (Measure of America of the Social Science Research Council, 2017), <http://www.measureofamerica.org/youth-disconnection-2017/>.

the workforce.⁹² At the same time, average real U.S. annual wages for those with a high school diploma have not increased since 1970, even as costs to participate in the economy like childcare and post-secondary education have risen.⁹³

As both inequality and global economic shifts play out, how individuals relate to the labor market has become more complicated. Entry-level requirements have increased, and workers must increasingly seek out and pay for more post-secondary training before entering the workforce, in addition to continual training throughout their career to remain competitive.⁹⁴ In 2016, for the first time, workers with a Bachelor's degree or higher made up a larger proportion of the workforce (36 percent) than workers with a high school diploma or less (34 percent).⁹⁵ Yet the qualifications listed in a job posting do not necessarily reflect the actual skills and education needed to perform the related tasks. Inflated job requirements can contribute to large pools of overlooked talent.⁹⁶ These hurdles can be particularly challenging for people tenuously connected to the workforce like returning citizens and opportunity youth -- or young adults 16-24 years old who are not in school and not working. As the workforce and education systems adapt, a career pathway approach can provide essential resources to mitigate challenges that some individuals face to entering and thriving in the economy.⁹⁷

Put simply, the game is changing. Many employers seek to hire new workers who already have the required skills, rather than to invest in extensive education and training of staff. Some research has found an ongoing decline in the share of workers receiving employer-sponsored or on-the-job training, and the U.S. has been slow to implement a system of apprenticeship programs on a national scale.⁹⁸ Some sectors like manufacturing and health care have standardized the skills requirements or have gained new efficiencies through technology.

⁹² National Center for Education Statistics, *The Condition of Education 2017*, "2017 Spotlights: First-Time Postsecondary Students' Persistence After 3 Years," 2017, https://nces.ed.gov/programs/coe/indicator_tsc.asp.

⁹³ R. Abel Jaison and Richard Dietz, "Do the benefits of college still outweigh the costs?" *Current Issues in Economics and Finance* 20:3 (Federal Reserve Bank of New York, 2014).

⁹⁴ Anthony P. Carnevale, Nicole Smith, and Jeff Strohl, *Recovery: Job Growth and Education Requirements through 2020*, 2013, Georgetown University Center on Education and the Workforce, <https://cew.georgetown.edu/cew-reports/recovery-job-growth-and-education-requirements-through-2020/>.

⁹⁵ Anthony P. Carnevale, Tamara Jayasundera, and Artem Gulish, *Recovery: College Haves and Have-Nots*, 2016, Georgetown University Center on Education and the Workforce, <https://cew.georgetown.edu/cew-reports/americas-divided-recovery/>.

⁹⁶ Organisation for Economic Co-operation and Development, *Skills Matter: Further Results from the Survey of Adult Skills*, 2016, http://www.oecd.org/skills/piaac/Skills_Matter_Further_Results_from_the_Survey_of_Adult_Skills.pdf.

⁹⁷ Illinois Community College Board, *Expanding Career Pathway Opportunities in Adult Education: Strategic Directions for Illinois*, https://www.iccb.org/iccb/wp-content/pdfs/adulted/strategic_plan/ICCB_Adult_Education_Strategic_Plan_2018-2023.pdf.

⁹⁸ Council of Economic Advisers. *Economic Report of the President*, 2015. http://www.nber.org/links/cea_2015_erp.pdf.

Others have seen a rise in typical education requirements for entry-level positions.⁹⁹ For many low-income and entry-level workers, these trends can result in a cycle of temporary or contract work without the job security, benefits, or training to pursue better opportunities. In short, workers with tenuous connections to the economy make increasingly complex decisions about their own workforce readiness -- that is, how they plan to pursue, pay for, progress through, and complete the education and training required to attain relevant skills. Without action, evidence of increasing training requirements and decreasing employer investments in training raises concerns about compounding inequality.

[GRAPHIC TO COME: A graphic will provide information on career pathway programs and coordination in the region's education and workforce systems.]

The decision to invest in post-secondary education and training can have lifelong economic consequences for individuals and households. Even for workers in high-growth sectors or with industry-recognized credentials, some jobs provide better opportunities for career advancement and upward mobility. Yet many students make costly, self-directed decisions with limited information. In particular, the range of education and credentialing programs has continued to diversify, but sub-baccalaureate credentials are not uniformly valuable for workers and employers.¹⁰⁰ Looking beyond immediate employment needs, the workforce and education systems have increasingly emphasized strategies for connecting individuals to jobs that have the potential to grow in skills and compensation. Achieving these goals requires regional coordination to target educational supports and training in skill areas and occupations that likewise offer pathways to upward mobility.

A career pathway approach offers one model for coordinating public and private resources around programs that connect target populations with supportive, progressive opportunities in growing occupations. These programs offer a series of manageable steps leading to attainment of industry-recognized credentials and career advancement by balancing classroom and work-based learning. Well-articulated guidance on pursuing opportunities is then communicated to individuals and households through multiple workforce channels. In doing so, career pathways synchronize regional workforce needs with individual training needs and help both employers and workers assess the value of credentials in the regional job market.¹⁰¹ Programs have the flexibility and stakeholder input to structure learning and earning opportunities as appropriate for many different occupations and sectors. Examples may include pathways in business

⁹⁹ Audrey Watson, "Employment trends by typical entry-level education requirement," *Monthly Labor Review*, U.S. Bureau of Labor Statistics (2017), <https://www.bls.gov/opub/mlr/2017/article/employment-trends-by-typical-entry-level-education-requirement.htm>.

¹⁰⁰ Veronica Minaya and Judith Scott-Clayton, "Labor Market Trajectories for Community College Graduates: New Evidence Spanning the Great Recession. A CAPSEE Working Paper," Center for Analysis of Postsecondary Education and Employment, 2017.

¹⁰¹ Anthony Carnevale, Tanya Garcia, Artem Gulish, *Career Pathways: Five Ways to Connect College and Careers*, Georgetown University Center on Education and the Workforce, 2017, <https://cew.georgetown.edu/cew-reports/careerpathways/>.

information technology, insurance, advanced manufacturing, transportation and logistics, and health care.

Close cooperation with employers ensures that programs provide in-demand skills, a broad set of necessary supports, and connections to specific work-based learning opportunities. For example, regional collaboration in Long Beach, California, has contributed to substantial increases in the share of local students meeting entrance requirements to that state's university systems, as well as graduation rates among students of color that surpass those statewide.¹⁰² This model can help students balance improved flexibility with assurances of the training's ongoing value. Likewise, by aligning educational systems with the needs of employers, it can help workforce partners enhance the delivery of career counseling, job-placement assistance, and other support services.

The following describes strategies and associated actions to implement this recommendation.

Invest in continued development and implementation of career pathway programs

The promise of a career pathway approach at the regional level depends on decisions and investments made at the program level. Yet programs vary widely in how they implement best practices like a sector focus, support services for participants, career-focused instruction, work-based learning, evidence-based practices, and progression to a recognized post-secondary credential with regional economic value.¹⁰³ For many programs, these steps begin with identifying reliable and flexible funding that supports long-term planning and scaling effective models -- a particular challenge to find in today's environment of limited public resources.¹⁰⁴ While additional funding may be necessary, many administrative actions and supportive policies can contribute to improving programs' capacity, accessibility, quality, and relevance. A core goal should be scaling models that integrate foundational learning with sector-specific workforce preparation and training in occupations that provide opportunities for growth and career advancement. Private sector leadership and investment will be critical to keeping the content and delivery of programs at the forefront of future industry shifts.

Education and training providers -- in partnership with employers -- should develop sector-specific instructional models that reflect evidence-based research, local and regional goals, and skills demand in the labor market.

¹⁰² The Long Beach College Promise, "Ten Year Report: Moving Long Beach Ahead, 2008-2018," http://www.longbeachcollegepromise.org/wp-content/uploads/2018/03/FINALBCP_AnniversaryReport2018_7.25x11-R29.compressed.pdf.

¹⁰³ "Landscape Scan of Progressive Pathways in the Chicago Region, Phase 1 -- Executive Summary," 2017, <https://public.3.basecamp.com/p/MAESNGpbd1vgbRiYpTZtGvhH>.

¹⁰⁴ Illinois Community College Board, *Expanding Career Pathway Opportunities in Adult Education: Strategic Directions for Illinois*, https://www.iccb.org/iccb/wp-content/pdfs/adulted/strategic_plan/ICCB_Adult_Education_Strategic_Plan_2018-2023.pdf.

Education and training providers -- in partnership with workforce funders -- should market and build awareness about career pathways to equip our educators, career counselors, college advisors, and students themselves in strategizing for career and life choices.

Federal and state policy makers should develop funding mechanisms that encourage ongoing development, implementation, and improvement of career pathway programs.

Federal and state policy makers should expand funding models to include greater flexibility for improvements in the quality and delivery of instruction, as well as additional support services that ensure successful program completions and transitions.

Federal and state policy makers should facilitate the integration of planning processes and funding streams in support of career pathway programs.

State and local policy makers -- in partnership with workforce funders -- should establish integrated data systems that capture comprehensive information on career pathway programs and enable analysis of participant outcomes.

Implement a shared vision and strategy to improve, scale, and sustain a regional career pathway system

Few, if any, educational institutions or training programs can meet all the demands of a career pathway program on their own.¹⁰⁵ Instead, goals are achieved through partnerships within a system. In addition to the benefits cited elsewhere in this chapter, career pathways focus on bridging the gaps that can form between a worker's skills and career opportunities by aligning and leveraging the resources already in place to support their employability. Participants may move between the public workforce system, high schools, their current workplace, post-secondary institutions, or apprenticeships as they build from an industry credential to a certificate or degree to new job opportunities. Along the way, providers incorporate employers' skill needs and support services to ensure that participants can attain meaningful progression over time. The value of a system approach is that it connects all relevant public resources with private and nonprofit partners.

The success of a career pathway approach depends on collaborative leadership, commitment, and investment from all regional stakeholders -- especially the private sector. Federal legislation enacted in 2014 with bipartisan support, the Workforce Innovation and Opportunity Act of 2014 (WIOA), codifies a robust definition for career pathways and designates local workforce boards as conveners for coordinating these pathways as a system. Regional coordination -- particularly through WIOA state and local plans -- helps to integrate resources, policies, data, and performance measures across various entities to sustain high quality career pathways. Other

¹⁰⁵ "Expanding Career Pathway Opportunities in Adult Education: Strategic Directions for Illinois," 2018, https://www.iccb.org/iccb/wp-content/pdfs/adulted/strategic_plan/ICCB_Adult_Education_Strategic_Plan_2018-2023.pdf.



implementers can demonstrate leadership in developing a shared vision and coordinated efforts when appropriate, including business associations, chambers of commerce, or community colleges.

Establishing a regional career pathway system offers several benefits. Greater coordination can improve program quality and reduce duplication, overlap, and underutilized capacity across existing programs. Consistent data sharing and accountability can clarify the connectivity between programs and support co-enrollment or articulation agreements. Well-organized evaluations and needs assessments help to align programs with both partners and regional economic development priorities.

Illinois is already a national leader in developing systems at the state and regional levels. The state participates in the Center for Law and Social Policy's national [Alliance for Quality Career Pathways](#), and has launched the [Workforce Readiness through Apprenticeships and Pathways](#) and [Illinois 60 by 25 Network](#) initiatives. Further coordination is necessary to ensure regional resources and structures can properly support existing and emerging career pathway programs as they tackle needs in their communities.

Government, business and civic leaders, educational institutions, and other regional actors should enhance partnerships for a regional career pathway system and assist partners in its implementation.

Workforce funders should strengthen alignment and service integration across core WIOA agencies and required partners to support development of career pathway programs and provision of support services.

Education and workforce providers should collaborate with state and regional partners to pursue integrated service delivery that can reduce duplication and improve delivery services.

Education and workforce providers -- in partnership with workforce funders and employers -- should establish transition frameworks to enable multiple entry points into post-secondary education and to support students' progression toward industry-recognized credentials, sustained employment, and career advancement.

Education and workforce providers -- in partnership with workforce funders -- should develop integrated data systems to evaluate career pathway models and to ensure programs are responsive to local and regional goals, labor market needs, employer feedback, and unified plans.

Education and training providers -- in partnership with workforce funders -- should identify and scale programs that reduce barriers for adult learners in accessing appropriate educational programs and employment opportunities.

Embed career pathway programs in cluster-oriented economic development strategies

The goals of a career pathway approach and cluster-oriented economic development mutually reinforce each other. With a sector-specific focus, career pathways help workers attain credentials that regional employers recognize and value, while also connecting employers directly to workers with the right skills. In doing so, career pathway programs need to have an understanding of the region's unique industry mix, emerging trends within an industry cluster, and the human capital needs that make the Chicago region a destination for such business activity. Related information and analysis lie at the heart of coordinating effective cluster-oriented economic development. Cluster initiatives can help to organize industry leadership to support career pathway programs, especially in industries with opportunities for workers' upward economic mobility that anticipate challenges in filling entry-level positions.

Economic development organizations -- in partnership with cluster organizations -- should fully incorporate strategies to develop and implement high quality career pathways into efforts aimed at supporting the region's traded industry clusters.

Education and training providers should make the program-related decisions that align curricula with skills demand and broaden students' career opportunities in the region's growing and emerging traded clusters.

Career pathway program providers and system administrators should articulate career pathways where knowledge, skills, abilities, and work values can be transferrable across multiple occupations and industries within industry clusters.

Develop mechanisms to adapt career pathway programs according to labor market demand

The State of Illinois and regional partners have made significant strides in articulating career pathways based on rigorous market analysis. But ongoing analysis and coordination are necessary for continuous improvement toward higher quality education and training. To reap the potential benefits of a career pathway approach, the region should ensure its existing and emerging programs reflect labor market demand in their communities. Doing so requires mechanisms for strong industry engagement in each segment of a career pathway, as education and training providers identify employers' skills need, work-based learning opportunities, specific job placements, and evidence-based improvements. Such engagement is critical to demonstrating the region's human capital to industry and the return on investment to regional and state leaders.

Partners in the region's career pathway system should identify strategies to better capitalize on labor market information, regional economic development goals, and local employer input. Integrated education, workforce, and related data would enable partners to evaluate

participation and outcomes with a focus on decreasing inequality. Improved coordination also allows pathways to leverage a broader range of resources, such as collaborating with area employers to develop apprenticeship programs and related curricula. In particular, aggregating conclusions across public and private entities would help spur regional employment and productivity growth.

Enhance economic innovation

As the global economy evolves, sustainable and resilient growth increasingly depends on metropolitan Chicago's capacity to convert new ideas into higher productivity and greater competitiveness. Public strategies can create the conditions for such innovation to fuel longer, more sustained, and inclusive economic growth.¹⁰⁶ Despite its many economic assets, key ON TO 2050 indicators like patenting and venture capital activity suggest that the region [lags](#) behind peers in terms of research, commercial development, and entrepreneurial activity.

Innovation can take many forms and occurs throughout the economy. Rapid technological changes are often the most prominent examples, such as recent advances in artificial intelligence, advanced materials, and the digitalization of services.¹⁰⁷ New, unforeseeable industries can arise as these breakthroughs find applications throughout the economy. However, other forms of innovation can also generate important economic benefits, such as better ways of operating a business. More subtle process innovations can help businesses reduce errors or costs, increase output, and improve quality, speed, and functionality. For example, advances in data analytics have allowed businesses to reorganize production and distribution, finding new efficiencies.¹⁰⁸ Based on recommendations of the GO TO 2040 plan and subsequent analysis, CMAP's policy and planning work aims to support the full range of innovative and entrepreneurial activities that contribute to economic vitality.

Innovation necessarily begins with strong investments in human capital, which will always be the region's source of next-generation ideas and its strongest competitive advantage. An inclusive, high quality labor force spurs innovation in two ways: by developing more innovative ideas and by implementing those ideas more readily. Innovation from the region stands to benefit from diversifying the voices contributing to their development.¹⁰⁹ At the same time, the diffusion of new technologies and processes requires mobilizing our full inventive talent at all skill levels. As new innovations find uses throughout the economy, workers in most

¹⁰⁶ National Science and Technology Council, "National Network for Manufacturing Innovation Program: Annual Report," Executive Office of the President, 2016, <https://www.manufacturing.gov/files/2016/02/2015-NNMI-Annual-Report.pdf>.

¹⁰⁷ James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst, "A future that works: automation, employment, and productivity," McKinsey Global Institute, 2017.

¹⁰⁸ Manyika et al. "A future that works."

¹⁰⁹ Laurel Smith-Doerr, Sharla N. Alegria, and Timothy Sacco, "How diversity matters in the U.S. science and engineering workforce: a critical review considering integration in teams, fields, and organizational contexts," *Engaging Science, Technology, and Society* 3 (2017): 139-153.

occupations and at all skill levels will need to be equipped to use them to accomplish a wide range of creative and problem-solving tasks.¹¹⁰

Because the private sector is a key driver of innovation and commercialization, the role of the public sector is to find ways to help spur innovation by supporting institutions, relationships, and the essential components of a modern economy. Policies and programs should focus primarily on supporting dense, dynamic economic activity in the Chicago region and ensuring that different, diverse parts of the region can participate. ON TO 2050 emphasizes entrepreneurial growth and the adoption of innovations among incumbent businesses, while acknowledging the vital role and importance of new idea generation and development. CMAP continues to support the work of other organizations striving to improve our region's position at the cutting edge of scientific, technological, and commercial breakthroughs.

[GRAPHIC TO COME: An illustration of metropolitan Chicago's deep assets in higher education and research.]

The following describes strategies and associated actions to implement this recommendation.

Leverage institutions of higher education and research for economic development

While their primary output is talent and not technology, universities and community colleges have extensive resources to support economic growth through fostering development, retention of viable commercial startups, and local efforts to build inventive talent. Many R&D-intensive firms benefit from proximity to institutional assets like specialized research, data resources, analytical and faculty expertise, and business counseling services. The region's national laboratories and other research institutions likewise offer exceptional opportunities for economic development. As strategies for regional growth take shape, CMAP and partners should draw on unique assets not present in other regions and connect them to regional firms and investors. This should include higher rates of research and development investments, higher rates of new business formations, and the diffusion and commercialization of innovations among existing businesses.

CRGC or a similar entity -- in partnership with local EDOs and the innovation ecosystem -- should pursue strategies to connect the region's national labs, universities, and other research institutions to market opportunities with regional firms and investors.

CRGC or a similar entity -- in partnership with local EDOs -- should support institutions and relationships that provide services to small and medium-sized enterprises lacking access to their innovation ecosystems and financing.

¹¹⁰ Carl Benedikt Frey and Michael A. Osborne, "The future of employment: how susceptible are jobs to computerisation?" *Technological Forecasting and Social Change* 114, 2017: 254-280.

The State of Illinois should provide robust and reliable public funding for higher education, which is crucial for cultivating, retaining, and attracting innovative talent and businesses to northeastern Illinois.

CRGC or a similar entity -- in partnership with local EDOs and the innovation ecosystem -- should leverage economic and research assets in the transportation, distribution, and logistics industry cluster to remain a destination for related innovative activity.

Diversify the entrepreneurial voices engaged in problem and solution development

Today, metropolitan Chicago limits its own innovative capacity when it fails to expose many residents to a culture of innovation and to invest in their education, skills acquisition, and entrepreneurship.¹¹¹ Research demonstrates that even high-aptitude students from lower income and diverse backgrounds are impeded from participating in innovation and invention.¹¹² A U.S. Department of Commerce report also found that minority-owned businesses receive fewer, smaller, and more expensive loan and equity investments than non-minority businesses.¹¹³ Without more investment in the region's human capital and deliberate steps to ensure financial inclusion, these drains on productivity will continue to hinder the region's economic growth.¹¹⁴ An analysis by the Federal Reserve Bank of Cleveland showed that racial and ethnic diversity, openness to immigrants, and low rates of racial segregation contribute to growth in employment and productivity.¹¹⁵ Put simply, strategies for inclusive growth will broaden the pool of creative talent and market-driven inventions available to businesses. Exposing diverse residents to successful entrepreneurs and the so-called "opportunities of failure" can create a fertile environment for innovation in all areas of the region.¹¹⁶

The innovation ecosystem should improve access to capital, science, technology, engineering, arts, and mathematics education, and training opportunities for residents of EDAs.

¹¹¹ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Inclusive Growth," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/inclusive-growth>.

¹¹² Alexander Bell, Raj Chetty, Xavier Jaravel, Neviana Petkova, and John Van Reenan. "Who Becomes an Inventor in America? The Importance of Exposure to Innovation," NBER Working Paper No. 24062 (2017).

¹¹³ Federal Reserve Banks of Atlanta and Cleveland, *Small Business Credit Survey: Report on Minority-Owned Firms*, 2017, <https://www.clevelandfed.org/en/community-development/small-business/about-the-joint-small-business-credit-survey/2016-small-business-credit-survey.aspx>.

¹¹⁴ Christ Benner and Manuel Pastor. *Equity, Growth, and Community: What the Nation Can Learn from America's Metro Areas*. (California: University of California Press, 2015) DOI: <http://dx.doi.org/10.1525/luminos.6>.

¹¹⁵ Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future," *Federal Reserve Bank of Cleveland Working Paper* (2006):20.

¹¹⁶ Olav Sorenson, "Regional ecologies of entrepreneurship," *Journal of Economic Geography* 17 (2017), 959-974.



The innovation ecosystem should provide mentorship, internship, apprenticeship, and other opportunities that ensure all residents with an aptitude for invention are exposed to a culture of innovation.

Reorient policies to better support innovation and entrepreneurship

Both the quality of an innovation and the extent to which it is used determine the impact it will have on the economy. Economic innovation requires both conceiving new ideas and adapting them into the technologies, processes, business models, and industries that bring improved goods and services to market. Some innovations find expression in entirely new offerings or startups, while others manifest as new efficiencies and business expansion. As a result, the innovations that enable growth are generated by the private sector but can be supported through public policy. Research continues to refine how the public sector can best support an innovation and entrepreneurship ecosystem. At root, innovation is the product of vibrant economic activity, a robust business environment, and high quality human capital. Broad economic development can help to align and improve existing initiatives to create value through the innovation process.

Policies and programs regarding economic innovation frequently focus more on spurring new ideas than on expanding their diffusion and adoption. Customary strategies include support for basic scientific research, intellectual property rights, access to capital, and commercial development. Continuous improvement in these areas remains important. However, other local and regional strategies can build on this foundation to leverage new innovations for global competitiveness. For a wave of innovation to drive economic growth, advances need to spread across multiple sectors, attract additional business investment, and translate into higher productivity. Resources and policies for economic development should be tailored to support the efforts of viable young companies attempting to scale up and the adoption of innovations among incumbent businesses. Local and state officials should consider overall economic gains and regional goals in assessing the appropriateness of plans, policies, and programs regarding innovation. Some state policy reforms may be necessary to promote competitiveness, such as changes in regulations regarding non-disclosure or non-compete agreements. The variety of these supports and their effectiveness is significant. CMAP and partners should continue to serve as a resource for information and analysis on regional economic performance, existing resources that support our innovative capacity, and best practices to support industry innovators.

Identify and communicate stronger metrics for tracking innovation

Sound measurement of innovation is crucial for evaluating the efficiency of public policies and programs, and assessing their contribution to achieving regional goals. Yet the data currently available cannot adequately account for the full role innovation and entrepreneurship play in today's economy. Numerous metrics have been developed to help regions position their innovative capacity relative to peers. These indicators typically focus on inputs to idea



generation, such as R&D expenditures, venture capital, and STEM jobs.¹¹⁷ Due to data access and quality problems, measurements of outcomes -- the economic value of new-to-market or new-to-firm innovations -- remain underrepresented.¹¹⁸ The use of indicators overly focused on inputs can lead local and regional stakeholders to overlook the importance of rapid technology adoption and other more subtle forms of innovation.¹¹⁹ In support of performance-based approaches, CMAP and partners should develop additional information regarding public investments, regional industry trends, and economic outcomes.

Responsive, strategic workforce and economic development

Today's economy has grown increasingly complex, transformed by technological advancements, global competition, emerging industries, and evolving consumer demand. As a result, metropolitan Chicago needs to strengthen itself in light of both anticipated and unforeseen economic shifts of the future. Effective public policies and public investments can connect limited resources across governments at every level with private and nonprofit partners. Yet decisions directed at workforce and economic development frequently lag far behind the pace of change and do not reflect the breadth or scale of our region's economic assets. Instead, administrative challenges or insufficient information can limit the economic benefit of public expenditures.

Analysis of the regional economy makes it clear that achieving stronger growth will require policy-based decisions executed through coordinated, sustained initiatives rooted in the needs of particular communities and industries. The effectiveness of these efforts can be bolstered through better coordination that is performance-based relative to goals, responsive to changing demands, and strategic in leveraging the region's strengths. Metropolitan Chicago remains a global economic engine, and by enhancing our workforce and economic development practices, we can secure our position in the 21st century's changing markets.

Conduct regional planning for human capital

As the economic asset that least heeds jurisdictional boundaries, human capital is indispensable to regional prosperity.¹²⁰ Economic growth necessarily hinges on addressing common obstacles to residents' long-term employability. Metropolitan Chicago is home to a well-educated and

¹¹⁷ Organization for Economic Co-operation and Development, *Measuring Innovation: A New Perspective*, 2010, <http://www.oecd.org/innovation/strategy/measuring>.

¹¹⁸ Arnobio Morelix, E.J. Reedy, and Joshua Russell, *The Kauffman Index of Growth Entrepreneurship: Metropolitan Area and City Trends*, (Kansas City, MO: Ewing Marion Kauffman Foundation, 2016).

¹¹⁹ Lee Branstetter and Daniel Sichel, "The case for an American productivity revival," *Policy Brief* no. 17-26, Peterson Institute for International Economics, 2017.

¹²⁰ Nicola Gennaioli, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "Human Capital and Regional Development," *The Quarterly Journal of Economics* 128,1 (2013), pgs. 105-164.



diverse workforce of nearly 5 million workers,¹²¹ whose knowledge and ingenuity are why many businesses choose to operate here.¹²² Yet our region must bridge the gaps between adults seeking to build a career and employers looking to build their workforce. Our education and workforce development investments must become more strategic and demand-driven in the face of uncertain future labor market shifts.

[GRAPHIC TO COME: A series of photos will show the diversity of the region’s residents and skilled occupations.]

Employment and demographic trends, demand for skills, and economic inequality are changing the demands placed on workers, as well as on adult education and training programs. Technological advancements are augmenting work in most occupations and at all skill levels, altering how workers use their time and conduct tasks.¹²³ Residents increasingly need to earn additional post-secondary training to enter the workforce and continuously enhance their skills over time to stay in the workforce.¹²⁴ Applicants increasingly need to demonstrate improved problem solving, literacy, numeracy, professional, and communication skills to be competitive in the job market.¹²⁵ Workers increasingly need to interact adeptly with technology to anticipate, identify, and resolve problems.¹²⁶

These trends deepen concerns that technological advances, industry shifts, and other macro issues could exacerbate existing trends toward “job polarization.” Since 1980, relative demand for labor has been concentrated in either low-skilled (e.g., personal services or food production) or high-skilled jobs (management and professional occupations), accompanied by an erosion of those in the middle.¹²⁷ In particular, technology has helped to automate or streamline many repetitive tasks, while augmenting higher skilled jobs. The profile of a middle-income job -- traditionally in middle-skilled construction, production, or clerical roles -- has shifted toward

¹²¹ Chicago Metropolitan Agency for Planning analysis of Bureau of Labor Statistics data.

¹²² Chicagoland Chamber of Commerce and Loyola University Chicago, Quinlan School of Business, *The State of Small Business: 4th Annual Chicagoland Small Business Outlook Survey*, 2018, https://www.chicagolandchamber.org/Portals/0/Small Business/2017_Chicagoland Small Business Survey_Infographic Brochure.pdf.

¹²³ Era Dabla-Norris, Si Guo, Vikram Haksar, Minsuk Kim, Kalpana Kochhar, Kevin Wiseman, and Aleksandra Zdzienicka, *The new normal: A sector-level perspective on productivity trends in advanced economies*, (International Monetary Fund, 2015).

¹²⁴ James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst, *A future that works: automation, employment, and productivity*, (McKinsey Global Institute, 2017).

¹²⁵ World Economic Forum. “Skills Stability” *The Future of Jobs: Employment, Skills and Workforce Strategies for the Fourth Industrial Revolution*. January 2016.

¹²⁶ Melanie Arntz, Terry Gregory, and Ulrich Zierahn, “The risk of automation for jobs in OECD countries: A comparative analysis.” *OECD Social, Employment, and Migration Working Papers* 189 (2016).

¹²⁷ Maximiliano Dvorkin and Hannah Shell, “Labor market polarization: How does the district compare with the nation?” *The Regional Economist* 2 (The Federal Reserve Bank of St. Louis, 2017).

occupations that require more training.¹²⁸ Many workers in the Chicago region face the prospect of more training requirements for fewer middle-skill, middle-wage jobs in occupations dramatically different from those of the past. These economic realities have contributed to a decline in real median household income nationwide and a 4.9 percent decline in the Chicago metropolitan area during 1989-2016.¹²⁹

Recent studies also show that economic mobility is declining for many Americans: Children's prospects of eventually earning more than their parents have fallen in America from above 90 percent for those born in 1940 to near 50 percent for those born in the early 1980s.¹³⁰ In other words, fewer than half of millennials are likely to earn more than their parents. An analysis of economic data demonstrates that declines in economic mobility are more concentrated in the middle class, the industrial Midwest, and regions with higher existing levels of economic inequality, like Michigan and Illinois.¹³¹ The cumulative effect of income inequality also hinders the growth and resilience of urban U.S. counties in the face of future economic uncertainty.¹³² Between 2006-10, income inequality was one of the most effective ways of predicting a county's risk of entering into recession.¹³³ Existing disparities -- particularly by race and ethnicity -- further erode the region's human capital when all residents cannot fully contribute to and benefit from the regional economy. Instead, regions can experience more robust and longer periods of growth if residents have equitable access to economic opportunity.¹³⁴ Addressing these issues will require coordinated action on strategies across ON TO 2050.

The adult education and training systems provide essential knowledge and skills for workers to secure their own long-term employability as part of the region's human capital. However, persistent administrative challenges and limited public funding can undermine the effectiveness of these systems. Emerging issues will require these systems to become more responsive and employers more engaged in addressing labor market needs on a regional scale. ON TO 2050 focuses on the critical role of high quality adult education and training in

¹²⁸ David Autor and David Dorn, "The growth of low-skill service jobs and the polarization of the U.S. labor market," *The American Economic Review* 103, no. 5 (2013): 1553-1597.

¹²⁹ Chicago Metropolitan Agency for Planning Regional Economic Indicators website, 2017, <http://www.cmap.illinois.gov/economy/regional-economic-indicators/trends/trends>.

¹³⁰ Raj Chetty, David Grusky, Maximilian Hell, Nathaniel Hendren, Robert Manduca, and Jimmy Narang. "The fading American dream: Trends in absolute income mobility since 1940." *Science* 356, no. 6336 (2017): 398-406.

¹³¹ Chicago Metropolitan Agency for Planning analysis of data in Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez, "Where is the land of opportunity? The geography of intergenerational mobility in the United States," *The Quarterly Journal of Economics* 129, no. 4 (2014): 1553-1623.

¹³² Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future," Federal Reserve Bank of Cleveland Working Paper (2006):20.

¹³³ Paul Lewin, Philip Watson, and Anna Brown, "Surviving the Great Recession: the influence of income inequality in US urban counties," *Regional Studies* (2017): 1-13.

¹³⁴ Andrew Berg and Jonathan Ostry, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" *International Monetary Fund Staff Discussion Note* (2011), <http://dx.doi.org/10.5089/9781463926564.006>.

achieving the region's economic goals, while acknowledging the vital importance of early childhood, primary, and secondary education.

In many ways, the Chicago region has been a national leader in reforming the public workforce system. The Workforce Innovation and Opportunity Act requires workforce boards to conduct state-level and regional strategic planning, as well as to strengthen and expand partnerships with the private sector. Some of the Act's key reforms were based on strategies already underway in our region. To be resilient in the face of a rapidly changing global economy, metropolitan Chicago must build on related local and state efforts to improve unified workforce planning, partnership development, and integrated data systems. While these strategies focus on improved coordination, the importance of robust public investment in workforce development cannot be overstated.

The following describes strategies and associated actions to implement this recommendation.

Enhance coordination between industry and the workforce development system

Leaders from industry and the workforce development system should develop better ways to share information. Each makes significant investments affecting what the region's labor supply has to offer and where the labor supply can be enhanced. Without adequate communication and collaboration, recurring misalignment can squander mutual benefits to businesses and workers. Broad, ongoing, and meaningful industry engagement provides the workforce system with real-time signals on employers' needs and training opportunities. In turn, education and training programs can better prepare participants to solve problems adeptly, adopt new technologies, and operate in the evolving contexts that employers face. Such information should serve as a basis for collaboration and guide how limited resources are allocated in response to regional needs.

The region's Workforce Investment Boards (WIBs) and their workforce development partners have set national best practices to address the substantial needs among low- and middle-skilled workers. For example, several regional partners including the Skills for Chicagoland's Future and the Chicago Cook Workforce Partnership have developed strong demand-driven strategies and programs. Moving forward, they should continue to be key implementers for engaging industries. With the implementation of WIOA, employers have multiple specific ways to participate in workforce investments. These include sharing information with the region's American Job Centers regarding job postings and leads, working with education and training providers to identify needed skill competencies and qualifications, and retaining job seekers in employment by helping to articulate and implement career pathways. In particular, employers and the workforce development system should collaborate to use candidates' cross-sector skills and reduce procedural barriers to overlooked talent.

Enhance coordination among the region's community colleges

Community colleges remain at the forefront of improving access to adult education and training opportunities, as well as maintaining a skilled regional workforce. In light of today's economic realities, they face new calls to shorten the time to completion, infuse remedial education with

skills training, and provide flexibility for students to balance work and school, while building long-term employability. Meeting these evolving needs will require community colleges and the State of Illinois to re-evaluate the current model for static district boundaries. Increasingly, these institutions must work together to share data, develop programming, prioritize uses of limited funding resources, and rationalize or coordinate specific educational programs across multiple districts. Such efforts are critical to pursuing other ON TO 2050 strategies, such as continuing to develop career pathways and adapting curricula to changing skills demand. Employers frequently cite inconsistency and fragmentation among community colleges as a barrier to effective partnerships.¹³⁵

Community colleges have already taken steps to increase enrollment in career training across district boundaries. In response to limited public funding, all 39 community college districts in Illinois signed on to participate in the Comprehensive Agreement Regarding the Expansion of Educational Resources (CAREER Agreement). The agreement allows students to enroll in career and technical education programs offered at any other Illinois community college if their home district does not offer the program, while paying in-district resident tuition and fee rates. This cooperation is a prime example of strategies that improve the community college system's efficiency and responsiveness to shifting education and employment trends, while reducing unnecessary duplication.

Incorporate human capital priorities into sub-regional planning

The benefits and burdens of major job market shifts affect communities in different ways. Negative outcomes often accrue to places with limited capacity to foresee and respond to evolving workforce needs. These places also frequently have limited connections to adult education and training, employment opportunities, and other resources required in an increasingly competitive economy. Human capital is essential for achieving any local and regional growth goals, and therefore to any decisions about local land use, transportation, and economic development. Yet communities can vary widely in their capacity and technical expertise for human capital planning, which could consider industry and occupation trends, local job market changes, and the employment outcomes of local training programs.

Workforce development efforts achieve the most when workforce boards, training providers, employers, educators, service providers, and economic development agencies work together to leverage economic assets that extend across jurisdictional boundaries. Local and sub-regional plans should build on the strategic and operational planning already conducted by the region's WIBs. These plans assess the area's leading and emerging industries, employment and unemployment data, labor markets trends, and educational and skill levels of its workforce. However, residents face barriers to employment that go well beyond just education and training needs. Addressing the unique job market opportunities and challenges of local communities will require collaboration on a broad array of place-based strategies.

¹³⁵ ICCB Workforce Education Strategic Planning Project: Report on the Regional Forums, submitted by Maher & Maher to ICCB and DCEO. Available at https://www.iccb.org/iccb/wp-content/pdfs/workforce/ICCB_Summary_Report_on_Workforce_Strategic_Plan_Forum.pdf.

Improve access to education and employment opportunities that promote upward mobility

The regional transportation system's primary purpose is to connect residents and businesses to opportunity. Yet some historical transportation investments and development patterns have prevented communities from sharing in new prosperity. Residents in EDAs have lower rates of vehicle ownership and frequently rely on public transit to connect them to resources for education and employment.¹³⁶ However, commutes from these areas to economic opportunities often require covering long distances or making multiple transfers.¹³⁷ For example, despite living in areas with relatively high transit availability, residents on the South and West sides of Chicago commute up to 58 hours more each year than the region's average resident.¹³⁸ Such disparities illustrate the relative challenge of accessing job and training resources in the region, as well as additional drags on the productivity of the region's human capital.¹³⁹

For workers to advance economically, these communities need local economic growth and improved access to high quality transportation options that reliably connect them to opportunities for upward economic mobility. Transportation and land use planning should prioritize strategies that connect all residents and particularly those in EDAs to high quality education and employment. Such strategies are especially important given WIOA's emphasis on serving populations with barriers to accessing or sustaining employment. Pursuing the region's inclusive growth goals will require leveraging the transportation system to connect residents to economic opportunities.

Local governments -- in partnership with economic development organizations, business associations, and chambers of commerce -- should encourage future economic growth and development to occur in already-developed areas with access to transit.

Transit agencies, local communities, and the private sector should work together to develop pilot projects that explore new methods of providing targeted, flexible, or on-demand services that connect EDAs to suburban job centers.

Transit agencies should explore and pilot new fare strategies, such as fare capping or low-income fares, which reduce fare burden on low income populations and social service providers."

¹³⁶ Chicago Metropolitan Agency for Planning Policy Update, "Economically Disconnected Area clusters in the CMAP region," 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/economically-disconnected-area-clusters-in-the-cmap-region.

¹³⁷ Chicago Metropolitan Agency for Planning Policy Update, "Travel patterns in Economically Disconnected Area clusters," 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/travel-patterns-in-economically-disconnected-area-clusters.

¹³⁸ Chicago Metropolitan Agency for Planning analysis of American Community Survey data, 5-year estimates, 2010-14.

¹³⁹ Elizabeth Kneebone and Natalie Holmes, "The growing distance between people and jobs in metropolitan America," Brookings Institution (2015), <https://www.brookings.edu/research/the-growing-distance-between-people-and-jobs-in-metropolitan-america/>.

Transit agencies should continue to make progress toward universal accessibility of stations.

CMAP should take a leadership role in identifying gaps in the transportation system for economically disconnected communities, articulating the individual, local, and regional growth benefits of making such transportation connections.

Align local economic development planning with regional goals

Collaboration across communities to support regional goals can make efficient use of limited fiscal resources by supporting industries that connect us to the global economy. Through their role in planning for and regulating local development, local governments support small but significant pieces of regional markets for retail, office, industrial, and other development types, which house the industries that form the base of the region's economy. These cumulative local decisions create the region's communities and economic centers, with broad impacts on infrastructure needs, commute patterns, goods movement, and overall regional economic success. At the same time, the economic assets that make up communities' core competitive advantage often extend across jurisdictional boundaries.

[GRAPHIC TO COME: An interactive graphic will provide examples of multijurisdictional collaboration for local economic development.]

Individual communities may find it challenging to play their pivotal role in planning for the region's economy. The region has some examples of planning for workforce development or forming coalitions to support specific industries.¹⁴⁰ But local plans often focus on land use and development types, with less consideration of their contributions to regional economic growth and prosperity. Communities respond to the direct concerns of residents and businesses by assessing how solutions fit with community character and goals, public service costs, tax revenue impacts, or traffic and parking impacts. In comparison to economic impacts, fiscal considerations may play an outsized role in development decisions and investments. CMAP research has indicated that economic development that supports higher wage jobs and induces employment region-wide may not generate significant levels of municipal revenue given current local tax policies.¹⁴¹ For example, globally traded industries often operate in office or industrial development types, but some local planning efforts are not geared toward these land uses.

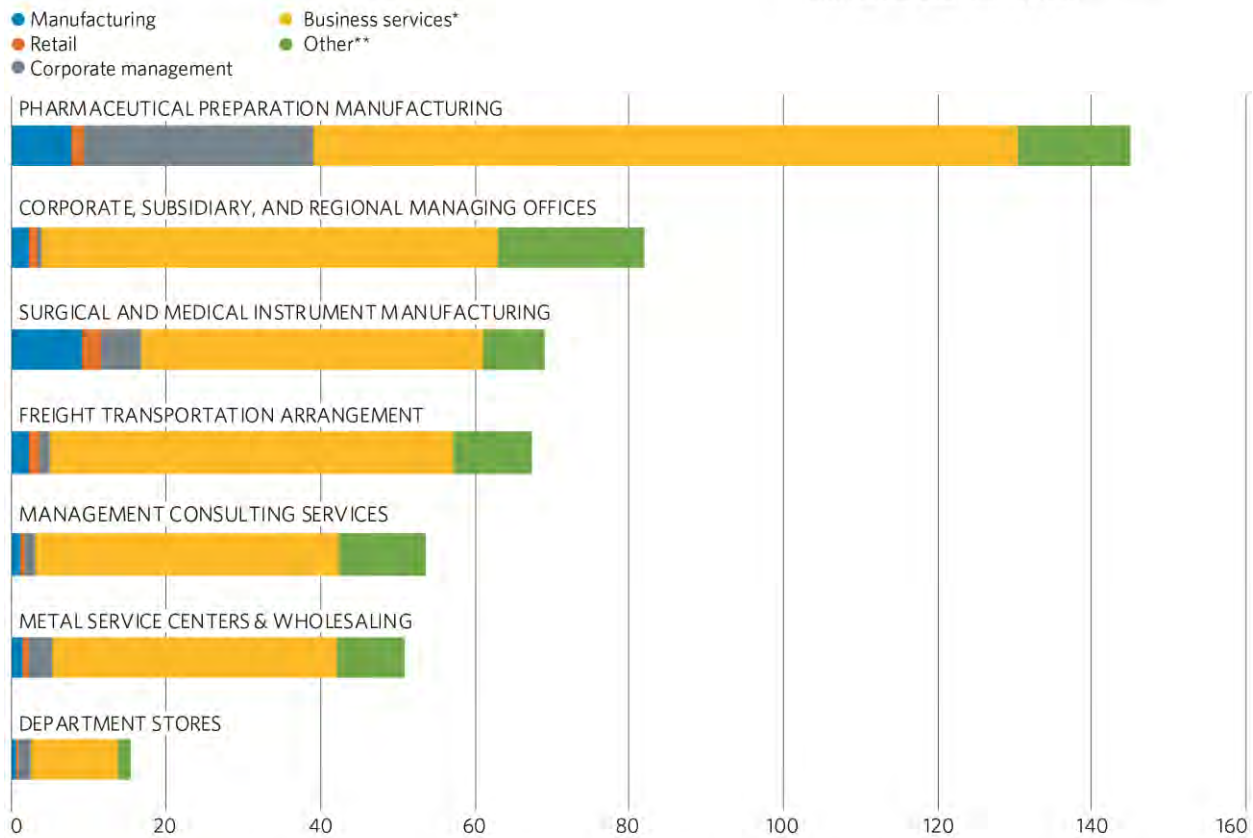
¹⁴⁰ Chicago Metropolitan Agency for Planning, "Manufacturing in the Golden Corridor: Golden Corridor Advanced Manufacturing Partnership," 2014, <http://www.cmap.illinois.gov/documents/10180/113409/Final+Manufacturing+in+the+Golden+Corridor+Existing+Conditions+Report.pdf/efc4ec4d-a6c9-4fe7-8d02-7fd5c3afe1ad>.

¹⁴¹ Chicago Metropolitan Agency for Planning, "Fiscal and economic impact analysis of local development decisions," January 2014, <http://cmap.is/2mfrlPw>.

Number of additional jobs supported in the region from an increase of 100 jobs in manufacturing , retail, or office development, by sector

Note: Economic impact analysis includes both direct and indirect effects.

Source: Chicago Metropolitan Agency for Planning analysis of Economic Modeling Specialists International data (Emsi 2018.1)



* Includes wholesale trade; transportation and warehousing; finance and insurance; real estate, rental, and leasing; professional, scientific, and technical services; administrative, support, waste management, and remediation services

** Includes agriculture, forestry, fishing, and hunting; mining, quarrying, oil and gas extraction; utilities; construction; information; educational services; health care and social assistance; arts, entertainment, and recreation services; accommodation and food services; government; other services

Many governments provide economic development incentives to specific businesses that already intend to locate within the region or submarket. Officials use incentives to subsidize revenue-generating development, compete with another jurisdiction, or compensate for weak spots in their overall business environment. This activity can result in public expenditures for limited economic gain.¹⁴² Many communities do provide incentives to developments that meet local and regional goals such as increasing particular types of employment, promoting infill, remediating brownfields, and/or encouraging mixed-use development.¹⁴³ Given limited fiscal resources, the region's communities should coordinate to support regionally beneficial

¹⁴² Nathan M. Jensen, "Job creation and firm-specific location incentives," *Journal for Public Policy* 37,1 (2017).

¹⁴³ Chicago Metropolitan Agency for Planning, *Fiscal and Economic Impact Analysis of Local Development Decisions*, January 2014, <http://cmap.is/2mfrlPw>.

industries and to target incentives for development of regional and local economic benefit. Communities can reduce costs by planning together and pursuing initiatives like establishing boundary agreements, sharing services or infrastructure to mutually support new development, or sharing revenues from specific developments.

This recommendation also appears in the *Community* chapter.

The following describes strategies and associated actions to implement this recommendation.

Proactively coordinate local economic development efforts

Economic development achieves the most when municipalities, counties, and other partners work together across jurisdictional borders. The region's communities collectively share in and build up our competitive advantages of a skilled workforce, extensive transportation infrastructure, and strong quality of life. Local governments, economic development entities, and others could improve outcomes, expand staff expertise and resources, and reduce costs by partnering on services like business expansion, retention, and attraction. Many jurisdictions with lower fiscal or staff capacity may need assistance for initial collaborations. CMAP, the region's counties, universities, and civic organizations can play a substantive role in helping local governments collaborate. Nationally, many examples of successful partnerships to meet regional and local goals exist. In Cuyahoga County, Ohio, the hyper-competitive environment created by municipalities' pursuit of income tax revenue led to a non-compete agreement to encourage intraregional cooperation for business development.¹⁴⁴ The Denver region implemented a similar agreement in 1987.¹⁴⁵ For additional information, see the ON TO 2050 strategy paper Tax Policies and Land Use Trends.¹⁴⁶

Local governments should implement best practices for subregional economic development to reduce costs and achieve broader economic goals.

Cook County should phase out the property tax classification system to reduce the higher tax burden on commercial and industrial property taxpayers relative to residential properties that can result in market distortions.

CMAP and partners like ULI and CRGC should research case studies and best practices for subregional coordination of economic development. Examples include non-compete agreements, joint economic development initiatives, infrastructure and service sharing, tax base sharing, boundary agreements, and other initiatives.

¹⁴⁴ Cuyahoga County, "Business Attraction & Anti-Poaching Protocol," http://regionalcollaboration.cuyahogacounty.us/pdf_regionalcollab/en-US/AntiPoachingProtocol.pdf.

¹⁴⁵ Chicago Metropolitan Agency for Planning, "Reorienting State and Regional Economic Development: Lessons Learned from National Examples," 2014, <http://cmap.is/%202ITAonC>.

¹⁴⁶ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Tax Policies and Land Use Trends," 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/tax-policy-land-use>.



CMAP and partners should help municipal coalitions to plan for local economic development, focusing on sub-regions that have common planning needs and goals for business expansion, human capital, freight movement, and similar issues with strong relevance to the region's economy.

CMAP should assist local governments to plan for and invest in multijurisdictional transportation investments that best support economic productivity.

CMAP, MPC, counties, and COGs should facilitate new partnerships between municipalities and develop materials illustrating the benefits of coordinating on shared economic development priorities.

Enhance economic development expertise of municipal staff and officials

Municipal economic development initiatives seek to build vibrant places, enhance job centers and commercial corridors, or retain and build existing industries. Such local efforts vary greatly in scope, from small-scale main street improvements to redevelopment of major office and industrial subcenters. Regardless of its scale, each activity needs municipal staff and elected officials with the knowledge and resources to carry out strategies appropriately, including infrastructure investment, economic development planning, business development, and incentives.

Municipal staff and officials interviewed through the ON TO 2050 planning process emphasized the need for more skill-building resources and guidance on economic development best practices.¹⁴⁷ New trainings and resources can also build on the incentive, market, and fiscal feasibility recommendations of ON TO 2050, helping to improve local planning, development, and investment processes. In partnership with COGs, counties, civic organizations, and universities, CMAP should provide technical assistance for communities to build local capacity for economic development planning.

CMAP and partners such as ULI should provide tools to help local governments effectively use incentives, taking into account the full costs of related public services, initial infrastructure improvements, and future infrastructure maintenance.

Partners and CMAP should provide guidance to local partners on best practices for zoning, permitting, development regulation, market analysis, tax incentives, and transportation funding that support economic productivity and reduce market barriers.

¹⁴⁷ Chicago Metropolitan Agency for Planning, "ON TO 2050 Alternative Futures Engagement Summary," 2017, <http://www.cmap.illinois.gov/documents/10180/776689/ON+TO+2050+Alt+Futures+Engagement+Summary.pdf/7e55dc3f-192c-b5a6-ef00-d4b49e9cfdbc>.



Partners, educational institutions, and CMAP should establish regular trainings, networking events, and other resources to promote best practices on joint economic development initiatives, economic development planning, incentive policies, market analysis, business attraction and retention, and related topics.

CMAP and MMC should explore partnerships like the Southern Illinois University Edwardsville team that leads the Illinois Basic Economic Development Course, to create similar offerings tailored for staff and elected officials.¹⁴⁸

Reform incentives for economic development

Metropolitan Chicago can thrive only to the extent that businesses operating here compete successfully in global and national markets. Businesses base their strategies on state and local conditions, which determine access to high quality inputs like talent, capital, infrastructure, and research. Economic development programs therefore seek to improve the region's business environment and foster sophisticated ways of competing. Given limited public resources, communities are looking for strategies that can make a significant impact on their growth and prosperity.

The State of Illinois and many local governments offer financial incentives to subsidize revenue-generating development and attract or retain specific businesses. These incentives can take many forms like tax preferences, abatements, and credits; non-tax cash grants and loans; or other subsidies like infrastructure investments, training and education subsidies, fee waivers, and land write-downs. Businesses can capitalize on competition among neighboring states and localities while drawing on the same labor pool, supply chain, natural resources, and other assets that actually underpin their profitability. As a result, poorly coordinated or targeted economic development incentives result in public expenditures for limited economic gain.¹⁴⁹ Direct investment and financial incentives remain the prevailing way that many state and local governments seek to attract businesses. Yet this strategy is no match for the complex demands of economic growth and resilience, which depend on the formation and expansion of businesses native to the region.¹⁵⁰

[GRAPHIC TO COME: An illustrated graphic will show the variety of factors that contribute to local economic development.]

Traditional economic development tactics are under more scrutiny as stakeholders explore enhancing the assets that represent our region's competitive advantage.¹⁵¹ Strengthening the

¹⁴⁸ Southern Illinois University-Edwardsville, "Illinois Basic Economic Development Course," <http://www.bedcillinois.com/about-us.html>.

¹⁴⁹ Nathan M. Jensen, "Job creation and firm-specific location incentives," *Journal for Public Policy* 37,1 (2017).

¹⁵⁰ Robert G. Lynch, *Rethinking Growth Strategies: How State and Local Taxes and Services Affect Economic Development*, 2004, Washington, D.C.: Economic Policy Institute, https://www.epi.org/publication/books_rethinking_growth/.

¹⁵¹ Chicago Metropolitan Agency for Planning report, "Examination of Local Economic Development Incentives in Northeastern Illinois," 2013, <http://www.cmap.illinois.gov/economy/tax-policy/economic-development-incentives>.

state and region’s human capital, infrastructure, fiscal conditions, and regulatory or tax systems could provide broader benefits to our business environment and resilience.

Performance-based approaches can help make the best use of limited resources by using data and stakeholder feedback to improve decision making. However, the State of Illinois and many local governments provide incentives without adequately monitoring their performance relative to planning and economic goals. Moreover, governments often structure these incentives as tax expenditures -- special exclusions, exemptions, deductions, or credits that may appear to lower tax revenues rather than increase spending. As a result, incentives often fall outside the scrutiny of a regular appropriations or budgeting process, where governments can otherwise weigh trade-offs and make transparent decisions to extend, improve, or terminate a particular incentive.

The state and local governments should prioritize public investments toward policies and programs that contribute meaningfully to the region’s economic competitiveness. Communities can make development decisions and investments that support regional and local goals, and research provides further insight into targeting how, where, and when to apply incentives effectively. Such instances may include projects that increase higher-wage employment, reinvest in infill sites, leverage existing infrastructure assets, remediate brownfields, or encourage mixed-use development.¹⁵² Improving the use of economic development incentives will require the State of Illinois to take a stronger leadership role in aligning resources to ensure strategic planning and rigorous analysis.

The following describes strategies and associated actions to implement this recommendation.

Promulgate stronger standards for transparency and accountability of economic development incentives

Proper evaluation of any program relies on two essential components: clear, relevant, ascertainable data, and internal procedures to assess outcomes and make decisions. The transparency of data and information on economic development incentives varies across metropolitan Chicago. Public agencies collect and publish a significant amount of non-proprietary information regarding incentives, but these data systems are often inadequate to determine an investment's effectiveness. In particular, disclosure standards can differ by the unit of government and the type of incentive, leaving information too fragmented or inconsistent to determine the total incentives going to a project. Regularly evaluating and publishing incentive data allows communities to make prioritized investments in their economic growth and long-term sustainability. Rather than extending incentives into perpetuity, the State of Illinois and local governments should pursue performance-based

Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, “Tax Policies and Land Use Trends,” 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/tax-policy-land-use>.

¹⁵² Chicago Metropolitan Agency for Planning, *Fiscal and Economic Impact Analysis of Local Development Decisions*, 2014, <http://www.cmap.illinois.gov/documents/10180/82875/Fiscal%20Econ%20Impacts%20Dev%20FINAL.pdf/6fc7ed1c-aba7-4d6a-a057-8d251aa7fbdc>.

approaches to make decisions that extend, improve, or terminate incentives based on rigorous analysis. Such analysis should account for the incentive's full costs and benefits, progress in achieving its public purpose, and trade-offs relative to other government activities.

The State of Illinois and local governments should require a regular audit of all tax abatements, diversions, and credits for economic development.

The State of Illinois and local governments should implement and maintain sunset provisions on all tax abatements, diversions, and credits for economic development, allowing periodic reevaluation.

The State of Illinois and local governments should make comprehensive data on incentives for economic development available and ensure that relevant, accurate, non-proprietary data can be reliably located, integrated, and analyzed.

Align incentives with local and regional goals, anticipated outcomes, and tradeoffs

Most businesses choose their locations based primarily on workforce, access to transportation, quality of life, business environment, and other assets, giving much less weight to tax incentives.¹⁵³ In light of limited public funds, state and local jurisdictions should provide incentives only when a business relocation or retention would substantively advance local and regional goals related to quality of life and economic development. As CMAP research has shown, best practices exist for how, where, and when to apply incentives for maximum public benefit.¹⁵⁴ ON TO 2050 recommends the targeted use of incentives for developments that support regional economic goals, such as increasing employment in traded clusters, reinvesting in infill sites, or encouraging mixed-use development near transit. This strategy also appears in the *Community* chapter.

Local governments should establish criteria to ensure that economic development incentives fit with local and regional economic goals. The policies should maximize broad benefits and minimize the use of incentives that are only for fiscal gain to the community.

CMAP and partners such as ULI and MPC should provide best practices and model economic development incentive policies for communities.

¹⁵³ Joseph M. Phillips and Ernest P. Goss, "The effect of state and local taxes on economic development: A meta-analysis." *Southern Economic Journal* (1995): 320-333. Grant Thornton, *The 10th Annual-Manufacturing Climates Study* (1989): Chicago: Grant Thornton.

¹⁵⁴ Chicago Metropolitan Agency for Planning, *Reorienting State and Regional Economic Development: Lessons Learned from National Examples*, 2014, <http://www.cmap.illinois.gov/documents/10180/229846/FY14-0061%20Economic%20Development%20Report.pdf/d5609fbc-5561-4ea9-a1c2-fb3dbbc8d74c>.



Local governments should proactively establish economic development agreements with neighboring communities to reduce intraregional competition via incentives, and reduce public costs.

The State of Illinois and local governments should enhance data on tax credits and incentives provided at all levels of government and consistently evaluate the expenditures and outcomes of incentive programs such as sales tax rebates, EDGE, TIF, property tax abatements, Enterprise Zones, and others.

The State of Illinois should incorporate regional priorities into its strategic economic development planning and provide only assistance or incentives that align with those priorities.

Expand data-driven approaches in the workforce and education systems

Given its slowed growth, metropolitan Chicago must capitalize on the full potential and productivity of its human capital by collaborating at the front lines of our complex adult education and training systems. Recent [demographic trends](#) suggest the region will face obstacles to sustain a diverse, adaptive, skilled workforce. As the region's economic progress has slowed in recent years, so has its population growth, gaining just 0.65 percent during 2010-16. Our labor force -- residents who are 16 years or older and either working or actively seeking work -- declined by approximately 52,000 workers between 2008-16 and is [aging rapidly](#).¹⁵⁵ Population growth is both a condition and a consequence of economic prosperity, as residents choose where to live based on their perceptions of economic opportunity and quality of life. Slow population growth can burden the regional economy with a narrower tax base, fewer job opportunities, and a smaller labor pool.

[GRAPHIC TO COME: An interactive graphic will provide information on job polarization in the Chicago region between 1980-2016.]

Because the global economy is changing at an accelerated scale, scope, and speed, our workforce and education systems must become more flexible and effective at building the region's workforce. As skill demands have shifted, higher levels of post-secondary training -- as well as additional training throughout a career -- have become necessary for individuals to succeed in the job market. Nearly half of Chicago residents age 25 and older (45.7 percent) had an Associate degree or higher in 2016, including more than 2.2 million residents with a Bachelor degree or higher.¹⁵⁶ Maintaining a skilled workforce can translate to improved economic

¹⁵⁵ Chicago Metropolitan Agency for Planning analysis of American Community Survey data, 1-year estimates in 2005-2016 for the Chicago-Naperville-Elgin metropolitan area.

¹⁵⁶ Chicago Metropolitan Agency for Planning analysis of U.S. Census Bureau data.

security for residents¹⁵⁷ and a competitive advantage for the region as a whole.¹⁵⁸ Educational attainment is one of many ON TO 2050 indicators -- like workforce participation and employment in science, technology, engineering, and mathematics fields -- that can be used to assess the how the region's labor market responds to economic shifts.

A key missing component in data-driven approaches is information on education and training programs that do not lead to an accredited degree. Providers are increasingly expected to shorten the time to credential, to give students flexibility to intersperse learning and earning, to meet the needs of a growing share of English language learners, and to balance the remedial education and skills training for employment today with the foundational knowledge for a longer-term career. Several non-traditional education strategies have already emerged as providers test new models to deliver learning and boost outcomes. Yet serious challenges exist to delivering these programs. For example, recent research has questioned the transferability and economic value of some sub-baccalaureate certificates.¹⁵⁹

In a more competitive economy, capturing opportunities for regional economic growth requires well-informed analysis, diligent forecasting, and responsiveness to shifts in the labor market. In a broad universe of education and workforce development programs, demand-driven strategies depend on having the systems in place to evaluate the economic outcomes of participants and to assess diverse program elements. On a programmatic scale, educators and training providers often lack the ability to gauge their programs' efficacy or long-term value because of data gaps on education and employment outcomes. On a regional scale, workforce funders often lack necessary information to align program elements and underused capacity of existing programs. Numerous state and local systems capture data consistent with reporting requirements under WIOA, a 2014 federal effort to support strategies that reflect changing economic conditions. But because these data systems remain disconnected, inconsistent across service providers, and incomplete, they often lack sufficient information to coordinate regional systems.

In many ways, the Chicago region has been a national leader in integrating workforce and education data. The Chicago Cook Workforce Partnership's [Career Connect](#) and [Illinois Longitudinal Data System](#) both combine information across numerous programs to improve services for residents, employers, and public and private workforce funders. These initiatives have provided a foundation for regional cooperation on WIOA implementation, emphasizing the central role that integrated data systems play in pursuing unified planning, partnership

¹⁵⁷ Chicago Metropolitan Agency for Planning analysis of U.S. Bureau of Labor Statistics data, https://www.bls.gov/emp/ep_chart_001.htm.

¹⁵⁸ Edward Glaeser, Giacomo Ponzetto, and Kristina Tobio, "Cities, Skills, and Regional Change," NBER Working Paper 16934 (National Bureau of Economic Research, 2011), <http://www.nber.org/papers/w16934.pdf>.

¹⁵⁹ Veronica Minaya and Judith Scott-Clayton, "Labor Market Trajectories for Community College Graduates: New Evidence Spanning the Great Recession. A CAPSEE Working Paper," (Center for Analysis of Postsecondary Education and Employment, 2017).



development, and sustainable funding.¹⁶⁰ Such tools are especially important given a renewed national focus on evidence that workforce investments properly serve populations who face barriers to accessing or sustaining employment.

The following describes strategies and associated actions to implement this recommendation.

Develop and improve integrated workforce and education data systems

Improved information and data systems would enable regional actors to further meet the shifting demands on our adult education and training systems. With ongoing implementation of WIOA, stakeholders have mechanisms to test and scale new practices based on demand-driven strategies and industry engagement. Appropriate data and analysis can help refocus educational and training programs around shared goals, illuminate additional strategies for inclusive growth, and demonstrate economic outcomes across approaches or geographies. For example, good data -- disaggregated by race, gender, income, or neighborhood -- can reveal the economic conditions that different communities face and their barriers to achieving upward mobility. By connecting existing datasets, educators and training providers would enhance their ability to adjust programming and curricula in response to local and regional needs. Enhanced information and data systems are also necessary to pursue other regional strategies, such as rationalizing and coordinating specific educational programs across multiple providers. In pursuing these goals, CMAP and partners should emphasize the need for relevant and accurate data that can be reliably located, integrated, and analyzed.

State and local policy makers -- in partnership with workforce funders -- should expand integrated data systems and provide better data by building on lessons learned from development of the Illinois Longitudinal Data System and Chicago Cook Workforce Partnership's Career Connect.

Federal, state, and local policy makers -- in partnership with workforce funders -- should invest in the development, integration, and availability of longitudinal workforce and education data that best informs public policy.

Education and training providers should identify appropriate opportunities to address gaps, scale cooperation, and leverage data to inform programming and decision making.

State and local policy makers -- in partnership with workforce funders -- should provide the data that education and training providers require to connect their programs to business performance and participant outcomes. Integrated data systems should support metrics like time to job placement, speed to job promotion, length of continued employment, cost of recruitment and training, or employer productivity and quality outcomes.

¹⁶⁰ David Bradley, *The workforce Innovation and Opportunity Act and the One-Stop Delivery System*, Congressional Research Service Reports No. R44252 (Congressional Research Service, 2015).

Government, business and civic leaders, and other regional actors should develop and implement a shared vision for inclusive growth in northeastern Illinois, as well as define key metrics to track regional progress toward inclusive growth goals.

Maintain adequate information on programs for sub-baccalaureate credentials and adult basic education

Sub-baccalaureate credentials and adult basic education -- including short-term credential, licensure, high school equivalency, and certification programs -- make up a substantial and growing share of enrollment at metropolitan Chicago's community colleges. These new models of education may provide more flexible and affordable options than traditional degree programs. However, sub-baccalaureate programs are not uniformly valuable for workers or employers. Because some providers are not subject to traditional accrediting agencies, decision-makers do not have generally accepted standards or integrated data to gauge the quality of non-traditional and non-credit programs. There is a growing recognition in our region regarding the full breadth of training, in-demand skills, and meaningful work experience required to build long-term employability. Many sub-baccalaureate programs can play an important role in connecting residents to pathways for upward mobility. Their topics and structures may need to be further rationalized or enhanced based on the needs of growing industries and the economic outcomes of students. Many education and training providers are already adjusting their policies and curricula to reflect best practices for such programs. Improved information about program characteristics, competencies, and outcomes can also help potential students make a confident choice about what programs to pursue.

ENVIRONMENT

Bridging natural and built assets

Our rare and diverse natural areas and ecosystems are some of the most valuable and irreplaceable assets in metropolitan Chicago. ON TO 2050 strongly affirms that these natural resources are critical for protecting the quality of our air, land, and water, providing ecosystem services, wildlife habitats, and recreational spaces, contributing to a high quality of life, and supporting a vibrant regional economy. Our abundant water supply has been crucial to attracting people and investment. In addition, the region's extensive green infrastructure network provides invaluable habitat and species diversity, protects environmental quality, aids in flood mitigation, and is an important line of defense against the impacts of climate change. The unique and exceptional landscapes and waterways of greater Chicago, from Lake Michigan and the Chicago River to its oak savannas and prairies, form a key element of our natural and cultural history and are foundational to the region's future. Many regional actors have recently invested millions to expand the region's natural heritage. The return on these investments is significant: It is estimated that our natural assets provide over \$6 billion every year in economic value to the region as "ecosystem services."¹⁶¹

At the same time, our natural resources face many ongoing challenges and new threats. While the region permanently preserved 61,500 acres of natural and agricultural lands from 2001 to 2015, an additional 140,000 acres of such lands were developed -- an area roughly equivalent to the land area of the City of Chicago. Despite increased awareness about the importance of environmental assets, constrained funding at all government levels and competing priorities hinder our ability to adequately protect and enhance them. Climate change, manifesting in our region as more frequent and severe storms, extreme temperatures, and drought, is already significantly affecting our economy, ecosystems, built environment, and people. In particular, the region faces substantial flooding issues, which the intense storms brought by climate change and increased impervious coverage from development will continue to exacerbate. Flooding can cause extensive property damage and reduced water quality.

Many diverse factors influence the extent and form of development, from market forces to tax policy to infrastructure investment. Development at the region's edge necessitates increased water, wastewater, and stormwater infrastructure. It can push demand for groundwater beyond sustainable levels, and affects communities and the resources themselves. The short and long term costs associated with providing infrastructure and services in these locations can be substantial. The impacts of these trends do not affect all residents equally. Vulnerable populations in particular may experience heightened risks, costs, and liabilities, including

¹⁶¹ Chicago Metropolitan Agency for Planning. 2014. "Green Infrastructure Vision Version 2.3 Ecosystem Service Valuation." <https://datahub.cmap.illinois.gov/dataset/green-infrastructure-vision-2-3-ecosystem-valuation>. This project explored ecosystem service values for six services within the CMAP 7-county region: water flow regulation/flood control, water purification, groundwater recharge, carbon storage, native flora and fauna, and recreation and ecotourism.

repetitive flooding, high water rates in low income communities, and compromised infrastructure in areas that are otherwise overlooked by private investment.

ON TO 2050 proposes a comprehensive suite of actions by a range of stakeholders to address these and other environmental issues. It envisions a future where development practices and infrastructure embrace natural landscapes and contribute to healthy ecosystems. In concert with other plan strategies, the environmental recommendations will lead to a region that is more resilient to the anticipated impacts of climate change, particularly flooding, and contributes to worldwide efforts to stabilize our changing climate; has sustainable and clean water resources; preserves high priority agricultural and natural lands while accommodating strategic growth and infill; and helps protect the residents of the region who are most vulnerable to environmental impacts.

The three principles of ON TO 2050 are embedded throughout the *Environment* chapter, which includes strategic recommendations to:

1. Promote **inclusive growth** by growing the ability of vulnerable populations to respond to environmental challenges and improving environmental conditions and access to nature for those populations.
2. Improve **resilience** by planning for anticipated future impacts, protecting residents from risk, and promoting gray and green infrastructure that provides essential services and can adapt to changes in climate and technology.
3. **Prioritize investing** limited financial resources in a strategic and efficient way, maintaining existing infrastructure, and securing new revenues for needed enhancements.

A region prepared for climate change

The effects of climate change will have significant implications for the built environment, economy, ecosystems, and people of this region. We must intensify mitigation efforts while at the same time prepare for and be equipped to recover from the acute shocks and chronic stresses posed by climate change. Reducing greenhouse gas (GHG) emissions will require continued compact infill development, improved pedestrian and bicycle infrastructure, and increased investments in public transit as well as aggressive expansion in renewable energy systems, energy efficiency and retrofits, and electrification of our transportation system. Sound planning and decisionmaking can maximize the crucial role that the region's natural landscapes play in promoting resilience. The region's land and water resources provide ecosystem services that enhance communities' ability to withstand climate-related stresses, and also offer models for expanded green infrastructure that grows our ability to adapt. Planning for climate resilience entails a wide variety of strategies for managing risk, strengthening our built and natural environment, and improving our operational response to specific events. Regional stakeholders, from local elected officials to business leaders, need access to up-to-date data on



climate science to make informed decisions. At the same time, many resilience strategies require coordinated subarea, regional, or statewide action.

Plan for climate resilience

Our climate is changing at a global scale. Climate resilience is the ability of our region and its communities to prepare for and recover from the acute shocks and chronic stresses of climate change by transforming our infrastructure, natural systems, and social structures to be more responsive and adaptable. This will necessitate reenvisioning the way road, water, and energy infrastructure is built and maintained, preserving and protecting natural and agricultural areas, implementing stormwater best management practices, and creating social networks and resources to give residents tools to withstand climate impacts.

In northeastern Illinois, a changing climate translates to more frequent and severe weather events, extreme heat, and drought (see the ON TO 2050 Natural Resources snapshot for more information).¹⁶² Climate change acts as a force multiplier on already existing environmental, land use, economic, transportation, and social challenges, compounding and exacerbating these issues through its impacts. Flooding has already caused major road, rail, and utility outages, disruptions of freight traffic, sewer overflows, and personal and financial stresses for residents and businesses. Heat waves have caused illness, hospitalization, and death in vulnerable communities as well as damage to infrastructure, and drought has had significant adverse effects on the region's agricultural sector, water supply, and natural areas. Increasing temperatures can also lead to greater ozone formation, worsening air quality. The land and water assets that make up the region's green infrastructure network not only support environmental quality, but also provide an important line of defense against many of these negative impacts. Those assets also face challenges from a changing climate and must be protected to ensure continued ecosystem services.

[GRAPHIC TO COME: An informational graphic on climate change impacts will highlight climate impacts, particularly flood damages, including climate projections.]

In addition, the region's gray infrastructure is not prepared for many of today's storms. Most of the region's roads were designed using standards that pre-date the increased number of heavy rain events, freeze-thaw cycles, and hotter and wetter conditions posed by a changing climate. Water and wastewater treatment plants are impacted by flooding, which can disrupt service and pollute surface waters. Increased freeze-thaw events can lead to additional water main breaks and water loss. Energy infrastructure cannot always respond to increased peaks in demand from extreme temperatures, and older facilities may not be built to withstand stronger storms.

¹⁶² Chicago Metropolitan Agency for Planning. ON TO 2050 Snapshot, "Natural Resources" (2018), <http://www.cmap.illinois.gov/onto2050/snapshot-reports/natural-resources>

Concerted, collaborative regional effort on resilience issues is essential to create a climate resilient region and maximize the benefit of investments. Climate issues cross physical and political boundaries, and can be integrated into a variety of planning efforts, such as comprehensive plans, capital improvement plans, green infrastructure plans, watershed plans, and regulatory updates. The region's most vulnerable residents are particularly affected by climate change impacts like increased flooding, transit disruptions, or heat waves, and should be extensively engaged in resilience planning.

[GRAPHIC TO COME: An illustrated graphic will show climate resilience interventions in a subarea of the region.]

The following subsection describes strategies and actions to implement this recommendation.

Incorporate climate resilience and adaptation measures into planning and development

Utilizing planning and development processes is an effective way to implement measures that help protect against climate impacts. Through the LTA program, CMAP is already working to integrate climate change information, such as vulnerability assessments, and recommendations into local planning processes. Other units of government in the region have created standalone plans related to climate change or incorporated these elements into other planning documents. Coordination across units of government responsible for different planning efforts is particularly important. For example, counties typically conduct land use, watershed, stormwater, and hazard mitigation planning, all of which affect climate resilience at the municipal level. And because climate change can disproportionately affect residents within EDAs, as well as the elderly, people with chronic diseases, and those without health insurance, it is critical to meaningfully engage these populations in resilience planning.

CMAP should finalize its approach for integrating climate change and vulnerability into local planning efforts, and employ that approach through the LTA program.

Municipalities and counties should integrate climate impacts and vulnerability into relevant plans and regulations and coordinate with appropriate actors during planning processes.

CMAP, counties, and other partners should support and coordinate pre-disaster planning efforts, including voluntary buyout programs, flood risk assessments, identification and protection of critical facilities, and stormwater planning.

CMAP and partners should identify planning best practices and strategies to meet resilience goals.

All governments should ensure that vulnerable populations are able to meaningfully participate in climate resilience planning through robust community engagement processes.

CMAP and partners should analyze the effects of climate change on vulnerable populations and develop strategies to build resilience for those residents.

Strengthen gray and green infrastructure to withstand climate change

Climate change has already affected the region's infrastructure assets, causing road closures and damages to the transportation system, water and wastewater utility disruptions, and declines in ecosystem services due to habitat degradation.¹⁶³ To continue providing essential services, the region's gray and green infrastructure systems need to be transformed to anticipate further climate changes. Expanding the region's green infrastructure network is an important element of this strategy. From the large scale network of protected natural lands to site-scale interventions with a variety of co-benefits, these strategies can protect the region from the effects of climate change through natural functions such as stormwater management and the mitigation of emissions. Furthermore, biodiverse native ecosystems can also better withstand invasive species, disease, flooding, and drought expected of a changing climate.

New technology and gray infrastructure design and materials also have an important role in ensuring climate resilience. Modernization efforts should promote infrastructure that is based on revised design standards that anticipate future climate conditions and built or retrofitted at comfortable levels of risk tolerance. In addition, as road and transit systems modernize and become dependent on advanced technology, reliable electricity and communications infrastructure will become critical to the ability of the transportation system to function under extreme conditions.

State and local transportation and water infrastructure agencies should review and update design manuals to ensure that current data informs design standards.

CMAP and partners should continue research, analysis, and cross-jurisdictional implementation of resilient natural resource strategies.

Local governments and stewardship groups should promote and/or require native species, habitat restoration, and sustainable landscaping materials and practices, which can achieve multiple regional environmental benefits.

Transportation implementers should determine the vulnerability of transportation infrastructure to climate change impacts and design transportation infrastructure to withstand and adapt to the climate of its intended lifespan.

CMAP should incorporate climate resilience criteria into transportation programming processes.

¹⁶³ National Climate Assessment. 2014. "Transportation."
<http://nca2014.globalchange.gov/report/sectors/transportation>.

Service providers should ensure redundant and reliable electricity and communications infrastructure.

Improve the operational response to weather events to ensure mobility

Climate change is already causing more frequent road flooding, snow storms, and heat- and cold-related pavement and communication failures. Inclement weather is currently estimated to cause 15 percent of congestion, increase the number of crashes and delays and reduce road capacity. Approximately half of the days in a typical year have weather conditions that affect driving.¹⁶⁴ Pedestrians and transit users are also affected by inclement weather, and pedestrian infrastructure is often overlooked in weather response activities.

Existing regional strategies to mitigate impacts include traveler information, alerts and advisories, vehicle restrictions such as banning trucks during high winds, road closures, snow and ice control, plowing, and pumping water from flooded locations. IDOT, the Tollway, and Lake County report real-time “road weather” (pavement) information to TravelMidwest, but other counties currently do not. Weather responsive traffic management is also not widely used today, except for closing roads to traffic under severe conditions. As road and transit systems modernize, the same technologies that can improve system safety and reliability can make the system more responsive to weather events. The expansion of intelligent transportation system (ITS) devices and traffic management capabilities will support a variety of weather responsive traffic management strategies, such as variable speed limits to reduce speeds, updating traffic signal timing and plans to support detours and slower speeds, and increasing coverage of emergency vehicle patrols to remove disabled vehicles more quickly. In addition, as the region’s maintenance fleets become equipped with fleet management technology, opportunities for better coordination of snow and ice removal between different jurisdictions will emerge. This will reduce costs and improve the efficiency of these activities.

It will be important to collect and analyze information about how facilities perform under various severe weather scenarios so agencies can develop planned responses and better serve all users of the transportation system. For example, focusing incident management resources on locations that are known to be affected by rain or snow can reduce congestion and secondary incidents. Pavement flooding information has not been collected on a regional basis, and there is no standard pavement flooding reporting system. The impact of flooding on our roadway operations as of today is not known.

CMAP, and IDOT, and the Tollway should work toward implementing a regional, multijurisdictional traffic management center, either virtual or traditional.

¹⁶⁴ CMAP ON TO 2050 Strategy Paper, “Highway Operations Strategy Paper” (2016), <http://www.cmap.illinois.gov/onto2050/strategy-papers/highway-operations>

Transportation agencies should ensure redundant and reliable electricity and communications infrastructure and build redundancy and flexibility into planning for major transportation corridors.

Transportation implementers should expand ITS devices and traffic management capabilities to support weather responsive traffic management strategies.

Transportation implementers should coordinate snow and ice removal across jurisdictions, when possible.

Transportation operators should conduct an analysis of road performance under severe weather conditions to develop planned responses.

CMAP should develop a regional pavement flooding reporting system to help plan for flood events.

Create a more flexible and decentralized electric grid

Distributed energy resources (DERs) are electricity generation sources that are typically smaller than traditional power stations and positioned closer to where electricity is consumed, often on the same site (such as rooftop solar arrays). DERs help to increase the resilience of the energy grid to stresses such as high demand periods, and DERs featuring renewable energy sources have the potential to greatly reduce the GHG emissions associated with energy consumption. Microgrids, which include DERs and can operate independently of the main grid, could also minimize energy service interruptions. They allow key infrastructure to be “islanded” from the larger distribution grid in the event of a broader system disruption, making them suitable for vulnerable facilities such as hospitals, data centers, and wastewater treatment plants. The ON TO 2050 Energy strategy paper provides more detail on energy strategies for CMAP and partners.¹⁶⁵

Energy stakeholders should collaborate to proliferate DERs and maximize their benefits.

Local governments should streamline zoning and permitting requirements for DERs.

ComEd, in conjunction with partners, should continue to assess the potential and role of microgrids, and expand them as appropriate.

CMAP should host public regional data sets related to energy, as available.

The *federal government* should redouble efforts through programs such as the Smart Grid Investment Program that encourage a transition away from centralized electricity

¹⁶⁵ CMAP ON TO 2050 Strategy Paper, “Energy Strategy Paper” (2017), <http://www.cmap.illinois.gov/onto2050/strategy-papers/energy>

generation toward decentralized generation and the “smart grid.”

Diversify agricultural systems to promote resilience

Through its recommendation to “Promote Sustainable Local Food,” GO TO 2040 promoted strategies to facilitate local food production, increase access to healthy food, and raise understanding and awareness of nutrition and food policy. ON TO 2050 reinforces the importance of those strategies, and also recognizes that the region’s agricultural economy will experience disruptions due to climate change. Localized changes in temperature and precipitation will alter crop yields and economic returns. The ability of farmers to adapt to climate change through planting decisions, diversification, resilient strains of crops, land management practices, and emerging technologies will be crucial to ensuring a sustainable agricultural sector in our region. In addition, as crop production patterns shift nationally in response to climate disruption, the role of the region’s agricultural processing sector and its transportation network will likely need to adapt to new products and routes.

Diversifying agricultural production and increasing the amount of food grown locally can help the region respond to climate and distribution changes in the future, particularly if other parts of the country suffer greater climate challenges to agricultural systems. For the agricultural economy to withstand these changes, CMAP and partners should support sustainable land management practices through local planning, fund critical supporting organizations from federal and state resources, and consider the relationship between a resilient agricultural system and infrastructure priorities. Ultimately, an agricultural system that better mimics, enhances, and complements our natural systems and contributes to land and water health would be better for the region and our downstream neighbors.

Counties and local governments should work with chambers of commerce, economic development professionals, stakeholders, and the local or state Farm Bureau to plan for and address the needs of a more diversified agricultural system.

A regional partner should create a platform to strengthen agricultural systems on a variety of fronts, including climate resilience and diversification, infrastructure and logistics, and land protection.

Municipalities, counties, and forest preserve and conservation districts should encourage sustainable land management practices and implementation of the Nutrient Loss Reduction Strategy on agricultural lands.

Local governments should update their plans and development ordinances to reduce barriers to local food production.

Explore a regional climate resilience platform to coordinate initiatives and provide data and resources

Many resilience strategies require coordinated subarea, regional, or statewide action. A regional partnership may be an effective way to ensure coordination of resilience-building activities, policies, advocacy efforts, research needs, and best practices needed to achieve a climate resilient region. Regardless of its ultimate form, this platform can open channels for dialogue, knowledge exchange, and relationship building. Initial efforts to forge such a coalition included the Climate Resilience Resource Group, an ad hoc group that provided feedback to CMAP on development of the Climate Resilience strategy paper, and the Northeastern Illinois Resilience Partnership, which convened after the strategy paper was published to discuss implementation activities.

A sustained regional partnership can also play a role in helping to provide needed climate data and resources and to translate that information for other stakeholders. Regional leaders, from local elected officials to business owners, need up-to-date data on climate science as well as guidance on how to interpret and apply it in their unique contexts. The Illinois Climatologist Office, Illinois State Water Survey, Midwestern Regional Climate Center, and other entities provide high quality historical and projected climate data and climate monitoring. Many stakeholders, however, do not know about these resources or may not understand how data on precipitation or temperature changes can be applied to decision making. CMAP, in partnership with these and other institutions, can play a role in translating climate science to policy making and planning. The agency's work on climate resilience and related impacts has resulted in new regional data about land surface temperature, social vulnerabilities to climate change, and areas susceptible to flooding, which can be shared and incorporated into planning processes.

CMAP and relevant organizations should assess the effectiveness of previous resilience groups and whether a new platform would be helpful for long term resilience building.

CMAP, the Illinois Climatologist Office, Illinois State Water Survey, Midwestern Regional Climate Center, and others should broadcast the existence of climate data and related resources and help translate the utility of these resources to decision makers.

CMAP, the Illinois Climatologist Office, Illinois State Water Survey, Midwestern Regional Climate Center, conservation organizations, and others should downscale regional climate models to facilitate local application, investigate climate impacts on our water and land resources, and pursue the development of other relevant data and research.

Intensify climate mitigation efforts

Climate change is a national and international concern. GHGs form a protective barrier that traps heat and provides a livable climate on earth, but as emissions increase, more trapped heat leads to negative environmental impacts. Burning fossil fuels, clearing forests and prairies, and other human activities have increased GHGs, while natural and human mitigation efforts have

failed to keep pace. Because our own activities contribute to climate change, the region's residents, businesses, utilities, and institutions must actively work to reduce emissions and diminish future impacts. In 2015, the most recent year for which data exists, northeastern Illinois emitted 119 million metric tons of CO₂ equivalent. In total, this amounts to 14 metric tons of CO₂ equivalent per capita from stationary energy, transportation, industry, solid waste, and wastewater. Stationary energy and transportation account for 97 percent of the region's emissions. In 2015, building energy, including natural gas and electricity, was responsible for 69 percent of all GHG emissions in the region. On-road transportation, which includes public, private, and commercial motor vehicles, was the second-largest source of emissions. The differences in the region's built environment, housing density, related energy consumption, and travel behavior help explain the variable emissions across the region.

[GRAPHIC TO COME: A chart will show 2015 Greenhouse gas emissions inventory with indicator targets.]

Creating resilient and livable communities requires intensified efforts to reduce and mitigate emissions that contribute to climate change. GO TO 2040 emphasized climate mitigation as a co-benefit inherent to its recommendations for land use, environment, housing, and transportation. Compact infill development, improved pedestrian and bicycle infrastructure, increased investments in public transit, more efficient consumption of energy, and proliferation of renewable energy generation systems all contribute to climate mitigation, not to mention reduced congestion. In addition, communities can mitigate climate change through carbon sequestration through vegetation and soils. A CMAP-supported Chicago Wilderness study estimating ecosystem service values within the region found that a large tree can remove more than 1,000 pounds of CO₂ per year. In total, the region's green infrastructure contributes to carbon sequestration valued at an estimated \$11.5 million each year.¹⁶⁶ ON TO 2050 calls for conserving 400,000 acres of open space by 2050 and continues to strongly support the climate mitigation strategies of GO TO 2040.¹⁶⁷

Transformative changes in the energy sector -- from closed coal power plants to solar and other renewable industries to fuel efficient vehicles -- offer the promise of substantial reductions in emissions. Regional stakeholders should prepare for and harness these changes to ensure benefits to all residents. Through a socioeconomic lens, research suggests that low income communities spend a disproportionate share of their income on energy costs,¹⁶⁸ and communities of color have historically suffered from greater exposure to the local environmental impacts of energy generation and consumption. Understanding and addressing the financial, environmental, and social needs of these users, as well as other vulnerable groups like seniors, will be critical to avoid perpetuating inequities in the future.

¹⁶⁶ CMAP. 2014. "Green Infrastructure Vision: Version 2.3 Ecosystem Service Valuation." <http://bit.ly/2fjk77S>

¹⁶⁷ GO TO 2040, see "Manage and Conserve Energy and Water Resources"

¹⁶⁸ Energy Efficiency for All. 2016. "Lifting the high energy burden in America's Largest Cities." <http://energyefficiencyforall.org/resources/lifting-high-energy-burden-americas-largest-cities>

ON TO 2050 sets GHG reduction targets in line with global goals to place the world on a “stabilization path,” the approximate emissions trajectory needed to constrain temperatures to a global mean increase of two degrees Celsius above pre-industrial levels. This translates to a reduction of emissions to 80 percent below 1990 levels by 2050. To achieve that goal, the Chicago region, as well as the State and federal governments, will need to intensify climate mitigation in a variety of ways. In addition to the strategies listed here, the array of environmental strategies presented elsewhere in this chapter can help the region mitigate and adapt to climate change. For example, an integrated approach to water resources, where water is conserved and reused, can reduce the energy consumption associated with water treatment, distribution, and wastewater treatment. On the other end of the spectrum, preserving and enhancing the region’s natural areas and retrofitting our built environment with green infrastructure helps retain and expand the natural carbon sequestration services these areas provide.

The following subsection describes strategies and actions to implement this recommendation.

Comprehensively address energy and climate change at the federal and state levels

GO TO 2040 called for a variety of energy and climate change policy actions that are best completed at the federal and state levels, and ON TO 2050 reaffirms the commitment to national GHG reduction targets. In December 2015, 187 countries adopted the universal and legally binding Paris Agreement that calls for key outcomes that support climate action.¹⁶⁹ The U.S. pledged to reduce its emissions 26 to 28 percent relative to 2005 levels by 2025, and 80 percent by 2050. While the Clean Power Plan, the first federal regulation that limits carbon pollution, and other initiatives have stalled,¹⁷⁰ individual states are continuing to push reduction targets from power plant emissions and are taking additional measures such as improving fuel efficiency standards and the carbon content of fuels, reducing industrial emissions, and establishing policies to promote energy conservation and renewable energy. Existing federal and state transportation, housing, and energy policies should be reviewed to better integrate carbon reduction strategies. In addition to federal regulation, innovative market mechanisms for mitigating carbon emissions, such as carbon fee and dividend proposals, have the potential to transform our response to reduction targets.

The federal government should uphold its commitment to the Paris Agreement and continue federal involvement in strategies to achieve these goals, including the expansion of renewable energy and efficiency programs and exploration of market mechanisms for reducing GHG emissions.

¹⁶⁹ United Nations. 2018. “The Paris Agreement.” http://unfccc.int/paris_agreement/items/9485.php

¹⁷⁰ U.S. Environmental Protection Agency. 2017. “Complying with President Trump’s Executive Order on Energy Independence.” <https://www.epa.gov/energy-independence>

The State should continue to implement the Future Energy Jobs Act and other emission reduction policies and programs that promote energy conservation and transition the region to renewable sources.

CMAP should regularly update the GHG inventory to provide critical information to stakeholders on the implementation of emission reduction strategies.

CMAP and partners should create a regional climate action plan to identify further strategies to move toward ON TO 2050's emissions reductions target.

Transform transportation systems to reduce emissions

Electricity generation has diversified to include more low- and zero-emissions sources, with 51 percent of our region's energy coming from nuclear power and four percent coming from wind and solar.¹⁷¹ However, the transportation sector still depends primarily on fossil fuel consumption and emissions. In addition to decreasing vehicle miles traveled, as discussed in the *Mobility* chapter, alternative energy and emissions reduction technology are critical to reducing emissions. Due to increasingly stringent fuel economy standards, vehicles that use conventional gasoline will become more efficient, and more than a quarter of cars and light duty trucks could be powered by electricity and other alternative fuels by 2050.¹⁷² Passenger cars are most likely to be electrified, with a dramatic increase in plug-in and hybrid electric vehicle market share projected by 2050. Transit agencies and local governments are investing in electric vehicles and replacing their fleet with more energy efficient vehicles. Fuel savings from these investments could continue to increase, especially if gas prices rise or carbon fee and dividend proposals are implemented. Improved charging infrastructure is needed to increase adoption rates of electric vehicles. Incentivizing the installation of fast chargers into multi-unit housing developments and near-term investments in publicly available wireless charging stations or electrified roadways can help extend operable ranges of electric vehicles. Expansion of public transit and transit oriented development remains critical to reducing emissions; see the *Make transit more competitive* recommendation in the *Mobility* chapter.

CMAP should continue to fund fleet replacement, such as electric buses and charging stations, through CMAQ.

Transportation agencies should adopt electric vehicles and other innovative emission reduction technologies and plan for integration of solar and charging stations into new projects.

Local governments should review development ordinances to identify ways to promote electric vehicle infrastructure in the transportation system.

¹⁷¹ U.S. Energy Information Administration. 2017. "Annual Energy Outlook 2017." <http://emap.is/2snwnMk>

¹⁷² *Ibid.*

Increase low- and zero-emissions energy generation

Although energy conservation remains a key priority, the region must make a more aggressive shift to renewable energy. Solar, wind, and nuclear energy generation produces little to no emissions compared with traditional fossil fuel-based sources. For electric vehicles to become truly sustainable, the Chicago region would need to make strides toward increasing its percentage of renewable energy generation. Recent updates to the state's renewable portfolio standard are anticipated to accelerate development of wind and solar. The City of Chicago and Cook County, in partnership with energy service providers, have both offered bulk solar programs to reduce prices for users. Utilities and municipalities can work together to remove regulatory barriers and reduce costs of clean energy generation and distribution, from small-scale rooftop solar panels to district energy systems. The development of renewable energy systems goes hand in hand with more decentralized energy generation; for more information see the *Create a more flexible and decentralized electric grid* strategy.

Energy service providers, such as ComEd, should continue to diversify their energy portfolio to include a greater share of renewable sources.

The state and federal governments should continue to advance renewable portfolio standards, and keep pace with technological changes.

Local governments should allow and promote renewable energy systems in zoning, building, design guidelines, and energy codes and explore bulk purchasing options.

CMAP should develop template renewable energy ordinance language and design guidelines for use by local governments.

Integrated approach to water resources

Abundant and high quality water resources play an essential role in sustaining economic prosperity, environmental health, and quality of life. Aquatic systems support an array of ecosystem services, a rich composition of native flora and fauna, recreation, and water purification. Water supplies from Lake Michigan, the Fox and Kankakee Rivers, and shallow and deep bedrock aquifers support the region's industry, households, and energy generation needs. Lake Michigan and the region's waterways also provide one of the great recreational systems in the country, while simultaneously transporting goods, both nationally and globally. Yet despite our status as a water-rich region, we often fail to recognize the real and inherent value of this globally scarce resource. As a result, the region continues to suffer major flood damage on an annual basis, degraded aquatic systems across the majority of the region, and water shortages in areas that are growing the fastest.

A regional goal is to recognize, value, and manage water as a singular resource that could be almost infinitely reusable if managed properly. This applies to our natural aquatic systems, our

built water management infrastructure, and our water supplies, both on the surface and underground. This approach seeks to integrate planning and management of water supply, wastewater, and stormwater in a way that considers the water cycle as a single system in which all water inputs and flows are recognized as potential resources, where efforts are made to enhance these systems rather than simply minimize or avoid impact on the environment, and maximizes the contribution to social economic vitality.

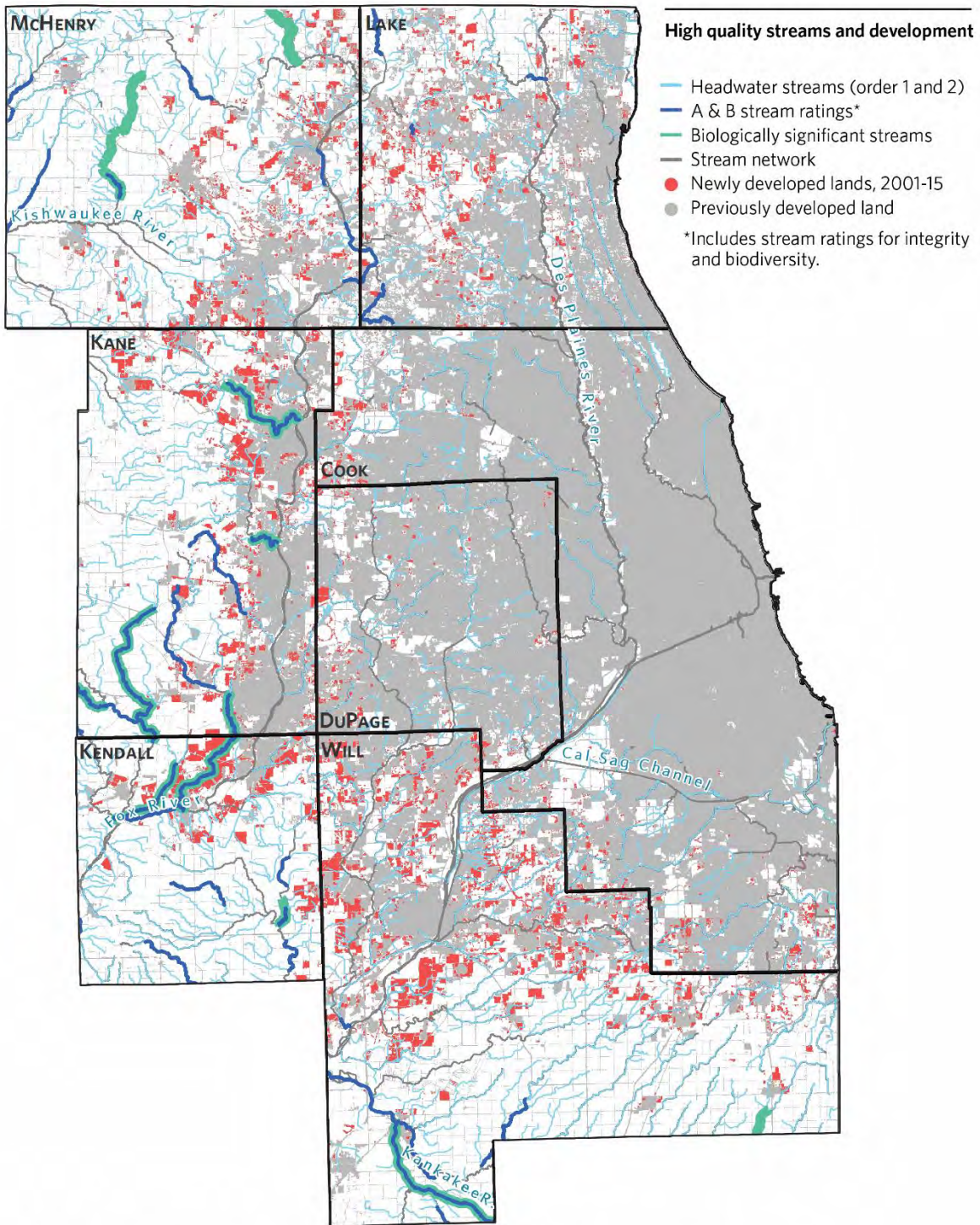
Protect and enhance the integrity of aquatic systems

The integrity of the region's aquatic resources refers to the chemical, physical, and biological quality of these systems to support both human and non-human use. Maintaining these systems' health is important not only for communities and residents, but for the economic, ecological, and recreational values that they convey to the region, in monetary terms as well as the ecosystem services they provide. Lake Michigan is the single most significant water resource to the region as a whole, and is inseparable from its integration with the rest of the Great Lakes and the Chicago Area Waterway System. All of the region's stakeholders play a pivotal role in managing the Lake's water quality and supply in partnership with other Great Lakes states and Canada.¹⁷³ It is also important to note that the natural integrity of Lake Michigan's coastal environment is critical, not only for adjacent communities, but as nearshore and coastal habitat and a critical migratory flyway.

[GRAPHIC TO COME: A photo essay of the region's water resources.]

The need for clean, abundant, and reliable water resources tends to be taken for granted until shortages, flooding, or low water quality make the water unfit for its intended use. Though water quality, habitat, and ecological conditions have improved in parts of the region since adoption of the Clean Water Act, the majority of our aquatic, wetland, and riparian ecosystems remain in a poor to moderate state of health due to direct and indirect effects of development, transportation systems, industrial and wastewater discharges, agriculture, and other impacts. Climate change will put additional stress on our water resource systems and infrastructure, as higher water temperatures, more variable and extreme precipitation, and drought cycles alter existing ecological conditions and make habitat inhospitable to native aquatic plants and animals, and more susceptible to non-native and invasive species. More broadly, recognizing that climate impacts on other parts of the nation and world are likely to drive population to the water-rich Great Lakes region, the region should begin to prepare today.

¹⁷³ Great Lakes – St. Lawrence River Basin Water Resources Compact, Public Law 110-342, 122 Stat. 3739 110th Congress, October, 3, 2008. http://www.gsgp.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Water_Resources_Compact.pdf



Source: Illinois Department of Natural Resources, 2008; Chicago Metropolitan Agency for Planning analysis of land development on agricultural and natural lands from 2001-15.



Our fragmented management of water systems reflects multiple agencies, each with its own separate mission and programs. In addition, other sectors such as public health, energy, agriculture, and transportation make policy decisions that influence water resource outcomes. Some water resource challenges can, in fact, result when an agency takes action in isolation without considering the interconnected nature of those resources. Cumulatively, individual development decisions -- including agricultural practices, the simple clearing of native riparian vegetation, and individual developments -- can have significant and lasting impacts on neighboring communities and downstream resources, including increased stormwater runoff and flooding, reduced water quality, and decreased drinking water quality and availability. For example, the extent of impervious surfaces associated with urban development is highly correlated with the quality of a watershed's streams and other resources. Due to this correlation, impervious surface area serves as an indicator of the biological health and physical integrity of surface waters. Inadequate empirical data about the many factors influencing these resources' health necessitates the use of imperviousness as a proxy. The Watershed Integrity local strategy map illustrates the region's percentage of impervious surface by watershed, while the Stream Quality map shows the location of higher-quality aquatic resources among those that have been assessed. Both maps demonstrate the impact of urban development on aquatic resources. It should be noted that only half of the region's waters have been assessed, and other high quality streams are known to exist. Headwater streams make up a majority of stream miles in the region but have not been assessed, highlighting the need for additional data and monitoring. Most of the remaining higher quality aquatic systems are found in the collar counties, where imperviousness and riparian modifications remain low relative to the rest of the region, and where watershed conditions are more likely to support higher quality streams. Future development in those areas should strive to implement appropriate designs and development practices that protect and enhance these aquatic systems.

[GRAPHIC TO COME: An illustrated watershed diagram highlighting stormwater management best practices to improve water quality.]

Effective water resource management can address some of these challenges and improve the region's natural assets. ON TO 2050 reaffirms the GO TO 2040 recommendation to integrate planning with water resource management, and suggests a conceptual goal of an integrated water resource framework for managing the region's water assets.¹⁷⁴ This framework requires both careful consideration of impacts and coordination among decision makers to protect ecosystem health and sustainability.

¹⁷⁴ The Water Research Foundation defines integrated water resource management as "an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs (Paulson, Broley, and Stephens 2017, 2), while the Water Environment and Reuse Foundation suggests the approach "considers the urban water cycle as a single integrated system, in which all urban water flows are recognized as potential resources, and the interconnectedness of water supply, groundwater, stormwater and wastewater is optimized, and their combined impact on flooding, water quality, wetlands, watercourses, estuaries and coastal waters is recognized" (Howe and Mukheibir 2015, 3.)

The region can advance integrated water resource management in a number of ways. Coordination among existing state and federal programs can identify cost-effective ways to maintain water and wastewater infrastructure while protecting natural assets. Watershed plans help identify cross-jurisdictional solutions and can be expanded beyond water quality goals to address additional water resource objectives. Watershed-based workgroups can bring together communities, agencies, and partners to address water quality resources through watershed monitoring and improvements. Local planning and development practices can ensure that redevelopment improves water quality and that new development not only minimizes impacts but also enhances natural resources with the right approach, standards, and design. Infrastructure decisions in particular can have lasting effects on the sustainable management of water systems, as described in greater detail below and in the other two water related strategies. Updating federal programs is a long-term goal, but the region and state can take more immediate actions to improve coordination and decision making that reflect the interconnected nature of water resources. The ON TO 2050 Water Resources strategy paper includes more details about the challenges to our water resources and how to address them.¹⁷⁵

[GRAPHIC TO COME: A Watershed integrity Local Strategy Map interactive feature will illustrate percent impervious surface by catchment, which is one of many indicators that can be used to assess the quality of aquatic resources. It will highlight policy recommendations for areas with high imperviousness emphasize green infrastructure retrofits and waterway restoration that improves habitat.]

The following subsection describes strategies and actions to implement this recommendation.

Improve water resource management and coordination

Institutional barriers, from the separation of different policy sectors to disconnected decision making across jurisdictions, hinder the region’s ability to sustainably manage water resources. As a result, water resources are often managed in isolation, missing opportunities for more cost-effective, integrated solutions. At the local level, many communities have separate entities managing water supply, stormwater, and wastewater, each with its own governance structure and mission, with limited connection to land use and transportation planning functions. Additional details about shared services and intergovernmental coordination are in the *Governance* chapter.

There are many ways to improve efficiency, effectiveness, and coordination of efforts related to flood mitigation, wastewater, water quality, water supply, and aquatic habitats. Better data collection and analysis regarding the condition of our water resources are an important foundation for integrated water resource management and performance-based decision making based on scientific evidence. Updating federal programs is a long-term goal, but the region and

¹⁷⁵ CMAP ON TO 2050 Strategy Paper, “Water Resources Strategy Paper” (2017), <http://www.cmap.illinois.gov/onto2050/strategy-papers/water-resources>

state can take more immediate actions to improve coordination and decision making. State and local agencies are seeking such opportunities, including cross-jurisdictional efforts to advance the state's Nutrient Loss Reduction Strategy to reduce nitrogen and phosphorous 45 percent by 2015, and new approaches to finance stormwater management projects, including updates to the State Revolving Fund. A comprehensive water planning agenda and funding program at the state level could improve coordination of water resource management efforts.

The State should develop a comprehensive water planning agenda and increase funding levels to fully support programs that integrate water supply, water quality, stormwater, and aquatic habitat objectives.

The State should support and coordinate data collection, tracking, and research among various agencies, including the Illinois Environmental Protection Agency (IEPA), Illinois Department of Natural Resources (IDNR), Illinois State Water Survey (ISWS), Illinois State Water Survey (ISGS), Illinois Natural History Survey (INHS), watershed working groups, and other watershed organizations.

IDNR and IEPA, in partnership with more local and regional organizations, should increase the number of streams surveyed and rated, and work with partners to develop a region-wide index for assessing the quality of headwater streams.

IDNR and IEPA should provide funding for CMAP to prepare an integrated water resource management plan for the region, addressing water quality, water supply, and stormwater management, including a focus on natural areas and green infrastructure, and providing a framework for enhancing coordination and establishing priorities for the region.

CMAP and partners should coordinate a cross-jurisdictional platform to engage local governments, conservation organizations, and community water resource managers to advance integrated, innovative, and watershed-based management across sectors and agencies.¹⁷⁶

CMAP and partners should explore the use of transfers, credits, and water quality and volume trading programs to achieve regional water resource goals.

Local watershed entities should collaborate to ensure that efforts are solving priority watershed challenges and not working at cross-purposes.

The U.S. EPA and federal partners should advance stormwater management reform to better address non-point source pollution and flooding (see *Reduce flood risk to protect people and assets* recommendation.)

¹⁷⁶ American Planning Association. 2016. "American Planning Association Policy Guide on Water." <https://www.planning.org/policy/guides/adopted/water/>.



Incorporate water resource management into local planning

As the primary land use and development authorities in the region, municipalities and counties have significant responsibility to integrate water resource management considerations into planning efforts. The region can accommodate new households and jobs while protecting and enhancing water resources with a variety of best management techniques. Existing natural areas, open spaces, headwaters, high priority lakes and streams, and riparian zones can be protected through land use planning and land acquisition. To maintain and improve water resources, new development should protect natural drainage and hydrology, minimize the impact of impervious surfaces, and provide natural buffers along waterways and waterbodies. At the site-scale, county and municipal development ordinances can encourage or require the use of green infrastructure practices to minimize the impact of impervious surfaces, improve the quality, and reduce the volume of stormwater runoff. Infill and reinvestment in existing developed areas can actually improve water management in older neighborhoods by triggering the installation of stormwater best management practices (see the *Improve natural resources through the redevelopment process recommendation*.)

Local governments should identify and protect water resources -- and the water protective services provided by natural areas, riparian buffers, wetlands, and open space -- through the use of practices that avoid or minimize the expansion of impervious areas and that encourage infill, compact, and contiguous development.

Local governments and other land management entities should prioritize land acquisition and stewardship to maintain and enhance high priority water resources.

Local governments should integrate watershed plan recommendations and other water quality improvements into development ordinances.

Local governments should continue to update stormwater management plans and ordinances to reflect best practices and performance standards for protecting and enhance water resources.

CMAP should continue to integrate water resource management considerations into LTA projects.

CMAP, local governments, and transportation agencies should evaluate the direct and indirect water resource impacts of regionally significant transportation projects and the development they induce, requiring the use of practices that enhance rather than negatively impact water resources.

Local governments should recognize and plan for greater access for recreational uses on waterways and adjacent land.

Create and implement multi-objective watershed plans

Improving the quality of our water resources requires a comprehensive approach to easing the stresses imposed by stormwater runoff, combined sewer overflows, wastewater and industrial

discharges. While watershed plans are an important mechanism for addressing water quality concerns, they typically lack the authority and funding to achieve significant water quality improvement. To date, the most successfully implemented watershed plans are the result of committed watershed groups that include municipal, county, state, and industry leaders collaborating on broad activities to advance water quality and other watershed goals. The DuPage River Salt Creek Working Group and the Fox River Study Group are models that should be extended throughout the region to invest in watershed restoration that addresses water quality concerns. Also, multiple objectives including open space protection, flood control, high-priority pollutants (chlorides and nutrients), and water supply protection can be addressed through watershed planning, and some of the region's entities are already doing so, including implementation of the Nutrient Loss Reduction Strategy. Plan implementation requires a number of actions by watershed stakeholders, including open space protection, changes in development and transportation design, gray and green infrastructure investments, and operational changes to asset management practices.

CMAP, IEPA, stormwater and wastewater managers, and watershed management entities should engage a diverse set of stakeholders in workgroups to plan and implement priority projects that best achieve the goals of watershed plans.

CMAP, watershed organizations, IEPA, and other partners should continue to advance the state of watershed planning science and to develop and help implement watershed plans in the region using the watershed work group approach as one successful model.

CMAP and partners should explore funding and financing strategies to support collaborative efforts -- such as the State Revolving Fund and the use of transfers, credits, and water quality and volume trading programs -- to achieve regional water resource goals.

Wastewater managers, stormwater managers, conservation organizations, and local governments should focus efforts on addressing high-priority pollutants through watershed planning and implementation: nutrients, chlorides, sediment, and emerging pollutants such as pharmaceuticals.

Optimize water infrastructure investment

The region's aging water infrastructure systems -- including drinking water, wastewater, and stormwater -- are in need of significant investment and modernization. Resource managers should consider an integrated water resource management framework that protects, conserves, and reuses water resources. Likewise, an integrated approach can help guide public and private investment to achieve multiple benefits, plan for appropriate growth, leverage multiple funding sources, and improve resilience. Some water managers, such as MWRD, recognize wastewater as a resource, making significant investments to recover nutrients and biosolids from waste streams, direct treated wastewater back into circulation for other uses, and capture excess heat and natural gas as a source of energy. Across the U.S., communities and industries are

identifying uses of rainwater and graywater that can reduce both demands on drinking water and volumes of stormwater and wastewater.

In this era of limited resources, infrastructure investment must be strategic, multi-objective, performance-based, and connected to sound planning that upgrades, rehabilitates, and optimizes the use of existing system capacity. Reinvestment in existing infrastructure before expanding these systems is essential to reduce maintenance and replacement costs over the long term, and to create incentives for infill development that helps capture infrastructure costs. When expansion is considered, long-term asset management and maintenance costs should inform decision making, as described in the *Incorporate market and fiscal feasibility into planning and development process* recommendation of the *Community* chapter. In some cases, the best approach for managing the region's infrastructure systems is to identify collaborative strategies for optimizing investments and efficiencies, including consolidation and service sharing arrangements.

The infrastructure and service recommendations of this *Environment* chapter and the *Governance* chapter include a number of crossover strategies. For example, *Encourage shared services, consolidation of local services, and local government consolidation, Coordinate and cooperate on operating and maintaining the region's infrastructure, and Develop tax policies that strengthen communities and the region.*

The State, local governments, utilities, and water management entities should pursue resource recovery and closed loop systems (use, capture, recovery, and reuse) for water assets, including updating codes and standards to efficiently use clean water and ensure adequate water flow in the region's rivers and streams.

Wastewater managers should continue to explore the use of constructed wetlands and land application to help treat and manage wastewater.

The State should continue to improve the Illinois Clean Water Initiative program criteria and incorporate flexible approaches to achieve water supply, water quality, and stormwater management goals and to better support high need, low resource communities.

The State, CMAP, and local governments should connect infrastructure investments with sound planning, consider long-term asset management and maintenance costs of infrastructure expansion, and prioritize use of infrastructure funds to upgrade, rehabilitate, and optimize the use of existing system capacity before investing in expansion.

CMAP and the IEPA should explore innovative wastewater planning approaches that protect water quality and satisfy other regional planning goals.

CMAP, local governments, and watershed groups should consider the protection of water resources when making wastewater service planning and infrastructure investment

decisions, including separation of combined sewers and strategies to reduce frequency of overflows.

Local governments and other utility service providers should consider shared services, consolidation of local services, and other efficiency strategies in investment decisions to improve community fiscal health and resilience.

Address the unique challenges of Lake Michigan and its tributaries

Lake Michigan and its interconnected system of lakes and tributaries -- the most significant water resources in our region -- face unique challenges. Our location on the Lake Michigan shoreline demands collective action to maintain and enhance the health of our region's main water source and help the state meet its commitments to national and international partners. IDNR should continue to strategically manage the Lake, which currently endures significant pollution from urban, agricultural, and industrial sources. Strategies for addressing these challenges include improving stormwater management, reducing combined sewer overflows, cleaning up polluted lands and harbors, and better managing industrial discharges to the Lake and its tributaries. Our state's nearshore and shoreline habitat exists entirely within the Chicago metropolitan region¹⁷⁷ and is degraded, fragmented, and affected by dynamic lake levels and a changing shoreline, which can affect infrastructure, shipping, property, recreational resources, and sensitive ecosystems. Preventing the introduction of additional aquatic invasive species, which have already affected the Lake's natural ecology and native species dynamics, should be a high priority. The region should be engaged in solutions that help protect the Great Lakes from Asian Carp and other such species while also maintaining the services currently provided by the Chicago Area Waterway System: the Chicago and Calumet Rivers, and the North Shore, Cal-Sag, and Chicago Sanitary and Ship Canals. The "Our Great Rivers" initiative is intended to focus attention and investment on improving these legacy resources, and the Great Lakes and Mississippi River Interbasin Study focused on the interaction between these water systems, should be implemented.¹⁷⁸

CMAP, USACE, IDNR, MWRD, MPC, CCT, and other stakeholders should continue to explore solutions to manage, enhance, and provide access to the Chicago Area Waterways System.¹⁷⁹

Congress should continue to fund investments that maintain the health, recreational use, and economic benefits of Lake Michigan and the Great Lakes, such as the Great Lake Restoration

¹⁷⁷ The Chiwaukee Illinois Beach Lake Plain, the coastline from Kenosha to Waukegan Harbor, has been designated as a wetland system of international importance () by RAMSAR, the Convention on Wetlands intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Ramsar Sites Information Service. 2015. <https://rsis Ramsar.org/ris/2243>.

¹⁷⁸ Great Chicago Rivers. 2018. "Great Rivers Chicago." <http://greatriverschicago.com/index.html>.

¹⁷⁹ United States Environmental Protection Agency. 2017. "Chicago Area Waterway System / Chicago River." <https://www.epa.gov/il/chicago-area-waterway-system-chicago-river>.

Initiative, the Coastal Zone Management program, the Water Resources Development Act,¹⁸⁰ and efforts to prevent invasive species transfer.

CMAP, IDNR Coastal Management Program, Chicago, and coastal communities and landowners should increase efforts to focus and coordinate high-priority coastal issues, such as protecting shorelines and coastal infrastructure, supporting resource-compatible recreational activities and access to Lake Michigan, and restoring natural resources.

IDNR, Chicago and other local governments, and coastal landowners should work together to protect and restore coastal nearshore and shoreline aquatic and terrestrial habitat, ravines, and migratory flyways.

CMAP should work with regional partners to implement or incorporate the Lake Michigan Lakewide Management Plan update into local planning efforts.

Lake County stormwater managers, MWRD, and other wastewater managers should continue to reduce stormwater runoff and combined sewer overflows into Lake Michigan and the region's waterways.

Reduce flood risk to protect people and assets

The significant economic, social, infrastructural, and environmental challenges posed by flooding impair communities' efforts to achieve local and regional goals. Chronic flooding damage can make communities less desirable, as does the flood-related deterioration of building facades, streets and sidewalks, and other infrastructure and property. CNT found that wet basements can decrease property values by 10 to 25 percent and are cited as a primary reason for not purchasing a home.¹⁸¹ According to FEMA, nearly 40 percent of small businesses never reopen after a flooding disaster.¹⁸² Increasing floodwaters also strain our natural and open spaces as streambanks erode, pollutants and invasive species degrade habitat, and groundwater recharge is reduced.

Flooded streets reduce mobility and increase maintenance costs for repair and reconstruction. In addition to the direct costs of delay and reduced access, road and transit closures can cause a cascade of indirect impacts that impair economic productivity, safety, emergency services, bicycling, and walking.¹⁸³ When flooding does occur, it does not affect all populations or

¹⁸⁰ Great Lakes Restoration Initiative. n.d. "Great Lakes Restoration." Accessed May 30, 2018. <https://www.glri.us/>. NOAA Office for Coastal Management. 2016. "The National Coastal Zone Management Program." <https://coast.noaa.gov/czm/>; National Wildlife Federation. n.d. "Water Resources Development Act." Accessed May 30, 2018. <https://training.fws.gov/courses/csp/csp3132/resources/WRDAs/WhatisWRDA.pdf>.

¹⁸¹ Center for Neighborhood Technology, 2014, "The Prevalence and Cost of Urban Flooding: A Case Study of Cook County, IL," http://www.cnt.org/sites/default/files/publications/CNT_PrevalenceAndCostOfUrbanFlooding2014.pdf.

¹⁸² Federal Emergency Management Agency, 2016, "Make Your Business Resilient," <http://www.fema.gov/es/media-library/assets/images/116921>.

¹⁸³ Schwartz, H. G., M. Meyer, C. J. Burbank, M. Kuby, C. Oster, J. Posey, E. J. Russo, and A. Rypinski, 2014: Ch. 5: Transportation. Climate Change Impacts in the United States: The Third National Climate Assessment, J. M. Melillo,

communities equally. Exposure to flooding risks appears to be greater in populations and communities already facing socioeconomic, demographic, and health challenges and barriers.¹⁸⁴

[GRAPHIC TO COME: An illustrated graphic explaining the differences between urban and riverine flooding.]

While flooding is a natural occurrence, continued urbanization and climate change are leading to more flooding. Development of impervious cover prevents the infiltration of rainwater and generates stormwater runoff, while climate change results in more frequent and intense storm events. Increased stormwater runoff can overwhelm local drainage systems and lead to urban flooding, such as ponding water in streets and yards, basement seepage, and sewer backups. Stormwater eventually flows to rivers and streams and can cause riverine flooding as water flows over riverbanks and into the floodplain. Buildings and roads in floodplains are at greater risk of flooding and can lead to flooding downstream as the natural function of the floodplain is reduced.

From the extensive network of preserved habitat, open space, and wetlands to the engineered detention basins, sewer systems, and Tunnel and Reservoir Plan, the Chicago region has made significant investments in green and gray infrastructure. However, development in significant portions of the region predated modern stormwater management standards, and even current infrastructure design specifications rely on old data¹⁸⁵ and do not account for a changing climate.¹⁸⁶ Some neighborhoods experience flooding after less than two inches of rain -- small storms that, over time, result in significant harm to property and quality of life.

ON TO 2050 reaffirms GO TO 2040's recommendation to integrate planning with water resource management. The region can advance stormwater and floodplain management in various ways that include protecting and enhancing the stormwater services currently provided by natural areas and open spaces; avoiding investments in areas where environmental conditions -- from floodplains to low-lying areas -- pose high risk of urban and riverine flooding; and minimizing stormwater runoff volumes through development regulations and design standards. Integrating stormwater management into larger planning can help coordinate investments and leverage limited resources to address flooding while achieving other

Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 130-149. doi:10.7930/J06Q1V53. <http://nca2014.globalchange.gov/report/sectors/transportation>.

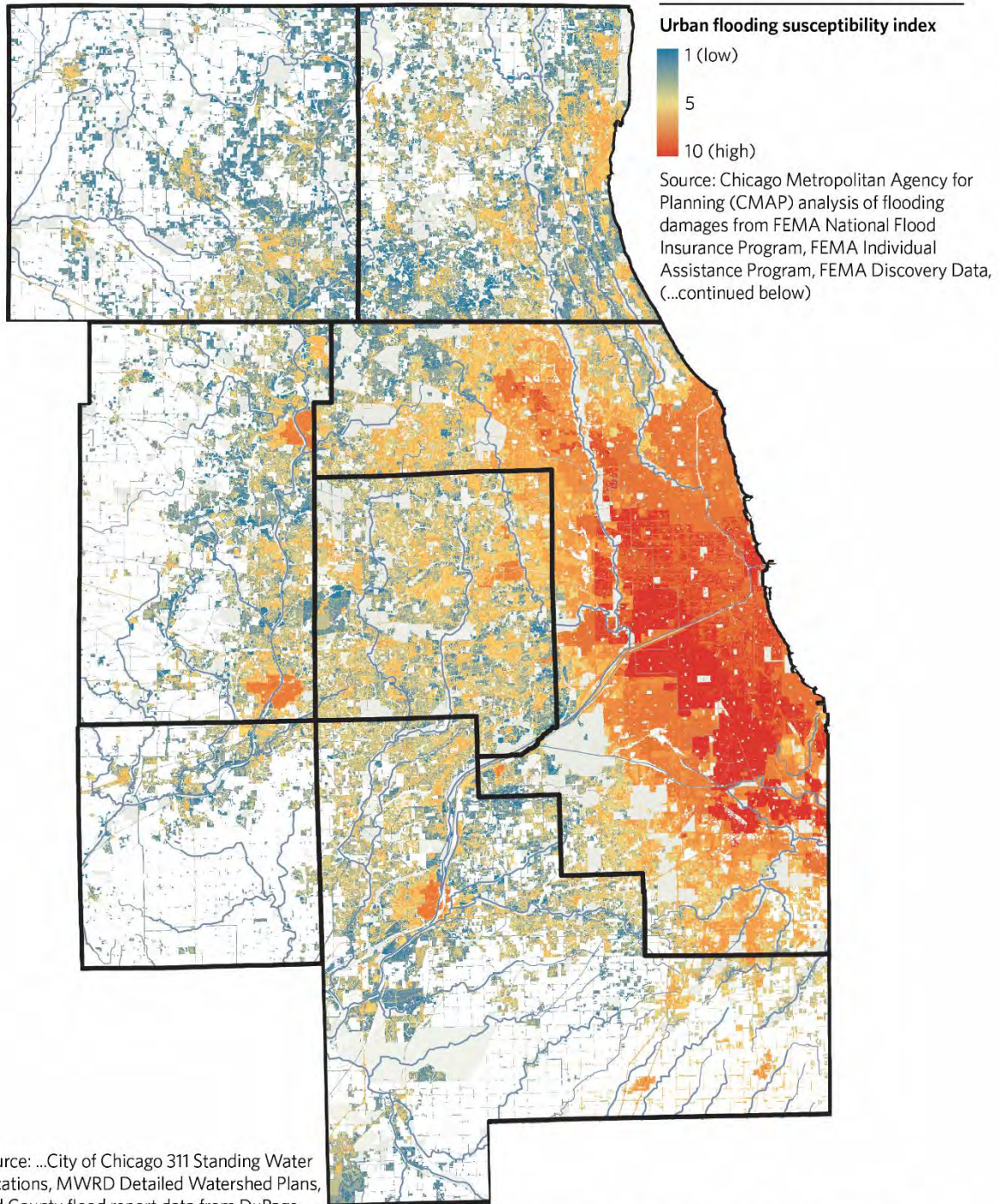
¹⁸⁴ Lowe, Dianne, Kristie L. Ebi, and Bertil Forsberg. 2013, "Factors Increasing Vulnerability to Health Effects before, during, and after Floods," *International Journal of Public Health*, 10, 7015-7067; doi:10.3390/ijerph10127015.

¹⁸⁵ Winters, B. A., J. R. Angel, J.R., Ballerine, C., Byard, J., Flegel, A., Gambill, D., Jenkins, E., McConkey, S., Markus, M., Bender, B.A., O'Toole, M.J., 2015, "Report for the Urban Flooding Awareness Act," Illinois Department of Natural Resources Springfield, IL: <http://hdl.handle.net/2142/78150>

¹⁸⁶ Markus, M., Angel, J., Byard, G., Zhang, C., McConkey, S., Cai, X., Notaro, and Ashfaq, M., 2018, "Communicating the Impacts of Projected Climate Change on Heavy Rainfall using a Weighted Ensemble Approach," *Journal of Hydrologic Engineering*, 23(4).

community goals. CMAP has developed the Regional Urban Flooding Susceptibility Index¹⁸⁷ to help prioritize areas for planning and mitigation investment, particularly in locations with municipal capacity constraints that make it difficult to address these challenges.

¹⁸⁷ CMAP, 2018, "Regional Flood Susceptibility Index," <https://datahub.cmap.illinois.gov/dataset/on-to-2050-layer-flood-susceptibility-index>



Source: ...City of Chicago 311 Standing Water Locations, MWRD Detailed Watershed Plans, and County flood report data from DuPage, Kendall, and Lake, as well as categorical data from CMAP 2013 Land Use Inventory, U.S. Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Wall-to-Wall Anthropogenic Land Use Trends (NWALT) 1974-2012, USGS National Hydrography Dataset Plus, 2011 National Land Cover Dataset, NOAA Atlas 14, FEMA National Flood Hazard Layer, MWRD 100-yr Inundation Layer, MWRD Combined Sewer Service Areas, CMAP Combined Sewer Service Areas, LiDAR-derived Digital Elevation Models from Illinois Height Modernization (ILHMP): LiDAR Data, and County hydrology data.



The following subsection describes strategies and actions to implement this recommendation.

Identify and communicate flooding risk

Extreme precipitation events in the central U.S. increased as much as 40 percent between 1979 and 2009 compared to the previous 30 years (1948-1978).¹⁸⁸ Yet many of the region's infrastructure standards and floodplain maps are based on older precipitation data. Reducing the region's exposure to flooding and optimizing long-term investments so that they account for future conditions requires a more current and comprehensive understanding of where and when urban and riverine flooding could occur. Watershed plans, stormwater models, and other studies help the region identify the most effective stormwater solutions, and coordination of these tools can help address problems across jurisdictional boundaries. In the absence of detailed models, the Regional Urban Flooding Susceptibility Index can help convey the potential risk of urban flooding. Residents and business owners making important investment decisions often lack information about flood risk. Ironically, though established to provide affordable flood insurance, repair damaged homes and businesses, and promote floodplain management, the National Flood Insurance Program (NFIP) has the unintended effect of perpetuating development in flood-prone areas. This is particularly true in locations without strong floodplain management regulations that discourage redevelopment. The NFIP does not adequately communicate the level of risk, set premiums to reflect the full risk of loss, or provide options for low income property owners.

ISWS should regularly update precipitation data and explore options to account for future climate scenarios.

FEMA, IDNR, and county stormwater agencies should update floodplain maps to reflect current development conditions as well as current and future precipitation.

County stormwater agencies and municipalities should continue advancing watershed and sewer modeling efforts to identify and increase awareness of areas of riverine and urban flooding risk.

Local governments should collect flooding data and communicate risk and possible solutions to residents and businesses, with particular attention to residents who may be more vulnerable to the impacts of flooding.

CMAP and partners should continue to develop planning tools to understand and plan for urban flooding risk.

The State and real estate community should implement efforts to ensure that the sale of property is informed by accurate flood risk information.

¹⁸⁸ Groisman, P.Y., Knight, R.W. & Karl, T.R., 2012, "Changes in intense precipitation over the central United States," *Journal of Hydrometeorology*, 13, 47-66.

Congress should reform the NFIP to adequately identify and communicate risk.

Improve planning and development to reduce current and future flooding risk

Planning in advance of potential flooding can reduce risks to health and safety as well as costs and damages to private and public property and infrastructure. From hazard mitigation plans to development ordinance updates, many locally implemented best practices could be used broadly throughout the region and can help achieve multiple community benefits, such as increased green space, lower flood insurance premiums, and higher property values. Municipalities can locate development and critical facilities, such as treatment plants, hospitals, and civic institutions, away from floodplains and other floodprone areas. Restoring the natural function of floodplains and wetlands enhances the ecosystem services they provide.

In the Chicago region, all counties have established minimum standards for stormwater management, including limiting the amount of runoff that may be generated by new development or redevelopment. Continued advancements are needed to address urban flooding, incorporate current and projected precipitation data, and streamline volume reduction and green infrastructure techniques, among others.¹⁸⁹ Municipal development ordinances also contain provisions that significantly affect stormwater runoff and management, such as the amount of impervious cover, and building and street design requirements. Local governments can be proactive about addressing flooding challenges by going beyond county requirements to require stormwater best management practices on smaller parcels. Some municipalities in the region, such as Downers Grove, are leading the way in seeking to protect their existing neighborhoods from urban flooding by recognizing and preserving stormwater flow capacity in areas with local drainage problems.

Local governments should continue to update stormwater management ordinances and performance standards to reflect best practices, including green infrastructure solutions, and emerging information about climate change and development trends.

CMAP should convene *county stormwater agencies* and other partners to exchange information about regulatory updates that improve stormwater management.

CMAP and partners should explore the use of transfers, credits, and water quality and volume trading programs to achieve regional water resource goals.

IDNR and local governments should continue to improve floodplain management guidance, techniques, and compliance, and participate in the Community Rating System.

Local governments should update plans and development standards to improve stormwater and floodplain management.

¹⁸⁹ CMAP, 2018, "ON TO 2050 Stormwater and Flooding strategy paper," <http://www.cmap.illinois.gov/onto2050/strategy-papers/stormwater>

CMAP, counties, and other partners should support continued pre-disaster planning efforts, including buyout programs, flood risk assessments, identification and protection of critical facilities, and stormwater planning, and identify opportunities for coordination.

Maintain and invest in gray and green infrastructure

Parts of the region are adequately protected from flood risk, but others have gray and green infrastructure systems that lack adequate capacity for even small storms. Green infrastructure has the potential to improve our flood control and stormwater system while achieving co-benefits unavailable with gray infrastructure solutions. Coordinating green and gray infrastructure solutions into public investments (e.g., streets, parks, schools, and public grounds and facilities) -- as well as encouraging retrofits of private property -- will be essential to improving the stormwater management capacity of our communities. This will allow the region to build a more distributed stormwater management system with greater resilience to disruptions or constraints.

Prioritizing investment in high need, high risk areas will be critical. Watershed plans, modeling efforts, and the Regional Urban Flooding Susceptibility Index, combined with information about vulnerable populations, can help inform regional and local priorities. In some situations, the best long-term solution is to return flood-prone land to open space through acquisition and stewardship, removing people and property from harm's way. Federal resources that historically funded infrastructure improvements may be insufficient as increased sea levels, storm surges, and flooding across the country strain disaster assistance resources. Dedicated revenue streams, such as stormwater utility fees, can support maintenance and expansion of gray and green infrastructure based on a long-term vision.

Local governments should use the Regional Urban Flooding Susceptibility Index, along with other mapping, planning, and modeling efforts to prioritize flood mitigation investments.

Counties, municipalities, and other infrastructure managers should enhance maintenance and monitoring of gray and green infrastructure.

Local governments should develop stormwater utility fees to cover the full costs of stormwater management and improve flood control infrastructure.

Local governments and other land managers should protect and expand open spaces to enhance natural stormwater management while achieving resource management goals.

Local governments should pursue property acquisition and voluntary buyouts to help willing landowners vacate high flood risk areas.

Congress should reform the National Flood Insurance Program to develop long-term solutions for properties that suffer repetitive losses.

Address flood vulnerability of critical transportation assets

Flooding affects the performance and maintenance of the region's transportation network. Retrofitting locations at risk of flooding to handle current and projected rain events can help maintain regional and local mobility and ensure that investments are built to last. The RTA, IDOT, and county transportation agencies are working to identify and plan for areas of the existing transportation system that are vulnerable to flooding. In other states, DOTs and regional planning agencies are conducting vulnerability assessments and improving system resilience with projects recommended in long-range transportation plans.¹⁹⁰ Local governments also need to address flooding vulnerability of their streets and update capital improvement plans and corresponding design standards. As precipitation data and floodplain maps are updated, local and regional vulnerability assessments should be revised periodically to reflect changing conditions. Avoiding construction of new streets and highways in current flood-prone areas is also critical and must be evaluated with future climate conditions in mind.

CMAP and transportation implementers should conduct studies to determine the flood vulnerability of transportation infrastructure and design projects to accommodate the projected precipitation during its designed lifespan.

CMAP and partners should conduct a regional climate vulnerability assessment of the transportation system to inform long-range transportation planning and programming.

CMAP should develop a regional pavement flooding reporting system to help plan for flood events.

Improve stormwater management in transportation projects

As the intensity and frequency of storm events increases with climate change, the region will need strategies to better integrate stormwater management into transportation planning and design. Best practices often include drainage improvements that increase detention capacity or promote infiltration, as well as a series of protective measures to reduce exposure to flood waters. Recently, the FAST Act expanded the scope of statewide and metropolitan transportation planning processes to reduce or mitigate stormwater impacts of surface transportation.¹⁹¹ This provision could enhance how stormwater management is addressed in overall planning efforts as well as individual surface transportation projects. Recent updates to the Surface Transportation Program (STP) program now incentivize the use of green infrastructure to manage stormwater.¹⁹²

¹⁹⁰ U.S. Department of Transportation, Federal Highway Administration, 2018, "Vulnerability Assessment and Adaptation Framework, 3rd Edition," FHWA-HEP-18-020, https://www.fhwa.dot.gov/environment/sustainability/resilience/adaptation_framework/

¹⁹¹ 23 U.S.C. 135 (d)(I) and 23 CFR 450.306 (b)(9)

¹⁹² Memorandum of Agreement between the City of Chicago and the CMAP Council of Mayors regarding the distribution and active program management of locally programmed surface transportation block grant funds under the Fixing America's Surface Transportation Act, October 11, 2017,



Currently, highway and street design and reconstruction requirements do not reflect county-specific stormwater management goals or practices. Instead, they follow state design guidelines, which can limit the ability to implement green infrastructure and other innovative solutions or tailor design to local context and needs. Public rights of way often present good opportunities for green infrastructure. Many of our existing streets experience flooding due to development patterns in the surrounding area, particularly in communities developed prior to modern stormwater management standards. Street flooding could be addressed through infrastructure retrofits in surrounding neighborhoods instead of within constrained rights of way. Projects that comprehensively address stormwater management solutions can improve the performance of our transportation system while also reducing flooding damages in nearby neighborhoods.

Local governments should support continued efforts to better integrate stormwater management into land use and transportation planning projects.

IDOT should update statewide design standards to reflect green infrastructure techniques and precipitation trends, designing transportation infrastructure for the climate of its designed lifespan.

Transportation agencies should construct and maintain projects that can sufficiently manage current and future storm events.

IDOT should support CMAP's stormwater management planning efforts to reduce flooding vulnerability of the transportation system.

Counties and municipalities should update development ordinances and reconstruction practices to improve stormwater management and promote green infrastructure techniques in new and reconstructed streets.

Coordinate and conserve shared water supply resources

Water resources are essential for sustaining economic prosperity, environmental health, and quality of life in the region. The leading sources of water in the region are Lake Michigan, groundwater aquifers, and the Fox and Kankakee Rivers. Access to Lake Michigan water has been critical to regional development and, if well managed, will continue to provide a sustainable supply of water into the future for much of the region. Illinois withdraws, uses, and then diverts Lake Michigan water out of the Great Lakes Basin to the Mississippi River system, a modification which resulted in a U.S. Supreme Court Consent Decree¹⁹³ that governs Illinois withdrawal of lake water, which is managed by the IDNR.¹⁹⁴ Over the years, access to Lake

<http://www.cmap.illinois.gov/documents/10180/127961/2017+STP+Agreement.pdf/6b800a21-59fb-b538-a1c9-fa1342765355>

¹⁹³ Wisconsin v. Illinois, 388 U.S. 426 (1967); 449 U.S. 48 (1980).

¹⁹⁴ 17 ILAC Ch. I, Subch. H, Sec. 3730.

Michigan water has been extended, providing a more sustainable drinking water source. That said, there are limits to the amount of water the state can withdraw, which may limit some communities' ability to access Lake Michigan water.

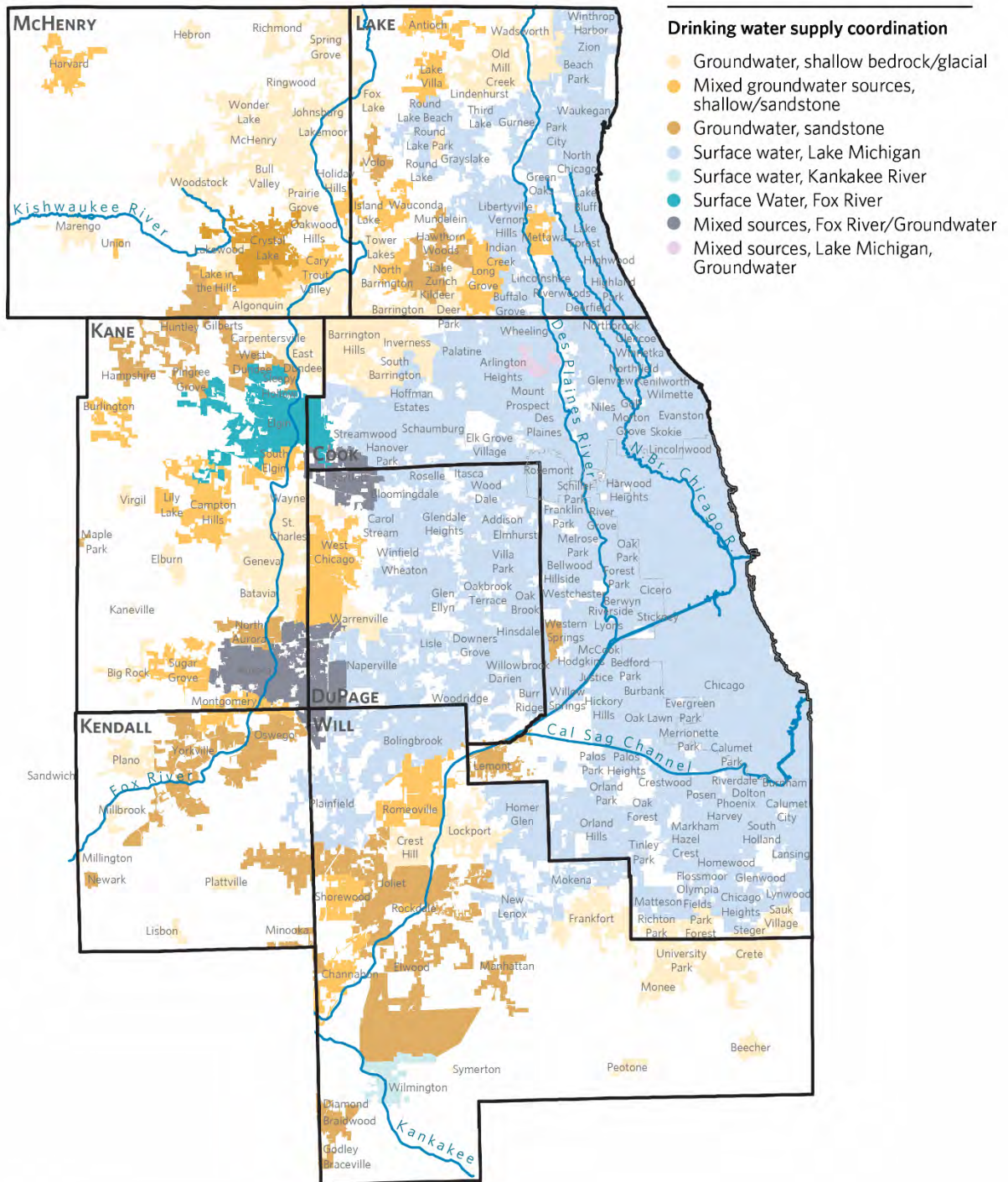
CMAP is updating the regional water demand forecast of Water 2050,¹⁹⁵ which examined how population and employment, development patterns, climate dynamics, and conservation and efficiency efforts could affect future water usage. Per capita usage has been declining due in part to conservation and efficiency gains, and continued improvements will be necessary to manage the region's water demand. However, the total demand for water is anticipated to increase with population growth and climate change. The location of future water demand will significantly influence whether the region can maintain a sustainable water supply.

[GRAPHIC TO COME: Map of water use by community, with per capita consumption for 2013 and 2050.]

Population growth and industrial development, particularly in the collar counties, has led to increasing withdrawals from constrained groundwater resources. Continued use of groundwater sources will require coordinated management throughout the region in the future, especially during droughts. In some areas, groundwater is being withdrawn at a rate that exceeds the recharge rate, resulting in decreasing yields, increasing pumping demands, increasing salinity, and the search for alternative water sources, all of which increase the cost of providing water.¹⁹⁶ For example, increasing withdrawals from community water suppliers as well as industrial users in western Will County and northern Kendall County are posing significant risks to the existing quantity and quality of water supply as portions of the aquifer become desaturated. Similarly, shallow aquifer withdrawals in northeastern Kane County and southeastern McHenry County are exceeding the recharge rate, which may result in neighboring wells competing for less water and impacts to nearby streams and rivers dependent on groundwater flows. Land use and transportation decisions affect the amount of water that's available to replenish shallow aquifers as well as the quality of the water that enters our groundwater reservoirs. For example, roads and conventional road and parking lot salting practices are linked to rapidly rising chloride levels in some parts of the region. Water supply management will help to maintain water supplies, support community livability, and mitigate potential conflicts arising from water shortages.

¹⁹⁵ CMAP, 2010, "Water 2050: Northeastern Illinois Regional Water Supply/Demand Plan," <http://www.cmap.illinois.gov/programs/water/supply-planning/water-2050>

¹⁹⁷ U.S. Global Change Research Program, 2014 National Climate Assessment, Water Supply, <https://nca2014.globalchange.gov/highlights/report-findings/water-supply>



Source: Chicago Metropolitan Agency for Planning analysis of Illinois State Water Survey, 2014.



Community water suppliers -- consisting of municipalities, sub-regional authorities, and private companies -- provide an essential service and are key to the region's economic success. They must maintain safe, efficient infrastructure at affordable prices while also managing water use to ensure a long-term supply. This challenging task is often exacerbated by aging infrastructure and strained financial capacity. Mounting infrastructure repair can result in high levels of water loss and delays in replacing lead and copper infrastructure. Some suppliers must also address large shifts in demand, such as new development or the closing of major industries, while others make long-term decisions in the face of near-term supply uncertainties. In addition, local elected officials and residents can be unfamiliar with the complexity of our water supply and the day-to-day challenges faced in continuing to provide clean, safe and reliable water. Low income residents, people of color, and the elderly may be disproportionately affected by deferred maintenance and service costs, which are eventually passed on to consumers. To maintain our quality of life and economic competitiveness, the region should pursue strategies that maintain and improve drinking water infrastructure and protect water sources.

The following subsection describes strategies and actions to implement this recommendation.

Incorporate water supply and demand considerations into local and regional planning

Understanding both the available supply of water and the current and future demand is critical to making informed land use, transportation, and infrastructure investment decisions. Today several different state agencies collect and analyze information about the use and condition of our region's drinking water supply, which can result in redundancy and gaps in planning and responsibilities. A properly funded and coordinated approach could enhance regional understanding of and planning for water supply and demand. For more context, see the *Coordinate and conserve shared water resources* recommendation.

Working together, land use planners and water utility managers can align local planning efforts with current and future water supply constraints. Assessing forecasted demand scenarios in the context of available water supply and infrastructure capacity can inform regional and local planners about the sufficiency of water supply and encourage actions that conserve water, protect supply, and/or pursue alternative drinking water sources. In particular, local water demand forecasts can help bridge land use, transportation, and municipal finance and asset management decisions as development patterns affect water use and also long-term infrastructure maintenance costs. Avoiding expensive capacity expansions can help maintain municipal fiscal stability but requires coordination across municipal departments to reduce water demand. For land use planning techniques to protect water supply, see the *Incorporate water supply and demand considerations into local and regional planning* strategy.

The State should coordinate community water supplier reporting requirements and improve data sharing across agencies and partners.



The U.S. Geological Survey, State, and Counties should fund critical surface and groundwater supply research and expand groundwater quality and quantity monitoring.

CMAP should regularly update the regional water demand forecast in conjunction with socioeconomic forecast updates and incorporate projected impacts of climate change.

Local governments and other community water suppliers should conduct local water demand forecasts and integrate demand management and conservation strategies in land use and infrastructure planning efforts.

Local governments should protect the quantity and quality of water supply sources through open space and recharge area protection, as well as other water pollution control measures.

CMAP and partners should provide technical assistance to communities to incorporate water supply and demand management strategies in local plans, ordinances, and development review processes.

Local governments should consider long-term water availability and infrastructure costs in decisions about large scale water users and the expansion of drinking water services in new development.

CMAP, local governments, and transportation agencies should evaluate, avoid, and minimize the direct and indirect water resource impacts of regionally significant transportation projects and of the development they induce in locations facing water supply constraints.

Strengthen regional water supply management

Illinois groundwater withdrawals are governed under the rule of reasonable use, with no permitting program for withdrawals. Building on the precedent of the Lake Michigan Allocation program, CMAP supports the development of a comprehensive groundwater management program to resolve conflicts and manage withdrawals for long-term sustainability. This will be particularly important in coming years as climate change is expected to diminish the amount and quality of water supplies while also increasing water demand.¹⁹⁷ To implement such a program, critical elements of water supply management will need to be strengthened, including more robust annual and monthly water reporting from communities, to inform the regional groundwater flow model, river water studies, and regional water demand forecast. Communities that coordinate with ISWS to review new public or private well proposals will have a better understanding of potential effects and can plan accordingly to reduce conflicts and shortages.

Communities are already organizing to protect water resources, with examples that include the Northwest Water Planning Alliance (NWPA), the Barrington Area Council of Governments,

¹⁹⁷ U.S. Global Change Research Program, 2014 National Climate Assessment, Water Supply, <https://nca2014.globalchange.gov/highlights/report-findings/water-supply>

and communities and industrial partners in the Joliet area. As groundwater is a shared regional resource, withdrawals require coordination across jurisdictions; management systems can evolve as new information and policies become available. As groundwater-dependent communities face growing challenges due to over-withdrawal and contamination, some might pursue access to Lake Michigan water. As required by their permits, Lake Michigan communities can help make more of the state's limited allocation available to others in the region by increasing conservation and efficiency and reducing water loss. Water 2050¹⁹⁸ and a subsequent CMAP report¹⁹⁹ identified key strategies for water demand management and water loss reduction.

ISWS, IDNR, CMAP, and partners should continue to disseminate information to groundwater-dependent communities on the potential effects of continued groundwater withdrawals and consequences for existing communities and future growth.

Community water suppliers should regularly report water use to the State and consult ISWS on groundwater impacts of new development and wells.

Community water suppliers dependent on constrained supplies should explore ways to coordinate withdrawals and management of shared water resources with neighbors.

CMAP, NWPA, and partners should continue local and sub-regional coordination efforts, promote demand management strategies, and explore the development of plans for existing and future Fox and Kankakee River users.

CMAP and partners should explore the development of a comprehensive groundwater management program.

IDNR and the State Water Task Force should explore and advance specific legislative changes of the state-wide groundwater protection authority as part of a larger effort to improve state management of water resources.

Lake Michigan permittees should follow the Lake Michigan Allocation Program requirements²⁰⁰ to maintain compliance with provisions of the U.S. Supreme Court consent decree²⁰¹ and the Great Lakes Compact.²⁰²

¹⁹⁸ CMAP, 2010, "Water 2050: Northeastern Illinois Regional Water Supply/Demand Plan," <http://www.cmap.illinois.gov/programs/water/supply-planning/water-2050>

¹⁹⁹ CMAP, 2014, "An Assessment of Water Loss among Lake Michigan Permittees in Illinois," <http://www.cmap.illinois.gov/programs/water/supply-planning/loss>

²⁰⁰ 17 ILAC Ch. I, Subch. h, Sec. 3730.

²⁰¹ *Wisconsin v. Illinois*, 388 U.S. 426 (1967); 449 U.S. 48 (1980).

²⁰² Great Lakes – St. Lawrence River Basin Water Resources Compact, Public Law 110-342, 122 Stat. 3739 110th Congress, October, 3, 2008. http://www.gsgp.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Water_Resources_Compact.pdf

Local governments within the Lake Michigan basin should promote stormwater infiltration to reduce the amount of stormwater runoff that counts toward the allowable allocation.

Municipalities, working with counties and state partners, should develop contingency plans for droughts and other water emergencies that limit the availability of water.

Maintain drinking water infrastructure and manage demand

Investing in long-term maintenance of drinking water systems is an ongoing challenge for many communities.²⁰³ Because water infrastructure is largely an underground asset, its maintenance needs are not as apparent as other community challenges. Addressing deferred maintenance can require substantial funding, and as the region's infrastructure ages and faces increasing impacts from climate change, maintenance needs are anticipated to grow. CMAP supports state efforts to make the Public Water Supply Loan Program more accessible for communities and encourages the prioritization of projects based on realistic water demand projections and maintenance of existing water capacity before new capacity investments. Managing water demand is another way community water suppliers can avoid expensive new expansion projects and focus on maintenance of existing assets. As outlined in Water 2050, foundational demand management strategies include annual water loss audits, full-cost pricing to set appropriate water rates based on infrastructure need, water reuse and conservation programs, and universal metering to accurately account and charge for water usage. For more information on full-cost pricing, see the *Local governments should implement user fees* strategy. Municipalities across the region are also updating ordinances and educating customers about conservation and efficiency in landscaping and watering.

Water affordability is a growing concern in many communities as continuing escalation of service and infrastructure costs translate into rising utility bills. Areas with vulnerable populations, such as low income residents, people of color, and the elderly, are disproportionately affected. Water pricing should be sensitive to the ability of the consumer to pay, yet small utilities with a low income customer base may struggle to achieve the appropriate rate structure that pays for the system. Water utility consolidation is one strategy to address these challenges. The Chicago region has hundreds of community water supply systems, most of which are publicly owned and managed by a municipality. Small water suppliers are more likely to face significant capital constraints for maintenance and upgrades and often struggle to meet state standards. Communities are already exploring ways to gain efficiencies of scale through collaboration and consolidation, and they should continue to investigate potential options among neighboring utilities.

Community water suppliers should implement asset management and water demand management strategies.

²⁰³ CMAP, 2014, "An Assessment of Water Loss among Lake Michigan Permittees in Illinois," <http://www.cmap.illinois.gov/programs/water/supply-planning/loss>

Community water suppliers should utilize the IEPA Public Water Supply Loan Program for low interest loans.

IEPA and partners should continue asset management and water demand management training and support for community water suppliers.

U.S. EPA and the State should continue to advance water conservation, efficiency, and reuse standards in plumbing fixtures and appliances.

Community water suppliers should ensure safe, clean, abundant, and affordable water, and evaluate and address affordability impacts of rate increases on low income customers.

IEPA, IDNR, IDPH, CMAP, and other partners should target assistance to communities facing high maintenance needs and water affordability challenges.

Community water suppliers, particularly those contemplating alternative water sources or large-scale capacity changes, should work with nearby water suppliers to explore costs and benefits of service sharing and utility consolidation.

IEPA, IDNR, CMAP, and other partners should explore strategies, best practices, and appropriate conditions for water service consolidation.

Development practices that protect natural resources

To preserve the region's highest-priority natural and agricultural areas, stakeholders must pursue conservation strategies and also promote reinvestment in existing communities. While preservation decisions are often driven by opportunity, strategic frameworks like the ON TO 2050 Conservation Areas local strategy map and the Green Infrastructure Vision²⁰⁴ can help maximize the benefits of land protection by assisting the coordination of different actors and funding streams, particularly at the region's developing edge. In addition, sensitive development techniques such as conservation design in these locations can help ensure preservation of high quality natural assets as well as continuity and connectivity of natural areas via open space corridors, which is critical to protecting native species and systems.

Reinvestment efforts, which focus growth in areas with existing infrastructure, housing stock, transportation access, and services, can help reduce development pressures on natural and agricultural lands and revitalize disinvested areas as well as remediate brownfields and other barriers to infill development. In fact, redevelopment can significantly improve the environmental performance of communities and reap co-benefits. Integrating green infrastructure into the redevelopment process can result in additional parks and open spaces, tree-lined streets, and stormwater management. Combined, these investments provide places for recreation, habitats for native flora and fauna, air pollutant filtration, flood reduction, urban

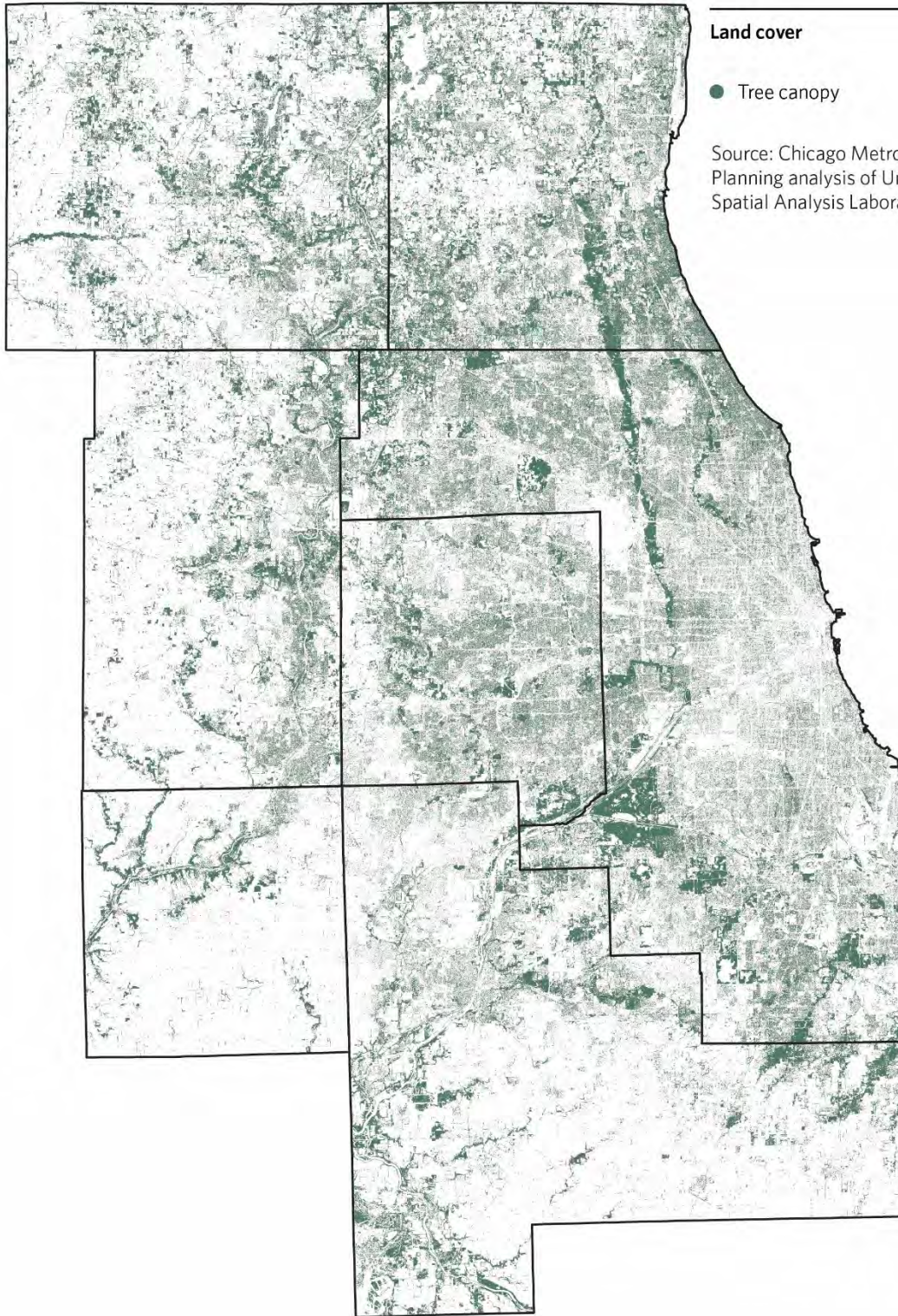
²⁰⁴ Chicago Wilderness, CMAP, and The Conservation Fund, 2012 "Green Infrastructure Vision 2.2 Refinement," <http://www.cmap.illinois.gov/programs/sustainability/open-space/green-infrastructure-vision>

heat island mitigation, and groundwater recharge, while at the same time creating more desirable and resilient communities.

Improve natural resources through the redevelopment process

Infill and redevelopment can provide a variety of benefits, such as leveraging and making efficient use of existing infrastructure and services, promoting walkability, spurring investment in disinvested or stagnant growth areas, and helping to preserve key agricultural and natural lands by accommodating growth in already developed locations. The redevelopment process also presents unique opportunities to conserve, restore, and enhance natural resources at infill locations and to increase climate resilience.

Given that most development happened before the advent of today's best practices, redevelopment can help tackle some of the region's most persistent environmental challenges. For example, remediating brownfield sites when conditions are favorable provides environmental and social benefits; however, current funds for these initiatives are limited. In addition, building renovations and construction of new buildings can result in improved environmental performance through the use of energy- and water-efficient systems and appliances, renewable energy, water reuse, recycled and sustainable materials, and other sustainable approaches.



Land cover

- Tree canopy

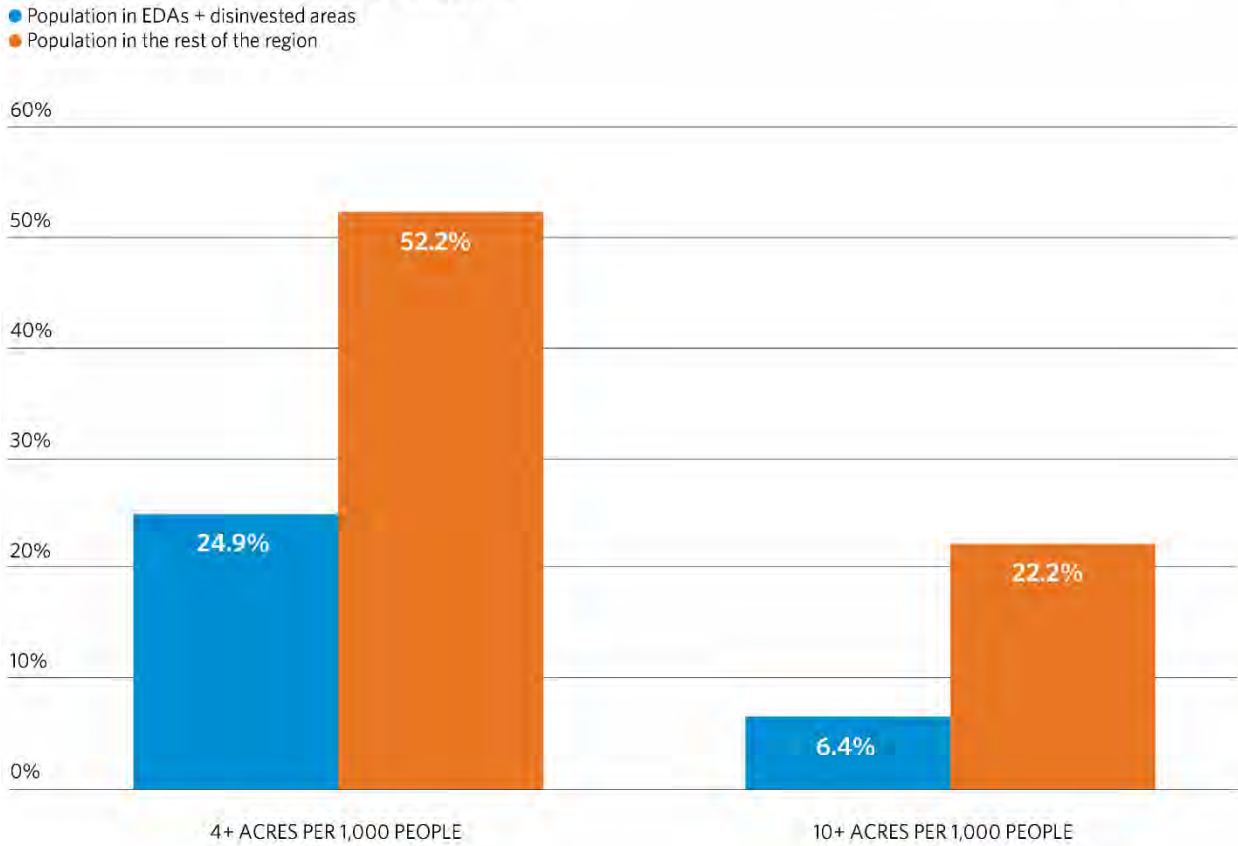
Source: Chicago Metropolitan Agency for Planning analysis of University of Vermont Spatial Analysis Laboratory, 2010.



In addition, strategy development for ON TO 2050 has highlighted other environmental issues related to climate change and flooding, water quality, community greening and placemaking, and impacts to vulnerable populations that are particularly important to address during the redevelopment process. Climate change -- and the associated exacerbation of urban heat island effects and flooding -- underscores the importance of expanding green infrastructure, tree canopy, and other community greening strategies. With regard to underserved populations, review of the GO TO 2040 access to parks indicator revealed that the region's EDAs have far lower access to parks than economically connected areas: in 2013, 28.6 percent of the population in EDAs had access to four or more acres of parkland per 1,000 residents, compared to 53.8 percent in other areas. As EDAs redevelop, making a concerted effort to provide park space will help to reduce this disparity over time.

Access to parks (4+ acres per 1,000 people), within Economically Disconnected Areas (EDAs) and disinvested areas, rest of region, 2013

Source: Chicago Metropolitan Agency for Planning Land Use Inventory 2013 and the U.S. Census Bureau's 2010 Census.



The following subsection describes strategies and actions to implement this recommendation.

Apply sustainable development practices to the redevelopment process

Each redevelopment site represents an opportunity to enhance the environmental performance of a property and contribute to local and regional natural resource enhancement. Many aspects of development proposals, such as building design, landscape choices, and site planning, can improve climate resilience, water conservation, stormwater management, and water quality. Expansion of site-scale greening -- particularly with native and drought- and flood-tolerant landscape materials and trees -- can help to mitigate the urban heat island effect, retain stormwater, and promote carbon sequestration. Avoiding redevelopment in flood-prone areas interrupts the cycle of escalating and recurring damages. Local governments can be proactive about addressing flooding challenges by going beyond county requirements to require stormwater best management practices on smaller parcels. Encouraging green infrastructure practices as the first design option and enabling rainwater harvesting and reuse can help address concerns from neighbors that redevelopment could exacerbate existing stormwater problems.

Despite these real benefits, integration of sustainable practices in redevelopment is often perceived as more difficult or expensive. The most common example is with stormwater, where small sites may be severely constrained from meeting detention requirements. Yet the application of green infrastructure designs like permeable paving or bioswales can be incorporated in a variety of settings. For property owners with space or other site constraints, credits and trading programs can provide flexibility and increase implementation. In the stormwater example, trading programs allow eligible properties to meet a portion of their stormwater requirements by buying “credits” from other property owners. These programs could lead to dramatic improvements, especially if off-site installations are located within the same water- or sewer-shed and the infill site does not create downstream impacts. Municipalities can also take advantage of larger-scale redevelopment efforts to either make adjacent infrastructure improvements that relate to climate resilience, such as burying overhead utility lines, installing street trees, or building sewer capacity or shared stormwater solutions, or require developers to do so.

Local governments should revise zoning, building, energy, and stormwater regulations to ensure sustainable development practices are implemented through redevelopment, retrofits, and adaptive reuse of buildings and property.

County stormwater agencies should follow Cook and DuPage efforts and establish fee-in-lieu programs for detention and volume control for constrained infill sites to address existing flooding and water quality issues.

Address environmental challenges that disproportionately affect specific populations and disinvested areas

As documented by the environmental justice movement, environmental issues tend to have disproportionate impacts on specific populations, including people who are low income, of color, or have limited English proficiency. For instance, these residents are frequently affected by the environmental hazards arising from the disproportionate location of brownfields, landfills, and freight and industrial facilities within their communities. Similarly, research suggests that those who might be at increased exposure to heat waves include people of color, residents with limited English proficiency, those with family income below the poverty line, the elderly, children, and those with existing health conditions.²⁰⁵

Other challenges, ranging from repetitive flooding to lead exposure in drinking water lines, could also be due to a lack of investment and maintenance that are particularly acute in disinvested areas. As infrastructure managers work to balance budgets or address the backlog of deferred maintenance, higher service fees can be particularly difficult for low income residents to absorb. In general, more research is needed to determine the impacts of environmental issues on different population groups and meaningful strategies to address them. Any such effort must deeply engage the affected communities to ensure that solutions reflect local needs.

CMAP and partners should explore the impacts of high-priority issues -- such as climate change, water loss and pricing, repetitive flooding, brownfields, and air pollution -- on vulnerable populations and disinvested areas, while engaging affected populations to collaboratively develop and implement solutions.

CMAP and partners should align green and gray infrastructure investments to address the unique needs of disinvested areas.

Increase community greening efforts and expand neighborhood parks

Community greening involves increasing the amount of green coverage, including recreational or passive park space, community gardens, landscaping and tree canopy,²⁰⁶ and green infrastructure. This can be particularly valuable in walkable downtowns, along major commercial corridors, and in other areas with an extensive impervious surface. Community greening efforts can achieve numerous benefits, including greater climate resilience, stormwater management, habitat, reduced heat island effect, and improved physical and mental health. GO TO 2040 recommended retrofitting developed areas with green infrastructure, which contributes to overall community greening, and these practices were explored in greater detail

²⁰⁵ The U.S. Environmental Protection Agency provides research related to climate vulnerability, see <https://www.epa.gov/heat-islands/heat-island-impacts>.

²⁰⁶ The Chicago Regional Trees Initiative hosts an interactive map to explore the urban tree canopy, see <http://chicagorti.org/interactivemap>.

in the ON TO 2050 Integrating Green Infrastructure strategy paper.²⁰⁷

Local governments, park districts, and other partners should expand and improve access to neighborhood parks and community gardens, particularly in EDAs.

Local governments, park districts, and other partners should incorporate green infrastructure and other green strategies into neighborhood parks, school yards and properties, corporate and office campuses, and other open lands to achieve multiple co-benefits.

Local governments, park districts, and transportation agencies should expand urban forestry efforts to protect existing trees and to increase and diversify the tree canopy.

Local governments, transportation agencies, and landowners should incorporate site-scale green infrastructure, trees, landscaping, etc. into non-park spaces, including street right of ways, parking lots, and private property.

Integrate land preservation into strategic growth efforts

The Chicago region maintains many high quality natural areas and has an incredibly high level of biodiversity. Over 800,000 acres of land make up the region's green infrastructure network and provide an array of ecosystem services, including flood control and carbon sequestration. A recent study estimated that a subset of these services provides approximately \$6.4 billion annually in services that would be either very expensive or impossible to replicate.²⁰⁸ However, because these natural areas are often isolated from one another by agriculture, roads, and development, they face challenges associated with fragmentation, pollution, invasive species, and climate change.

[GRAPHIC TO COME: An illustrated diagram defining green infrastructure at different scales and highlighting the importance of ecological connectivity via cores, hubs, and corridors.]

ON TO 2050 reaffirms GO TO 2040's recommendation to preserve priority natural areas in the region, and adds the goal of capitalizing on the development process to help retain and enhance critical open space. Our progress over the course of this century has been mixed. Natural areas are not widely targeted for protection in local land use plans, and development review processes vary greatly in how they identify and protect natural resources. From a land preservation perspective, 61,500 acres of land were protected between 2000 and 2015, marking a 22 percent increase and progress toward GO TO 2040 targets. Of the approximately \$1.15 billion used to protect natural lands within this time period, nearly 80 percent of funding came from

²⁰⁷ CMAP, 2016, "ON TO 2050 Integrating Green Infrastructure strategy paper," <http://www.cmap.illinois.gov/onto2050/strategy-papers/green-infrastructure>

²⁰⁸ Will Allen, Ted Weber, Jazmin Varela, CMAP Technical Committee, 2014, "Green Infrastructure Vision 2.3: Ecosystem Service Valuation," <https://datahub.cmap.illinois.gov/dataset/green-infrastructure-vision-2-3-ecosystem-valuation>



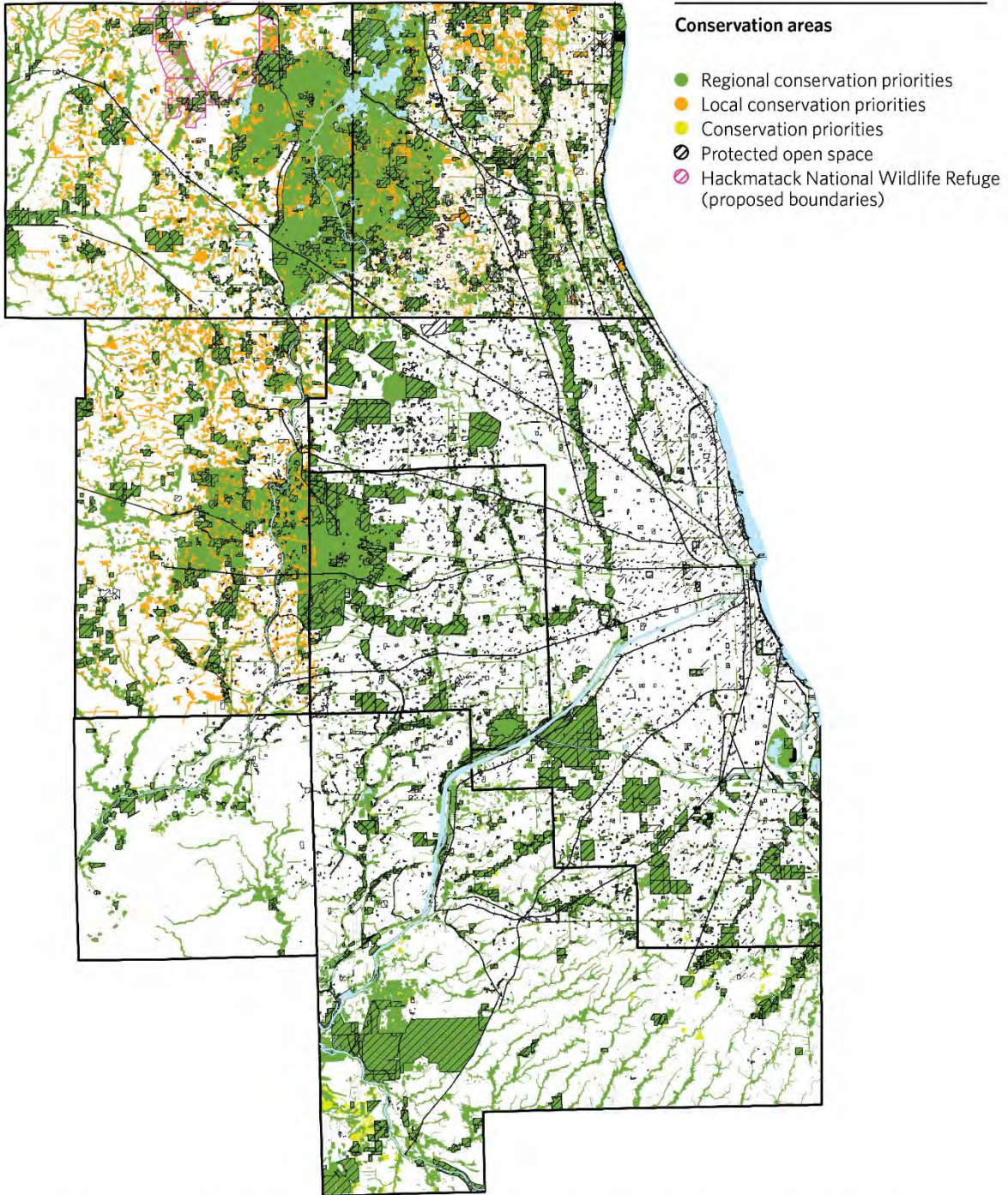
open space referenda put forth by the region’s forest preserve and conservation districts -- a testament to how valuable conservation efforts are to local voters.²⁰⁹ However, funding for open space protection has dropped dramatically since the 2008 recession, and state funding programs have been delayed or suspended. Funding for land protection and stewardship needs to increase significantly to reach regional goals.

[GRAPHIC TO COME: Photo essay that highlights the agricultural and natural resources in the region, how some of these areas are being developed, and best practices to retain these areas in the future.]

For ON TO 2050, CMAP created the Conservation Areas Local Strategy Map, which presents local and regional conservation priorities and reflects current data on the region’s natural assets. The Conservation Areas map builds on and refines the first-of-its-kind Green Infrastructure Vision,²¹⁰ which continues to serve as a guide for the Chicago region and beyond to pursue an integrated network of natural resources and open spaces.

²⁰⁹ The Trust for Public Land, 2015, “Conservation Almanac,” <http://www.conservationmanac.org/secure/>, The expenditure of \$1.15 billion for the protection of open space occurred from 2001 to 2013.

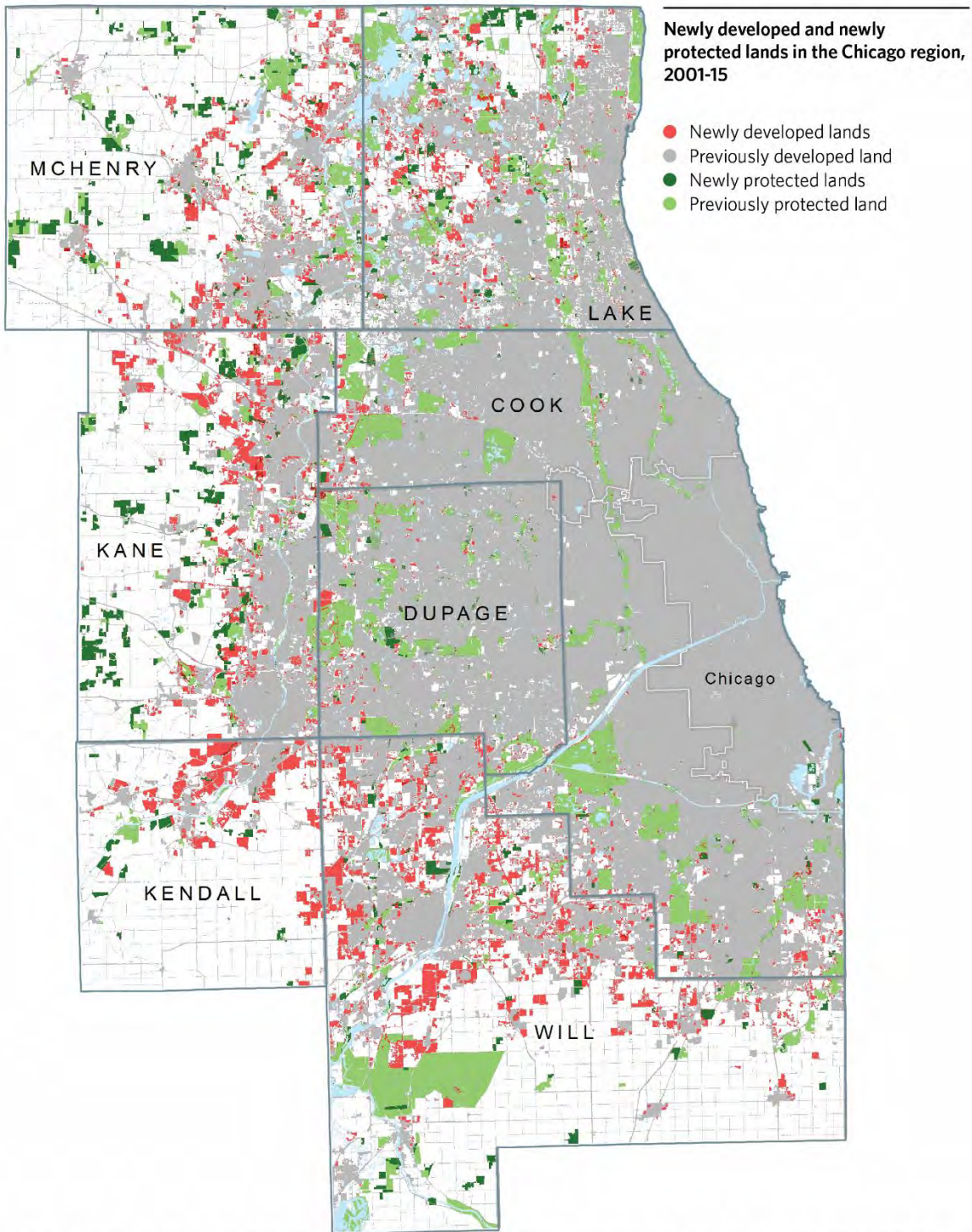
²¹⁰ Chicago Wilderness, CMAP, and The Conservation Fund, 2012 “Green Infrastructure Vision 2.2 Refinement,” <http://www.cmap.illinois.gov/programs/sustainability/open-space/green-infrastructure-vision>



Source: Chicago Metropolitan Agency for Planning (CMAP) analysis of CMAP Land Use Inventory, county forest preserve and open space data, IDNR site data, CMAP Northeastern Illinois Regional Greenways and Trails Plan, Illinois Natural Areas Inventory, Ducks Unlimited and USFWS Enhanced National Wetland Inventory, FEMA floodplain data, Morton Arboretum Oak Ecosystems data, Chicago Wilderness Green Infrastructure Vision 2.3, National Conservation Easement Database, USGS National Land Cover Database, Kane County Green Infrastructure Plan, McHenry County Green Infrastructure Plan, and Lake County Green Infrastructure Strategy.



Agricultural lands do not provide all of the same ecosystem functions as natural areas and can negatively affect water quality and other natural resources when appropriate land management activities are not followed. Yet farmland contributes to the rural character and economies of the region's collar counties and could be a critical regional resource with respect to feeding the region and enhancing land and water resources in the future. Nearly 900,000 acres, or 35 percent of the region's land area, are in agricultural production. Our state's diverse agriculture sector, including all elements of production, processing, and distribution, contributes significant economic strength and employment. As crop production patterns shift nationally, our region's agricultural lands may increase in value and importance. However, despite its economic and cultural contributions, farmland is often perceived as awaiting future development, and few local economic assessments consider the role that agricultural production plays in local economies.



Source: 2001-11 National Land Cover Dataset, 2015 Northeastern Illinois Development Database, 2001/2005/2013 Chicago Metropolitan Agency for Planning Land use Inventory, 2012-15 National Conservation Easement Database, 2014 Kendall County Forest Preserve District Master Plan, 2016 Trust for Public Land Conservation Almanac, and 2016 I-View: Prairie State Conservation Coalition's database of Illinois protected natural lands.

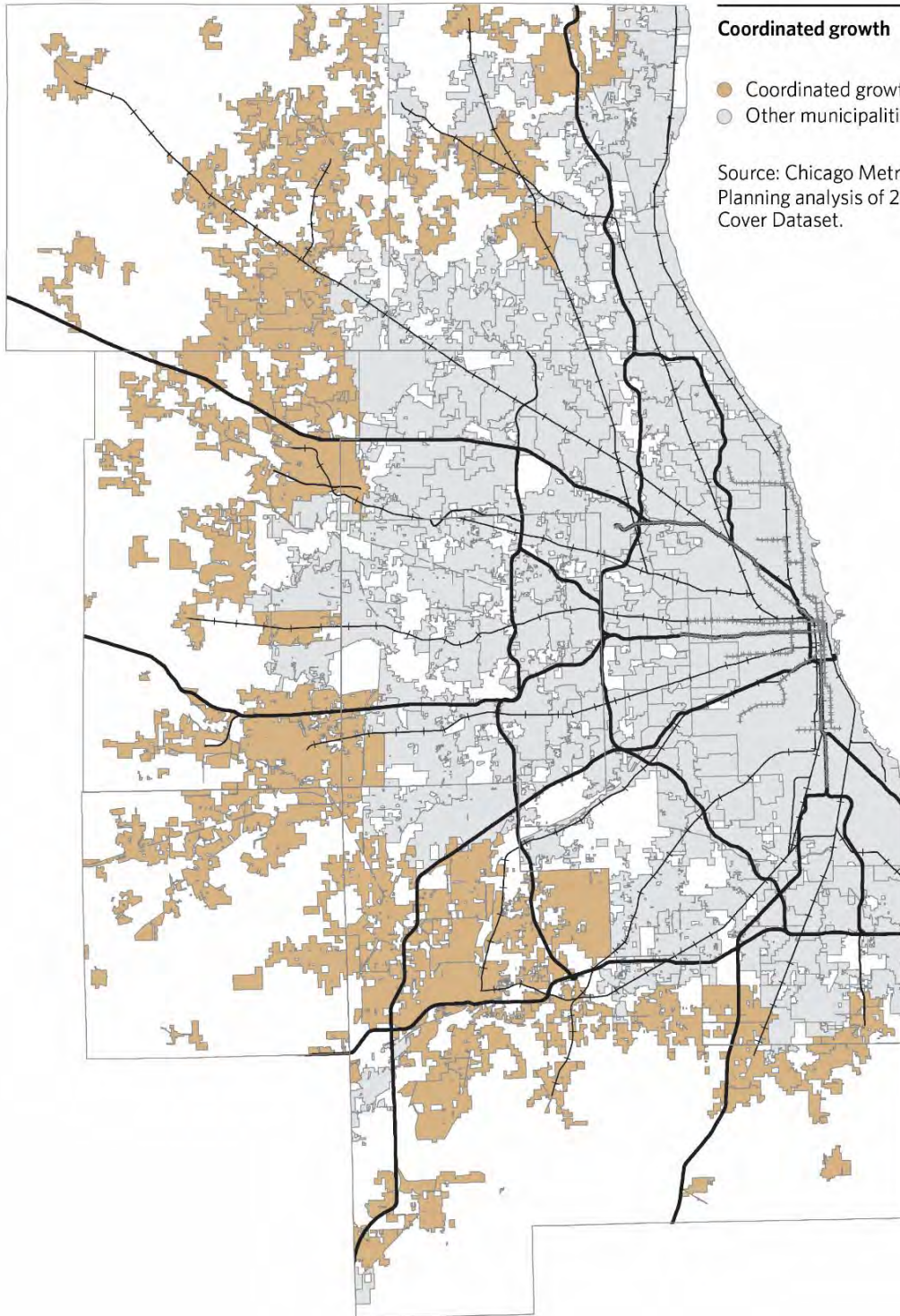


Between 2000 and 2015, the region developed 40,000 acres of natural areas and 100,000 acres of farmland. That represents a 12 percent addition to the region’s overall development footprint during a time when employment remained flat, population increased by only 4.6 percent, and many opportunities for infill development remained untapped. While development can add economic benefits to the region’s communities, it can also diminish natural resources through habitat fragmentation, reduced core habitat size, and indirectly causing the spread of invasive plant and animal species.²¹¹ New development also creates recurring expenses -- for streets, drinking water and wastewater services, and other necessities -- that can cause or exacerbate community struggles to maintain essential infrastructure and services. And despite the unknown economic impact of 100,000 fewer acres of agricultural land in the region, agricultural production can only remain viable if the region has a critical mass of farms and corresponding distribution and processing centers.

While agricultural and natural lands will likely continue to face challenges from national and global forces such as climate change and market trends, development pressure is a significant factor that municipalities and counties have considerable ability to influence. As the region is projected to add more than 1.9 million residents and 700,000 jobs by 2050, ON TO 2050 identifies communities with significant agricultural and natural assets in the Coordinated Growth local strategy map. ON TO 2050 identifies strategies to minimize the potential environmental and fiscal impacts of new development with a goal of maintaining and enhancing the region’s agricultural systems and natural resources. Infill and reinvestment strategies in existing neighborhoods and downtowns can help diminish the pressure for new development of agricultural and natural lands. If such development does occur, it should be located and designed in such a way to avoid impacts, maintain and enhance ecosystem functions and the local agricultural economy, build municipal financial health, and address other community goals.

²¹¹ CMAP, 2016, “ON TO 2050 “Integrating Green Infrastructure strategy paper,”<http://www.cmap.illinois.gov/onto2050/strategy-papers/green-infrastructure> .





Coordinated growth

- Coordinated growth area
- Other municipalities

Source: Chicago Metropolitan Agency for Planning analysis of 2011 National Land Cover Dataset.



The following subsection describes strategies and actions to implement this recommendation.

Protect and steward high-priority natural areas

To plan for and protect high-priority natural areas, such as high quality resources, rare landscapes, and key restoration areas, it is first necessary to define where they exist and how they connect to the regional green infrastructure network. IDNR, county forest preserve and conservation districts, advocacy organizations, local governments, and other regional partners produce strategic plans identifying high-priority natural assets for conservation. GO TO 2040 used the Green Infrastructure Vision (GIV) as a framework for identifying the most important core lands and corridors of our regional green infrastructure network. These plans continue to provide useful planning guidance for the region. Since GO TO 2040's adoption, CMAP has produced a new dataset to help communicate the importance of natural resources and prioritize land acquisition. The Conservation Areas local strategy map is a new aggregation of data that follows the spirit and intent of the original GIV. This local strategy map, which is informed by county green infrastructure plans and other regional data, provides a starting point for regional and local conservation partners to identify areas for land acquisition as well as inform land use plans and development decisions.

Strategic frameworks like the Conservation Areas local strategy map can help maximize the benefits of land protection by coordinating efforts across jurisdictional boundaries to preserve large complexes of natural resources and connect them along greenways and waterways. Given the decrease in state and federal funding in recent years, local funding initiatives --for example, local and county open space referenda -- will likely continue to be the backbone of natural land protection and stewardship funding. Yet additional funding will be needed to achieve natural resources goals, and innovative financing strategies offer further opportunities to fund open space while addressing other regional goals. For example, water quality trading programs can provide cost-effective solutions for achieving water quality goals while protecting land in high priority areas. The region should also explore a regional conservation open space fund, which could focus investments using a performance-based approach to most effectively and efficiently target conservation efforts to address local and regional priorities.

Counties, forest preserve and conservation districts, and municipalities should prepare and update green infrastructure plans to inform local priorities and provide inputs to the Conservation Areas local strategy map, which can inform the next iteration of the GIV.

CMAP, Chicago Wilderness, and other conservation partners should define priority natural resource restoration areas within and between areas identified in the Conservation Areas local strategy map.

Forest preserve and conservation districts, municipalities, and counties should continue to raise essential funding through open space referenda.

The State and federal governments, as well as philanthropic organizations, should continue to fund IDNR and land managers via OSLAD, NAAF, the Coastal Management Program, and other programs to acquire and maintain high-priority lands.

CMAP and partners should explore how innovative financing mechanisms, such as public-private partnerships, transfer of development rights programs, water quality and stormwater volume control trading, GHG credit markets, and expanding the use of the Illinois Clean Water Initiative programs could support open space protection and enhancement efforts.

CMAP, forest preserve and conservation districts, and other conservation partners should explore creating a regional fund for conservation open space.

Forest preserve and conservation districts, counties, and conservation organizations should work with landowners, land managers, to establish and connect large reserves that consist of mosaics of land uses oriented toward conservation, such as the Hackmatack National Wildlife Refuge, Liberty Prairie Reserve, and Prairie Parklands

The State, forest preserve and conservation districts, and private philanthropy should work with land trusts to engage and educate private landowners, accept conservation easements of priority natural lands, and continue stewardship efforts.

Identify and maintain key agricultural lands

Understanding where our most important agricultural assets are located will help facilitate their viability and guide local and regional investment decisions. Key agricultural lands should be identified using a methodology that reflects local conditions and goals within a regional context. This assessment could include criteria related to the soil as well as the markets, facilities, and infrastructure conditions. ON TO 2050 supports GO TO 2040 recommendations that emphasized the need to expand county agricultural conservation easement and protection programs, coordinate with conservation open space preservation efforts, and permit counties to use referenda to raise revenue for agricultural preservation. A farmland protection program with corresponding funding at the state level could provide needed resources to support local and county agriculture goals, especially for key agricultural areas. Innovative strategies -- such as transfer of development rights programs -- offer promise to advance farmland preservation while also addressing other regional goals. Encouraging sustainable land management strategies, either through education efforts or incentivized through innovative trading programs, could help maintain and enhance soil and water resources, see the *Protect and enhance the integrity of aquatic systems* recommendation.

Locally, diversification of our agricultural systems, including the production of a greater variety of products including food, could help the region's farms adapt to changing climate conditions, and make the region more resilient to disruptions in food production systems nationally. This was strongly emphasized as an important regional goal in GO TO 2040. Diversification efforts

can also help keep farms economically viable and retain lands in agricultural production, see the *Diversify agricultural systems to promote resilience* strategy.

CMAP and partners such as the Natural Resource Conservation Service (NRCS), local soil and water conservation districts, counties, the Illinois Farm Bureau, Farm Illinois, and Openlands should work together to identify key agricultural lands and build consensus around those areas as regional priorities for preservation.

The State should establish a comprehensive, statewide farmland protection policy, which could include an agricultural conservation easement program, and provide counties with the authority to fund farmland protection programs through local referenda.

Counties should develop farmland preservation plans and raise funding for agricultural easements.

CMAP and partners should explore how innovative financing mechanisms, such as water resource trading, Illinois Clean Water Initiative programs, and transfer of development rights programs, could support agricultural protection and enhancement efforts.

CMAP and partners such as Natural Resource Conservation Service (NRCS), local soil and water conservation districts, counties, the Illinois Farm Bureau and local chapters, Farm Illinois, and Openlands should promote agricultural practices that protect and enhance land and water resources, as well as the production of a greater diversity of crops, products, and food.

Protect agricultural and natural land through local planning processes

As the region's population grows, valuable agricultural and natural resources will continue to face development pressure, particularly in locations within or adjacent to municipal boundaries, as highlighted in the Coordinated Growth local strategy map. Identifying agricultural and natural lands in local, county, and regional planning and development efforts signals their importance and helps communities recognize the contributions of such lands to local and regional economies, ecosystems, and character. For example, Kane and McHenry counties identify agricultural and natural lands in their future land use maps. While their plans acknowledge that anticipated population growth could result in the conversion of undeveloped land, much of the existing agricultural and natural land cover is anticipated to remain in its current use. These plans also direct new development toward locations with or adjacent to existing infrastructure.

Municipalities and counties can also leverage their regulatory processes to improve the relationship between development and agricultural and natural resources. For example, updating development ordinances can support preservation of valuable natural assets and the corridors between them, and minimize the impact of new development on agricultural and natural resources. Local governments can use a number of different strategies, including agricultural and natural resource zoning districts, modernized definitions and standards relating to agriculture and natural resources, updated protection measures within subdivision



ordinances, and provisions for long-term stewardship of protected open space. Conservation-oriented development and clustering can help preserve natural resources while accommodating broader community goals for development. Even without clustering, development can be designed to protect the existing natural resources and use them as inherent assets of the site.

Local governments should use the Conservation Areas local strategy map and the Key Agricultural Lands local strategy map, when available, to inform local planning and development efforts.

CMAP and partners should quantify the agricultural system's contribution to the regional and local economies to better inform local economic development strategies, land use planning, and transportation investments.

CMAP should refer to the Conservation Areas local strategy map to inform long-range transportation planning and programming.

Local governments should adopt conservation-oriented development standards and avoid development on key natural areas.

Local governments should conduct detailed development site inventories of natural resources and first attempt to avoid, reduce, and then mitigate the natural resource impacts of development through actions such as protecting existing assets and conservation areas.

CMAP should investigate conservation design practices that work best with agricultural activities.

Evaluate future infrastructure costs when considering development expansion

In an era of limited resources, growing communities should carefully weigh the long-term costs of maintaining and replacing infrastructure against the fiscal benefits of new development. A lack of full-cost pricing and declining federal and state support have left many communities struggling to maintain infrastructure already in place. Some municipal costs, including roads, water and wastewater, stormwater, and fire protection, are more dependent on the location and density of development than others. For example, lot size, minimum block length, and street design standards influence the length and width of streets and the corresponding density of development that provides financial support for the eventual maintenance and replacement of those streets. While future land use plans and zoning and subdivision ordinances dictate the development pattern, the planning process rarely factors in the long-term financial impacts of those requirements or considers the costs of that additional infrastructure within the context of the municipality's existing liabilities. Avoiding unnecessary future infrastructure and maintenance costs will enable communities to prioritize investment toward other community objectives. Regarding long-term financial health, communities can minimize their infrastructure maintenance costs by limiting expansion and building more compactly when they do extend roads and sewers to new locations.



Local governments should consider existing road, water, and wastewater infrastructure capacity in decisions about the intensity and extent of new development.

Local governments should review and revise development standards with attention to long-term maintenance costs associated with different development patterns.

Local governments should collect adequate taxes and fees per the findings of fiscal impact analyses to cover the cost of infrastructure and services over the lifespan of new development.

CMAP should explore ways to encourage development standards that minimize long-term maintenance costs and consider incentives for such practices through existing transportation and infrastructure funding programs.



GOVERNANCE

Leading effectively together

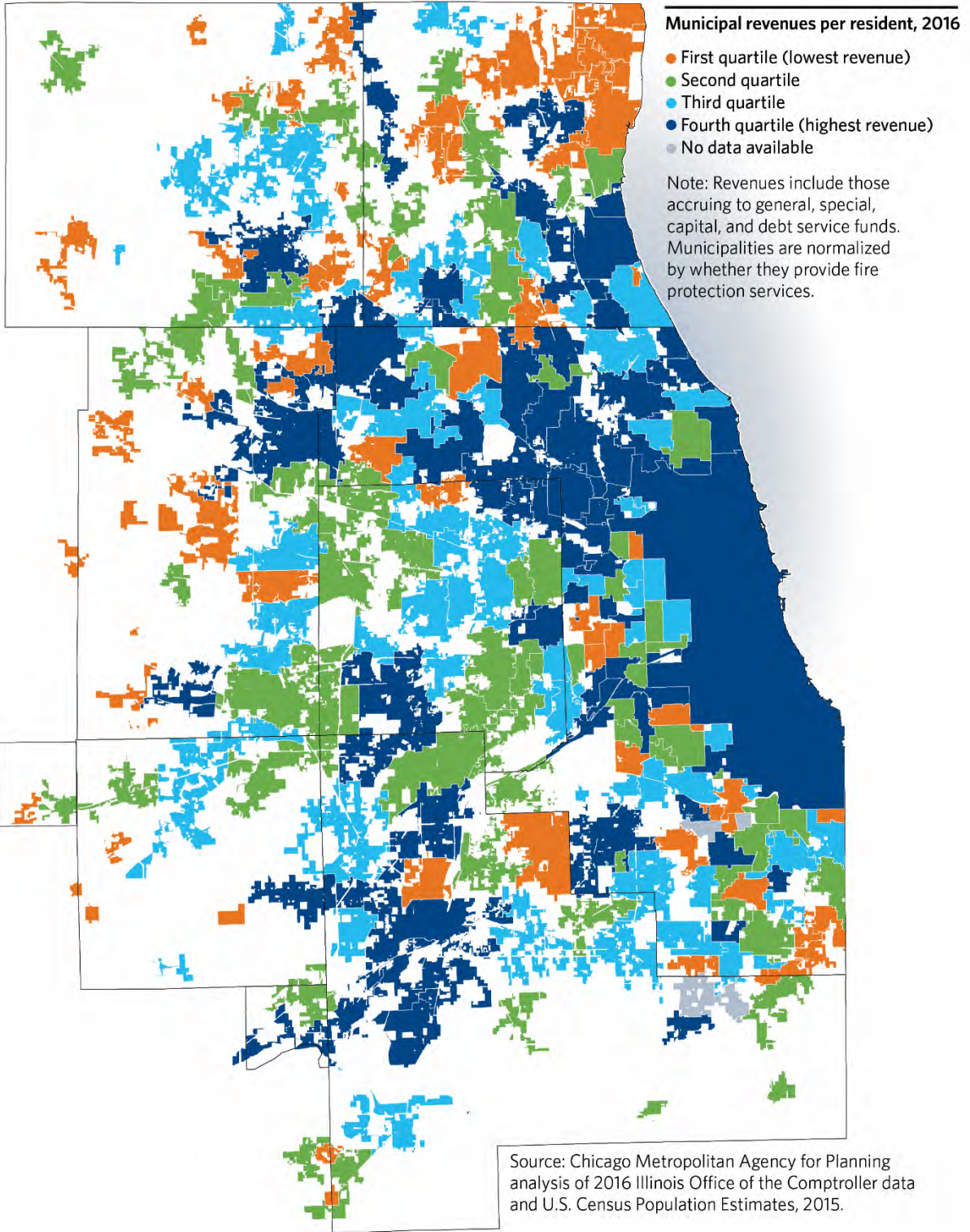
The ON TO 2050 vision of a prosperous, inclusive region will require renewed collaboration and focused investment for addressing today's challenges and adapting to tomorrow's.

Each level of government has a role to play, from funding and assistance by the State of Illinois and counties, to increased coordination by transportation and stormwater management entities. Local governments are already taking steps to improve efficiency and share resources, often uniting to pursue economic development and other mutual objectives. For our region to thrive, these efforts should expand to include coordination across more issues and jurisdictions.

Implementing ON TO 2050 will depend on collaboration across jurisdictional lines, highly efficient investment based on measurable outcomes, and a focus on helping all units of local government build the capacity necessary to provide basic services and implement their plans.

State funding plays a crucial -- yet quite uncertain -- role in the region's ability to invest in infrastructure and support local government services. A more modern tax system, a long-term plan to pay for obligations, and transparent, data-driven budgeting and programming can improve the state's near-term fiscal condition and long-term outlook. It can also bolster local governments, whose ability to serve the public is impeded by funding constraints.

The following map shows the differences in municipal revenues across the region. Without adequate resources, many have been forced to defer projects and eliminate staff. By working together effectively across borders, the region's governments can stretch their limited funds to provide the services and infrastructure that residents and businesses require. This can include sharing or consolidating services, as well as consolidating governments in some cases, to improve public services and increase efficiencies.



State and local governments -- along with transit agencies -- need the fiscal, technical, and administrative capacity to function effectively. With proper funding and support, the State of Illinois and local governments will be able to implement performance-based decision making, improve asset management, and leverage new technology for better services and infrastructure.

This chapter describes recommendations to promote:

1. **Inclusive Growth** through tax policy reforms and technical assistance to communities.
2. **Resilience** through improved long-term finances and increased collaboration across jurisdictions.
3. **Prioritized Investment** in services and infrastructure through data-driven decision making.

Collaboration at all levels of government

For northeastern Illinois to fully achieve its potential, leaders must work together more consistently and effectively. Among the region's most pressing needs are to improve infrastructure and promote economic growth, both of which have been stagnant for years. Regional leaders also must come together to develop innovative and broad solutions to ensuring inclusive growth and building resilience at the local and regional levels. Disjointed, siloed approaches hinder our ability to prosper. Resource and funding constraints across all levels of government require new approaches, from sharing and consolidation of local services to collaboration by transportation agencies for maintaining the system and improving its reliability.

Use collaborative leadership to address regional challenges

Northeastern Illinois is a global center of commerce with many powerful assets, but our region must find solutions for numerous challenges to ensure sustainable prosperity and quality of life. The region's recovery from the previous economic recession has been lackluster.²¹² In addition, federal and state sources of funding for infrastructure and services have diminished. These trends have resulted in resource constraints for governments across metropolitan Chicago. This unstable and unsustainable fiscal situation led to inadequate support for services and infrastructure and created obstacles to long-term planning and implementation activities.²¹³

As stated elsewhere in this chapter, overcoming constrained resources and stagnant growth will require innovative, collaborative action from the entire region. When the region's communities,

²¹² Chicago Metropolitan Agency for Planning, *Regional Economy and Clusters*, January 2017, <http://www.cmap.illinois.gov/documents/10180/556510/Regional+Economy+and+Clusters+snapshot.pdf/6b541861-77b0-42ad-9438-1428d1d6ea3e>

²¹³ Chicago Metropolitan Agency for Planning, "Alternative Futures: Constrained Resources," May 8, 2017, <http://www.cmap.illinois.gov/documents/10180/0/Constrained+Resources+memo/9e9557dc-cc41-4e7f-8f04-92b3363e9c0e>.

leaders, local governments, infrastructure providers, civic groups, residents, and businesses come together, they can meet these challenges and achieve beneficial outcomes. As the region's Metropolitan Planning Organization (MPO), CMAP can collaborate with and convene partners to better coordinate investments in the region and promote economic growth and opportunities for all residents. Past collaboration among regional leaders has yielded better strategies for economic growth. For example, the newly created CRGC is an independent nonprofit entity formed by Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties and the City of Chicago as an important step to improve coordination of their respective economic development organizations.²¹⁴ Collaboration on infrastructure funding has attracted federal investment in projects like the Riverwalk in downtown Chicago and some elements of CREATE.²¹⁵

Collaborative endeavors also require funding that can be spent to support comprehensive goals. CMAP can directly implement ON TO 2050 goals by convening partners to collaboratively administer UWP, CMAQ, TAP, STP-L, and other federal transportation funding programs for which the agency is responsible.²¹⁶ CMAP also provides technical assistance to local governments as well as ongoing research and new practices relevant to plan priorities, helping advance the principles of GO TO 2040 and ON TO 2050.²¹⁷ Yet CMAP's ability to fulfill its comprehensive planning mandate is limited because most of the agency's funding cannot be used for activities beyond transportation and certain land use issues.²¹⁸ Similarly, public entities addressing a range of issues, such as economic development, public health, stormwater management, or housing choice may find implementation stymied by lack of funds or restrictions on using those dollars to support comprehensive priorities.

The following describes strategies and associated actions to implement this recommendation.

Take a leadership role in implementing federal and state investments

CMAP has a unique role in convening the region's governments, civic institutions, and nonprofit organizations. Submitting regional responses to funding opportunities, such as the Chicago Metro Metals Consortium application for TIGER funds,²¹⁹ can leverage regional assets,

²¹⁴ Cook County, "Chicago Regional Growth Initiatives," 2013, <https://www.cookcountyil.gov/content/regional-initiatives>.

²¹⁵ For more information, see Chicago Metropolitan Agency for Planning, "Chicago Region to Receive Two TIGER IV Grants," June 22, 2012, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/chicago-region-to-receive-two-tiger-iv-grants; and U.S. Department of Transportation, "Riverwalk Expansion," <https://www.transportation.gov/tifia/financed-projects/riverwalk-expansion>.

²¹⁶ For more information, see: <http://www.cmap.illinois.gov/mobility/strategic-investment/regional-transportation-programs>.

²¹⁷ For more information, see <http://www.cmap.illinois.gov/programs/LTA>.

²¹⁸ Chicago Metropolitan Agency for Planning, Budget and Work Plan, <http://www.cmap.illinois.gov/about/budget-and-work-plan>.

²¹⁹ Chicago Metropolitan Agency for Planning, Chicago Metro Metal Consortium, <http://www.cmap.illinois.gov/programs/lta/cmmc>.

combine contributions from stakeholders, collaborate on shared challenges, and produce more competitive applications. In addition, CMAP has been a leader in guiding implementation of federal and state funding programs and regionally significant projects, as with recent enhancement of STP-L. A recent agreement between the councils of mayors, the City of Chicago, and CMAP has yielded important changes to STP-L, establishing performance-based outcomes to program the local dollars and a new shared fund for accomplishing transformational local projects that implement regional priorities like an enhanced freight network or improved transportation for economically disconnected residents.²²⁰

CMAP should continue to lead in pursuing federal and state investments where appropriate.

CMAP should collaborate with regional partners for more efficient, effective, and cooperative programming decisions.

CMAP and partners should develop a process to develop coordinate and prioritize responses to federal funding opportunities such as INFRA and TIGER/BUILD.

Support development of an entity with the mandate and resources to implement a regional economic growth strategy

Overcoming metropolitan Chicago's prolonged slow growth and uneven access to opportunity will require a shared vision for the regional economy. Initial success under the CRGC can help demonstrate the benefits of collaboration among the region's political and economic development leaders. With sustained private sector engagement and institutional support, CRGC can play a critical role in focusing economic development activities and marshaling resources to address issues that cut across the region's diverse industries and communities. Such initiatives include improving freight movement in the region, integrating data and information systems for rigorous market analysis, and assembling support for prioritized, multijurisdictional infrastructure investments. Regional coordination among economic development organizations (EDOs) should especially emphasize cluster-oriented strategies by convening business leaders and partners like anchor institutions to address shared, sector-specific challenges. This strategy also appears in the *Prosperity* chapter, under the recommendation to *Pursue regional economic development*.

CMAP and partners should continue to support CRGC's initial endeavors by assisting in convening regional stakeholders, providing research and data, and securing financial support, as appropriate.

²²⁰ Memorandum of agreement between The City of Chicago and the CMAP Council of Mayors regarding the distribution and active program management of locally programmed Surface Transportation Block Grant funds under the Fixing America's Surface Transportation Act, October 11, 2017, <http://www.cmap.illinois.gov/documents/10180/127961/2017+STP+Agreement.pdf/6b800a21-59fb-b538-a1c9-fa1342765355>.

County and municipal EDOs should develop a shared vision for the regional economy that articulates our strongest economic assets and competitive advantages in support of regional marketing and branding. CRGC or similar entity can help to facilitate related analysis and strategy development.

CRGC or a similar entity should help county and municipal officials pursue shared goals across jurisdictional boundaries that complement their respective strengths and competitive advantages.

CMAP should continue to research and articulate the benefits of intergovernmental collaboration through responsive data and analysis on the regional economy's performance.

Collaborate for inclusive growth

Data on economic outcomes reveals stark disparities in how low income and minority populations share in regional progress. These outcomes are particularly negative for the region's black residents, who face lower incomes, higher unemployment, and longer commutes.²²¹ Yet, regions that have stronger potential for upward economic mobility -- for all residents -- are more economically successful. To meet its potential, the region's economy requires opportunities for all residents to contribute to and benefit from its growth.²²² By creating new pathways and systems that challenge existing inequalities, the region can place itself on a path to higher, more durable growth. Because the causes of inequality are myriad and no single solution exists, the region needs multiple, sustained initiatives to tackle the many issues that perpetuate economic inequality and impair regional prosperity.

Regional partnerships and shared goals are critical to implementing ON TO 2050's many strategies for inclusive growth. Existing initiatives such as Partnering for Prosperity show the potential for regional collaboration to decrease economic inequality.²²³ Yet the region's inclusive growth goals will also require some actions targeted to particular communities' needs and others designed to reform and integrate activities across public and private institutions. While this strategy includes new and existing activities for CMAP, it will also require additional partners to take the lead and foster regional collaboration. For example, political, civic, and business leaders should continue developing a regional career pathway system, increase

²²¹ Chicago Metropolitan Agency for Planning, "Economically Disconnected Area clusters in the CMAP region," January 23, 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/economically-disconnected-area-clusters-in-the-cmap-region.

²²² Chicago Metropolitan Agency for Planning, Inclusive Growth, July 2017, <http://www.cmap.illinois.gov/documents/10180/515753/Inclusive+Growth+strategy+paper.pdf/0f01488d-7da2-4f64-9e6a-264bb4abe537>.

²²³ Cook County, *Partnering for Prosperity*, April 2013, <http://blog.cookcountyil.gov/economicdevelopment/wp-content/uploads/2014/10/Appendix-B-Partnering-for-Prosperity.pdf>.



investment in disinvested areas, and ensure that emergent transportation technologies support inclusive growth.

Government, business and civic leaders, and other regional actors should develop and implement a shared vision for inclusive growth in northeastern Illinois, as well as define key metrics to track regional progress toward inclusive growth goals.

CMAP should establish or enhance partnerships with local, regional, and state entities across sectors in developing and implementing inclusive growth strategies for the Chicago region.

CMAP should continue to share its expertise and knowledge of the region and its communities within larger efforts to decrease economic inequality and promote inclusive growth.

Secure funding to pursue all ON TO 2050 goals

CMAP is mandated by the Regional Planning Act to comprehensively plan for the Chicago region, incorporating land use and transportation planning with work on housing, regional economic growth, water resource management, community development, and environmental issues. In addition, the state legislation that created CMAP included language pledging to fund the agency's operations and to match federal formula funds with state funding, which would broadly support all of CMAP's state-mandated planning activities. The goals of ON TO 2050 also will not be achieved without the work of the State of Illinois, local governments, transit agencies, civic organizations, and academic institutions. These entities also may require additional funding and new partnerships to help implement the plan.

CMAP should seek funding opportunities to plan for water resource management, climate resilience, economic development, local capacity, and other ON TO 2050 priorities.

CMAP should pursue reliable access to state funds that support all of its planning work.

The State of Illinois, local governments, transit agencies, civic organizations, and academic institutions should pursue funding to implement ON TO 2050 goals in their work.

Encourage partnerships and consolidation

The region's governments face extensive revenue constraints, with decreasing state and federal support as well as limited willingness to raise local taxes and fees. Many communities have a backlog of infrastructure needs, or have left some staff positions vacant. In short, governments must do more with less. Sharing services, consolidating services, or consolidating governments can provide benefits, including improved capacity and resources, greater efficiency, enhanced



service quality, and cost savings.²²⁴ Such partnerships can also allow communities access to professional staff and services that provide a higher quality of service than smaller governments could provide on their own. In some cases, the resultant savings can also allow local governments to fund critical staff positions.

[GRAPHIC TO COME: An illustrated graphic will show the difference between shared service, service consolidation, and local government consolidation.]

Northeastern Illinois has long had a culture of service sharing and partnership between local governments. Many governments, including counties, townships, municipalities, school districts, and special districts, have found ways to share the cost of services or purchases, or in some cases, to consolidate units of local government. Joint purchasing in particular has grown across the region as more governments understand its benefits.²²⁵

Local governments that lack the resources to analyze needs, find potential partnerships, or develop shared services can benefit from technical assistance. In 2015, for example, the Villages of Oswego and Montgomery and the United City of Yorkville worked through CMAP's LTA program to identify opportunities for service sharing and developed a new Lower Fox River Partnering Initiative, which oversees long-term cooperation among the communities and has initiated a growing number of coordinated activities, including shared staff, equipment, and service provision across multiple departments.²²⁶

When many small, adjacent jurisdictions provide the same services, the result can be higher costs and lower overall capacity. Consolidating services may produce cost savings, increase capacity or efficiency, or enhance service delivery. Although less prevalent than service sharing, successful service consolidation has been implemented in multiple service areas. For example, the six south suburban Cook County communities served by the Thorn Creek Basin Sanitary District have seen significant cost savings over an extended period by consolidating sewage treatment.²²⁷ Municipalities with limited need for a certain service may save costs to hire, train, and manage qualified separate staff by contracting with a county to perform that function. To cite one example, Lake County delivers code enforcement and development review services on behalf of multiple municipalities.²²⁸

²²⁴ CMAP and MPC. *Municipal Capacity Strategy Paper*, November 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/municipal-capacity>.

²²⁵ For examples, see Suburban Purchasing Cooperative, <http://www.nwmc-cog.org/Suburban-Purchasing-Cooperative.aspx> and International City/County Management Association, Northern Illinois Municipal Partnering Initiative, <https://icma.org/documents/northern-illinois-municipal-partnering-initiative>.

²²⁶ CMAP. *Lower Fox River Partnering Initiative Shared Services Study*. October 2015, <http://cmap.is/2AC2xHq>.

²²⁷ Metropolitan Mayors Caucus. *Northeastern Illinois Local Government Shared Services Survey Report*, July 2015, <http://mayorscaucus.org/wp-content/uploads/2013/10/Shared-Services-Report-FINAL-1.pdf>.

²²⁸ Lake County, "Shared Services Initiative," <https://www.lakecountyil.gov/2518/Shared-Services-Initiative>.

Consolidation of governments can increase communities' capacity to achieve local and regional goals. Adjacent units of government, such as two fire protection districts, may be consolidated to achieve economies of scale, merge services, or combine resources or tax base. Alternatively, vertical consolidation between overlapping units of government, such as a municipality and a special district, may also improve coordination of services, reduce administrative costs, or enhance civic participation.

Consolidation depends on support of local residents and civic leaders, as well as unique local conditions. In many cases, governments are already sharing services or engaging in joint projects. Challenges occur when governments -- and their residents and businesses -- want dissimilar service levels. Also, very different tax bases or service levels can create an increased burden for property taxpayers in one of the districts. However, careful consolidation can also provide broad benefits over the long term by reducing costs, gaining efficiencies, and freeing up resources for new expertise.

The state needs additional programs and resources to implement consolidation and service sharing. In recent years, consolidating units of government has been the subject of numerous legislative efforts and task forces.²²⁹ The State of Illinois has studied local government consolidation, and the General Assembly has approved several statutory changes that would make it easier for local governments to consolidate. Yet no state programs directly fund or provide assistance for service sharing or local government consolidation. Other states around the country, such as New York, have provided technical assistance and awards to local governments to achieve cost savings and improve efficiency through cooperative agreements, mergers, consolidation, and dissolutions.²³⁰

Finally, annexation of developed, but unincorporated, areas may improve services and lower costs for them. Historical development has created a patchwork of unincorporated neighborhoods in the region's urbanized area, leaving some counties to provide these disparate developed areas with public safety and regulatory services that are typically a municipality's responsibility. The tax burden of these services is spread across all county taxpayers, regardless

²²⁹ See: Task Force on Local Government Consolidation and Unfunded Mandates, Report to the Governor, December 17, 2015, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/local-government-consolidation-and-unfunded-mandates-task-force-report. Local Government Consolidation Commission, <https://rebootillinois.com/wp-content/uploads/2014/04/Local-Government-Consolidation-Commission-Final-Draft.pdf>. Chicago Metropolitan Agency for Planning, "Recent Legislative Action on Local Government Consolidation," July 2, 2014, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/recent-legislative-action-on-local-government-consolidation and "Local Government Consolidation and Unfunded Mandates task force report" January 8, 2016, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/local-government-consolidation-and-unfunded-mandates-task-force-report.

²³⁰ Chicago Metropolitan Agency for Planning, "Considerations and practices of local government consolidation," June 9, 2017 http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/considerations-and-practices-of-local-government-consolidation.

of whether they are located in unincorporated areas.²³¹ Due to the wide geographic dispersion of these unincorporated pockets, county services for unincorporated areas may cost more than what an adjacent municipality could provide. In addition, local roads in these neighborhoods are operated and maintained by small township road districts, which are designed for providing services across a spread-out, rural grid, not to neighborhoods within municipalities. Annexing these areas may be costly, as infrastructure may not connect to or meet the standards of adjacent municipalities. For example, because many of these neighborhoods are not served by municipal water and sewer systems, they require significant upgrades to existing water, sewer, and roadway infrastructure.

The following describes strategies and associated actions to implement this recommendation.

Facilitate partnerships for service sharing and consolidation

Local governments need assistance to develop agreements for sharing or consolidating services. Facilitation efforts could include relatively informal offerings, such as forums or meetings with other communities and vendors to discuss partnership opportunities, or more formal programming, such as direct matchmaking and brokering of collaborative agreements, or assistance in developing and sharing the data needed to create partnerships.

CMAP, MPC, counties, COGs, and other regional entities should provide analysis and recommendations for local governments to consider the fiscal, efficiency, and other consequences of sharing or consolidating some local services for all interested communities, particularly those with lower capacity.

CMAP, MPC, counties, COGs, and other regional entities should partner to develop service-sharing resources, including providing guidance documents to local governments on best practices.

CMAP, MPC, and partners should explore forming or designating a regional entity to facilitate efforts for shared or consolidated services and for local government consolidation.

Counties or COGs should dedicate staff time for coordinating shared services, joint procurement, and other local government partnerships.

Local governments should ensure their data management practices allow for data sharing with other local governments.

COGs or counties should consider implementing a local government data-sharing program.

²³¹ See research on this topic at : The Civic Federation, Unincorporated Cook County, <https://www.civicfed.org/issues/unincorporated-cook-county>.



Fund exploration and implementation of service sharing and consolidation

While the State of Illinois has created statutory processes to streamline some local government consolidation, it has not funded the practice. Several states, such as Michigan, New York, and Ohio, have pursued initiatives to promote and provide incentives for government consolidation by enacting legislation and awarding grants.²³² Other states have also used existing federal allowances for grants or loans, such as the IEPA's State Revolving Fund, to support engineering, rate, and consolidation studies. This tool could be helpful for local governments exploring new water management structures and systems to relieve their capacity constraints.²³³

Finally, local governments considering consolidation face the prospect of dissimilar service levels and/or tax bases that may result in an increased property tax burden for taxpayers located in the district with lower levels of service or a higher tax base. For initiatives that will result in long-term savings, tax credits could offset the resulting tax differential and ease concerns of property owners about tax increases.

The State or county governments should provide funding to local governments for service sharing and consolidation feasibility studies.

The State should use existing federal allowances for grants or loans to enable studies of local service consolidation.

The State should provide tax credits for a limited period to offset property tax differentials resulting from local government consolidation.

Proactively plan to share services, staff, and procurement

Shared services, staff, and procurement have many potential challenges or benefits, such as how existing service levels may be affected. However, local budgeting and planning processes can evaluate the consequences of opportunities for sharing or consolidating services. Developing common regulations and processes for code inspection, development review, and other functions could also facilitate the use of shared services or staff. For example, coordinating to adopt the same international building codes or creating a uniform rental registration program can create cost saving opportunities for shared code inspection staff.

²³² For examples, see New York Division of Local Government Services, "Local Government Efficiency Program," <https://www.dos.ny.gov/LG/lge/index.html>, Michigan Department of Treasury, "Competitive Grant Assistance Program," http://www.michigan.gov/treasury/0,4679,7-121-1751_2197_58826_62422---,00.html, and Ohio Development Services Agency, "Ohio Local Government Innovation Council," https://development.ohio.gov/cs/cs_localgovfund.htm.

²³³ United States Environmental Protection Agency, "How the Drinking Water State Revolving Fund Works," <https://www.epa.gov/drinkingwatersrf/how-drinking-water-state-revolving-fund-works#tab-5>.

Local governments should proactively explore opportunities to share services and identify opportunities for joint procurement.

Local governments should inventory their projected needs for the next five years across all services and infrastructure, and share that information with counties, COGs, and neighboring communities on a recurring basis, with an invitation to partner on service delivery and purchases.

CMAP, MPC, COGs, and counties should provide technical assistance to connect lower capacity municipalities with partnership opportunities.

Neighboring municipalities should work together to adopt more uniform processes and regulations for common activities to better facilitate the use of shared services or staff.

Explore consolidation of governments and services

Consolidating services into a larger entity (such as a county), or a new entity, offers potential for saving costs and increasing capacity. In addition, local governments that are already sharing services, implementing infrastructure projects together, or engaging in joint contracts have proven that they are capable of working together. Where there is interest by residents and civic leaders, adjacent local governments with extensive existing partnerships, similar tax bases and services levels, or limited potential for growth may benefit from consolidating or governments. Overlapping units of government -- such as municipalities, townships, or special districts with existing partnerships or complementary services -- should also consider consolidation when local interest exists.

Increased consolidation also requires action at the state level. The State has made several statutory changes over the years that allow some local governments to consolidate. However, the region requires additional statutory, programmatic, and funding resources to initiate studies and ameliorate near-term tax inequities that could prove a barrier to an otherwise beneficial consolidation.

Counties and COGs should coordinate with municipalities and special districts to identify opportunities and assess the potential benefits of consolidated services to enhance service delivery and achieve cost savings.

CMAP, MPC, MMC, the State of Illinois, and other partners should conduct an assessment of the region's experience in consolidated services, as well as best practices from other regions.

Community water suppliers should explore shared investments and consolidation of services.

Local governments should explore opportunities to consolidate.

The State should approve legislation that facilitates local government consolidation.

Plan for and fund annexation of developed, unincorporated areas

In developed, unincorporated areas, many services are provided by counties, leading to inefficiencies and high costs in some areas. Encouraging the annexation of these neighborhoods and commercial districts by adjacent municipalities, however, is not without challenges. Many residents prefer to remain in an unincorporated area, in part due to differences in local regulations. In addition, many of these areas would require significant infrastructure improvements to meet municipal standards. Planning and securing funding for these infrastructure improvements is a key step in encouraging municipalities to annex these areas. Because their residents and businesses in will play important decision-making roles, their concerns must be addressed in any annexation process.

Municipalities should form boundary agreements with neighbors, periodically study the benefits and costs of annexation, maintain dialogue with their counties, and annex adjacent unincorporated neighborhoods where desired and appropriate.

Counties interested in pursuing annexation of unincorporated areas by municipalities should develop a plan and commit resources to make infrastructure improvements in unincorporated areas appropriate for annexation.

CMAP should help counties and municipalities plan for annexation of developed unincorporated areas.

Coordinate infrastructure operations and maintenance

The region's transportation, water, and other infrastructure extends across multiple jurisdictions, requiring collaboration to ensure a well-functioning system and maximize public investments. Collaborating on infrastructure allows the region's communities to deliver vital services, resulting in capital cost savings and lower operational costs through economies of scale. It can also benefit municipalities that lack the capacity to independently host an infrastructure project. And capital projects that combine transportation elements with water or wastewater improvements can better leverage limited capital funds. Municipalities in the region often already share infrastructure or collaborate on joint or aggregated projects. One current example is the Cal-Sag Trail, where a group of municipalities along the Cal-Sag Channel collaborated with other public and private partners to construct a 26-mile trail using more than \$35 million in federal, state, municipal, and private funds. This approach can work on a smaller scale as well.²³⁴

²³⁴ Friends of the Cal-Sag Trail, <https://www.calsagtrail.org/>.

[GRAPHIC TO COME: A rendering showing a project that combines transportation, water, and other infrastructure improvements.]

Another challenge in delivering capital projects and improving highway system performance is disruption resulting from construction. Coordination of projects across transportation agencies, water and wastewater infrastructure providers, and utility companies could reduce the frequency and duration of construction on rights of way and potentially decrease costs, reduce driver delays, and improve safety. In addition, schedule delays during road construction projects caused by the presence of utilities can impose significant cost increases. Often utility infrastructure -- including publicly or privately owned communications, electricity, gas, water, or other lines or equipment -- is located in the transportation facility right of way and must be relocated or removed during construction. Coordination with utility companies is important to avoid construction delays.²³⁵

For day-to-day highway operations, effective coordination can reduce the need for costly roadway expansion by making the most efficient use of the existing system. The highway system is most effectively managed when coordination goes beyond an individual operating agency.²³⁶ Establishing real-time communication and operational agreements between highway agencies, emergency management services, transit operators, and traveler information services can improve transportation system safety and reliability, and reduce congestion. The following chart provides an overview of the region's highway operations system, which could benefit from increased coordination.

[GRAPHIC TO COME: Illustration highlighting opportunities for highway operations to be coordinated across entities]

The following describes strategies and associated actions to implement this recommendation.

Partner with other units of government to deliver infrastructure projects

Improved coordination can speed up the construction and maintenance of infrastructure, reduce the number of times that roadways must be reconstructed, and improve system reliability. Transportation departments should partner with one another as well as with other entities that implement infrastructure projects. Project coordination could include jointly delivering single infrastructure projects or aggregating infrastructure projects across boundaries to increase cost efficiencies or financing options. This could also simply mean replicating existing efforts like the Chicago Project Coordination Office to coordinate across entities that

²³⁵ Chicago Metropolitan Agency for Planning, "Policies to improve coordination between utilities and transportation agencies," October 14, 2016, http://www.cmap.illinois.gov/documents/10180/587538/Utility+coordination_v4.pdf/2418b237-69d1-4318-bdd6-35d232f3ed27.

²³⁶ Chicago Metropolitan Agency for Planning, *Highway Operations*, February 2017, <http://www.cmap.illinois.gov/documents/10180/517371/Highway+Operations+Strategy+Paper/26cff0fc-876a-4843-9fe5-c9aedbf73ddd>.

maintain roadways, water infrastructure, and utilities to reduce the number of times underground improvements must be made.

Improve utility coordination

Greater coordination with utility companies is necessary to reduce delays on transportation project engineering and construction. Construction-related delays in particular can impose significant cost increases for transportation projects. Better data is needed on detailed utility location information, and a database of detailed utility location information in a secure format should be developed by infrastructure owners and housed at IDOT. The City of Chicago is already working to collect this data during construction activities for future project planning. To improve coordination, counties should reinvigorate their utility coordination councils. Moreover, the State of Illinois should consider updating the statutes that govern utility coordination regulations.²³⁷

Utility companies, IDOT, and other infrastructure owners should develop a detailed utility location database.

Counties should use their utility coordination councils in a more effective manner.

The State should make the statutes that govern utility coordination regulations more effective.

Enhance cooperation to improve roadway operations

To improve system reliability during emergencies, roadway agencies and emergency response agencies must work together to establish goals, objectives, strategies, and intergovernmental agreements that improve operations of the region's roadway system. Strategies could include ensuring communication is automated between agencies, sharing data and information, improving policies, and establishing necessary agreements between agencies.

The Tollway should work with IDOT to expand their effective incident management procedures across the expressway system.

The State should require 911 call centers to work with road system operators on establishing automated information exchange and data sharing.

The region should collaborate to establish a system of secure, high-capacity data infrastructure region-wide with sufficient redundancy to ensure uninterrupted

²³⁷ Chicago Metropolitan Agency for Planning, "Policies to improve coordination between utilities and transportation agencies," October 14, 2016, http://www.cmap.illinois.gov/documents/10180/587538/Utility+coordination_v4.pdf/2418b237-69d1-4318-bdd6-35d232f3ed27.

communication, to operate roadways more efficiently, and to take advantage of future vehicle technology.

IDOT should implement a regional traffic management center that includes arterials.

Transit management centers and highway management centers should establish routine and automated information exchanges.

Highway system operators should share traffic management resources

Opportunities to share resources should be identified and implemented by highway system operators. For example, communications infrastructure and automated messaging could be coordinated to streamline delivery of information and protect against failures by ensuring redundant, fail-safe systems. Traffic management center hardware and software could also be shared among highway operating agencies, allowing use from remote locations and limiting maintenance activities to a single location with fewer computers. And shared staff would allow traffic management centers to be operated 24/7 at reduced expense. These various forms of coordination could lead to improved service delivery, with cost savings that free up funds for enhancing or expanding the management systems.

CMAP should fund a study of the costs and benefits of implementing a regional, multijurisdictional traffic management center, either virtual or traditional.

IDOT and counties should collaborate to establish a regional arterial management center.

Integrate local goals with roadway regulations

Roadway design requirements that prioritize capacity over other goals can help or impede the ability to implement modern best practices like complete streets or innovative practices such as stormwater management. State and county roadway design requirements, as well as associated processes to approve changes, can greatly affect how local governments and transportation agencies are able to pursue their comprehensive goals for transportation, land use, and the environment. As communities in northeastern Illinois consider how to improve their bicycle and pedestrian facilities, improve truck access and routing, and meet other ON TO 2050 transportation priorities, it will be increasingly important for other roadway jurisdictions to strengthen relationships to achieve these goals.

IDOT and counties should work with communities to implement local goals for the transportation system, such as increased bicycle and pedestrian resources, improved truck access and routing, and other ON TO 2050 priorities.

IDOT should revise design manuals to better integrate modern best practices.

Capacity to provide a strong quality of life

Governments' ability to achieve goals is essential to the advancement of our region as a whole. Too often, however, public revenues are insufficient to deliver services, maintain infrastructure, and fill other essential government functions. Proficient local staff and officials -- with skills maintained through professional development and training -- are essential for their units of government to undertake important initiatives and to complete projects. A sustained commitment to building capacity -- revenues, skills, and technical resources -- will bolster local government's ability to meet residents' needs, implement community plans, and achieve ON TO 2050 objectives.

Develop tax policies that strengthen communities and the region

The region needs a tax system that provides ample opportunity for local governments to generate revenue that supports their plans, goals, and desired development patterns. Under the current tax structure, communities without sales tax generating businesses or dense commercial development often have few revenue options sufficient to cover the cost of public services and infrastructure.²³⁸ To further promote retail, some local governments limit space for development that does not generate sales taxes or other major revenues. For example, some communities exclude non-sales tax generating businesses from commercial areas. These choices reflect local preferences, but have large effects on the region's built environment and ability to support economic activity at the regional scale. While often producing lower revenues, office and industrial development provide support for industries ranging from manufacturing, to goods movement, to business services, to corporate headquarters. Many communities aspire to promote these regionally beneficial industries, but current tax structures do not always offer options for municipalities to recoup the costs of these developments. For example, manufacturing facilities often produce little property tax revenue and generate truck traffic that imposes high wear and tear on local roads.

[GRAPHIC TO COME: An infographic explaining the interaction of local fiscal impacts, regional economic impacts, and development outcomes.]

Tax policies have a broad impact on the ability of local jurisdictions to provide services and keep infrastructure in a state of good repair. Individual municipal revenues depend on land use mix, size of the tax base, and state and local tax structure. Local policies on and willingness to match fees and taxes to service costs also play a role. For example, DuPage County consistently implements user fees such as development impact fees and a county-wide MFT. Costs grow from a combination of interrelated factors: locally defined needs, the amount and condition of infrastructure, and long-term debt and obligations.

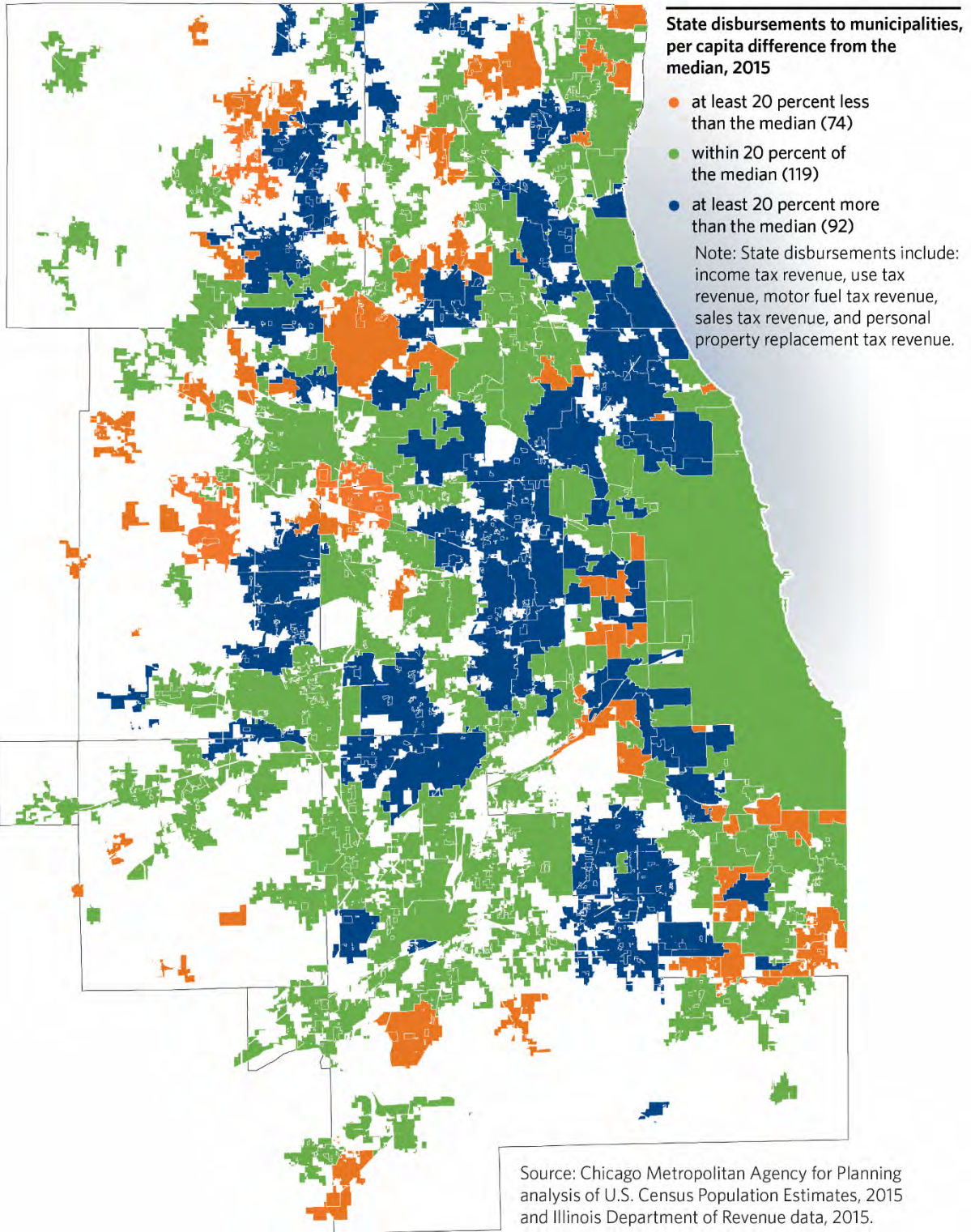
²³⁸ Chicago Metropolitan Agency for Planning, "Tax Policies and Land Use Trends," March 2017, <http://www.cmap.illinois.gov/documents/10180/517351/Tax+Policy+and+Land+Use+strategy+paper/30b90429-1af9-4903-ad29-b75ed1dc94e0>.

ON TO 2050 sets a target for reducing the number of municipalities that receive comparatively low levels of state revenues. State statutory criteria for revenue disbursements, like sales or motor fuel taxes, can create wide divergence in revenues among municipalities.²³⁹ State criteria to distribute funds to local governments vary from population, to retail sales, to lane miles, to other factors. These criteria do not take into account municipalities that may have a very low tax base compared to costs for basic services, nor do they account for infrastructure condition.²⁴⁰ In addition, the state's own financial situation has caused local governments to experience reduced funding and increased uncertainty. State funds play a crucial role in local government budgets, but the State has not modernized its tax system nor developed a long-term plan to pay for its obligations. The following map illustrates the differences in state revenues distributed to municipalities in 2015. ON TO 2050 envisions that all municipalities will receive these state funds at levels greater than 80 percent of the regional median level by 2050.

²³⁹ Chicago Metropolitan Agency for Planning, PLACEHOLDER FOR POLICY UPDATE

²⁴⁰ Chicago Metropolitan Agency for Planning, "Evaluation of State Transportation Revenue Sharing with Local Governments," 2014, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/evaluation-of-state-transportation-revenue-sharing-with-local-governments.





Communities with a low tax base and limited options for increasing revenue often face a sustained or recurring cycle of disinvestment. Many areas with lower tax disbursements overlap with EDAs, which perpetuates inequities and reduces opportunities for people and places to thrive. Achieving regional growth that includes EDAs may hinge on their residents and businesses having access to programs and services that many communities sometimes take for granted. Communities where revenues are low relative to their needs may struggle to fund municipal operations and infrastructure without imposing high tax rates, which further discourage commercial and residential development and cause the local tax base to grow more slowly than the cost of public services.²⁴¹ This cycle of disinvestment is self-reinforcing and also drives the adoption of high tax rates that can be a significant burden on low income residents.

In Cook County, property tax classification is an additional factor that drives up commercial and industrial property tax rates, hurting disinvested communities in particular. This may discourage business investment in Cook County in favor of opportunities elsewhere. By using a higher assessment ratio for businesses than residences, this system allocates a higher share of the property tax burden to businesses -- a policy that does not exist in the collar counties -- deterring reinvestment and hindering resulting growth in the property tax base. In many communities, high commercial and industrial tax rates present a barrier to attracting development, even when infrastructure and infill opportunities are plentiful. By reforming its classification system, Cook County could grow the tax base over time and reduce the tax burden on residents, mitigating potential increased residential rates.²⁴²

Regionally, the current tax system does not always support the multijurisdictional nature of many industrial and office employment areas, which often cluster geographically and cross jurisdictional lines.²⁴³ The infrastructure that serves these centers can extend through many communities and is maintained by a complex web of jurisdictions. The region's municipalities need additional tax structure and transportation funding options to support the service and infrastructure needs of these locally and regionally desired land uses. Additionally, the growing prevalence of internet sales may increase truck traffic on the entire roadway system, including roads serving warehousing and distribution businesses, and residential customers receiving deliveries.

Local governments do have options to better support their communities through local action, particularly through imposing user fees to support specific services and infrastructure. Since

²⁴¹ Chicago Metropolitan Agency for Planning, Municipal Capacity, November 2017, http://www.cmap.illinois.gov/documents/10180/794571/Municipal+Capacity+Strategy+Paper_November+2017.pdf/923744b1-951a-ce16-609e-724c9e260fb7.

²⁴² Chicago Metropolitan Agency for Planning, "Property tax burden in the Chicago region," 2017, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/property-tax-burden-in-the-chicago-regi-2.

²⁴³ Chicago Metropolitan Agency for Planning, "Freight land use clusters in northeastern Illinois," 2016, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/freight-land-use-clusters-in-northeastern-illinois.

2013, for example, Downers Grove has generated revenue for stormwater improvements by imposing a fee weighted toward properties that have the greatest impact on that system.

Finally, the State of Illinois has not taken steps to modernize the tax system for current technologies and economic patterns. Its reliance on MFTs to fund the Illinois transportation system is becoming outmoded as vehicle efficiency improves and fuel consumption drops. Illinois also has a narrow sales tax base focused on tangible goods and few services, which is inefficient in an economy with increasing market demand for consumer services. See the *Fully fund the region's transportation system* recommendation in the *Mobility* chapter for a discussion of the potential to reform the sales tax to support the RTA sales tax as well as local governments.

This recommendation also appears in the *Community* chapter.

The following describes strategies and associated actions to implement this recommendation.

Develop new funding solutions to support the multijurisdictional nature of development and infrastructure

The state and region should evaluate and pursue revenue sources, infrastructure cost sharing, realignment of existing revenues, and tax policy shifts that take into account the multijurisdictional nature of retail, office, and industrial development. Movement of goods and people that supports the region's economy must efficiently traverse multiple municipal boundaries and transportation networks. Yet many impediments could be surmounted, for example, through dedicated funding for local truck routes, tax base sharing to support retail agglomerations, prioritizing funding for improving commute options, increased local contributions for some infrastructure expansions, and other options. This work should build on CMAP's and partners' growing understanding of asset management, fiscal impacts, and subregional and regional markets to identify innovative revenue solutions or better align existing revenues to support infrastructure needs.

Reform tax policies to sustain economically beneficial land uses and support local infrastructure

CMAP should continue to facilitate a regional perspective on the interaction of tax policy, land use, the economy, and successful communities. Assistance for local jurisdictions to improve planning processes and coordination can help, but it does not address systemic issues. Via policy changes such as phasing out assessment classification in Cook County, broadening the sales tax base, changing state revenue sharing disbursement criteria, and identifying new options to support office and industrial development, a reformed tax system could reduce market distortions and better support desired development and goals of the region's communities, even in the face of a changing retail landscape.

The State of Illinois should expand the sales tax base to additional services in a manner that helps communities create a more balanced land use mix, improves horizontal



equity, minimizes economic distortions, and mitigates the cascading nature of sales taxes.

Cook County should phase out the property tax classification system to reduce commercial and industrial properties' current burden, which deters development and creates pressure for higher taxes overall.

The State of Illinois should reform state revenue sharing disbursement criteria to reduce wide divergences across municipalities and allow each municipality to support its own desired mix of land uses.

CMAP should coordinate with partners to promote tax policy changes to support better land use outcomes, including to conduct public education as well as legislative outreach.

The State should engage in fiscally sustainable practices to ensure a stable business climate and guarantee the reliability of state support to the region, including for local governments, transit agencies, and nonprofit service providers.

Local governments should implement user fees

User fees and full cost pricing can help communities recoup the cost of providing road, parking, water, sewer, and other infrastructure. User fees should build on asset management, capital improvement planning, and other initiatives to ensure that infrastructure spending is a high priority to meet local needs and provide the strongest benefits. Among the region's many examples of user fees and full cost pricing, some communities are addressing the increasing costs of stormwater management with dedicated taxes, stormwater utility fees, or special service areas. Similarly, a number of communities have used CMAP's LTA program to plan for and price their parking garages and metered spaces, making more effective use of tangible and fiscal assets.

All public utilities should adopt full cost pricing so they can sustainably fund operations and ongoing maintenance. While some local governments may choose to discount some services to meet local priorities, instead matching revenues to the cost of services will help the region's communities achieve stable funding and greater resilience. These initiatives should provide options that account for the affordability needs of lower income residents.

Local governments should develop stormwater utility fees to assess the true cost of stormwater infrastructure and improve flood control infrastructure.

Local governments should implement user fees to fund transportation infrastructure improvements, such as local MFTs or fees to address freight needs.



The State should approve statute changes that allow non home rule governments to impose additional types of user fees

Local governments should assess infrastructure costs to calibrate fees and taxes on development, parking, water, sewer, and other needs, both to cover current expenses and to create stable funding for the long term.

Local governments that face significant affordability barriers to full cost pricing of water, and other utilities should consider consolidating services with a neighboring community to reduce overall costs and provide options for low income residents.

Increase the motor fuel tax and replace with a vehicle miles traveled fee

Of the many states that have enhanced their transportation revenues in recent years, most enacted a MFT increase. The State of Illinois should increase its MFT by at least 15 cents in the near term and index the overall rate to an inflationary measure to offset the long decline in purchasing power of the current 19-cent rate that has been in effect since 1990. Similarly, the federal gas tax, set at 18.4 cents per gallon in 1993, should be increased and indexed to an inflationary measure, improving solvency of the federal Highway Trust Fund without requiring non-transportation revenue infusions.

However, the MFT no longer reflects the way people travel or the many types of vehicles on the road. Fuel efficiency has increased, which erodes revenue despite its environmental and consumer benefits, and projections suggest electric vehicles will become a much larger part of the fleet. Over the long term, then, the state and the federal government should replace their MFTs with a mileage-based user fee that taxes actual use of the system, as with a fee for vehicle miles traveled (VMT). Drivers already pay per mile under the current MFT, but the rate just varies based on the vehicle's fuel economy. For the Illinois MFT, instituting a fee of 2 cents per mile and indexing it to an inflationary measure would provide a sufficient, stable revenue source.

This revenue source would benefit from a streamlined national solution that allows each state to collect VMT fees from out-of-state drivers. In implementing a new revenue source, the state should also take the opportunity to lower the burden on lower income drivers by integrating measures not available in the current MFT structure. This strategy also appears in the *Mobility* chapter under the recommendation to *Fully fund the region's transportation system*.

The State of Illinois should increase the MFT by at least 15 cents per gallon and index the overall rate to an inflationary measure.

The State of Illinois should begin necessary steps, including implementing pilot projects, to replace its MFT with a VMT fee of at least 2 cents per mile indexed to an inflationary measure.

The federal government should increase the federal gas tax rate, index it to an inflationary measure, and in the long-term replace it with a mileage-based user fee such as, for example, VMT.

The federal government should work with states to develop a national solution to implementing VMT fees at the state level.

The State of Illinois should explore innovative mechanisms and technologies to efficiently collect VMT fees, including potential private-sector collection.

Build local government capacity

Local governments play an essential role in developing and implementing community goals for the future. Cumulatively, such choices shape quality of life for all residents, help our economy thrive, and determine whether additional regional goals are met. Thus, municipalities and other local governments are the front line for implementing ON TO 2050 through local plans, regulations, infrastructure investments, programs, and services. Many of these groups act with limited staff and funds, however, or may not have the knowledge, training, or technical resources to achieve their goals and support a favorable quality of life. Leaders throughout the region should champion efforts to build local capacity that helps municipal staff and officials, community organizations, nonprofits, and others to govern their vital day-to-day decisions. Efforts to build capacity are broad and range from training and building technical knowledge, to ensuring sustainable funding, to networking and enhancing partnerships to share resources.

Training for staff as well as elected and appointed officials has significant benefits. Local planning and governance are increasingly challenged by fiscal and staffing constraints, which require strengthening public services even while reducing their costs. Capacity building trainings can help stretch local governments' resources by enhancing expertise despite dwindling staff and increasing responsibilities. While many of the professional organizations present in the region do an excellent job providing continuing education for existing staff and specialists, new staff or newly elected or appointed officials need opportunities to learn about fundamentals and best practices. This is most critical for issues such as municipal operations, public administration, planning topics, and economic development.

Some local governments are not able to offer or fund ongoing trainings, which is especially challenging due to frequent turnover of elected and appointed officials. An ON TO 2050 indicator to track the percentage of municipalities within the region that arrange for training of their appointed officials is under development, beginning with baseline data established via CMAP's 2018 Municipal Plans, Programs, and Operations Survey.

It is often a challenge for municipalities -- especially those without adequate staffing -- to allocate resources for special projects, plan implementation, and other capacity building activities. In such cases, they may require targeted assistance to build new processes and grow

available resources. ON TO 2050 implementation will require technical assistance and strategies for building capacity, with a focus on each community's need for expertise and systems that promote resilience and growth.

Building capacity in the communities of northeastern Illinois will help improve local quality of life and create greater economic opportunity. For this reason, efforts to strengthen EDAs and disinvested areas are especially important to support inclusive growth, which will benefit those communities and the regional economy as a whole.

Other implementers also provide important technical assistance that builds capacity. Some counties, for instance, take an active role in municipalities with less capacity. The Invest in Cook program provides technical and financial assistance for local projects in disinvested areas that align with the county's long-range transportation plan. It takes a coordinated approach by identifying performance-based transportation investment opportunities, then leveraging Cook County government to help local governments and ensure successful implementation. This approach can be replicated by other counties for high-priority infrastructure projects in lower capacity municipalities and for coordination of projects spanning multiple jurisdictions.

The following describes strategies and associated actions to implement this recommendation.

Build on successes of the Local Technical Assistance (LTA) program

Currently, CMAP's LTA program provides technical assistance to local governments, nonprofits, and intergovernmental organizations to address local issues at the intersection of transportation, land use, and housing and advance the principles of the region's comprehensive plan. Since its creation in 2011, the program has completed nearly 200 projects, including comprehensive plans, neighborhood plans, bicycle and pedestrian plans, parking management studies, ordinance updates, and sustainability plans. Augmenting current LTA approaches with greater attention to capacity building activities will help project partners achieve local plan goals and implement ON TO 2050 recommendations. In particular, communities with lower capacity may need assistance beyond what CMAP currently offers.

To help lower capacity communities remove barriers to implementation of local and regional goals, CMAP can leverage LTA resources and partnerships. For example, many local governments lack connections with critical nonprofit, government, and private sector implementers that have relevant expertise, authorities, and other required resources. Yet making these connections can strengthen planning efforts, establish enduring partnerships, and help ensure implementation. Trainings, workshops, and other follow-up assistance can also support implementation by familiarizing plan partners with key objectives and clarifying the roles of staff and officials for specific actions.

Without clear guidance and assistance from CMAP, ON TO 2050 will not be implemented by local governments. Providing materials that clearly communicate the local applicability and

implementation potential of ON TO 2050 recommendations will help develop local expertise while advancing regional goals. Such guidance may, in part, be built from ON TO 2050's Local Strategy Maps, which translate the plan's broad regional recommendations into community-level actions. For example, the Regional Urban Flooding Susceptibility Index illustrates areas at higher risk of flooding in the region, but communities may need guidance on how to incorporate it into local planning efforts. MPOs in other regions have created programs to help partners implement regional plan goals at the local level, assisting municipalities in the short term while building long-term capacity.²⁴⁴

*CMA*P should build implementation-focused workshops and trainings into LTA projects and strengthen partner connections to critical implementers during each local planning process to build capacity and prepare communities to accomplish their goals.

*CMA*P and partners should continue to provide technical assistance to lower capacity communities, and develop new ways to build their capacity over time.

*CMA*P should coordinate with partners to provide supplemental planning staff for local governments with limited or no planning staff to help with program activities determined in consultation with each municipality, after determining their priorities and needs.

*CMA*P should partner with other entities such as professional organizations, universities, and civic organizations that can access and provide professional expertise to assist with the full set of resources required to build capacity, such as legal, accounting, and finance advisement necessary for consolidations and certain intergovernmental agreements.

*CMA*P should create topical ON TO 2050 implementation guidance materials and pair them with trainings and workshops for local government staff and officials.

Build municipal, nonprofit, and private sector capacity

Addressing the myriad of challenges in disinvested communities requires concentrated, comprehensive resources. While investment and assistance from state and regional entities are critical to forge a new path for disinvested communities, building the capacity of communities, institutions, businesses, and residents of disinvested areas can sustain long lasting change. Lack of staff, funding, technical knowledge, and other resources can limit the ability of municipalities with a high proportion of disinvested areas to interrupt the cycle of disinvestment or meet their economic and quality of life goals.

²⁴⁴ For examples, see: Delaware Valley Regional Planning Commission, "Municipal Outreach Program," <http://www.dvrpc.org/MunicipalOutreach>.

Capacity building is also required for the private sector. Small businesses in low market areas could benefit from education on and connections to educational and financial resources. Creating a pipeline of local developers and business owners is also important. Beyond large scale, national firms, few developers have the requisite combination of skill, interest, and capacity to build projects in disinvested areas. Given this, the region needs more programs like the Chicago Urban League's Chicago Contractor Development Program (CCD) or the Community Housing Development Organization (CHDO) set-aside in the HOME Program to grow and strengthen small-scale developers and contractors.²⁴⁵ Many mission-driven affordable housing developers -- like Preservation for Affordable Housing (POAH) or Hispanic Housing Development Corporation -- also provide capacity-building opportunities for smaller firms by intentionally including emerging firms and subcontractors in their projects. This strategy also appears in the *Community* chapter, under the recommendation to *Invest in disinvested areas*.

CMAP and partners like the Federal Reserve Bank of Chicago should work to bring banks and lending institutions together with municipalities to ensure that weak market communities have access to capital and financial services that support economic development.

Local governments should build relationships with financial institutions to access the resources they provide under the CRA.

Local governments should build their expertise about available capital and financial resources, develop a plan to attract those resources, and help businesses and residents to apply for these resources.

CDCs, nonprofit housing developers, and larger municipalities should progressively employ and cultivate smaller scale, minority and women-owned businesses to build their capacity.

Foundations and advocacy groups should continue to explore grants and other funding opportunities to help small-scale developers bridge funding gaps.

CMAP and partners should target technical assistance, trainings, and other assistance to municipalities in low income or low market areas.

Provide professional development opportunities that increase the capacity of staff and officials

Training and professional development for local government officials and staff is critical for attaining local and regional goals. Given the time constraints of public service and personal

²⁴⁵ Chicago Urban League, "Chicago Contractor Development Program," 2016, <http://www.thechicagourbanleague.org/page/463>.



lives, local government staff and officials often do not allot time and resources for professional development. Yet those who do regularly engage in continuing education are more familiar with best practices and more capable of providing and improving services. Training can be costly, but there are many strategies to provide effective training with limited resources. Training jointly based on geographic proximity or shared interests can reduce costs by using existing frameworks or gaining economies of scale. For example, if one county has a successful leadership training program for internal purposes, it could be expanded to include other local governments. Networking with peers is also important for sharing successful strategies, strengthening relationships that lead to partnerships, and leveraging conversations to improve communities.²⁴⁶

CMAP should collaborate with partners such as the Illinois Municipal League, COGs, the National League of Cities, and professional organizations to ensure ON TO 2050 topics are included in trainings for elected and appointed officials.

CMAP, MPC, and MMC should perform an inventory of available trainings relevant to local governments, identify topical or geographic gaps in coverage, and regularly engage training providers to collaborate and broaden networks of potential attendees.

Local governments should regularly schedule trainings for staff and officials, and seek to train jointly with other governments.

Local governments should create professional development plans for staff and officials and support completion of relevant training.

COGs and counties should engage community colleges to provide input on continuing education programs that serve the needs of government employees.

Counties should evaluate the potential to include municipalities and other local governments in their training initiatives or provide those trainings on a fee for service basis.

CMAP, MMC, COGs, and partners should encourage peer networking and host events that allow local government staff to coordinate efforts to achieve common objectives.

Data driven and transparent investment decisions

Basing decisions at all levels of government on transparent practices that direct public investments based on performance goals and data helps extend limited public resources. The region has many needs, yet limited resources impair essential investments in infrastructure and

²⁴⁶ For more information on networking in other regions, see Mid-America Regional Council, "Local Government Services," <http://www.marc.org/Government/Local-Government-Services.html> and Delaware Regional Planning Commission, "Strategies for Older Suburbs Roundtable Series," <http://www.dvrpc.org/SOS/Roundtable>.

improvements to programs and services. Funding should be focused on those programs, services, and infrastructure that best achieve the region's goals. However, budget processes and infrastructure investment practices are not always set up for data-driven approaches, and data is not always available to utilize performance-based investment criteria.

Base investment decisions on data and performance

The State of Illinois and local governments have been forced to stretch their resources to meet communities' and the region's needs. Constrained public resources require state and local governments to improve their financial and budget administration practices and develop innovative approaches to investment decisions. Yet investments are often predicated on arbitrary formulas rather than measures of need or impact. Funding and programming decisions based on performance often make better use of limited resources. These approaches identify performance goals, combining data analysis and stakeholder feedback to choose projects within a limited budget. Both quantitative and qualitative data, including that obtained through extensive public outreach, are important pieces of performance-based approaches.

Performance-driven investment builds on complete, accessible, standardized, and high quality data. Data provided by the U.S. Census Bureau and other federal agencies is crucial to understanding regional and local demographic and socioeconomic conditions. The data necessary to assess transportation system needs, such as freight and goods movement data and data from other private transportation providers, is often unavailable. In addition, significant work remains to gather asset condition data across transportation, water, stormwater, and other infrastructure. Similarly, hospital systems, universities, and public health departments routinely collect health data from target areas and specific populations. These data can often be rich but are rarely standardized across place or institution, limiting the ability of health practitioners to address health inequality among various population groups.

The extent of data available to manage assets has improved, but obtaining it can be costly. Many local governments are adopting asset management systems. These systems identify a structured sequence of maintenance actions to achieve a desired condition at a minimum cost, helping communities to optimize the timing and amount of infrastructure investment.²⁴⁷ Asset management can be used to develop capital improvement plans or identify when additional revenue may be needed to maintain system condition.

While some local governments lack the capability to institute asset management, some progress has been made by roadway jurisdictions for pavement management systems.²⁴⁸ Because of the

²⁴⁷ Chicago Metropolitan Agency for Planning, *Water Resources*, August 2017, http://www.cmap.illinois.gov/documents/10180/71423/Water+Strategy+Paper_FINAL_+9-21-17.pdf/9e656004-e3c2-cbf7-de2e-3bb799a016ea; Chicago Metropolitan Agency for Planning, *Municipal Capacity*, November 2017, http://www.cmap.illinois.gov/documents/10180/794571/Municipal+Capacity+Strategy+Paper_November+2017.pdf/923744b1-951a-ce16-609e-724c9e260fb7.

²⁴⁸ Chicago Metropolitan Agency for Planning, "Transportation Asset Management Recommendations Memo," January 2017,

large scale of the assets and expenditures for roadways, implementing such systems is an important first step toward improving how governments manage capital assets.

State and local governments make a wide range of investments beyond physical infrastructure, many of which can benefit from transparent, data-driven programming. Such programs, including economic development incentives, should be based on outcomes and performance of the investments. Many economic development incentives, such as state and local tax abatements and credits, are provided without evaluating whether the provision of the incentive is in line with established goals. In addition, detailed information on such incentives is often unavailable, which prevents data-driven decision making.

The following describes strategies and associated actions to implement this recommendation.

Use a data-driven, performance-based approach to making public infrastructure and service investments

In an era of constrained resources, the State of Illinois and local governments need to ensure that investments in infrastructure and public services are based on their performance relative to established goals and targets, rather than on arbitrarily derived formulas. Since the passage of MAP-21, the federal government has also emphasized the importance of data-driven investment in transportation infrastructure. A performance-based approach has broader applications, such as for evaluating services to ensure that investments are in line with priorities. Yet agencies integrating performance-based processes may not always have data available to fully implement them. Specifically with regard to transportation, CMAP and the state can provide a variety of funding and technical resources to help local governments implement pavement management systems.

CMAP, in collaboration with other implementers, should continue to advance a performance-based approach to programming STP-Local, CMAQ, and TAP.

The region should explore ways to improve the uniformity of data collection and analysis as part of asset management systems and to encourage increased data sharing.

Local governments should implement asset management systems to facilitate better-informed investment choices, such as systems to manage pavement condition or water infrastructure.

CMAP, with assistance from IDOT, should help local governments create asset management systems, starting with efforts to pilot local implementation of pavement management.

<http://www.cmap.illinois.gov/documents/10180/517091/AssetManagementRecommendations.pdf/d23d60e1-4092-cd58-f7e8-e1601d234f76>.

The State, transit agencies, CMAP and other entities should program infrastructure funding based on performance, rather than by formula.

Support a modern census and other vital socioeconomic data collection activities

Having access to rich data about the region and its residents was a critical part of ON TO 2050 development. CMAP, its partners, and many other public and private entities use data from the U.S. Census Bureau, as well as other federal agencies that collect and analyze demographic and socioeconomic data, to analyze strategies and policies that drive planning and investment activities. The federal government should ensure that its data collecting agencies are equipped with adequate resources and administrative capacity. Those federal agencies should continue to modernize their activities to provide access that is timely, thorough, and secure.

Improve health data collection, analysis, and availability for evidence-based policies and decision making

When properly collected and analyzed, high quality health data and metrics are important for reducing health inequities. One of the most regularly collected sources of primary health information across counties is the Behavioral Risk Factor Surveillance System (BRFSS) survey. The Illinois Department of Public Health administers the survey every two years and data is available at county level geographies. For a fee, local health departments can contract with the Illinois Department of Public Health to conduct a local version of the BRFSS or oversample at the community level. Oversampling this data allows more specific health data tracking in an effort to highlight and address health inequity among population groups. While such primary health data is valuable, so too are broadly agreed-upon indicators. Health partners in the region currently do not have a common health equity indicator. Ideally, such an indicator would be broken down by race/ethnicity, class, gender, and disability. Finally, local governments need help understanding how their policies and practices relate back to the identified health equity data and a regional indicator and monitoring the success of changes.

County, municipal public health departments, and hospitals and health institutions, with philanthropic support, should contract for BRFSS oversampling.

CMAP and public health partners should develop a common regional health equity indicator/ index.

CMAP and public health partners should monitor the integration of health and health equity policies by local governments.

State and local governments should improve budget and financial administration practices

Improved asset condition data can aid state and local governments' long-term financial planning. Local governments have an unmet need in the region for greater familiarity with financial management policies and land use choices that take a long-term perspective for improving resilience to difficult economic periods. A broad range of actors, including CMAP and its partners, can help build local expertise on recommended measures through materials and trainings. Partnerships with civic and professional organizations could be leveraged to develop trainings that build familiarity with best practices and assist with local application.

State and local governments should continue to improve budgeting practices to ensure they are transparent, data-driven, and fiscally sound.

State and local governments should implement practices such as short- and long-range financial forecasting to improve policies and decisions.

CMAP and partners should develop materials and trainings to help municipalities and counties understand how their land use choices affect local revenues.

Civic and professional organizations should provide expert guidance on best practices in budgeting and financial planning for government units to incorporate long-term perspectives and communicate effectively with stakeholders.

Promulgate stronger standards for transparency and accountability of economic development incentives

Proper evaluation of any program relies on two essential components: clear, relevant, ascertainable data, and internal procedures to assess outcomes and make decisions. The transparency of data and information on economic development incentives varies across metropolitan Chicago. Public agencies collect and publish a significant amount of non-proprietary information regarding incentives, but these data systems are often inadequate to determine an investment's effectiveness. In particular, disclosure standards can differ by the unit of government and the type of incentive, leaving information too fragmented or inconsistent to determine the total incentives going to a project. Regularly evaluating and publishing incentive data allows communities to make prioritized investments in their economic growth and long-term sustainability. Rather than extending incentives into perpetuity, the State of Illinois and local governments should pursue performance-based approaches to make decisions that extend, improve, or terminate incentives based on rigorous analysis. Such analysis should account for the incentive's full costs and benefits, progress in achieving its public purpose, and trade-offs relative to other government activities.

The State of Illinois and local governments should require a regular audit of all tax abatements, diversions, and credits for economic development.

The State of Illinois and local governments should implement and maintain sunset provisions on all tax abatements, diversions, and credits for economic development, allowing periodic reevaluation.

The State of Illinois and local governments should make comprehensive data on incentives for economic development available and ensure that relevant, accurate, non-proprietary data can be reliably located, integrated, and analyzed.

Make the collection, sharing, and analysis of public and private sector transportation data a regional priority

To make sound decisions, the region's transportation agencies require data from all elements of the network, whether public or private. This is especially important to better understand non-motorized, freight, and transit network companies (TNC) travel, each of which has been difficult to measure and analyze due to inadequate data. More frequent and detailed data on pedestrian and cyclist behavior could become available as sensing technology is increasingly deployed in public rights of way, and as private and public agencies analyze aggregated data from mobile devices and activity tracking apps. This might enable more efficient and accurate counts of cyclists and pedestrians as well as more complete inventories of the infrastructure they use. The region has greatly advanced its understanding of truck travel through the use of new data sources and monitoring systems, but similar information on rail movements -- particularly private systems -- is limited.

To understand rail performance, CMAP has made progress in collecting new data in recent years, but this data is aggregated to a high level that does not allow evaluation of potential rail projects. For tax dollars to be invested in private projects, private rail operators must demonstrate sufficient public benefits. Only with appropriate data from the freight rail industry -- including speeds, volumes, and reliability of freight trains along specific corridors and at key rail-rail crossings -- can this all-important analysis be conducted. Existing and emerging private providers have broad impacts on the transportation network, impacts that need to be part of investment decisions. Local governments and transit agencies should work with TNCs and other private transportation providers to obtain the data necessary to make sound decisions. With full respect for the right of private companies for their sensitive data to be kept secure, public decision makers have the obligation to assess whether limited taxpayer dollars are being invested wisely and to examine the public benefits and costs of these services' use of the public right of way. With a long record of safeguarding similarly sensitive data, CMAP will continue to play a major role in aggregating, normalizing, and sharing data as appropriate with regional stakeholders.

Public agencies also need to invest in their own data analysis, storage, and sharing capabilities. Such agencies, particularly lower capacity ones, might have difficulty collecting and managing transportation data as it increases in volume and complexity. Commercial services are



increasingly essential for data collection, analysis, and visualization, reducing public agencies' dependence on in-house expertise and potentially reducing costs, yet increasing their dependency on third-party tools and data providers. Public agencies should have the right to use, retain-- and when appropriate, share -- data collected by private sector sources on the behalf of public agencies or as a result of a public-private partnership. In turn, the public sector has its own valuable datasets, including system performance, conditions, and incidents. The public sector must carefully navigate competing mandates to provide open access to government data and protect the privacy of residents. This strategy also appears in the *Mobility* chapter under the recommendation to *Harness technology to improve travel and anticipate future impacts*.

CMAP should continue to play a leadership role in promoting responsible and regionally consistent data stewardship collection, analysis, and sharing among public sector partners including the City of Chicago, RTA, transit agencies, counties, and municipalities.

The public sector should identify ways to leverage provision of more detailed data and analysis to private companies while carefully protecting riders' privacy.

Private sector partners should share data that aids planning for transit, the road network and emerging mobility services.

Municipalities and transportation agencies should contractually require data sharing as a condition for private companies' access to public infrastructure (roadways, loading areas, etc.) or to subsidies.

CMAP and partners should improve region-wide data on bicycle and pedestrian infrastructure and travel patterns.

Private rail partners should provide substantive documentation of any data supporting the public benefits of CREATE projects and allowing assessment of potential rail improvements that could benefit passenger movements.

Improve access to public information through technology and transparency

Access to information is necessary for effective discourse and accountable decision making by governments on the state, regional, and local levels. To guide important local decisions, stakeholders -- including residents and businesses -- need access to information about our region. However, existing public data may not always provide sufficient context for

stakeholders to interpret or analyze the information.²⁴⁹ In addition, while data and analysis on state and local government appropriations and spending are crucial for understanding investments made in the region, such information is often not made available during budget approval processes.

Technology provides the best path to disseminate relevant data and information about the region and its communities to officials, community members, and other stakeholders. Improvements to technology can promote the use of best practices in transparency and help data management evolve. When scoping transparency efforts, it is important to consider who will actually use publicly accessible data and how users will use it.

Technology improvements will enhance local governments' ability to increase their capacity and achieve their goals. The return on investment for adopting new technology will vary across the region, particularly in areas with lower capacity to utilize it, but could introduce opportunities for consolidating or sharing services.

The following describes strategies and associated actions to implement this recommendation.

Increase access to budget information and relevant analysis

Providing analysis and other information is important to improve the transparency of budgetary and legislative processes. The State of Illinois, as well as counties, municipalities, and other local governments, should improve upon currently available financial and budget information.²⁵⁰ The state and larger units of government with capacity to do so should provide greater access to such analysis throughout their budget processes -- along with policy and fiscal analysis of legislation -- to allow stakeholders to review and analyze the material.

Leverage technological improvements to improve efficiency, service quality, and transparency

Counties, transportation providers, and local governments often provide varying levels of data on services, infrastructure, taxes, public safety, traffic, and many other topics. In addition, CMAP provides some types of regional data through its data sharing hub, community data snapshots, and other tools. However, access to public information is often incomplete. New technology holds the potential to help local governments both improve their public services and provide for greater transparency.

²⁴⁹ Government Finance Officers Association, *Transparency: A Means to Improving Citizen Trust in Government*, 2018, http://gfoa.org/sites/default/files/Transparency_April2018.pdf.

²⁵⁰ For more information on best practices, see: Barrett, Katherine and Richard Greene, "Beyond the Basics: Best Practices in State Budget Transparency," The Volcker Alliance December 2015, <https://www.volckeralliance.org/sites/default/files/attachments/Beyond%20the%20Basics%20-%20The%20Volcker%20Alliance.pdf>.



Yet many local governments lack the resources necessary to improve their technological capabilities or utilize existing technology. And for some types of data, the existence of many disparate data sources is not useful to meeting the goals of providing that data in the first place. Aggregated data about the region's communities could help with issues that rise above jurisdictional boundaries, such as businesses making development decisions or infrastructure investments.

Local governments should better leverage new technology, like mobile applications, reporting tools, and information systems, while continuing to modernize their processes as technology evolves.

Civic and professional organizations should convene local governments in the region to identify best practices around improving transparency and ensuring that public information is understandable and accessible.

Local governments that lack resources to obtain the newest technology should pool resources with other local governments.

CMAP should continue to provide and expand geographic information system (GIS) trainings and data analysis workshops to better support local government technical expertise.

Counties and COGs should consider create a data repository that houses data on their subregion's communities as well as the subregion as a whole.

Counties and COGs should work with economic development agencies, stormwater agencies, and other users to ensure that the aggregated data has applicability across purposes.



MOBILITY

Achieving a safe and reliable system for tomorrow

Our region's transportation network has reached a critical juncture. Travel patterns are being influenced -- and potentially transformed -- by rapidly evolving technologies that make for an uncertain and yet promising future. We cannot stand still, deferring important decisions that will shape the system for decades to come. In fact, while continuing to deal with past choices made or often deferred, our region must take bold steps both to address today's problems and to anticipate opportunities for achieving a well-integrated, multimodal transportation system for seamless movement of people and goods within and through the seven counties of metropolitan Chicago.

[GRAPHIC: Photo essay showing the region's transportation assets]

Making this vision our regional reality will require collective action to overcome obstacles inherent to existing assets and organizations. While some strategies may require action from the state or federal governments, increasingly this region and its local governments must rely on each other for homegrown solutions, including the revenues necessary to support a system of mobility that is the engine of our economic prosperity and quality of life.

Transportation agencies, counties, and municipalities will need to magnify coordination efforts and take swift action to adopt and regulate new technologies, make the transit system competitive, end fatal crashes, and advance inclusive economic growth. Crucially, they will need to create new revenue streams to improve conditions of the existing transportation system as well as to make limited and highly targeted expansions.

The three principles of ON TO 2050 are embedded throughout the *Mobility* chapter, which includes strategic recommendations to:

1. Promote **inclusive growth** by improving mobility options that spur economic opportunity for low income communities, people of color, and people with disabilities.
2. Improve **resilience** by ensuring that infrastructure can adapt to changes in climate and technology.
3. **Prioritize investment** of limited resources to efficiently maintain existing infrastructure while securing new revenues for needed enhancements.

A modern, multimodal system that adapts to changing travel demand

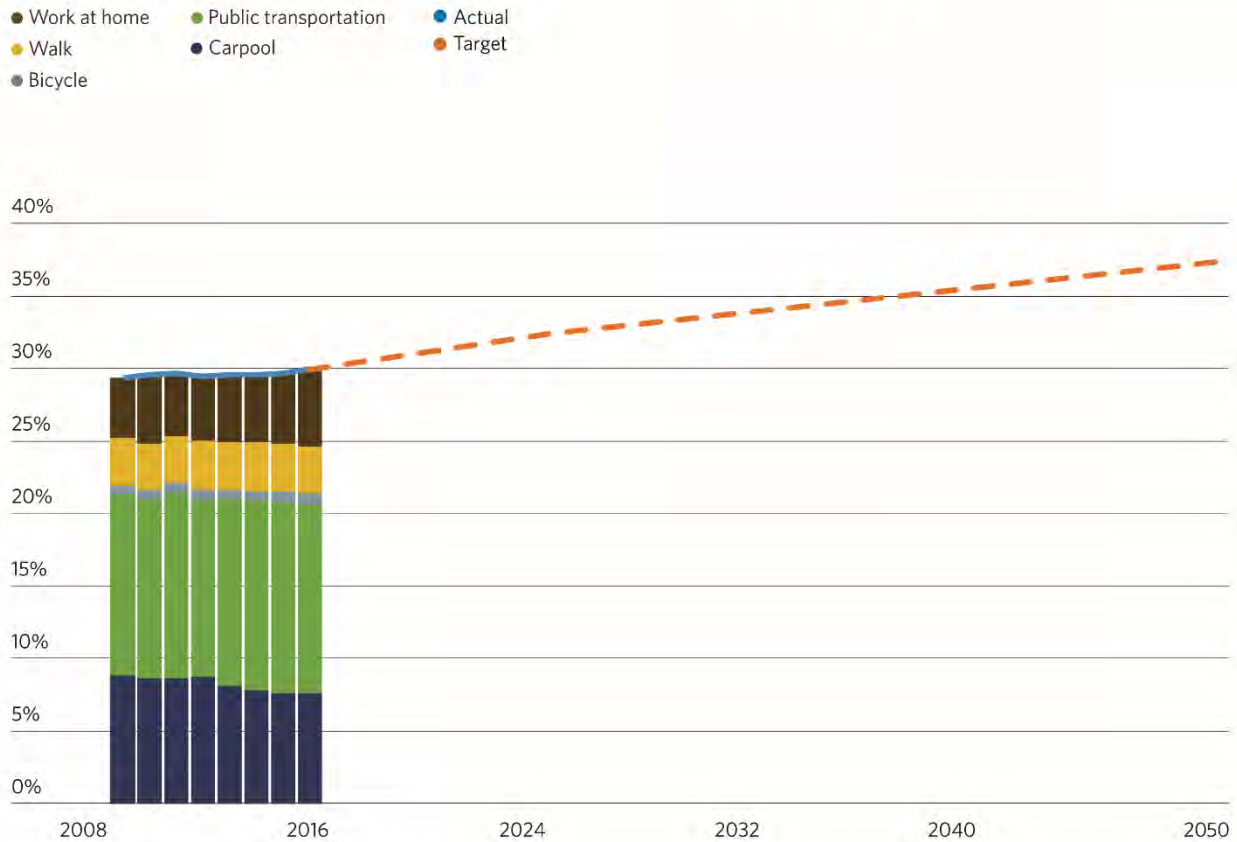
Each day brings new signs of profoundly shifting mobility patterns in the Chicago region and beyond. After decades in which automobile use increased consistently, the last decade has seen it remain relatively constant, while the other modes people use to get around have diversified.²⁵¹ Transit ridership has also changed, with declining ridership in some areas and modes along with capacity-straining growth in others. Freight rail is also changing. Intermodal freight volumes that fell during the last recession have since rebounded significantly, with growth of some 30 percent between 2009-14.²⁵² Biking, walking, and working from home are on the rise. In the years since GO TO 2040 was adopted, people have begun to take advantage of new, technology-enabled ways of getting around, including bike sharing, car sharing services like Zipcar, TNCs like Uber and Lyft, and microtransit services like Chariot and Via. Automated vehicles (AVs) are gradually emerging from the test tracks and onto streets and highways elsewhere in the U.S., with their advent here viewed as inevitable if not imminent. These still nascent technological trends will continue to intersect with economic and demographic shifts to transform how residents and businesses want to use the region's transportation system in coming decades. Due to the many benefits of a vibrant multimodal transportation system, ON TO 2050 sets a target of increasing the share of commuters who travel to work by a mode other than driving alone, while doubling transit ridership. This requires changing the way that we build roads, transit, and our communities themselves. Our transportation agencies, local governments, developers, businesses, and residents must work together to make decisions and investments that help the system anticipate and adapt to changing travel demand.

²⁵¹ Chicago Metropolitan Agency for Planning, "Travel Trends: Understanding How Our Region Moves," September 2016, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/transportation-network/travel-trends>.

²⁵² Chicago Metropolitan Agency for Planning, "The Freight System: Leading the Way," May 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/transportation-network/travel-trends>.

Percent of trips to work via specific non-single occupancy vehicle modes

Source: Chicago Metropolitan Agency for Planning analysis of data from the U.S. Census Bureau's American Community Survey.



Harness technology to improve travel and anticipate future impacts

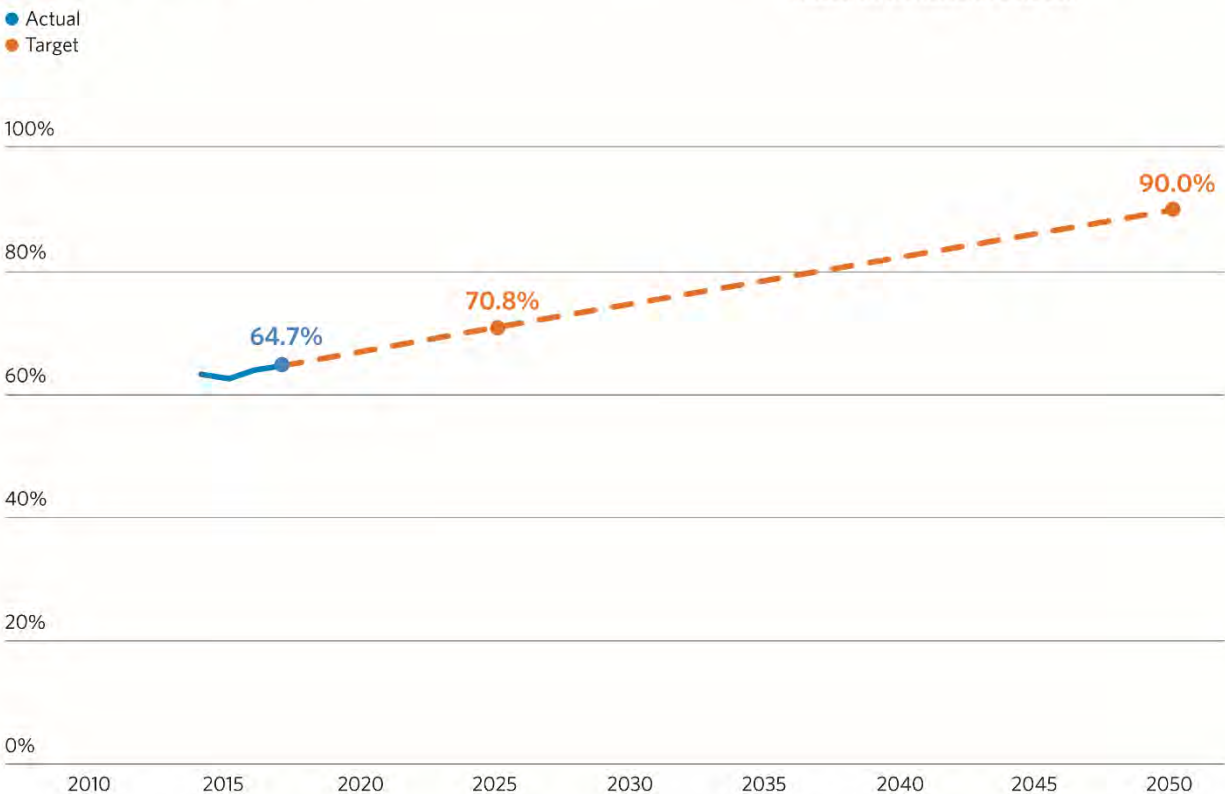
The pace of technological innovation in transportation, already rapid, seems likely to accelerate for many years to come. In the near term, existing technologies can improve the safety, efficiency, reliability, and resilience of our transportation network. In the long term, emerging technologies like connected and autonomous vehicles and private mobility services like car sharing and ridesourcing present both a remarkable opportunity and a challenge for regional planning. The increasing availability of real-time data, expanded communications technology, and emerging approaches to demand management and mobility lets us more effectively use the transportation system already in place today and prepare for future technological advances. By strategically employing technology, we can improve the way this network functions in support of community livability and economic vitality.

Some of the most promising innovations could improve travel time reliability, that is, increase predictability for the same trips compared day-to-day. FHWA estimates that 60 percent of travel delay nationwide is actually caused by non-recurring sources like crashes or other incidents,

construction, and weather.²⁵³ Because these factors are less predictable than daily congestion factors such as travel demand and system capacity, they cause unreliable travel that costs drivers, transit riders, and businesses that must budget extra time and expense to avoid being late for work, appointments, or deliveries. ON TO 2050 sets a target of improving the reliability of travel on the interstate system, which will have broad benefits for the entire transportation system.

Annual interstate level of travel time reliability in CMAP region

Source: Chicago Metropolitan Agency for Planning analysis of data from the Federal Highway Administration National Performance Measurement Research Data Set.



Reliability is best improved by changing how roads are managed and operated, rather than expanding the system. Increasingly, highway management involves data, communications, and technologies that help system managers optimize traffic flow, and detect and respond to situations as they arise. On a regional scale, this will involve coordination and communication between highway agencies, emergency management services, transit operators, and real-time traveler information services, paired with extensive deployment of communications and data processing infrastructure. Because incidents on one agency’s road network can have major impacts on other networks, the region clearly needs a more holistic, integrated approach to

²⁵³ Federal Highway Administration, “Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation,” September 2005, https://ops.fhwa.dot.gov/congestion_report/index.htm.

traffic management. This is particularly true in congested corridors where the interstate and arterial systems interact and deteriorating traffic conditions on one system affect the performance of the other.

[GRAPHIC TO COME: An illustrated graphic will show technology investments and their benefits for travel reliability.]

CMAP evaluated a number of strategies for improving reliability and found that enhancing incident management, facilitated through better information sharing, was among the most effective approaches.²⁵⁴ Similarly, implementing traffic management centers (TMCs), another strategy that relies heavily on better information exchange facilitated by technology, is extremely effective. Information exchange can improve response to changing situations like special events and other variations in traffic by allowing transportation agencies to change traffic signal timing, alter ramp meter timing, provide real-time traveler information, and take other steps to balance travel demand among arterials, interstates, and transit services in a corridor during peak congestion and major incidents. While there are some existing examples of limited corridor-level integration where agencies manage arterial traffic signals to improve safety of expressway ramps and mainlines and where different system operators post messages about conditions on other corridor roadways, more progress is necessary to meet regional goals for system reliability. Future mainstream adoption of connected vehicle technology, which can allow vehicles to communicate with one another as well as with traffic signals, TMCs, and other infrastructure can amplify the effectiveness of investments in modernized infrastructure. For example, the Jane Addams Memorial Tollway (I-90) has been reconstructed to include flexible infrastructure to accommodate new “smart” features, such as roadway cameras that enhance the Tollway’s ability to respond to traffic and weather incidents and enable transit to bypass incidents using the flex lane.

The transit system can also benefit from adopting innovative technologies and enhancing existing systems. Even in the highest ridership corridors, transit only captures a fraction of the potential travel market. Reevaluating these corridors may reveal opportunities to improve services and employ some of the technologies developed by private sector mobility services. Traffic management centers can provide operators with more timely and accurate performance data to better manage their systems. Sensors, GPS tracking capabilities, and communications infrastructure being implemented by Metra as part of Positive Train Control not only improve system safety but also offer additional opportunities to collect and share real-time travel information about the system. Bus routes on roads with transit signal priority (TSP) can make transit trips faster and more reliable than passenger vehicle trips. Real-time information about arrivals and departures, travel times, and incidents is already helping bus and train passengers to plan more reliable commutes via transit or multiple modes. While continuing to evolve, these technologies offer opportunities for transit agencies to collect and analyze important new information to improve passengers’ experiences. See the *Make transit more competitive*

²⁵⁴ Chicago Metropolitan Agency for Planning, “Congestion Report,” in progress, due 2018.

recommendation for more information.

The pace and disruptive nature of technological change make it difficult to predict just how transportation will evolve by 2050. Much discussion of technology's potential impacts generally revolves around two divergent outcomes. In the first, personal ownership of AVs would result in more inefficient land development, less public transit use, and increased traffic from low-occupancy or even unoccupied vehicles. In the second, more preferable future, fleets of shared vehicles would reduce individual car ownership, facilitate more dense, walkable development patterns, and increase transit ridership, walking, and biking. In both cases, technology could enable safer, more independent mobility for residents throughout the region, yet also could exacerbate existing disparities. The most likely outcome is a mix of these impacts that vary across the U.S., highly dependent on how much AVs cost, how quickly they predominate among vehicles, and how local policy makers address these converging challenges. Our region can make decisions and policies now to smooth the transition to a more automated fleet while affirmatively guiding the future impacts of AVs to meet regional goals. These policies also often meet existing goals for the system, such as implementing managed lanes to increase travel choices. With strategic investments and policy interventions, our leaders must shape the development of emerging technologies and better position the Chicago region to achieve economic vitality and improved quality of life for all. Such decisions about investments and policies should be coordinated across many levels of government with participation by residents, civic leaders, and the private sector, always keeping in mind that technology should be deployed in service of regional goals.

[GRAPHIC TO COME: An illustrated graphic will show potential land use and transportation impacts of autonomous vehicles.]

Technologies discussed in this recommendation have the potential to generate more data on mobility than ever before. Increased real-time transportation data can provide a deeper understanding of travel behavior and help agencies make informed decisions about investments, policies, and operations. The private sector, particularly goods movement companies and TNCs, has already benefited from such data to improve operations, decrease delivery/travel times, and create new services, but they often resist sharing data with public agencies or participating in open data portals, citing privacy and competitive concerns. Even data systems within an individual public agency may be fragmented and difficult to use, hampering staff from fully harnessing operational data for decision making. Infrastructure, processing power, consistent systems, and extensive coordination will be required to make the best use of emerging technology and data resources.

The following describes strategies and associated actions to implement this recommendation.



Coordinate traffic operations region-wide

Coordinated traffic operations involve collaboration between transportation agencies to collect data, monitor and adjust equipment, detect traffic incidents, reroute travelers, and dispatch resources to address problems on the region's roadways. Traffic management centers are the hub of this coordination. The region's largest TMCs are the Tollway Traffic and Incident Management System and IDOT's ComCenter.²⁵⁵ Counties and cities in the region operate TMCs at various scales and with varying degrees of coordination.

The ability for traffic signals to adapt to changing conditions is a key component of coordinated operations, but many of the region's signals currently operate on fixed timing plans. These signals are not only unable to adapt in real time to changing conditions, but they also may have timing plans that are out of date, created years or even decades ago when traffic volumes were significantly different from current and anticipated conditions. Updating these older signals in areas with high current bus ridership or planned high-frequency bus service should be a high priority to make them compatible with future TSP implementation. The RTA is leading the Regional Transit Signal Priority Implementation Program, which has identified 13 transit corridors spanning about 100 miles of roadway and 400 signalized intersections as strategic corridors for TSP implementation.²⁵⁶

CMAP, IDOT, and local agencies should work toward implementing a regional, multijurisdictional traffic management center, either virtual or traditional.

IDOT, the Tollway, and local agencies should enhance communication and coordination to improve work zone management.

Highway and transit agencies should continue to share operational information and expand coordination opportunities.

CMAP should work with stakeholders to develop a regional communications master plan and update the regional ITS architecture.

CMAP and partner agencies should establish a program to modernize traffic signals, including the provision of TSP.

Highway agencies should review traffic signal policies, ensure up-to-date signal timing plans to minimize delay and crashes, and implement adaptive signal timing where appropriate.

²⁵⁵ Chicago Metropolitan Agency for Planning, "Highway Operations," February 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/transportation-network/travel-trends>.

²⁵⁶ Regional Transportation Authority, "Regional Transit Signal Priority (TSP) Implementation Program," accessed March 28, 2018, <http://www.rtams.org/rtams/transitSignalPriority.jsp>.

CMAP should continue to maintain its highway traffic signal inventory.

CMAP should work with *transportation agencies* to fund and execute planning activities that work toward implementing active expressway management, active arterial management, and integrated corridor management

Continue to plan for system modernization while making progress toward a state of good repair

The region should take advantage of every opportunity to modernize, improve, and enhance our transportation system while bringing it into a state of good repair. If paired with maintenance activities, these improvements can be accomplished at lower cost than if they were standalone projects. Although transportation agencies do regularly undertake such modernization efforts in conjunction with required maintenance, they could accomplish even more with additional advance planning. To cite several examples, reconstruction of a roadway can enable the laying of communications fiber. Requiring the installation of empty communications conduit when projects are built would decrease the cost of adding fiber in the future. Reconstruction projects also present an opportunity to upgrade infrastructure for utilities and stormwater and to implement complete streets projects. Routine rehabilitation of transit stations is also an opportunity to install real-time passenger information technology and to upgrade operational communications technology. Identifying all potential synergies and efficiencies between modernization and state of good repair will require additional communication across departments within agencies.

Transportation agencies should expand coordination of future communication infrastructure, incorporating features during normal roadwork to make future enhancements easier and cheaper.

Transportation agencies should discuss modernization opportunities while developing projects.

Make the collection, sharing, and analysis of public and private sector transportation data a regional priority

To make sound decisions, the region's transportation agencies require data from all elements of the network, whether public or private. This is especially important to better understand non-motorized, freight, and TNC travel, each of which has been difficult to measure and analyze due to inadequate data. More frequent and detailed data on pedestrian and cyclist behavior could become available as sensing technology is increasingly deployed in public rights of way, and as private and public agencies analyze aggregated data from mobile devices and activity tracking apps. This might enable more efficient and accurate counts of cyclists and pedestrians as well as more complete inventories of the infrastructure they use. The region has greatly advanced its understanding of truck travel through the use of new data sources and monitoring systems, but similar information on rail movements -- particularly private systems -- is limited.



To understand rail performance, CMAP has made progress in collecting new data in recent years, but this data is aggregated to a high level that does not allow evaluation of potential rail projects. For tax dollars to be invested in private projects, private rail operators must demonstrate sufficient public benefits. Only with appropriate data from the freight rail industry -- including speeds, volumes, and reliability of freight trains along specific corridors and at key rail-rail crossings -- can this all-important analysis be conducted. Existing and emerging private providers have broad impacts on the transportation network, impacts that need to be part of investment decisions. Local governments and transit agencies should work with TNCs and other private transportation providers to obtain the data necessary to make sound decisions. With full respect for the right of private companies for their sensitive data to be kept secure, public decision makers have the obligation to assess whether limited taxpayer dollars are being invested wisely and to examine the public benefits and costs of these services' use of the public right of way. With a long record of safeguarding similarly sensitive data, CMAP will continue to play a major role in aggregating, normalizing, and sharing data as appropriate with regional stakeholders.

Public agencies also need to invest in their own data analysis, storage, and sharing capabilities. Such agencies, particularly lower capacity ones, might have difficulty collecting and managing transportation data as it increases in volume and complexity. Commercial services are increasingly essential for data collection, analysis, and visualization, reducing public agencies' dependence on in-house expertise and potentially reducing costs, yet increasing their dependency on third-party tools and data providers. Public agencies should have the right to use, retain, and -- when appropriate -- share data collected by private sector sources on the behalf of public agencies or as a result of a public-private partnership. In turn, the public sector has its own valuable datasets, including system performance, conditions, and incidents. The public sector must carefully navigate competing mandates to provide open access to government data and protect the privacy of residents. This strategy also appears in the *Governance* chapter under the recommendation to *Base investment decisions on data and performance*.

CMAP should continue to play a leadership role in promoting responsible and regionally consistent data stewardship collection, analysis, and sharing among public sector partners including the City of Chicago, RTA, transit agencies, counties, and municipalities.

The public sector should identify ways to leverage provision of more detailed data and analysis to private companies while carefully protecting riders' privacy.

Private sector partners should share data that aids planning for transit, the road network, and emerging mobility services.

Municipalities and transportation agencies should contractually require data sharing as a condition for private companies' access to public infrastructure (roadways, loading areas, etc.) or to subsidies.

CMAP and partners should improve region-wide data on bicycle and pedestrian infrastructure and travel patterns.

Private rail partners should provide substantive documentation of any data supporting the public benefits of CREATE projects and allowing assessment of potential rail improvements that could benefit passenger movements.

Ensure that emerging transportation technologies support inclusive growth

Without thoughtful implementation, emerging transportation technologies may be cost-prohibitive for lower income households, people with disabilities, and municipalities with fewer fiscal resources. On the other hand, in combination with continued support for public transit, technology for shared mobility and automated vehicles has the potential to enhance mobility for lower income residents and to improve access to jobs, healthcare, and other essential destinations for lower income communities. Making inclusive growth a cornerstone from the very outset of policy development for emerging technologies can help leverage them to reduce rather than increase inequities of access to transportation.

Communities with limited resources will be less able to anticipate and respond to changing land use and traffic patterns caused by evolving transportation technologies. They may also be less able to purchase sensor, communication, and data processing equipment that could allow them to reap the benefits of new technology. Unless transportation implementers consciously include disabled users and low income communities in pilot projects and early implementation phases, technologies are unlikely to meet these communities' needs. For example, without careful planning, AVs could exacerbate an existing trend: Congestion patterns lead to increased vehicle speeds in disinvested communities on roads that were originally designed to accommodate higher volumes of slower vehicles, now making them increasingly difficult and dangerous for bicyclists and pedestrians to navigate. Failure to ensure vehicle accessibility at the outset can prevent communities with the most to gain in improved mobility and independence from using new services, and require companies to make costly retrofits. At the same time, innovative technologies could reduce the need for car ownership, decrease household and municipal transportation expenses, attract new investment to disinvested areas with transit access, and provide a wider range of transportation options for residents of economically disconnected communities.

CMAP should help communities identify the potential benefits and pitfalls of new technologies with regard to economic competitiveness, affordable mobility, accessibility, and local quality of life.

RTA and CMAP should develop guidance to ensure that any partnerships with private mobility services provide clear public benefits and include protections for low income communities against sudden changes in the private market.

CMAP should play a leadership role to identify deficiencies and gaps in the transportation network for economically disconnected communities, and work with communities, riders, and public transit agency and private sector partners to identify solutions.

IDOT, counties, and other transportation agencies should ensure that disinvested communities are not adversely impacted by or excluded from improvements intended to facilitate new transportation options.

Establish pricing and regulatory frameworks that positively shape the impacts of autonomous vehicles and other technologies on infrastructure and land use

The impacts of TNCs, autonomous vehicles, and other emerging technologies will depend on the cost and convenience of low- and zero-occupancy vehicle travel for individuals and commercial services. The long-term direction of these advancements could provide considerable benefits to individuals, but they could also incur great public cost. On one hand, decline of car ownership in dense urban neighborhoods might allow substantial reallocation of road space for transit, pedestrians, and cyclists, yet some areas could see increased demand for automobile-oriented development, declines in transit ridership and fare revenue, and increased congestion, unreliability, and maintenance needs on the region's roadways. Many decisions about safety and design standards will be made at the federal level, but regional and local agencies will need to implement policies to manage the public costs of low- or zero-occupancy vehicle travel. New pricing strategies can support the competitiveness of high capacity public transit, ensure funding is available for infrastructure and operational maintenance and modernization, and temper the demand for low occupancy vehicle use.

CMAP and its partners can influence the deployment of emerging technologies through strategic and coordinated policies. The region should avoid prohibiting or mandating specific technologies and focus on integrating new technologies into existing transportation systems and services in ways that leverage the new services' strengths and help achieve reinvestment in existing communities, inclusive economic growth, congestion management, and emissions reduction. Appropriate policies may vary across the region depending on existing development patterns and local priorities. Communities with congested, transit-rich, or pedestrian-oriented corridors may consider expanding the use of geofencing, designated dropoff areas, and local fees to support transportation infrastructure. Communities across the region will need information to understand impacts and identify appropriate policy interventions. Over the long term, the region must identify and implement pricing and infrastructure strategies to ensure that AVs and other emerging technologies provide equitable and sustainable benefits.

IDOT should implement managed lanes on the region's expressways and explore other pricing policies that could manage increased travel caused by autonomous vehicles.

CMAP should convene and coordinate regional stakeholders to engage in national and state-level conversations about autonomous and connected vehicle policy and industry standards.

CMAP, RTA, and transit agencies should work with communities to establish policies for AVs, TNCs, and other emerging technologies that support local land use, development, and livability goals.

Adapt the street and sidewalk to emerging developments in transportation

Urban neighborhoods, suburban downtowns, and commercial corridors must serve many types of travel and uses, from pedestrians to trucks and from mom-and-pop stores to mixed-use developments. These interactions are becoming more complex due to online shopping and associated deliveries, increased biking and walking, and mobility innovations like ride hailing companies and dockless bikeshare. Transit vehicles, loading zones, bicycles, and parking all compete for dedicated right of way on the street network. Without careful planning, unintentional conflicts can arise on the street network and on the sidewalk, such as when street furniture or bike parking makes it harder for someone with disabilities to navigate or for people to access bus stops.

Accommodating such varied needs in limited urban space is complex, but many solutions exist. Given the fast pace of change in mobility today, CMAP and partners can play a role in monitoring changes and establishing best practices for design, pricing, and shared uses. CMAP should work with communities to pilot new approaches and establish strategies to support public transit and preserve vibrant, equitable, accessible, and walkable communities. This strategy also appears in the *Community* chapter under the recommendation to *Support development of compact, walkable communities*.

Identify public investments that could catalyze emerging technologies

Because it is impossible to predict exactly which technologies will be in use by 2050, our core investments must be flexible enough to enable a wide range of potential outcomes. For example, most innovative transportation technologies, from real-time traffic information to automated vehicles, will rely on a robust communications network. No region-wide inventory of transportation-related fiber-optic cable location and condition currently exists, which makes planning for expansion opportunities more difficult. Building out a regional communications infrastructure network should be a high priority for the region's many transportation implementers. Also, pilot testing of automated and connected vehicle infrastructure might provide opportunities to promote adoption of these technologies.

Due to increasingly stringent fuel economy standards, vehicles that use conventional gasoline will become more efficient, and more than a quarter of cars and light duty trucks could be powered by electricity and other alternative fuels by 2050.²⁵⁷ Passenger cars are most likely to be electrified, with a dramatic increase in plug-in and hybrid electric vehicle market share projected by 2050. Transit agencies and local governments are investing in electric vehicles and replacing their fleet with more energy efficient vehicles. Yet, improved charging infrastructure is needed to increase adoption rates of electric vehicles.

Identifying these opportunities will require new tools and analytical techniques as well as effort from the public and private sectors to collaborate on transparently providing data and information. Implementers will also need to better understand the long-term financial implications of technology investments. For example, the many transportation agencies in the region who implement and maintain ITS equipment could benefit from a shared understanding and vision for the transition to connected vehicles. CMAP's current role in convening the Advanced Technology Task Force positions the agency well to pursue analysis of connected vehicle opportunities in the Chicago region and coordinate development of a regional vision for AVs.

CMAP, IDOT, and civic organizations should continue to coordinate with partners in academia and public agencies to develop analytical tools and track the impact of emerging technologies.

Federal government, CMAP, transit agencies, or IDOT should conduct an analysis of places where deployment of technologies could provide the greatest benefit to the region.

RTA, IDOT, CMAP, and other programming agencies should fund or host pilot projects of technologies that attempt to address regional transportation issues.

CMAP should continue to fund fleet replacement, such as electric buses and charging stations, through CMAQ.

Transportation agencies should adopt electric vehicles and other innovative emission reduction technologies and plan for integration of solar and charging stations into new projects.

Local governments should review development ordinances to identify ways to promote electric vehicle infrastructure in the transportation system.

The region's transportation agencies and CMAP should closely track and report back on other pilots, including successes, failures, lessons learned, and evaluation of results against our regional goals.

²⁵⁷ U.S. Energy Information Administration, "Annual Energy Outlook 2017," <http://cmap.is/2snwnMk>.

Make transit more competitive

Our transit system is one of metropolitan Chicago's most critical assets, improving air quality, allowing travelers to avoid congested highways, and connecting people to jobs, education, entertainment, and other amenities. Transit access is especially crucial for those who cannot drive or lack access to a car. In addition, a robust transit network is an increasingly valuable asset that helps the region compete nationally for new businesses and residents. The region's long-established transit network is extensive: Together, the CTA, Metra, and Pace provide more than two million trips each weekday at a cost per rider that is among the nation's lowest.²⁵⁸ However, the system also faces numerous challenges, including lack of funding, minimal supportive land use changes, demographic shifts, aging infrastructure, and competition from emerging private transportation services.

In areas with rising transit use, growth is occurring at times and locations that strain local capacity. Ridership has boomed on CTA and Metra stations serving Chicago's North Side and at the outermost stations of many Metra lines.²⁵⁹ Since 2000, weekend ridership has grown faster than weekdays on all modes of transit.²⁶⁰ Suburban areas with limited transit access, particularly in Cook County, have seen more population and employment growth than the rest of the region. Much of this growth is in demographic categories that tend to have higher rates of transit use, including groups that do not own cars or own only one car, low income residents, Asians, blacks, and younger adults.²⁶¹ Older adults are growing in number: While less likely to ride transit than younger demographic groups, they nevertheless become more dependent on being driven to destinations as they age. ADA paratransit service in our region has grown dramatically in response to intensifying demand and likely will continue to grow as the population ages.²⁶² Paratransit provides a critical mobility link for more than four million trips per year taken by people who cannot use a fixed-route service. However, paratransit can be 10 times more expensive to provide than fixed-route service, while statute limits fares to double those of fixed-route fares. This preserves affordability but may degrade the long-term sustainability of these services.

At the same time, population and employment have declined substantially along the southern branch of CTA's Red and Green Lines as well as on the Metra Electric and Rock Island lines,

²⁵⁸ Chicago Metropolitan Agency for Planning, "Transit Trends: Exploring Transit Use and Investment," November 2017, <http://www.cmap.illinois.gov/onto2050/snapshot-reports/transportation-network/travel-trends>.

²⁵⁹ Chicago Metropolitan Agency for Planning, "Transit Trends."

²⁶⁰ Chicago Metropolitan Agency for Planning, "Transit Trends."

²⁶¹ Regional Transportation Authority, "Regional Transit Strategic Plan 2018-2023: Beginning the Discussion," May 2017, http://www.rtachicago.org/files/documents/strategicprograms/strategicplan/IIT_2018-23_Final/InvestInTransit_BeginDiscuss_18-23.pdf.

²⁶² Chicago Metropolitan Agency for Planning, "Transit Trends."



triggering ridership declines.²⁶³ Bus ridership has also been in decline throughout the region and nation. Shifts in transit ridership create challenges for the transit agencies, both in terms of providing sufficient capacity where demand is burgeoning and in allocating appropriate service levels to areas where ridership is declining, despite their residents' reliance on transit.

The transit agencies are experiencing a capital funding shortage, with mounting state-of-good-repair and modernization needs. While the transit agencies are committed to operating safely, 31 percent of the transit system is not in a state of good repair -- a percentage projected to grow without significant increases in capital funding.²⁶⁴ Current funding levels often force the agencies to make difficult choices in the face of annual budget limitations, including to allow degradation of some assets' condition. While transit operators have successfully and efficiently maintained basic service levels in this environment for some time, the transit system's condition is degrading as the repair backlog grows, posing a long-term threat to service quality and reliability.

Transit agencies are also facing increased competition for riders from emerging private sector mobility providers, particularly TNCs like Uber and Lyft that provide on-demand, door-to-door services at prices and speeds that make them attractive alternatives to transit. The mobility innovations could make it easier for people to be less dependent on owning and driving their own cars and help solve the challenge of providing transportation options in less dense suburban areas that are currently difficult and expensive to serve with traditional transit. Transit agencies are already working to incorporate these technologies into their services. However, if left unchecked, private sector mobility services could also contribute to increased congestion, slower bus speeds, declines in transit ridership, and decreased service quality. Ensuring the continued success of the region's mass transit network is in the best interest of private mobility providers, whose services are most widely used where people own fewer cars and rely on multimodal transportation options.

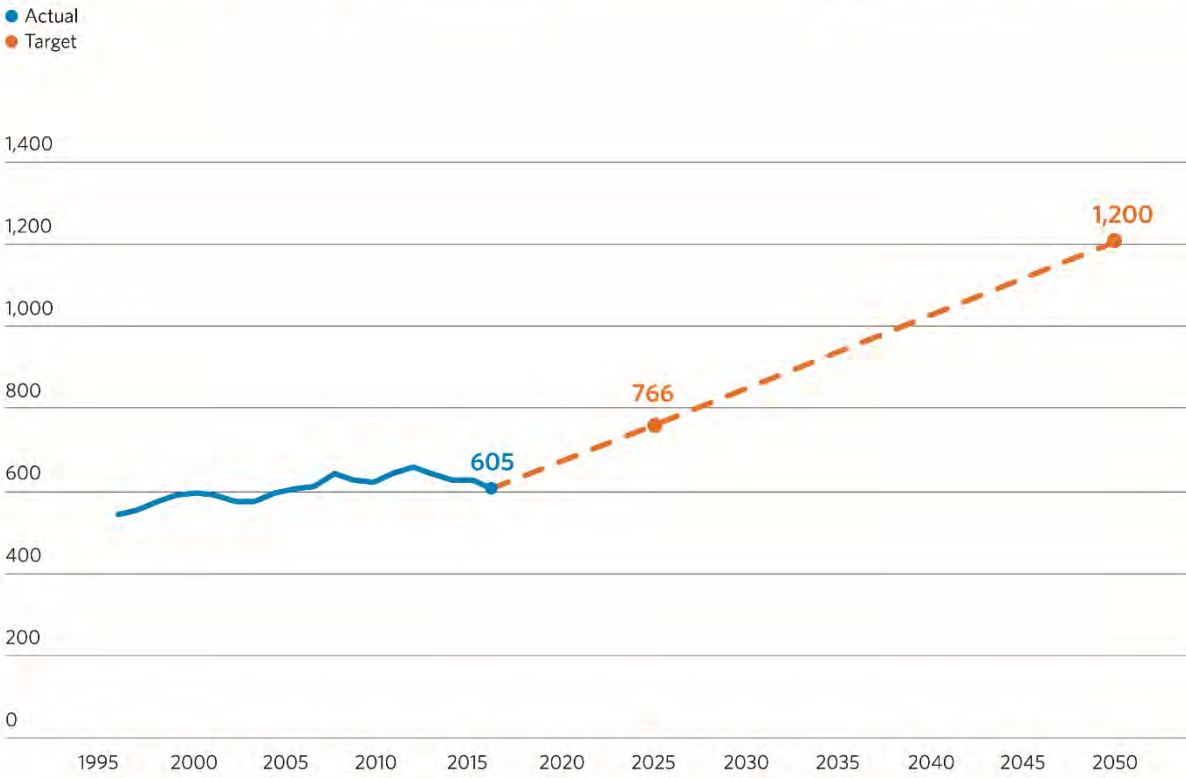
The prior comprehensive regional plan, GO TO 2040, set an aggressive goal of doubling transit ridership, and ON TO 2050 recommits to this goal. Because growth in transit ridership requires implementation by many stakeholders across many issues -- such as increasing funding for the transit system, intensifying development of housing and employment near bus and rail transit, and appropriately pricing roads and parking -- this indicator is a bellwether for the success of many ON TO 2050 recommendations. However, the region is not currently on track to achieve its transit ridership goal. Reaching it will require sustained investment in the transit system that substantively exceed today's levels, and coordinated action by a wide range of stakeholders.

²⁶³ Chicago Metropolitan Agency for Planning, "Transit Trends."

²⁶⁴ Chicago Metropolitan Agency for Planning, "Transit Trends."

Annual unlinked transit trips, in millions

Source: The Federal Transit Administration's National Transit Database.



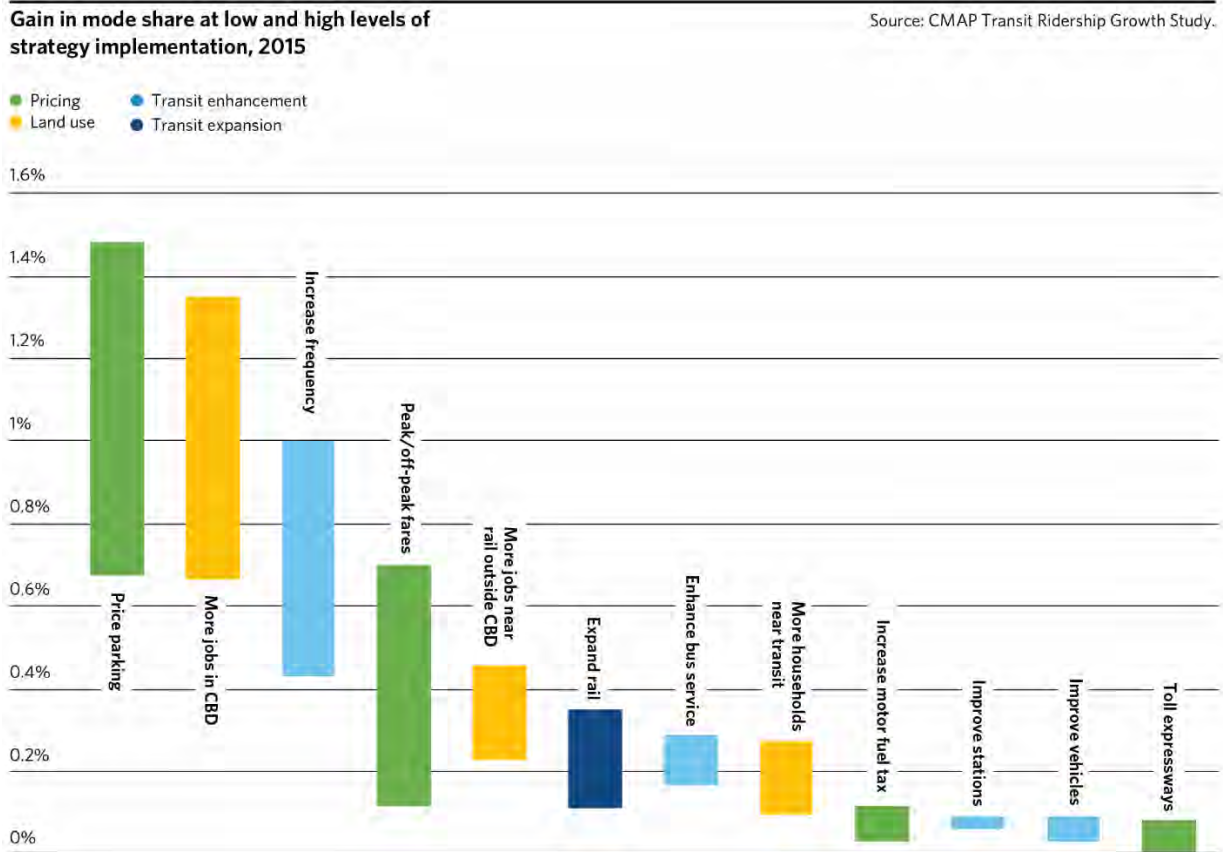
To be competitive, transit must provide fast, frequent, reliable, and affordable service that connects people to important destinations. Surveys of the region's riders and a growing body of transportation research show that the basics of transit service -- speed, frequency, reliability -- are the most important factors in promoting ridership and customer satisfaction.^{265, 266} This finding offers clear focus for the limited dollars available to improve the region's transit system. Investments that improve the speed and reliability of bus transit, such as dedicated lanes and TSP, are particularly cost-effective ways to improve transit service. On the rail system, addressing bottlenecks and capacity constraints on high ridership routes can improve reliability and allow more frequent service. ON TO 2050 sets targets for additional miles of roadway and number of traffic signals with transit priority [link to indicator].

To improve service and increase ridership requires regional action by not just the transit agencies, but also municipalities, highway agencies, and funding authorities. Transit agencies cannot sustain fast, frequent, reliable service without accompanying supportive land use

²⁶⁵ Regional Transportation Authority, "2016 Customer Satisfaction Survey," June 2017, <http://www.rtachicago.org/index.php/plans-programs/performance-measures/2016-customer-satisfaction-survey.html>.

²⁶⁶ TransitCenter, "Who's On Board 2016: What Today's Riders Teach Us About Transit That Works," 2016, <http://transitcenter.org/publications/whos-on-board-2016/>.

changes. Effective transit service results from a combination of strategic investment in transit service and coordinated land use planning. Locating jobs and residences near transit has a powerful positive effect on ridership. CMAP analysis shows that taking steps to increase employment density near transit stations and pricing parking would have more impact on ridership compared to many other strategies for capital investment and service expansion.²⁶⁷



Note: the design of this graphic will be updated in the final plan

The combination of historical development patterns and continued suburbanization of housing and employment in recent decades have created a mismatch between locations with high transit availability and those with high employment densities. As shown below, many suburban areas act as employment nodes but may have limited transit. Many neighborhoods with high concentrations of low income residents have strong access to transit but may have few jobs nearby. This dynamic limits economic opportunity for people who depend on transit to get to work and must access jobs outside of the region’s core.

[GRAPHIC TO COME: A Transit availability Local Strategy Map interactive feature will highlight the relationship of transit availability and employment density in the region.]

²⁶⁷ Regional Transportation Authority, “Invest in Transit: The 2018-2023 Regional Transit Strategic Plan,” January 2018, <http://www.rtachicago.org/index.php/plans-programs/regional-transit-strategic-plan.html>.

Places with high transit availability but low population and employment density can better support transit through targeted infill development. In some cases, these areas have experienced long-term job and population losses. (See the *Invest in disinvested areas* recommendation in the *Community* chapter for relevant strategies.) Places with high transit availability, high density, and transit oriented design and placement of buildings are good candidates for targeted investments to eliminate bottlenecks and improve the speed and reliability of bus transit. Employment centers with limited transit availability should be evaluated for potential additional services, especially services that connect these centers with economically disconnected communities, in concert with investment in walkable streets and development patterns.

Diversify and increase transit funding sources

The region's transit system faces a \$19 billion backlog simply to reach a state of good repair.²⁶⁸ If supported by diverse and sustainable sources of state, federal, and local funding, transit agencies would be empowered to improve the system's state of good repair, modernize and enhance the system, support low income riders, and confidently move forward with high-priority projects. The need to increase revenue for the transportation system more broadly is central to the financial recommendations of ON TO 2050. Unless structured carefully, many revenue options under consideration have the potential to provide significantly more revenue for roads than transit. New revenues should provide substantive benefit for the transit system and help the region achieve a well-integrated multimodal system. For example, automobile user fees should be used flexibly to improve the region's transit, bicycle, and pedestrian infrastructure. See the *Fully fund the region's transportation system* recommendation in the *Mobility* chapter for more information.

Invest in and protect transit's core strengths

The region's transit agencies should focus limited funding on projects that build on transit's key strengths: frequent, fast, reliable service that makes connections in areas of moderate and high density and walkability. Transit can serve these markets and trips more efficiently and effectively than any other mode. The RTA has identified six key transit markets that enable the region to build upon existing transit assets, and these markets should be the focus of coordinated planning and investment by the transit agencies, IDOT, Tollway, CMAP, counties and municipalities.

Focusing investment will mean different things for different transit modes. On the rail system, it often means addressing capacity constraints that limit the speed and frequency of trains on high ridership routes. These capacity constraints are often operational and relatively invisible to riders, such as lack of space at railyards and maintenance facilities, track junctions, and old

²⁶⁸ Regional Transportation Authority, "Invest in Transit: The 2018-2023 Regional Transit Strategic Plan."

signal systems. Bus service can be improved quickly and at relatively low cost; replacing traffic signals and implementing TSP are cost-effective investments that can substantially speed up service on arterial routes. In key corridors with high ridership or plans for supportive land use, the combination of TSP, dedicated right of way, and improved boarding strategies can substantially reduce travel times. The region should move forward on implementing planned ART routes and planning future bus system improvements.

Given transit's importance as the backbone of a multimodal transportation system, it is also important to implement policies that help bolster transit's core strengths and prevent degradation of transit service on high frequency corridors through dense parts of the region. These policies could include new rules or regulations on private mobility services.

The region should move forward on implementing the highest performing planned *Pace Pulse* routes.

CTA and transportation agencies that operate the street network should work together to implement a BRT network.

CTA and Metra should prioritize addressing capacity constraints on high ridership rail lines and planning for longer term capacity increases to better serve areas of high potential within the existing rail network.

CMAP, RTA, and transit agencies should work with *communities* to establish policies for AVs, TNCs, and other emerging technologies that support and complement the public transit system.

Ensure equitable transit access

Focusing only on the most productive elements of the transit system would likely leave many low income riders behind. Providing equal, affordable, accessible service to most people -- particularly those who are low income, car-less, or with limited mobility -- has historically been integral to public transit's mission. According to CMAP research, lower income residents and people of color have longer-than-average commutes, and despite typically living in areas with transit access, they often travel to jobs in places or at times with limited bus or rail service.²⁶⁹ Their commutes often require transfers between multiple modes or service providers, costing lower income commuters more time and money. These residents may also be unable to afford up-front expenses for weekly or monthly passes that would save them money over the long run. Transit agencies face difficult tradeoffs in ensuring efficient, reliable, affordable service while serving a diverse set of transit markets, particularly in an environment of declining revenue. The region must balance investments in growing areas where limited transit capacity

²⁶⁹ Chicago Metropolitan Agency for Planning, "Travel Patterns in Economically Disconnected Area Clusters," January 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/travel-patterns-in-economically-disconnected-area-clusters.

isn't meeting increased demand versus areas where population has been declining but residents will continue to rely heavily on transit. Reallocating scarce resources will require thoughtful, transparent, ongoing study. It is critical that these decisions include substantial community involvement and prioritize increasing affordable mobility options for low income residents, people with disabilities, and those without access to private vehicles.

All transit agencies are required by Title VI of the Civil Rights Act to consider the impact of service and fare changes on minority populations and avoid disparate impacts based on race, color, or national origin. The region's transit agencies are committed to delivering equitable and accessible transportation services. This includes making transit stations and vehicles more physically accessible to people with disabilities, as well as improving communications systems to make service navigable for those with visual and hearing impairments. All buses in the region are ADA accessible, although the immediate surroundings of many bus stops in the region are not. Likewise, all trains are accessible, but many train stations are not. The CTA is committed to making all rail stations accessible over the next 20 years as part of its All Stations Accessibility Program, but needs additional funding to achieve this goal. While many local governments have individual efforts, our region needs a coordinated effort to improve accessibility near all transit services. Policies to support equitable access must be complemented by strategies to promote coordination across public agencies, reinvestment in existing communities, and production of affordable housing near transit.²⁷⁰

Transit agencies should continue to make progress toward universal accessibility of stations.

Municipalities and counties should invest in accessible sidewalks and crossings that connect rail and bus stations to nearby destinations.

Transit agencies should continue to balance tradeoffs between achieving service efficiency and providing high quality service to lower income areas.

Transit agencies should explore and pilot new fare strategies such as fare capping or low-income fares that reduce fare burden on lower income populations and social service providers.

Plan for transit-supportive land uses

The region cannot meet its transit ridership goals without supportive development near bus and rail. Linking transit, housing, and land use was a focus of GO TO 2040 and continues to be an important part of ON TO 2050. Planning for the complex, interrelated nature of these issues can bring many quality of life and economic benefits to the region. Yet, as highlighted in the ON

²⁷⁰ Chicago Metropolitan Agency for Planning, "Transit Trends."

TO 2050 Infill and TOD snapshot report, such linkages are only being created sporadically, which limit the potential positive benefits to bus and rail transit ridership.²⁷¹ As CMAP identified in the Transit Ridership Growth Study, the region is not on track to meet the transit use goals set in GO TO 2040. Placing housing near transit is critical, but emerging research shows that placing employment near transit may have an even stronger impact on the success of transit. Planning for bus and rail transit-supportive land uses must also involve enhancing pedestrian and bike connections to transit, thereby making it easier and safer for employees and residents near transit corridors to walk or bike to rail or bus stations. Pace has established transit supportive guidelines focused on non-rail transit in suburban communities. This strategy also appears in the *Community* chapter under the recommendation to *Support development of compact, walkable communities*.

Municipalities and counties should update plans, zoning codes, and development regulations to require greater densities and mixed uses near rail stations and along high-priority bus corridors with a preference toward employment rich land uses.

Roadway agencies and municipalities should require developers to consult with transit agencies to verify that proposed developments do not negatively affect existing or planned transit service.

Municipalities and counties should prioritize capital projects that enhance pedestrian and bicycle access to rail and bus service.

Transit agencies should strategically consider new transit investments, including bus and rail stops, which further the planning and development work of municipalities and counties.

CMAP and partners should offer additional consideration when allocating federal funding sources such as CMAQ, TAP, and STP for jurisdictions that actively plan for densities to support transit service.

Actively manage parking

The amount and location of parking influences the character, form, function and flow of our communities. Too much or poorly designed parking can make walking and bicycling unpleasant and unsafe, add to flooding and pollution problems, make housing more expensive, and reduce transit use. At the same time, in some places, parking is necessary to support local businesses. Planning for parking needs and pricing parking to manage demand can support businesses, raise local revenues, and help create compact, walkable communities. Configuring parking appropriately can promote walkability and access. All day parking for employees,

²⁷¹ Chicago Metropolitan Agency for Planning, "Transit Ridership Growth Study," 2017.

http://www.cmap.illinois.gov/documents/10180/0/Transit+Ridership+Growth+Study_final.pdf/21bca990-9e7a-4af9-8ec1-6b8c8b11fd16.



commuters, or residents can compete with the short turnaround spaces needed for many retail, restaurants, and services. Communities may choose to reconfigure existing parking to meet these varying needs.

Recognizing the importance of parking management, CMAP developed a *Parking Strategies to Support Livable Communities Toolkit* that encourages communities to consider a wider array of solutions than just adding more parking.²⁷² Valuable interventions include pricing on-street parking to manage demand in dense areas, reducing or eliminating minimum parking requirements, and setting maximum parking limitations in some locations. Through the LTA program, CMAP has also helped Berwyn, Hinsdale, and Wicker Park-Bucktown develop plans to identify and implement the right parking management practices for their neighborhoods. This strategy also appears in the *Community* chapter under the recommendation to *Support development of compact, walkable communities*.

Local governments should reduce or eliminate minimum parking requirements, or set maximum parking limitations in some locations, such as near transit.

Local governments should price on-street parking to manage demand in dense areas.

CMAP should monitor the implementation of active parking management approaches around the region to understand trends, approaches, and outcomes.

Local governments, CMAP, and Metra should analyze current and future parking supply and demand at rail transit stations to evaluate the potential for alternative land uses and parking allotments to enable transit oriented development (TOD).

Road agencies should prioritize improving transit service

Significant improvements to bus service can be achieved with relatively small capital expense, presenting the most cost-effective way to expand the region's transit system, and make the most efficient use of limited space on the region's congested roadways. However, these improvements require the active engagement of roadway agencies, including IDOT, county transportation agencies, and municipal transportation departments. While these agencies are sometimes cautious to adopt transit oriented roadway improvements such as queue jumps, TSP, and dedicated transit space on roadways, such strategies have proven successful in other regions. Pilots and demonstration projects are critical for the region to educate roadway agencies about the opportunities for improving transit. Transit and highway agencies can also build on the success of Pace expressway service on I-55, I-94, and I-90 to offer additional routes and continue to provide innovative bus service options.

²⁷² Chicago Metropolitan Agency for Planning, "Parking strategies to support livable communities," 2012, <http://www.cmap.illinois.gov/documents/10180/96911/StepByStep3.pdf/39fa6452-2e19-4691-87bd-abac8b06c248>.

Road agencies should place more emphasis on investments that improve transit service, including TSP, queue jumps, and dedicated expressway and arterial right of way for transit vehicles.

IDOT, working with municipalities and transit agencies should review and revise its design manuals and permitting processes to facilitate pedestrian, transit, and bicycle improvements wherever possible.

Road agencies should involve transit agencies in early stages of project planning.

Road agencies should include design treatments in expressway and arterial projects to better accommodate transit users and make service faster and more reliable.

IDOT and the Tollway should identify ways to leverage toll revenue to pursue multimodal transportation system goals such as providing high-speed, high-reliability transit service in expressway corridors.

Make further progress in fare and service coordination

Fare coordination has improved in recent years through the Ventra system, which provides a platform for additional collaboration. With the ongoing expansion to Divvy and ADA paratransit, Ventra is taking an important step beyond core transit services. More work can and should be done to further technological and fare integration across agencies, while remaining accessible to the unbanked and others of limited means.

Transit agencies should leverage the capabilities of Ventra, continuing to provide and improve seamless payment for multiple transit providers and other modes such as bike sharing.

Transit agencies should coordinate transfers, payment, and potentially fares between their services and other modes of transportation.

Transit agencies should continue to review and revise overlapping service.

Improve the effectiveness and accessibility of demand response services

Pace oversees several demand response or “on-demand” programs, including paratransit service, which is available to eligible riders whose disability or health conditions prevent them from using fixed-route services; Dial-a-Ride, which is often but not always limited based on a person’s abilities, age, and/or income; Call-n-Ride, which is typically provided within a certain geography, such as a township or municipality; and Vanpool and rideshare programs that facilitate carpooling among people who have similar travel patterns and work hours. Counties, municipalities, townships, employers, healthcare providers, and developers also sometimes provide forms of demand response transportation for residents or clients. While ridership data

is limited for these services, ADA paratransit use in our region has grown dramatically since 2000. Demand for all of these services is likely to continue to increase as the population ages. As the region's population continues to age, improving demand response, along with transit service overall, will become increasingly critical.

Despite increasing use, this complex, overlapping network of services can be difficult for users to navigate and presents unique financial challenges for operators. Containing service areas within municipal, township, or county borders does not align with how people travel in a metropolitan area. Often, weekend, early-morning (before 9:00 a.m.), and evening (after 6:00 p.m.) services are minimal or nonexistent. Some services are limited to specific trip purposes or destinations and may not accommodate same-day travel requests. Many of these services are funded by local communities, and declining state and federal resources make these already expensive programs difficult to sustain.

New transportation technologies offer the increased ability to provide flexible, accessible on-demand options for trips that are difficult to serve by traditional fixed-route transit. The McHenry County Division of Transportation has taken a leadership role in recent years by leading the consolidation of various dial-a-ride services into a single service, called MCRide, which not only serves persons with limited mobility but also provides on-demand transportation in an area with limited fixed-truck route transit services.

The region should identify new funding sources for demand response transit service.

Transit agencies, local communities, and the private sector should work together to explore new ways to provide targeted, flexible and/or on-demand service in EDAs.

The RTA, Pace and counties should continue to help coordinate and, as appropriate, consolidate demand response services within the region.

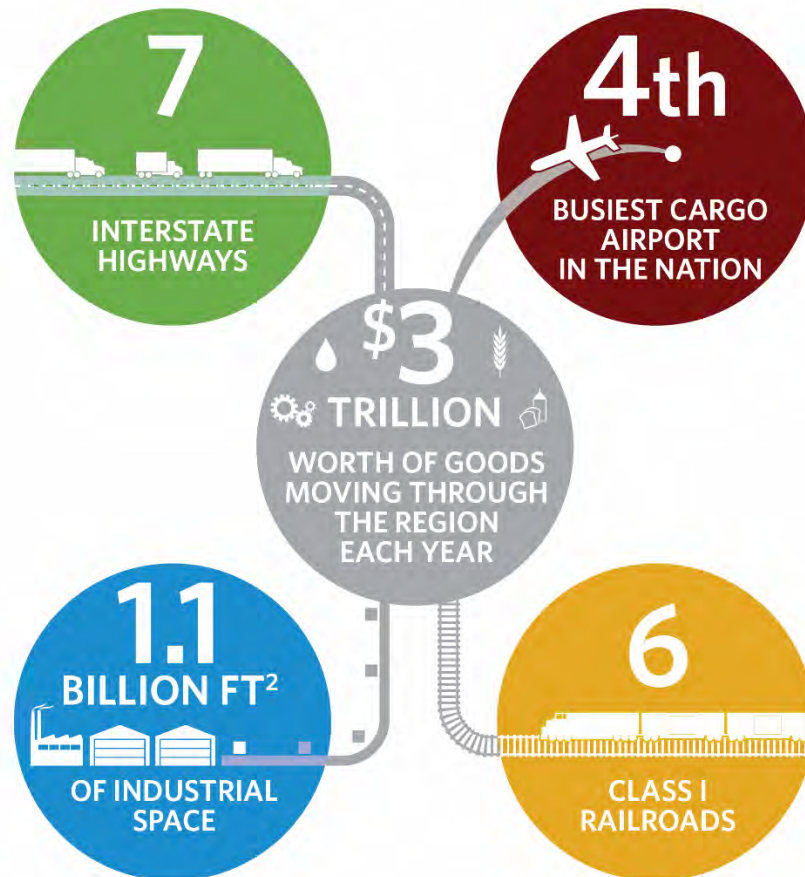
Maintain the region's status as North America's freight hub

By almost any measure, metropolitan Chicago is the nation's premier freight hub. Approximately 25 percent of all freight trains and 50 percent of all intermodal trains in the U.S. pass through metropolitan Chicago, which serves as the continent's main interchange point between western and eastern railroads. Trucks account for about one in seven vehicles on the urban interstate highways in Illinois, and some facilities in metropolitan Chicago carry over 30,000 trucks each day. The region is also home to one of the nation's largest and fastest-growing air-cargo hubs and has access to both the Great Lakes and Mississippi River maritime systems. Our region is one of the nation's largest industrial markets, with approximately 1.1 billion square feet of industrial development supporting freight and manufacturing activity. Industries that rely on the frequent shipment of goods -- manufacturing, construction, retail trade, and wholesale trade -- collectively represent over one-quarter of all jobs in the region and add over \$158 billion per year to the regional economy. Yet freight transportation is changing.

Shortened supply chains and increased online shopping are changing national and local goods movement strategies. The region must adapt to these changes while protecting quality of life and limiting public costs.

Metropolitan Chicago freight-related assets

Source: Chicago Metropolitan Agency for Planning analysis of CoStar, Transearch, Federal Aviation Administration data.



This massive concentration of freight activity in northeastern Illinois provides a competitive advantage that helps to drive the regional economy. A robust freight network also ensures that residents and businesses get the goods they need in a timely manner. However, freight activity raises significant infrastructure challenges, including congestion on road and rail networks, as well as regulatory challenges related to truck operations and local land uses. Together, these challenges affect communities' quality of life. For example, congestion results in increased emissions, affecting local air quality and health for local communities. CMAP estimates that weekday motorist delay at the region's grade crossings costs residents \$58 million annually in 2017. The ON TO 2050 target for motorist delay at highway-rail grade crossings is 6,000 hours per weekday, down from 7,511 hours in 2017 [Link to plan indicator].



With its unparalleled access to transportation facilities, the Chicago region is one of the nation's preeminent hubs for intermodal freight -- the movement of containerized cargo via multiple transport methods such as rail, trucks, planes, and ships. Over 7.8 million freight cargo containers originated or terminated here in 2016, or nearly 16.3 million twenty-foot equivalent units (TEUs), making our region the largest point of origin and termination for intermodal shipments in the U.S., outpacing other large freight hubs such as the Los Angeles, New York, and Seattle metropolitan areas. ON TO 2050 sets a target of reducing Chicago terminal carload transit time.

The growth of same-day shipping, online shopping, and faster, cost optimized supply chain management -- all enabled by new data processing and communications technology -- has pushed growth of intermodal facilities here and nationwide. But the region must find ways to support these facilities while constraining the negative impacts of increased truck and rail traffic, protecting key natural assets, and limiting the rapid, unaffordable expansion of infrastructure.

The region's truck network supports delivery of goods, movement between local freight and manufacturing centers, connection to intermodal networks, and movement to other parts of North America. Truck traffic in the region is growing due to consumer shopping trends. While ON TO 2050's list of Regionally Significant Projects identifies infrastructure improvements that benefit truck movement, there is great potential to improve the efficiency of the truck system through operational improvements. Implementing holistic strategies to smooth truck travel can reduce costs for shippers and address concerns such as local congestion, wear and tear, safety, and quality of life.

[GRAPHIC TO COME: Freight land use clusters and truck bottlenecks Local Strategy Maps.]

Effective planning for the region's freight system must involve collaboration across the public and private sectors while carefully balancing economic, livability, and infrastructure funding concerns. Freight helps the region's economy grow and helps our residents get everything from coffee to shoes; freight facilities create direct employment and also support jobs in many related industries. Freight activity also creates congestion, noise, safety, and air quality concerns. While the region's communities have often actively courted new freight development, the scale and wages of resulting jobs have not always met expectations. Although the region's counties and transportation stakeholders have recently come together to improve truck permitting, they must pursue more collaborative action on funding, policy, and project development to truly support our freight network. Existing partnerships, like the Chicago Region Environmental and Transportation Efficiency program (CREATE), have made substantive progress, but renewed efforts are needed to fully realize public benefits.

The following describes strategies and associated actions to implement this recommendation.

Invest strategically in the freight network

The region's status as a national freight hub with an extensive existing network requires coordinated investment. CREATE is a public-private partnership between freight railroads, U.S. DOT, IDOT, the City of Chicago, Cook County, Metra, and Amtrak.²⁷³ While public and private investment in CREATE has greatly improved rail movement in the region and nationwide, the effort requires continued investment with a focus on public benefits. See the recommendation *Build regionally significant projects* for more information.

In addition to freight rail projects, the region must also prioritize its roadway investments and foster new partnerships to support truck movements. Addressing the region's truck bottlenecks provides one option to reduce truck and auto congestion. The region may also need to explore new solutions for facilities that experience a high volume of truck traffic. Any infrastructure investment should be complemented by policy shifts on routing and permitting that make full use of the existing system.

Finally, while they are not part of the surface transportation network, the region's air and rail facilities are important nodes in the region's and nation's freight network. They support local development and industries, with extensive impacts on nearby road and rail movements. In many cases, the Port of Chicago and O'Hare Airport are the gateway for global commerce, so ensuring strong connections between these facilities and the rest of the region is an essential component of supporting our freight network.

The CREATE partners should complete the 75th St. CIP and then complete the remaining projects in the program.

Private rail partners should provide substantive documentation of and data supporting the public benefits of CREATE projects and continue to financially support the program.

CMAP and highway agencies should prioritize among the region's rail grade crossings and direct funds for improvement, along with study of feasibility and alternatives to separation.

CMAP and highway agencies should address truck bottlenecks in future improvements.

CMAP and highway agencies should explore truck lanes, truck-only routes, and other options to aid goods movement and reduce conflicts on the region's expressway network.

²⁷³ Chicago Metropolitan Agency for Planning, "CREATE program status check," February 20, 2015, <http://cmap.is/1JCKVha>.



CMAP, highway agencies, and rail partners should enhance freight connections to the region's port and airport facilities.

Develop a unified regional approach for freight transportation issues

Our region's freight network depends on careful, well-funded investment to ensure economic prosperity here and nationally. Coordinating regional action to obtain and prioritize new federal dollars for freight infrastructure is especially critical. CMAP and its partners have developed a strong regional voice on freight, working to address truck permitting issues, advocating for federal funds, and building coalitions to implement major projects such as the 75th St. CIP. CMAP and its partners should continue this momentum to change federal, state, and local policies and support coordinated investment in the region's freight network.

In 2017, CMAP's Regional Strategic Freight Direction established a programming framework to define the best use of limited capital funds for freight.²⁷⁴ It is especially timely given the growing federal and state emphasis on freight infrastructure needs. Enacted in late 2015, the current federal transportation law, the Fixing America's Surface Transportation (FAST) Act, provides the first-ever dedicated funding for freight improvements.²⁷⁵ This program is currently referred to by the U.S. DOT as the Infrastructure for Rebuilding America (INFRA) program, and it and other competitive federal programs offer significant resources to support large, complex projects with broad impact on speeds and volumes of goods movement. Regional consensus and action have the potential to attract broader investment; the U.S. DOT looks favorably on projects with broad regional support, and by limiting the number of proposals submitted by metropolitan Chicago and Illinois, our region and state can increase the likelihood of success. Released this year, the Illinois Department of Transportation Freight Plan identifies the major bottlenecks across the state, including those in northeastern Illinois.²⁷⁶ IDOT's recently released competitive freight program makes strides to improve performance-based evaluation of freight project applications across the state.

CMAP and partners should pursue stable and sustainable funding for the region's freight network.

CMAP and partners should create a process to develop, coordinate, and prioritize responses to federal freight funding opportunities such as INFRA.

²⁷⁴ Chicago Metropolitan Agency for Planning, "Regional Strategic Freight Direction," February 2018, <http://www.cmap.illinois.gov/documents/10180/826017/FINAL+Regional+Strategic+Freight+Direction+with+cover+2-6-18.pdf/88a957e1-249b-4b54-d093-f53b144ee102>.

²⁷⁵ Chicago Metropolitan Agency for Planning, "Congress passes transportation reauthorization bill," December 4, 2015, <http://cmap.is/1IBWD16>.

²⁷⁶ Illinois Department of Transportation, "Illinois Department of Transportation Freight Plan," October 2017, http://www.idot.illinois.gov/Assets/uploads/files/Transportation-System/Reports/OP%26P/ILFreightPlan_FINAL.pdf.



IDOT should use performance-based programming for freight formula funding sources such as the National Highway Freight Program.

Focus on improving local and regional truck travel

Freight has regional and local transportation, land use, and economic impacts. One clear opportunity is to improve truck routing through the region. While state law allows local governments to designate truck routes or determine preferred truck routes, many communities instead designate only where trucks cannot go.²⁷⁷ Local restrictions based on truck type, weight, and dimensions often change at jurisdictional borders, adding complexity to routes, prompting trucks to make turns and diversions to alternate routes when moving between municipalities. Drivers must individually verify each jurisdiction's truck restrictions, as these local restrictions are not reported to a centralized public or private database. Although intended to limit noise, wear and tear, and other negative impacts of truck traffic, communities' restrictions can in fact exacerbate such problems due to inconsistency and lack of coordination.

Working across jurisdictions can help maintain the Chicago region's national freight stature while mitigating negative impacts and maximizing benefits for communities. Despite our region's formidable overall freight profile, most activity tends to occur in a relatively small number of locations linked by the region-wide transportation network.²⁷⁸ Freight-intensive land uses tend to co-locate for efficiencies of shared infrastructure and workforce.^{279, 280} Through their collaboration on economic growth initiatives, leaders of the seven counties in northeastern Illinois and the City of Chicago have identified truck permitting as a key opportunity for inter-jurisdictional cooperation. These regional leaders completed the Regional Truck Permitting

²⁷⁷ There are three primary classes of truck routes in Illinois: Class I, Class II, and Locally Preferred Truck Routes. Class I and Class II truck routes are associated with certain restrictions on the size and weight of trucks, allowing access to trucks with 53-foot trailers or containers. Class I truck routes generally consist of the expressway system, but also have the effect of permitting truck access to streets within a mile of an expressway interchange (unless otherwise restricted). Class II routes include major state highways as well as local roads that have been designated by local ordinance as a truck route. Finally, Locally Preferred Truck Routes include only truck routes administratively identified by local governments and are not considered a designated truck route; they have no effect on permitted truck size and weight. Illinois also has Class III truck routes, but the legal effect of these has been made mostly moot by recent legislation increasing legal loads to 80,000 pounds (PA 96-0034 and PA 96-0037).

²⁷⁸ Chicago Metropolitan Agency for Planning, "Freight Land Use Clusters in Northeastern Illinois," accessed March 29, 2018, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/freight-land-use-clusters-in-northeastern-illinois.

²⁷⁹ Chicago Metropolitan Agency for Planning, "Memorandum: Freight Land Use Topics," May 16, 2016, http://www.cmap.illinois.gov/documents/10180/541045/Freight+Committee_freight_land_use.pdf/dd64eef8-1ce4-43eb-9b60-855853fe1fba.

²⁸⁰ Chicago Metropolitan Agency for Planning, "Memorandum: Local Approaches to Freight Planning in Metropolitan Chicago," December 4, 2017, http://www.cmap.illinois.gov/documents/10180/787934/Freight+Committee_local+freight+plans_20170918.pdf/e0746a65-5144-1ee2-f9d1-07afb8af672b.



Study,²⁸¹ funded by numerous partners including the counties, City of Chicago, IDOT, and CMAP. Local restrictions represent another opportunity. Oversize and overweight permitting must be complemented by streamlined local routes that support movement of regularly loaded trucks. A recent LTA project in the O'Hare subregion offers one example of working across jurisdictions to create consistent truck routes, limiting truck traffic in residential and sensitive areas while still providing connected and consistent routes.²⁸²

Local governments should work with businesses to implement policies that improve delivery management in urban areas, including encouraging off-hours deliveries.

Local governments should take a proactive approach to designating truck routes and reevaluating truck restrictions.

IDOT should review truck route designations for state-jurisdiction highways to provide a well-developed backbone of Class I and II truck routes that local governments can incorporate into their planning efforts.

Counties and local government should coordinate oversize and overweight permitting across jurisdictions and ensure they are consistent with the state permitting process.

The state and counties should provide easier access to information on truck routing and restrictions as well as oversize and overweight permitting processes.

CMAP should study the transportation and land use impacts of emerging freight distribution strategies to develop policies, data, and best practices for addressing these impacts.

CMAP and transportation providers should collaborate with O'Hare, Midway, and the Port of Chicago to facilitate surface transportation access to and supportive land use planning around these facilities.

Mitigate the negative impacts of freight on adjacent areas, particularly economically disconnected areas

While providing broad economic benefits, freight activity can have adverse impacts on communities. Truck and rail traffic can cause noise, congestion, air quality, and other negative impacts. Trucks cause heavy wear and tear on locally maintained roads, and at-grade rail

²⁸¹ Chicago Metropolitan Agency for Planning, "Regional Truck Permitting Plan," <http://www.cmap.illinois.gov/programs-and-resources/lta/regional-truck-permitting>.

²⁸² Chicago Metropolitan Agency for Planning, "O'Hare Subregion Truck Route Plan: Recommendations and Action Plan," 2017, http://www.cmap.illinois.gov/documents/10180/487146/Final_CMAP+OHare+Subregion_Task5+Action+Plan_6-29_17_v2.pdf/5bb4a092-b0ad-48d7-96b6-027fb6fc3105.



crossings can cause delays for motorists as well as difficulty in routing emergency services. Many freight and industrial facilities also generate low returns from the property taxes and other fees that municipalities can enact, creating a gap between the cost to provide supportive infrastructure or services and the revenues generated. These cumulative factors often make freight a locally unwanted land use.

The negative impacts of freight activities are of particular concern in EDAs, which have large concentrations in major freight activity centers such as the O'Hare area, the South and West sides of Chicago, the south Cook suburbs, and the Joliet area in Will County. The close correspondence of freight activity centers and EDAs is perhaps unsurprising. The result is often lower property values for neighboring residential areas, which in turn are more affordable to low income populations. There are many potential environmental justice concerns related to goods movement. In practice, responding to these concerns should be a project- and community-specific effort that actively engages residents and responds to local needs.

CMAP and partners should continue to identify and provide solutions for mitigating the negative impacts of freight on adjacent development.

CMAP, highway agencies, municipalities, and other partners should balance quality of life concerns with economic impacts when investing in freight development and infrastructure.

Transportation agencies should consider additional outreach, analysis, and mitigation activities for freight-related improvements in EDAs.

CMAP and transportation implementers can prioritize projects that improve quality of life, such as reducing truck bottlenecks and separating at-grade rail crossings that cause high levels of delay.

CMAP should give additional weight in the CMAQ, TAP, and STP programs to road and rail projects that address freight-related environmental justice issues.

CMAP and transportation funders should continue to seek the most comprehensive air quality data available, perhaps based on observed or modeled asthma rates or other indicators of respiratory distress, for use in making transportation investment decisions.

Assess the local and regional impacts of proposed major freight facilities

Goods movement infrastructure has far-reaching impacts on other modes of transportation, development patterns, local and regional economies, local quality of life, and the environment, so proposed new facilities generate numerous planning questions. While many types of freight

development or infrastructure are being developed throughout the region, “major freight facilities” are sufficiently large to affect many jurisdictions, including developments such as large intermodal truck-rail facilities, sizeable new rail facilities, mergers and acquisitions among Class I railroads, and major new airport and seaport facilities. These facilities can generate significant amounts of truck and rail traffic, induce major real estate developments, and require significant new public investments in supportive infrastructure. Often these facilities are inaccessible even to nearby job seekers who lack access to cars and can exacerbate walkability issues in a community. While a single local, state, or federal entity may be responsible for permitting a proposed facility, proposals that affect many neighboring and overlapping jurisdictions must be evaluated for their broader impacts. The Regional Strategic Freight Direction includes principles to guide evaluation of major freight facility proposals. Although CMAP has no authority over local land use, federal decisions on railroad mergers, and similar initiatives, the agency can leverage its analytical and planning strengths to aid planning and implementation for major freight facilities.

CMAP should analyze new freight facilities to assess their regional impacts.

Municipalities should collaborate with *CMAP*, *IDOT*, *adjacent jurisdictions*, and *other partners* when reviewing the needs, benefits, and impacts of large new freight developments.

Employers in the freight industry should work with transit agencies and municipalities to ensure appropriate transit, bicycle, and pedestrian access for employees.

CMAP should support *municipalities* in incorporating the major freight facility principles into their planning and development decisions.

Municipalities, *IDOT*, *private railroads*, *developers*, and *others partners* should collaborate with affected jurisdictions to assess the needs for and impact of major freight facilities.

A system that works better for everyone

Improving safety, resilience, and equitable access to the transportation system has long been a focus of transportation planning. Transportation implementers have made progress in collaborating across jurisdictions to ensure better results both locally and regionally, but only through concerted, coordinated effort can we holistically improve the transportation system for all users. This includes wide ranging and interconnected issues such as bicycle and pedestrian safety, access to economic opportunity for low income and minority residents, and the adaptations necessary to respond to a changing climate. CMAP and its partners should emphasize these factors in making decisions about the transportation infrastructure that is central to economic prosperity and quality of life across all seven counties and 284

municipalities of metropolitan Chicago.

Leverage the transportation network to promote inclusive growth

In metropolitan Chicago, black and Hispanic residents experience persistent disparities in employment, health, educational attainment, and income. These negative outcomes are worst for black residents, who also endure longer commutes than residents of other races or ethnicities. These residents are more often transit dependent, yet many must commute to jobs located far from frequent transit service. At the same time, these same residents tend to have limited employment opportunities within their own communities. Challenges are compounded for residents with disabilities, who have an unemployment rate that is twice that of those without disabilities. A significant number of people with disabilities cite lack of transportation as a barrier to employment.²⁸³

Analysis shows that high levels of economic inequality are limiting our region's ability to grow. Long-term regional economic prosperity requires that we address these issues and take action to increase opportunity and improve quality of life for all residents. Transportation can play a role in creating pathways to opportunity for low income communities and people of color. Working with stakeholders, CMAP has identified EDAs to focus planning efforts and policy recommendations. Many residents of EDAs have limited options for transportation that would efficiently connect them to economic and other opportunities. This is particularly true for residents living in EDAs in the city of Chicago, where access to transit options does not always ensure access to jobs within a reasonable travel time. CMAP research shows that just 9 percent of residents in South and West side Chicago EDAs are employed nearby, compared to the economically connected areas of the city where 72 percent of residents live near their jobs.²⁸⁴

Low income residents in the Chicago region use all modes of transportation to get around and are more likely to use active modes of transportation to get around than higher income residents. It is especially important to ensure equitable access to safe pedestrian and bicycle pedestrian facilities for low income residents.

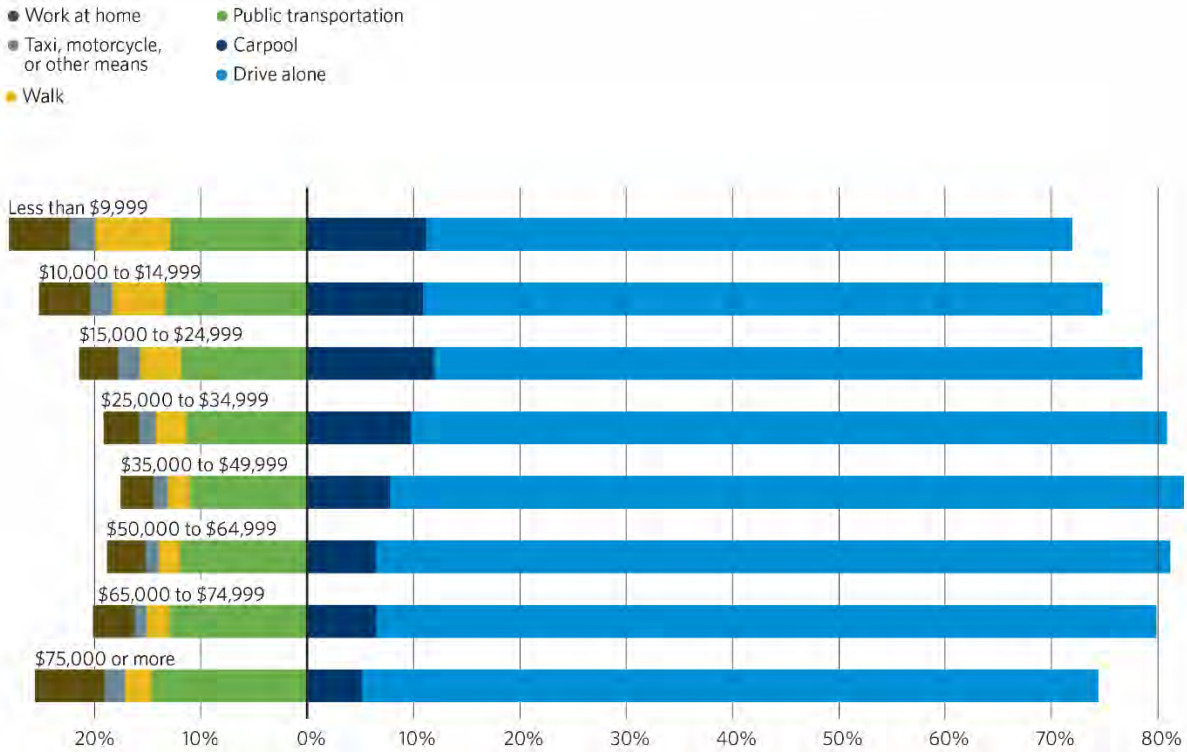
²⁸³ U.S. Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics Summary," 2017, <https://www.bls.gov/news.release/disabl.nr0.htm>.

²⁸⁴ Chicago Metropolitan Agency for Planning, "Travel Patterns in Economically Disconnected Area Clusters."



Mode share by worker earnings, CMAP region, 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2010-2014.



Meaningful progress toward achieving increased access to opportunity can only happen with intentional coordination among public and private actors to leverage technology, improve outreach and engagement, and direct transportation investments where they can have needed impacts.

The following describes strategies and associated actions to implement this recommendation.

Increase authentic, responsive engagement of underrepresented communities in planning and development

The state of the practice for outreach and engagement in transportation planning and programming processes has advanced significantly beyond 30-day public comment periods, one-time public hearings held in government offices, and public notices posted only in newspapers and on public bulletin boards. Technology has enabled new pathways for residents to connect with the people responsible for the transportation system, but many people continue to experience barriers to productively engaging with the public planning processes.

The demographics of those engaged in planning processes may not necessarily reflect the demographics of the affected community; often low income residents have work schedules that

make participation in traditional planning processes difficult. Also, low income communities, people of color, and immigrants have valid and historic reasons to limit their exposure to government. And while the digital divide has narrowed in recent years, some populations continue to have inadequate Internet access. Therefore, it is increasingly important that CMAP and other transportation agencies redouble their public engagement. Practices to emphasize include exploring and deploying new culturally relevant outreach methods to assess the transportation-related needs, values, and attitudes among low income communities, people of color, and immigrants; allowing for more localized ownership of the planning process; and establishing performance measures that track progress toward reflecting community demographics. CMAP can leverage its role as a convener to collaboratively develop and disseminate improved practices in the region.

Build capacity for disinvested communities to develop, fund, and maintain transportation infrastructure

Some parts of the region were left behind by growth over many decades, often having lost substantial population, jobs, businesses, and resources. Promoting growth in these areas will require collaborative and comprehensive investment at all levels of government and civic organizations. Disinvested areas fully encompass the EDAs defined within ON TO 2050, while also including adjacent commercial and industrial areas that have experienced a loss of economic activity over sustained periods of time.

The local governments that serve disinvested areas tend to have lower staff and technical resources, due to lower tax bases and fewer financial resources available. This impairs their ability to maintain existing infrastructure and to access regional and federal transportation resources for reconstruction and improvement projects. Accessing these public resources requires not only matching local funds, but also significant and costly predevelopment investments such as feasibility studies and engineering, which may make projects infeasible for some low capacity municipalities. These communities also tend to have higher concentrations of low income households and people of color, further increasing disparities in transportation infrastructure.

Transportation funders should develop creative approaches to removing the financial barriers that prevent disinvested areas from accessing some transportation funding programs.

CMAP and partners should develop materials and trainings to help municipalities understand how their land use and transportation investment choices affect local revenues, user costs, and long-term maintenance expenses.

To overcome a lack of data and technical capacity to implement asset management, *CMAP and partners* should assist with transportation data collection and asset management pilot projects, eventually expanding to a region-wide program.

CMAP should research best practices and leverage its growing resources on age and condition of the region's infrastructure to develop methods for municipalities to assess mid- and long-term impacts of major or cumulative development processes.

Improve commute options between disinvested areas and employment, education and training, and service opportunities

While investing in frequent service on high ridership corridors, transportation agencies must also find ways to improve mobility for low income residents and communities in areas with limited transit service or travel needs that are not well served by traditional transit options. Shared mobility and automated vehicle technologies have the potential to provide more frequent and direct service in low income neighborhoods, improving connections to jobs that may currently require long transit trips or connecting multiple modes. In some cases, the most effective mode of travel may be a personal automobile, and transportation implementers should consider ways to ensure equitable access to tolled facilities. For example, The Tollway developed I-PASS Assist to help income-eligible drivers to easily and affordably obtain an I-PASS. I-PASS Assist works like a standard I-PASS account, but allows eligible drivers to purchase at a discount of \$20. *CMAP* can play a role in identifying gaps in the transportation system for economically disconnected communities, and work with public transit agencies and private sector partners to identify solutions.

Transit agencies should continue to work with local communities and the private sector to develop pilot projects that explore new methods of providing targeted, flexible and/or on-demand services that connect EDAs to suburban job centers and other destinations.

CMAP should take a leadership role to identify gaps in the transportation system for economically disconnected communities, articulating the individual, local, and regional growth benefits of better transportation connections and targeted infrastructure investments.

IDOT and the Tollway should implement policies that ensure equitable access to tolled facilities, such as "lifeline credits" that make a certain amount of toll credits available each month for lower income drivers.

Improve access to public rights of way for pedestrians, cyclists, and people with disabilities

People who rely on walking, bicycling, or wheelchairs need accessible pathways. Especially in suburban areas, low income residents are more likely to rely on low-cost modes than higher income residents to reach employment, services, and other destinations. When bicycling facilities and sidewalks are in need of repair, are missing, or are not designed for people with disabilities, they limit employment and other options for engagement in the community.



Facilities must safely connect these communities to jobs, amenities, and the region's growing bicycle network.

Making sure that public rights of way provide safe pathways for people using active transportation and people with disabilities is an important strategy for inclusive economic growth. While the U.S. Access Board continues to finalize federal Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) as proposed in 2011, U.S. DOT recognizes PROWAG as current best practice that some states have already begun incorporating into their own design manuals and other regulatory documents.

CMAP and IDOT should develop expertise in self-evaluations and transition plans for public right of way accessibility, and provide technical assistance to local communities.

IDOT and local agencies should ensure that sidewalks, pedestrian crossings, and bicycling facilities are as available and maintained as adequately in low income areas as in more affluent areas.

Transportation agencies should work in consultation with people with disabilities and the public agencies and NGOs representing their interests to ensure appropriate, inclusive accommodations are provided in all projects.

As part of project evaluation for bike and pedestrian investments, *CMAP and other funding agencies* should measure benefits to low income communities, people of color, and people with disabilities.

Transit agencies should continue to make progress toward universal accessibility of stations and work with local municipalities, counties, and the state to ensure accessible pathways to transit.

Assess the health impacts of substantial transportation and development projects

Health Impact Assessments (HIAs) are powerful tools for making informed decisions that improve public health through community design that can positively affect health equity. While Environmental Impact Statements have become standard procedure for making sound development decisions and protect environmental interests, HIAs are still underutilized in project selection and development. Effective use of HIAs highlights how specific developments affect health in certain populations, helping to address health inequities by prioritizing key transportation and infrastructure projects in disinvested communities. CMAP and partners should develop materials and trainings for local governments looking to conduct HIAs that use health equity concepts and goals in the planning and development processes of major transportation and infrastructure projects.



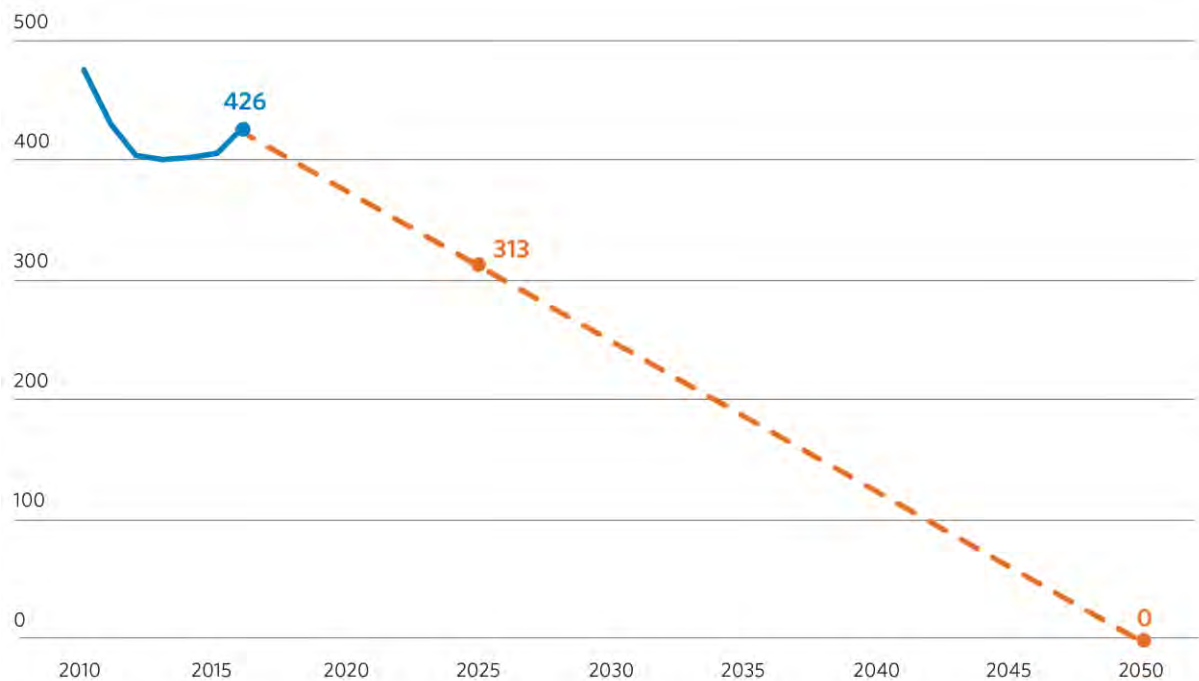
Improve travel safety

Perhaps the most fundamental duty of any transportation provider is to protect the safety of those in the public right of way. Traffic deaths are preventable. NHTSA identified driver behavior as a factor in 94 percent of crashes nationally, and in the Chicago region, it is the most often-cited primary cause of fatal and serious injury crashes. The region should embrace a full range of strategies to eliminate all traffic related fatalities by 2050. Strategies that improve safety can also reduce congestion and improve the reliability of the transportation network.

Number of traffic fatalities, CMAP region

Source: Chicago Metropolitan Agency for Planning analysis of crash report data from the Illinois Department of Transportation.

- Actual (5-year average)
- Target



After declining for several decades, traffic fatality rates in the region began creeping upward in 2010 and spiked in 2016. This increase is likely due to a combination of factors, including increased commuting due to a sustained economic recovery, as well as increased use of devices while driving. New vehicle safety technologies -- including crash avoidance, lane keeping, and potentially even fully connected and automated vehicles -- can have a substantive impact on roadway safety, even at relatively low fleet penetrations of these technologies. But the recent uptick in fatalities demonstrates the need to continue investing in other strategies under the control of local communities, including leveraging technology to improve incident detection and management.



The most effective safety strategy for reducing fatalities is changing roadway design to reduce speeding and protect pedestrians and cyclists, who are the most vulnerable users of the transportation network. Higher speeds increase the likelihood of serious injuries or deaths, especially in the case of pedestrian and bicycle crashes. Data suggests that bicycle and pedestrian serious crash rates are increasing faster than those for vehicle occupants. National and statewide analyses also indicate that areas with higher concentrations of people of color, low income, and senior populations have higher serious and fatal crash rates than other areas. According to the National Complete Streets Coalition and Smart Growth America, blacks in Illinois constitute 14.2 percent of the population and 24.1 percent of pedestrian deaths. Communities with safe bicycle and pedestrian facilities that connect residents to desired destinations provide residents with additional options to meet their daily needs. Active modes of transportation represent a growing share of trips to work in the city of Chicago, but there has been a slight decline in suburban areas. Unfortunately, data is not available on other kinds of trips, which often are of shorter distance and more conducive for active transportation.

[GRAPHIC TO COME: An illustrated graphic will show impact of speed on pedestrian fatalities.]

Enforcement plays a role in changing driver behavior and improving safety. However, enforcement programs need to be designed carefully and with significant community input, particularly in low income and minority communities. The disproportionately high rates of serious injuries and fatalities in these areas must be addressed, as must community concerns about racial profiling, use of force, and disproportionate impacts of traffic fines.

The following describes strategies and associated actions to implement this recommendation.

Continue to update roadway designs to reduce speeding and crashes

To significantly reduce the number of pedestrian and bicyclist fatalities, CMAP and partners should prioritize areas that would benefit most from improved infrastructure that includes design interventions and reduced speed limits. Such areas may have high crash rates, concentrated destinations, many people walking or biking, and lower rates of vehicle ownership. Some road designs, including roundabouts, access management strategies, and grade separations can reduce conflicts between vehicles and pedestrians and reduce the delay caused by turning vehicles. A few examples of these designs have been constructed in the CMAP region, but their implementation could be broadened, while still assuring that the designs are appropriate for a given site.

Pedestrian countdown signals, better road markings, protected left turn phases, designs that reduce left turn speeds, traffic calming treatments, and accessible pedestrian signals will all improve the safety of pedestrians at intersections. Engineering can also make driving safer for older drivers, who are anticipated to be on the roads in larger numbers by 2050. Where appropriate, roadway redesigns or “right-sizing” that decrease vehicle speeds and allocate

space to pedestrians and bicyclists can maintain appropriate levels of vehicular throughput while making roads safer for all users. CMAP preliminarily identified road segments in the region that could be candidates for right-sizing. This is a planning-level analysis and more thorough engineering study would be needed before implementation.

CMAP should develop policy guidance to help communities conduct corridor planning that prioritizes roads for traffic calming, pedestrian and cyclist safety improvements, and transit priority.

IDOT should require that all phase I engineering studies include Highway Safety Manual-based estimates how much each design alternative reduces crashes.

IDOT, working with municipalities and transit agencies should review and revise its design manuals and permitting processes to facilitate pedestrian, transit, and bicycle improvements wherever possible.

CMAP should assist low capacity municipalities with analysis of crash data and implementation of safety improvement and traffic calming projects.

Highway agencies should implement alternative intersections and right-sizing, where appropriate, to reduce turning conflicts.

CMAP and IDOT should identify facilities with potential to reallocate roadway space for bicycle and pedestrian infrastructure and/or Complete Streets initiatives.

Invest in safe bike and pedestrian pathways to desired destinations

Walkable communities and safe, connected networks for bicycling can reduce the number of automobile trips, reduce vehicle miles travelled, and improve the overall performance of the transportation system. Although significant progress has been made in building out the regional greenway and trails network, most destinations for shorter, functional trips, such as to work, shopping, and social gatherings, are not accessible by off-street paths alone.

While on-street facilities can put cyclists in conflict with motorists, recent improvements in design and engineering can reduce these conflicts and respect local character. Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for all anticipated roadway users, regardless of their age, abilities, or mode of travel. Complete Streets can improve quality of life in a variety of ways. The State of Illinois was one of the first states to adopt a Complete Streets policy in 2007, and now 37 governments and agencies in our region have adopted such a policy. CMAP has also developed a Complete Streets Toolkit with guidance for local governments interested in adopting a policy. Many of the region's roadways that could be safest and most attractive to cyclists are also under municipal or county

jurisdiction. These local governments should adopt Complete Streets policies as a first step to increasing options for active transportation and making public rights of way accessible to all users.

CMAP and partners should implement the Regional Greenways and Trails Plan.

Counties and municipalities should continue to adopt and implement Complete Street policies.

CMAP and partners should encourage local agencies to engineer and develop on-street bikeways that increase access to functional destinations.

CMAP should prioritize investment in bicycle projects that improve access to functional destinations.

Improve incident detection and management

The region, working with system operators and municipal, county, and state police, should establish a goal and develop strategies to reduce the amount of time roads are closed due to crash investigations. Improving incident management is a high priority because it improves safety and reduces congestion. Some serious highway incidents require hours to clear. Nationwide, approximately 20 percent of all incidents are secondary ones caused by the congestion and disruption of a previous incident.²⁸⁵ Shortening their duration reduces the potential for additional incidents. Each incident presents an opportunity to reduce congestion through earlier detection and verification, faster response, and adherence to quick clearance principles. Unlike other highway operations activities, incident management is largely managed by a public safety agency, with the transportation agency playing a supporting role. While much of the work to improve performance falls upon the public safety agencies, transportation agencies can also take steps such as implementing automated incident detection methods, either with traffic cameras or real-time GPS probe data. These technologies can be and are being incorporated as part of broader traffic operations projects (see the *Coordinate traffic operations region-wide* strategy). For example, the Jane Addams Memorial Tollway (I-90) has been reconstructed to include flexible infrastructure to enable the Tollway to add new “smart” features, such as roadway cameras that enhance the Tollway’s ability to respond to traffic and weather incidents and enable transit to bypass incidents using the flex lane.

IDOT and the Tollway should continue to expand investment in the use of traffic cameras or other sensors with automated incident detection capabilities on the interstates.

²⁸⁵ Federal Highway Administration Office of Operations, “Traffic Incident Management,” April 2004, http://ops.fhwa.dot.gov/aboutus/one_pagers/tim.htm.



Local governments should explore feasibility of real-time probe data and closed-circuit television cameras at critical locations.

IDOT should continue to implement its Traffic Incident Management (TIM) training for local public safety agency personnel.

Transportation agencies should work with public safety agencies to investigate and implement strategies to improve the clearance time for major incidents.

Expand regional data collection and analysis on safety to support programming decisions

Federal regulations require the MPO to assume a greater role in improving traffic safety. CMAP is required to plan and program transportation funds for meeting safety targets that are set annually by the state DOT and MPO. One way to achieve this is to incorporate safety performance as a higher priority in transportation project selection for federal funds, ensuring that this vital aspect of transportation receives adequate consideration.

To have a data-driven approach to improving traffic safety, crash data need to be available in a timely manner. Annual state crash data have typically been released about nine months after the end of the year, but recently it has taken longer for IDOT to provide this data to the various agencies that need crash records for their analysis. It can be especially difficult to quickly observe whether safety improvements are working. Three years of data are typically required for analyses, which may take five years to obtain after an improvement.

CMAP and partners should work together to hasten data availability through electronic reporting and improved data definitions and standards.

CMAP and IDOT should continue to develop and share data-driven crash analyses highlighting safety initiatives that communities can implement to make their roads safer for all users.

CMAP should track implementation of state Strategic Highway Safety Plan strategies in the greater Chicago area, identify barriers, and develop methods to address them.²⁸⁶

CMAP should more thoroughly incorporate safety benefits in projects for CMAQ, TAP, and STP funding.

²⁸⁶ Illinois Department of Transportation, "Illinois' Highway Safety Plan 2018," June 2017, <http://www.idot.illinois.gov/Assets/uploads/files/Transportation-System/Reports/Safety/HSP/Illinois%202018%20Final%20HSP.pdf>.



Improve driver training and equitable traffic safety enforcement policies

While improving roadway design is the most effective way to change driver behavior and improve safety, enforcement and education programs can play a supporting role in reducing fatalities and serious injuries. To change drivers' behaviors in the region, CMAP should emphasize education programs as an alternative to fines and support safety training options for drivers that receive a citation involving speeding or aggressive driving. Automated speed enforcement (ASE) through speed cameras is an effective tool that should be used more widely in the region. A review of ASE programs found fatality reductions of 17 to 71 percent. ASE can free law enforcement personnel to focus on other issues and also limits the danger of escalation from routine traffic stops. Currently, however, only the City of Chicago is authorized under state law to use ASE. IDOT can currently only use ASE in work zones.

Increasing traffic safety enforcement is complex issue because of its historically disproportionate impact on low income and minority communities. Traffic fines can become a major source of debt and a barrier to employment for low income residents. On the other hand, higher numbers of pedestrian and bicycle crashes occur in low income, minority communities. A limited, partial solution may be automation, which allows for traffic law enforcement while minimizing additional police interaction. It is critical to have a credible analysis of the equity impacts of the locations and numbers of potential violations from automated enforcement. Enforcement programs should be designed with equity as a crucial element, with the goal of reducing safety disparities in minority and low income communities while also avoiding disproportionate financial burden on these same communities. Funds collected from enforcement in these communities should be directed back into locally identified safety improvements.

CMAP should assist in analyzing the impacts of automated enforcement in the Chicago region.

CMAP and partners should support outreach and safety education programs in the region.

The General Assembly should broaden permissions for IDOT, the Illinois State Police, the Tollway, and municipal and county agencies to implement automated speed limit enforcement programs, and agencies should work to develop automated enforcement programs.

Improve resilience of the transportation network to weather events and climate change

A resilient transportation network can continue to provide seamless mobility even in the face of a changing climate. Inclement weather is currently estimated to cause 15 percent of congestion, increasing the number of crashes and delays and reducing road capacity. Approximately half of the days in a typical year have weather conditions that affect driving and contribute to road

closures, traffic slowdowns, transit delays, crashes, and damage to electronic devices such as traffic lights, message signs, and cameras. These disruptions affect drivers, transit users, pedestrians, and cyclists, and the region's most vulnerable residents are particularly affected by disruptions to the transit network. Climate change is already causing more frequent road flooding, snow storms, and heat- and cold-related pavement and communication failures. These capacity and performance issues are only expected to worsen.

As road and transit systems modernize, the same technologies that can improve system safety and reliability can make the system more responsive to weather events. The expansion of intelligent transportation system (ITS) devices and traffic management capabilities will support a variety of weather responsive traffic management strategies, such as instituting variable speed limit systems to reduce speeds during inclement weather, coordinating traffic signal timing that reflects the slower speed of travel in corridors during bad weather, employing alternative signal plans to support detours, and increasing coverage of emergency vehicle patrols to remove disabled vehicles more quickly. Existing regional strategies to mitigate impacts include traveler information and alerts, weather advisories, vehicle restrictions such as banning trucks during high winds, road closures for flooding or drifting snow, anti-icing/deicing road surface treatments, plowing, and pumping water from flooded locations.

The following describes strategies and associated actions to implement this recommendation.

Adapt vulnerable transportation infrastructure to be responsive to weather events and climate change

Most of the region's roads were designed using standards that pre-date the increased number of freeze-thaw cycles, heavy rain events, and hotter, wetter conditions posed by the region's changing climate. Transportation modernization efforts should promote infrastructure that is built or retrofitted to revised design standards that take the anticipated climate of the region into account. Identifying locations at risk of flooding and then retrofitting these locations to handle current and future rain events can help maintain regional and local mobility, appropriately balance increased up-front costs with risk, and ensure that investments are built to last. The RTA, IDOT, and several county transportation agencies are already working to identify portions of the existing transportation system that are vulnerable to flooding and incorporating solutions into their long-range capital plans or operational response plans.

At the local level, municipalities must also address the vulnerability of their streets to flooding and other climate change impacts. Through the LTA program, CMAP could assist communities in vulnerability assessments to help inform capital improvement plans and corresponding design considerations. As new information on precipitation trends evolve and floodplain maps are updated, the local and regional vulnerability assessments should be updated periodically to reflect changing conditions. While the above assessments will help identify existing assets at risk of flooding, the region also should work to avoid expanding new streets and highways into flood prone areas. Avoiding road construction in floodplains may not always be possible; where necessary, such roads must be designed with future climate conditions in mind.

CMAP and transportation implementers should conduct studies to determine the vulnerability of transportation infrastructure to climate change impacts and design projects to accommodate the projected precipitation during its designed lifespan.

CMAP and partners should conduct a regional climate vulnerability assessment of the transportation system to inform long-range transportation planning and programming.

CMAP should develop a regional pavement flooding reporting system to help plan for flood events.

CMAP should incorporate climate resilience criteria into transportation programming processes.

State and local infrastructure agencies should review and update design manuals to ensure that the underlying climate data being used is up to date.

CMAP and partners should support continued efforts to integrate stormwater management into land use and transportation planning projects.

Improve stormwater management in transportation projects

As the intensity and frequency of storm events increases with climate change, the region will need strategies to better integrate stormwater management into transportation planning and design. Best practices often include drainage improvements that increase detention capacity or promote infiltration, as well as a series of protective measures to reduce exposure to flood waters. Recently, the FAST Act expanded the scope of statewide and metropolitan transportation planning processes to reduce or mitigate stormwater impacts of surface transportation.²⁸⁷ This provision could enhance how stormwater management is addressed in overall planning efforts as well as individual surface transportation projects. Recent updates to the Surface Transportation Program (STP) program now incentivize the use of green infrastructure to manage stormwater.²⁸⁸

Currently, highway and street design and reconstruction requirements do not reflect county-specific stormwater management goals or practices. Instead, they follow state design guidelines, which can limit the ability to implement green infrastructure and other innovative solutions or tailor design to local context and needs. Public rights of way often present good opportunities

²⁸⁷ 23 U.S.C. 135 (d)(I) and 23 CFR 450.306 (b)(9).

²⁸⁸ Chicago Metropolitan Agency for Planning, “Memorandum of Agreement between the City of Chicago and the CMAP Council of Mayors regarding the distribution and active program management of locally programmed surface transportation block grant funds under the Fixing America’s Surface Transportation Act,” October 11, 2017, <http://www.cmap.illinois.gov/documents/10180/127961/2017+STP+Agreement.pdf/6b800a21-59fb-b538-a1c9-fa1342765355>.

for green infrastructure. Many of our existing streets experience flooding due to development patterns in the surrounding area, particularly in communities developed prior to modern stormwater management standards. Street flooding could be addressed through infrastructure retrofits in surrounding neighborhoods instead of within constrained rights of way. Projects that comprehensively address stormwater management solutions can improve the performance of our transportation system while also reducing flooding damages in nearby neighborhoods. This strategy also appears in the *Environment* chapter under the recommendation *Reduce flood risk to protect people and assets*.

Local governments should support continued efforts to better integrate stormwater management into land use and transportation planning projects.

IDOT should update statewide design standards to reflect green infrastructure techniques and precipitation trends, designing transportation infrastructure for the climate of its designed lifespan.

Transportation agencies should construct and maintain projects that can sufficiently manage current and future storm events.

IDOT should support CMAP's stormwater management planning efforts to reduce flooding vulnerability of the transportation system.

Counties and municipalities should update development ordinances and reconstruction practices to improve stormwater management and promote green infrastructure techniques in new and reconstructed streets.

Improve the operational response to weather events to ensure mobility

Climate change is already causing more frequent road flooding, snow storms, and heat- and cold-related pavement and communication failures. Inclement weather is currently estimated to cause 15 percent of congestion, increasing the number of crashes and delays and reducing road capacity. Approximately half of the days in a typical year have weather conditions that affect driving.²⁸⁹ Pedestrians and transit users are also affected by inclement weather, and pedestrian infrastructure is often overlooked in weather response activities.

Existing regional strategies to mitigate impacts include traveler information, alerts and advisories, vehicle restrictions such as banning trucks during high winds, road closures, snow and ice control, plowing, and pumping water from flooded locations. IDOT, the Tollway, and Lake County report real-time "road weather" (pavement) information to TravelMidwest, but other counties currently do not. Weather responsive traffic management is also not widely used today, except for closing roads to traffic under severe conditions. As road and transit systems modernize, the same technologies that can improve system safety and reliability can make the system more responsive to weather events. The expansion of intelligent transportation system

²⁸⁹ Chicago Metropolitan Agency for Planning ON TO 2050 strategy paper, "Highway Operations," February 2017, <http://www.cmap.illinois.gov/onto2050/strategy-papers/highway-operations>.

(ITS) devices and traffic management capabilities will support a variety of weather responsive traffic management strategies, such as variable speed limits to reduce speeds, updating traffic signal timing and plans to support detours and slower speeds, and increasing coverage of emergency vehicle patrols to remove disabled vehicles more quickly. In addition, as the region's maintenance fleets become equipped with fleet management technology, opportunities for better coordination of snow and ice removal between different jurisdictions will emerge. This will reduce costs and improve the efficiency of these activities.

It will be important to collect and analyze information about how facilities perform under various severe weather scenarios so agencies can develop planned responses and better serve all users of the transportation system. For example, focusing incident management resources on locations that are known to be affected by rain or snow can reduce congestion and secondary incidents. Pavement flooding information has not been collected on a regional basis, and there is no standard pavement flooding reporting system. The impact of flooding on our roadway operations as of today is not known. This strategy also appears in the *Environment* chapter under the recommendation *Plan for climate resilience*.

CMAP, and IDOT and the Tollway should work toward implementing a regional, multijurisdictional traffic management center, either virtual or traditional.

Transportation agencies should ensure redundant and reliable electricity and communications infrastructure, and build redundancy and flexibility into planning for major transportation corridors.

Transportation implementers should expand ITS devices and traffic management capabilities to support weather responsive traffic management strategies.

Transportation implementers should coordinate snow and ice removal across jurisdictions, when possible.

Transportation operators should conduct an analysis of road performance under severe weather conditions to develop planned responses.

CMAP should develop a regional pavement flooding reporting system to help plan for flood events.

Making transformative investments

Northeastern Illinois needs to invest in maintaining and enhancing the transportation system to keep up with demand and promote regional economic vitality. Today's investments must make the current system work better for everyone, while also preparing for future mobility influenced by new data and communication technology, private mobility services, and increasingly multimodal trips. At the same time, transportation dollars are scarce. Performance-based

funding promises a more accountable process for programming transportation projects that meet current needs and address priorities like reinvestment, inclusive growth, and climate resilience. The region's transportation implementers, from local governments to state agencies, should continue to implement data-driven programming practices that emphasize selection of projects that meet clear regional objectives for transportation, land use, environment, and the economy.

Yet traditional transportation revenue sources can no longer keep up with increasing costs. Without additional, sustainable revenues, the region will be unable to maintain the system in its current state of repair, let alone implement needed enhancements or expansions. Forecasted revenues from existing sources and additional reasonably expected revenues together make up \$517.7 billion in revenue available through the year 2050. Of this, 94 percent is needed to operate and maintain the system in its current condition. The remaining 6 percent will be available for improving the system's condition, building regionally significant projects, and making other systematic enhancements -- smaller projects like intersection improvement, bike trails, accessibility improvements, and safety counter-measures that are nonetheless critical to make progress toward a seamless, multimodal transportation system -- while meeting the federal requirement of fiscal constraint.

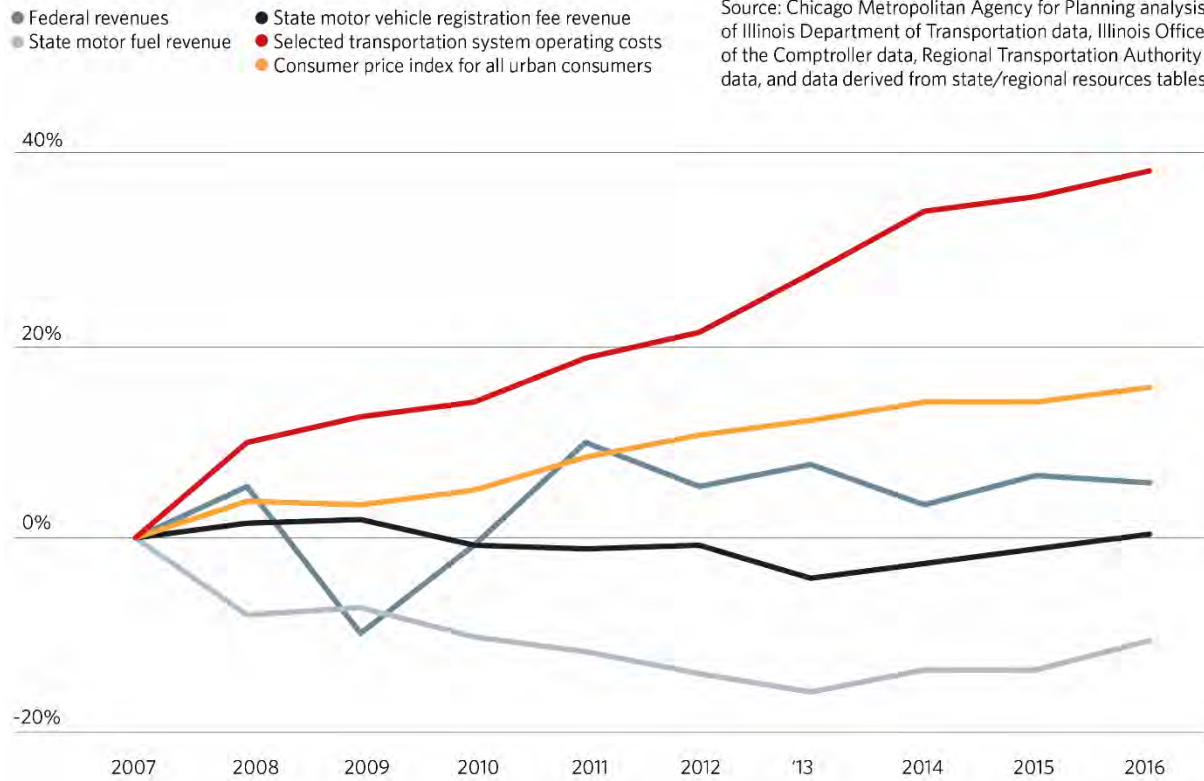
Fully fund the region's transportation system

The region's transportation system is facing significant challenges. Decades of underinvestment have created a significant backlog of projects to reach a state of good repair. Revenues underpinning the system no longer reflect current costs or ways of getting around. Federal and state revenues do not provide the support that they once did, and emerging federal policy indicates a growing reliance on state and local revenues. To maintain or improve the transportation system, the state and region must rethink current funding formulas and look for new revenues.

Selected federal and state transportation revenues indexed to 2007

Note: Percent change since 2007. Federal transportation revenue excludes revenue for 2009 from the American Recovery and Reinvestment Act. Transportation operating costs include those incurred by IDOT's District One, Illinois Tollway, RTA, and all transit service boards.

Source: Chicago Metropolitan Agency for Planning analysis of Illinois Department of Transportation data, Illinois Office of the Comptroller data, Regional Transportation Authority data, and data derived from state/regional resources tables.



ON TO 2050 estimates that the cost of operating and maintaining the transportation system in its current condition -- retaining the current backlog -- will exceed the funds expected to be available under existing revenue sources. With that \$24 billion gap through 2050, revenues under existing sources would not be sufficient to operate and maintain the transportation system, let alone enhance or expand it.

Northeastern Illinois needs to overcome various obstacles to ensure sufficient funding for transportation. Systemic shifts are leading to declining revenues, and structural problems make current revenue sources inadequate for maintaining and operating the system. For example, revenues generated from flat rates, such as the federal and state motor fuel taxes (MFTs), have lost significant purchasing power due to inflation. At the same time, average vehicle fuel economy has been rising and vehicle travel has been stagnant, resulting in less fuel consumption. These trends will almost certainly result in state MFT revenues dwindling in the upcoming years. Moreover, growth in motor vehicle registration revenue in Illinois has been mostly flat since the mid-2000s due to slowing population growth, even while registrations per resident have risen statewide.

Federal revenues relied on by roadway and transit agencies in the region have been stagnant, with revenues expected to grow slower than the cost of the system. These slower growing elements of the region's transportation funding present real challenges to making necessary infrastructure improvements. The system could benefit from reliance on a modern user fee, such as one tied to vehicle miles travelled (VMT), which charges based on how far a car is driven. Drivers pay for what they use. Efforts to implement VMT fees are already taking shape in other states, and new technology is making it simpler to implement such fees; private sector per-mile prices are now widespread in the auto insurance market. Levied on a per-mile rather than per-gallon basis, VMT fees act as a direct user fee and also offer opportunities to integrate with other types of facility-level pricing. Eventually, VMT fees could vary on different types of facilities, at different times of day, and for different classes of vehicles.

Transit fares contribute more than 50 percent of transit operating revenues region-wide. In addition to fares, the transit system relies on a sales tax imposed by the Regional Transportation Authority. Structurally, sales taxes in Illinois are imposed on a narrow base, which includes tangible goods but few services. The sustainability of the sales tax base is precarious because consumption of services continues to rise faster than consumption of goods.

The region lacks a dedicated source of capital for its transit system, even as needs keep rising to maintain our aging system in its current state of repair. While improving the region's infrastructure is a high priority, simply keeping the overall system of transit, roads, and bridges in its current condition will cost more than \$200 billion over the 32-year planning period.

Changing demands and emerging needs call for new investments. Among many factors, the number of congested hours is increasing annually; freight traffic is on the rise due to changing supply chain patterns and increasing next-day deliveries; residents are demanding new bicycle and pedestrian infrastructure; and private operators are creating new options for seamless mobility across multiple modes. Failure to improve infrastructure has a negative impact on the region's economy, which can only grow as fast as its transportation system will carry it. System enhancements are necessary so the region can continue to grow.

To surmount these challenges, we must continue to improve, modernize, enhance, and expand the system in a thoughtful manner. Because conditions would decline without additional revenues, the region must pursue new and enhanced sources and user fees that modernize and improve upon our existing funding structure. Leveraging sources like value capture or congestion pricing and other tolling opportunities can provide funding while contributing to larger goals such as transportation demand management and effectively matching the costs of the transportation system to those who benefit from its use. In fact, revenues generated from specific regionally significant transportation projects will be necessary to help fund those projects. The following table details ON TO 2050's financial plan for transportation, including forecasted revenues, as well as funding allocations to planned investments on the system.



Forecasted transportation revenues and expenditure allocations, 2019-50, in billions (year of expenditure dollars)

Revenues	
Federal revenues	\$61.9
State revenues	\$166.8
Local revenues	\$233.0
Subtotal core revenues	\$461.7
Increase state MFT and replace with VMT	\$31.0
Expand the sales tax base to additional services	\$11.0
Federal cost of freight services fee	\$7.0
Regional revenue source	\$5.0
Local parking pricing expansion	\$2.0
Subtotal reasonably expected revenues	\$56.0
Total revenues	\$517.7
Expenditures	
Operate and administer roadway system	\$114.9
Operate and administer transit system	\$162.9
Maintain current roadway condition	\$126.8
Maintain current transit asset condition	\$81.1
Subtotal cost to administer, operate, and maintain in current condition	\$485.8
Improve system condition	\$9.5
Make system enhancements	\$17.6
Full cost of constrained regionally significant projects	\$72.7
Capital cost allocated as maintenance and reconstruction	-\$50.3
Offsetting revenues from tolling and value capture	-\$17.5
Subtotal constrained new capacity cost of regionally significant projects	\$4.8
Total expenditures	\$517.7

Note: Expenditures do not add up to the totals due to rounding.

The region has had some recent successes in identifying and implementing new revenue sources. New legislation for transit facility improvement areas (TFIAs)²⁹⁰ allows the implementation of value capture for certain transit projects, which has been used to fund the CTA’s Red and Purple Line Modernization (RPM). Completion of the west leg of the Elgin-O’Hare Western Access project saw a formerly free expressway converted to a tolled facility. Securing the enactment of other revenue sources to fully fund the transportation system will require much more work and advocacy by CMAP and its partners.

²⁹⁰ Chicago Metropolitan Agency for Planning, “Legislation creates an innovative mechanism to fund major transit infrastructure,” July 8, 2016, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/legislation-creates-an-innovative-mechanism-to-fund-major-transit-infrastructure.

The following describes strategies and associated actions to implement this recommendation.

Implement sustainable, adequate revenue sources for transportation investments

Transportation revenue sources must be sufficient to maintain, operate, and improve the system; must provide stability in order to bond or fund multi-year transportation programs; and must be sustainable to ensure the source will grow in tandem with the cost of the system. Moreover, these need to be new revenues, not simply a transfer of funds from vital non-transportation programs and services.

Maintaining our transportation network requires sustainable, multimodal capital funding. Past state capital programs have only provided intermittent funding for transportation infrastructure and other capital needs, and they often have relied on taxes unrelated to transportation, such as taxes on alcohol or video poker. Revenues approved as part of a future state capital program or larger infrastructure funding legislation must be allocated through performance-based criteria that focus on areas of greatest need, including to significantly improve the condition of the region's transit infrastructure.

In addition, revenues should be collected from those who benefit from the transportation system, via direct user fees such as tolling or revenue sources that capture benefits reaped from improvements to the system. To relieve congestion on the roadway system, revenues generated from automobile user fees should have the flexibility to address multimodal transportation problems and improve overall mobility in a corridor. New user fees must be implemented carefully to avoid undue burdens on lower income residents -- who may drive older, less efficient vehicles, depend on transit, or travel further to work, based on where affordable housing and employment opportunities are located.

The State of Illinois should establish adequate and sustainable multimodal capital funding that uses performance-based allocation of revenues.

The state, local governments, and other transportation implementers should rely on user fees for new revenues to create a modern transportation funding system.

Transportation implementers should allocate new revenues across modes to improve mobility for all users.

Increase the motor fuel tax and replace with a vehicle miles traveled fee

Of the many states that have enhanced their transportation revenues in recent years, most enacted a MFT increase. The State of Illinois should increase its MFT by at least 15 cents in the near term and index the overall rate to an inflationary measure to offset the long decline in purchasing power of the current 19-cent rate that has been in effect since 1990. Similarly, the federal gas tax, set at 18.4 cents per gallon in 1993, should be increased and indexed to an

inflationary measure, improving solvency of the federal Highway Trust Fund without requiring non-transportation revenue infusions.

However, the MFT no longer reflects the way people travel or the many types of vehicles on the road. Fuel efficiency has increased, which erodes revenue despite its environmental and consumer benefits, and projections suggest electric vehicles will become a much larger part of the fleet. Over the long term, then, the state and the federal government should replace their MFTs with a mileage-based user fee that taxes actual use of the system, as with a fee for vehicle miles traveled (VMT). Drivers already pay per mile under the current MFT, but the rate just varies based on the vehicle's fuel economy. For the Illinois MFT, instituting a fee of 2 cents per mile and indexing it to an inflationary measure would provide a sufficient, stable revenue source.

This revenue source would benefit from a streamlined national solution that allows each state to collect VMT fees from out-of-state drivers. In implementing a new revenue source, the state should also take the opportunity to lower the burden on lower income drivers by integrating measures not available in the current MFT structure. This strategy also appears in the *Governance* chapter under the recommendation *Develop tax policies that strengthen communities and the region*.

The State of Illinois should increase the MFT by at least 15 cents per gallon and index the overall rate to an inflationary measure.

The State of Illinois should begin necessary steps, including implementing pilot projects, to replace its MFT with a VMT fee of at least 2 cents per mile indexed to an inflationary measure.

The federal government should increase the federal gas tax rate, index it to an inflationary measure, and in the long-term replace it with a mileage-based user fee such as, for example, VMT.

The federal government should work with states to develop a national solution to implementing VMT fees at the state level.

The State of Illinois should explore innovative mechanisms and technologies to efficiently collect VMT fees, including potential private-sector collection.

Expand the sales tax base

Sales taxes in Illinois are imposed on a relatively narrow base, focused on tangible goods. Expanding the current base to include more services would generate additional revenue from existing state and local sources like the RTA sales tax, which supports transit operations in the RTA service area and other transportation and public safety purposes in the collar counties. The

cost of operating the transit system continues to increase, yet consumption of services outside of the sales tax base is increasing faster than consumption of taxable goods. Expanding the base would also have the benefit of reducing economic distortions -- that is, inadvertently influencing consumers' purchase of different goods and services based on whether or not they are taxed -- and volatility in the sales tax, as well as providing tax revenue from service-based commercial land uses.

Implement a federal cost of freight service fee

Freight investment is an emerging transportation need across the U.S. The federal government should enact a national sales tax of 0.3 percent on the cost of shipping freight. These revenues should be disbursed to states based on their freight needs through a formula program, competitive program, or both. Such funding could benefit the region because it is North America's freight hub and has significant freight-related transportation needs. A cost-of-freight service fee has a user-fee nexus to the freight system, and could be collected from shippers using any mode to move goods, including truck, rail, and water. A similar approach is currently used for air-freight shipments. Administration of a cost-of-freight service fee could be challenging and would require new rules and practices to accurately and efficiently collect the fee.

Create a regional revenue source

Other than the RTA sales tax, which provides funding for transit operations, northeastern Illinois does not have a dedicated source of regional funding to provide for capital infrastructure investments. The State should enact such a revenue source for our seven counties to meet regional transportation needs and to achieve comprehensive planning goals. The region faces significant transportation infrastructure needs that are unlikely to be addressed adequately by federal or state sources, even if increased and restructured. Moreover, many of the transportation system needs in northeastern Illinois are unique. The investments needed in the region to move the transit system toward a state of good repair, decrease freight delay, and reduce roadway congestion are significantly greater than the needs in other parts of Illinois. A regional source such as a regional vehicle registration fee or regional MFT could raise significant revenues at relatively low rates and build on existing collection mechanisms, although their use would be confined to transportation investments.

Expand priced parking

Despite priced parking in some denser areas, the majority of parking spaces in the region are free. Priced parking has many benefits in areas with significant demand for parking. Free parking obscures the cost of driving and the cost of supportive infrastructure. Priced parking would reduce the number of vehicle trips, helping to reduce vehicle emissions and alleviate congestion. Municipalities should price more publicly owned parking spaces on streets and in municipal parking lots and garages to provide revenue for local transportation improvements and allow land to be transitioned to revenue-generating uses. In addition, municipalities could



choose to implement variable parking rates, with higher prices charged at times and locations of peak demand or for certain vehicle types such as delivery trucks in business districts, allowing for more efficient use of available parking spaces.

Innovative parking strategies have already been implemented by municipalities in the region. The City of Chicago launched a Downtown Loading Zone Reform pilot program in 2017 that changes how delivery trucks are charged in loading zones.²⁹¹ Based on recommendations in a LTA project study, the Village of Hinsdale increased hourly parking rates.²⁹²

Implement tolling

The state and region have insufficient revenues to fund operations and maintenance of the existing transportation system. Broader implementation of tolling offers a clear path to rebuild the expressway system, while tying new fees to those who use it the most. Implementing managed lanes and additional tolling on the region's existing expressway network would help relieve congestion, improve transit operations, and raise revenues to improve the condition of pavement and bridges. The Tollway and IDOT should work with CMAP to identify and then implement a system of managed lanes and tolling, as appropriate, on both existing and new expressway capacity.

On new expressway capacity, the Tollway and IDOT should pursue managed lanes and tolling to provide project funding as well as manage demand for the system. To defray the costs of reconstruction, IDOT and the Tollway should implement tolling in conjunction with planned reconstruction of existing, untolled facilities. Tolling on existing expressways will help pay for the costs of reconstruction, as well as free up existing revenues for the remainder of the system. With each transportation reauthorization, federal policy has increasingly embraced tolling on interstate expressways, and current participation by Illinois in the Value Pricing Pilot Program creates additional tolling opportunities. Over the longer term, the technology associated with mileage-based user fees may even allow differential pricing on managed lanes without requiring construction of the tolling infrastructure needed today.

IDOT should implement tolling on existing expressways following reconstruction projects, except on very short or isolated segments, to help finance the reconstruction project.

²⁹¹ Chicago Metropolitan Agency for Planning, "Chicago establishes the Downtown Loading Zone Reform Pilot Program," October 26, 2016, http://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/chicago-establishes-the-downtown-loading-zone-reform-pilot-program.

²⁹² Annemarie Mannion, "Rate hike to discourage employees from parking downtown," The Doings Hinsdale, October 14, 2014, <http://www.chicagotribune.com/suburbs/hinsdale/ct-parking-boxes-hinsdale-tl-1023-20141014-story.html>.

IDOT and the Tollway should flexibly use toll revenue to pursue multimodal transportation system goals such as providing high-speed, high-reliability transit service to improve expressway corridors.

The federal and state governments should expand authority to toll existing capacity.

IDOT and the Tollway should implement priced managed lanes on all but the shortest or most isolated new expressway capacity to help get the best performance from the new capacity.

IDOT and the Tollway should implement policies that ensure equitable access to tolled facilities, such as providing drivers a baseline of credits for free travel.

Further implement value capture

Value capture offers an innovative option for local governments to harness a portion of the new private property value created by public infrastructure. Adjacent property owners often benefit from the construction of a new or improved transportation facility through higher rents and property values. Project implementers should explore value capture to help fund capital costs associated with new, expanded transportation facilities, including transit service enhancements.

Value capture mechanisms currently available in Illinois include tax increment financing districts, special service areas (SSAs), impact fees, and business district taxes (BDs).²⁹³ Many communities already use these mechanisms for small scale transit and road improvements. For a select set of large projects, the state recently authorized TFIA districts that allow use of incremental property tax revenue to fund transit improvements. In addition to an established TFIA for the CTA North Red/Purple Line Modernization Project, other transit projects may also be ripe for the implementation of a value capture district. Adding further projects to the statute and broadening current value capture types at the community level can help provide much-needed local revenues to support the transportation system.

Arterial roadway capacity expansion projects are often implemented by either IDOT or county transportation departments. However, while these projects have regional mobility benefits, the need for expanded arterial capacity is driven partly by local conditions, such as increased retail, office, or industrial development. In addition, a portion of an arterial project's benefit accrues to the community or communities where the expansion is occurring, in the form of reduced congestion or increased revenues. The Tollway already requires that local governments applying for a new interchange contribute at least half of the project cost. IDOT and the counties could consider similar policies for the cost of additional arterial capacity, which would leverage local benefit to fund the project. Municipalities could utilize value capture districts such as BDs

²⁹³ Chicago Metropolitan Agency for Planning, "Transportation Value Capture Analysis for the CMAP Region," June 2011, http://www.cmap.illinois.gov/documents/10180/27573/VC-Final-Report_7-26-11-Executive-Summary.pdf/5efa8c6f-da3b-4fe8-8a61-33d322850a01.

or SSAs to fund contributions or direct general fund revenues for this purpose. These policies should ensure that communities with limited financial resources are not disproportionately burdened for projects affecting multiple jurisdictions. CMAP's LTA program can provide a model for flexible match requirements in high need communities.

The State should improve TFIA provisions to focus on criteria and need rather than on specific transportation investments.

Local governments should continue to implement and expand value capture for projects with sufficient travel benefits and tax base to support improvement costs.

CMAP, IDOT, and county DOTs should evaluate and consider a new policy to require equitable local contributions for major arterial expansions.

Use public-private partnerships strategically

Innovative financing mechanisms such as public-private partnerships (PPPs) provide a greater role for the private sector in the design, construction, and management of transportation facilities. Project implementers should continue to use PPPs strategically to finance transportation improvements where fiscally appropriate. ON TO 2050 emphasizes that PPPs are often a source of financing that must be repaid, rather than a new revenue source. They have the potential to deliver benefits to projects, but these arrangements are complex and must be carefully considered on a transparent, case-by-case basis.

Consideration of whether a project should be delivered via a PPP arrangement must be independent from merits of the transportation project itself. In short, projects must help implement regional priorities for transportation, land use, and other issues before being considered for a PPP. Project implementers should use best practices in comparing the use of a PPP to traditional project delivery, such as applying value-for-money approaches to analysis, assessing the risks of non-compete clauses, and providing formal public review in the evaluation of PPP proposals with appropriate checks on the disclosure of private financial information.

PPP agreements must be structured to protect the public interest, which should include maintaining a specified level of performance with penalties for non-performance, reasonable limits on public risk, and provisions for revenue sharing above certain thresholds.

Transportation agencies must also retain their ability to effectively operate, maintain, enhance, and expand transportation infrastructure connected or adjacent to facilities under a PPP.

Transportation agencies must maintain ownership of and the right to share all data collected as part of a PPP. Other factors to consider include pricing policies, preferential access policies for law enforcement or transit vehicles, maintenance and operational standards, interoperability and coordination with public facilities, provisions that restrict the public sector's ability to invest in related projects, and remediation provisions.



Enhance the region's approach to transportation programming

The scarcity of transportation dollars demands that they be spent wisely and transparently. In the CMAP region as well as the rest of the state, transportation funding is largely allocated via formulas set in law or simply adhered to by custom. Even if these formulas once had a strong basis in transportation system size or condition, they are not responsive to changing conditions, can spread funding too thin for any individual agency to accomplish more significant projects, and can prompt decision makers to focus on the money itself rather than on how individual projects address or do not address transportation needs. Performance-based funding promises a more accountable process for programming transportation projects, using a variety of measures to allocate scarce resources. Performance measures reflect the use, condition, and impact of transportation elements and are publicly reported for illustrative purposes or to demonstrate progress made toward established targets.

One of the most significant policy changes in the federal Moving Ahead for Progress in the 21st Century (MAP-21) transportation law, enacted in 2012, was to institute a national performance measurement system for the highway and transit programs. Implementation of this new system is just beginning, and it requires state DOTs, MPOs like CMAP, and transit agencies to work together to set targets that define the performance they want to achieve. Select infrastructure condition, safety, congestion, and emissions federal performance measures are closely aligned with recommendations in the *Mobility* chapter. These measures are plan indicators and are referenced throughout the *Mobility* chapter and described in more detail in Appendix XX. More detail on all of the federally required performance measures is in Appendix XY.

Tying programming to quantifiable targets helps demonstrate the effectiveness of performance-based programming. MAP-21 and the FAST Act, the two most recent federal transportation authorization laws, require state departments of transportation and transit agencies to implement asset management practices. IDOT is responsible for implementing asset management on the NHS. CMAP, IDOT, and county and municipal departments of transportation will need to collaborate to define the NHS and set appropriate targets for its condition. CMAP, RTA, and the transit agencies should continue to collaborate on achieving asset condition targets for the transit system. The long-range planning process offers an opportunity to place a high priority on meeting federal asset management requirements and moving the system toward a state of good repair.

[GRAPHIC TO COME: An illustrated graphic will show expenditures needed to meet transit asset state of good repair, pavement and bridge condition indicator targets.]

Improving system condition while minimizing costs requires nuanced decision making. Rather than prioritize the repair of assets in worst condition first, asset management seeks to optimize lifecycle costs of achieving and sustaining a desired target condition. Implementing asset management can help improve system resilience in the face of changing climate or challenging

economic conditions. These practices can be applied to a wide range of infrastructure, including freshwater, wastewater, signals and communications, vehicles, transit facilities and equipment, and pavement. Pavement management programs in particular have a demonstrated ability to stretch scarce funding farther. For additional recommendations about asset management, see the *Governance* and *Environment* chapters.

[GRAPHIC TO COME: An illustrated graphic will show benefits of asset management.]

The following describes strategies and associated actions to implement this recommendation.

Continue to implement performance-based programming region-wide

As transportation revenues remain constrained, performance-based programming can help identify the most cost-effective way to meet local and regional priorities. There is room for all transportation implementers to improve data and methods for incorporating performance into processes for allocating funds and selecting projects. For example, IDOT has made recent progress in using a performance-based evaluation system to rank capacity projects for the state highway program. Rather than programming many conversions of two-lane to four-lane facilities that remain incomplete, the state is trying to “right-size” projects to address specific needs more cost-effectively, such as by making less expensive intersection improvements rather than expanding capacity on an entire segment. In another example, the Council of Mayors and City of Chicago have recently revised the way local STP funds are allocated to emphasize transportation need.

IDOT should apply its new performance-based programming criteria, evaluate outcomes, and continue to refine the criteria.

IDOT, transit agencies, counties, local councils, and municipalities should incorporate the ON TO 2050 indicators and federal performance measures into their project selection and funding allocation decisions.

CMAP and partners should continue to evaluate the outcomes of regional transportation prioritization efforts, screening for equity and other desired outcomes and making iterative improvements to criteria for achieving those outcomes.

RTA and transit agencies should commit to a performance-based competitive approach for a portion of existing transit capital funding.

CMAP and partner agencies should work together to define how the TIP demonstrates the effect of transportation investments toward meeting the performance targets.

Expand asset management practices to the entire transportation system

There is great potential value in expanding asset management beyond the transit system and the NHS to local roads and local jurisdictions. As of 2016, only 40 percent of the region's municipalities used a pavement condition measure as part of a pavement management system and set long-term targets for pavement condition. While fully implementing pavement management systems can sometimes reduce maintenance expenditures, these plans have also provided convincing evidence of the need to devote more resources to preventing long-term declines in pavement conditions. Because their budgets are so limited, many communities with pavement management systems prioritize fixing the worst conditions first rather than undertaking preventive maintenance. But this practice only drives up costs in the long-term and limits their capacity to undertake preventive maintenance.

More uniformity in data collection and analysis may help decision makers understand and prioritize pavement conditions. While IDOT collects pavement data for the National Highway System, there is limited pavement data for the remainder of the federal-aid system, consisting of collector streets and minor arterial highways. Furthermore, there is no uniformly adopted measure of pavement condition within the region. Improving the consistency of pavement condition data will enable the first region-wide pavement condition data system for all federal-aid roadways not on the NHS.

Local agencies should implement pavement management systems and base pavement management decisions on minimizing lifecycle maintenance costs.

CMAP should pilot asset management plans employing lifecycle cost principles with local communities.

Transit agencies should continue to invest in systems that allow for tracking and evaluating the impact of investments on asset condition.

CMAP should work with partner agencies toward uniformity in pavement data collection.

COGs and CMAP should develop trainings to assist all of the region's municipalities in implementing and improving asset management systems over the long term.

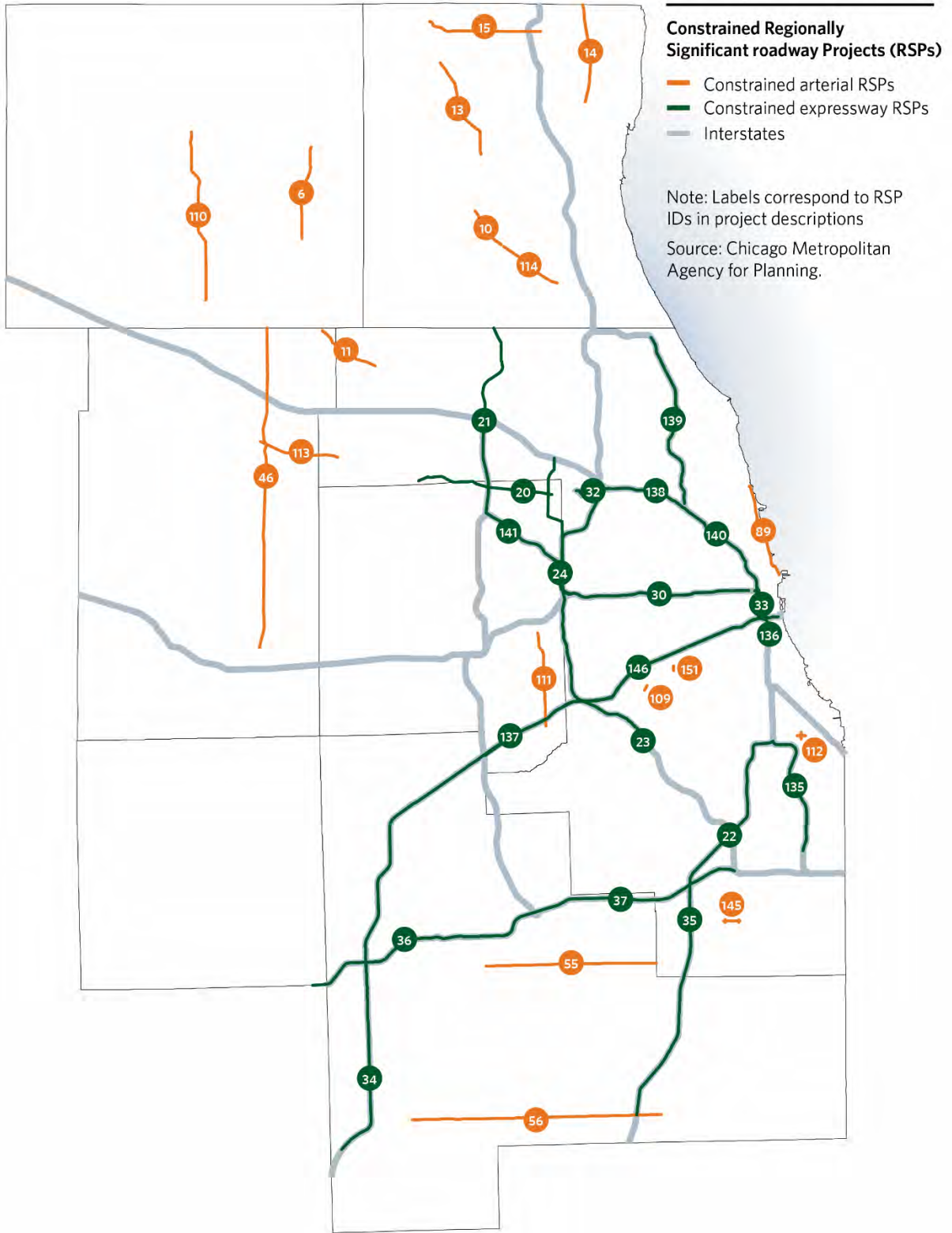
Build regionally significant projects

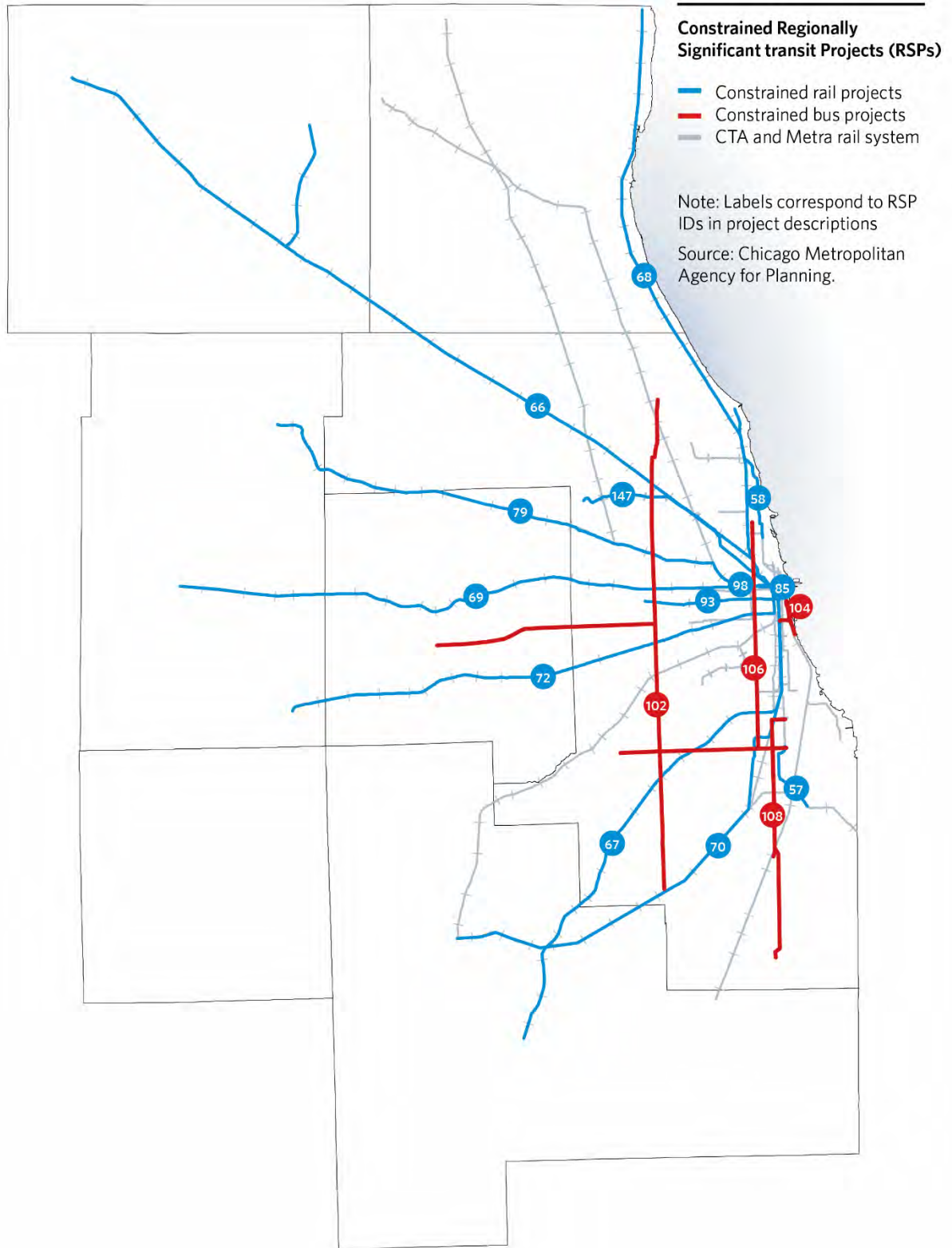
Regionally significant projects (RSPs) are capital investments in the region's expressways, transit system, and arterials with impacts and benefits that are large enough to warrant additional discussion through the regional planning process. These include large reconstruction projects and additions to the system. The federal government requires regional planning agencies to demonstrate fiscal constraint by showing that sufficient resources will be available to construct projects recommended in the plan.



In keeping with the ON TO 2050 principles as well as the recommendations of this *Mobility* chapter, the plan includes a relatively small number of constrained regionally significant projects as priorities and recommends further study of others that are classified as "unconstrained." Only constrained projects are eligible to receive federal transportation funds and obtain certain federal approvals. These constrained projects can help the region meet today's needs, adapt to changing mobility patterns for goods and people, and support economic success overall. The plan focuses particularly on projects that reconstruct or enhance the existing network, with few expansion projects. Implementation of many of these projects will require action not only on the projects themselves, but on implementing additional local, regional, state, and federal transportation revenues. If current revenues and trends remain the same, the region will have fewer resources for RSPs.







To identify constrained RSPs, CMAP solicited candidate projects from partner agencies as well as from the public, then undertook an extensive evaluation of the benefits of the projects, which is documented in the Project Benefits Report appendix. Candidate projects meet one of the following thresholds:

1. Costs at least \$100 million and either (a) changes capacity on the National Highway System or is a new expressway or principal arterial, or (b) changes capacity on transit services with some separate rights of way or shared right of way where transit has priority over other traffic
2. Costs at least \$250 million and improves the state of good repair for a particular highway or transit facility

Evaluation of each project focused on the current need, the modeled benefit with 2050 population and employment, and the degree to which the project fits with ON TO 2050 planning priorities. See the RSPs Benefits Report Appendix for more details about methodology.

For expressway and arterial projects, current need includes whether a project addresses a significant congestion, safety, or reliability problem occurring today. This includes whether the roadway is a near-term priority for pavement reconstruction or bridge replacement, although over the long-term time frame of the plan, many assets will deteriorate to the point of requiring replacement. For transit projects, assessment of current need includes the degree to which a project will improve current state of repair or help relieve a capacity constraint, which is analogous to congestion on the highway system. See the strategies *Invest in and protect transit's core strengths*, *Continue to plan for system modernization while making progress toward state of good repair*, and *Continue to update roadway designs to reduce speeding and crashes* for related policy actions.

[GRAPHIC TO COME: Map showing roadway needs.]

[GRAPHIC TO COME: An illustrated graphic will show capacity constraints on CTA rail and Metra (adapted from the ON TO 2050 Transit Trends snapshot report).]

The evaluation of 2050 performance is based on socioeconomic forecasts and travel demand modeling that estimates which projects will have the highest future benefits relative to cost. CMAP evaluated how much each expressway project improved job accessibility, commute times, and crash rates. Expressway projects were also evaluated for their impact on regional congestion, a federal performance measure and ON TO 2050 indicator. The RTA evaluated transit projects for their impact on regional transit ridership, an ON TO 2050 indicator, and changes in job access.

The planning priorities assessment connects the RSP evaluation to the three overarching principles of ON TO 2050. Given the important role of inclusive growth in ON TO 2050, the evaluation looks closely at how much a project improves access for EDAs, and particularly how it connects EDAs to jobs in industries with low barriers to entry and potential for upward mobility. (See recommendation *Leverage the transportation network to promote inclusive growth* for related strategies). Part of resilience is protecting against injury to the natural systems that sustain the region, so the evaluation examines a project's potential environmental impacts caused by construction, increased traffic volumes, and whether the project supports infill development or encourages additional development in high quality natural areas. The principle of prioritized investment informs the entire project evaluation process, but the evaluation also takes into consideration how each project affects the region's economy.

[GRAPHIC TO COME: An illustrated graphic will explain economic benefits of transportation investment.]

The constrained RSPs total \$72.7 billion in year of expenditure (YOE) dollars, which takes into account incremental operating costs (\$3.7 billion) and capital costs (\$18.7 billion for new capacity and \$50.3 billion for reconstruction elements) as well as anticipated cost inflation by the time the project is constructed and begins operation. Except for highway or transit extensions, most projects include reconstruction elements. The cost of fixing existing infrastructure is accounted for separately in the financial plan forecast, and only the cost associated with new capacity requires identifying additional available resources to meet fiscal constraint. Approximately 60 percent of the new capacity cost is for transit projects and 40 percent for highway improvements.

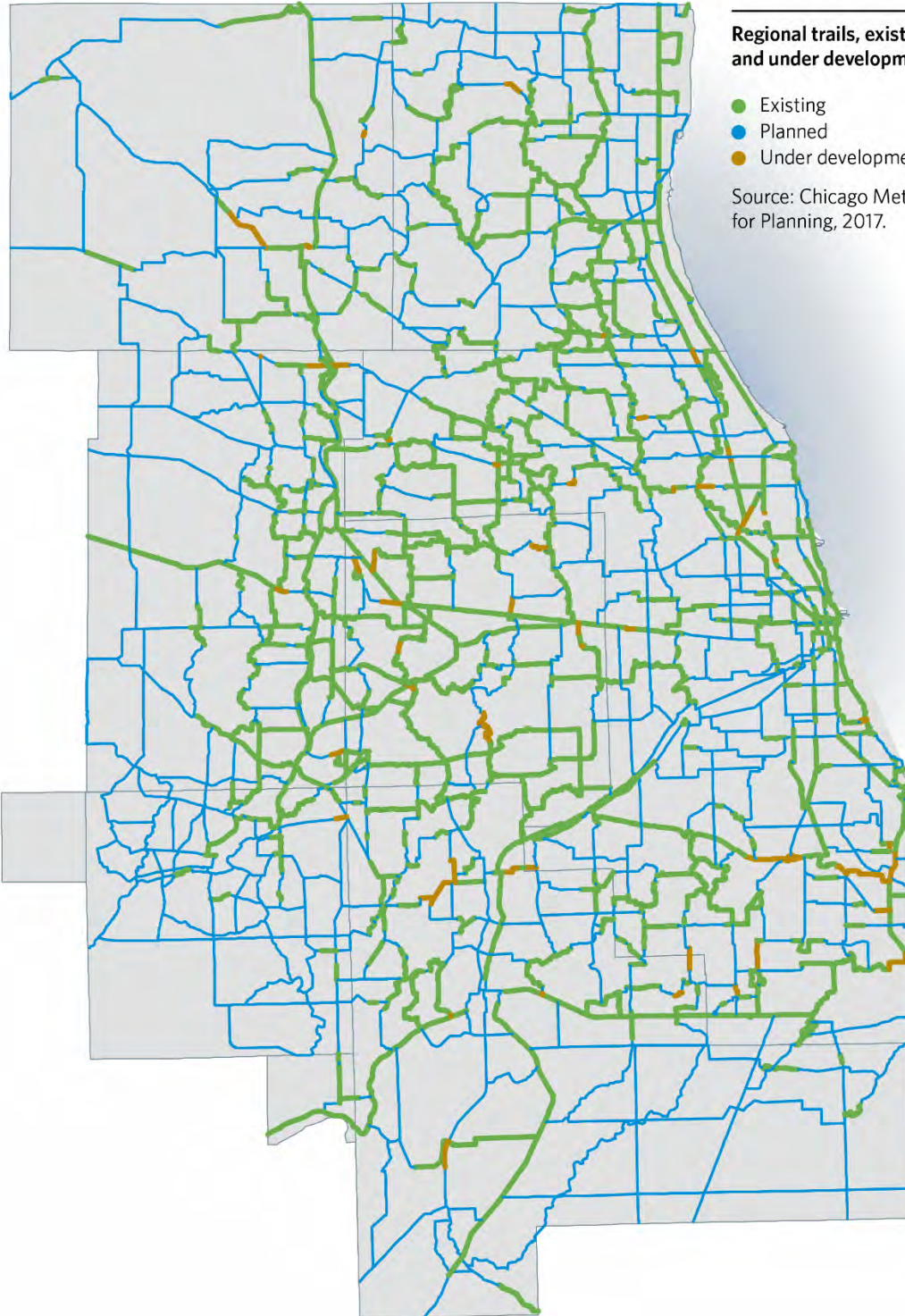
ON TO 2050 acknowledges that tolling will be needed to defray the costs of rebuilding the expressway system and that value capture will be required to fund transit needs. The plan assumes that tolling on all lanes would be implemented following most planned reconstruction projects, generating \$14.6 billion in bond proceeds to offset project costs. Transit projects can also generate revenue to offset their costs. Recently authorized state legislation allows Transit Facility Improvement Areas in which a form of value capture can be used to fund transit capital investments. Four areas defined in statute that benefit from rail service can have part of their property tax revenues directed to repay bonds issued to pay for capital costs. ON TO 2050



includes \$2.97 billion in bond proceeds from value capture to offset transit project costs. For more information about revenue, see the recommendation *Fully fund the region's transportation system*.

Important project types that do not meet the RSP threshold

Some types of projects do not meet the cost threshold for RSPs, but they are nonetheless important to fund and implement as systematic enhancements to the transportation system. For example, the officially adopted Northeastern Illinois Greenways and Trails Plan (RGTP) envisions a network of continuous greenway and trail corridors, linked across jurisdictions, providing scenic beauty, natural habitat, and recreational and transportation opportunities. Completion of this plan and complementary on-street facilities would create a robust, integrated network, connecting cyclists and pedestrians to communities and amenities across the region. Since 2013, CMAP has been using the RGTP to guide funding decisions for the Transportation Alternatives Program.



Regional trails, existing, planned, and under development

- Existing
- Planned
- Under development

Source: Chicago Metropolitan Agency for Planning, 2017.



It is also crucial to make transit stations and the street network surrounding them accessible for all. The CTA has initiated an All Stations Accessibility Program that will establish a blueprint for making the 42 remaining non-accessible rail stations accessible over the next 20 years. These remaining stations have unique needs and require complex design and engineering work as well as additional financial resources.

The Chicago Region Environmental and Transportation Efficiency program (CREATE) is a public-private partnership between freight railroads, U.S. DOT, IDOT, the City of Chicago, Metra, and Amtrak.²⁹⁴ First announced in 2003, the CREATE program consists of 70 projects spanning a range of rail infrastructure improvements. As of January 2018, 29 projects have been completed, five are under construction, 17 are in various design stages, and the remaining 19 projects will begin upon identification of funding resources.²⁹⁵ Most of the CREATE program's funding to date has come from the public sector, primarily the federal and state governments, and yet implementation of its most public-facing projects has lagged. The 75th Street Corridor Improvement Project (75th St. CIP) is the largest, most complex, and most significant remaining component of the CREATE program, and a constrained RSP. After completion of the 75th St. CIP, the remaining projects include Passenger Corridors and grade separation projects that do not always meet the RSP threshold. These projects provide direct benefit to the public via improved Metra and Amtrak rail services and reduced delay for trucks, motorists, and transit.

The following outlines the selected regionally significant projects that can help the region improve mobility, the economy, and quality of life.

²⁹⁴ Chicago Metropolitan Agency for Planning, "CREATE program status check," February 20, 2015, <http://cmap.is/1JCKVha>.

²⁹⁵ CREATE program, "Status of CREATE projects (1/25/2017)," January 25, 2017, http://createprogram.org/linked_files/status_map.pdf.

Expressway Projects

Because of pressing needs on the existing expressway system and the region's limited financial resources, ON TO 2050 does not make major commitments to building and then maintaining new roadways to serve mostly future demand. Instead, the region must reinvest in the existing system. The region's expressways were largely built in the 1950s and 1960s, and the standard lifespan of these facilities is 50 years. While pavement and bridge rehabilitation can extend the life of these assets, by 2050 the only economical improvement will be a complete rebuild. Due to lagging investment in the region's road system, that rebuild is needed almost immediately in several cases. By emphasizing reinvestment in the current system, the region can also help support existing communities and, crucially, limit the environmental impacts and long-term costs of constructing new infrastructure. For all expressway projects, implementers will have to consider opportunities to defray construction costs, improve system performance, and support transit service through tolling and managed lanes, as well as consider the value for money and public risk that a PPP might provide as a project delivery mechanism.

The oldest parts of the existing system are also the most affected by chronically unreliable travel times and in some places have major safety problems, both of which can be addressed through design and investments in active traffic management as part of the reconstruction. In some cases, adding capacity through new managed lanes is also appropriate. Managed lanes make the most of any investment in new road capacity by using pricing to control the amount of traffic entering the lanes, which in turn helps keep the lanes uncongested. They also give travelers an option to ensure reliably fast trips even during peak periods.

The following are the constrained regionally significant expressway projects

[GRAPHIC TO COME: Each constrained expressway project will have a graphic representation of a selection of the measures from the RSP evaluation process. A full list of project evaluation results can be found in the RSP project benefits appendix.]

Elgin O'Hare Western Access, RSP 20

The Elgin O'Hare Western Access (EOWA) project will provide a new, limited-access facility to reduce congestion and improve access to the airport, supporting the ongoing modernization and expansion of O'Hare. Federal approval for the EOWA was given in 2013, and construction is now underway. The project includes three main components: reconstructing and widening the existing Elgin O'Hare Expressway, extending the expressway east to O'Hare, and adding an expressway around the western side of O'Hare from I-90 to I-294 (the western bypass). All three components will be tolled. It is expected to include express bus service. The first two components are expected to be complete in 2018, while the western bypass is planned for 2025.

Jane Byrne Interchange Reconstruction, RSP 33

The Jane Byrne Interchange Reconstruction project modernizes the busiest intersection in the region, which has not had a major rehabilitation since it was first built more than a half-century

ago. While it is mostly a reconstruction, an additional lane is being added on the east-north and north-west ramps, as well as three new flyovers. A new through-lane will also be added on I-90/94, correcting a deficiency that forces drivers to switch lanes when entering the interchange. Both the capacity and reconstruction elements of the project are considered constrained in ON TO 2050. The new ramp configurations and added lanes are expected to improve safety and significantly reduce crashes for all users. The project is currently under construction.

I-55 Stevenson Managed Lanes, RSP 146

The I-55 Stevenson Expressway is one of the most congested segments in the Chicago area. This project would add managed lanes from I-355 to the Dan Ryan. Because of the wide inside shoulder with full-depth pavement along part of the route, adding managed lanes can be relatively inexpensive, making it the most cost-effective congestion reduction project evaluated. IDOT currently anticipates adding two new lanes to assure travel time reliability. Given the success of the I-55 bus on shoulder service, IDOT should specifically incorporate bus priority features into the roadway design and plan for increased service as an improvement over the current bus on shoulder service. Riders on this service would benefit as free users of the managed lane.

IDOT is seeking to build the project through a public-private partnership. It will be critical for the Department to protect the public interest by using a PPP structure that transfers some of the risk to the private partner. It is not assumed that all existing lanes will be tolled as part of this project, but over the longer term, when the adjacent general purpose lanes are reconstructed as part of I-55 Stevenson Expressway Reconstruction (RSP 137), tolling should be implemented on all lanes. This project is also supported in the Will County Community Friendly Freight Mobility Plan.

I-55 Barack Obama Presidential Expressway Add-Lanes and Reconstruction, RSP 34

This section of I-55 from I-80 to Coal City Road, contains a 1,400-foot bridge over the Des Plaines River that was built in 1957 and requires frequent rehabilitation. Also importantly, this southern segment of I-55 in Will County serves three large logistics parks and two intermodal rail terminals. The road is typically two lanes in each direction, an operational challenge because of the large numbers of trucks entering, exiting, and traveling on the road. This project would make near-term interchange and spot capacity improvements and ultimately add an additional lane.

I-80 Managed Lanes (US 30 to I-294), RSP 37

[GRAPHIC TO COME: An illustrated graphic will show improvements to I-80.]

Due to the high volume of trucks on I-80, local safety concerns, and other travel needs, I-80 east of US 30 should also be expanded to include managed lanes, with a full examination of options that improve operations across the whole I-80 corridor (in conjunction with RSP 36) and

includes consideration of truck-only lanes, full facility tolling, and managed lanes. This project is also supported in the Will County Community Friendly Freight Mobility Plan.

Western I-80 Reconstruction and Mobility Improvements (Ridge Road to US 30), RSP 36

The western segment of I-80 from Ridge Road to US 30 in Will County is in critical need of improvement, with failing pavement conditions and the bridge over the Des Plaines River requiring replacement. While this segment has immediate needs, and IDOT will soon be seeking design approval, a full examination of the I-80 corridor to include prospects for developing managed lanes, including truck-only lanes and full facility tolling, is recommended. This project is also supported in the Will County Community Friendly Freight Mobility Plan.

I-190 Access Improvements, RSP 32

O'Hare International Airport and its surrounding freight and manufacturing development are an economic engine for the region, but the area experiences significant congestion and unreliable travel times. The I-190 Access Improvements project consists of reconfiguring arterial access to I-190 and O'Hare International Airport to improve mobility as well as ultimately reconstructing and adding capacity to mainline I-190. Elements of this project are under construction or have been completed. There is a need to evaluate a long-term funding strategy for this project, which could include tolling.

I-290 Eisenhower Reconstruction and Managed Lanes, RSP 30

[GRAPHIC TO COME: An illustrated graphic will show improvements to I-290 and CTA Blue Line reconstruction.]

This project would reconstruct the second oldest pavement on the expressway system and address many bridges that are in poor condition. The Eisenhower consistently ranks as one of the five most congested segments in the region, partly because of the bottleneck created where it drops from four lanes to three west of Central Avenue. It suffers significant safety problems because of several left-hand ramps. I-290 is a multimodal corridor, and this project is closely linked to CTA Blue Line Forest Park Reconstruction (RSP 93), as well as a high-performing potential segment of Pace's proposed express bus network. This project will include improving bicycle and pedestrian facilities near CTA stations and interchanges in the project corridor, construction of a multi-use trail connecting the Prairie Path and Columbus Park, and configurations that can accommodate express bus service or other future transit investments. The project received a record of decision from FHWA in 2017 to rebuild the expressway and add a high-occupancy toll lane. Given the cost of the project and the lack of alternative fund sources, IDOT should strongly consider tolling the entire facility to offset its construction cost as well as potentially implementing a dual managed lane to improve reliability.

I-290/IL 53/I-90 Interchange Improvement, RSP 21

This project would improve a cloverleaf interchange that is integrated with ramps to and from the Woodfield Mall in Schaumburg, causing weaving, congestion, and crashes. Some of the loop

ramps would be replaced with higher-capacity directional ramps to reduce crashes and improve flow. This project has been studied but requires additional comprehensive analysis, including studying opportunities to support future transit service.

I-294/I-290 Interchange Improvement, RSP 24

The I-290 Eisenhower/I-294 Tri-State interchange has insufficient capacity on ramps and heavy truck volumes. Loop ramps and weaving movements cause congestion and high crash rates. Congestion on southbound I-290 can extend to 14 hours of the day. This project will reconstruct the interchange to reduce weaving movements, replace loop ramps with higher-capacity directional ramps, and reduce crashes. A key benefit will be to improve capacity from the south leg (I-294) to and from the northwest (I-290), which is a regional bottleneck. The Tollway is leading the study of these improvements as part of I-294 Central Tri-State Reconstruction and Mobility Improvements (RSP 23).

I-294 Central Tri-State Reconstruction and Mobility Improvements, RSP 23

The central portion of the I-294 Tristate (95th Street to Balmoral Avenue) has the oldest pavement on the expressway system, yet it is also the most-heavily used portion of the Tollway system. The Tollway proposes to rebuild the expressway and add a flex lane along portions of the route. This presents opportunities to integrate express bus service, and the design of the project should specifically include express bus facilities.

I-294/I-57 Interchange Addition, RSP 22

The crossing of I-294 and I-57 is the only place in the region, and one of very few locations in the country, where two interstates cross but do not have an interchange. The I-294/I-57 interchange project will connect these two interstates for improved accessibility to and from the south suburbs and for improved north-south regional travel. Construction of Phase 1 was completed in 2014 and provided new ramps to connect northbound I-57 to northbound I-294 and southbound I-294 to southbound I-57, as well as an entrance and exit ramp from I-294 to 147th Street. The final phase is planned for completion in 2024.

Expressway projects with constrained longer-term reconstruction needs only

ON TO 2050 covers a planning period of 32 years, during which many expressway segments will come to the end of their useful lives. Many of these segments were submitted as regionally significant projects with both reconstruction and additional capacity components. In future project studies on these segments, adding capacity should be considered, and CMAP's evaluation suggests that in many cases this capacity would be beneficial. However, in ON TO 2050, only the reconstruction elements of the following projects are constrained:

- I-57 Reconstruction (I-94 to I-80, I-80 to Will/Kankakee border), RSP 35
- I-94 Bishop Ford Expressway Reconstruction, RSP 135
- I-90/I-94 Kennedy and Dan Ryan Expressway Reconstruction (Hubbard to 31st Street), RSP 136
- I-55 Stevenson/Barack Obama Presidential Expressway Reconstruction, RSP 137



- I-90 Kennedy Expressway Reconstruction (East River Road to Edens Junction), RSP 138
- I-94 Edens Expressway Reconstruction, RSP 139
- I-90/I-94 Kennedy Expressway Reconstruction (Edens Junction to Hubbard Street), RSP 140
- I-290/IL-53 Reconstruction, RSP 141

Transit projects

Like the expressway system, much of the rail network will need to be rebuilt during the planning period. Given significant financial constraints and the needs of the existing system, ON TO 2050 limits expansion of the system, instead emphasizing improvements that enable the current system to carry more passengers more quickly and reliably, particularly on lines that have capacity constraints. In some cases, this entails also expanding overall capital by purchasing more rolling stock (trains and buses) to allow for increased service. Faster, more comfortable, higher frequency, and more reliable transit service is a key to increasing transit ridership. The *Make transit more competitive* recommendation outlines the many other policy and land use planning actions that need to be taken to make these investments successful and lay the groundwork for additional future transit enhancements. Both rail and bus improvements are recommended in ON TO 2050.

The following are the constrained regionally significant transit projects

[GRAPHIC TO COME: Each constrained transit project will have a graphic representation of a selection of the measures from the RSP evaluation process. A full list of project evaluation results can be found in the RSP project benefits appendix.]

CTA Blue Line Forest Park Reconstruction, RSP 93

[GRAPHIC TO COME: An illustrated graphic will show improvements to I-290 and CTA Blue Line reconstruction.]

This project would reconstruct the Forest Park Branch of the Blue Line, which is in a deteriorated condition. It includes full modernization of existing infrastructure and upgrades for future capacity increases. The project will reconstruct and reconfigure the Forest Park Terminal and Yard. The CTA's Blue Line Vision study was conducted in coordination with IDOT's planning process for the Eisenhower reconstruction (RSP 30), and CTA and IDOT should continue to coordinate these closely related projects throughout their reconstruction. This project would have a high economic impact for the investment required as well as benefits to EDAs.

CTA Blue Line Capacity Project, RSP 147

This project would provide for capacity increases on the Blue Line, based on significant projected ridership growth on the O'Hare branch. This project would include improvements to the traction power system such as wayside energy storage systems, third rail replacement, and/or new infill substations or auxiliary negative rail. It may also include a turn-back track, yard and station improvements, and station expansion. A load flow study is underway to better understand needs. This project supports the O'Hare International Airport expansion and access for tourists and other visitors to the region. There may be some overlap in geographic area between this project and the CTA Blue Line Forest Park Reconstruction (RSP 93) but for the purposes of this plan, project elements have not been double counted.

CTA North Red/Purple Line Modernization Phase One, RSP 58A

The Red/Purple Modernization project envisions a modernization of the 100-year old "L" lines serving the North Side of Chicago and is a significant reinvestment in existing communities. As CTA's most capacity-constrained line, the project would include a bypass separating the Red Line and Purple Line tracks from the Brown Line north of the Belmont Station to allow higher passenger capacity. The project also reconstructs deteriorated rail infrastructure and stations between the Lawrence and Bryn Mawr stations and replaces the signal system along the corridor. It has committed funding under the federal New Starts program as well as under TFIA, and is currently beginning pre-construction work.

CTA North Red/Purple Line Modernization Future Phases, RSP 58B

[GRAPHIC TO COME: An illustrated graphic will show improvements to CTA North Red/Purple line.]

Future phases of the Red/Purple Modernization project will continue to address deteriorated structure, track, and station conditions from the Belmont to Linden stops as well as allow for additional service. Modeling suggests very high benefits to additional service on the line made possible by investments in capacity, with the largest expected economic impacts of any of the projects evaluated. Reconstruction of viaducts also offers the potential to open neighborhood thoroughfares. Because of the need to reconstruct so much of the existing facility, the project is costly. It is expected that value capture through TFIA would also be able to provide a contribution to the overall cost.

CTA Red Line South Extension, RSP 57

Residents of the South Side of Chicago and the near south suburbs suffer long transit commute times. By extending the Red Line south to 130th Street from its current terminus at 95th Street, the area it serves would see improved access to jobs, particularly by easy transfers to CTA rail downtown, and reduced travel times. The project is relatively cost-effective at increasing ridership and has a high benefit to EDAs. Because it will also allow for a larger yard, it will help address capacity constraints on the whole line. The large park-and-ride lot to be constructed at

the 130th Street station will provide new commute options for southern Cook County as well. Value capture through the TFIA legislation should be used to help fund the project.

City of Chicago BRT group

This group of projects includes a significant investment in speeding bus travel within the city of Chicago. Although CDOT and CTA have both investigated numerous routes, a final set of projects has not been identified. More planning must occur to identify the highest ridership routes on which speed and reliability improvements would be most beneficial. The program includes Ashland Avenue BRT (RSP 106), a project with strong performance but on which progress has stalled. It is the most cost-effective project modeled for ON TO 2050. The program also includes the South Halsted BRT route (RSP 108), a collaboration between CTA and Pace, which would have significant benefits to EDAs. Finally, the currently identified list includes the South Lakefront-Museum Campus Access Improvement (RSP 104), which would address the difficulty of reaching the museum campus by transit and help promote tourism.

Metra A-2 Crossing, RSP 98

This project would reconstruct the A-2 Crossing (Western Avenue and Kinzie Street) between Union Pacific and Milwaukee District tracks. The rebuild will help reduce conflicts between Milwaukee District North, Milwaukee District West, North Central Service, and Union Pacific West trains and improve reliability for passengers. The project would have a high economic impact for the investment. Among the alternatives under evaluation are moving the crossing to a new location one mile east and constructing a flyover near the current crossing.

Metra BNSF Improvements, RSP 72

The BNSF Improvements project benefits new and existing riders on Metra's highest ridership line and is the second most cost-effective of all the projects studied. This project would make track, signal, and other improvements to the BNSF Line to support growth in ridership and upgrades to the capacity of the line. Improvements would allow for additional express service to the highest ridership stations on the line alleviating crowding. A new station at Eola Road in Naperville could provide additional commuter options and relief for congested stations.

Metra Milwaukee District West Improvements, RSP 79

This project would make track, signal, and other improvements to the Milwaukee District West Line to support increased capacity. A storage yard and maintenance facility expansion will enable additional peak period express and reverse commute service. Adding a fourth track from the A-5 junction to Randolph Street in Chicago will also benefit MD-N and NCS. The replacement of the Fox River Bridge (Z-100) is currently underway, funded in part by a TIGER grant. A second track across the river will remove a bottleneck that has restricted capacity.

Metra UP North Improvements, RSP 68

The UP North has the highest percentage of trains over capacity on the Metra system and has major state-of-good-repair problems. The UP North Improvements will improve the capacity and reliability of the line through installation of crossovers and track improvements, and a new

outlying coach yard will allow for more efficient servicing of equipment and accommodate expansion of service. Reconstruction of the bridges along the line is a major cost item in the project and will provide significant state-of-good-repair improvements. In addition to planned upgrades to existing stations, a new station at Peterson and Ridge avenues is funded.

Metra UP Northwest Improvements and Extension, RSP 66

The UP Northwest is one of Metra's most capacity-constrained lines, with inadequate yard space that forces ad hoc storage of trains on sidings along the route. A 1.6-mile extension to Johnsburg from McHenry will also allow space for new yards. Other infrastructure upgrades include improvements to the signal system, crossovers, and track improvements to increase capacity and reliability. Two additional stations will be added to the line at Prairie Grove and Ridgefield. These combined improvements are estimated to increase ridership considerably on the line. Planning for transit-supportive development at new stations and for feeder bus service will increase access along the line.

Metra UP West Improvements, RSP 69

The UP West Improvements will provide track, signal, safety, and infrastructure improvements to increase passenger service and coordinate with freight traffic. Specifically, a third track will be added to an existing double-track portion of the line east of Elmhurst. These improvements will enable the UP West to better serve as an alternative to the BNSF line and also to operate more effectively in coordination with freight rail movements. Part of the project involves upgrades to signal systems, crossovers, pedestrian safety improvements, and new triple track.

Metra Rock Island Improvements, RSP 70

Metra's improvements to the Rock Island District (RID) Line will enhance coordination between freight and Metra trains as well as allow for eventual connection of the SouthWest Service (SWS) with LaSalle Street Station. This project will improve rail freight movement through the region, provide capacity for additional express service, reduce congestion, and improve access at Union Station. Improvements include adding a third track between Gresham Junction and a point north of 16th Street Junction, new signals, and an expanded and modernized 47th Street Yard, which will have major efficiency benefits to Metra operations. CREATE Project P1, a rail flyover at the Englewood interlocking, is also part of this project and is complete.

75th St. Corridor Investment Program / Metra SouthWest Service Enhancements, RSP 67

[GRAPHIC TO COME: An illustrated graphic will show improvements to 75th St. corridor.]

This is one of the last major CREATE projects. Six major railroads -- two passenger and four freight -- pass through the 75th Street corridor on Chicago's South Side, crossing each other and local roads and creating intense train and road traffic back-ups. In addition, the current track layout routes Metra's Southwest Service to the congested Union Station. The proposed improvements include two rail-to-rail grade separations to untangle the railroad tracks, including a flyover to reroute the Metra Southwest Service to the less congested La Salle Street

Station. This, combined with additional Southwest Service track and less freight interference, will facilitate additional trains and other service improvements for the Southwest Service. The engineering for this project is advanced; final design is required. It has strong potential as a public-private project among the State of Illinois, City of Chicago, Cook County, Metra, and private railroads.

Pace Pulse Expansion, RSP 102A

[GRAPHIC TO COME: An illustrated graphic will show Pulse improvements.]

The Pace Pulse program of projects would speed bus service on Pace's most heavily used routes by implementing TSP, stations with enhanced amenities, and other improvements. Modeling suggests that the project would be very cost-effective and would have significant average commute time savings for a bus project. Only the near-term projects in the full 24-route program are considered constrained in ON TO 2050.

West Loop Transportation Center Phase I (Union Station) Improvements, RSP 85

The West Loop Transportation Center is envisioned as a new transportation hub that would reconfigure Chicago Union Station and ultimately lead to greatly improved connections between rapid transit, bus, commuter rail, and intercity rail services. Amtrak is the owner and operator of Union Station, and this project will also promote access for tourism, as well as intercity bus and rail connections. Only Phase 1 is on the fiscally constrained project list; it will increase capacity within the existing footprint of Union Station by creating new platforms and tracks and by repurposing currently inactive tracks and platforms formerly used for mail handling. It will also expand platforms used by Metra commuters, reconfigure the station's internal spaces to increase passenger capacity, and provide a weather-protected pedestrian connection to the Blue Line. Continued attention to intercity bus accommodations is needed in Phase 1. It is expected that value capture through TFIA would also be able to provide a contribution to the overall cost. Phase 2 is envisioned as creating a new subway along Clinton to connect from Union Station to the Blue Line; this element is unconstrained.

Arterial projects

The arterial projects considered in ON TO 2050 are confined to larger improvements to the non-interstate portion of the NHS, that is, the major roadways that carry a quarter of the traffic in the region. There are many needs for traffic flow, safety, and pavement and bridge condition improvement on this roadway system alone. Most of the projects submitted are relatively short-term priorities for implementers, with construction expected in four to seven years, and with design approval already in place or anticipated to be sought before the ON TO 2050 update.

North Lake Shore Drive Improvements (RSP 89)

[GRAPHIC TO COME: An illustrated graphic will show North Lake Shore Drive improvements. This project will also have a graphic representation of a selection of the

measures from the RSP evaluation process. A full list of project evaluation results can be found in the RSP project benefits appendix.]

The North Lake Shore Drive Improvements project is a unique, complex, and multi-faceted project that would reconstruct numerous failing bridges, correct major safety deficiencies, improve severe travel time unreliability, and protect the drive from worsening storm damage. Lake Shore Drive is a very high ridership transit corridor; during the peak, buses carry 30 percent of travelers between Fullerton Avenue and Oak Street in 1 percent of the vehicles, and over the course of a full day carry 34,000 riders, more than many CTA rail branches. Treatments that provide transit priority to speed bus travel and allow for more service should be key elements of the project. The Redefine the Drive study is currently evaluating alternatives to identify the best way to improve the drive for all users, including drivers, transit riders, and lakefront park users. It is critical for the project to include managed lane strategies to help guarantee more predictable travel, with a strong emphasis on pricing strategies.

The following are the other constrained regionally significant arterial projects

Project	RSP ID	Total cost (YOE \$b)	North/West Limits	South/East Limits	Rationale
Central Av	151	\$0.1	BRC Railroad	54th St	Addresses grade crossing that is part of CREATE
IL-31 Front St	6	\$0.1	IL-120	IL-176	Addresses heavy congestion in eastern McHenry County
IL-43/Harlem Ave	109	\$0.2	BRC Railroad	65th St	Addresses grade crossing that is part of CREATE
IL-47	110	\$0.3	Charles Rd	Reed Rd	Improves deficient bridges and improves operations
IL-60	10	\$0.1	IL-176/Maple Ave	CN RR	Addresses heavy congestion in Lake County
IL-62/Algonquin Rd	11	\$0.1	IL-25	IL-68	Addresses safety, condition, and congestion issues
IL-83/Barron Blvd	13	\$0.1	Petite Lake Rd	IL-120/Belvidere Rd	Provides better reliability and freight mobility
IL-83/Kingery Hwy	111	\$0.1	31st St	Central Ave	Estimated to provide significant economic benefits
IL-131/Greenbay Rd	14	\$0.2	Russell Rd	Sunset Ave	Provides better reliability and has equity benefits
IL-173/Rosecrans Rd	15	\$0.1	IL-59	US-41/Skokie Hwy	Addresses heavy congestion in Lake County
Laraway Rd	55	\$0.3	US-52	Harlem Ave	Provides upgrade roadway to accommodate growth in corridor

Project	RSP ID	Total cost (YOE \$b)	North/West Limits	South/East Limits	Rationale
Randall Rd	46	\$0.5	Corporate Boulevard	North of Oak St	Provides significant mobility and economic benefits
US-12/95th St	112	\$0.1	At Stony Island Ave		Addresses significant intersection operational issues
US-20/Lake St	113	\$0.1	Randall Rd	Shales Pkwy	Replaces deficient bridges and makes key safety improvements
US-45/Olde Half Day Rd	114	\$0.1	IL-60/Townline Rd	IL-22/Half Day Rd	Addresses major mobility/reliability need
Vollmer Rd	145	\$0.1	Kedzie Ave	Western Ave	Benefits EDAs
Wilmington-Peotone Rd	56	\$0.3	IL 53	Drecksler Rd	Improves freight movement and provides economic benefits

Unconstrained projects

Numerous projects could not be included within the fiscally constrained portion of ON TO 2050, either because they require more study or because they cannot be completed within the limits of the region’s forecasted revenues. Projects that meet the RSP definition cannot receive environmental clearance from FHWA or FTA under the National Environmental Policy Act, or access certain federal funding and financing programs, without being in the fiscally constrained portion of the plan. However, projects on the unconstrained list can continue to be studied. The required four-year update of ON TO 2050 in 2022 will provide an opportunity to review the list of RSPs. In addition, plan amendments can be offered outside of the update cycle according to an amendment process that will be tailored to reflect ON TO 2050’s planning priorities.

CMAP, IDOT, and the Tollway are partnering to develop a multijurisdictional, multimodal vision for the region's expressway system that will build on the constrained project list, identifying additional potential investments in the existing system that can improve operations, support transit, and benefit the environment, as well as the additional financial commitments needed to implement this vision. These investments and revenues are outside the scope of ON TO 2050.

The following are the unconstrained regionally significant projects

Caton Farm Road – Bruce Road Corridor

This project would provide a new bridge over the Des Plaines River and I & M Canal as well as approach roadway to join Caton Farm Road and Bruce Road in Will County. Various alignments are presently being studied. Further work is needed to select a final alignment and develop a financing plan for the project before consideration for the fiscally constrained portion of the plan.

Chicago Streetcar Light Rail Lines

Numerous routes for light rail lines in the city of Chicago were submitted by the public, in some cases replacing existing CTA bus service. Limited planning has been conducted with only high-level cost estimation. Modeling for some routes suggests they could generate appreciable ridership, and have positive economic impacts and other benefits. However, they would represent a relatively high capital investment

while not addressing existing system state-of-good-repair needs.

Circle Line

The Circle Line is a proposed circumferential rail service that would connect several existing CTA rail lines. It would be built in two phases, with the north section traveling largely along Ashland Avenue from the Green/Pink Lines to North/Clybourn on the Red Line. The southern portion of the Circle Line would run from the Ashland Station on the Green/Pink Lines to the Orange Line and use that right of way to enter the Loop. This project is costly for the level of benefits it would provide. Ashland BRT also would serve the corridor more cost-effectively.

CrossRail Chicago

This far-reaching and ambitious project involves electrifying and making operational changes to the Metra North Central Service as well as linking that service to the Metra Electric via the St. Charles Air Line south of Union Station. Some improvements considered part of CrossRail are constrained in ON TO 2050, such as the A-2 Crossing. The project shares some elements with the O'Hare Express and may depend on that project's outcome.

Cross-Town Tollway and CTA Route

The Cross-Town Expressway would be a new expressway along Cicero Avenue in Chicago. As submitted by the public, it also includes a rail line similar to the Mid-City Transitway. While it

is estimated to reduce congestion and improve job access more than any other project, it would be very expensive and disruptive to existing communities.

CTA Blue Line West Extension

This project would extend the CTA Blue Line Forest Park Branch to the west along the I-290 and I-88 corridors, with an interim terminus at Mannheim Rd. and an ultimate terminus as far west as Lombard. However, there are major state-of-good-repair needs on the existing line, and improving existing service through the constrained Forest Park Branch Reconstruction project would have a much larger positive impact on riders than extending it westward.

CTA Brown Line Core Capacity

Following station reconstructions and platform extensions to serve eight-car trains in the mid-2000s, this project would further increase capacity on the Brown Line. A program of potential improvements, including reconfiguring the Kimball Yard, upgrading signals, and adding a turnback to short-turn trains, should receive additional study.

CTA Brown Line Extension

This project would extend the CTA Brown Line along Lawrence Avenue from Kimball to the Jefferson Park Transit Center. Rail alternatives are costly relative to the benefits they would provide.

CTA Green Line Extension

This project would extend the Green Line to its historical terminus at Stony Island Avenue. It has a high cost relative to its expected benefits.

CTA Orange Line Extension

This project would extend the CTA Orange Line from its current terminus at Midway Airport to the Ford City shopping center. It would have relatively low benefits for its cost.

CTA Yellow Line Enhancements and Extension

This project would extend the Yellow Line from its current terminus at Dempster Street Station to Old Orchard Mall. It would have relatively low benefits for its cost.

I-80 to I-55 Connector

This project would connect the Illiana Expressway and the Prairie Parkway; its utility depends on their construction.

Illiana Expressway

The Illiana Expressway, a new limited-access facility running east-west through southern Will County, would help alleviate truck traffic on rural roads that is associated with intermodal facilities. However, the improvements to I-80 and I-55 recommended in ON TO 2050 will help address these needs while also fixing infrastructure in a state of disrepair. These efforts can also support the existing communities, residents, and jobs in the subregion. The NEPA



documentation under which the project could advance to construction was invalidated by federal court rulings in 2015 and 2016.

McHenry-Lake Corridor

The utility of this project, which would build a limited access facility through northeastern McHenry County, depends on the construction of the Tri-County Access.

Metra Electric Improvements / Modern Metra Electric

Several proposals to improve the Metra Electric (ME) were considered in ON TO 2050; they have near term promise but need more study. The line has state-of-good-repair challenges that need to be addressed, particularly station condition, and it would have strong benefits for EDAs. Work on the ME should attend closely to the service plan, as initial modeling suggests that eliminating express trains (the Modern Metra Electric proposal) has negative effects on job access. The future of the ME could also benefit from better alignment and integration with CTA service and fare structure and, more broadly, a partnership among agencies in the region committed to implementation.

Metra extensions

A number of extensions to Metra lines were examined for ON TO 2050 and are unconstrained (as distinct from improvements to existing lines, several of which are constrained). For the most part, they would generate limited ridership and make limited improvements to job access, although in some cases they help improve existing operations by allowing for more outlying yard space. The most cost-effective of these projects would extend the BNSF to Oswego/Plano. Preliminary engineering on this project has begun. Supportive land use planning should accompany project development, and either Kendall County or areas within the county should consider joining the RTA service area to further the project. Additional extensions considered included extending the Metra Electric line to a future South Suburban Airport, extending the Milwaukee District North line to Wadsworth or Richmond, extending the Milwaukee District West line to Marengo or Hampshire, extending the Rock Island line to Minooka, extending the BNSF line to Sugar Grove, and extending the Heritage Corridor line Wilmington.

Metra Heritage Corridor Improvements

This project would reduce freight conflicts, upgrade infrastructure, increase service levels, and add stations. Some elements of this project are associated with CREATE. This project is in an early stage of planning.

Metra Milwaukee District North Improvements

This project would enhance the Metra Milwaukee District North line between Fox Lake and the Rondout junction in Lake County by making track, signal, and other improvements. This project is in an early stage of planning.

Metra North Central Service Improvements

This project would upgrade Metra North Central Service to allow for full service levels. This project is currently in an early stage of planning.

Metra Rock Island, UP North, and UP Northwest RER projects

Submitted by the public, these projects would convert the Metra Rock Island, UP North, and UP Northwest lines from diesel to electric operations and would provide higher-frequency, headway-based rapid transit service. Limited planning has been conducted with only high-level cost estimation. Metra is encouraged to study the system benefits and costs of electrification.

Metra SouthEast Service

This project would provide Metra service to communities in southern Cook and northern Will counties. The project is undergoing study currently. A key element of this work should be demonstrating the ability to cover capital and operating costs and showing local financial commitment to provide matching funds for a future New Starts application. Some of the market for the project may be served by the NICTD West Lake corridor, a proposed commuter train service to Dyer, Indiana, that is currently advancing.

North Algonquin Fox River Crossing

This project would provide a new bridge over the Fox River in the gap between the IL 62 and US 14 bridges. It is in an early stage of planning.

North Branch Transitway

This project, in the early stages of planning, would build a new rapid transit line to serve new development associated with the North Branch Framework Plan in Lincoln Park along the Chicago River. The mode has not been determined.

O'Hare Airport Express Train

The City of Chicago is currently studying a train service that would provide a 20-minute or less travel time from O'Hare to downtown and allow baggage check-in. It would be procured as a public-private partnership. Currently at least three service concepts exist with different routes and downtown terminals. Additional study and financial information is needed before consideration for fiscal constraint.

Pace Express Bus Expansion

Pace's collaboration with IDOT and the Tollway to offer faster service by running in the shoulder of I-55 and now I-94 as well as in the flex lane on the Jane Addams has seen early success. Short-term enhancements to Pace's express bus service are considered constrained, but a longer-term look at express bus expansion opportunities will be part of the Vision for the Northeastern Illinois Expressway System project.



Pace Pulse ART Expansion Mid- and Far-Term

While the agency's focus is the constrained short-term routes, Pace's Pulse program includes a number of future routes serving developing markets. These routes would be most effective with supportive land use change over time, and municipalities should specifically seek higher densities and improvements in infrastructure connectivity in those corridors as part of local planning and zoning.

River North-Streeterville Transit Improvements

This project aims to speed bus service on North Michigan Avenue and elsewhere in River North. A project study is ongoing and has not reached a preferred set of improvements; more study is needed before inclusion in the plan.

S.M.A.R.T. (Suburban Metropolitan Area Rapid Transit)

Submitted by the public, this project would build a circumferential monorail. While its modeled improvement to travel times and job access are high, because of its high capital requirements, it is not cost-effective and does not address existing system needs.

STAR Line (Initial, Eastern, and Northern Segments)

This project would create a new rail service from Joliet to Hoffman Estates through western Will, DuPage, and Cook counties, and also connect Hoffman Estates to O'Hare airport along I-90. In addition to the Initial Segment from Joliet to O'Hare, further extensions to Waukegan and Lynwood were also evaluated. Modeling suggests the project would have limited cost-effectiveness. Further, the transit market along I-90 is now served by Pace's express bus service in the Jane Addams flex lane, and future express bus and Pulse service could provide similar north-south connectivity.

Tri-County Access

A northern extension of IL-53 and expansion of IL-120 in Lake County could have substantial mobility benefits for the region, however a new consensus regarding this project's scope, design, and financing is needed. Prior planning efforts provide solid foundations to identify a solution, however these studies either need updating or did not complete the federally required analyses needed to support a decision. In 2017, the Tollway, in collaboration with FHWA and IDOT, initiated the Tri-County Access Project EIS to address transportation needs in eastern McHenry, northern Cook, and Lake counties. The Tri-County Access project EIS will build on prior studies to inform the identification of a preferred alternative for transportation improvements in the project area. As it progresses, the Tri-County Access Project should identify fundable solutions that improve mobility, preserve community character, and preserve environmental quality identified in the most recent previous planning effort, the Blue Ribbon Advisory Council report from 2012.²⁹⁶

²⁹⁶ "Illinois Route 53/120 Project: Blue Ribbon Advisory Council Resolution and Summary Report," June 7, 2012, https://www.illinoistollway.com/documents/20184/96209/2012-06_FinalCouncilSummaryReport_web.pdf/4a6426bf-a46b-476e-bdee-bdc4b2d26d21?version=1.0.

West Loop Transportation Center Phase II

This project would expand on Phase I improvements to Union Station by building north-south and east-west subway tunnels to connect CTA and Metra service. It is in an early stage of planning.



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The Chicago Metropolitan Agency for Planning (CMAP) is our region's comprehensive planning organization. The agency and its partners are developing ON TO 2050, a new comprehensive regional plan to help the seven counties and 284 communities of northeastern Illinois implement strategies that address transportation, housing, economic development, open space, the environment, and other quality-of-life issues.

ON TO 2050 is scheduled for adoption in October 2018.