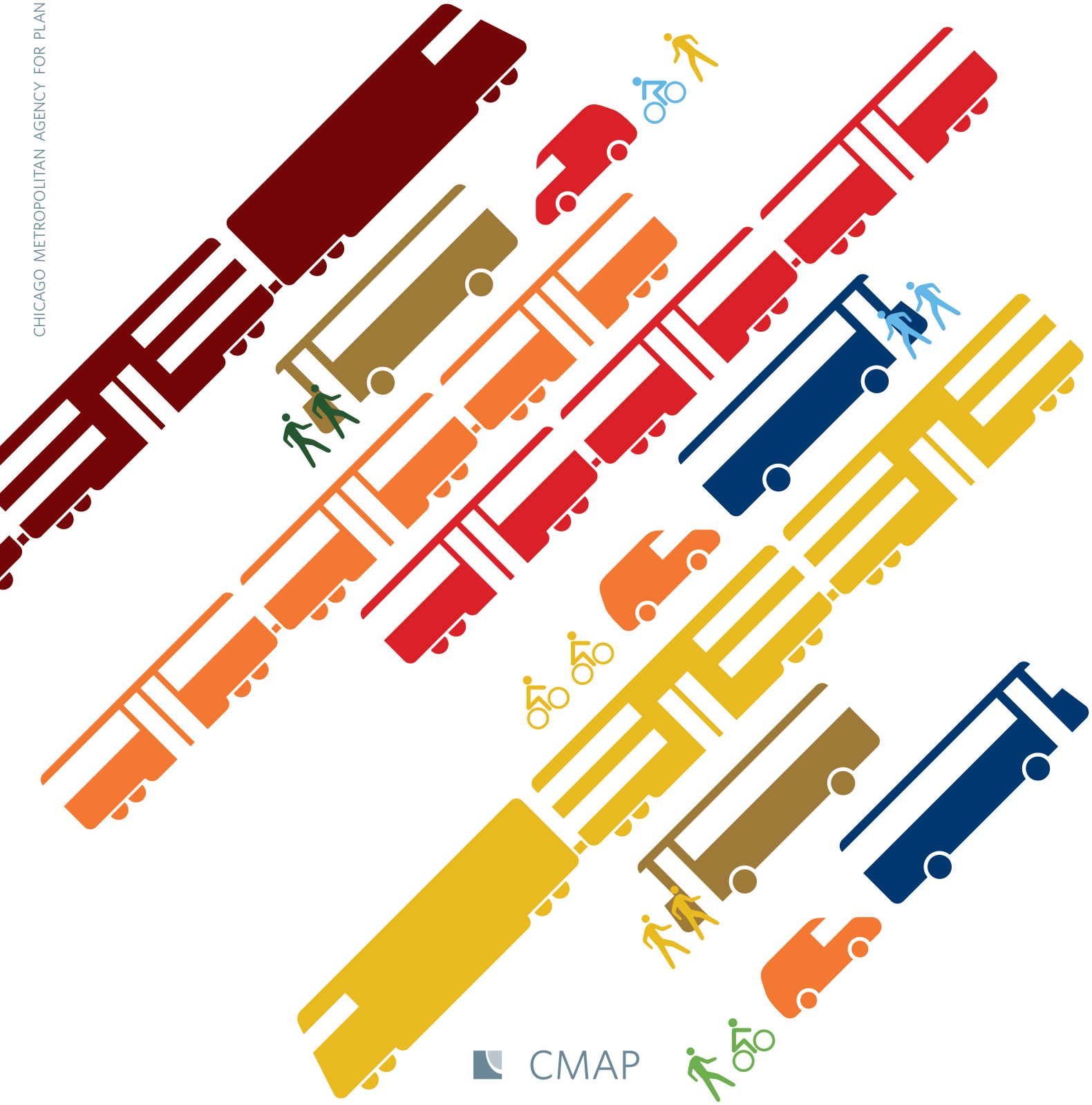
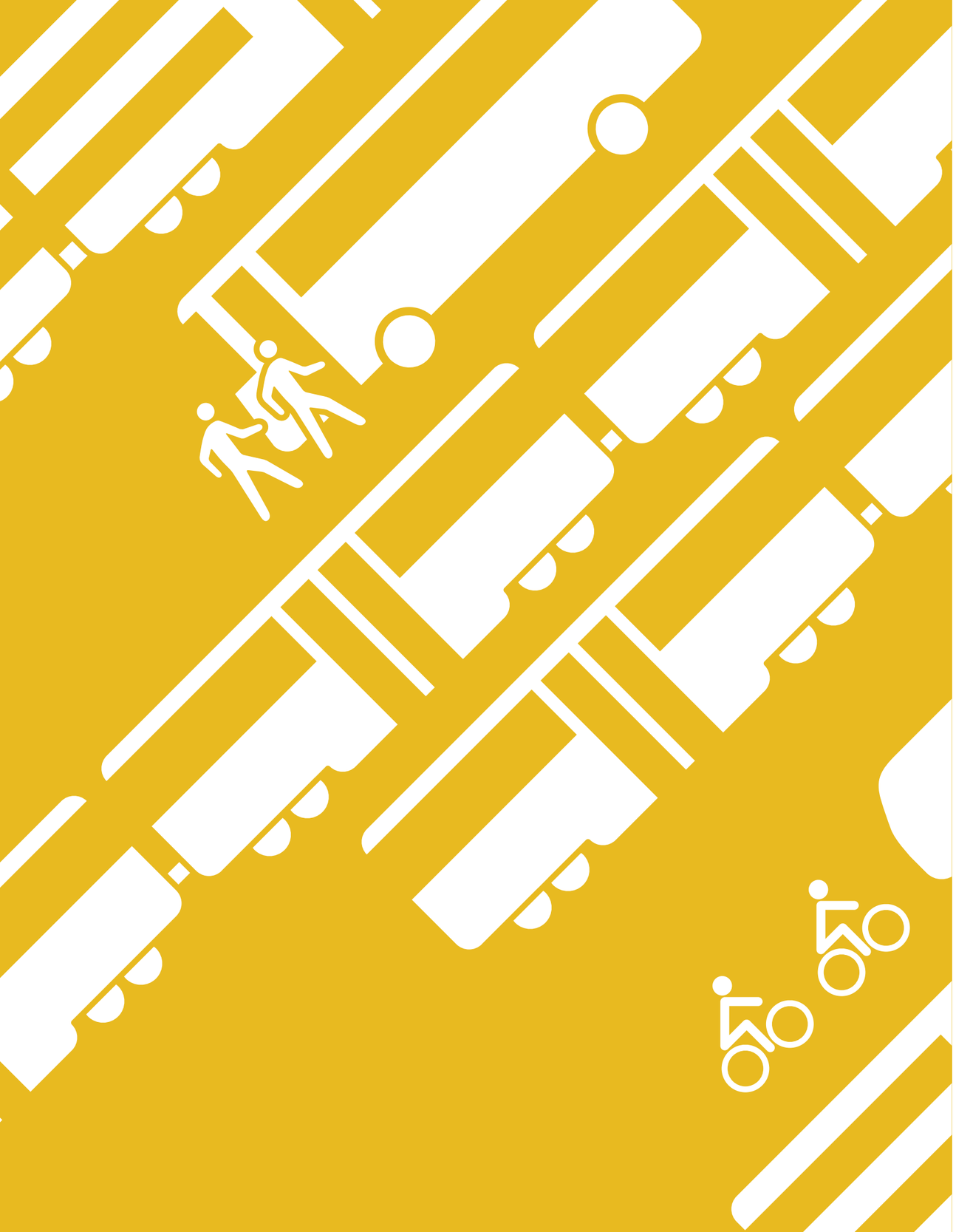
CHICAGO METROPOLITAN AGENCY FOR PLANNING | **ON TO 2050** SNAPSHOT

Travel Trends

Understanding how our region moves



CMAP



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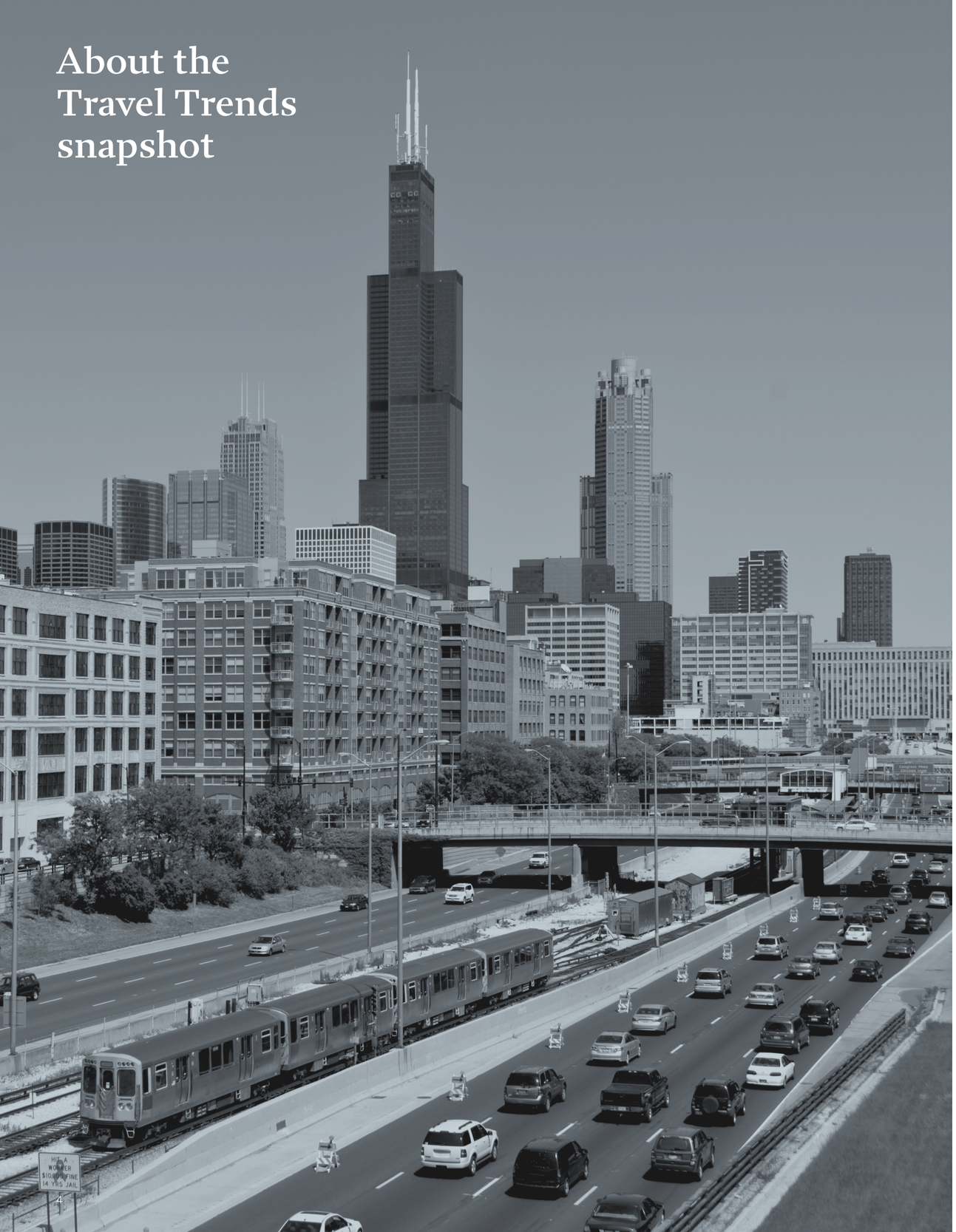
About the Travel Trends snapshot



On an average weekday, people in the Chicago region travel a cumulative distance of more than 136 million miles. They travel for a variety of reasons, including shopping, commuting, and to reach recreation destinations. The average resident over the age of 13 makes about four trips each weekday, with each trip averaging less than five miles.[1]

After decades of consistent growth in private vehicle ownership and use at the national, state, and regional levels, the past ten years have brought a significant shift as rates of vehicle miles traveled (VMT), single occupancy vehicle (SOV) commuting, and vehicle ownership have remained constant or even declined. Whether a temporary response to recent economic trends or a permanent change in people's travel behavior, these patterns have important implications for how we plan for our transportation system. While automobile travel is likely to remain the most common way that people move around the region, ON TO 2050 will continue performance-driven analysis of proposed improvements and expansions to the transportation network to determine the most effective use of scarce funding.

Regional trends provide important information about how metropolitan Chicago is changing over time, but travel behavior in the region is not homogeneous. Residents make individual choices about travel that are influenced by a number of interrelated factors, including age, income, race/ethnicity, and the location of their home and work.

Transportation technology is also changing. People are increasingly taking advantage of new, technology-enabled ways of getting around, including bike sharing, car-sharing services like Zipcar, and ride-sourcing companies like Uber and Lyft. These services are likely to continue to play a role in the transportation system, and the region should seek opportunities to integrate them into a more efficient and flexible transportation network that serves all residents.

This snapshot report delves into data on existing and emerging travel behavior patterns in the region regarding mode share, vehicle use, travel time, and commuting patterns, highlighting the most significant findings that will inform the development of ON TO 2050. The first section focuses on the recent decline in VMT and some possible explanations for this change, including economic conditions and generational differences in driving habits. The second section explores commuting patterns and how workers' travel decisions are shaped by a number of interrelated factors, including where they live and work, whether they own a car, how much they earn, and the value they place on their time, cost, and comfort. The final section briefly explores new ways people are getting around the region.

A well-functioning regional transportation system helps residents safely, efficiently, and comfortably go about their daily business.

During development of ON TO 2050, it will be especially important to consider the transportation needs of growing demographic groups, including seniors and people of color — as well as those of limited income — and to identify transportation options that promote participation in the region's economy for all residents.

Photo by grendelkhan / Flickr

Trends in vehicle miles traveled

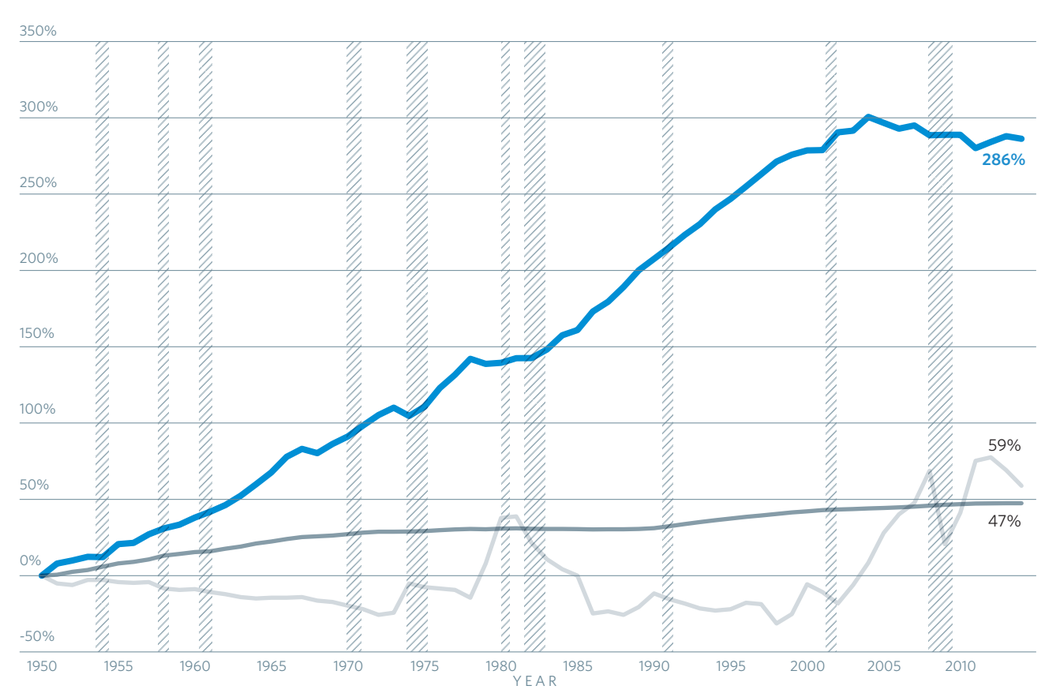
Nearly 80 percent of all trips in the region are taken in a car, and annual VMT is an important and longstanding metric of vehicle use. Longstanding VMT trends at the national, state, and regional levels shifted within the last decade. Consistent with nationwide statistics, VMT in Illinois grew faster than population between 1950 and 2004, but the last decade has seen this trend stall both nationally and in Illinois. Annual VMT peaked in Illinois in 2004 and since then has declined by 3.6 percent. Travel on the Chicago region's interstates, freeways, and arterials declined by 6.6 percent over this same period, substantially more than the statewide decline.

The sustained decline in VMT at both the state and national levels over the last decade is unprecedented. The potential causes of this trend are varied, but recent economic shifts have likely been a factor. The peak in annual statewide VMT coincided with a rise in gasoline prices that began in 2003. Throughout the economic recession, VMT in Illinois declined and then remained at lower levels during the subsequent economic recovery. Major questions remain about whether lower VMT levels will be sustained into the future, particularly if the economy continues to recover and the price of gas remains low. Some evidence already indicates that annual VMT is beginning to rise again nationally. However, the assumption of continued VMT growth needs to be reexamined.

Consistent with nationwide statistics, VMT in Illinois grew faster than population between 1950 and 2004, but the last decade has seen this trend stall both nationally and in Illinois.

Percent change since 1950 in annual VMT, population and gas prices in Illinois

Source: U.S. Census Bureau, Illinois Department of Transportation, U.S. Energy Information Administration and Federal Reserve Bank of St. Louis.



Generational differences in travel behavior

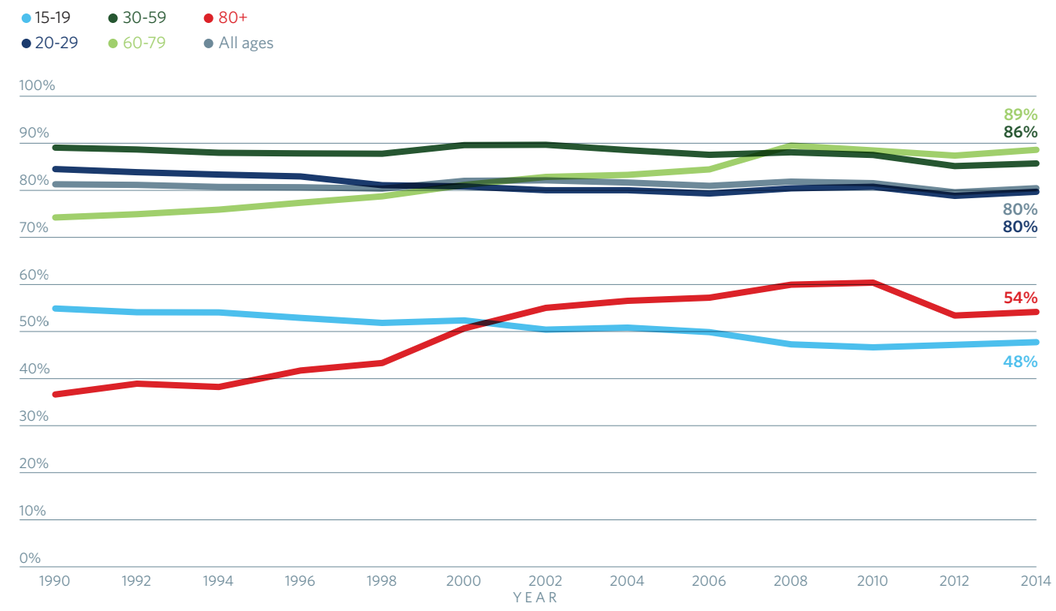
Recent changes in VMT trends are more likely to be permanent if the current decline is driven by a fundamental shift in travel behavior among younger generations. In Illinois, as in much of the rest of the country, there has been a decline in the percent of teenagers receiving driver's licenses over the last decade. This change may be a result of different travel preferences among younger generations that will persist throughout their lives, but it may also be the result of policies and economic factors that particularly affected younger drivers, including the implementation of a statewide graduated driver's licensing program for teens in 2008, rising gas prices beginning in the early 2000s, and the economic downturn.

While travel behavior of millennials has prompted considerable public discussion, declining licensing rates are not unique to that demographic group (the oldest of whom turned fifteen in the mid-1990s and are currently in their mid-30s). In fact, Illinois residents with driver's licenses are now a lower proportion across almost all age groups compared to the early 1990s. The state's seniors are the exception. Licensing rates have increased for people 55 and over, and the most dramatic increase is among those over retirement age — a fast-growing demographic group. As of the late 2000s, those between the age of 65 and 79 are more likely to have driver's licenses than people in their prime working years.

The number of driver's licenses is not a perfect indicator of how much people are actually driving — overall licensing rates held steady throughout the 1990s while annual VMT increased rapidly. In addition, not everyone who has a driver's license uses it the same way. Young adults and the elderly both have mobility needs and constraints that result in driving behaviors different from adults in their prime working years. According to the most recent travel survey, the region's youngest and oldest residents make fewer trips and travel shorter distances on each trip than middle-aged adults do. Young adults are particularly frequent users of transit and active modes of transportation. Seniors make fewer trips as drivers but are more reliant on passenger vehicles than people in other age groups are.

Percent of Illinois population with driver's licenses, by age groups, 1990-2014

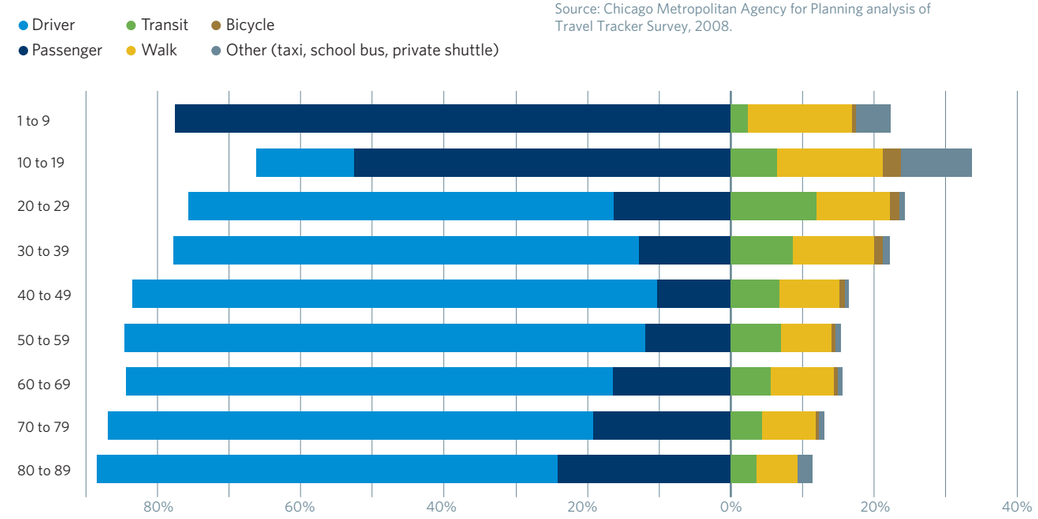
Source: U.S. Federal Highway Administration Highway Statistics and U.S. Census Bureau intercensal population estimates.



Means of residents' transportation by age in the CMAP region, all trip purposes, 2008

Note: The CMAP region includes Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties.

Source: Chicago Metropolitan Agency for Planning analysis of Travel Tracker Survey, 2008.



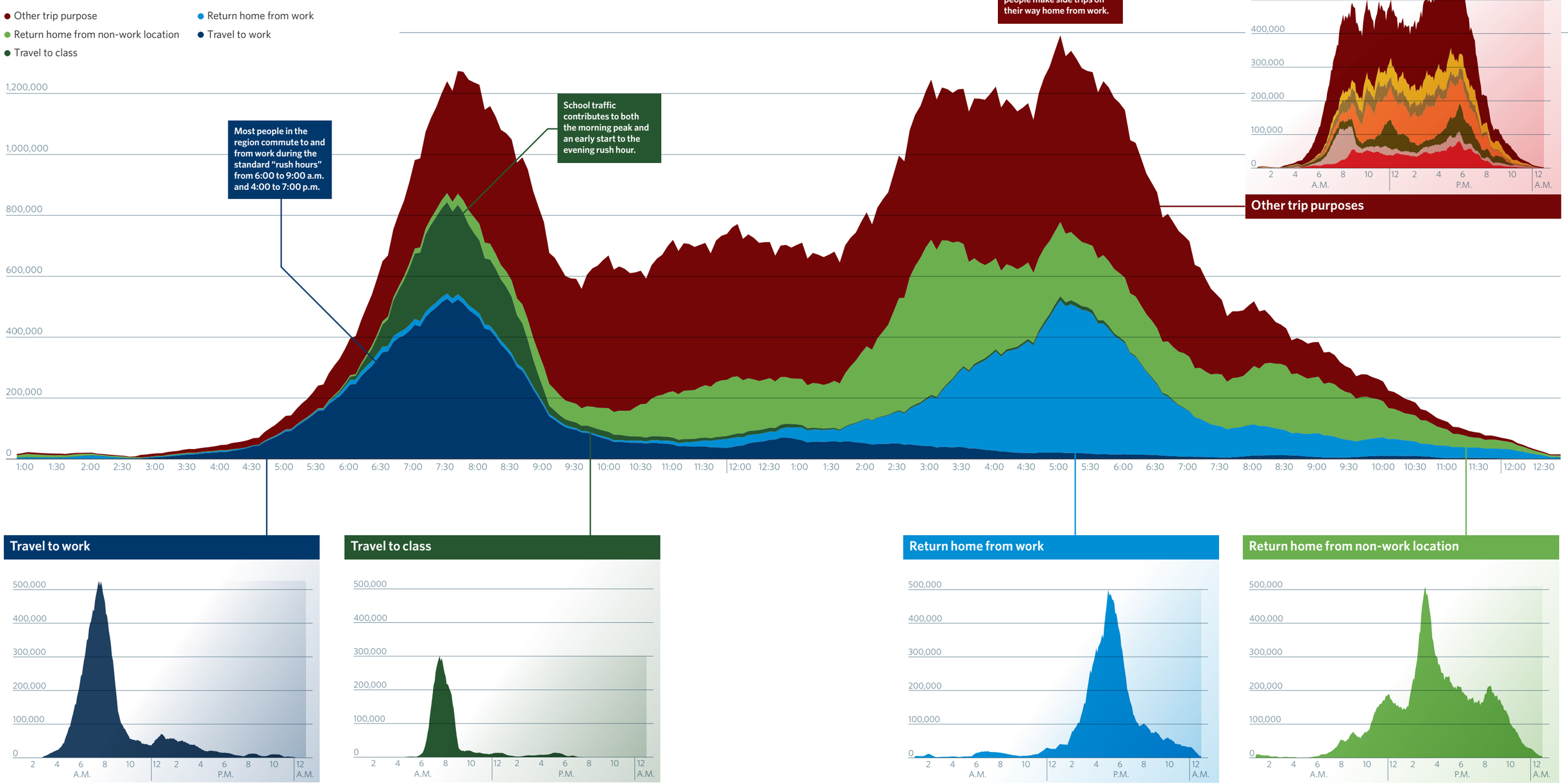
Commuting patterns

The mode that workers choose for commuting affects the mode they use for other trips. For example, someone who drives to work is likely to stop at a grocery store on the way home. Commute mode trends, therefore, reveal important information about the region's transportation system, and changes in the way people commute are likely to have an outsized impact on the transportation system.

Getting to and from work is only a part of residents' daily travel routines, but because so many people build the rest of their routines around their work schedules, commute travel patterns play an important role in defining the transportation system's overall capacity needs.

Trips in motion by time of day in the CMAP region, 2008

Source: Chicago Metropolitan Agency for Planning analysis of Travel Tracker Survey, 2008.



Commute mode share and commute time

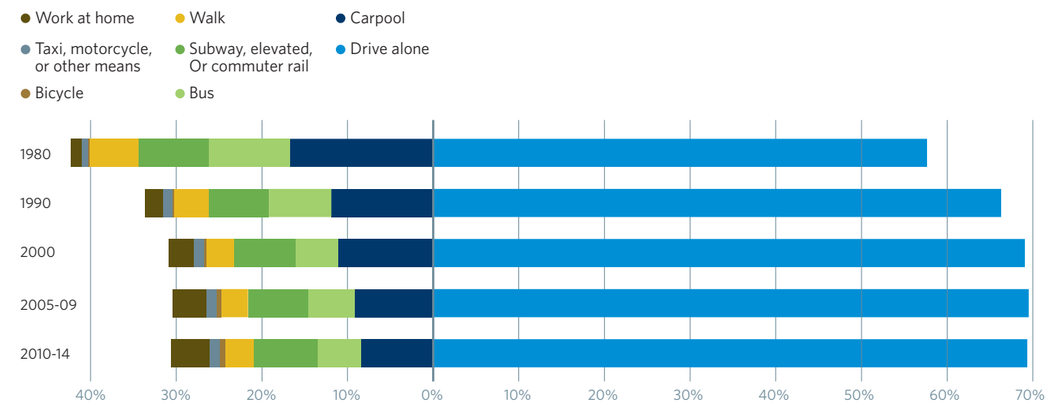
As with VMT, data indicate the recent slowing of a decades-long trend toward private automobiles and away from public transportation and active transportation modes like walking and bicycling. While single occupancy vehicle (SOV) trips still represent the majority of work trips, SOV mode share in the region has not increased since 2000. During the same period, the composition of the remaining 30 percent of commute mode share diversified. The proportion of residents who work from home has steadily increased as technology has enabled more flexible working arrangements, while the share of the region's residents who reported carpooling to work has seen the most rapid decline. Although bicycling represents less than one percent of overall work trips, this mode saw the greatest percentage increase: it more than tripled between 1980 and 2014.

Mode of transportation affects commute time. Over the last decade, the average commuter in metropolitan Chicago has consistently had a one-way commute of around 30 minutes. Because nearly three-quarters of commuters drive alone to work, the regional average commute time is very close to the average SOV commute time, while the average commuter rail trip is more than twice as long. But these averages do not compare travel times on equivalent trips. For example, traveling from Harvard to the Loop during rush hour takes an hour and 45 minutes on the train but can take up to 2.5 hours by car. In other cases, people may be willing to use transit for a trip that would be faster in a car because they can spend their time reading or working rather than navigating rush hour traffic.

While single occupancy vehicle (SOV) trips still represent the majority of work trips, SOV mode share in the region has not increased since 2000.

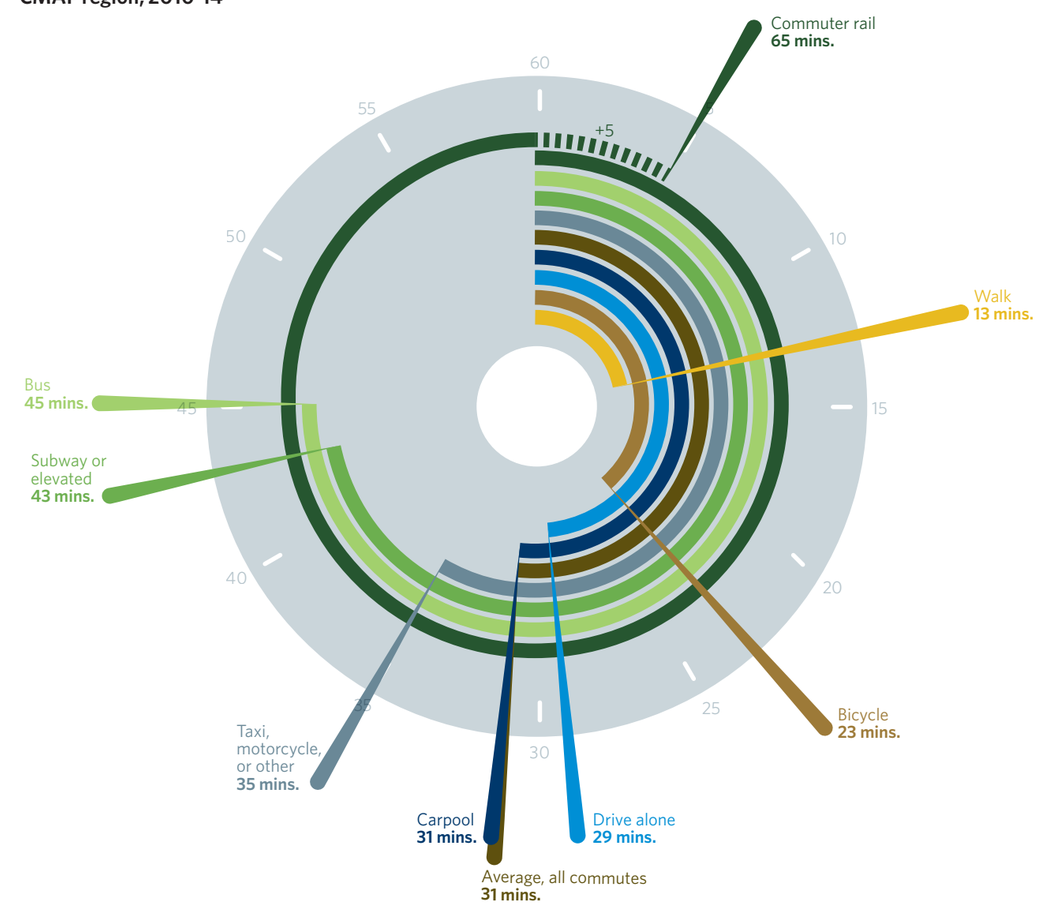
Commute mode share in the CMAP region 1980, 1990, 2000, 2005-09, and 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of U.S. Decennial Census data, 1980-2000 and American Community Survey estimates for 2005-2009 and 2010-2014.



Average one-way commute time by mode in the CMAP region, 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey 5-year Public Use Microdata Sample, 2010-2014.



Factors influencing commute mode choices

Commuters make different commute choices based on a number of interrelated factors, including where they live and work, whether they own a car, how much they earn, and the value they place on their time, cost, and comfort. Examining these differences can reveal how land use and development patterns interact with the transportation system.

Photo by David Wilson / Flickr.

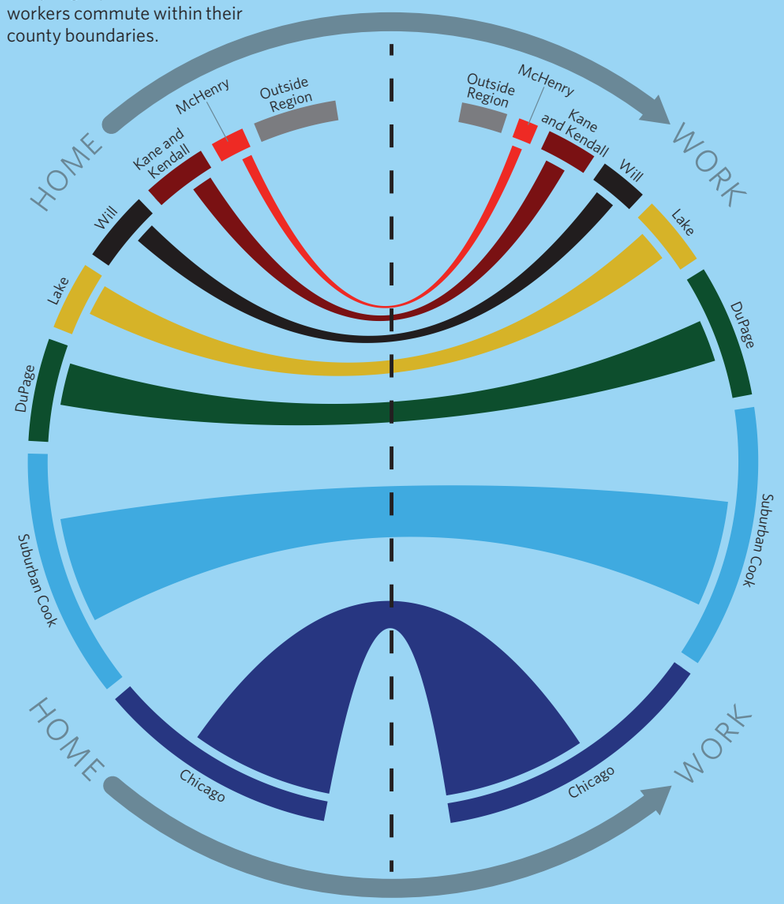
Place of residence and work

Patterns of residential and commercial development in the region shape commutes in important ways. For a mode other than driving alone to be convenient to most workers, it must be accessible from both home and work.

Many commutes cover relatively short distances: In all but Kendall County, the plurality of workers commute within their county boundaries. This is particularly true for the densest parts of the region — for example, 64 percent of workers living in the city of Chicago commute within city limits. Chicago is home to about a third of the region's jobs, but 57 percent of workers live and work in suburban areas. Fourteen percent of the workforce commute from the collar counties into Chicago, while 10 percent "reverse commute" from denser parts of the region to more suburban and rural municipalities.

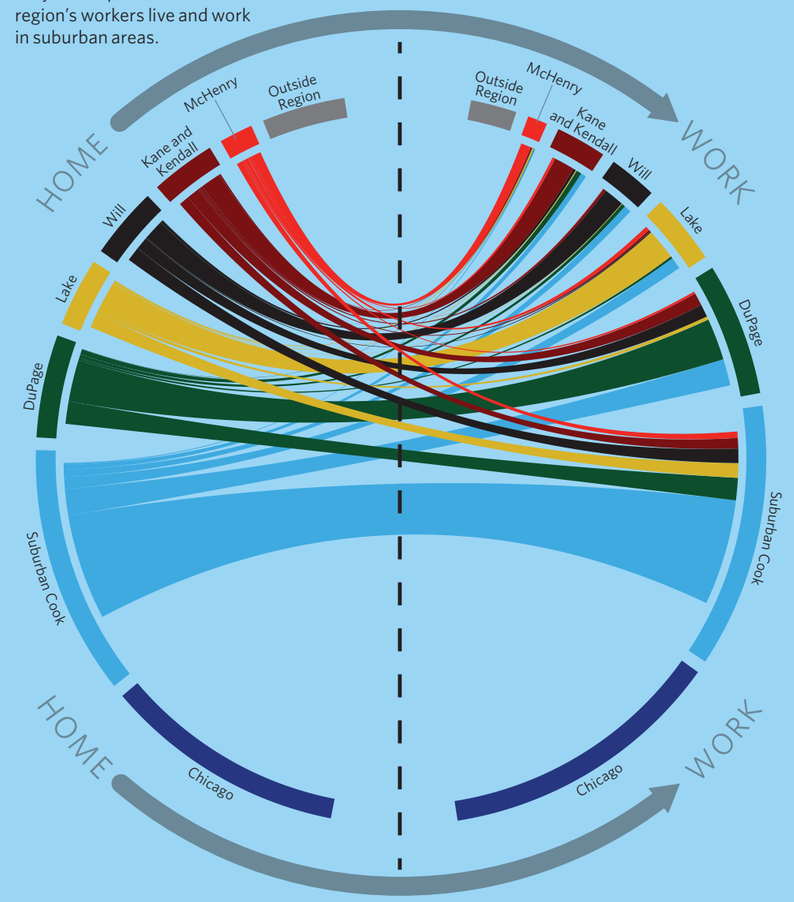
Intra-county commute flows

Forty-eight percent of workers commute within their county boundaries.



Suburban commute flows

Fifty-seven percent of the region's workers live and work in suburban areas.

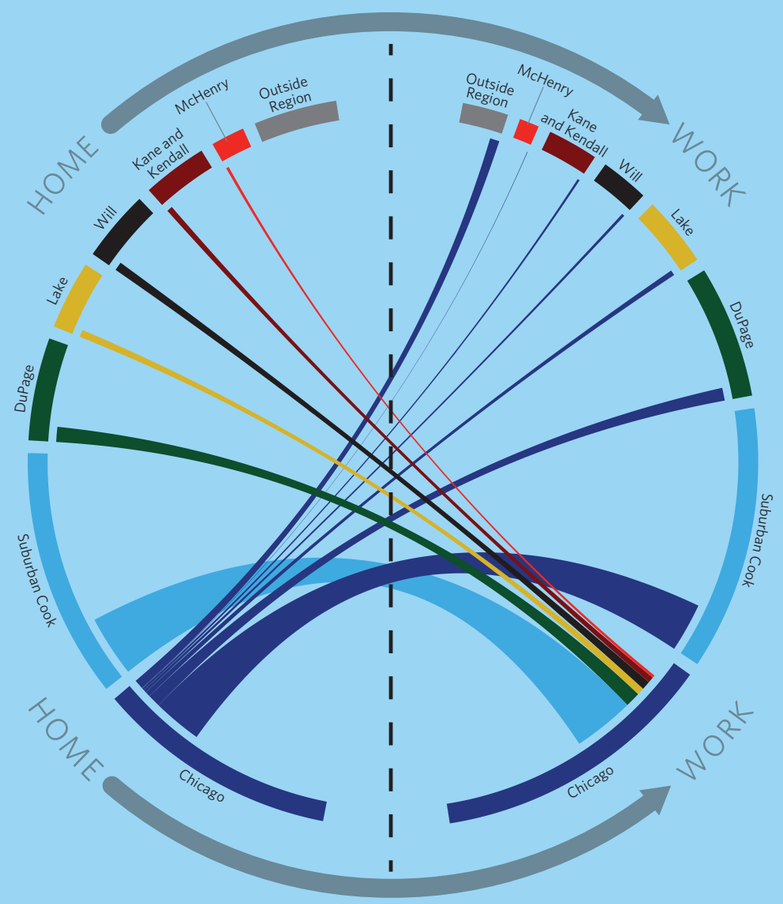


These infographics show the flow of workers who live in the CMAP region from their home to place of work, regardless of their mode of travel.

Source: Chicago Metropolitan Agency for Planning analysis of U.S. Census Longitudinal Employer-Household Dynamics data, 2014.

Commute flows into and out of Chicago

Fourteen percent of the region's workforce commute from the collar counties into the city of Chicago while ten percent "reverse commute" from Chicago to more suburban and rural municipalities.

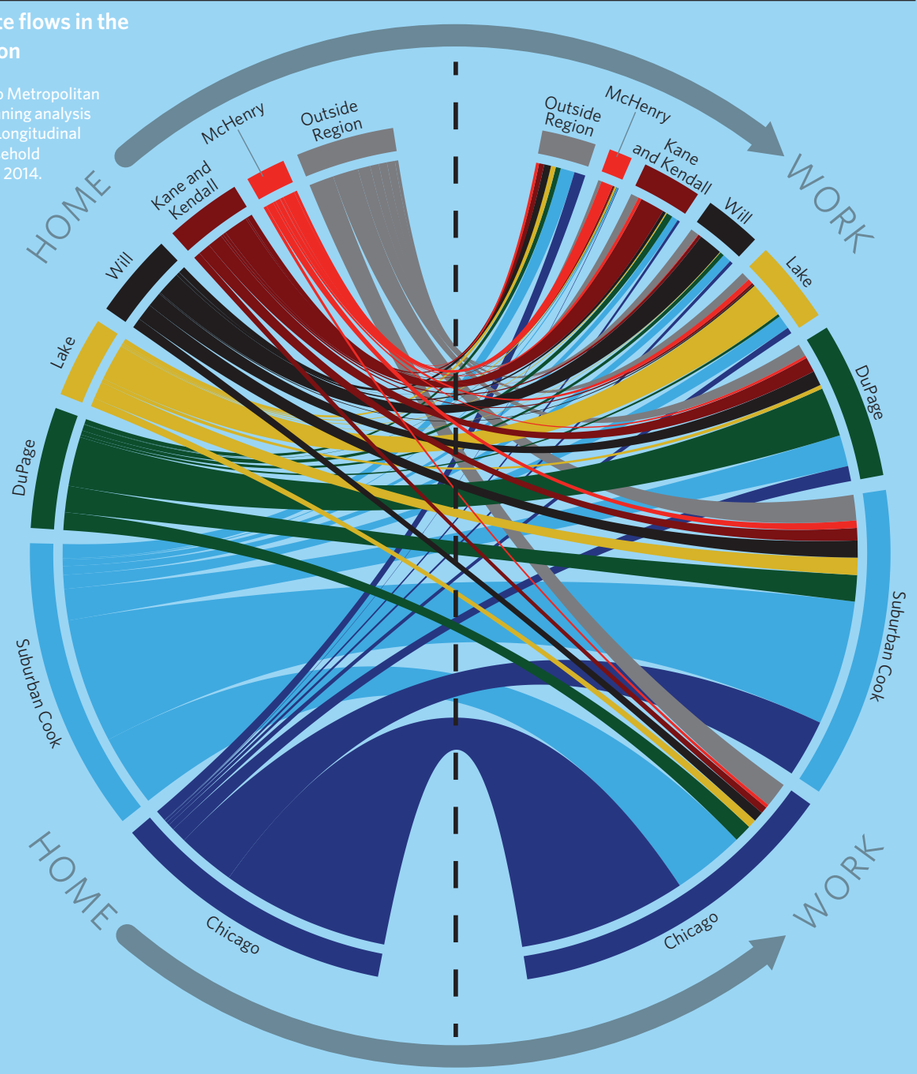


The city of Chicago's extensive public transportation network, dense development patterns, and status as a major employment center result in much higher rates of non-automotive commuting than in the rest of the seven-county region. According to the U.S. Census Bureau 2010-14 American Community Survey, two-thirds of the region's public transit commuters live within Chicago's city limits, including 85 percent of bus commuters. Residents of suburban Cook County also have higher rates of public transit use than the region as a whole, likely because these residents tend to live closer to transit than do residents of the collar counties, and they tend to commute to areas served by transit.

DuPage County also has a comparatively large number of workers commuting into suburban Cook County and downtown Chicago, and workers making this commute by rail account for nearly all of the public transit commute mode share for DuPage residents. Lake County's workers have the highest rates of pedestrian commuting outside of Chicago, facilitated by short-distance commutes in higher-density areas of that county, particularly around Naval Station Great Lakes. People who live and work within Kane, Kendall, McHenry, and Will counties have limited access to public transit modes, and longer average trip lengths often make biking and walking a less viable option. As a result, workers in these counties are more likely to commute by car.

All commute flows in the CMAP region

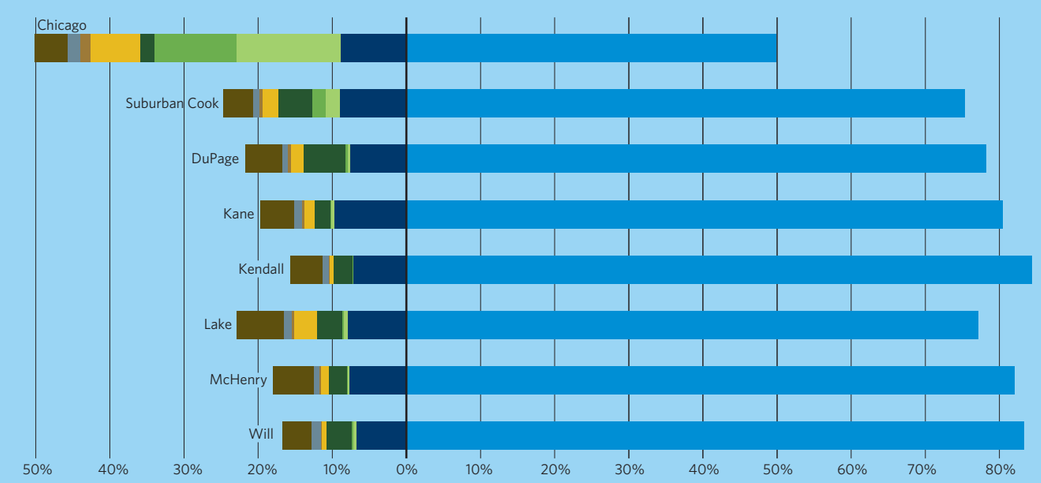
Source: Chicago Metropolitan Agency for Planning analysis of U.S. Census Longitudinal Employer-Household Dynamics data, 2014.



Commute mode share by county, 2010-14

Note: The CMAP region includes Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will Counties.

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2010-2014.

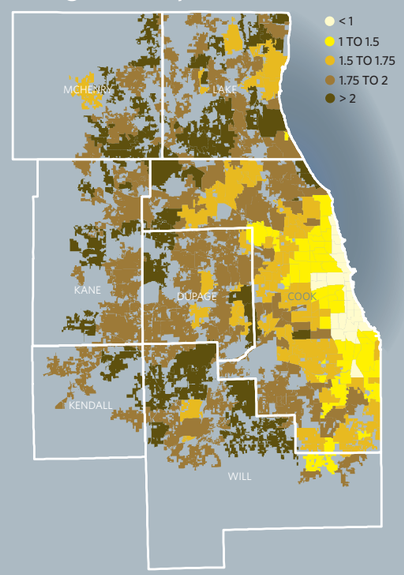


Vehicle ownership and use

In the metropolitan Chicago area, patterns of vehicle ownership and use match commute mode share patterns: the counties with higher rates of people driving alone to work also have higher rates of VMT per household. The distance people drive each car they own is relatively constant across the region, but the number of cars people own varies more substantially. For example, on Chicago's South Side, which has among the lowest average VMT per household, each vehicle spends more time on the road than the regional average. However, households in this area are much less likely to own multiple vehicles. Households in the collar counties have the highest vehicle use rates in the region because they own more vehicles than average and drive each vehicle longer distances.

Variation in vehicle ownership rates across the region is likely related to residents' commute patterns, access to transit, land use, housing tenure, and income. In suburban areas where one or more family members are likely to commute by car, vehicle ownership rates are higher. In denser communities with more abundant transit alternatives, car ownership is less essential. Lower-income residents may not be able to afford vehicle ownership. Throughout the region, renter households — which tend to be smaller, lower income, and less likely to have available parking — own fewer cars than homeowners do. Twenty-eight percent of renter households have zero vehicles, compared to five percent of owner-occupied households.

Average vehicles per household



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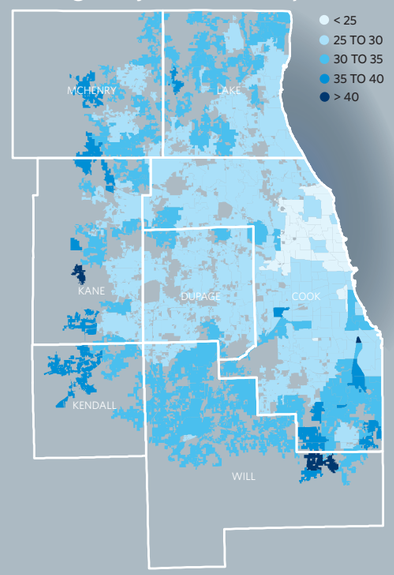
Average daily miles traveled per vehicle



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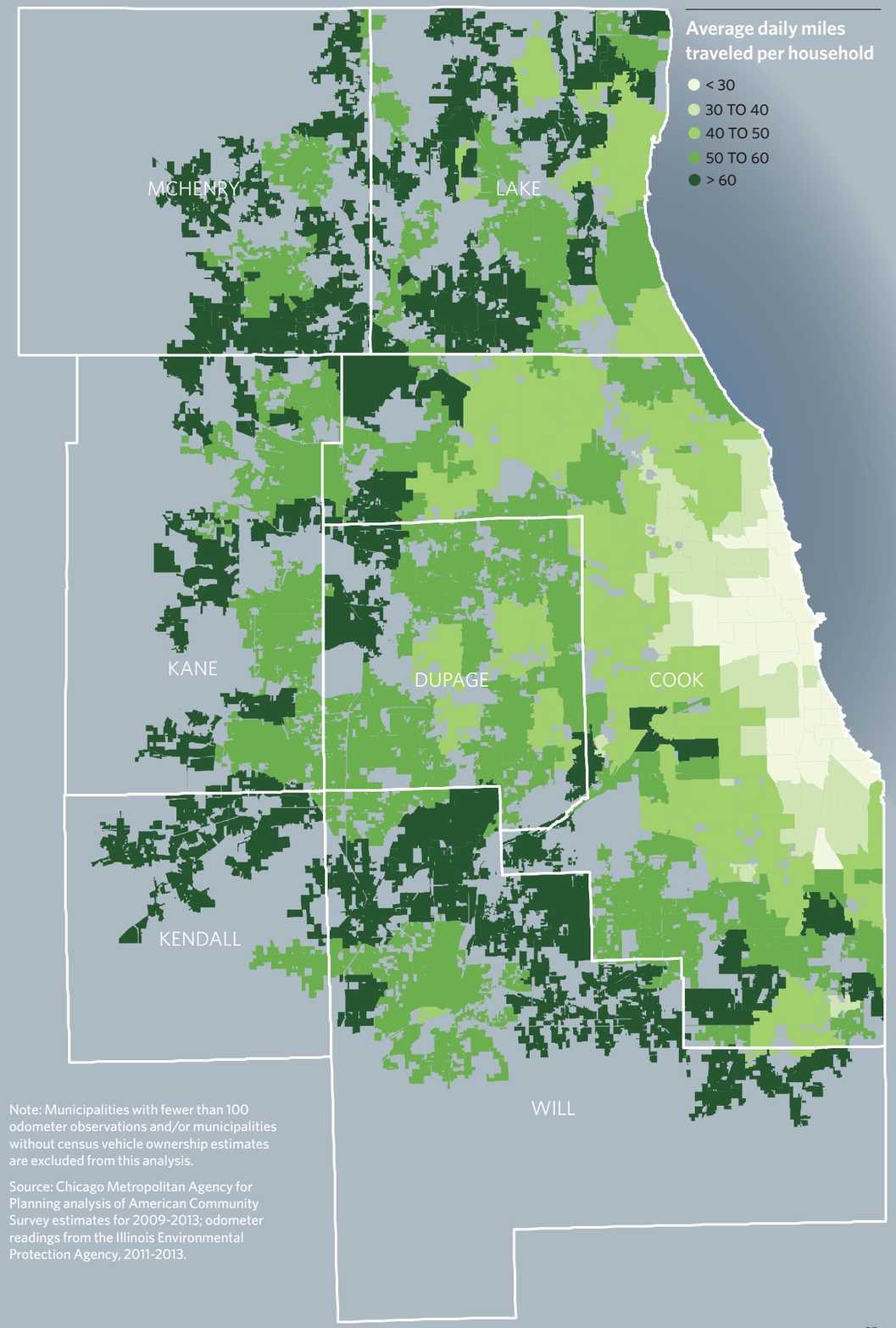


Note: Municipalities with fewer than 100 odometer observations and/or municipalities without census vehicle ownership estimates are excluded from this analysis.

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2009-2013; odometer readings from the Illinois Environmental Protection Agency, 2011-2013.

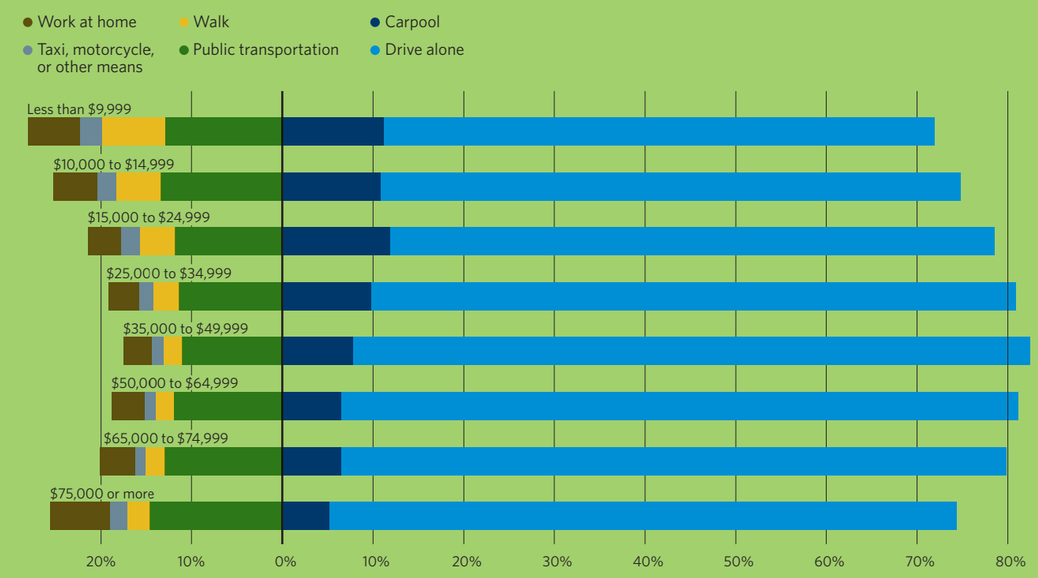
Worker earnings

The conventional wisdom that income plays an important role in workers' mode share decisions is confirmed by data on mode share by worker earnings. Workers with the lowest earnings are the least likely to drive alone to work, but workers in the highest earning brackets also have lower than average rates of solo auto commutes. While auto ownership may be unaffordable for many low-earning workers, the decline in SOV commuting among the region's highest-compensated workers may be explained by a couple of factors. For one, high wage jobs are more concentrated in certain dense areas with better access to transit, particularly within Chicago's Loop. High earners also have more choice in the housing market and may choose to live in areas with better access to public transportation, while low and moderate earners may struggle to afford living in communities that have good access to jobs.

Within Chicago, transit mode share is substantial across all earnings brackets, but declines slightly with income. In suburban areas, the highest earners are the most likely to use public transportation and use it at more than double the rate of the lowest earners. This is likely due to Metra riders, because half of Metra riders have household incomes over $100,000.[2] It is likely that high earners use commuter rail to reach jobs in downtown Chicago while low earners use carpools as a money-saving strategy to get to industrial, wholesale, and retail job centers in more diffuse locations or at times not as well served by public transit.

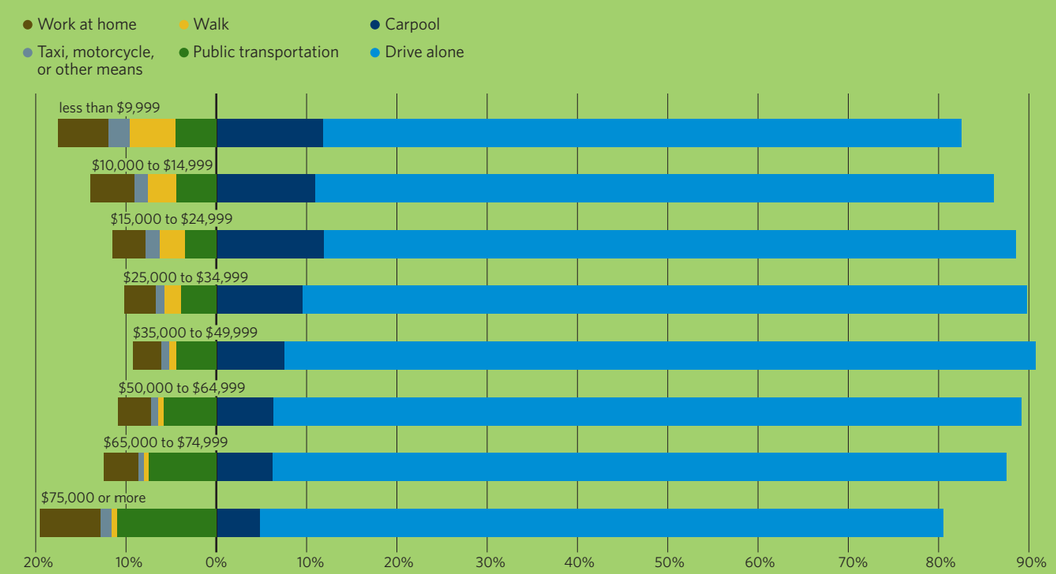
Mode share by worker earnings, CMAP region, 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2010-2014.



Mode share by worker earnings, suburban Cook (excluding Chicago) and collar counties, 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2010-2014.



Race and ethnicity

Geographic segregation, income inequality, and access to opportunity are interconnected, and the different commute patterns of workers of different races and ethnicities in the Chicago region demonstrate these connections. Racial housing segregation has been a problem in the region for decades, and patterns of segregation persist to this day.[3] Because housing location has such a strong impact on mode choice, there are significant differences in commute mode share between races.

White and black workers living in Chicago make similar choices about the type of transportation to use for their commutes, as do white and black workers living in suburban areas. But because the majority of the region's black workers live in Chicago where transit access is more widespread, and the majority of the region's white workers live in suburban areas with higher auto dependence, there are significant racial differences in mode share at the regional level. Region-wide, black commuters use public transit at nearly double the rates of other racial groups.

Residential patterns also affect the type of public transit that commuters of different races use most frequently. While subway and elevated train mode share is relatively constant across races, black workers use bus transit at more than double the rates of other racial and ethnic groups. Nearly 20 percent of the region's black residents live in census tracts within a half mile of a Chicago Transit Authority (CTA) bus stop but without nearby access to commuter rail or CTA train stations, compared with 9 percent of whites and 12 percent of Asians.

Photo by David Wilson

Hispanics are as likely as blacks to live in areas with bus service without nearby rail stops but are more likely to carpool than take the bus. Hispanic workers are more than twice as likely to carpool as their black and white counterparts in both urban and suburban areas. Higher carpooling rates may be a function of job locations or commute schedules that are not served as well by nearby transit. It is possible that nativity also plays a role. In the Chicago region, 18 percent of Hispanic immigrants carpool compared to 11 percent of U.S. born Hispanics. Foreign-born Asians also carpool at higher rates and take the subway at lower rates than Asians born in the U.S. The region's Asian workers have low SOV mode share, particularly those living in Chicago. Only 42 percent of Asian workers living in the city drive alone to work, and more than 11 percent walk.

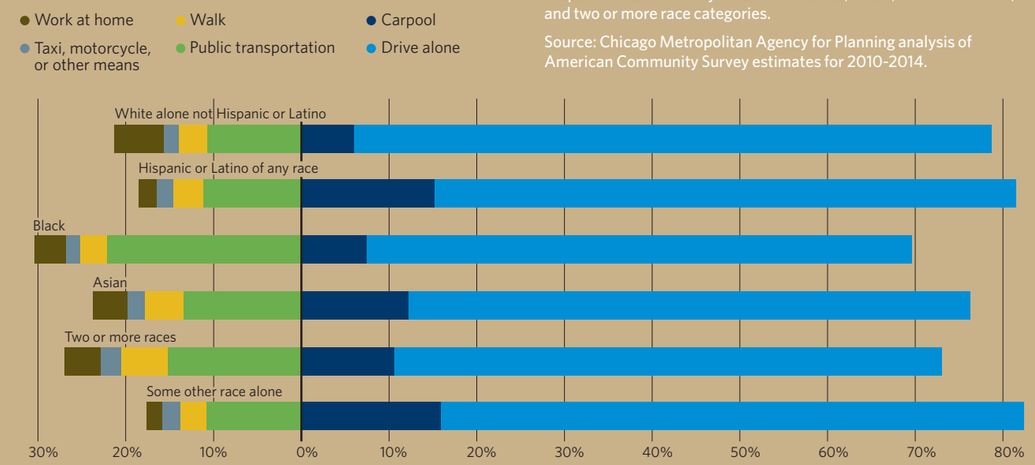
The region's black workers spend the most time commuting: five additional minutes each way per day on average compared to commuters of other races. This adds up to nearly an hour of additional commute time each week. These longer commutes are partly a function of greater use of public transit modes — which have longer commute times — among black commuters. But differences in mode share do not fully explain differences in commute times. Bus and subway commuters who are black have noticeably longer average commutes than bus and subway commuters of other races. This disparity is consistent with research in other large cities, including New York City, Los Angeles, and San Francisco.[4]

Geographic segregation, income inequality, and access to opportunity are interconnected, and the varied commute patterns of workers of different races and ethnicities in the Chicago region demonstrate these connections.

Commute mode share by race, CMAP region, 2010-14

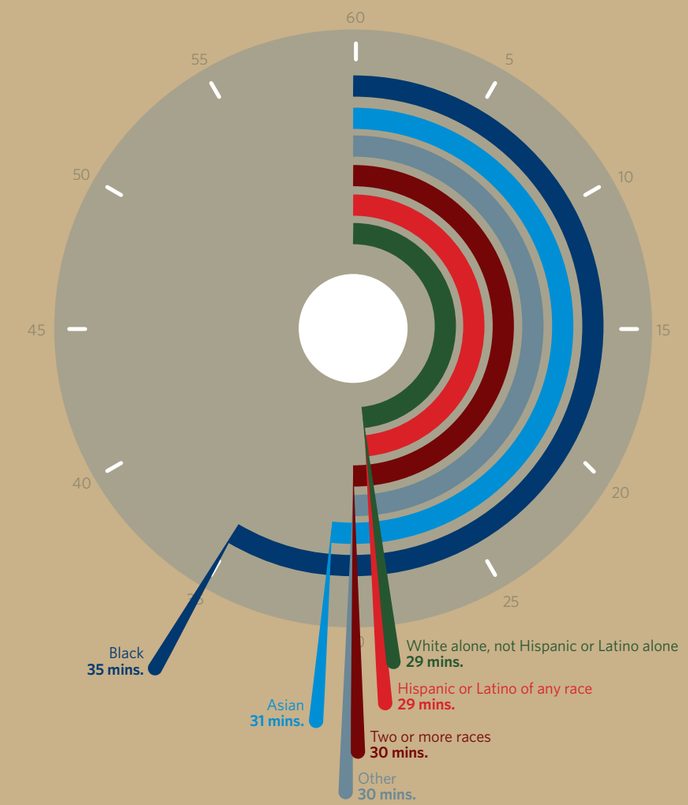
Note: the U.S. Census Bureau gathers data on Hispanic origin separately from data on race. Thus, there is some overlap between Hispanic or Latino of any race and the Black, Asian, some other race, and two or more race categories.

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey estimates for 2010-2014.



Average one-way commute time by race in the CMAP region, 2010-14

Source: Chicago Metropolitan Agency for Planning analysis of American Community Survey 5-year Public Use Microdata Sample, 2010-2014.



Emerging modes

Over the last few years, new ways of getting around have begun to flourish. Bike-sharing programs and new technology-enabled forms of hailing car rides have taken off around the country and in the Chicago region.

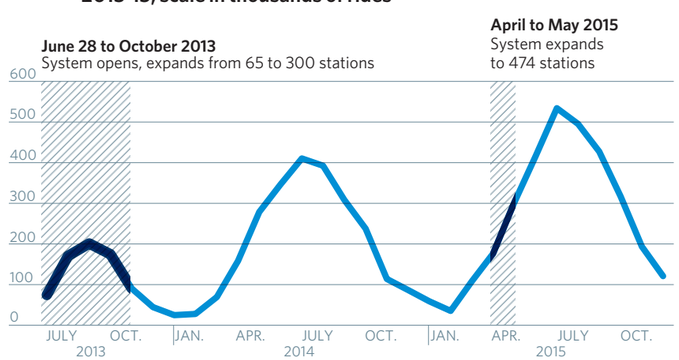
Bikesharing

The characteristic blue bicycles of the Divvy bikeshare program, which launched in mid-2013 only within the City of Chicago, have become a common sight on city streets. As one might predict, ridership is highly seasonal, with use peaking in the summer and declining during the winter. Ridership has increased annually, and in 2015 the system added 174 new stations to the original 300. In 2016, it expanded into Oak Park and Evanston and grew to a total of 584 stations.

The volume of weekday ridership mimics the peaks seen in travel by other modes. Weekday ridership has sharp peaks during the morning and evening commutes, while weekend ridership increases more gradually throughout the day. On both weekdays and weekends, the highest ridership is at around 6:00 p.m. The most popular stations are located near a mixture of tourist destinations and employment areas. The busiest stations in the system are clustered around Millennium Park, Lake Shore Drive, and the Museum campus. During the morning weekday commute, the busiest stations are clustered around Union Station and the Ogilvie Transportation Center.

Figure 6 **Divvy monthly ridership trends, 2013-15, scale in thousands of rides**

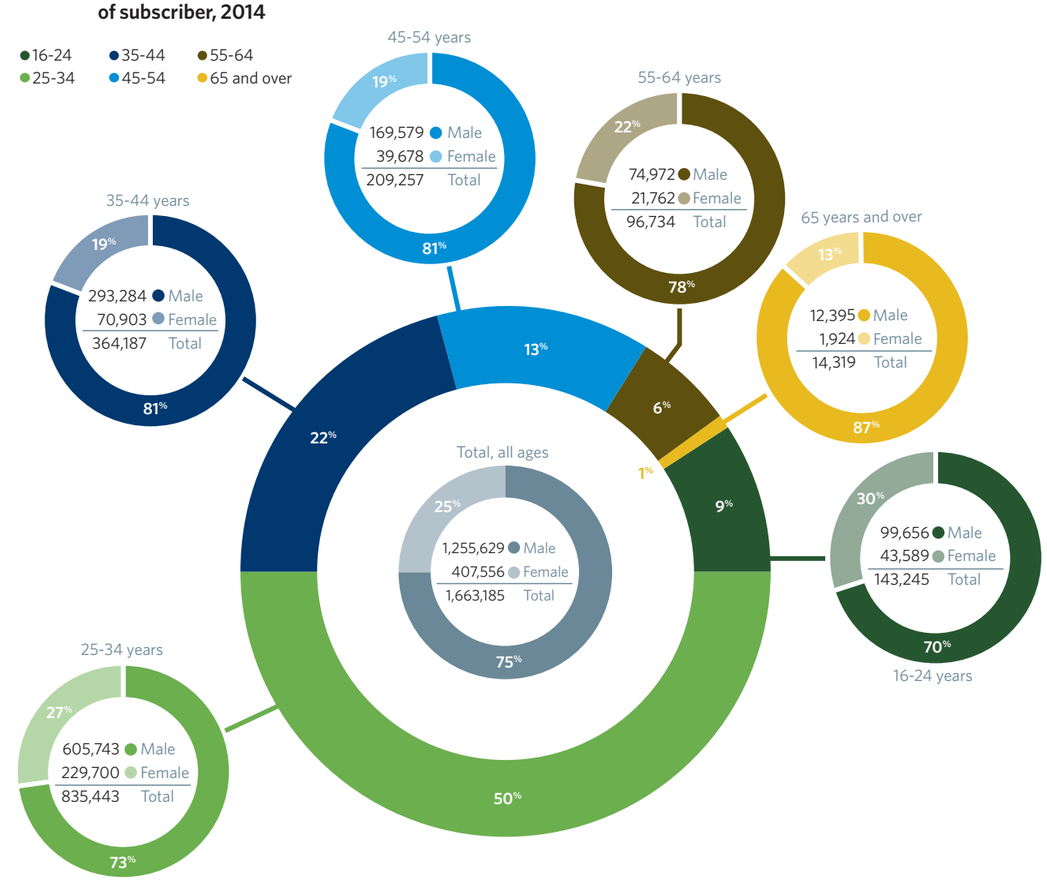
Source: Divvy historical trip data 2013-15.



National studies frequently show that the majority of cyclists are male, and this is also true of Divvy subscribers. However, younger age groups have more female cyclists than older groups. Younger riders are also more likely to use bike sharing. Fifty percent of Divvy trips are made by riders between ages 25 and 34, and another 10 percent are between 16 and 24.

Figure 7 **Divvy rides by age and gender of subscriber, 2014**

Source: Divvy historical trip data, 2014.



Transportation network companies

Companies such as Uber and Lyft connect drivers with riders to provide an increasingly common mode of transportation in the Chicago region. This industry is a new component of the transportation system, and a complete picture of how it will affect broader trends of automobile use and ownership, travel times, and commuting patterns has yet to come into focus. Early evidence indicates that some who use these modes of transportation are doing so in complement with the region's public transit system.[6] Uber and Lyft have recently launched pilot programs that allow SOV commuters to carpool more easily.

CMAP and other regional partners will continue to analyze these modes to better anticipate changes in the way people get around the region.

The implementation of GO TO 2040 illustrated the critical role of coordination and collaboration among the many stakeholders needed to meet the travel needs of the region's residents.

As ON TO 2050 is developed over the next two years, CMAP will work with experts and stakeholders from the public and private sectors to identify appropriate strategies that continue to build and maintain a world-class multimodal transportation system. Staff will also continue to evaluate current and emerging technologies — such as driverless cars — to shape ON TO 2050 recommendations.

Photo by Tripp / Flickr.

Endnotes

1 CMAP Travel Tracker Survey, 2008. Distance is measured as the straight line distance from origin to destination, not the path of actual travel, http://www.cmap.illinois.gov/data/transportation/travel-tracker-survey.

2 Metra Customer Satisfaction Report (2014), https://www.metrarail.com/sites/default/files/assets/about-metra/2014_css_survey.pdf.

3 CMAP Fair Housing and Equity Assessment: Metropolitan Chicago (2013), http://www.cmap.illinois.gov/documents/10180/198094/Chicago%20Region%20FHEA%20November%202013%20HUD%20Submission.pdf/b0c6946e-4425-49fe-8d0a-f336903bc464/.

4 National Equity Atlas, http://nationalequityatlas.org/indicators/Commute_time.

5 "Divvy Bikes expanding service to South, West sides" July 14, 2016, Chicago Suntimes, http://chicago.suntimes.com/news/divvy-bikes-expanding-service-to-south-west-sides/.

6 Shared Mobility and the Transformation of Public Transit (2016). Shared Use Mobility Center, See http://sharedusemobilitycenter.org/wp-content/uploads/2016/04/Final_TOPT_DigitalPagesNL.pdf.

Selected data used in the development of this report can be found at https://datahub.cmap.illinois.gov/group/on-to-2050-report-data.

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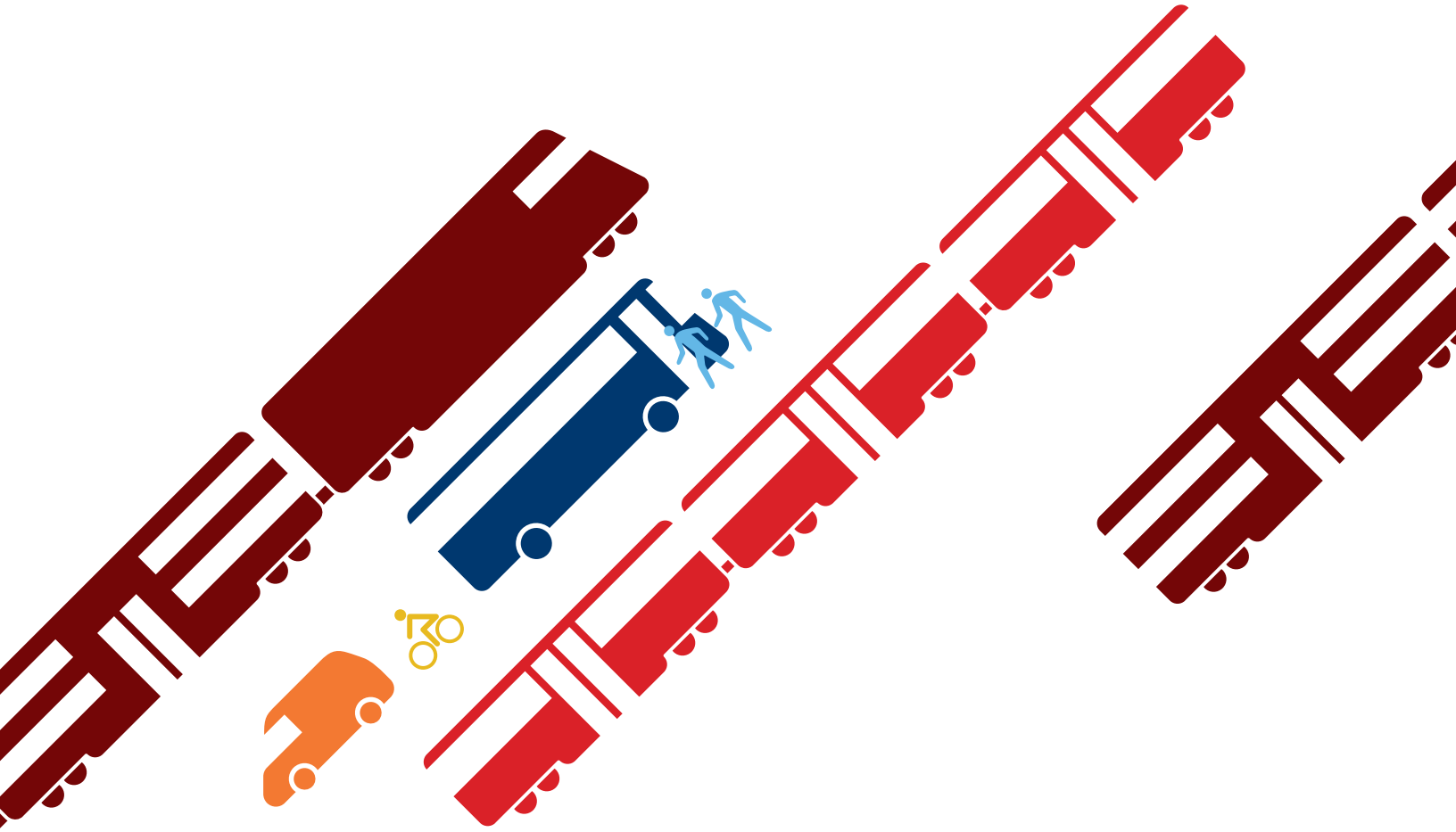
The Chicago Metropolitan Agency for Planning (CMAP) is our region's official comprehensive planning organization. The agency and its partners are developing ON TO 2050, a new comprehensive regional plan to help the seven counties and 284 communities of northeastern Illinois implement strategies that address transportation, housing, economic development, open space, the environment, and other quality-of-life issues. See www.cmap.illinois.gov for more information.

ON TO 2050 snapshot reports will offer data-driven summaries of regional trends and current conditions. These documents — as well as strategy papers — will define further research needs as the plan is being developed prior to adoption in October 2018.



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