ON TO 2050 Indicators Appendix

~~May~~ August 2018

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Introduction

This document contains the details of the ON TO 2050 indicators, which are intended to serve as benchmarks for monitoring the progress of plan implementation. Where possible, each plan recommendation is tracked by one or more indicators. Many of these indicators were previously used to track the implementation of GO TO 2040. Indicator target values for the years 2025 and 2050 have been specified as a way to quantify actual plan progress and to track how well the region is achieving its goals in both the near- and long-term. The targets should not be viewed as projections or forecasts, but rather as desired outcomes that represent the optimistic range of achievable outcomes assuming implementation of the recommendations of ON TO 2050. This report documents the review and selection process for the indicators and identifies all of the indicators and targets to be used in ON TO 2050.

Indicator Review Process

Experience gained during the implementation of GO TO 2040, as well as the knowledge staff developed in further analyzing the indicators, informed the selection of indicators for ON TO 2050. CMAP has revised some of the 28 indicators included in the GO TO 2040 Plan Update to better match the agency's policy needs and the available data. The indicator review process proceeded in three phases, which are briefly described below.

Phase 1: Assessment of the Existing GO TO 2040 Indicators

CMAP staff conducted an objective evaluation of each of the GO TO 2040 indicators for the express purpose of determining whether they should be maintained for ON TO 2050 and, if so, whether their methodology needed improvement. Authors and subject matter experts who contributed to each of the plan's chapters used the following questions in their evaluation:

1) Which existing GO TO 2040 indicators, if any, address this topic?
2) Are the GO TO 2040 indicators sufficient to measure the progress towards ON TO 2050's recommendations? Why or why not? Consider:
    a. What policy areas are insufficiently covered?
    b. Would any existing indicators be more useful if framed or measured in a slightly different way? Would they be more easily understood?
    c. Are there any improvements that should be made to the data sources and/or methodologies?
3) Are new indicators required for recommendations new to ON TO 2050?

For the Mobility indicators, specifically, staff also questioned whether the existing indicators were substantially similar to any of the performance measures[1] specified in Moving Ahead for

[1] Federal Highway Administration, "TPM Regulations," https://www.fhwa.dot.gov/tpm/about/regulations.cfm

Progress in the 21st Century (MAP-21),[2] which CMAP will already be tracking and setting near-term targets for. In cases with strong similarities, the GO TO 2040 indicator was generally abandoned in favor of the corresponding MAP-21 performance measure.

Through the above process, it was determined that 21 of the 28 GO TO 2040 indicators were suitable for inclusion in ON TO 2050, most of them with at least some minor methodological modifications (or replacement with a substantially similar MAP-21 performance measure).

Phase 2: Development of New Indicators for ON TO 2050

Based on the results of the GO TO 2040 indicator assessment, CMAP staff developed a list of ten proposed new indicators for ON TO 2050. The following criteria were used during the selection of these indicators:

- **Plan Priority:** There will be a limited set of indicators to emphasize the policy priorities of the plan. Does the proposed indicator help to measure a major recommendation? Consider whether the indicator is simply interesting information, or central to understanding our progress.
- **Consistency:** Can change in this indicator cumulatively track our progress, or does high variability limit its utility? For example, certain American Community Survey (ACS) data can have high margins of error and report large changes from year-to-year, since it reflects a 1 percent sample of the population, while the actual year-to-year change may be small or nonexistent.
- **Accessibility:** Is the measure meaningful and easy to communicate to the general public, rather than just planners and other subject matter experts?
- **Data Quality and Reliability:** Can the data be collected from the same source over time? Is it updated consistently and at an appropriate frequency? Is the data available for the whole region?
- **Level of Effort:** Ideally, each indicator will be updated annually by CMAP staff. Can the necessary data be easily obtained? Does the dataset require significant cleaning or analysis? In some cases, a slightly less accurate data source may be preferred over one that is high cost and/or high effort.

The 31 proposed indicators for ON TO 2050 (both existing/modified and new) were presented to CMAP's various Working Committees to obtain input on the indicators related to their areas of expertise and to receive public comment.

Phase 3: Development of Indicator Target Values

Following identification of the indicators to be included in ON TO 2050, the final step in the review process was to identify short- and long-term targets for each. Including target values in

[2] U.S. Department of Transportation, "Moving Ahead for Progress in the 21st Century Act (MAP-21)," 2015, https://www.transportation.gov/map21/

the plan is essential, as they provide a benchmark against which implementation of specific goals can be quantified. The first task in developing targets was calculating baseline indicator values using the most recent datasets. In many cases, several years' worth of historical data was also available to determine recent trends. The existing GO TO 2040 indicators had targets established for 2020 and 2040, which were used, along with updated baseline data, to inform their 2025 and 2050 targets for ON TO 2050.

The overarching goal of this process was to set targets that are ambitious while remaining plausible. The targets were set assuming a region-wide implementation of ON TO 2050's policy recommendations, and indeed many of them are likely unattainable without holistic implementation of many recommendations of the plan. More detailed descriptions of the indicators and the methods used to develop target values are included in the body of this document.

Document Layout

The remainder of the report is divided into sections that correspond to the five chapters of ON TO 2050. Each section includes a discussion of each of the indicators in the plan that relates primarily to that chapter (although several indicators are significantly related to topics in multiple chapters).

The discussion for each indicator includes a high-level summary of its relevance to the plan's recommendations, a description of the data sources and methodology used to calculate it, ~~and~~ target values for the near-term (2025) and the long-term (2050), and a brief discussion of the indicator's status in relation to GO TO 2040. Some indicators also have an "inclusive growth perspective" that reports the indicator's values by race and ethnicity or within economically disconnected areas (EDAs, which are areas with concentrations of both low-income households and minority or limited English proficiency population) and disinvested areas (predominantly nonresidential places with struggling local economies). This additional detail will help CMAP to track progress on inclusive growth. These "inclusive growth perspectives" also function as secondary kindred indicators (see below).

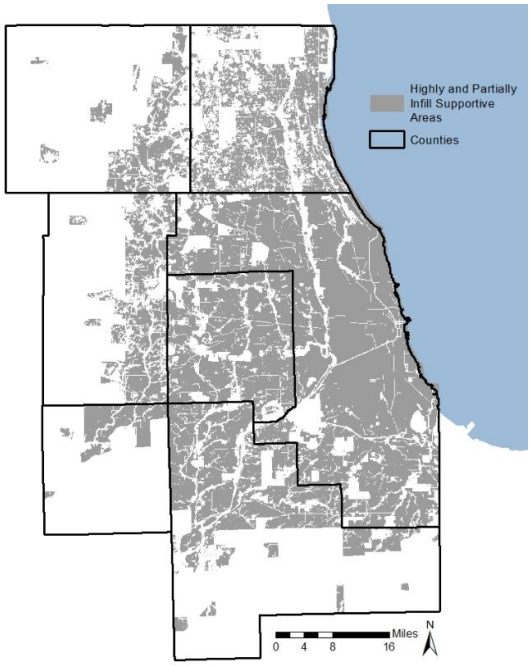
A final section details the set of secondary kindred indicators that will supplement the information provided by the core indicators. Many of these specifically focus on the theme of inclusive growth. The kindred indicators do not have target values, but they did go through the same review process as the core indicators. It is envisioned that they may be used in the narrative of ON TO 2050 and in future plan implementation reports to tell a more complete story and address data gaps in the core indicators.

For a comprehensive list of the indicators, please refer to the *Table of Contents* (p. 2).

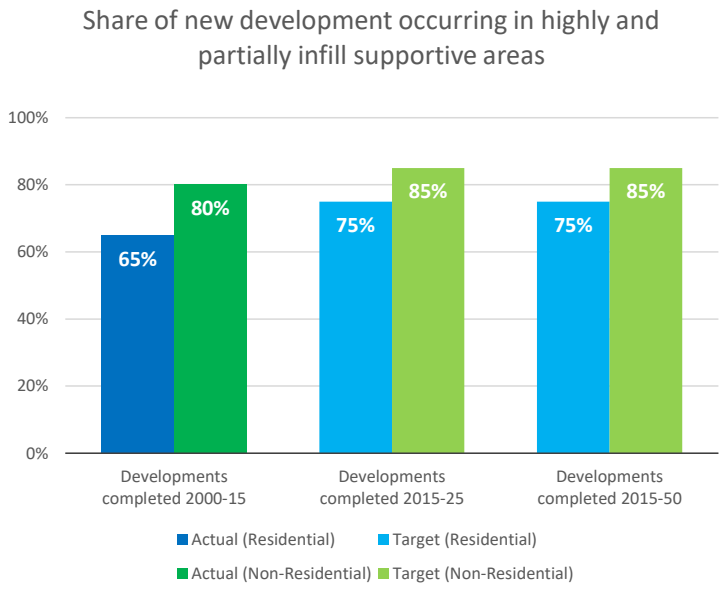
Community Indicators

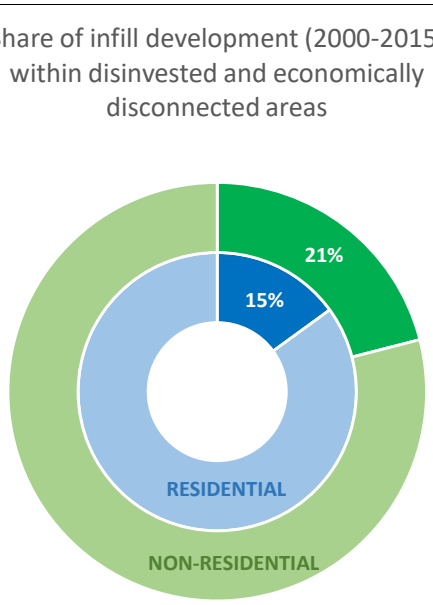
Share of New Development Occurring in Highly and Partially Infill Supportive Areas

Indicator:	This indicator uses the Northeastern Illinois Development Database (NDD) to measure the cumulative share of development that occurs in the region's highly and partially infill supportive areas. This measure addresses a critical element of ON TO 2050: encouraging development in existing communities where infrastructure to support it is already in place while also avoiding the expansion of new infrastructure with long-term maintenance costs. Developments that are completed or under construction will be tracked. For this indicator, the term "development" is used in a general sense to include both new development and redevelopment of existing uses. Residential and non-residential development will be tracked separately. **Related recommendation:** Target infill, infrastructure, and natural area investments; Invest in disinvested areas.
Methodology:	This indicator will track the share of new residential units and the share of new non-residential square footage that occurs in highly and partially infill supportive areas. The 2015 infill supportiveness index was created based on existing land cover, population, employment, and road density. Existing development and infrastructure were identified, focusing on four major indicators: developed area, road infrastructure, and housing and employment density. The index highlights parts of the region that are best able to support infill development. Development will be tracked by four infill supportive area types using the 2015 infill supportiveness index: highly infill supportive, partially infill supportive, minimally infill supportive, and in areas for conservation (agricultural land, open space, or conservation areas). The 2015 infill supportiveness index will be modified to move any lands recognized in the conservation areas layer in highly or partially infill supportive areas to minimally infill supportive. The conservation areas layer identifies key natural resources that are priorities for conservation. A fourth category of the indicator will include development on conservation areas throughout the region as well as development within the minimally infill supportive area on agricultural and natural land cover identified in the 2011 National Land Cover Dataset (NLCD). CMAP defined agricultural land cover based on the cultivated crops and pasture/hay land cover types within NLCD. Similarly, CMAP defined natural land cover based on the deciduous forest, emergent herbaceous wetlands, evergreen forest, grassland/herbaceous,

	mixed forest, shrub/scrub, and woody wetlands land cover types within NLCD. The following map shows highly and partially infill supportive areas in the region. Areas that are not highly or partially infill supportive are either minimally infill supportive or areas for conversation.  The 2015 infill supportiveness index will be held constant over the life of the plan as a way to measure infill supportive development using a control geography representing areas with existing infrastructure in place. The NDD tracks all significant development and redevelopment in the seven-county region. Developments must meet one of the following criteria to be included in the NDD: • Consume at least once acre of land, OR • Consist of at least ten residential units, OR • Consist of at least 10,000 square feet of non-residential space.

	The NDD covers new construction, renovations with a change in land use (e.g., commercial to residential), and expansions of existing uses (e.g., school additions). In general, if a development results in a change of population or employment, it is included in the NDD. The database does not include individual homes that may meet the above criteria unless they are part of a larger development, renovations where there is no change in land use, or condominium conversion of existing rental buildings.
Targets:	Due to the disparate nature of residential and non-residential development, separate target values and units of measurement will be used to track the progress of each development type. Reporting residential development in terms of units and non-residential development in terms of square footage is the industry standard; there is no simple method to develop an equivalency between the two. Targets are based on recent trends in residential and non-residential development and consider forecasted growth in housing units and jobs in the Chicago region. Sixty-five percent of residential developments and 80 percent of non-residential developments completed in 2000 through 2015 occurred within highly and partially infill supportive areas. Since 2016, 85 percent of residential developments and 89 percent of non-residential developments that have been either been completed or approved and are expected to be completed by 2025 are within highly and partially infill supportive areas. The 2025 and 2050 residential and non-residential targets reflect a near-term share of development in highly and partially infill supportive areas that is halfway between the 2000-15 rate and the currently observed 2016-25 rate, and sustaining that trend in the long term by promoting strategies supportive of infill development. All targets reflect forecasted infill development and assume implementation of ON TO 2050's infill-related strategies. **Residential Development** **2025:** 75 percent or more of new residential units developed since 2015 located within highly and partially infill supportive areas **2050:** 75 percent or more of new residential units developed since 2015 located within highly and partially infill supportive areas

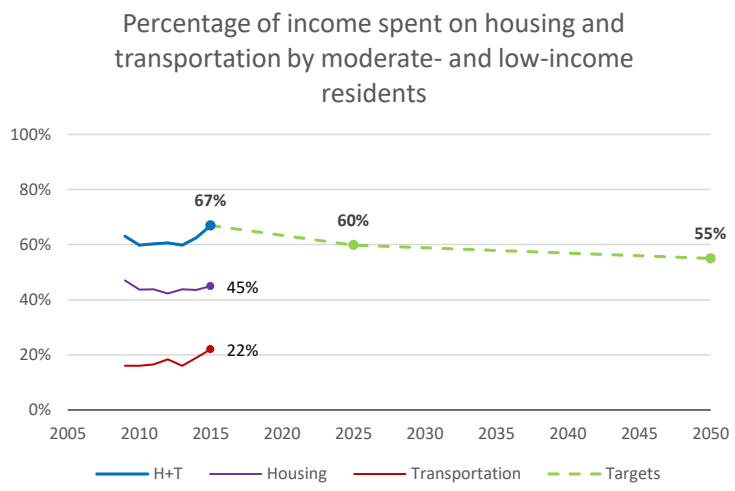
	Non-Residential Development **2025:** 85 percent or more of non-residential square footage developed since 2015 located within highly and partially infill supportive areas **2050:** 85 percent or more of non-residential square footage developed since 2015 located within highly and partially infill supportive areas 
Inclusive Growth Perspective:	Infill development and land use patterns are crucial to promoting economic growth in many economically disconnected and disinvested areas and in connecting the region's economically disconnected and disinvested area residents to economic opportunity. As a kindred indicator to this core indicator, ON TO 2050 will track the share of new infill development occurring in economically disconnected and disinvested areas. Roughly forty percent of the region's population lives in economically disconnected or disinvested areas. However, economically disconnected and disinvested areas accounted for only 15 percent of new infill residential units and 21 percent of new infill non-residential square footage between 2000 and 2015. CMAP recommends increased infill development in economically disconnected and disinvested areas to increase efficient use of limited resources and help these communities grow.

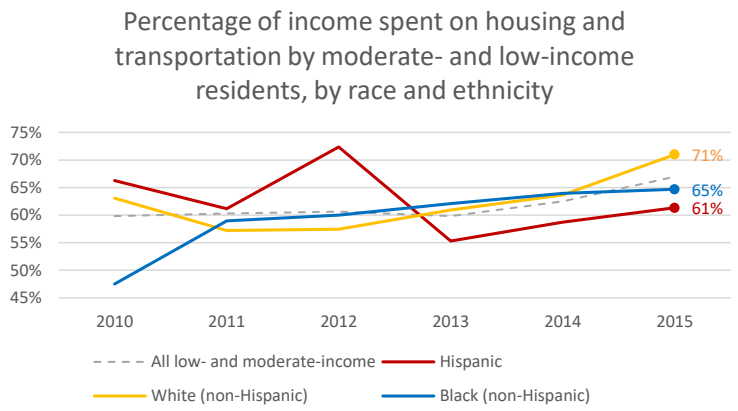
	
GO TO 2040 Context:	This indicator was based on the "Share of New Development Occurring within the Existing Municipal Envelope" indicator from the GO TO 2040 Plan Update. While the change in the area of interest from the municipal envelope to highly and partially infill supportive areas makes comparisons between the two difficult, it should be noted that progress towards the GO TO 2040 targets has been impressive. From 2008-2015, 94.9 percent of residential development and 96.4 percent of non-residential development occurred within the municipal envelope. The 2040 targets were 60 percent and 75 percent, respectively.

Percentage of Income Spent on Housing and Transportation by Moderate- and Low-Income Residents

Indicator:	This measure estimates the share of household income spent on housing and transportation (H+T) costs for moderate- and low-income households. For analysis purposes, any household with an income below 80 percent of the regional family income are defined as low- and moderate-income. Data are from the Consumer Expenditure Survey (CES), which the U.S. Bureau of Labor Statistics (BLS) conducts annually. The survey collects information on

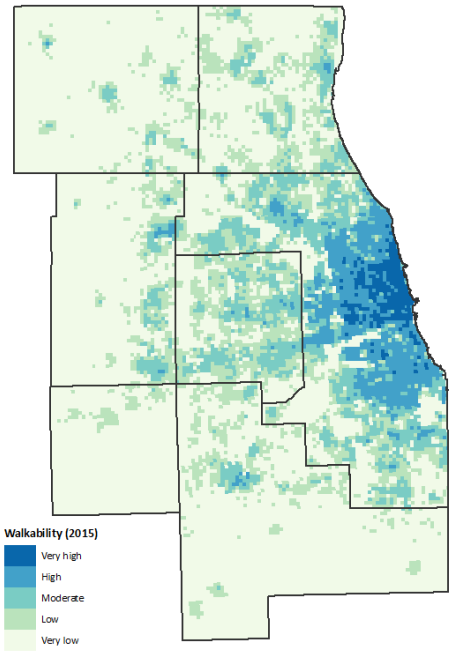
	household income and expenditures, including those for housing and transportation. Data are reported for the Chicago Metropolitan Statistical Area (MSA). **Related recommendation:** Match regional and local housing supply with the types that residents want; Leverage the transportation network to promote inclusive growth (Mobility).
Methodology:	This indicator closely resembles the original GO TO 2040 measure with one important change. In order to account for inflation in both incomes and spending, the definition of "low- and moderate-income households" was adjusted to be relative to the regional median income. An upper bound of 80 percent of the regional family income was chosen to match the top "moderate income" threshold used by the U.S. Department of Housing and Urban Development (HUD) for a number of its programs, including public housing, Housing Choice Vouchers, and the Community Development Block Grant program. For each analysis year, the regional median income is estimated using a grouped frequency distribution based on 5-year ACS data for the 7-county region. This measure is calculated using public-use microdata (PUMD) files from the CES. While the PUMD allows greater in depth analysis of expenditure data, certain caveats exist when using the data and comparing results to the published summaries on the BLS website. As with many surveys, masking values are used for certain data items when specific criteria are met in order to protect survey respondents' privacy. BLS's own data do not incorporate this imputed, topcoded, or suppressed data. Those missing data points are compensated through weighting mechanisms calculated by the BLS that are unavailable to the public. In addition, while the PUMD allow for detailed statistical analyses for specific variables, such analyses may have high margins-of-error because the survey responses are weighted to be statistically valid at the national level and not necessarily at the regional level.
Targets:	Staff reviewed regional affordability trends using this methodology since 2009, along with trends in overall housing affordability since 2000. The number of cost-burdened households (i.e., households paying more than 30 percent of their income on housing costs) has increased by more than 10 percentage points for both owners and renters. Since 2009, the combined H+T metric proposed here ranges from 60 to 67 percent, driven heavily by low- and moderate-income households spending a greater share of income on transportation costs. The 2025 target represents a near-term return to the recent low of 60 percent (from 2013). The 2050 target represents a continued

	decrease from the 2025 target, taking into account the range in which this metric has historically fluctuated, the policies of ON TO 2050, and the share of households expected to live outside of highly infill supportive areas. **2025:** 60 percent or less of income spent on housing and transportation by moderate- and low-income residents. **2050:** 55 percent or less of income spent on housing and transportation by moderate- and low-income residents. 
Inclusive Growth Perspective:	As a kindred indicator to this core indicator, ON TO 2050 will track the share of household income spent on housing and transportation costs for moderate- and low-income households by race and ethnicity. The share of household income spent on housing and transportation costs for moderate- and low-income households differs by races and ethnicities. Black and white households have seen increases in the share of household income spent on housing and transportation costs. The share of income spent by Hispanic households on housing and transportation has decreased from 66 percent in 2010 to 61 percent in 2010. However, even Hispanic households have seen increases in their share of income spent on housing and transportation costs in the last three years. Further, the share of income spent by black households on housing and transportation costs has increased every year between 2010 and 2015. Data for other racial and ethnic households, including Asian households, are not shown here due to small sampling size.

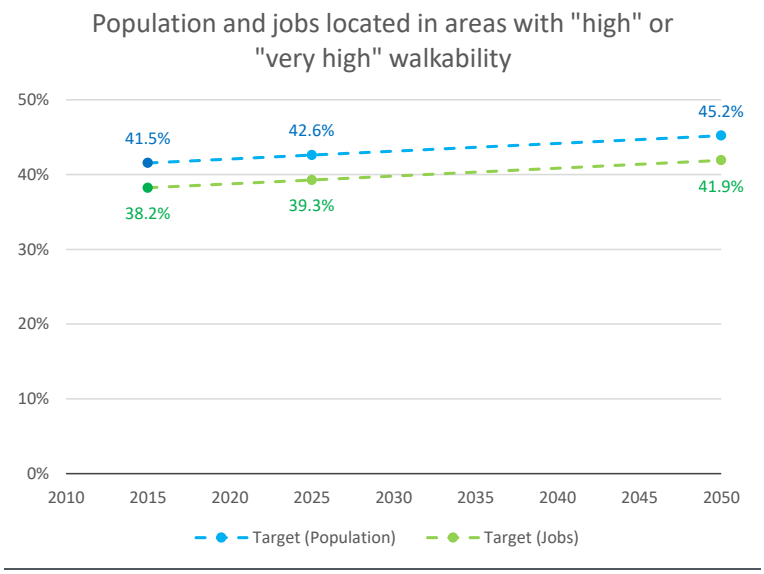
	
GO TO 2040 Context:	This indicator is based on one of the same name from GO TO 2040, although the methodology for calculating it has been modified significantly. This makes comparison between the two difficult. However, as of 2014, the region was not on track to meet the targets set in GO TO 2040. From 2010 to 2014, the share of income spent on housing and transportation by moderate- and low-income residents (using the GO TO 2040 methodology) increased from 55 percent to 61 percent, while GO TO 2040 had established targets of 53 percent for 2015 and 45 percent for 2040. While housing costs accounted for a relatively stable share, the share from transportation costs rose steadily during this period.

Population and Jobs Located in Highly Walkable Areas

Indicator:	ON TO 2050 places a high priority on supporting development of compact, walkable communities to help meet increasing demand for these places, support transit, and improve mobility. This indicator will report the percentages of the region's population and jobs located in areas with "high" or "very high" walkability. To assess walkability, CMAP created an index that considers multiple factors contributing to walkability: nearby amenities, block length, intersection density, population and employment densities, tree canopy cover, and bicycle or pedestrian fatalities and serious injuries. This indicator notably does *not* include sidewalk coverage as a factor, owing to a lack of region-wide data availability; as a result, this indicator may provide an overly optimistic estimate of walkability in some areas.

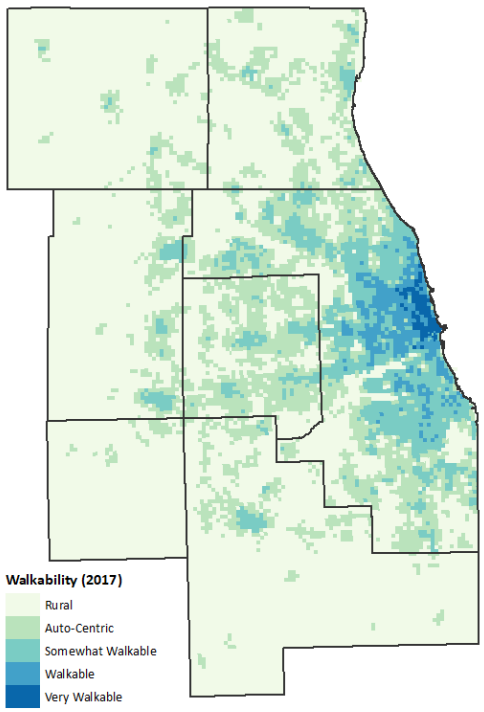
	Related recommendation: Support development of compact, walkable communities; Make transit more competitive (Mobility).
Methodology:	The walkability layer is a localized metric that takes into account the number and types of amenities reachable on foot in 30 minutes, average block length, intersection density, population and employment densities, tree canopy cover, and the number of bicycle or pedestrian fatalities and serious injuries in a given subzone. Subzones with scores above 50 are considered to have "high" walkability and those with scores above 100 are considered to have "very high" walkability. This indicator tracks the percentages of the entire region's population and jobs that are located within these subzones.  Due to data limitations, the walkability layer does not consider sidewalk coverage or wheelchair accessibility to destinations, and may therefore overestimate the walkability of some areas that score highly on the other factors. CMAP is in the process of developing a regional sidewalk inventory, which is expected to be incorporated into a future version of this metric. Another factor for future consideration is the percentage of controlled vs.

	uncontrolled intersections in a given area (i.e. the percentage of intersections with traffic lights or stop signs for all directions).
Proposed Targets:	As of 2015, 41.5 percent of the region's population and 38.2 percent of the region's jobs were located in areas with "high" or "very high" walkability. Based on the ON TO 2050 forecast of population and jobs, these shares are projected to decrease to 38.3 and 36.2 percent, respectively, since the growth rate of population and jobs in areas of existing high walkability is in many cases lower than the growth rate in the rest of the region. This is due to the built-out nature of these areas. The forecast also prioritizes population and employment increases in areas with high to moderate transit access, even if those areas do not have high walkability today. To increase walkability, targeted investments are required to make areas with "moderate" walkability more walkable, thereby shifting them into the "high" category. Such investments could include filling the gaps in sidewalk coverage, greater transit frequency and connectivity, improved pedestrian and bicyclist facilities, increased tree canopy cover, and a greater number or variety of amenities. Densification of population and jobs would also help communities to become more walkable. Targets have been set with the assumption that the top quartile of subzones with "moderate" walkability located in urbanized areas (ranked by their respective walkability scores) can reach "high" walkability by 2050 with targeted investments. These subzones account for approximately 2.5 percent of the region's land area. The 2025 targets are derived from a straight-line interpolation between the 2015 and 2050 values. **2025:** At least 42.6 percent of population and 39.3 percent of jobs located in areas with "high" or "very high" walkability **2050:** At least 45.2 percent of population and 41.9 percent of jobs located in areas with "high" or "very high" walkability

	
GO TO 2040 Context:	This indicator is new to ON TO 2050.

~~Population and Jobs Located in at Least Somewhat Walkable Areas~~

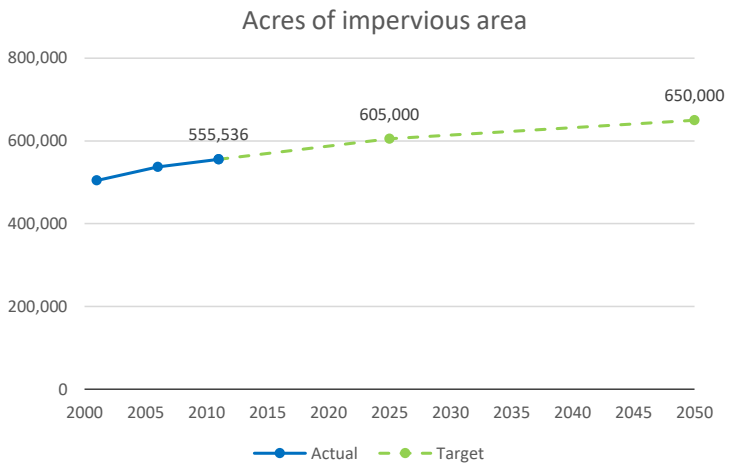
~~Indicator:~~	~~This indicator will report the percentage of population and jobs located in at least somewhat walkable areas. This is based on a CMAP-created index that considers multiple factors contributing to walkability: reachable amenities, block length, intersection density, population and employment densities, and bicycle or pedestrian fatalities.~~
~~Methodology:~~	~~The Walkability Local Strategy Map is a localized metric that takes into account the number and types of amenities reachable on foot in 30 minutes, average block length, intersection density, population and employment densities, and the number of bicycle or pedestrian fatalities in a given subzone. Subzones with scores of 45 or higher are considered at least "somewhat walkable." This indicator tracks the percentages of the entire region's population and jobs that are located within these subzones.~~

	
~~Proposed Targets:~~	~~As of 2017, 51.8 percent of the region's population and 47.5 percent of the region's jobs were located in at least somewhat walkable areas. CMAP is currently in the process of setting targets for this indicator, which will be based on future forecasts of population and jobs, combined with an assumption that currently "auto-centric" areas that have scores below but close to the "somewhat walkable" threshold could become somewhat walkable in the future with targeted investment. Proposed targets will likely be discussed by CMAP's Transportation Committee on August 3, 2018.~~ ~~**2025:** TBD~~ ~~**2050:** TBD~~

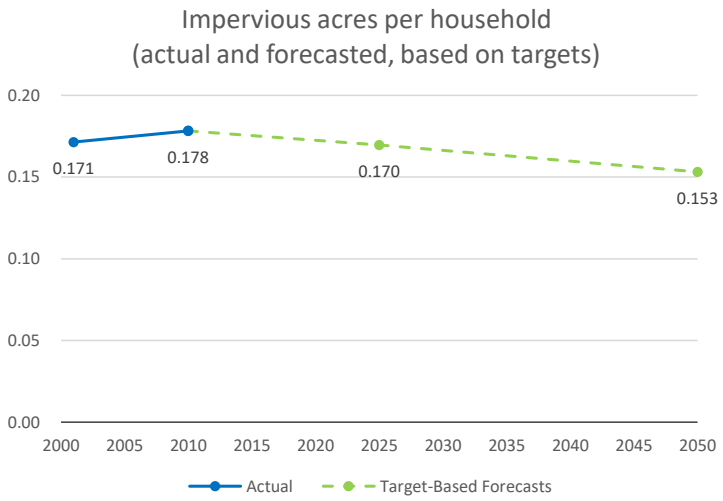
Environment Indicators

Acres of Impervious Area

Indicator:	This indicator measures the total number of acres of impervious surfaces in the region; it is the entire amount of hard surface (such as buildings, sidewalks and streets) in the landscape. Imperviousness is an important environmental indicator because it is negatively associated with various measures of the biological health and physical integrity of surface waters. **Related recommendation:** Protect and enhance the integrity of aquatic systems.
Methodology:	The source for this data is the NLCD, a raster dataset with 16 land cover classifications that is published every five years by the U.S. Geological Survey. Acres of impervious cover are a straightforward calculation using this dataset.
Targets:	CMAP's regional socioeconomic forecast projects that households and jobs will each grow by approximately 16 percent over 2010 levels by 2025, and by approximately 36 percent over 2010 levels by 2050. The target methodology assumes that growth in impervious cover will slow from the current rate as the region's population and employment density increase through infill and reinvestment. The 2025 target for impervious acreage represents growth rate in impervious cover from 2010 equal to 60 percent of the rate of household and job growth over the same period (i.e., a 10 percent increase in acreage over 2010). The 2050 target represents growth in impervious cover from 2010 equal to 50 percent of the rate of household and job growth over the same period (i.e., an 18 percent increase in acreage over 2010). While the targets show growth in total impervious acreage, they represent a continual (and accelerating) decline in the region's impervious area on a per-household, per-capita, and per-job basis. **2025:** 605,000 acres or less of impervious area **2050:** 650,000 acres or less of impervious area



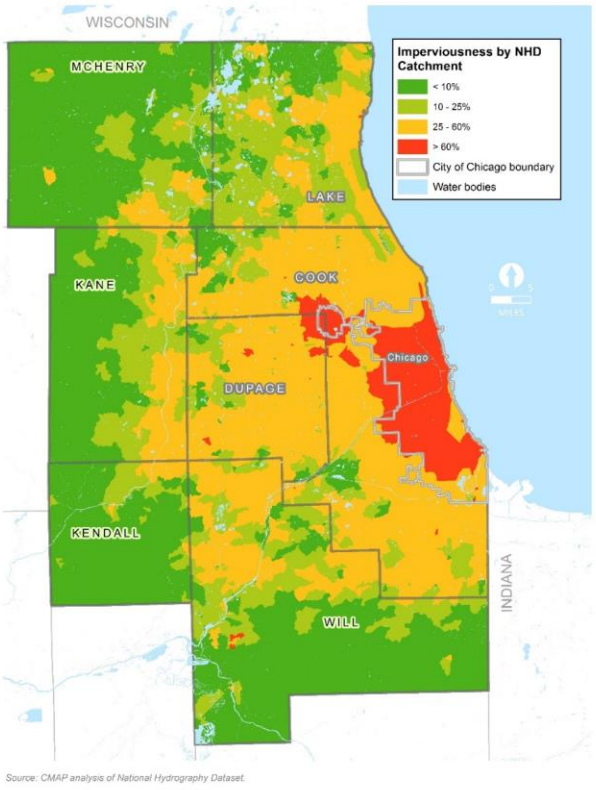
The following chart shows how the impervious acreage targets translate to a per-household rate, based on forecasted numbers of households from the ON TO 2050 socioeconomic forecast. While growth in impervious acreage has recently outpaced growth in households, the targets would reflect a reversal of this trend.



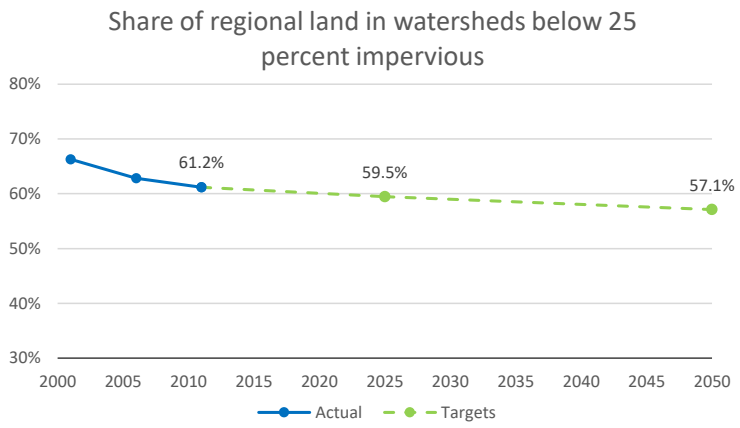
GO TO 2040 Context:	This indicator has been carried forward from the GO TO 2040 Plan Update. However, there has been no new data released since the Plan Update was written, so no evaluation can be made of implementation progress at this time. The Plan Update set 2020 and 2040 targets of 590,000 and 640,000 acres of impervious area, respectively, which are largely in line with the ON TO 2050 targets.

Regional Land in Watersheds Below 25 Percent Impervious Coverage

Indicator:	This indicator tracks the change in impervious surface by watershed catchment throughout the region as an indicator of health and integrity of aquatic resources. Specifically, it tracks the total percentage of the region's land area located in watersheds with 25 percent or less impervious coverage. Many of the region's water resources are not meeting all goals of the Clean Water Act, and many waterbodies—especially small headwater streams—have not yet been assessed. Given this lack of data, this indicator uses the impervious cover model to understand watershed health and water quality. Research has shown that small watersheds with less than 10 percent impervious cover tend to be associated with healthy streams. Further increases of impervious cover (up to 25 percent) can lead to impacted streams that could be restored with intervention. Small watersheds with increases in impervious coverage (up to 60 percent) are considered non-supporting, and when impervious coverage exceeds 60 percent, full restoration of urban drainage systems to pre-development habitat quality may not be possible. **Related recommendation:** Protect and enhance the integrity of aquatic systems.
Methodology:	Using the NLCD and the National Hydrography Dataset Plus v.2, the percent imperviousness of each small watershed catchment in the CMAP region (with median and mean areas of 406 and 890 acres, respectively) can be calculated and categorized into four groupings. The map below shows catchments in the region divided into the following groups (the first two of which combine to form the basis of this indicator): • Sensitive: 0-10 percent impervious • Impacted: 11-25 percent impervious • Non-supporting: 26-60 percent impervious • Urban drainage: 61-100 percent impervious

	
Targets:	Using NLCD data from 2001-11, past trends were analyzed to understand the recent decline in the proportion of the region in the sensitive and impacted categories. Reflecting the policy goal of maintaining as many watershed catchments in the sensitive and impacted categories as possible, the target methodology assumes that growth in impervious cover will slow as the region's population and employment density increase through infill and reinvestment. Specifically, the indicator assumes the rate of change for each category will continue at 60 percent of the 2001-11 rate through 2025, and 50 percent of the 2001-11 rate from 2025 until 2050. (These are the same rates as overall impervious acreage increases from the *Acres of Impervious Area~~Acres of Impervious Area~~* indicator targets, p. 19~~18~~.)

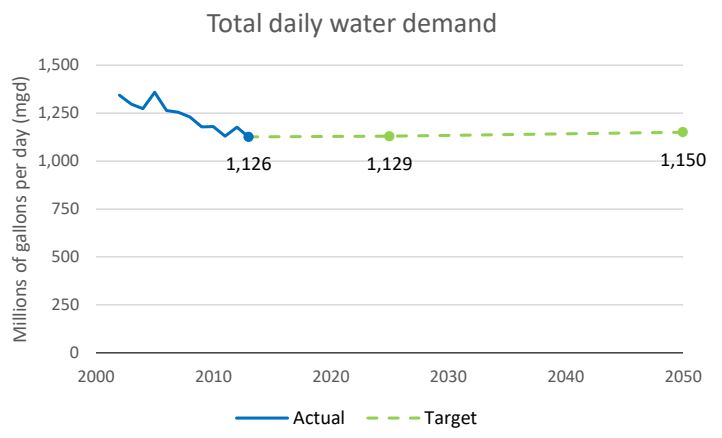
Formatted: Intense Emphasis

	2025: 59.5 percent or more of region's land in watersheds below 25 percent impervious **2050:** 57.1 percent or more of region's land in watersheds below 25 percent impervious 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Water Demand

Indicator:	This indicator tracks total daily water demand, as well as per capita demand for residential water use. Total water demand includes water that is withdrawn, treated, and delivered to residential, industrial, commercial, governmental, and institutional users via public supply water systems, as well as industrial and commercial wells. Assessing long-range forecasted demands can inform the region on the sufficiency of water supply and encourage actions that conserve water, protect supply, and/or pursue alternative drinking water sources. **Related recommendation:** Coordinate and conserve shared water supply resources.
Methodology:	Water demand data, in millions of gallons used daily, is provided to CMAP directly by the Illinois State Water Survey each year. Public water supply systems are maintained by municipalities, sub-regional authorities, or

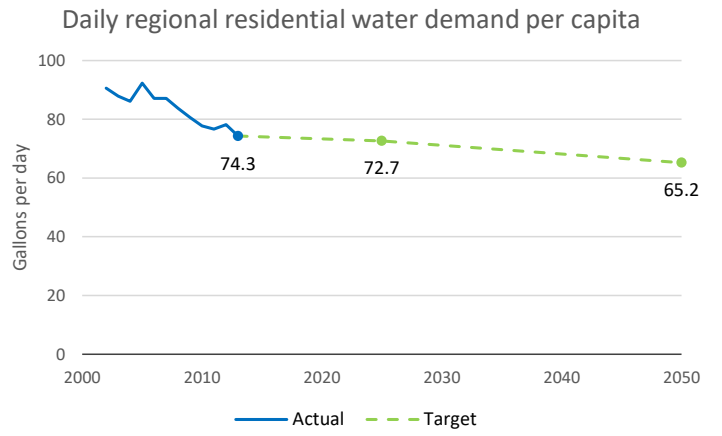
	private companies. Private wells may serve industrial enterprises, commercial businesses, and park and golf course irrigation. Per capita values for residential water use will be based on the population served by the public supply water systems and not the entire population of the region, as a small portion of the region's population (less than four percent) receives water from private wells and is termed self-supplied domestic sources.
Targets:	This indicator has two sets of targets -- one measuring total daily water demand, and one measuring daily residential water demand on a per capita basis. Per capita measurement allows for an examination of water conservation as an increase in total demand due to population or industrial growth can mask gains in conservation. At the same time, it is important to examine total demand because potable water is a finite resource and growth in our region is expected to increase the demand for water in 2050 above the current level of consumption. Target values are based on the updated regional water demand forecast, which is set to be released in October 2018. The updated regional water demand forecast utilizes CMAP's ON TO 2050 socio-economic forecast. Total daily water demand **2025:** 1,129 million gallons of water used daily **2050:** 1,150 million gallons of water used daily



Daily regional residential water demand per capita

2025: 72.7 gallons of water used daily per capita

2050: 65.2 gallons of water used daily per capita



GO TO 2040 Context:	This indicator is adapted from the GO TO 2040 "Public Supply Water Demand" indicator, which was based on a water demand forecast focused on the public water supply sector. The ON TO 2050 indicator is based on a new water demand forecast, which also considers withdrawals from private

	wells serving businesses or private residences. As a result, the data and targets are not comparable between the two, although it should be noted that the GO TO 2040 targets allowed for an increase in overall demand while the ON TO 2050 targets are virtually flat despite anticipated population growth.

~~Public Supply Water Demand~~

~~Indicator:~~	~~This indicator tracks total daily public supply water demand, as well as per capita demand for residential water use. Public supply water refers to water that is withdrawn, treated, and delivered to residential, industrial, commercial, governmental, and institutional users via public supply water systems.~~
~~Methodology:~~	~~Total public supply water demand data, in millions of gallons used daily, is provided to CMAP directly by the Illinois State Water Survey each year. Public water supply systems are maintained by municipalities, sub-regional authorities, or private companies.~~ ~~Per capita values for residential water use will be based on the population served by the public supply water systems and not the entire population of the region, as a small portion of the region's population (less than four percent) receives water from private wells and is termed self-supplied domestic sources. For consistency, the historic values of per capita public supply water demand are estimated by removing the same share of the regional population served by self-supplied domestic systems from the population served.~~
~~Targets:~~	~~This indicator will have two sets of targets – one measuring total daily water demand, and one measuring daily residential water demand on a per capita basis. Per capita measurement allows for an examination of water conservation as an increase in total demand due to population or industrial growth can mask gains in conservation. At the same time, it is important to examine total demand because potable water is a finite resource and growth in our region is expected to increase the demand for water in 2050 above the current level of consumption.~~ ~~Target values will be taken from the updated regional water demand forecast, which is set to be released in October 2018. The updated regional water demand forecast will utilize CMAP's ON TO 2050 socio-economic forecast.~~ ~~**2025:** TBD~~

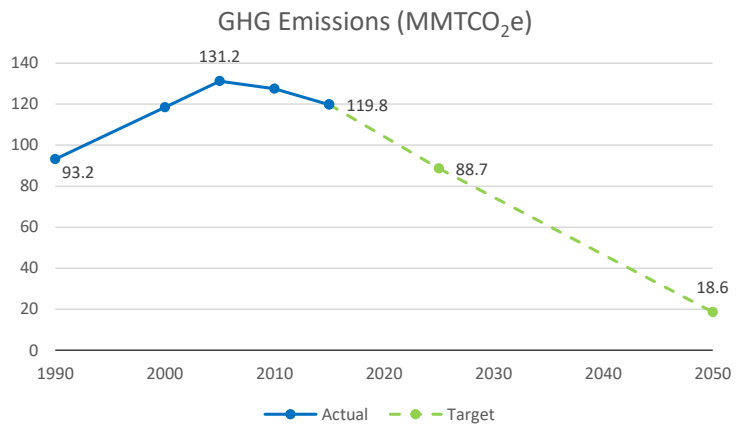
	~~**2050:** TBD~~

Greenhouse Gas Emissions

Indicator:	This indicator measures the total amount of greenhouse gas (GHG) emissions produced in the CMAP region. GHG emissions are calculated using the International Council for Local Environment Initiatives (ICLEI) Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) BASIC methodology, which includes all emission from buildings, solid waste, wastewater, and intraregional transportation. Emissions are reported in million metric tons of carbon dioxide equivalent ($MMTCO_2e$). **Related recommendation:** Intensify climate mitigation efforts.
Methodology:	The GHG inventory is conducted every five years using the GPC Basic methodology. Total emissions are calculated at the regional and county level, with the City of Chicago and Suburban Cook County separated for more detailed analysis. More information about GPC protocols is available online from ICLEI.[3] The 2010 inventory was conducted prior to the development of the GPC Protocol, which has become the industry standard for GHG emissions reporting. To ensure accuracy and facilitate comparative analyses, CMAP has updated the 2010 inventory to meet GPC Basic standards.
Targets:	GO TO 2040 sought to reduce the region's greenhouse gases by 80 percent, relative to 1990 levels, by the year 2050. This goal is consistent with the stabilization pathway, which is an emissions pathway designed to limit global warming to 2° Celsius (3.6° Fahrenheit). CMAP is reaffirming this commitment to the stabilization pathway with ON TO 2050. Because the inventory methodology has changed significantly since the GO TO 2040 indicator was created, the targets have been revised accordingly. **2025:** 88.7 $MMTCO_2e$ or less **2050:** 18.6 $MMTCO_2e$ or less

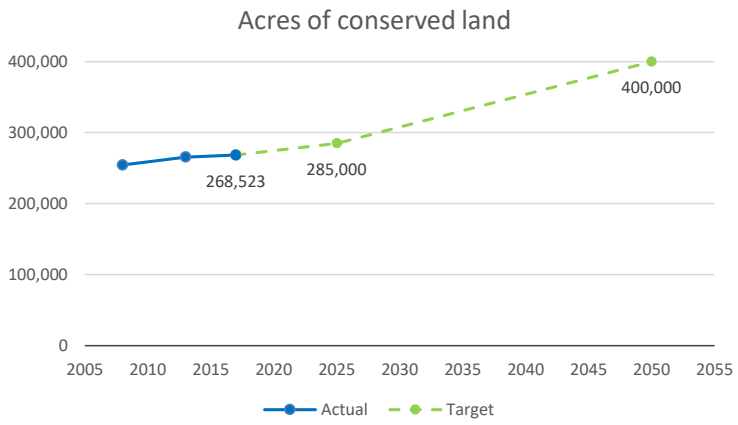
[3] ICLEI – Local Governments for Sustainability, "The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)," ~~http://www.iclei.org/activities/agendas/low-carbon-city/gpc.html~~http://old.iclei.org/activities/agendas/low-carbon-city/gpc.html.

Field Code Changed

	
GO TO 2040 Context:	The methodology for calculating greenhouse gas emissions has been updated to follow the GPC Protocol since GO TO 2040 was adopted. While this makes the data difficult to compare from one plan to the next, the targets remained essentially unchanged. Total emissions peaked in 2005 and have been declining since then. GO TO 2040 set a 2015 target of 119 $MMTCO_2e$, which was 13 $MMTCO_2e$ below the 2005 value; according to the GPC Protocol calculations, emissions between 2005 and 2015 decreased by 11.4 $MMTCO_2e$, which is behind the targeted pace but only slightly.

Acres of Conserved Land

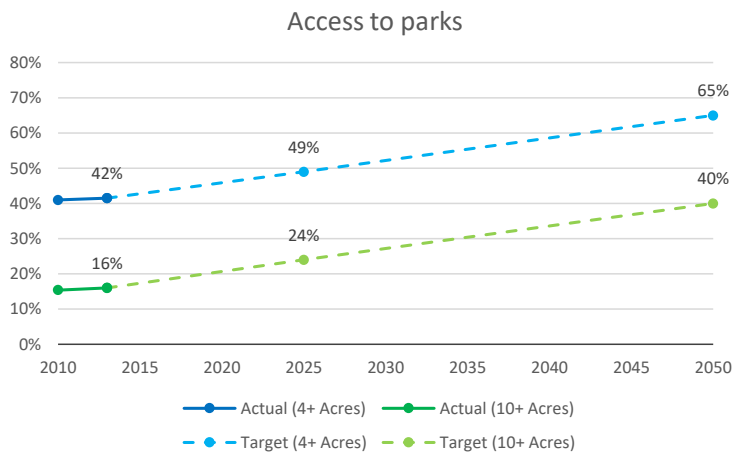
Indicator:	This indicator measures the total number of acres in the region used for land and water preservation (i.e., forest preserves, natural areas, and conservation easements). This measure does not include acres of recreational parkland in the region, land used for golf courses, unprotected farm land, or land used for historic preservation. **Related recommendation:** Integrate land preservation into strategic growth efforts.
Methodology:	Information on preserved open space is gathered from the each county's forest preserve district, CMAP's Land Use Inventory and the National Conservation Easement Database. The National Conservation Easement Database is a regularly updated geospatial dataset maintained by the Trust for Public Land and Ducks Unlimited.

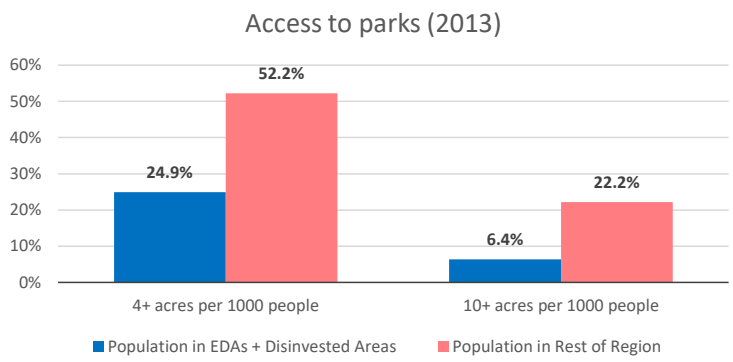
	Each time the CMAP Land Use Inventory is updated, its "open space, primarily conservation (code 3300)" parcels are combined with the other datasets from the county forest preserve districts and NCED, using data as close in time to the Land Use Inventory as possible. Once these datasets have all been merged, total acreage is calculated.
Targets:	The 2025 target was developed by continuing a straight-line increase in acres of open space in the region based on the rate of land conservation from 2008 to 2017. The 2050 target matches the long-term target from GO TO 2040. **2025:** 285,000 acres or more of conserved land **2050:** 400,000 acres or more of conserved land 
GO TO 2040 Context:	This indicator is a continuation of GO TO 2040's "Acres of Conservation Open Space" indicator. GO TO 2040 set a 2015 target of 275,000 acres. As of 2017 the region was still short of that goal, with 268,523 acres conserved. As a result of this recent slow growth, the 2040 target of 400,000 acres has been pushed back to 2050, and the new goal for 2025 is 15,000 lower than the GO TO 2040 target for 2020.

Access to Parks

Indicator:	This indicator measures per capita access to parks based on geographic proximity to recreational open space. Values are reported as the percentage of the regional population with access to at least four acres of parkland per 1,000 residents and at least ten acres per 1,000 residents. Generally, the four-

	acre standard is appropriate for denser communities, while the ten-acre standard is intended for less-dense areas. **Related recommendation:** Improve natural resources through the redevelopment process; Target infill, infrastructure, and natural area investments (Community).-
Methodology:	The data for this indicator come from the CMAP land use inventory (most recently 2013) and the U.S. Census (2010). Park access is tracked at the subzone level. A subzone's population is considered to have access to any park acreage within a half-mile radius of the subzone's centroid, and additionally to any park acreage in "community parks" (larger than 35 acres) within a one-mile radius. A subzone's population only has access to park acres that fall within these radii (i.e., if a portion of a large park falls within the radius, only the acres of that portion are counted). Each acre of parkland is then divided by the total population with access to it (from all nearby subzones), and then each of those subzones is allocated a share of that acreage by multiplying its population by that park's acres-per-person value. The population of each subzone with 4+ or 10+ cumulative acres of parkland per 1,000 residents are then aggregated to determine the region's total access to parks.
Targets:	GO TO 2040 sought to connect all of the region's population to four acres of parkland per 1,000 residents and 70 percent of the population to 10 acres of parkland per 1,000 residents by 2040. As part of the indicator refinement process for ON TO 2050, staff discovered a major methodological flaw in the GO TO 2040 park access calculations, whereby each subzone's population was considered independently of its neighbors', leading to significantly inflated estimates of accessible acreage per 1,000 residents. The methodology has been corrected, but the GO TO 2040 targets are unattainable given the updated baseline data. To identify a more appropriate goal, CMAP staff conducted a GIS analysis to determine the percentage of the population that could gain access to four or ten acres per 1,000 residents by strategically targeting currently vacant land (as defined in the CMAP Land Use Inventory as "land in an undeveloped state, with no agricultural activities nor protection as open space") for conversion to parks in areas currently below these park access thresholds. With an optimal conversion of some of the region's vacant land into parks, it would be possible for 65 percent of the population to have access to four or more acres of parkland per 1,000 residents, and for 40 percent to have access to ten or more. While CMAP does not advocate for converting all vacant land to parks, this number provides a useful "ballpark" estimate for what is

	possible. This is an ambitious goal, but not unattainable, as land use changes during the next 35 years may reduce the land needed for transportation and utility corridors, while changes in precipitation patterns may increase the demand for open space providing stormwater management. Once these 2050 targets were identified, a straight-line projection was used to determine interim targets for 2025. Four or more acres per 1,000 residents **2025:** 49 percent or more of region's population **2050:** 65 percent or more of region's population Ten or more acres per 1,000 residents **2025:** 24 percent or more of region's population **2050:** 40 percent or more of region's population 
Inclusive Growth Perspective:	As a kindred indicator to this core indicator, ON TO 2050 will track access to parks for residents in economically disconnected areas and disinvested areas. Disparities exist in access to parks between residents in economically disconnected and disinvested areas and those in the remaining parts of the region. Residents in economically disconnected and disinvested areas have lower access to parks regardless of development density.

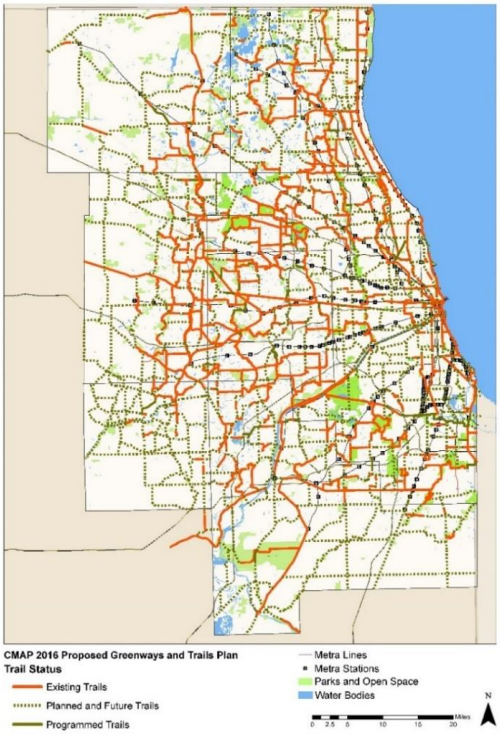
	
GO TO 2040 Context:	While this indicator is nominally a direct continuation of the GO TO 2040 "Regional Access to Parks per Person in Acres" indicator, the major flaws in the previous version's methodology (described above) unfortunately render the GO TO 2040 data and targets virtually meaningless. This indicator is effectively new for ON TO 2050.

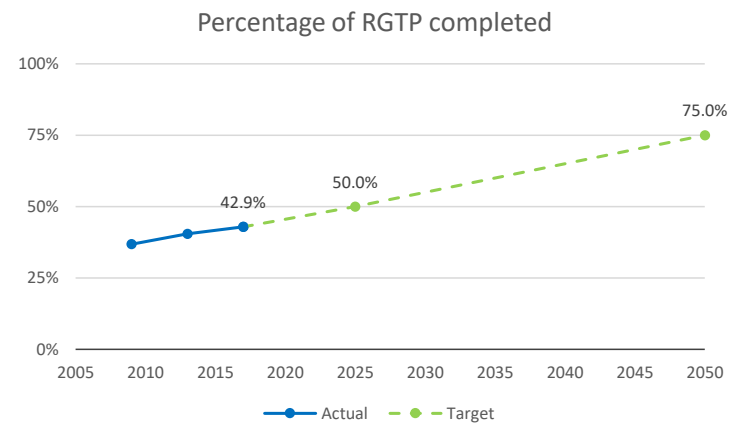
~~***Percentage of Regional Greenways and Trails Plan Completed***~~

~~Indicator:~~	~~This indicator tracks the total miles of all trails in the Northeastern Illinois Regional Greenways and Trails Plan (RGTP) that are completed or let for construction. The RGTP includes not only off-street trails, but key on-street facilities and side paths. The RGTP includes trails in Aux Sable Township in Grundy County. Out-of-region connections to systems in Indiana and Wisconsin are not included in indicator totals.~~
~~Methodology:~~	~~CMAP updated the RGTP in 2016 based on input from all seven counties, forest preserve and conservation districts, Councils of Mayors, and the City of Chicago. The revised Plan now includes 3,163 miles of existing, programmed, and planned facilities in Illinois. Information on trail status is maintained by CMAP staff in the Bikeway Inventory System (BIS).~~[4]

Commented [NP1]: Moved to Mobility section

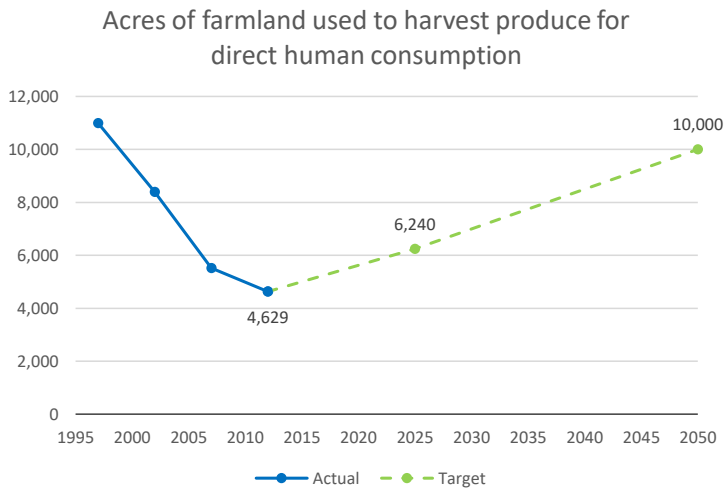
~~[4] CMAP Data Hubhicago Metropolitan Agency for Planning, "Bikeway Inventory System (BIS)," June 2018, https://datahub.cmap.illinois.gov/dataset/bis.~~

	2016 Regional Greenways and Trails Plan  ~~The RGTP categorizes trails as existing (including let for construction), programmed, planned, or future. Programmed trails, which have been tapped to receive funds for their development, total about 62 miles, or an additional 2 percent of system miles to be completed by 2020, showing system development remains roughly on track. Periodic updates to the RGTP and changes in trail alignments, particularly as conceptual lines are constructed, have modest impacts on this indicator.~~
~~Targets:~~	~~As of 2017, 41.5 percent of the 2016 RGTP has been completed, including both existing and programmed trail miles. Extrapolating the average annual rate of completion from 2009 to 2017 would yield 49 percent completion by 2025 and 68.1 percent completion by 2050. The proposed targets are slightly higher than those figures.~~

	~~**2025:** 50 percent or more of RGTP completed~~ ~~**2050:** 75 percent or more of RGTP completed~~ 

Acres of Farmland Used to Harvest Produce for Direct Human Consumption

Indicator:	This indicator tracks the total number of farmland acres in the region that support food for direct human consumption. The U.S. Department of Agriculture defines "direct consumption" as the totals found in these categories: orchards, peanuts, potatoes, sweet potatoes, and vegetables. This data excludes community gardens and other entities not counted in the Census of Agriculture. **Related recommendation:** Integrate land preservation into strategic growth efforts.
Methodology:	The data for this indicator is from the U.S. Census of Agriculture, which the U.S. Department of Agriculture conducts every five years. The most recent completed census is 2012. The acreage total for the region is the sum of the per-county acreage from Table 29 (Vegetables, Potatoes, and Melons Harvest for Sale) and Table 30 (Land in Orchards). The acreage totals may be slightly below the true number because the Census does not report acreage totals for counties where there are few enough farms that reporting acreage would result in disclosing data for individual farms.

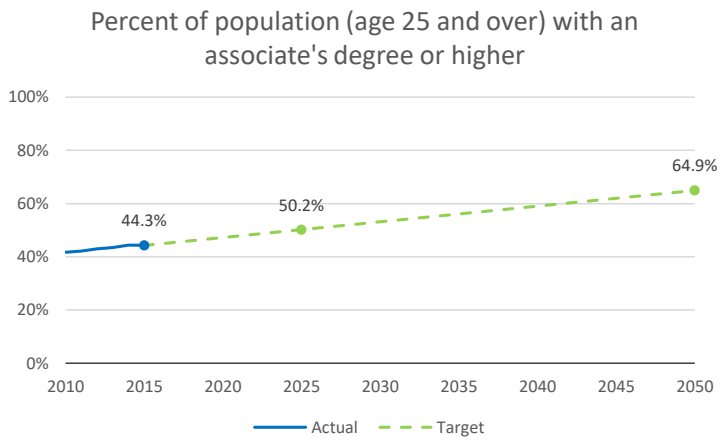
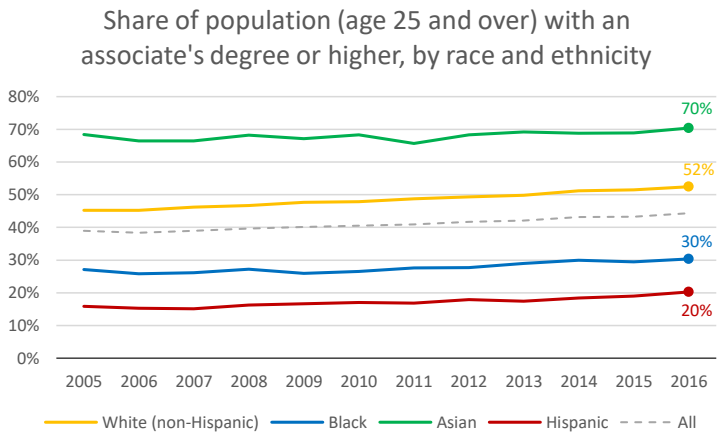
Targets:	The goal for this indicator is for the acreage of farmland used to harvest produce for direct human consumption to increase at the same rate targeted by the GO TO 2040 Plan Update: a 75 percent increase by 2040. Because ON TO 2050's policy goals for this topic are unchanged and no new data is available for this indicator, the new targets reflect the same annual rate of increase as those in the GO TO 2040 Plan Update. The chart below shows a decline in the number of acres in the region used to harvest produce for direct human consumption over the last four censuses; achieving the 2050 goal will increase the number of acres used for this purpose to a level comparable to that seen in the year 2002 by 2040. The 2025 goals reflect a straight-line increase from current conditions, while the 2050 goal reflects a slightly higher, rounder target than a straight-line increase. **2025:** 6,240 acres or more of farmland used to harvest produce for direct human consumption **2050:** 10,000 acres or more of farmland used to harvest produce for direct human consumption 
GO TO 2040 Context:	This indicator has been carried forward from the "Acres of Land Harvesting Food for Human Consumption" indicator in GO TO 2040. No new data have been released since the GO TO 2040 Plan Update was published, so no

	update on implementation progress can be given at this time. The ON TO 2050 targets are an extrapolation of the trend targeted by GO TO 2040.

Prosperity Indicators

Educational Attainment

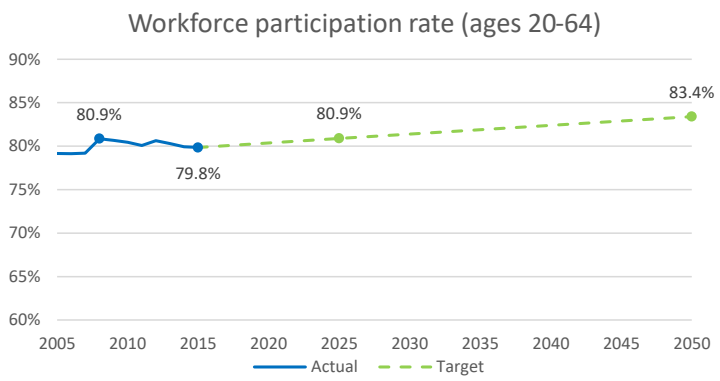
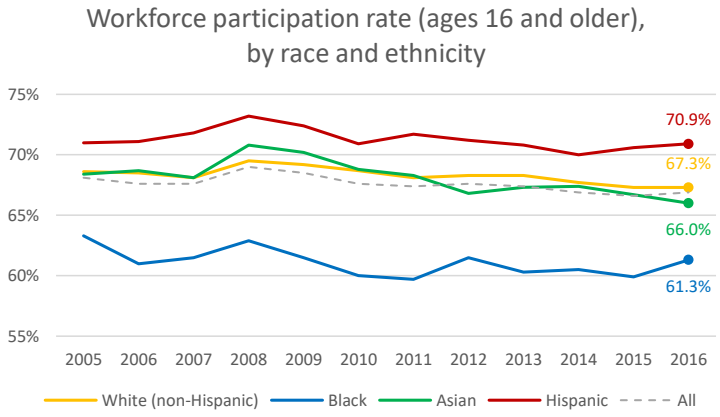
Indicator:	This measure reports the proportion of residents in the Chicago region who are age 25 and older holding an associate's degree or higher. Higher levels of educational attainment create benefits for both individuals and regional economies. As residents receive additional postsecondary education, they can generally expect increased median earnings and a decreased likelihood of joblessness. On a regional scale, these trends translate to lower unemployment rates and greater economic output. The inclusion of associate's degrees in this measure helps to highlight the important role community colleges play in improving education and workforce development, and reflects the significance of "middle-skill" jobs in our regional economy. **Related recommendation:** Prioritize pathways for upward economic mobility.
Methodology:	Data come from the ACS conducted annually by the U.S. Census Bureau. The ACS reports educational attainment data as raw counts of county residents age 25 or over holding particular levels of education (e.g., high school diploma, some college but no degree, associate's degree, bachelor's degree, and graduate or professional degree). The proportion of residents in metropolitan Chicago holding an associate's degree or higher is then calculated by adding the appropriate counts for the seven counties of the CMAP region and dividing the sum by the total 7-county population age 25 or older.
Targets:	In 2015, approximately 44 percent of the regional population age 25 and over held an associate's degree or higher; this exceeds the national average of 39 percent. Data from the ACS show that higher education levels are generally on the rise, in the region and nationwide. Between 2009-14, the proportion of the region's residents holding an associate's degree or higher has increased by an average 0.59 percentage points per year, ahead of the national average of 0.51 percentage points per year. The goal is to maintain the current growth rate in educational attainment as it relates to higher education, providing the basis for the 2025 and 2050 targets. **2025:** 50.2 percent or more of the region's population (age 25 and over) with at least an associate's degree

	2050: 64.9 percent or more of the region's population (age 25 and over) with at least an associate's degree 
Inclusive Growth Perspective:	As a kindred indicator, ON TO 2050 will also track the proportion of residents in the Chicago region and peer metropolitan areas who are age 25 and older holding an associate's degree or higher by race and ethnicity. Disparate outcomes exist across races and ethnicities in educational attainment. Black and Hispanic residents have educational attainment rates lower than the regional average and significantly lower than Asian and white residents. 

GO TO 2040 Context:	This indicator was introduced as part of the GO TO 2040 Plan Update, with 2020 and 2040 targets of 47 and 58 percent, respectively. As of 2014, 44.43 percent of the regional population age 25 and over held an associate's degree or higher, which is on track to reach the GO TO 2040 targets.

Workforce Participation

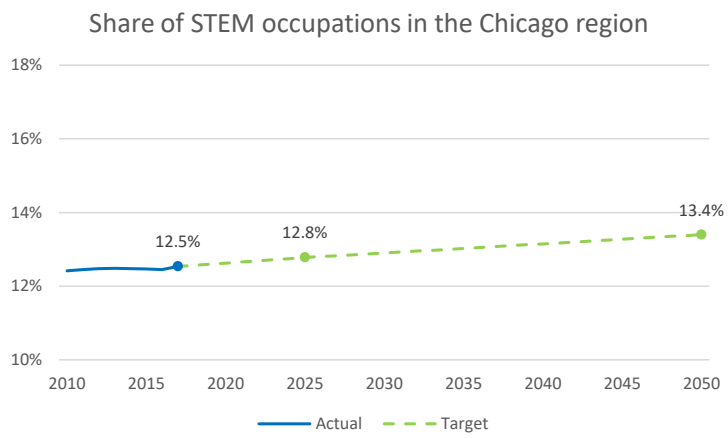
Indicator:	This indicator tracks the percentage of the regional population (age 20-64) that is either working or actively looking for work. An increase in workforce participation is generally viewed as a positive indicator of regional economic opportunity. Increased participation suggests a decrease in the number of discouraged workers -- individuals who are able to work but currently unemployed, and who have not searched for employment in the last four weeks due to a lack of suitable options or a lack of success through previous job applications. However, workforce participation is a complex measure because it tracks both the number of employed persons and unemployed persons currently looking for work. Thus an increase in unemployment can register as an increase in workforce participation. Similarly, decreases in workforce participation may be due to an increase in the number of discouraged job seekers, or to an increase in the number of people choosing to retire early or leave the workforce for other reasons. Even with these caveats, an increase in workforce participation is generally indicative of a healthy economy. **Related recommendation:** Conduct regional planning for human capital.
Methodology:	Data come from the ACS conducted annually by the U.S. Census Bureau. The data are available at the county level and have been combined into a regional measure using a population-weighted average.
Targets:	The Chicago region experienced a 0.6 percentage point decrease in its workforce participation rate between 2010 and 2015, despite the region's ongoing recovery from the most recent recession. Among peer metropolitan areas, fluctuations in workforce participation rates tend to mirror each other, suggesting that macroeconomic factors contribute heavily to such trends. The goal for the Chicago region is to return to its previous 10-year high of an 80.9 percent workforce participation rate by 2025 and then maintain this steady annual growth rate of 0.1 percentage points through 2050. **2025:** Regional workforce participation rate of at least 80.9 percent

	2050: Regional workforce participation rate of at least 83.4 percent 
Inclusive Growth Perspective:	As a kindred indicator, ON TO 2050 also will track the share of the population in the Chicago metropolitan statistical area age 16 years and over that is either working or actively looking for work by race and ethnicity. Demographic groups participate in the workforce at differing rates. Black residents participate in the workforce at significantly lower rates than residents of other races or ethnicities. 
GO TO 2040 Context:	This indicator was introduced as part of the GO TO 2040 Plan Update, with a 2020 target of 82.8 percent for ages 20-64 (holding steady after that point). Since the Plan Update, the regional workforce participation rate declined slightly to 79.8 percent in 2015.

Employment in STEM Occupations

Indicator:	This indicator tracks ~~E~~employment in science, technology, engineering, and mathematics (STEM) fields in the seven-county Chicago region. The demands of many professions are becoming increasingly complex as technology drives innovation and growth in today's economy. Workers employed in ~~science, technology, engineering, and mathematics (~~STEM~~)~~ occupations play a significant role in fostering new ideas that lead to economic growth. Yet, growth in STEM occupations in the Chicago region has lagged behind STEM growth in peer regions. **Related recommendation:** Support the region's traded clusters.
Methodology:	Data comes from the Bureau of Labor Statistic's (BLS) Quarterly Census of Employment and Wages (QCEW). Annual QCEW data are used to estimate employment in science, technology, engineering, and mathematics fields in the seven-county CMAP region. Data can be sourced directly from the BLS or from Economic Modeling Specialists International for ease of use. The occupations specified for this indicator reflect the STEM occupations as defined by the federal Standard Occupational Classification (SOC) Policy Committee in 2010.[5]
Targets:	The Chicago region experienced a 0.12 percentage point increase in the share of STEM occupations between 2010 and 2017. Despite the Chicago region's diverse industry mix and exceptional education and research institutions, regional STEM employment closely mirrors that of the U.S. overall. In 2017, 12.5 percent of workers in the Chicago region filled positions in STEM occupations, compared with 12.7 percent nationwide. However, regional STEM employment lags behind other peer metropolitan areas, such as Boston, New York, and Washington, D.C. Over the past seven years, the share of STEM employment in the Chicago region grew by an average of 0.017 percentage points annually. Targets are based on the goal to double the region's annual growth rate to 0.034 percentage points per year through 2025, and then to maintain robust STEM activity by matching the U.S. annual growth rate of 0.024 percentage points per year. **2025:** 12.8 percent or more of region's jobs in STEM occupations **2050:** 13.4 percent or more of region's jobs in STEM occupations

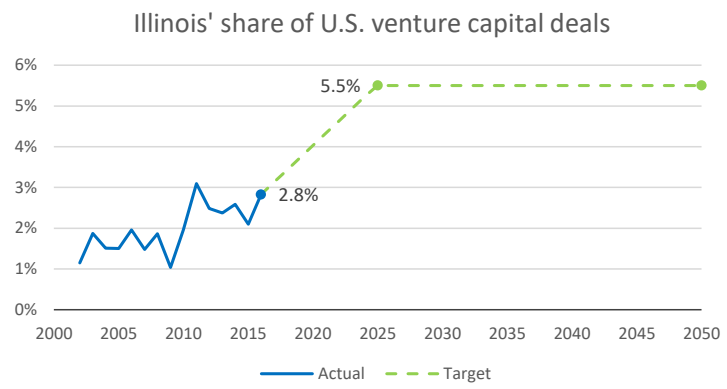
[5] U.S. Bureau of Labor Statistics, ~~John I. Jones,~~ "An Overview of Employment and Wages in Science, Technology, Engineering, and Math (STEM) Groups," ~~*Beyond the Numbers: Employment and Unemployment*, vol. 3, no. 8 (U.S. Bureau of Labor Statistics,~~ April 2014~~)~~, https://www.bls.gov/opub/btn/volume-3/an-overview-of-employment.htm.

	
GO TO 2040 Context:	This indicator ~~is new to ON TO 2050.~~was revised substantially from the GO TO 2040 Plan Update, which defined private sector employment in research and development (R&D) as the number of workers employed in the Scientific R&D Services industry (NAICS classification 5417). Subsequent analysis found that Scientific R&D Services employment failed to capture numerous innovative segments of the economy. While white-collar, advanced science and technology jobs represent a core component of the region's innovative capacity, the need for STEM skills appears in many other industries and occupations as well, including many blue-collar jobs. This expanded scope is reflected in ON TO 2050, and this indicator will more accurately track employment in a wider array of STEM fields.

Venture Capital Funding

Indicator:	This indicator measures the State of Illinois' share of total U.S. venture capital deals. Innovation in new goods, services, processes, and technologies drives economic growth. Some of these innovations reach the commercial market through new business startups. These newly created firms can face substantial costs for researching, developing, and marketing new products or services. In these instances, investors can support high-risk, potentially high-growth startup companies through venture capital funding. Venture capital therefore plays an important role in the business startup process by providing support to businesses before they are financially sustainable or able to access traditional funding streams. Such investments tend to finance innovative ideas and companies in high-growth sectors.

	Related recommendation: Pursue regional economic development.
Methodology:	Data are produced by Thomson Reuters and published in the PricewaterhouseCoopers (PwC) MoneyTree report. The data used for this indicator represent a "best guess" of venture capital activity by region and state. PwC provides national and state-level data on an inconsistent annual basis. PwC does not track data specifically for the Chicago region, but most of the venture capital funding in the state flows to the region. The geographies used for peer comparisons are defined by PwC: New York City (metropolitan New York City, including northern New Jersey, and Fairfield County, Connecticut); Los Angeles (southern California, excluding San Diego and including the Central Coast and San Joaquin Valley) and northern California (Bay Area, including Silicon Valley and coastline).
Targets:	Since the mid-1990s, the state of Illinois has accounted for 1-3 percent of all VC deals in the U.S. Trends show that the Midwest (defined as Illinois, Indiana, Michigan, Missouri, Ohio, Wisconsin, and western Pennsylvania) is accounting for an increasing proportion of total VC deals; however, Illinois' proportion of deals has not kept pace. In 2002, the Midwest accounted for 3.9 percent of all VC deals; by 2016, this proportion increased to 7.5 percent -- an average 0.3 percentage point increase per year. The goal between now and 2025 is to increase the number of VC deals in the state such that Illinois' share of total U.S. VC deals grows at a rate of 0.3 percentage points per year. This growth is equivalent to the overall growth rate experienced by the Midwest, and mirrors the increases seen by peer regions such as Northern California and New York. Because venture capital deal making is partially driven by industry mix, the goal for the Chicago region will be to reach 5.5 percent of all VC deals nationwide by 2025, and then maintain this level of robust investment activity and availability into 2050. **2025:** Illinois accounts for at least 5.5 percent of all U.S. venture capital deals **2050:** Illinois continues to account for at least 5.5 percent of all U.S. venture capital deals

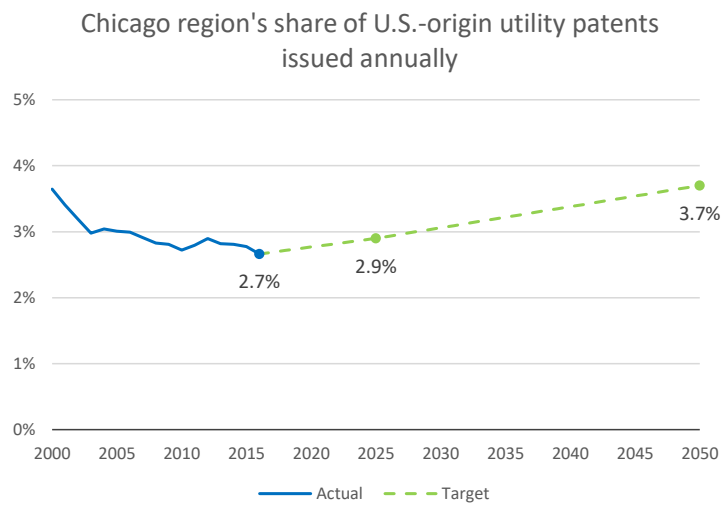
	
GO TO 2040 Context:	This indicator was introduced as part of the GO TO 2040 Plan Update, with a 2020 target of 5.4 percent. Since the Plan Update, Illinois' share of U.S. venture capital deals increased slightly to 2.8 percent in 2016.

Commented [AE2]: This indicator was included in the original GO TO 2040 indicators, but I can't find any record of the targets. Unlike R&D employment, the only real change here from the 2040 plan update was sourcing

Patenting Activity

Indicator:	This indicator tracks the total number of utility patents (for "any novel, non-obvious, and useful machine, article of manufacture, composition of matter or process") issued to residents and businesses in the Chicago region by the U.S. Patent and Trademark Office (USPTO). High levels of patenting generally indicate a talented regional workforce and businesses with a strong capacity to conduct research and development. These ideas can generate significant value. Prior analysis has found that U.S. workers in industries with higher than average levels of intellectual property and patenting earn significantly more than those in other industries do, despite no significant difference in education levels. At the same time, the invention of new products and services enhances the competitiveness of our region's industries. Patents can play a special role in encouraging innovation by granting inventors exclusive rights to use or license an invention for a set period of time. These rights help businesses capitalize on their investments in research and development and provide a competitive edge in the marketplace. **Related recommendation:** Enhance economic innovation.
Methodology:	USPTO provides data on U.S. utility patents issued annually. Data represents the 14-county Chicago metropolitan statistical area. According to USPTO, utility patents may be granted "to anyone who invents or discovers any new

	or useful process, machine, article of manufacture, or composition of matter, or any new or useful improvement thereof." USPTO attributes patenting activity to metropolitan areas based the home or business address of the first-named or primary inventor. Data and analysis for this indicator focus exclusively on "utility patents," referred to throughout simply as patents.
Targets:	While this indicator reports the number of patents issued annually in the region, the target values are measured as the share of total U.S. patents issued in northeastern Illinois. This allows benchmark comparisons to peer regions and national trends. In 2016 the Chicago MSA accounted for 2.9 percent of the U.S. population, but only 2.7 percent of total patent output originating in the U.S. Thus, the region's patent output share divided by its population share ratio equaled 0.92. The region's "fair share" of patents for 2016 was 2.9 percent (equivalent to its population share). The goal for 2025 is for the region to increase its patent output to meet its 2016 "fair share" of patent output – 2.9 percent. The top 25 most populous metro areas account for 42.4 percent of the U.S. population and 53.6 percent of the nation's patents. In other words, they produce 26 percent more than their "fair share" of patents. The goal for 2050 is for our region to match the patent output rate of the top 25 metropolitan areas and to have a patent output share that is 26 percent more than the region's share of national population. The 2050 target is for the region to produce 3.7 percent of the nation's patents, a 26 percent increase over the 2025 target. **2025:** 2.9 percent or more of U.S. origin patents issued in northeastern Illinois. This is equivalent to our region's current "fair share" of patents (i.e., a patent output share/population share ratio equal to 1.00). **2050:** 3.7 percent or more of U.S. origin patents issued in northeastern Illinois. This represents the goal of achieving 26 percent more than our region's current "fair share" of patent output (i.e., a patent output share/population share equal to 1.26).

	
GO TO 2040 Context:	This indicator was introduced as part of the GO TO 2040 Plan Update, with 2020 and 2040 targets of 3.1 percent and 3.9 percent, respectively. Since the Plan Update, the Chicago region's share of U.S.–origin utility patents issued annually has remained largely constant, while its "fair share" of patents has dropped from 3.1 to 2.9 percent.

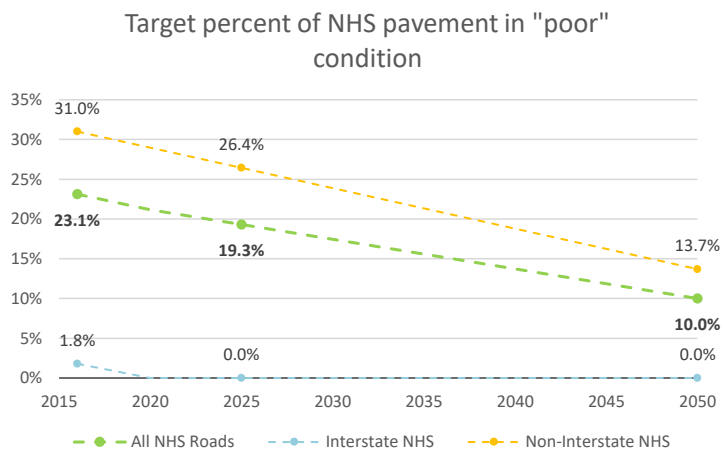
Mobility Indicators

Percentage of NHS Pavement in Poor Condition

Indicator:	Maintaining the existing transportation network and improving state of good repair are substantive priorities of ON TO 2050. Ride quality provides a good measure of user experience of the facility, and is also an indicator of the region's level of reinvestment in existing infrastructure. This indicator measures the percentage of National Highway System (NHS) lane miles in the region that have "poor" ride quality. The NHS used for this analysis is the one defined in MAP-21 (Moving Ahead for Progress in the 21st Century), the current federal surface transportation act. **This measure is a federally required performance measure under MAP-21.** **Related recommendation:** Enhance the region's approach to transportation programming.
Methodology:	Poor ride quality is defined by an International Roughness Index (IRI) score of more than 170, which measures the cumulative deviation from a smooth surface on a mile of roadway. The IRI information comes from the Highway Performance Monitoring System (HPMS), and the lane miles for each classification are summed for all roads in the NHS. Interstate and non-Interstate roads are tracked separately.
Targets:	All 2,428 lane miles of interstate should be in "fair" or "good" condition by 2050 (currently 1.8 percent "poor"). Non-interstate NHS roads should have fewer than 14 percent of 6,590 road miles in "poor" condition (currently 31 percent). Achieving both of these targets would result in a regional value of no more than 10 percent of NHS roads in "poor" condition, achieving the Illinois Department of Transportation's (IDOT) target, down from 23.1 percent today. This would bring the CMAP region to the same condition as the remainder of the state is in today. **2025:** 19.3 percent or less of NHS lane miles in "poor" condition **2050:** 10.0 percent or less of NHS lane miles in "poor" condition

Commented [MM3]: Received new data from IDOT that aligns with how we are required to report on this long term. It is also better data. Not sure if we will have it cleaned up in time to revise this indicator.

Commented [MM4R3]: We will not be changing this. The IDOT data is not ready.

	
GO TO 2040 Context:	This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Percentage of National Highway System with Acceptable Ride Quality" indicator as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists.

Percentage of NHS Bridge Areas in Poor Condition

Indicator:	Like pavement condition, tracking bridge condition helps measure the region's progress on improving the existing transportation system. This indicator measures the percentage of bridge deck area of NHS that are in "poor" condition. While a "poor" classification is the lowest condition rating for a bridge, it should be noted that it does not necessarily mean that a specific bridge is unsafe. **This measure is also a federally required performance measure under MAP-21.** **Related recommendation:** Enhance the region's approach to transportation programming.
Methodology:	Data come from the Federal Highway Administration's (FHWA) annual National Bridge Inventory (NBI). NBI data is available for all bridges that carry NHS routes and that are over twenty feet in length. Bridge conditions ratings are identified through a scheduled inspection process, and are identified as requiring significant maintenance, rehabilitation, or replacement.

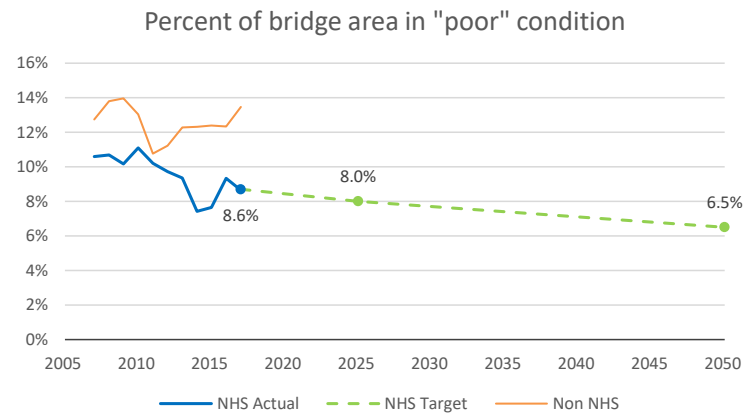
Commented [ES5]: Hm. We've put ourselves in a weird spot here. I'd suggest "enhance the region's approach to transportation programming"

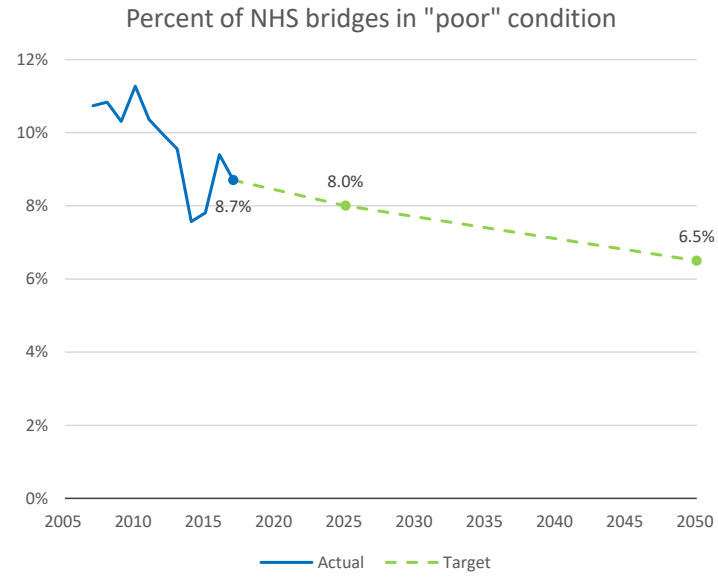
Commented [NP6R5]: This is what Elizabeth Irvin said, too.

	Note that prior to 2018, the NBI used the term "structurally deficient". This term was redefined in accordance with the Pavement and Bridge Condition Performance Measures final rule, to align with the new MAP-21 "poor" condition federal standard.
Targets:	Current (2017) NBI data indicate that 8.67 percent of the NHS bridge deck area in the region was classified as being in "poor" condition, which represents almost 2.8 million out of a total 31 million square feet of NHS bridge deck area in the CMAP region. Over the last decade, the measure has fluctuated between 7.6 and 11.3 percent, but since the average NHS bridge in the CMAP region was built in 1971, more old bridges can be expected to lapse into the "poor" condition every year. The targets were developed based on a review of historical trends, average bridge characteristics, and consideration of the potential new bridges with high quality deck area. The 2025 and 2050 targets call for a continuation of the recent rates of improvement, and adequate funding levels that allow for the continuation of timely bridge maintenance programs. **2025:** 8.0 percent or less of bridge deck area in "poor" condition **2050:** 6.5 percent or less of bridge deck area in "poor" condition

Commented [MM7]: We forgot to include Grundy County. This has an impact of less than 1%. Should have final numbers by 8/10

Commented [MM8R7]: Done





GO TO 2040 Context:	This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Percentage of Bridges in 'Structurally Deficient' Condition" indicator as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists.

Transit Asset State of Good Repair

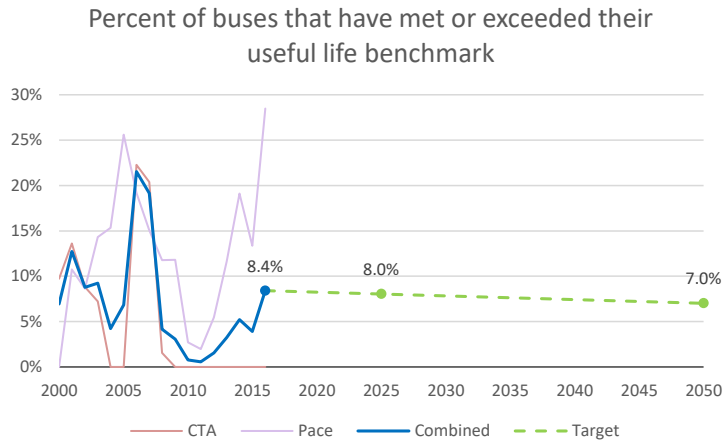
Indicator:	Maintaining the existing transportation network and improving state of good repair are substantive priorities of ON TO 2050. In particular, recent investment in the transit system has been insufficient to keep system condition from declining. **Related recommendation:** Enhance the region's approach to transportation programming. ***(a) Percent of fixed-route buses that have met or exceeded their useful life*** This measures the percent of active revenue public transit buses that have exceeded their useful life. This represents the number of vehicles that have reached an age where maintenance cost and vehicle performance issues are likely to increase. **This measure is also a federally required performance measure under MAP-21.**
Methodology:	A snapshot of the active vehicle fleet is reported each year to the National Transit Database (NTD), including the year of manufacture. Note that a useful life benchmark (ULB) of 12 years is used for Pace and 15 years for Chicago Transit Authority (CTA) based on agency priorities and operating conditions.

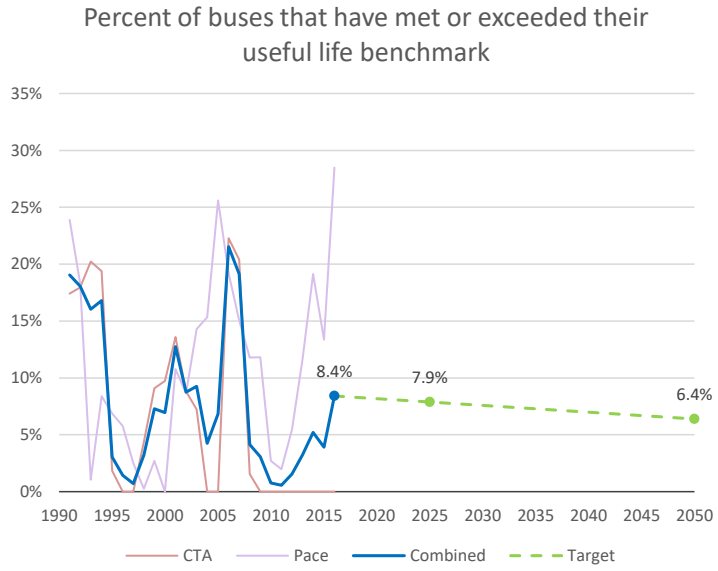
Number of active buses (2016) reaching ULB, by year

Year Reaching ULB	CTA Buses	Pace Buses
2012		34
2013		26
2014		6
2015		157
2016		6
2017	103	59
2018		
2019		133
2020		9
2021	337	25
2022	242	60
2023	590	6
2024	74	54
2025		37
2026		36
2027	13	76
2028	84	59
2029	91	
2030	188	
2031	147	
Total	**1,869**	**783**

Targets:	State, federal, and transit agency capital programs can result in large purchases of new vehicles, which then reach their ULB at the same time. By 2025, 78 percent of Pace's and 72 percent of CTA's current bus fleet will have reached their ULB. As of 2016, 8.4 percent of buses have exceeded their useful life. Financial projections for ON TO 2050 include funding being directed toward reducing the state of good repair backlog. This would result in a modest improvement in bus condition to 6.4 percent of buses beyond their useful life in 2050. **2025:** 8.0~~7.9~~ percent or fewer buses exceed their useful life benchmark **2050:** 7.0~~6.4~~ percent or fewer buses exceed their useful life benchmark

Commented [MM9]: Rate of change for all transit indicators changing due to error in factoring in inflation.



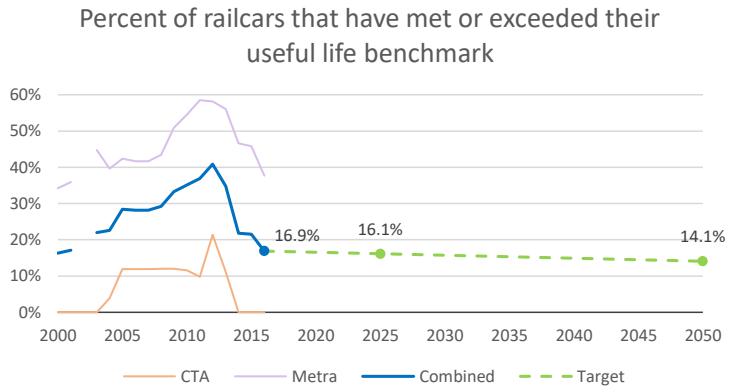


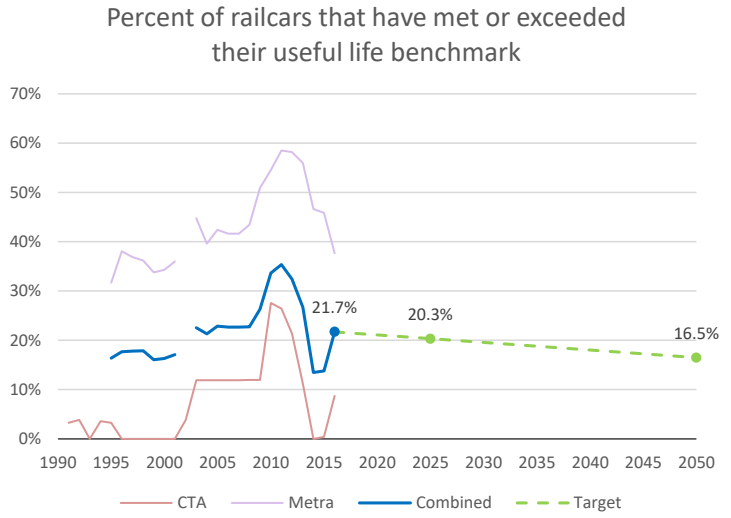
GO TO 2040 Context:	~~This indicator is new to ON TO 2050.~~This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Percentage of Transit Assets in a State of Good Repair" indicator as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists.

Indicator:	***(b) Percent of rail vehicles that have met or exceeded their useful life*** This measures the percent of active revenue public transit rail vehicles that have exceeded their useful life. This represents the number of vehicles that have reached an age where maintenance cost and vehicle performance issues are likely to increase. **This measure is also a federally required performance measure under MAP-21.**
Methodology:	A snapshot of the active vehicle fleet is reported each year to the National Transit Database (NTD), including the year of manufacture. The CTA plans for rail vehicles to be used for 340 years, while Metra plans for 302 years of useful life. This does not include non-revenue equipment such as maintenance vehicles. ~~Number of active rail vehicles (2016) exceeding ULB, by year~~ ~~Year Exceeding ULB / CTA / Metra~~ ~~<1991 - 22~~ ~~1991-1995 - 120~~ ~~1996-2000 - 10~~ ~~2001-2005 - 68~~ ~~2006-2010 - 202~~ ~~2011-2015 127 24~~ ~~2016-2020 367 14~~ ~~2021-2025 254 51~~ ~~2026-2030 - 155~~ ~~2031-2035 - 335~~ ~~2036-2040 - 22~~ ~~2041-2045 366 128~~ ~~2046-2050 344 32~~ ~~Total 1,458 1,183~~ ~~*Source: CMAP analysis of 2016 NTD, using ULB of 30 years for CTA and 32 years for Metra*~~
Targets:	State, federal, and transit agency capital programs can result in large purchases of new vehicles, which then reach their ULB at the same time. ~~By 2025, 43 percent of Metra's and 51 percent of CTA's current rail fleet will have reached their ULB.~~ Currently ~~21.7~~16.9 percent of rail vehicles are beyond their ULB. Financial projections for ON TO 2050 include funding being directed toward reducing the state of good repair backlog. These targets are consistent with that plan. **2025:** ~~20.3~~16.1 percent or fewer rail vehicles exceed their useful life benchmark **2050:** 14.1~~16.5~~ percent or fewer rail vehicles exceed their useful life benchmark

Commented [MM10]: Table no longer valid with ULB revisions.

Commented [NP11R10]: We won't/can't update?





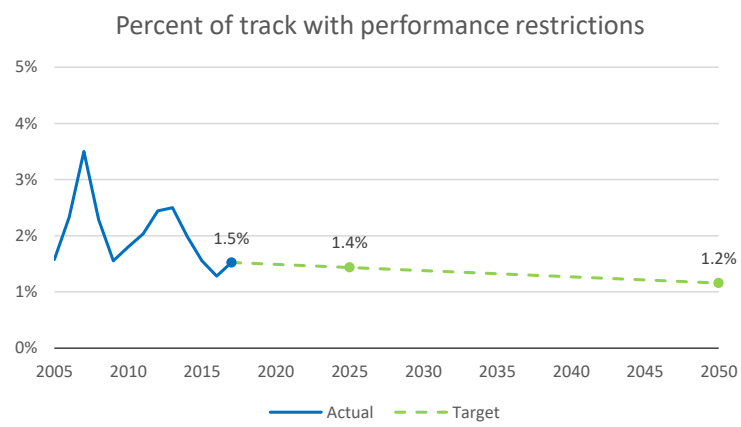
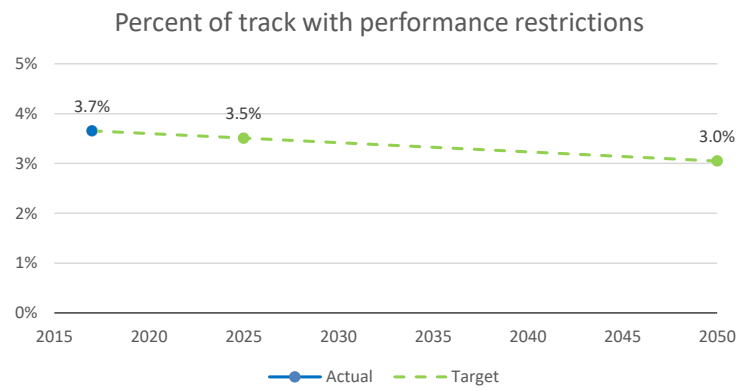
Data incomplete in 2002 and prior to 1995

GO TO 2040 Context:	This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Percentage of Transit Assets in a State of Good Repair" indicator as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists. ~~This indicator is new to ON TO 2050.~~

Indicator:	***(c) Percent of directional rail route miles with track performance restrictions*** This indicator measures the percent of transit rail track with performance restrictions. The CTA refers to these as "slow zones", where trains are required to operate at slower than normal speeds. This could be the result of construction, power systems, signals, or other issues. Elimination of slow zones can help to make transit more competitive by decreasing travel times and improving reliability. **This measure is also a federally required performance measure under MAP-21**.
Methodology:	Each month the CTA reports on track slow zones by rail line. Annual averages are calculated from these monthly values. Metra follows Federal Railroad Administration (FRA) standards for track condition, which do not allow for slow zones.~~Federal rules require Metra to maintain track at a level that precludes slow zones.~~
Targets:	Slow zones are currently near the lowest they have been in a decade due to a number of small and large track renewal programs, including 2013 reconstruction of the Dan Ryan branch of the Red Line.[6] Remaining slow zones have a number of root causes. For example, trains reduce speed to protect workers in construction zones. The rail system may always have some level of speed restrictions for safety around construction and unexpected events. Improvements in transit asset management and system reconstruction can help minimize slow zones. Financial projections for ON TO 2050 include funding being directed toward reducing the state of good repair backlog. These targets are consistent with that plan. **2025:** 3.5~~1.4~~ percent of track or less with performance restrictions

[6] ~~Chicago Transit Authority, "~~Slow Zone Elimination,~~"~~ Chicago Transit Authority, ~~https://www.transitchicago.com/sze/~~https://www.transitchicago.com/sze.

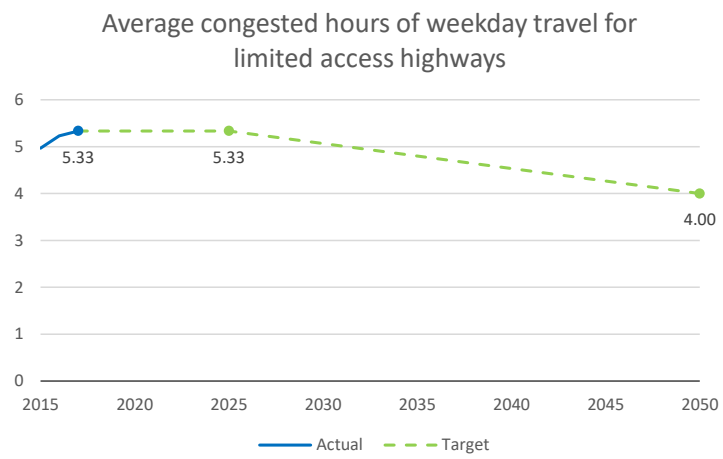
Field Code Changed

	2050: 3.0~~1.2~~ percent of track or less with performance restrictions  
GO TO 2040 Context:	This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Percentage of Transit Assets in a State of Good Repair" indicator as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists.~~This indicator is new to ON TO 2050.~~

Commented [MM12]: Metra changed their story from not having slow zones to having 3% slow. We had assumed 0% for Metra to generate history, but this was not a valid assumption. We do have history for CTA. Only have 2017 data for Metra. Trying to get 2015-2016 Metra data, so we

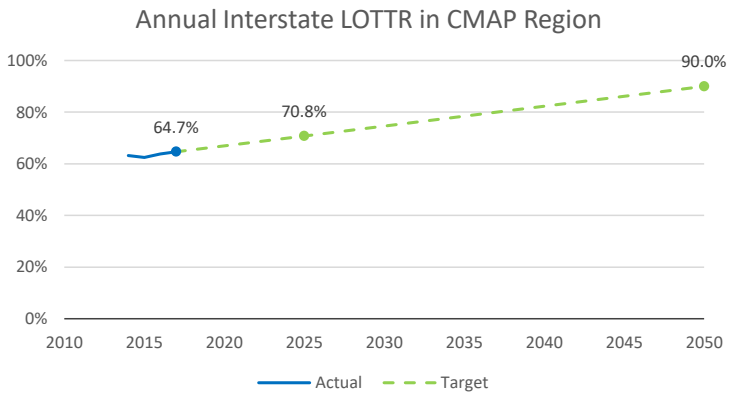
Average Congested Hours of Weekday Travel for Limited Access Highways

Indicator:	Congestion has negative effects on the regional economy (in terms of wasted time) and air quality (in terms of additional emissions). This indicator measures how long the region's expressways are congested during weekday travel on average. "Congested hours" is defined as the number of hours each weekday that travelers could travel at least 10 percent faster in free-flow conditions. **This measure is also a federally required performance measure under MAP-21.** **Related recommendation:** Build regionally significant projects.
Methodology:	This indicator is calculated using 5-minute, non-holiday weekday vehicle probe (travel time) data from FHWA's National Performance Measurement Research Data Set (NPMRDS).
Targets:	The goal for 2050 is to experience a one hour twenty minute reduction in the average number of hours per weekday that the region's expressways are congested. The short-term goal for 2025 is to keep the same duration of average weekday congestion as 2017: 5.33 hours. The short-term goal reflects the fact that there are not many capital improvements that will be completed on the expressway system by 2025. Additionally, it could take a number of years before new vehicle technology has fully penetrated the market. The lower congestion goal in 2050 reflects anticipated new vehicle technology, capital improvements to the transportation network, and the implementation of operational strategies like congestion pricing, incident management, and truck delivery times to address congestion. **2025:** 5.33 hours or less of congestion **2050:** 4.00 hours or less of congestion

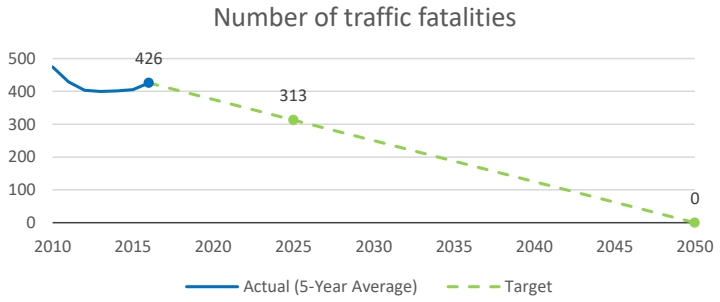
	
GO TO 2040 Context:	While this indicator is nominally carried forward from GO TO 2040, the methodology behind it has been overhauled as part of CMAP's efforts to align plan indicators with the MAP-21 performance measures where significant overlap exists. This change in methodology has made the data and targets described in GO TO 2040 largely obsolete. While GO TO 2040 targeted a near-term increase in congested hours followed by a long-term return to 2010 conditions, ON TO 2050 is targeting a near-term stabilization followed by a long-term decline.

Percentage of Person-Miles Traveled on the Interstate System with Reliable Travel Time

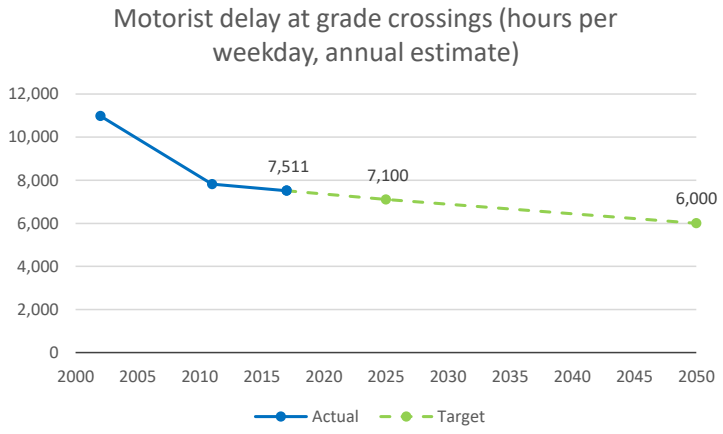
Indicator:	Unreliable travel times on these critical roads requires their users to budget extra time to ensure they arrive at their destinations on time. This increases commutes, limits movement of goods, and otherwise reduces quality of life and economic efficiency. The Level of Travel Time Reliability (LOTTR) is defined as the ratio of the longer travel times (80th percentile) to a "normal" travel time (50th percentile). The measure is the percentage of person-miles traveled on the region's Interstate system that meet this definition of reliability. Using person-miles rather than vehicle-miles gives equal weight to all individuals using the roads. **This measure is also a federally required performance measure under MAP-21.**

	Related recommendation: Harness technology to improve travel and anticipate future impacts.
Methodology:	This measure is based on data from FHWA's NPMRDS or equivalent. Speed and volume data are collected in 15-minute intervals between 6 a.m. and 8 p.m. local time. Person-miles are calculated by combining traffic volumes and vehicle occupancy data.
Targets:	Operations programs that, for example, improve incident management or implement advanced traffic management, could result in short term improvement despite the lack of new projects on the system. Regionally significant projects, travel demand management, and vehicle technology are expected to improve reliability over the long term, despite increasing population. This improvement could be limited by an increase of severe weather events. A 2050 target of 90 percent was set based on the results of CMAP's own travel modeling analyses of strategies to improve reliability. Full reliability can never be achieved due to uncontrollable factors like weather. **2025:** 70.8 percent or more of person-miles traveled on the Interstate system are reliable **2050:** 90.0 percent or more of person-miles traveled on the Interstate system are reliable 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Number of Traffic Fatalities

Indicator:	Ensuring a safer transportation system – for all modes – is a growing priority for the nation and region. ON TO 2050 offers strategies to improve safety for drivers, bicyclists, and pedestrians. To track progress, this measure tracks the five-year rolling average of the number of fatalities in the CMAP region on all public roads. This includes all motor vehicle fatalities and any pedestrians and cyclists involved. After declining for several decades, traffic fatality rates began increasing again in 2010, likely due to a combination of increased driving during the economic recovery and the rise of distracted driving fueled by smartphone usage. **This measure is also a federally required performance measure under MAP-21.** **Related recommendation:** Improve travel safety.
Methodology:	Illinois traffic crash reports provided by IDOT are used to calculate the number of fatalities that occur per year within the CMAP region. A five-year rolling average is then calculated from the five most recent years' data.
Targets:	Because traffic deaths are preventable, the region should strive for zero traffic related fatalities by 2050. Many of CMAP's partners have embraced the goal of achieving zero traffic related fatalities. This goal can be achieved through a holistic approach to safety that includes the 4 E's (Education, Enforcement, Engineering, & Emergency Response) of traffic safety. Additionally, improvements in vehicle technology are expected to play a significant role in reducing traffic fatalities. **2025:** 313 or fewer fatalities per year **2050:** Zero fatalities per year 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

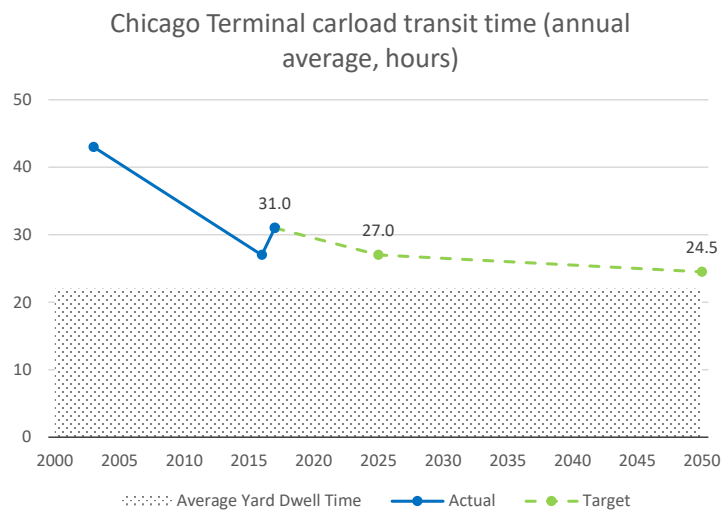
Motorist Delay at Highway-Rail Grade Crossings

Indicator:	CMAP estimates that weekday motorist delay at the region's grade crossings cost residents $58 million in wasted productivity in 2017 alone. This indicator measures the aggregate hours of delay per weekday experienced by motorists at railroad crossings in the seven-county CMAP region. **Related recommendation:** Maintain the region's status as North America's freight hub.
Methodology:	The source for these data is periodic analyses conducted by the Illinois Commerce Commission, which provide detail about delay at each grade crossing in the region. This data is then aggregated to calculate the region wide daily average.
Targets:	From 2002 to 2011, a number of strategies were implemented that resulted in a large reduction in weekday delay between the baseline and current analyses -- these include closing lines and grade crossings, re-routing of service, and service realignments. The pace of change slowed from 2011 to 2017. In the future, the pace of change will reflect the most recent rate of change. Proposed targets reflect trends from 2011 to 2017, and are consistent with 17 proposed CREATE grade separations being completed by 2050. **2025**: 7,100 hours or less of motorist delay at grade crossings per weekday **2050:** 6,000 hours or less of motorist delay at grade crossings per weekday  **Kendall County data not available for 2002 and 2011.*

GO TO 2040 Context:	This indicator has been carried forward from GO TO 2040. The GO TO 2040 Plan Update established a 2015 target of 7,675 hours or less of motorist delay per weekday. As of 2017, the region experienced 7,511 hours per weekday, surpassing the 2015 target and, in fact, nearly reaching the 2020 target of 7,500 hours or less.

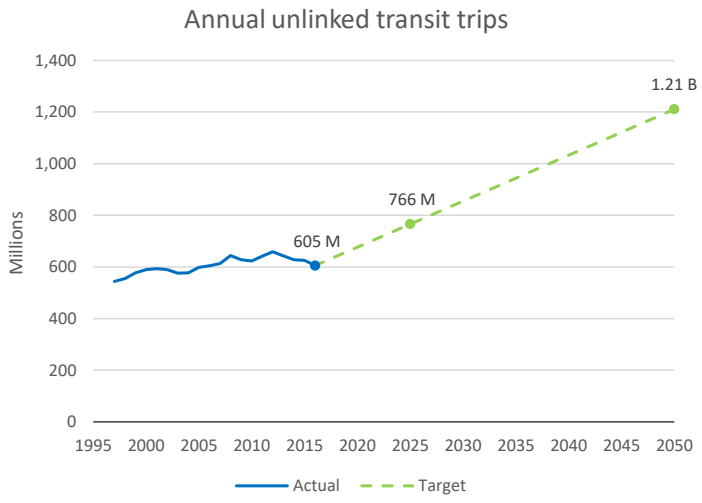
Chicago Terminal Carload Transit Time

Indicator:	The indicator measures the fluidity of the Chicago Terminal, which is important to the economic strength of the region's rail industry. This measures the annual average time carload freight takes to get through the core of Chicago's rail freight hub, the Chicago Terminal, extending from the City of Chicago to roughly the Indiana Harbor Belt Railway in the near-west suburbs. Much of the carload freight needs to pass through classification yards in the Chicago Terminal, where the interchange is made between predominantly eastern railroads, predominantly western railroads, Canadian railroads, and smaller regional and industrial railroads. The measure also indicates how fast trains are moving – a slow train will block a highway-rail grade crossing longer than a fast train. **Related recommendation:** Maintain the region's status as North America's freight hub.
Methodology:	Data is provided to CMAP for the Chicago Transportation Coordination Office by the Association of American Railroads' data provider, RailInc. The information is also provided to and posted by the Surface Transportation Board. The terminal transit time includes both "dwell time" in the classification yards, totaling about 22 hours, and the time spend traveling to and from those yards. Carload freight excludes containerized and single-purpose, through-routed unit trains.
Targets:	The targets reflect a return to 2016 conditions by 2025, and cutting the remaining transit time, less yard dwell time, in half by 2050. A fixed yard dwell time of 22 hours, consistent with recent observations, is assumed. The amount of time trains spend in classification yards is beyond the control of any CMAP policy recommendations, so the targets focus solely on decreasing the time spent traveling to and from them. **2025:** 27.0 hours or shorter carload transit time **2050:** 24.5 hours or shorter carload transit time

	
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Annual Unlinked Transit Trips

Indicator:	This indicator tracks the total number of annual unlinked transit trips. Trips are "unlinked" in that this is a total count of boardings, so that an individual making one transfer is counted as two unlinked trips. Increased transit ridership reduces greenhouse gas emissions, reduces roadway congestion, and improves air quality. **Related recommendation:** Make transit more competitive.
Methodology:	This value is taken directly from the National Transit Database and unlinked trips are the only way the Federal Transit Administration reports transit service used by the public. Data are reported separately for CTA, Metra, and Pace (including paratransit services).
Targets:	The 2050 target has been set in keeping with the GO TO 2040 goal of doubling transit ridership from current levels. Currently the region has an average 72 unlinked transit trips per resident per year. With forecasted increases in population by 2050, doubling transit ridership would increase the average number of trips by 58 percent to 114 per resident per year, which is lower than San Francisco's current per resident trip rate. Achieving this

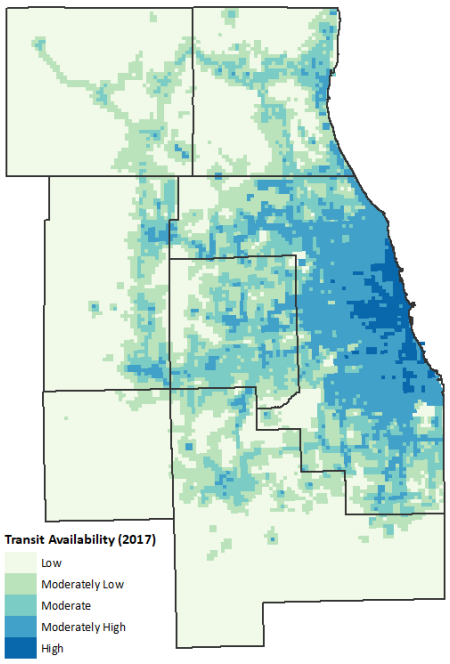
	target will require regional action by not just the transit agencies, but also municipalities, highway agencies, and funding authorities. Transit agencies cannot sustain fast, frequent, reliable service without supportive land use change. Effective transit service results from a combination of strategic 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.[7] **2025:** 766 million or more unlinked transit trips **2050:** 1.21 billion or more unlinked transit trips 
GO TO 2040 Context:	This indicator is new to ON TO 2050. It has replaced GO TO 2040's "Average Weekday Unlinked Transit Trips" indicator in order to capture *all* transit usage by no longer excluding weekends. Since the adoption of GO TO 2040, transit ridership (both weekday and annual) has remained largely flat. The

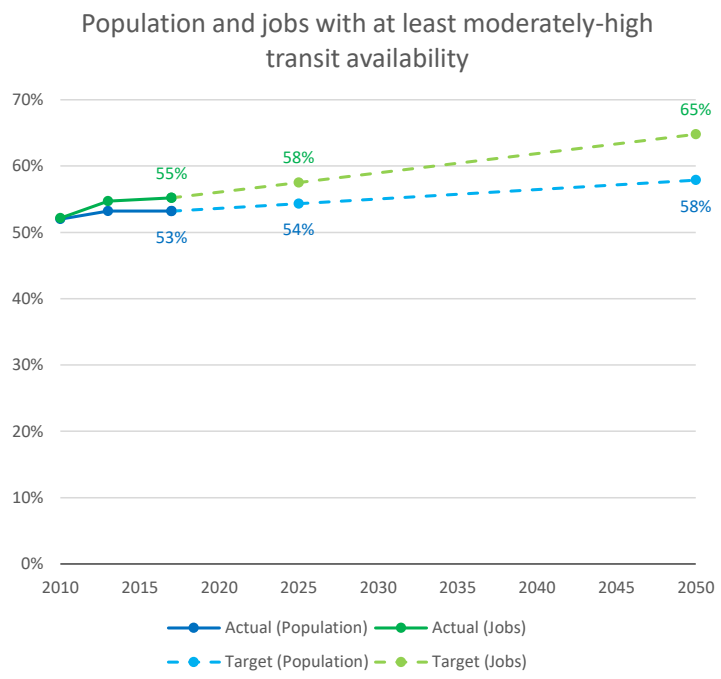
[7] ~~CMAP ON TO 2050 report~~Chicago Metropolitan Agency for Planning, "Transit Ridership Growth Study," August 2017, http://www.cmap.illinois.gov/documents/10180/0/Transit+Ridership+Growth+Study_final.pdf.

	ON TO 2050 targets reflect the original GO TO 2040 goal of doubling transit ridership.

Population and Jobs with at Least Moderately High Transit Availability

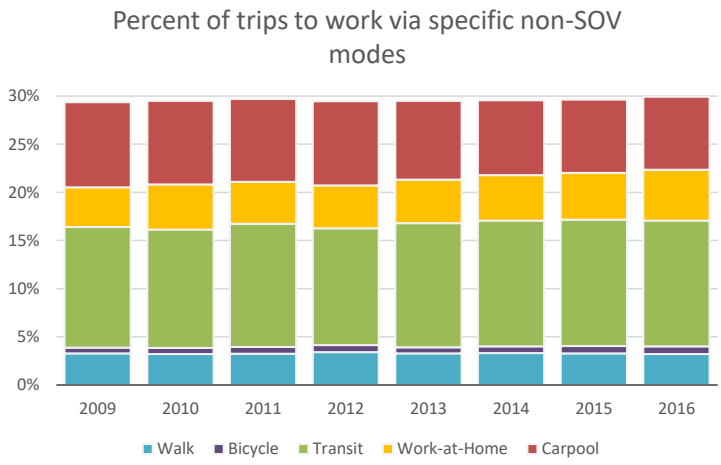
Indicator:	This indicator will report the percentage of population and jobs with at least moderately high transit availability. This is based on a CMAP-created index that considers multiple factors: proximity to transit stops, frequency of service, destinations reachable without a transfer, and walkability. For a specific area, this index is intended to measure the relative level of access residents and workers have to the transit system, regardless of their actual choice of mode. **Related recommendation:** Make transit more competitive.
Methodology:	The Transit Availability Index is a metric that takes into account transit service frequency, pedestrian friendliness, network distance to transit stops, and number of subzone connections. Each factor is measured individually at the subzone level and an index value is assigned to each subzone. The Transit Availability Index is then the average of these four factor indices that have been assigned to each subzone. This measure tracks the percent of the population in the two highest categories (4 or 5 on a five-point scale).

	
Targets:	The proposed transit availability targets (below) could be reached if many regionally significant projects were completed, along with policies to encourage infill development and improvements to walkability around transit stations. **2025:** At least 58 percent of jobs and 54 percent of population with moderately high or high transit availability **2050:** At least 65 percent of jobs and 58 percent of population with moderately high or high transit availability

	
GO TO 2040 Context:	This indicator was based on the "Population and Jobs with at Least Moderate Access to Transit" indicator from the GO TO 2040 Plan Update. Refocusing the indicator to only include the areas with moderately high or high transit availability – where transit provides a viable alternative to driving for a large proportion of trips and which tend to be more compact and walkable – better reflects the goals of ON TO 2050.

Percent of Trips to Work via Non-SOV Modes

Indicator:	Encouraging multimodal travel makes the best use of the system, reduces greenhouse gas emissions, and improves quality of life. This measure tracks the share of trips to work by non-single occupancy vehicle (non-SOV) modes for trips to work. These modes include carpool, public transportation, walking, bicycling and telecommuting. Higher levels of non-SOV travel would yield numerous benefits: reduced congestion, better air quality, and healthier residents, to name a few. This measure is similar to the MAP-21

	performance measure for non-SOV travel, but uses slightly different geography and Census data. **Related recommendation:** Make transit more competitive; Harness technology to improve travel and anticipate future impacts; Improve travel safety.
Methodology:	Annual releases of the U.S. Census Bureau's ACS dataset – table B08301 – are used to track mode share in the region. The data is assembled from county-level data, using 1-year samples for Cook, DuPage, Kane, Lake, McHenry and Will, and 5-year samples for Kendall (for which the full level of detail required is not available in the 1-year samples). While targets are only set for overall non-SOV mode share, CMAP will track the share of the specific modes that are considered "non-SOV": carpool, public transportation, walk, bicycle, and work-at-home (telecommuting). The below table shows this data for 2009-16. Trips by driving alone, motorcycle, taxicab, and "other means" are excluded. 
Targets:	Recent data indicate that non-SOV travel is increasing in the region. Recent increases in non-SOV travel have been driven largely by an increase in people working at home. Implementation of policies to support transit, cycling, and walkability will enable this trend to continue. A 2050 target of 37.3 percent is consistent with the target of doubling transit ridership (see *Annual Unlinked Transit Trips*~~*Annual Unlinked Transit Trips*~~, p.

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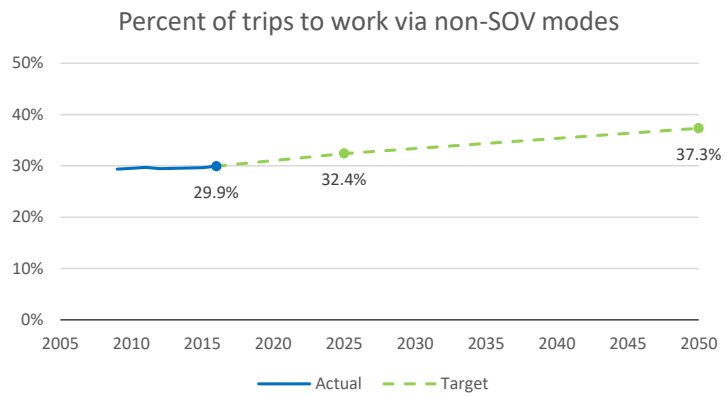
	6455). The 2025 target is based on a straight-line interpolation between 2016 ACS data and the 2050 target. **2025:** 32.4 percent or more trips to work via non-SOV modes **2050:** 37.3 percent or more trips to work via non-SOV modes 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

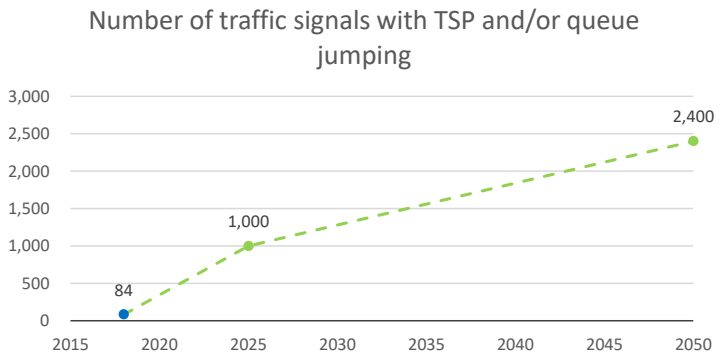
Number of Traffic Signals with Transit Priority and/or Queue Jumping

Indicator:	Road infrastructure and technology affect the speed, frequency, and reliability of transit ridership, but lie outside the control of the transit agencies themselves. Closer partnerships between transit and ~~highway~~ agencies responsible for roadways hold promise to create integrated, multimodal corridors. These approaches support transit ridership at relatively modest cost. This indicator tracks the implementation of ~~these highway~~ projects that give priority to transit service. Transit Signal Priority (TSP) utilizes ~~existing~~ vehicle location and wireless communication technologies to advance or extend green times at signalized intersections. This can help reduce bus travel times, improve schedule adherence, and reduce operating costs. TSP is also an important component of ~~the~~ Bus Rapid Transit (BRT) and Arterial Rapid Transit (ART) ~~systems now being developed by the CTA and Pace~~projects. Queue jumps can work in conjunction with TSP or on their own to allow a bus to go through an intersection ahead of other vehicles.

Commented [MM13]: All changes here based on comments from the CTA.

	Related recommendation: Make transit more competitive; Harness technology to improve travel and anticipate future impacts.
Methodology:	CMAP's traffic signal inventory is used to track Transit Signal Priority (TSP) and queue jumps in the region. There are approximately 4,800 traffic signals in the region that have bus service. Currently ~~83~~ 84 of these have bus priority.

Major Street/ Location	TSP Signals	Queue Jump Signals	Total
Ashland Ave	40		40
Canal St		1	1
Clark St		1	1
Dearborn St		1	1
Franklin St		1	1
Jeffery Ave	6	1	7
La Salle Dr		1	1
Wabash Ave		1	1
Wells St		1	1
Wash. St (Lake Co.)	10		10
Harvey TC	20		20
Grand Total	**76**	**8**	**84**

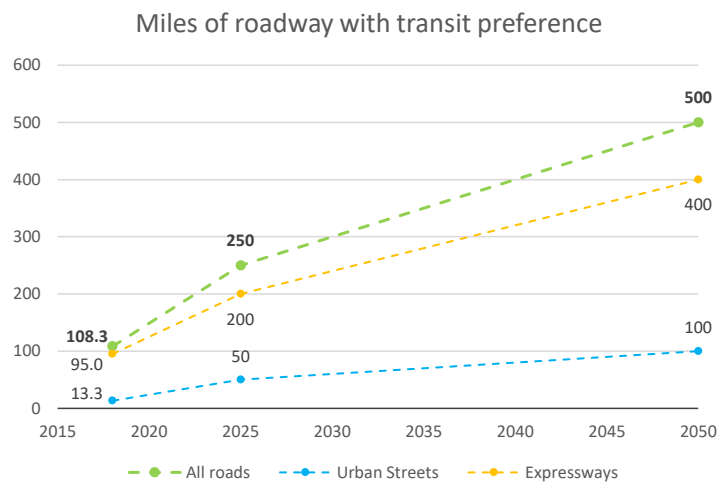
Targets:	In addition to the 8~~3~~4 existing signals with TSP and/or queue jumping, over 400 signal improvements are currently in advanced planning or engineering to be in place by 2020. Future efforts should continue to improve intersections until at least half of intersections that serve buses have bus priority. **2025:** 1,000 signals or more with TSP and/or queue jumping **2050:** 2,400 signals or more with TSP and/or queue jumping 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Miles of Roadway with Transit Preference

Indicator:	This indicator tracks the allocation of road space to buses. Providing extra space or right of way to buses improves travel time and reliability. This takes many forms throughout the region. Bus on shoulder and flex lanes allow buses on expressways to bypass slower traffic. Dedicated bus lanes, such as the Loop Link project, provided bus priority on local streets all day. Some bus lanes are shared with only bikes. Peak hour lanes provide a dedicated lane for buses when demand is highest and are otherwise used for parking or general travel. The region has one busway, the McCormick Busway, which provides a dedicated road for buses serving special events. **Related recommendation:** Make transit more competitive.
Methodology:	Information for transit agencies was used to create an inventory of bus preference. Currently there are 108.3 miles of bus preference in the region. The majority of this is on expressways.

Lane Type	Project	Miles
Bus on Shoulder	Edens BOS	25.2
Bus on Shoulder	I-55 BOS	38.8
Flex Lane	Addams / Tollway	31.0
Busway	McCormick Busway	4.6
Peak Hour	Jeffery Jump	4.0
Bus Lane	Loop Link	2.1
Bus Lane	Downtown Chicago	1.5
Bike/Bus Lane	Cortland/Clark	1.0
Grand Total		**108.3**

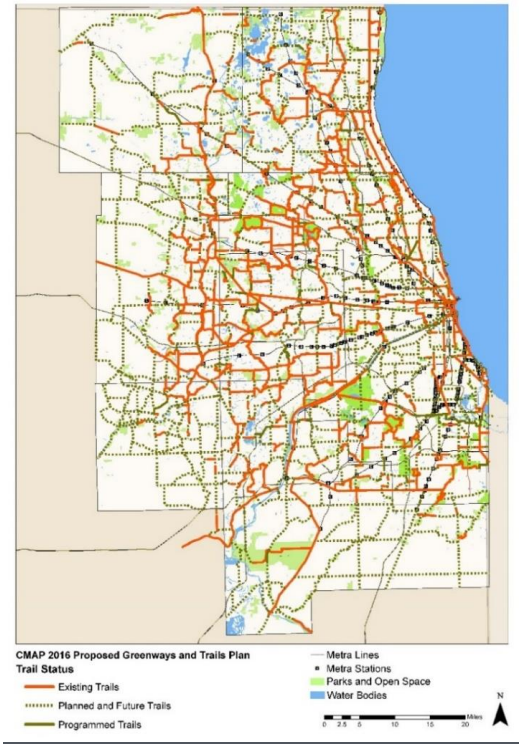
Targets:	There are currently 108 miles of bus preference in the region and most of miles have been completed in the last ten years. Pilot projects have shown that these improvements can improve ridership. **2025:** At least 250 miles of roadway with transit preference (50 on urban streets) **2050:** At least 500 miles of roadway with transit preference (100 on urban streets)

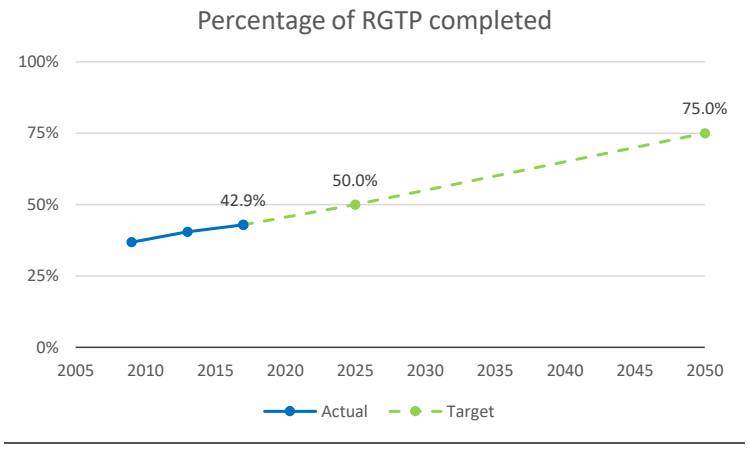
	
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Percentage of Regional Greenways and Trails Plan Completed

Indicator:	This indicator tracks the total miles of all trails in the Northeastern Illinois Regional Greenways and Trails Plan (RGTP) that are completed or let for construction. The RGTP includes not only off-street trails, but key on-street facilities and side paths. The RGTP includes trails in Aux Sable Township in Grundy County. Out-of-region connections to systems in Indiana and Wisconsin are not included in indicator totals. **Related recommendation:** Improve travel safety; Build regionally significant projects.
Methodology:	CMAP updated the RGTP in 2016 based on input from all seven counties, forest preserve and conservation districts, Councils of Mayors, and the City of Chicago. The revised Plan now includes 3,163 miles of existing, programmed, and planned facilities in Illinois. Information on trail status is maintained by CMAP staff in the Bikeway Inventory System (BIS).[8]

[8] Chicago Metropolitan Agency for Planning, "Bikeway Inventory System (BIS)," June 2018, https://datahub.cmap.illinois.gov/dataset/bis.

	2016 Regional Greenways and Trails Plan  The RGTP categorizes trails as existing (including let for construction), programmed, planned, or future. Programmed trails, which have been tapped to receive funds for their development, total about 62 miles, or an additional 2 percent of system miles to be completed by 2020, showing system development remains roughly on-track. Periodic updates to the RGTP and changes in trail alignments, particularly as conceptual lines are constructed, have modest impacts on this indicator.
Targets:	As of 2017, 41.5 percent of the 2016 RGTP has been completed, including both existing and programmed trail miles. Extrapolating the average annual rate of completion from 2009 to 2017 would yield 49 percent completion by 2025 and 68.1 percent completion by 2050. The proposed targets are slightly higher than those figures.

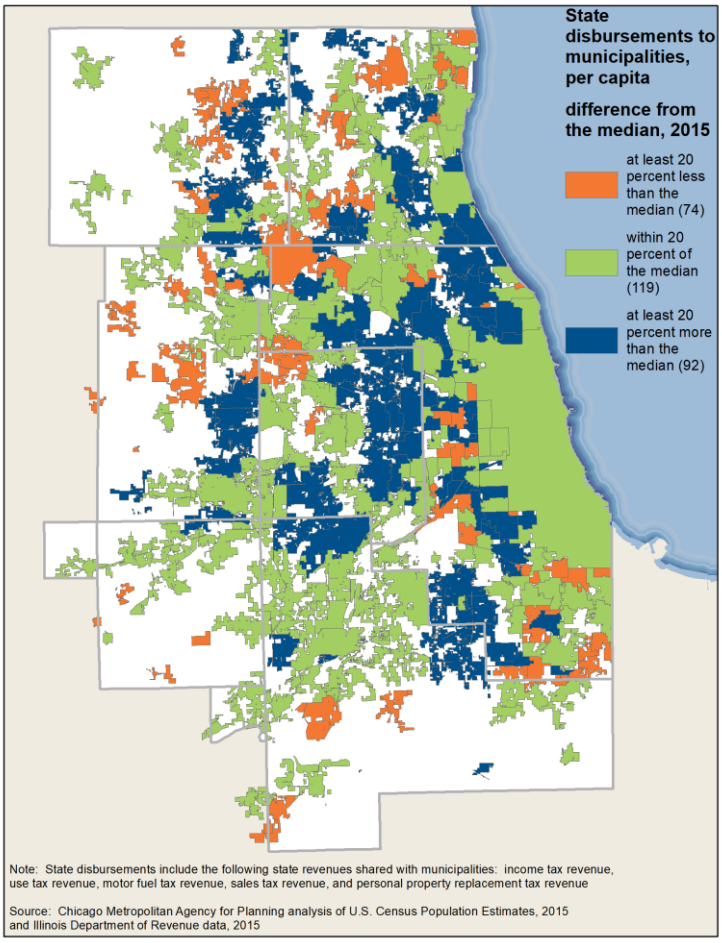
	2025: 50 percent or more of RGTP completed **2050:** 75 percent or more of RGTP completed 
GO TO 2040 Context:	This indicator – a secondary kindred indicator in GO TO 2040 – has supplanted the less holistic "Trail Greenway Mileage" indicator, which was focused exclusively on the greenway components of the RGTP. This indicator also now uses the 2016 Regional Greenways and Trails Plan as its basis, whereas the GO TO 2040 indicator was based on the 2009 RGTP. As of 2015, the GO TO 2040 indicator measured 771 miles of greenways, below the 2015 target of 808 miles.

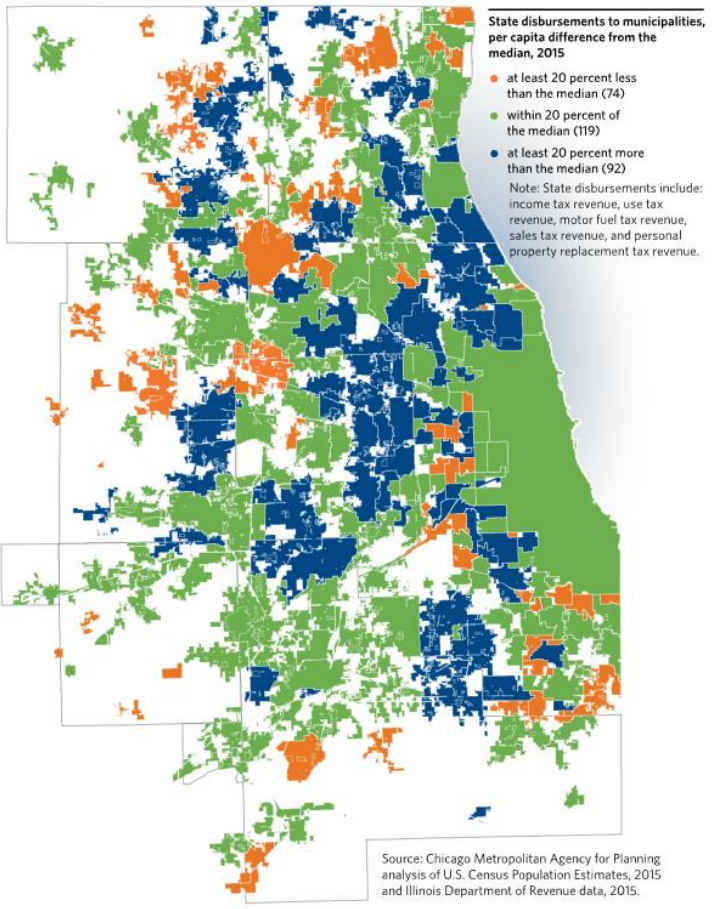
Governance Indicators

Municipalities with Per Capita State Revenue Disbursement Below 80 Percent of Regional Median

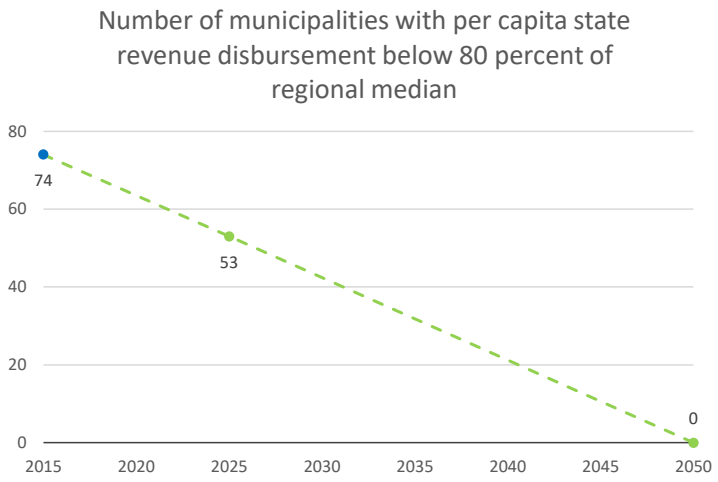
Indicator:	Municipalities with strong revenue levels relative to public service needs may be better able to maintain their fiscal condition and serve their residents and businesses. This may also lead to greater capacity to achieve local and regional goals. This indicator will track per capita state revenue disbursements to municipalities in northeastern Illinois, relative to the regional median. Illinois municipalities receive revenue through state disbursements of several revenue sources, including income, use, sales, motor fuel, and personal property replacement tax revenue.[9] These revenues may be based on current land use, population, or similar factors, but some disbursements are based on long established criteria that may no longer relate to service and infrastructure needs or current conditions in a given community. The amount of revenue municipalities collect varies throughout the region and depends on local land use mix, the composition of their tax structures, and the level of service the community desires from the municipality. State statutory criteria for revenue disbursements to municipalities also drive divergences, as the criteria do not always relate to the level of public services required or to a municipality's capacity to raise its own revenue from its own tax base. **Related recommendation:** Develop tax policies that strengthen communities and the region.
Methodology:	State disbursements to municipalities occurring in calendar year for 2015 were totaled and normalized by municipal population data from the 2015 U.S. Census Population Estimates. For state disbursements, income tax revenues, use tax revenues, state motor fuel tax revenues, state sales tax revenues, and personal property replacement tax revenues disbursed to municipalities were obtained from the Illinois Department of Revenue and IDOT. The median per capita disbursement for the region was $277, and 74 municipalities were at least 20 percent less than the median level.

[9] C~~MAP ON TO 2050 strategy paper~~hicago 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.


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 the following state revenues shared with municipalities: 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



Targets:	Zero was chosen as the 2050 target because the goal is to ensure that every municipality has sufficient revenues and to lessen the role that state statutory criteria plays in the wide divergences across municipal revenue levels. While it is conceivable that not every municipality requires this level of state support today, the general goal is to increase municipal capacity, including among smaller municipalities that may experience growing needs over the planning period. The 2025 target was derived by following a

	straight-line decrease between the 2015 figure (74 municipalities) and the 2050 target. **2025:** 53 municipalities or fewer with per capita state revenue disbursement below 80 percent of the regional median **2050:** Zero municipalities with per capita state revenue disbursement below 80 percent of the regional median 
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Local Governments That Train Appointed Board Members

Indicator:	This indicator will track the number of local governments whose appointed board members with development review authority have recently completed relevant professional development training. The indicator will include not only plan commission and zoning board members, but also other boards charged with development review such as Historic Preservation and Environment Committees. Strategy development for ON TO 2050 indicated that appointed board members, as well as government staff and elected officials, who regularly engage in trainings are more familiar with best practices and better prepared to fulfill their roles in service of their communities.

	Related recommendation: Build local government capacity.
Methodology:	CMAP conducts the Municipal Plans, Programs, and Operations Survey on a biennial basis, soliciting information on a variety of topics from all of the region's 284 municipalities and seven counties. Beginning with the 2018 survey, and continuing for each subsequent survey, a question will be included to establish the amount, and types, of training that have been undertaken over the subject time period by each local government's appointed board members.
Targets:	Targets for this indicator will be set following attainment of baseline data from 2018 Municipal Survey for existing rates at which local governments are training appointed board members. With the understanding that appointed board members who receive support by provision of trainings are better prepared to serve their communities, the 2050 target will likely be 100 percent of local governments. **2025:** TBD **2050:** TBD
GO TO 2040 Context:	This indicator is new to ON TO 2050.

Secondary Kindred Indicators

This section details the set of secondary kindred indicators that will supplement the information provided by the core indicators in the earlier sections. Many of these specifically focus on the theme of inclusive growth. The kindred indicators do not have target values, but they did go through the same review process as the core indicators. It is envisioned that they may be used in the narrative of ON TO 2050 and in future plan implementation reports to tell a more complete story and address data gaps in the core indicators.

Inclusive Growth Kindred Indicators

Share of New Infill Development Occurring in Economically Disconnected Areas

See "Inclusive Growth Perspective" portion of *Share of New Development Occurring in Highly and Partially Infill Supportive Areas*~~*Share of New Development Occurring in Highly and Partially Infill Supportive Areas*~~ (p. 7).

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Percent of Income Spent on Housing and Transportation by Moderate- and Low-Income Households by Race and Ethnicity

See "Inclusive Growth Perspective" portion of *Percentage of Income Spent on Housing and Transportation by Moderate- and Low-Income Residents*~~*Percentage of Income Spent on Housing and Transportation by Moderate- and Low-Income Residents*~~ (p. 11).

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Access to Parks in Economically Disconnected Areas

See "Inclusive Growth Perspective" portion of *Access to Parks*~~*Access to Parks*~~ (p. 2927).

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Educational Attainment by Race and Ethnicity

See "Inclusive Growth Perspective" portion of *Educational Attainment*~~*Educational Attainment*~~ (p. 3732).

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Workforce Participation by Race and Ethnicity

See "Inclusive Growth Perspective" portion of *Workforce Participation*~~*Workforce Participation*~~ (p. 3934).

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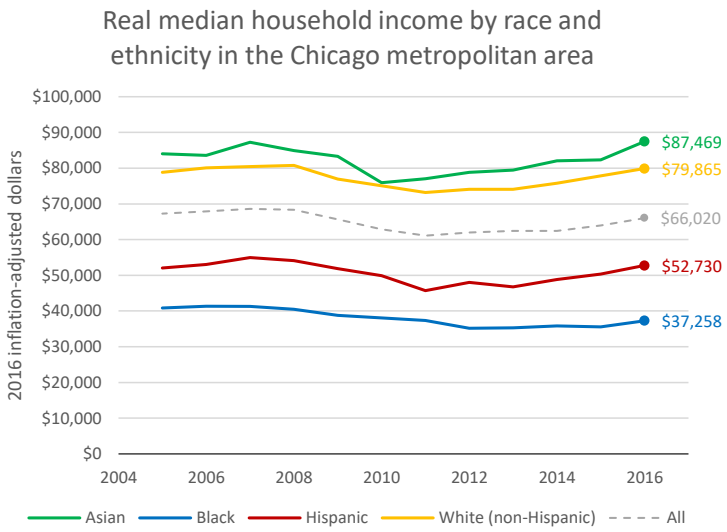
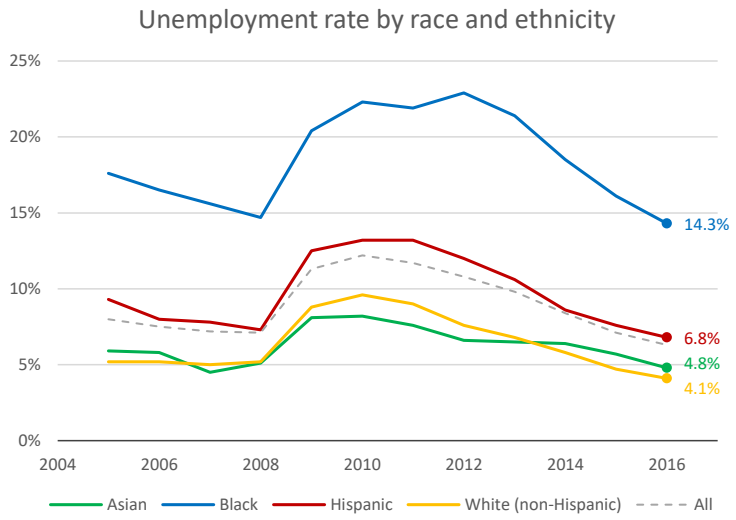
Median Household Income by Race and Ethnicity

Indicator:	This indicator measures median household income by race and ethnicity in the Chicago metropolitan statistical area (in current year dollars). Median household income reflects the economic well-being of a region's population and ~~evoke~~highlights the hardships that impede residents of color from sharing in regional prosperity. This data highlights an existing need for

	collaborative efforts on inclusive growth that promote economic opportunity, particularly for the region's black and Hispanic households. Economic and workforce development efforts must meet the needs of a changing and diversifying economy, and promote growth of and access to jobs with pathways for upward mobility. **Related recommendation:** Use collaborative leadership to address regional challenges (Governance).
Methodology:	The data for this indicator come directly from the ACS. Data indicates significant disparities across demographic groups. Black and Hispanic households have median household incomes lower than the regional median. 

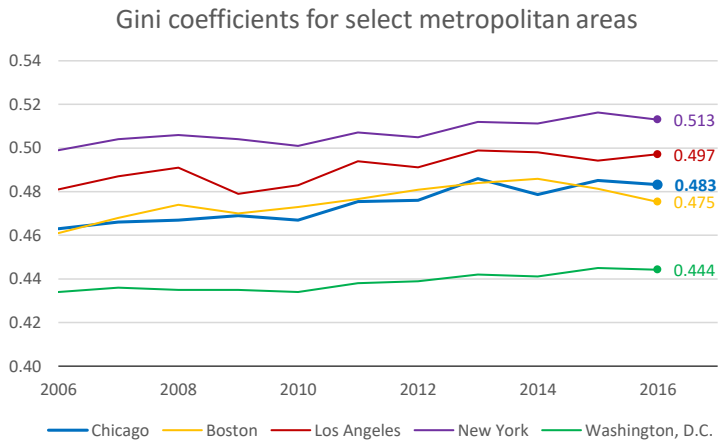
Unemployment by Race and Ethnicity

Indicator:	This indicator tracks unemployment rates for the population age 16 years and over in the Chicago metropolitan statistical area by race and ethnicity. Unemployed residents are not currently well connected to opportunities provided by the region's economy, and—as a result—a substantial portion of the region's human capital is untapped. Creating pathways for unemployed workers to fully contribute to and benefit from the regional economy will help it grow to individual and regional benefit.

	Related recommendation: Conduct regional planning for human capital (Prosperity).
Methodology:	The data for this indicator come directly from the ACS. This indicator measures the share of labor force participants who are currently unemployed in the Chicago metropolitan statistical area by race and ethnicity. Employment outcomes differ across racial and ethnic groups in the Chicago region. Black and Hispanic residents have higher unemployment rates relative to their Asian and white residents. 

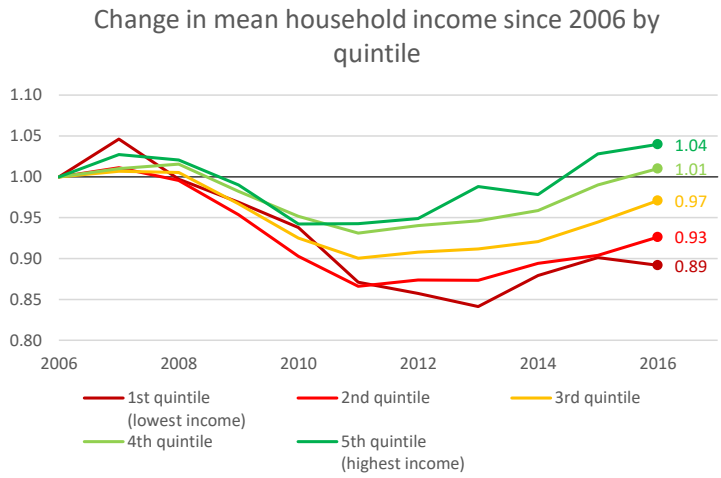
Gini Coefficient

Indicator:	This indicator summarizes income inequality in the Chicago region. The Gini coefficient measures the dispersion of income across the income distribution in the Chicago metropolitan statistical area (MSA). The Gini coefficient is measured between 0 to 1, representing perfect equality and perfect inequality, respectively. Broad-based growth can facilitate economic mobility and help decrease inequality. Increasing economic equity can increase both individual prosperity and regional growth, developing periods of economic growth that are stronger and more sustainable. **Related recommendation:** Pursue regional economic development (Prosperity).

Methodology:	The data for this indicator come directly from the ACS, which is released annually. The Gini coefficient measures the degree to which a society deviates from perfect equality in which all households have an equal share of total income. This indicator is measured at the Chicago MSA geography and includes several peer MSAs for context. Recent data indicates a Gini coefficient of 0.48 for the Chicago MSA in 2016. Further analysis indicates that income inequality has generally been increasing in the Chicago MSA in the last ten years. Similar trends are also seen in peer MSAs. 

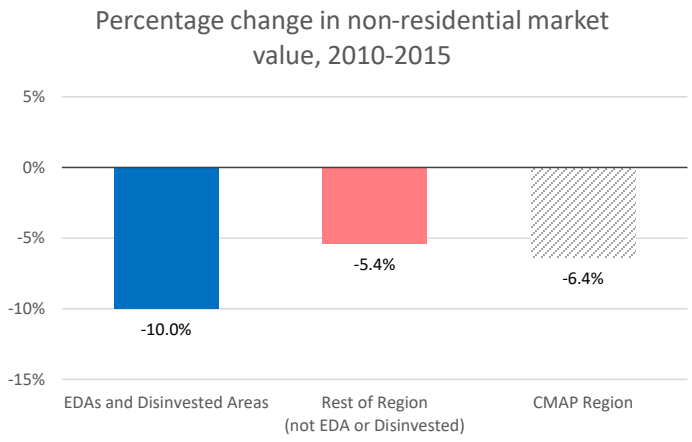
Change in Mean Household Income since 2006 by Quintile

Indicator:	This indicator measures change in mean household income since 2006 by quintile in the Chicago metropolitan statistical area. The degree to which ~~increased growth~~regional prosperity is shared among all segments of the population drives long-term economic success of regional economies. To meet its potential, the region's economy requires opportunities for all residents to contribute to and benefit from its growth. Promoting an inclusive model of economic growth can improve outcomes for lower-quintile households and increase the size of the overall economy.

	Related recommendation: Use collaborative leadership to address regional challenges (Governance); ~~Match regional and local housing supply with the types that residents want (Community).~~
Methodology:	Data for this indicator come from the ACS, which reports mean household income by quintile. The ACS calculates means of household income by dividing aggregate household income by the number of households. This is done for each quintile, or one-fifth of the total number of households. The change in mean household income will be indexed to 2006 in current year dollars. Recent data indicates differences in the change of mean household income by quintile. All quintiles experienced declines in mean household income during the Great Recession and have since started to recover. However, the bottom two quintiles experienced the greatest decline in mean household income and have recovered at a slower pace than higher earning households. 

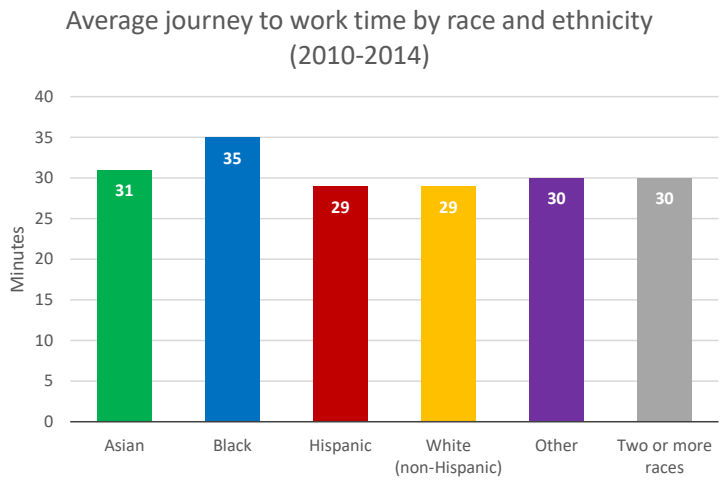
Change in Non-Residential Market Value in Disinvested and Economically Disconnected Areas

Indicator:	This indicator measures percent change in aggregate non-residential market value in economically disconnected areas and disinvested areas versus the remaining parts of the region. Non-residential land uses include: commercial, industrial, institutional, mixed use, and vacant. ON TO 2050 highlights reinvestment in disinvested areas—such as building on existing community

	assets, identifying unique and regulatory tax solutions to persistent vacancy and abandonment, and building municipal and private sector capacity—as a key strategy for improving outcomes and revitalizing communities. **Related recommendation:** Invest in disinvested areas (Community).
Methodology:	Data for this indicator come from county assessor data. Data indicates that aggregate non-residential market value—market value for commercial, industrial, institutional, mixed use, and vacant land uses—has declined across the region between 2010 and 2015. Decline in non-residential market value is more severe in the region's economically disconnected and disinvested areas than in the remaining areas of the region. Aggregate non-residential market value decreased by 10 percent in economically disconnected and disinvested areas between 2010 and 2015, roughly five percentage points more than the decline seen in the remaining parts of the region. 

Average Journey to Work Time by Race and Ethnicity

Indicator:	This indicator measures the average one-way commute time of workers in the Chicago metropolitan statistical area by race and ethnicity, inclusive of all modes of transportation. Longer commute times decrease the productivity of workers and hinder their ability to connect to available and attainable employment opportunities. Local and regional planning should emphasize improving commute times and options for residents facing long commutes by providing high-quality transportation options that are cost efficient and increase residential access to fruitful economic opportunities. This will

	require shifts in transportation, land use, and economic development planning and policy. **Related recommendation:** Leverage the transportation network to promote inclusive growth (Mobility).
Methodology:	Data for this indicator come from ACS Integrated Public Use Microdata Series (IPUMS). Average journey to work time in minutes is the average one-way travel time for workers to get from home to work. The measure is calculated by dividing the aggregate travel time by the total number of workers who do not work at home. 

Preventable Hospitalizations by Race and Ethnicity

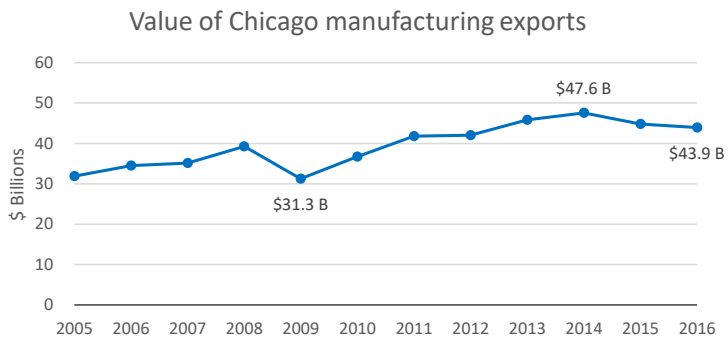
Indicator:	This indicator measures the number of preventable hospitalizations in the Chicago metropolitan area by race and ethnicity. A lower rate of preventable hospitalizations provides an indication of a healthier population that is receiving sufficient preventive care so that common, treatable conditions are addressed (by changes to medication, lifestyle, etc.) before becoming severe enough to warrant hospitalization. **Related recommendation:** Base investment decisions on data and performance (Governance).
Methodology:	Preventable hospitalizations are the total number of patient discharges, excluding discharges to Veterans Administration hospitals, among adults

	aged 18 years and older for any of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation, chronic obstructive pulmonary disease, asthma, hypertension, heart failure, dehydration, bacterial pneumonia, or urinary tract infection. Data come the Illinois Department of Public Health, Division of Patient Safety and Quality. CMAP is still in the process of obtaining the necessary data to calculate a baseline value for this indicator.

Other Kindred Indicators

Manufacturing Exports

Indicator:	This measure tracks the total value of manufactured goods exported from the region. Historically, manufacturing has been a key driver of economic growth in the region and this kindred indicator~~, and this indicator~~ reflects the plan's call for organizing regional economic development around its industry clusters. The export of goods connects metropolitan economies like the Chicago region with a growing global consumer base. Exports have played an important role in past economic recoveries for both Chicago and peer metropolitan economies. Data comes from the U.S. Census Bureau's Origin of Movement series. **Related recommendation:** Support the region's traded clusters (Prosperity).

Methodology:	The U.S. Census Bureau's Origin of Movement series attributes export sales to metropolitan areas based on the ZIP code in which payment for a good is received. Data specifically for manufactured goods can be obtained by summing the total of all manufacturing North American Industry Classification System (NAICS) codes (31-33). The geography for this data is the Chicago-Naperville-Elgin metropolitan statistical area. 

Protected Share of CMAP Conservation Areas Layer

Indicator:	This indicator measures what percentage of CMAP's Conservation Areas Layer lies within conserved land and water areas, including public open space and conservation easements. It provides a measure of how effectively land and water preservation implementers are aligning their efforts with regional conservation priorities. **Related recommendation:** Integrate land preservation into strategic growth efforts (Environment).
Methodology:	The Conservation Area Layer combines county-level green infrastructure plans with regional analysis of key land, water, and habitat resources to map conservation priorities across the region. It will be updated in the future as new data becomes available and counties create or update their green infrastructure plans. This kindred indicator uses the same "conserved land" areas as the core *Acres of Conserved Land*~~*Acres of Conserved Land*~~ indicator (p. 28~~26~~). The indicator is calculated by calculating the acreage of the Conservation Areas Layer overlapped by conserved land, then converting that into a

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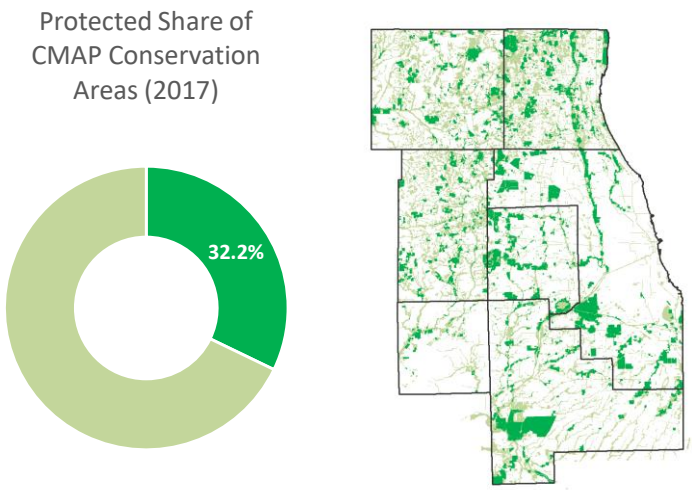
	percentage of the area covered by the entire Conservation Areas Layer (835,222 acres). 

Lake Michigan Withdrawals

Indicator:	In addition to overall water demand (see *Water Demand*

Indicator:	This indicator tracks total daily water demand, as well as per capita demand for residential water use. Total water demand includes water that is withdrawn, treated, and delivered to residential, industrial, commercial, governmental, and institutional users via public supply water systems, as well as industrial and commercial wells. Assessing long-range forecasted demands can inform the region on the sufficiency of water supply and encourage actions that conserve water, protect supply, and/or pursue alternative drinking water sources. **Related recommendation:** Coordinate and conserve shared water supply resources.
Methodology:	Water demand data, in millions of gallons used daily, is provided to CMAP directly by the Illinois State Water Survey each year. Public water supply systems are maintained by

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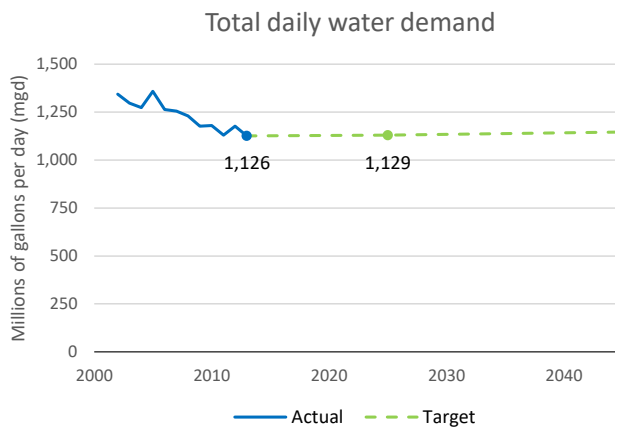
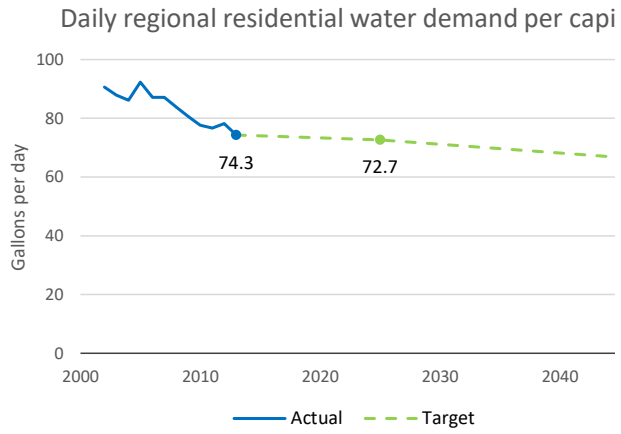
		municipalities, sub-regional authorities, or private companies. Private wells may serve industrial enterprises, commercial businesses, and park and golf course irrigation. Per capita values for residential water use will be based on the population served by the public supply water systems and not the entire population of the region, as a small portion of the region's population (less than four percent) receives water from private wells and is termed self-supplied domestic sources.
	Targets:	This indicator has two sets of targets -- one measuring total daily water demand, and one measuring daily residential water demand on a per capita basis. Per capita measurement allows for an examination of water conservation as an increase in total demand due to population or industrial growth can mask gains in conservation. At the same time, it is important to examine total demand because potable water is a finite resource and growth in our region is expected to increase the demand for water in 2050 above the current level of consumption. Target values are based on the updated regional water demand forecast, which is set to be released in October 2018. The updated regional water demand forecast utilizes CMAP's ON TO 2050 socio-economic forecast. Total daily water demand **2025:** 1,129 million gallons of water used daily **2050:** 1,150 million gallons of water used daily



Daily regional residential water demand per capita

2025: 72.7 gallons of water used daily per capita

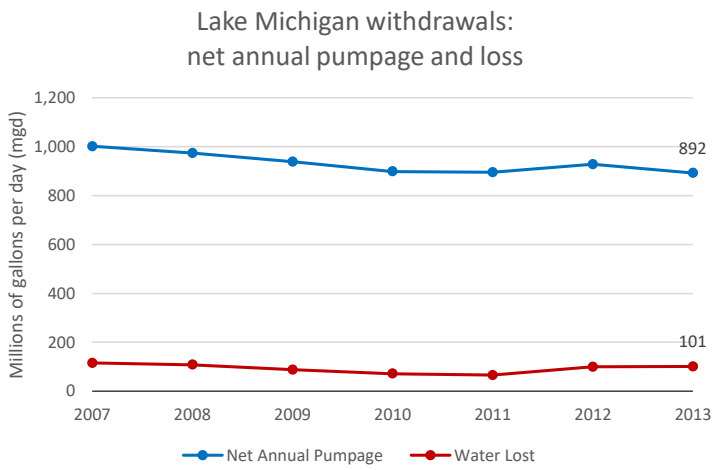
2050: 65.2 gallons of water used daily per capita



GO TO 2040 Context:	This indicator is adapted from the GO TO 2040 "Public Supply Water Demand" indicator, which was based on a water demand forecast focused on the public water supply sector. The ON TO 2050 indicator is based on a new water demand

	forecast, which also considers withdrawals from private wells serving businesses or private residences. As a result, the data and targets are not comparable between the two, although it should be noted that the GO TO 2040 targets allowed for an increase in overall demand while the ON TO 2050 targets are virtually flat despite anticipated population growth. ~~*Public Supply Water Demand*~~, p. 2322), water use from Lake Michigan is an area of interest for the CMAP region. In response to a U.S. Supreme Court consent decree, the State of Illinois regulates Lake Michigan water use for those communities with an allocation for lake water. This kindred indicator measures water use and levels of non-revenue water loss from community water suppliers in order to track conservation and water loss reduction efforts. **Related recommendation:** Coordinate and conserve shared water supply resources (Environment).
Methodology:	The State of Illinois Department of Natural Resources (IDNR) Office of Water administers the Lake Michigan Allocation program which governs Lake Michigan water use for those communities with an allocation.[10] Permittees receive an allocation of water with several conditions, including implementation of conservation practices and reduction of water loss. IDNR tracks water withdrawals and the level of water loss, known as non-revenue water, from Lake Michigan Permittees on an annual basis. Levels of water loss above the state's threshold (12 percent non-revenue water in 2015, decreasing to 10 percent by 2019) indicate that some communities' water systems are not in compliance with the Rules and Regulations for the Allocations of Water from Lake Michigan (IL Admin. Code, Title 17, Part 3730). This indicator will track net annual pumpage and non-revenue water in millions of gallons per day (mgd), as reported by community water suppliers to IDNR.

[10] Illinois Department of Natural Resources, "Lake Michigan Water Allocation," https://www.dnr.illinois.gov/waterresources/pages/lakemichiganwaterallocation.aspx.



Deep Bedrock Aquifer Withdrawals

Indicator:	In addition to reporting on overall water demand (see *Water Demand*

Indicator:	This indicator tracks total daily water demand, as well as per capita demand for residential water use. Total water demand includes water that is withdrawn, treated, and delivered to residential, industrial, commercial, governmental, and institutional users via public supply water systems, as well as industrial and commercial wells. Assessing long-range forecasted demands can inform the region on the sufficiency of water supply and encourage actions that conserve water, protect supply, and/or pursue alternative drinking water sources. **Related recommendation:** Coordinate and conserve shared water supply resources.
Methodology:	Water demand data, in millions of gallons used daily, is provided to CMAP directly by the Illinois State Water Survey each year. Public water supply systems are maintained by municipalities, sub-regional authorities, or private companies. Private wells may serve industrial enterprises, commercial businesses, and park and golf course irrigation.

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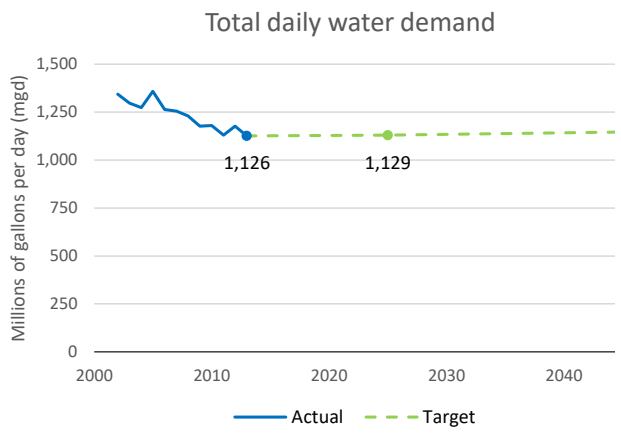
	Targets:	This indicator has two sets of targets -- one measuring total daily water demand, and one measuring daily residential water demand on a per capita basis. Per capita measurement allows for an examination of water conservation as an increase in total demand due to population or industrial growth can mask gains in conservation. At the same time, it is important to examine total demand because potable water is a finite resource and growth in our region is expected to increase the demand for water in 2050 above the current level of consumption. Target values are based on the updated regional water demand forecast, which is set to be released in October 2018. The updated regional water demand forecast utilizes CMAP's ON TO 2050 socio-economic forecast. Total daily water demand **2025:** 1,129 million gallons of water used daily **2050:** 1,150 million gallons of water used daily



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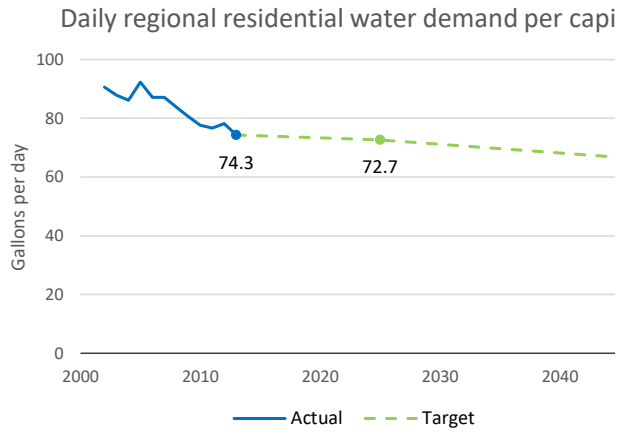

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~~Public Supply Water Demand~~, p. 23~~22~~) and the diversion of water from Lake Michigan (see *Lake Michigan Withdrawals~~Lake Michigan Withdrawals~~*, p. 90~~79~~), it will also be instructive to measure total annual groundwater withdrawals from deep bedrock aquifers (Ancell Unit of bedrock and deeper) in the CMAP region (measured in millions of gallons per day). This will help provide a more complete assessment of water conservation in the region.

Related recommendation: Coordinate and conserve shared water supply resources (Environment).

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Methodology:	The Illinois State Water Survey (housed at the University of Illinois at Urbana-Champaign) is the source for this groundwater data, which is reported annually in gallons per year. CMAP converts this data into millions of gallons per day (mgd).