APPENDIX F

Socioeconomic Forecast

RTP

2026
Regional Transportation Plan

Chicago Metropolitan Agency for Planning

Table of contents

Introduction 1
Part 1: 2026 Regional Transportation Plan socioeconomic forecast 2
- **Regional forecast introduction** 2
- **Demographic model: data, methods, and assumptions** 2
  - Births and fertility 2
  - Deaths and mortality 3
  - Migration 3
  - Group quarters populations 3
- **Economic forecast: data, methods, and assumptions** 4
  - Benchmarking historical employment 4
  - Forecasting employment 4
- **Integration of demographic and economic models** 5
- **Socioeconomic forecast: regional results** 5
  - Regional population forecast 5
  - Regional employment forecast 6
  - Comparison to the ON TO 2050 update regional forecast 7

Part 2: 2050 Local forecast update 8
- **Local forecast introduction** 8
- **Forecast motivation and modeling approach** 8
- **The UrbanSim land use model** 9
  - UrbanSim overview 9
- **Model specification** 10
  - Household location choice model specification 10
  - Employment location choice model specification 10
  - UrbanSim model estimation and calibration 13
  - Travel model integration 13
- **Model data: custom inputs** 14
  - Building footprints and attributes 14
  - Establishment-level employment 14
  - Regional forecast of households and employment 14
  - Constraints to development 14
  - Known development activity 17
  - Manual adjustments 18
- **Socioeconomic forecast: local forecast results** 19
- **Evaluating the local forecast** 23

Conclusion 23
Acknowledgments 24

Introduction

This document provides an overview of the Chicago Metropolitan Agency for Planning's (CMAP) socioeconomic forecasting process in support of the 2026 Regional Transportation Plan (RTP). It presents high-level results, with a more comprehensive set of data tables available on the CMAP Data Hub.[1]

Socioeconomic forecasts are a required component of a metropolitan planning organization's long-range transportation plan, which must include a horizon year of at least 20 years beyond the plan's adoption.[2] These results serve dual purposes: they inform an understanding of projected population and employment trends to help shape plan recommendations, and they provide inputs to CMAP travel models used for air quality conformity analyses and traffic projections.

The forecast has two major components:

1. A regional socioeconomic forecast

2. A local forecast that distributes regional totals to the local level

These two components use different approaches. The regional forecast focuses on demographics and macroeconomics, while the local forecast is a spatially oriented exercise that places greater emphasis on local constraints to growth, transportation accessibility, real estate supply, and other relevant factors. The following two sections describe these processes in greater detail.

While the forecast is driven by transportation planning needs, these projections are also used by CMAP staff members, partner agencies, local communities, economic development organizations, and watershed planners. In acknowledgement of these diverse needs, CMAP is committed to providing results with more demographic and temporal detail beyond basic travel model requirements alone. While much of this detail stems from regional totals, it also provides an overview of broad demographic trends in northeastern Illinois over the coming decades.

Like most forecasting efforts, many of the underlying assumptions are trend based and do not account for unanticipated behavioral changes. As such, forecasts should be understood as defensible estimates based on reasonable assumptions, not precise predictions. For example, the CMAP forecast adopted in 2018 could not anticipate changes in development patterns related to the COVID-19 pandemic.

1 Note that the data hub page will only become public after the forecast is officially adopted in October 2026.

2 U.S. Government Publishing Office, "Subpart C—Metropolitan Transportation Planning and Programming," Code of Federal Regulations, March 17, 2026, accessed March 20, 2026, https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C.

Part 1: 2026 Regional Transportation Plan socioeconomic forecast

Regional forecast introduction

The technical approach for the regional socioeconomic forecast mirrors that of the original ON TO 2050 forecast (2018) and ON TO 2050 plan update forecast (2022). The economic forecast process also largely mirrors the plan update forecast, which was initially developed by the firm EBP. The economic forecast relies on an employment forecast produced by Moody's Analytics, with modifications to account for differences in employment sector definitions and to adjust for the treatment of temporary workers.

Much of the data used to inform the population and employment models are derived from state- and county-level sources. As a regional planning agency, CMAP recognizes the importance of intercounty dependencies and that it is unreasonable to expect counties to grow in isolation from one another. Because this is a regional forecasting exercise, all county-level inputs from the demographic and employment models were totaled for the regional forecast. Sub-regional output totals by county, township, travel model zone were generated through the local forecast process described in Part 2 of this document.

Part 1 discusses the methods, data, and assumptions behind the demographic and economic models, followed by the steps taken to reconcile the results of the two models. Regional population, household, and employment projections are presented at the end of this section.

Demographic model: data, methods, and assumptions

CMAP's population projections from 2025 to 2050 are based on an established demographic technique called the cohort component method. This method analyzes the historical patterns of the primary elements of population change — fertility, mortality, and migration — and extends them into the future either by projecting these past indicators forward or by aligning them with projections at a larger geographic scale, such as a state or the nation.

Due to the unprecedented nature of the COVID-19 pandemic, historical data is generally cut off in 2019 — for example, mortality rates during the pandemic are not necessarily reflective of mortality rates moving forward. The model uses U.S. Census projections of national fertility and mortality rates and adjusts them based on historic differences between the CMAP region and the nation.[3] If the mortality rate for a group has historically been 3 percent lower than the United States, the national Census projection for that group is adjusted downward by 3 percent.

In addition to the cohort component process, CMAP applies a labor force model to supplement net migration assumptions. This model incorporates employment projections from Moody's Analytics to reconcile the working-age population (labor supply) with anticipated labor force demand.

The major elements of the demographic model are described below. Additional details are available on the CMAP Data Hub.

Births and fertility

Data on births and deaths were obtained from the Illinois Department of Public Health to calculate historical fertility rates and mortality rates. Data on births were used to calculate age-specific fertility rates (ASFRs) for 2010 through 2018, grouped into 6 age cohorts (in 5-year ranges from ages 15 to 19, up to 40 to 44). Historic rates showed two distinct trends: fertility rates for cohorts younger than age 30 showed a marked decrease, while rates for all cohorts age 30 and older showed moderate increases.

3 United States Census Bureau,"2023 National Population Projections Tables: Main Series," Census.gov, February 12, 2025, accessed March 20, 2026, https://www.census.gov/data/tables/2023/demo/popproj/2023-summary-tables.html.

The U.S. Census Bureau released national fertility rate projections in 2023.[4] CMAP converted these projections into ratios based on the baseline period of 2010 through 2018. For example, women between 30 and 34 are projected to have a fertility rate in 2050 that is 5 percent higher than the base year. That projected 5 percent increase is then applied to the baseline fertility rate for women ages 30 to 34 to produce the 2050 ASFR. CMAP used this method rather than directly applying the Census projections because of regional variation. During the baseline period, women in the CMAP region younger than 30 had lower birth rates than the national average, while women older than 30 had higher birth rates than the national average.

Deaths and mortality

Mortality rates are calculated in a similar manner to fertility rates. The population is divided into 5-year age groups and divided by sex (for example, males ages 15 to 19). The age-standardized mortality rate (ASMR) is a person's likelihood of surviving a specified time interval, in this case five years (for example, 2030 to 2035). For example, if the ASMR for males ages 40 to 44 over a 5-year period is 99 percent, and there are 1,000 men at the start of the period, one would expect 990 men ages 45 to 49 five years later (1,000 x 0.99).

The mortality rate projections follow the same methodology as the fertility rate projections. CMAP calculated the mortality rates for the pre-COVID base-period (2014 to 2018) and adjusted them based on Census projections at the national level. Notably, newborns also face mortality risk, and so not all the births in the region in a five-year interval survive to the end of the interval.

Migration

Migration is best understood as a net process: people migrate into an area over a period, while others move out of that same area. The net gain or loss due to migration is the result of the inflows minus the outflows. Unlike births and deaths, which are recorded as official vital events, in- and out-migration are difficult to measure directly.

Migration consists of two streams: domestic migration, which occurs within the United States, and international migration. Like gross in- and out-migration, accurate records or estimates of these domestic and international components are difficult to obtain. For these projections, only total net migration values are calculated. The region's net migration has varied substantially over the past three decades. After a decade of positive net migration in the 1990s, the region experienced net out-migration during the 2000s and 2010s. In the 2020s, the region has had positive international migration and negative domestic migration, while total net migration has varied by year.

The level of migration is determined in conjunction with the economic model, and that process is described in more detail in the next section. A core assumption in the forecast model is that employment is the primary driver of migration into the region. CMAP used data from the 2017 to 2021 American Community Survey Public Use Microdata Sample to identify the demographic characteristics of households that migrated to the region and had at least one household member in the labor force. CMAP measures migration at the household level because people migrating for employment may bring household members who are not in the labor force, such as children or spouses.

Group quarters populations

All demographic modeling described up to this point addresses only the household population. To develop a total population estimate, projections must also account for group quarters populations, both institutionalized (nursing homes, prisons, etc.) and non-institutionalized (college dormitories, military quarters, etc.). To estimate the change in group quarters populations, 2010 Census data were used to calculate the proportions of people in group quarters arrangements relative to the 2010 total population.[5] These proportions were applied, with the exception of the military quarters populations, located exclusively in North Chicago at Naval Station Great Lakes, which held constant.

4 United States Census Bureau, "2023 National Population Projections."

5 2010 ratios were considered more representative of future conditions than 2020 due to the COVID-19 pandemic. The 2020 Census was conducted on April 1, 2020.

Economic forecast: data, methods, and assumptions

The economic forecast used for the 2026 Regional Transportation Plan followed the methodology developed for the ON TO 2050 plan update. In August 2020, CMAP selected the firm EBP to develop the economic portion of the regional socioeconomic forecast. Scope requirements were to:

- Report by the North American Industry Classification System (NAICS) two-digit sector using Bureau of Labor Statistics definitions
- Reallocate employment totals from the NAICS sector 561320 (Temporary Help Services) into the sectors in which temp workers actually work; provide totals for reallocated and un-reallocated
- Report total employment (including self-employed), as well as wage and salary only
- Develop a baseline/likely scenario along with low/pessimistic and high/optimistic scenarios reflecting the uncertainty that typically surrounds employment forecasts

An overview of EBP's approach to the employment forecast is presented below. For a more detailed explanation of the methodology, see Chicago Region Employment Forecast: 2021 Update, available in the 2022 forecast documentation on the CMAP Data Hub's Socioeconomic Forecast Data 2022 and 2018 Series page.

Benchmarking historical employment

Unlike a census of population, in which every individual is counted as one person, employment counts are subject to a variety of definitional challenges regarding part-time jobs, self-employed workers, domestic workers, and multiple-job holders. For the purposes of this report, employment is based primarily on average annual employment by sector as reported by the Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW), which collects employment and wage data from employers covered under state unemployment insurance programs. To round out employment estimates, two other sources were used: the Railroad Retirement Board, to account for railroad workers not counted in the QCEW, and the American Community Survey, for a count of self-employed workers. Excluded from these estimates are active-duty military personnel, private household workers, and elected officials.

The reallocation of workers counted under Temporary Help Services (colloquially referred to as temp workers) was informed by the Contingent Worker Supplement to the Census Bureau's Current Population Survey. For land use and travel demand modeling purposes, identifying temp workers by the industries in which they work improves results. Four separate benchmark series of historical employment by NAICS two-digit sector were developed for 2010 through 2020 to suit different agency purposes:

- Total employment without temp worker reallocation
- Total employment with temp worker reallocation (the series used for reporting in this section)
- Wage and salary employment without temp worker reallocation
- Wage and salary employment with temp worker reallocation (the series used for travel and land use modeling, used in Part 2 of this report)

Forecasting employment

Forecast employment totals for each series are based on March 2025 vintage forecasts produced by Moody's Analytics. The projections that serve as the official regional forecast are Moody's baseline, in which there is an equal probability (50 percent) that the economy will perform better or worse over the forecast period. Moody's Analytics was selected for this forecast because the service accounts for a variety of long-term trends, including climate migration, artificial intelligence, and macroeconomic cycles.

Integration of demographic and economic models

The employment model and the initial run of the demographic model described above operate independent of one another. An additional step is necessary to reconcile labor demand (employment) with labor supply (workers, a subset of the total population). If the rate of employment growth outpaces the number of workers available to fill those positions through natural increase and baseline net migration, migration rates are adjusted to address the increased demand for labor. This process primarily affects projections for the working-age population, but because many of these workers are of parenting age, it also contributes to an increase in the youth population.

For each five-year forecast period, the number of resident workers in the region is estimated by applying a series of modifying factors to the household population: Congressional Budget Office projections of labor force participation and unemployment rates, adjustments for workers with multiple jobs, and an out-of-region worker correction factor.[6] Baseline net migration estimated by the demographic model is then modified until the number of estimated resident workers roughly matches the number of primary jobs. This estimate of economic migrants is allocated based on historic demographic characteristics of people moving to the region for work, as described in the migration section above.

Socioeconomic forecast: regional results

All results below are for the aggregate seven-county CMAP region. For sub-regional results, refer to Part 2: Local forecast update. Microsoft Excel versions of all tables are available on the CMAP Data Hub.

Regional population forecast

Forecasts are reported in ten-year intervals for space considerations. A five-year interval version is available on the CMAP Data Hub.

Table 1: Age distribution, 2020 and 2050 (projected)

Age group	2020 (Census)*	2020 share of total	2050	2050 share of total
0-19	2,111,344	24.6%	1,921,841	21.6%
20-39	2,398,811	28.0%	1,990,451	22.4%
40-59	2,240,681	26.1%	2,460,010	27.7%
60+	1,826,899	21.3%	2,512,194	28.3%
Total	**8,577,735**	**100.0%**	**8,884,496**	**100.0%**

Table 2: Household and group quarters projections

Household population	2020 (Census)	2030	2040	2050
Total household population	8,447,265	8,702,458	8,807,112	8,713,459
Total households	3,266,741	3,494,097	3,660,505	3,756,015
Average household size	2.59	2.49	2.41	2.32
Group quarters population	**2020 (Census)**	**2030**	**2040**	**2050**
Total group quarters	130,470	159,264	160,325	171,037
Total population	**2020 (Census)**	**2030**	**2040**	**2050**
Total population (household population + group quarters population)	8,577,735	8,861,722	8,967,437	8,884,496

6 Congressional Budget Office, "The Long-Term Budget Outlook: 2025 to 2055," cbo.gov, March 27, 2025, accessed March 20, 2026, https://www.cbo.gov/publication/61187.

Regional employment forecast

Table 3: Total employment by NAICS sector, 2020 to 2050

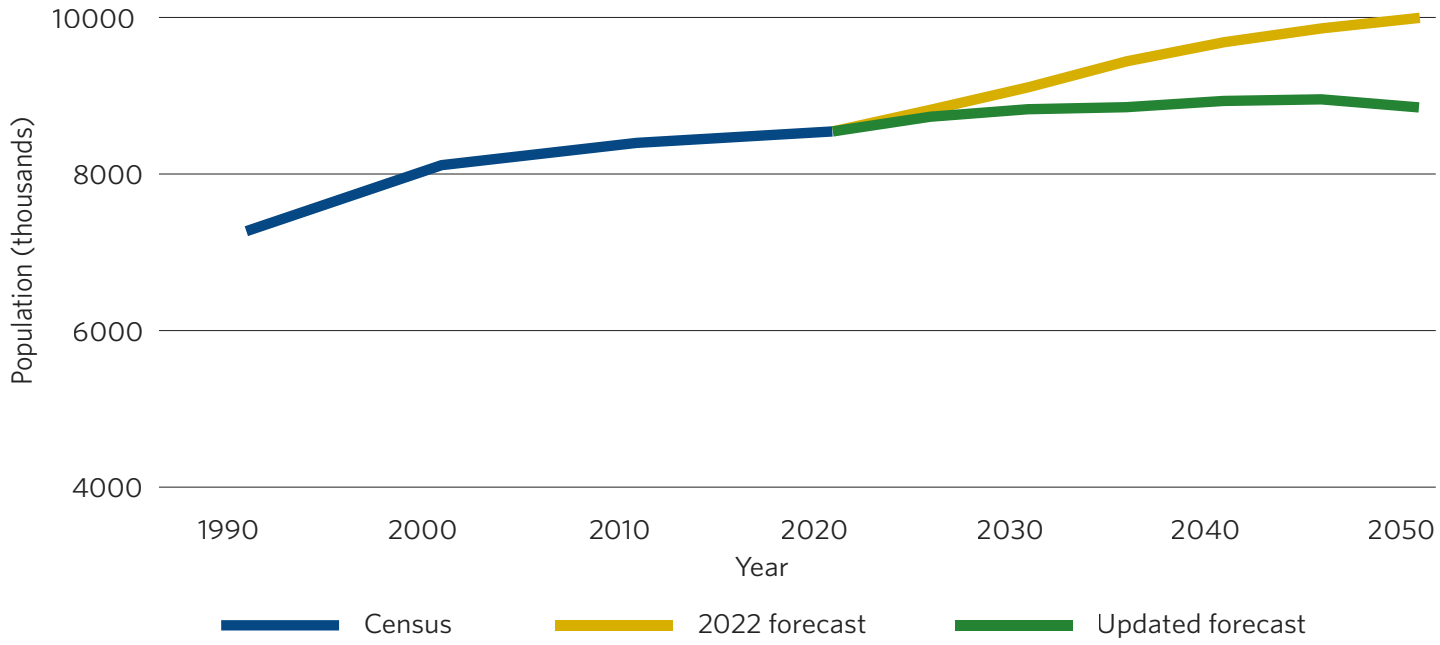
Sector	NAICS	2020	2030	2040	2050
Agriculture, forestry, fishing and hunting	11	11,728	11,784	11,269	10,906
Mining	21	1,736	1,720	1,590	1,385
Utilities	22	13,633	12,956	10,905	9,304
Construction	23	208,142	215,704	199,589	185,988
Manufacturing	31-33	368,875	381,379	355,827	330,779
Wholesale trade	42	210,681	221,950	212,087	198,987
Retail trade	44-45	401,154	413,073	391,290	363,152
Transportation and warehousing	48-49	285,639	326,107	327,029	321,916
Information	51	80,785	82,847	81,567	79,291
Finance and insurance	52	230,039	230,290	226,034	219,070
Real estate and rental and leasing	53	85,593	86,024	84,695	82,294
Professional, scientific and technical services	54	378,907	409,010	434,410	443,859
Management of companies and enterprises	55	65,155	70,367	74,780	76,414
Administrative/waste services	56	235,324	254,909	271,727	278,491
Educational services	61	379,376	426,727	422,725	411,534
Health care and social assistance	62	560,873	628,394	619,372	600,155
Arts, entertainment, and recreation	71	89,062	117,500	121,542	127,015
Accommodation and food services	72	284,780	376,171	389,607	407,780
Other services (except public administration)	81	181,481	205,010	204,860	204,436
Public administration	92	133,263	138,172	134,449	131,120
Total employment		**4,206,227**	**4,596,590**	**4,562,495**	**4,471,585**

Comparison to the ON TO 2050 update regional forecast

The new forecast totals for both population and employment are lower than the ON TO 2050 update forecast published in 2022.

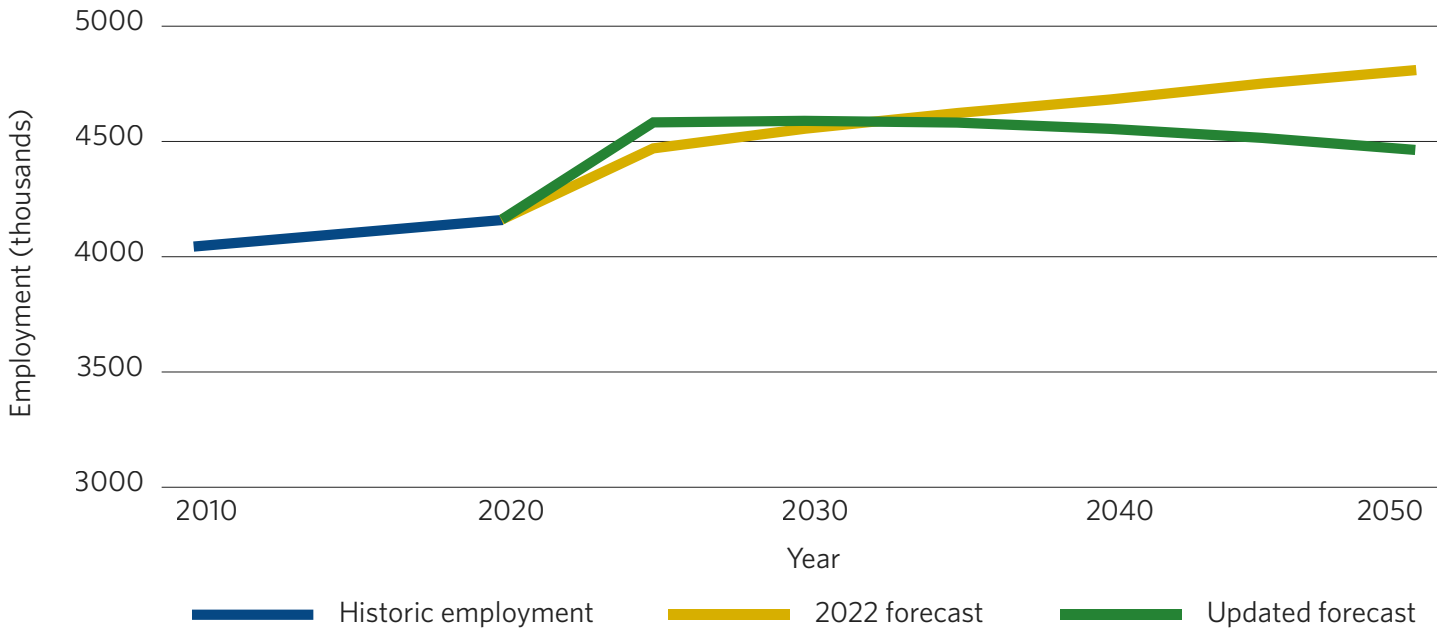
The current population projection of just under 9 million people by 2050 represents a decrease of over 1,000,000 from the ON TO 2050 update forecast. Figure 1 shows the region's population growth since 1990 and the divergence of the two forecasts beginning in 2020, the base year for the previous forecast.

Figure 1: ON TO 2050 plan update and 2026 Regional Transportation Plan population forecasts compared



Similarly, the employment forecast is lower by roughly 325,000 jobs by 2050 compared to the ON TO 2050 update forecast of more than 4.8 million. These differences are shown in Figure 2.

Figure 2: ON TO 2050 plan update and 2026 Regional Transportation Plan employment forecasts compared



Two major contributors to this lower forecast are sluggish population growth in the previous decade and the domestic out-migration that occurred during the COVID-19 pandemic. The region experienced substantial out-migration between the time the previous forecast was produced and the present, and that decline has downstream effects on the number of projected births. These trends are reflected in the updated Moody's employment forecast for the region, which projects lower 2050 employment than in the previous cycle, resulting in lower projected migration rates. Overall, the updated forecast shows the region growing slowly between now and 2050, adding about the equivalent of the population of the city of Orlando to the region between 2020 and 2050.

Part 2: 2050 Local forecast update

Local forecast introduction

The local socioeconomic forecast estimates population, households, residential units, and employment from a 2020 base year to a 2050 horizon year. The local forecast supports regional planning and decision making by providing a consistent view of how growth may be distributed under a defined set of assumptions. The forecast is implemented using UrbanSim, an integrated land use modeling framework composed of multiple interacting submodels. For each forecast year, UrbanSim simulates the location decisions of new and relocating households and jobs across the region at the census block level. These block-level results are then aggregated to the municipality and county levels and made available for download through CMAP's Data Hub.

The forecast provides a long-range view of how housing and employment may be distributed across the region, reflecting modeled location choice preferences, known development activity, and projected regional growth. Housing costs adjust over time in response to local market conditions, allowing household location choice decisions to reflect the influence of price. Residential development is simulated by introducing new housing in locations where market demand and zoning capacity support growth, allowing household location decisions to respond to changes in available supply.

The forecast is not a prediction, but a modeled scenario of how the region could develop under current zoning policies, market conditions, and demographic trends. It reflects a consistent set of assumptions about regional growth, development activity, and land use capacity, and is intended to support planning and policy implementation rather than anticipate precise outcomes for individual locations. Changes to these underlying assumptions — including land use policies, market conditions, or development activity — could lead to different outcomes.

Part 2 describes the UrbanSim land use model in greater detail, including forecast motivation, the overall modelling approach, model structure, and data requirements. The section concludes with local projections of population, households, and employment, followed by a discussion of the criteria used to compare and select forecast runs.

Forecast motivation and modeling approach

Unlike the ON TO 2050 local forecast released in 2022 — which incorporated explicit policy levers to align outcomes with adopted plan goals — the 2026 forecast adopts a fully data-driven, predictive approach.

The 2022 forecast incorporated a set of policy-forward levers designed to reflect the long-range goals of the ON TO 2050 plan. These levers were intentionally constructed to emphasize reinvestment in existing communities, support infill development, and encourage renewed growth in disinvested and economically disconnected areas. These outcomes extend beyond what would be expected under a purely trend-based or market-driven forecast.

With the 2050 horizon now within 24 years, CMAP shifted toward a predictive rather than prescriptive forecasting approach. Predictive forecasting emphasizes observed demographic and economic trends, market behavior, and existing constraints, including zoning, to estimate the most likely distribution of future growth. In contrast to policy-based forecasts, which embed goal-oriented assumptions about coordinated regional action, a predictive forecast reduces reliance on policy implementation and establishes a baseline for evaluating future conditions.

A baseline forecast grounded in existing conditions and observed household and employment location preferences provides a foundation for evaluating policy impacts through targeted scenario analysis rather than embedded assumptions. This approach improves transparency, supports clear policy discussions, and allows specific interventions to be assessed as responses to the baseline local forecast.

The UrbanSim land use model

UrbanSim is an integrated land use modeling platform originally developed at the University of California, Berkeley, in the late 1990s. Supported by organizations including the National Science Foundation, U.S. Environmental Protection Agency, and Federal Highway Administration, the model is widely used by metropolitan planning agencies such as the Metropolitan Transportation Commission, Puget Sound Regional Council, Southeast Michigan Council of Governments, and the Metropolitan Council.

CMAP maintains its own implementation of UrbanSim to produce the local socioeconomic forecast, with technical support from UrbanSim, Inc. The model operates within a cloud-hosted environment and is configured using CMAP-specific data inputs, assumptions, and enhancements tailored to regional conditions. UrbanSim consists of multiple interacting sub-models that simulate the location decisions of households, jobs, and real estate development over time.

This section provides an overview of the model structure, including key sub-models, as well as the calibration and estimation processes used to ensure the model reflects observed development patterns and market behavior across the region.[7]

UrbanSim overview

Integration of regional and local forecasts

The regional forecast establishes total population in households, total households, and total employment by two-digit NAICS sector for each forecast year from 2020 through 2050, called control totals. The local forecast then takes these control totals and allocates them to individual census blocks across the region. For every forecast year, the sum of block-level population, household, and sector-specific employment estimates should closely align with the corresponding regional totals. In this way, the regional forecast serves as a control framework, ensuring that locally distributed growth remains consistent with overall regional projections. Rounding and model logic can introduce small discrepancies, though local totals stay within about one percent of regional totals.

UrbanSim model structure and sub-models

UrbanSim consists of several sub-models that represent the actions of developers, households, and employers. These models operate in each forecast year from 2021 to 2050. They include:

- **Real estate price model:** estimates block-level prices for owner-occupied and rental housing units
- **Residential development model:** identifies census blocks where new residential construction is supported by market demand, considering zoning capacity and forecasted growth
- **Employment and household relocation models:** predict households and employees that relocate within the region in each model year
- **Employment and household transition models:** establish incoming and relocating households and jobs in the region based on regional forecast control totals, which specify the number of households by type and employees by industry sector and the relocation models that determine which households and jobs relocate
- **Household tenure choice model:** predicts whether incoming and relocating households rent or own the housing unit they occupy
- **Employment and household location choice models:** allocate households and jobs to available residential and nonresidential space based on modeled location preferences

7 Additional information on UrbanSim is available at urbansim.com.

Model specification

When households, employers, and residential developers choose locations, they evaluate a range of characteristics that influence their decisions. Model specification establishes the characteristics to simulate what households, employers, and residential developers evaluate when making location decisions. These variables define the behavioral framework of the model by representing the economic conditions, accessibility patterns, market dynamics, and neighborhood attributes that influence location choice.

Household location choice model specification

The UrbanSim household location choice model simulates the residential location decisions of households for each forecast year from 2021 through 2050. The model represents both newly formed households and existing households that relocate, allocating them to census blocks based on estimated location preferences.

Because households differ in their housing needs and preferences, the model segments households into 18 distinct groups. Segmentation is based on tenure (owner or renter), income (low, middle, high), householder age (under 65 or 65 and older), and the presence of children. This structure allows the model to reflect how housing choices vary across household types. For example, an older, high-income homeowner without children is likely to prioritize different neighborhood characteristics than a middle-income renter household with children.

The model includes a consistent set of explanatory variables representing housing costs, supply, accessibility, and neighborhood characteristics. These variables are combined to calculate the likelihood that a household in each segment selects a given census block. While the same general variables are included across segments, the magnitude and direction of their effects vary by household type, reflecting differences in housing preferences.

Key variables used by the household location choice model include:

- Median home value and gross rent
- Housing unit supply
- Accessibility to employment within a 45-minute single-occupancy vehicle or transit commute
- Accessibility to retail and accommodation and food services employment
- Accessibility to health care and social assistance employment
- Neighborhood income composition
- Recent population growth (2010 to 2024)

Employment location choice model specification

The UrbanSim employment location choice model (ELCM) simulates the location decisions of jobs across industry sectors for each forecast year from 2021 through 2050. The model represents both employment entering the region and existing jobs that relocate, allocating them to census blocks based on estimated location preferences.

Because industries differ in their operational needs, the ELCM segments employment into 20 two-digit NAICS sectors (Table 4). This structure allows the model to capture how location priorities vary across industries. For example, manufacturing and transportation sectors may prioritize highway access and larger sites, while professional services firms may place greater emphasis on proximity to complementary businesses and workforce accessibility.

The model includes a consistent set of explanatory variables representing site characteristics, agglomeration patterns, accessibility, and proximity to infrastructure. These variables are combined to determine the probability that a job in

a given sector is located within a specific census block. While several core variables are included across sectors, their relative importance differs to reflect industry-specific location patterns observed during the calibration period.

Key variables used by the employment location choice model include:

- Site acreage
- Existing employment concentration
- Accessibility to regional employment within a 45-minute single-occupancy vehicle or transit commute
- Accessibility to jobs within the same sector (15-minute single-occupancy vehicle travel time)
- Accessibility to complementary industry sectors (15-minute single-occupancy vehicle travel time)
- Proximity to interstate interchanges (select sectors)
- Accessibility to nearby households (select sectors)

Employment location choice model simulates the location decisions for jobs in each of the sectors in the table below.

Table 4: NAICS codes used for employment model segmentation

NAICS	Sector
11	Agriculture, forestry, fishing and hunting
21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale trade
44-45	Retail trade
48-49	Transportation and warehousing
51	Information
52	Finance and insurance
53	Real estate and rental and leasing
54	Professional, scientific and technical services
55	Management of companies and enterprises
56	Administrative/waste services
61	Educational services
62	Health care and social assistance
71	Arts, entertainment, and recreation
72	Accommodation and food services
81	Other services (except public administration)
92	Public administration

Residential development location choice model specification

The UrbanSim residential development location choice model simulates where new housing units are added across the region for each forecast year from 2021 to 2050. The model represents residential developers' decisions by identifying locations where additional housing is most likely to occur based on market conditions, accessibility, neighborhood characteristics, and recent growth patterns.

Development potential is evaluated at the census block level, with new housing units allocated to blocks that demonstrate conditions supportive of residential growth. By linking new construction to forecasted housing demand and zoning capacity, the model ensures that residential development occurs in locations where growth is both permitted and supported by market conditions.

Because housing markets differ for ownership and rental products, the model segments development into two categories: owner-occupied and renter-occupied housing. This structure allows the model to capture differences in the types of locations that tend to attract each form of residential development.

The model includes a consistent set of explanatory variables representing site characteristics, housing market conditions, accessibility, and neighborhood composition. These variables are combined to determine the probability that new housing units are added to a given census block. While several core variables are included across both development types, their relative importance differs between owner-occupied and renter-occupied housing, reflecting distinct development patterns observed during the calibration period.

Key variables used by the residential development location choice model include:

- Site acreage
- Housing prices (owned or rented, depending on development type)
- Accessibility to employment within a 15-minute single-occupancy vehicle commute
- Accessibility to regional employment within a 45-minute single-occupancy vehicle commute
- Accessibility to employment within a 45-minute transit commute
- Existing housing supply
- Recent population growth (2010 to 2024)
- Neighborhood income composition

In addition to modeled development, the forecast incorporates known projects that are expected to occur during the forecast period. These developments are introduced directly into the housing inventory and complement the modeled supply generated through the residential development location choice model. Known development activity is described in greater detail in the following section.

UrbanSim model estimation and calibration

The previous section described the variables included in the household and employment location choice models when evaluating where households and jobs are located within the region. Model estimation measures how strongly each of these variables influences location choices for households and jobs that are either new to the region or relocating within it. These relationships are determined through the model calibration process.

The goal of calibration is to ensure the model can reliably reproduce observed development patterns before being used to forecast future growth. The household location choice and residential development models were calibrated to observed patterns from 2010 to 2020. However, because employment levels in 2020 were significantly affected by the COVID-19 pandemic, the calibration period for the employment location choice model was extended through 2022. This approach better reflects stabilized labor market conditions and strengthens the model's ability to represent typical employment location behavior over the long term. Because the distribution of households, jobs, and housing units during these periods is known, the calibration process adjusts the model so that simulated outcomes closely match observed conditions.

During calibration, the model is run from 2010 to 2020 using an initial set of assumptions about how households, employers, and developers make location decisions. After each simulation, the modeled results are compared to actual 2020 development patterns, and the model is automatically adjusted to improve its accuracy. This process uses machine-learning techniques to refine how much influence each variable has on location decisions across model segments.

The model is repeated many times, typically between 200 and 500 iterations, until improvements in accuracy become minimal. The final set of relationships reflects the location preferences that shaped regional growth during the calibration period and provides the foundation for forecasting future household and employment patterns.

Through the calibration process, the household, employment, and residential development location preferences that shaped regional growth between 2010 and 2020 are captured and translated into model relationships. Grounding the model in observed development patterns increases confidence that it can realistically represent how growth occurs within the region. These relationships are then used to forecast future conditions from 2021 to 2050, allowing households, jobs, and developers to respond to zoning capacity, evolving market conditions, demographic trends, and regionwide growth projected in the socioeconomic forecast.

Travel model integration

After specification, estimation, and calibration, the UrbanSim land use model is coupled with CMAP's regional travel demand model to ensure consistency between forecasted development patterns and transportation conditions. UrbanSim produces annual forecasts of population, households, residential units, and employment at the census block level for each year from 2020 to 2050. For selected milestone years — 2020, 2026, 2030, 2032, 2035, 2040, 2045, and 2050 — these outputs are provided to the travel model team to update regional travel demand.

Beginning with the 2026 forecast year, the travel demand model uses updated land use inputs to generate revised zone-to-zone travel times, commonly referred to as travel model skims. These skims reflect forecasted changes in congestion, network performance, and transportation system conditions.

The updated travel times are then incorporated back into UrbanSim through accessibility measures used across multiple sub-models. Accessibility variables, such as employment reachable within a specified travel time by single-occupancy vehicle or transit, are recalculated using the new skims. These updated accessibility measures influence household and employment location decisions, residential development patterns, and real estate pricing in subsequent forecast years.

This iterative exchange between land use and transportation modeling occurs at five-year intervals beginning in 2026, ensuring that development patterns and travel conditions evolve consistently over time.

Model data: custom inputs

UrbanSim, Inc. provides default sources for all data inputs needed for the model, but also allows users to provide their own data instead. This section provides a brief overview of the datasets that were collected or created by CMAP staff as part of the model development process.

Building footprints and attributes

To develop some of the required data inputs, an inventory of all buildings in the region as of the 2020 base year was created. The building geometry comes from computer vision generated footprints from Ecopia.[8] Each footprint is assigned a land use and building type based on the Land Use Inventory. Other sources — including county and township assessor data, CoStar, and LIDAR data — are then used to assign other attributes including building size, age, and value.

Establishment-level employment

Base-year employment data is provided at the establishment level and then aggregated to blocks. First local area control totals for municipalities and Chicago community areas are created based on Moody's Analytics and Census Longitudinal Employment-Household Dynamics data, which is used to scale establishment level employment data from Dun & Bradstreet.[9] The establishments are then assigned to buildings and redistributed to meet reasonable building capacity based on the building size and building type from the building inventory.

Regional forecast of households and employment

CMAP's regional forecast, described in Part 1 of this report, is the source of the annual households and employment totals used as controls throughout the forecast period. As part of the interaction with the agency's four-step travel demand model, household counts need to be broken out by several attributes. Previously, this process was done internally by CMAP, but due to recent model improvements, these attributes were generated by UrbanSim. Employment control totals rely on the regional employment forecast described in Part 1.

Constraints to development

Zoning

The second significant constraint on development is local zoning, which limits the type and intensity of development that can occur within each jurisdiction. The zoning data is assumed to remain constant throughout the model period.

From 2023 to 2025, CMAP staff members undertook a major effort to collect and create zoning boundary GIS files, and to research local zoning ordinances to identify per-district allowed uses, along with maximum allowable floor area ratio (FAR) and dwelling units per acre (DUA). These data translated directly into the types of residential units and employment that could be allowed on a given parcel, with DUA limiting the number of housing units that could be built on the parcel after subtracting for undevelopable acreage. FAR is used in combination with the smallest square foot per job value from the allowed building types to calculate the maximum number of jobs per acre. These parcel capacities are then aggregated to the block level to create the maximum capacity of residential units and employment for each block in the model. All 284 municipalities in the CMAP region are represented, as well as the unincorporated areas of the seven counties (see Figures 3 and 4 below).

These data have limitations. Special overlay areas, such as historical districts, are not represented. Many ordinances did not explicitly state FAR or DUA values required by the model, so those values were calculated using other reported restrictions, such as minimum lot size, or sampled based on information from the building inventory.

8 Custom geospatial dataset delivered to CMAP by Ecopia AI, 2023.
9 Proprietary dataset delivered to CMAP by Dun & Bradstreet, 2021.

Figure 3: Dwelling units per acre maximum in northeastern Illinois

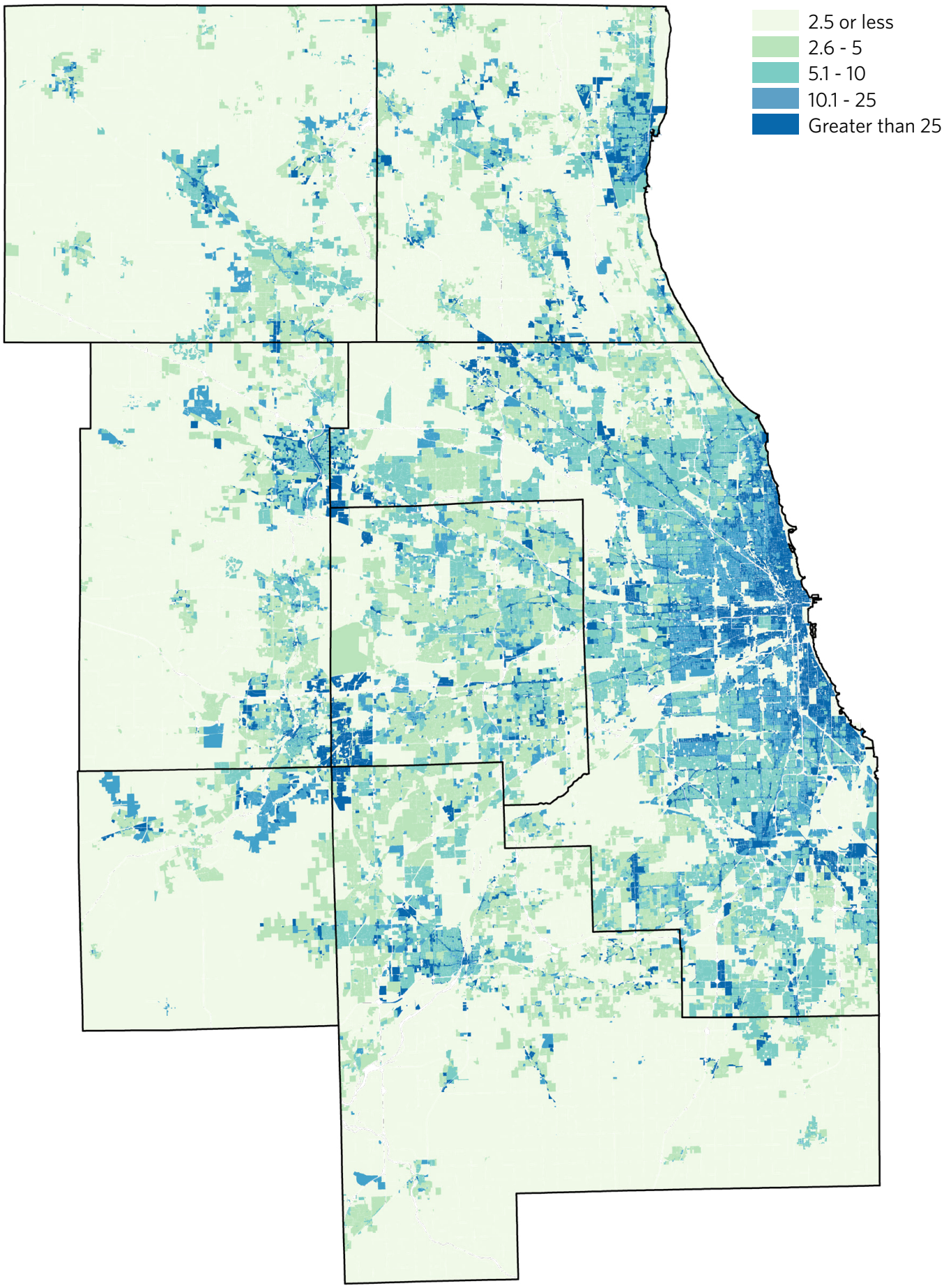
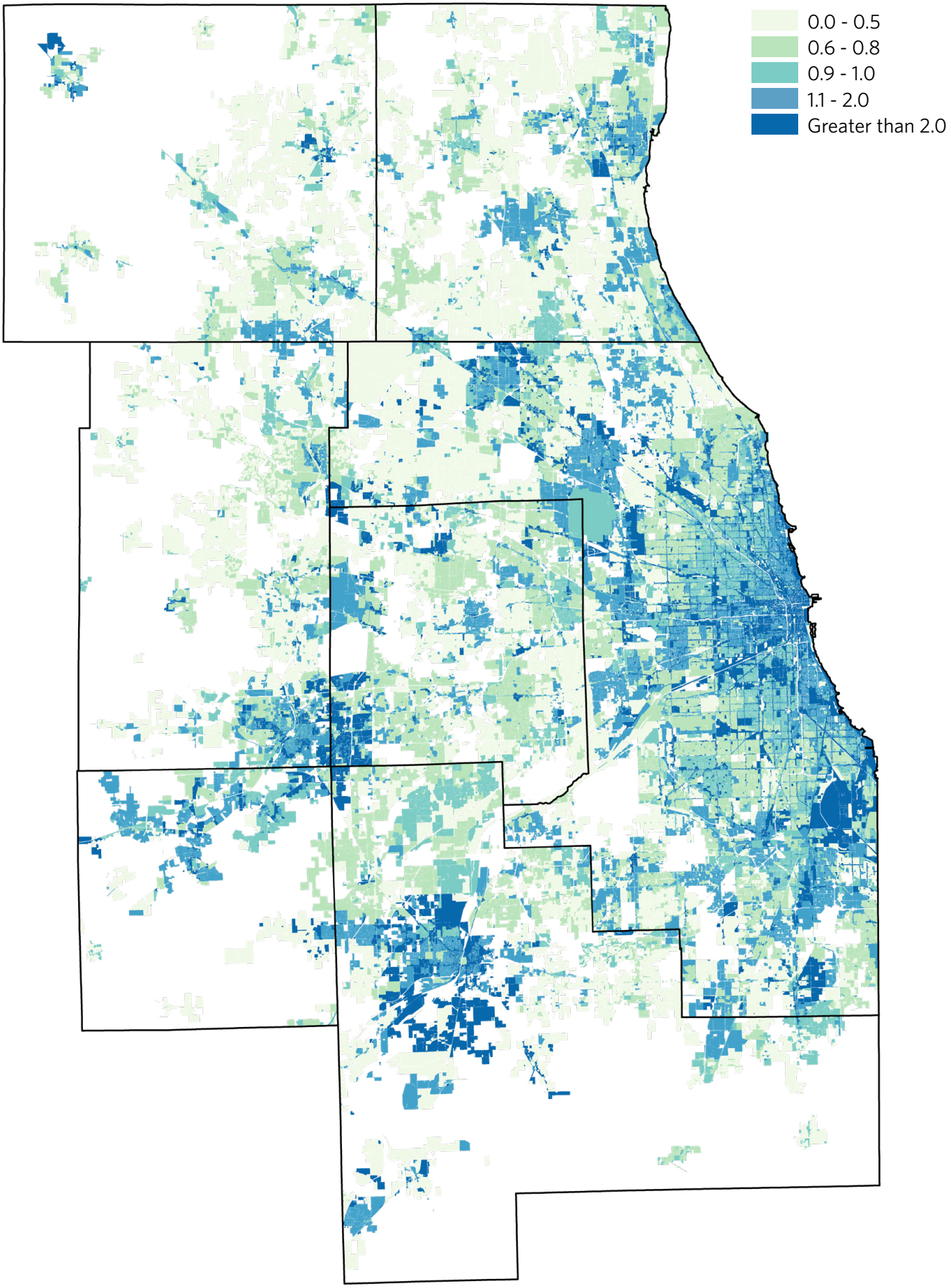


Figure 4. Floor area ratio maximum in northeastern Illinois



Undevelopable land

Certain land within census blocks was classified as undevelopable and excluded from the UrbanSim developer model to reflect physical constraints, public ownership, and long-term land use commitments that limit redevelopment. Using CMAP's 2020 Land Use Inventory, supplemented by national datasets including the Protected Areas Database of the United States (2022) and the U.S. Geological Survey National Hydrography Dataset for water areas (2022), these lands include transportation rights-of-way, utility corridors and facilities, water bodies, protected open space, military lands, and institutional uses such as cemeteries and correctional facilities. Common areas within residential developments were also excluded, as they are not intended to accommodate additional structures.

Agricultural easement policies in Kane and McHenry counties were also incorporated to limit development in areas intended for long-term agricultural preservation. To reflect these policies and ensure realistic growth patterns, a half-mile buffer was applied around incorporated municipalities in Kane County and a one-mile buffer in McHenry County. Land outside these buffers was designated as undevelopable, representing areas where development is constrained by local policy and where large-scale residential expansion is unlikely under current conditions. This approach helps prevent the over-allocation of future housing in unincorporated areas and better aligns modeled outcomes with observed development trends and county land preservation objectives.

Removing these lands from development capacity ensures that modeled growth is directed toward parcels with realistic redevelopment potential and supports more accurate estimates of future housing and employment patterns.

Utility infrastructure

The model does not explicitly represent the availability of water, wastewater, or other utility infrastructure at the parcel level. As a result, areas lacking access to public utilities are not automatically excluded from development unless constrained by zoning, preservation policy, or other designated undevelopable classifications. While many locations without utilities are indirectly limited by low allowable densities or agricultural preservation policies, the model does not independently evaluate infrastructure extension feasibility or cost.

Known development activity

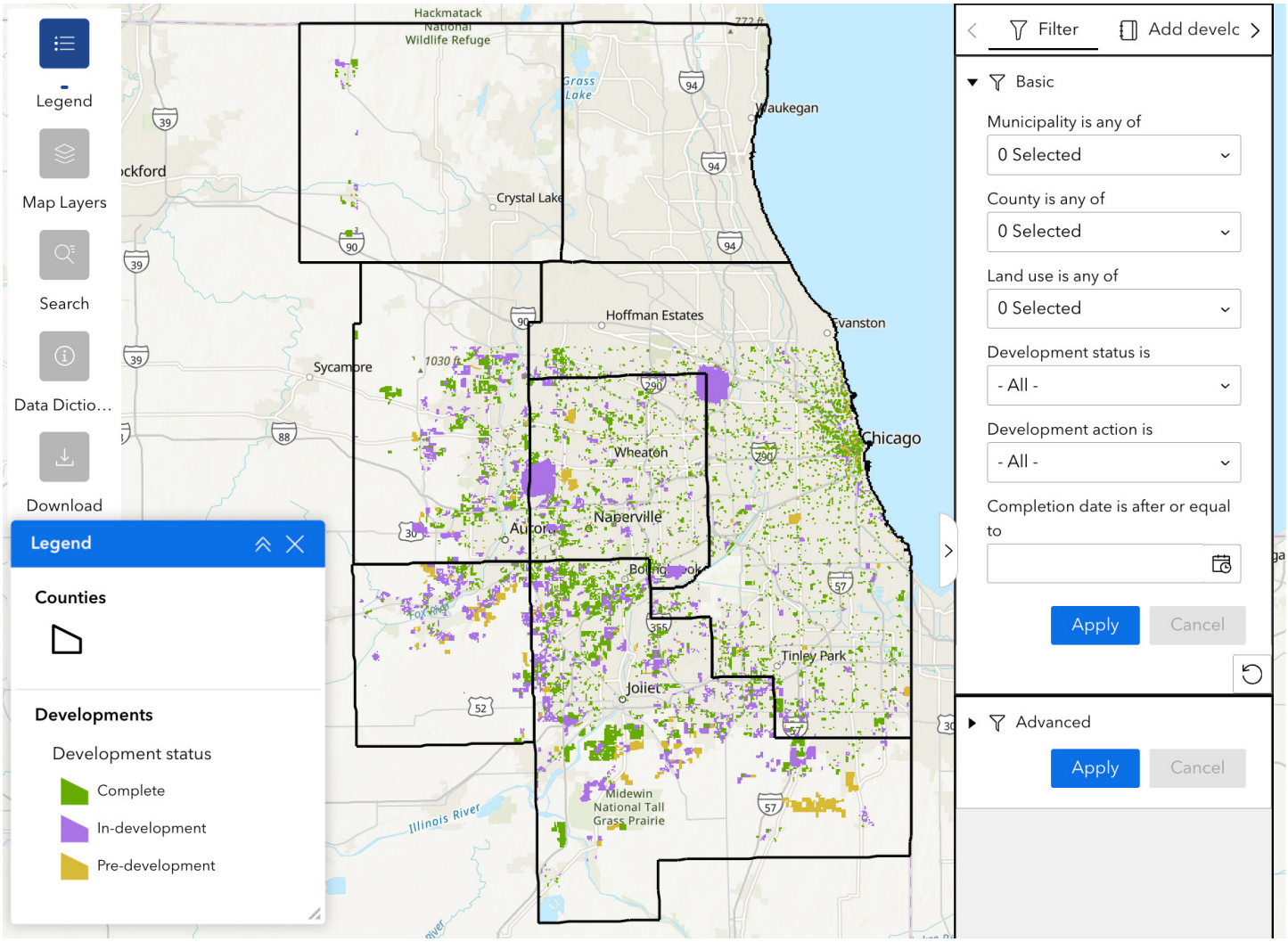
CMAP's Northeastern Illinois Development Database (NDD) informs the forecast by incorporating development activity that extends beyond the base year and is not captured solely through modeled location preferences. The NDD tracks significant residential and nonresidential projects across the seven-county region. Established in 1987, the database documents projects meeting defined criteria, including land consumption, housing units, nonresidential square footage, and land use type. Projects are monitored from proposal through completion, providing a comprehensive record of development activity used to support CMAP's planning and forecasting efforts.

Within the local forecast, NDD records are translated into residential units and employment and integrated directly into UrbanSim. By explicitly accounting for anticipated development, these inputs help anchor the forecast in observed market activity and improve the realism of projected housing and job distribution across the region.

For example, consider a residential development scheduled to begin construction in 2028 and complete in 2029 with a total of 100 housing units. The forecast allocates these units across the expected construction timeline, adding 50 units in 2028 and 50 units in 2029. As new units enter the housing inventory, the household location choice model evaluates the census blocks containing this additional capacity and assigns households accordingly.

To proactively identify known development activity across the region, CMAP developed the NDD web map. The application enables users to view, filter, edit, and export development records. Users can submit information on new development projects through an integrated survey. Submitted entries are reviewed and verified by CMAP staff members before being incorporated into the database and reflected in the local forecast. More than 1,800 developments are entered into the local forecast through the NDD for the 2020 to 2050 period.

Figure 5: The NDD web map allows users to submit new development information for the local forecast



Manual adjustments

UrbanSim allows for the manual adjustment of predefined areas based on expert opinion and knowledge of the region. This feature is useful for larger institutional settings, which do not conform to behaviors represented in the developer and location choice models. A set of adjustments was identified for O'Hare and Midway airports, colleges and universities, Fermilab, Argonne National Laboratory, Great Lakes Naval Station, and the proposed South Suburban Airport. Employment totals were forecast throughout the model period using the per-sector projected regional employment growth as a guide.

Adjustments for airport and university areas were developed in collaboration with CMAP's travel model team, to address unique trip generators. The proposed South Suburban Airport near Peotone is included in this list, with size and function assumptions based on recent presentations by the Chicago Southland Economic Development Corporation focused on a cargo airport; the parcel footprint was based on the inaugural configuration in the 2012 Airport Plans Report.[10] The region's two national laboratories, Argonne and Fermilab, as well as Naval Station Great Lakes, were added to this list by the land use team.

10 Ted Slowik, "Column: Amazon growth is driving demand for a third Chicago airport near Peotone, officials say," Chicago Tribune, April 30, 2021, accessed March 20, 2026, https://www.chicagotribune.com/2021/04/30/column-amazon-growth-is-driving-demand-for-a-third-chicago-airport-near-peotone-officials-say; AECOM, "South Suburban Airport Master Plan – Draft Airport Plans Report," South Suburban Airport Website, September 27, 2012, accessed March 20, 2026, https://www.southsuburbanairport.com/MasterPlan/reports/ALP/DRAFT_AirportPlansReport-September27-2012.pdf.

Socioeconomic forecast: local forecast results

This section presents summarized results and maps from the 2026 socioeconomic forecast. Additional data will be available on the CMAP Data Hub. Population and housing counts for the 2020 base year are derived from the Census. Employment estimates for 2020 are sourced from Moody's Analytics, with Chicago employment calculated as an aggregate of scaled and cleaned block-level Longitudinal Employer-Household Dynamics data.

Table 5: Current and projected total population by county and Chicago

County	2020(Census)	2030	2040	2050	2020 share	2050 share
Cook	5,275,541	5,429,260	5,379,951	5,276,909	61.5%	59.5%
DuPage	932,877	941,707	955,981	954,690	10.9%	10.8%
Kane	516,522	527,364	566,596	581,203	6.0%	6.6%
Kendall	131,869	136,973	170,336	186,537	1.5%	2.1%
Lake	714,342	726,279	737,539	738,353	8.3%	8.3%
McHenry	310,229	319,387	354,116	366,804	3.6%	4.1%
Will	696,355	710,639	755,089	766,576	8.1%	8.6%
Total	**8,577,735**	**8,791,609**	**8,919,607**	**8,871,073**	**100%**	**100%**
Chicago	*2,746,388*	*2,867,180*	*2,840,913*	*2,781,496*	*32.0%*	*31.4%*
Suburban Cook	*2,529,153*	*2,562,080*	*2,539,038*	*2,495,413*	*29.5%*	*28.1%*

Table 6: Current and projected households by county and Chicago

County	2020 (Census)	2030	2040	2050	2020 share	2050 share
Cook	2,086,940	2,189,753	2,244,779	2,275,666	63.9%	62.0%
DuPage	348,216	358,470	376,003	388,084	10.7%	10.6%
Kane	180,374	187,891	208,731	221,771	5.5%	6.0%
Kendall	43,534	46,275	59,371	67,053	1.3%	1.8%
Lake	253,386	262,385	275,418	285,137	7.8%	7.8%
McHenry	114,282	119,974	136,745	146,444	3.5%	4.0%
Will	240,009	248,909	273,336	287,380	7.3%	7.8%
Total	**3,266,741**	**3,413,657**	**3,574,383**	**3,671,535**	**100.0%**	**100.0%**
Chicago	*1,142,725*	*1,215,537*	*1,247,753*	*1,263,277*	*35.0%*	*34.4%*
Suburban Cook	*944,215*	*974,216*	*997,027*	*1,012,389*	*28.9%*	*27.6%*

Table 7: Current and projected employment by county and Chicago

County	2020*	2030	2040	2050	2020 share	2050 share
Cook	2,629,867	2,868,076	2,834,416	2,775,618	62.4%	61.9%
DuPage	617,672	669,581	661,564	645,050	14.7%	14.4%
Kane	213,487	233,898	232,637	226,958	5.1%	5.1%
Kendall	33,012	47,014	54,710	58,654	0.8%	1.3%
Lake	346,580	375,516	373,353	364,947	8.2%	8.1%
McHenry	104,710	117,004	118,331	117,110	2.5%	2.6%
Will	267,427	299,030	300,253	295,726	6.3%	6.6%
Total	**4,212,755**	**4,610,118**	**4,575,264**	**4,484,063**	**100%**	**100%**
Chicago	*1,382,532*	*1,531,063*	*1,520,471*	*1,496,792*	*32.8%*	*33.4%*
Suburban Cook	*1,247,335*	*1,337,013*	*1,313,945*	*1,278,826*	*29.6%*	*28.5%*

* CMAP estimate based on Moody's Analytics and US Census Longitudinal Employer Household Dynamics (LEHD) data

Figure 6: Percentage change in total population by municipality in northeastern Illinois, 2020 to 2050

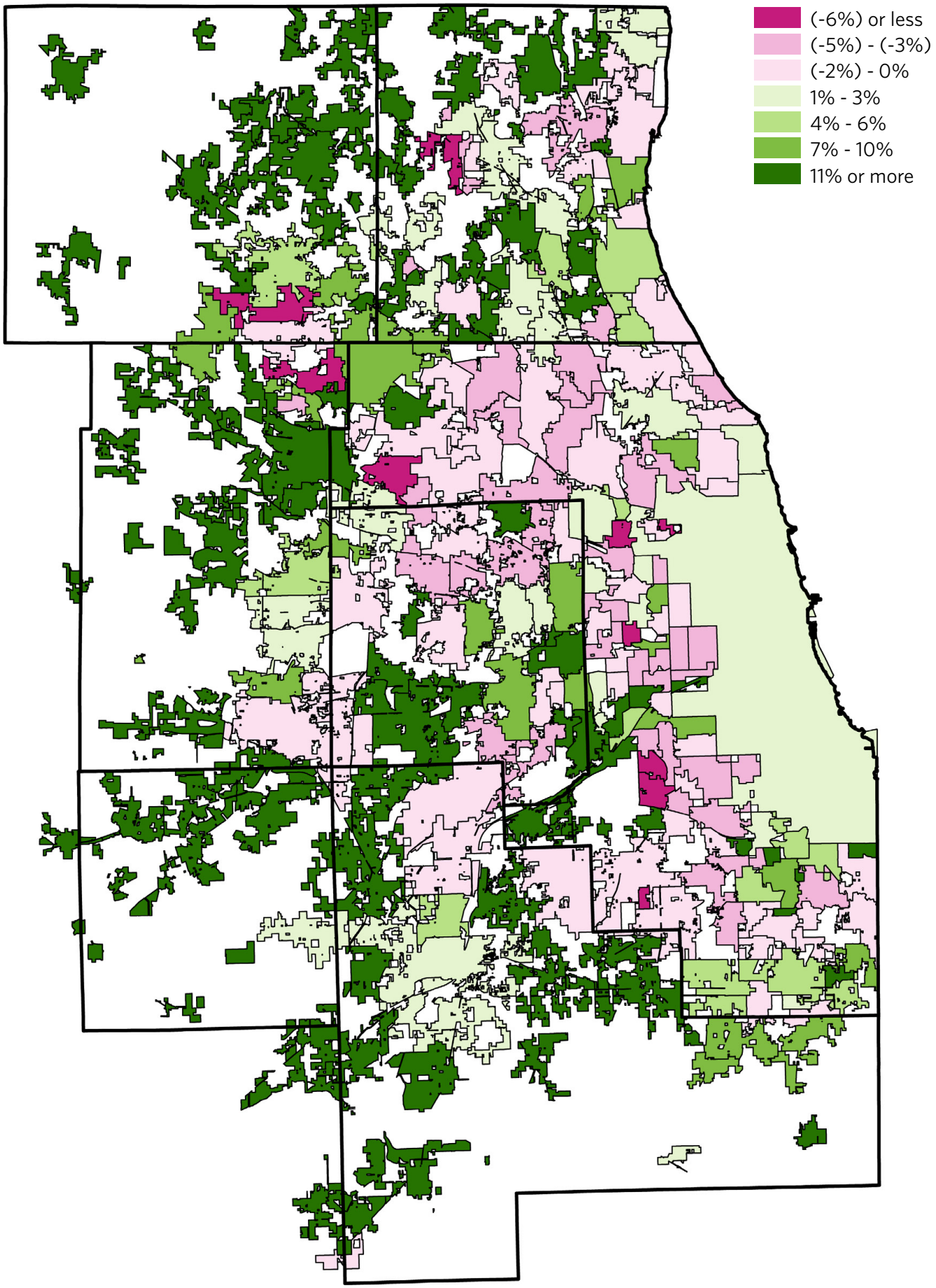


Figure 7: Percentage change in households by municipality in northeastern Illinois, 2020 to 2050

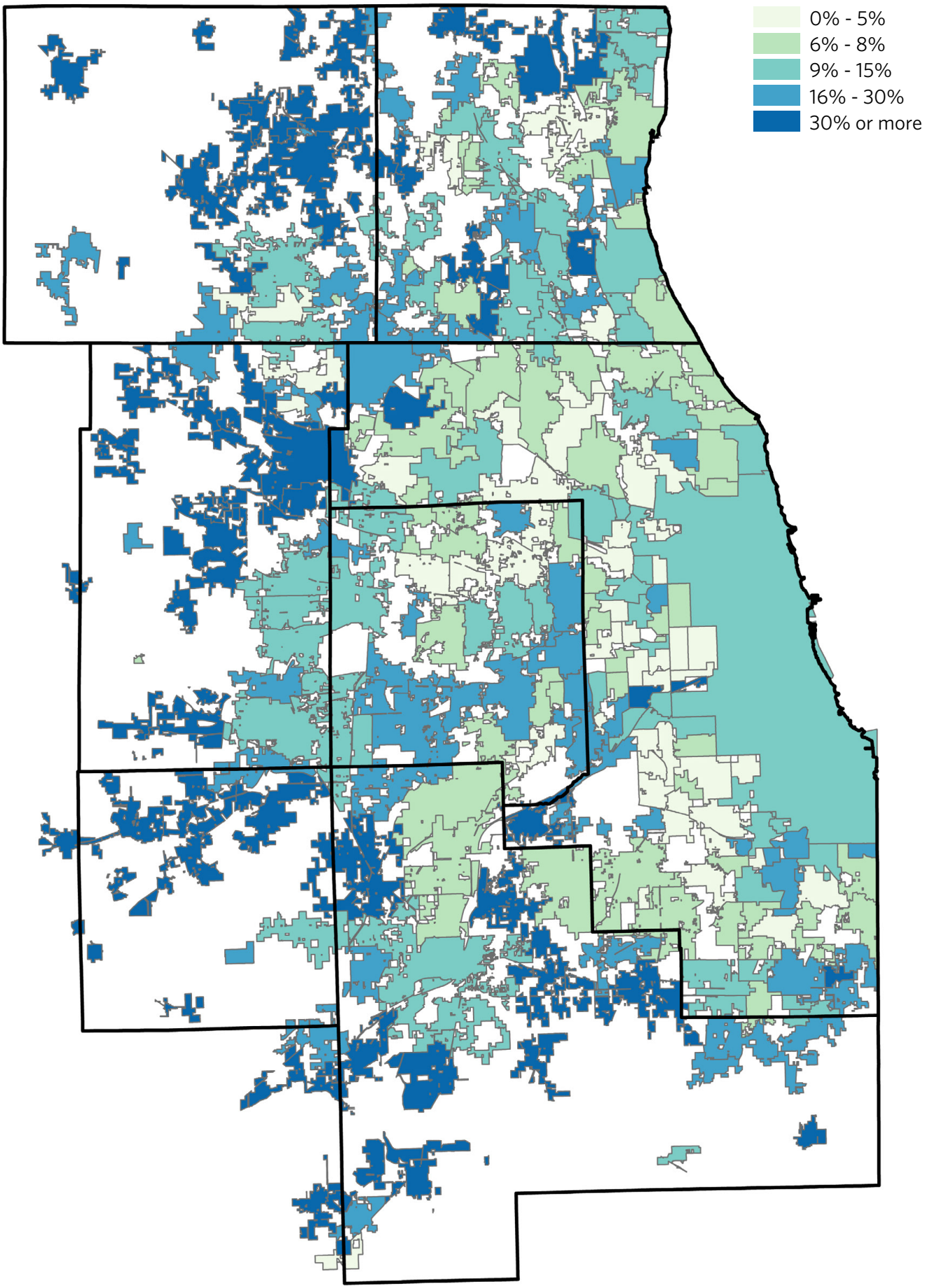
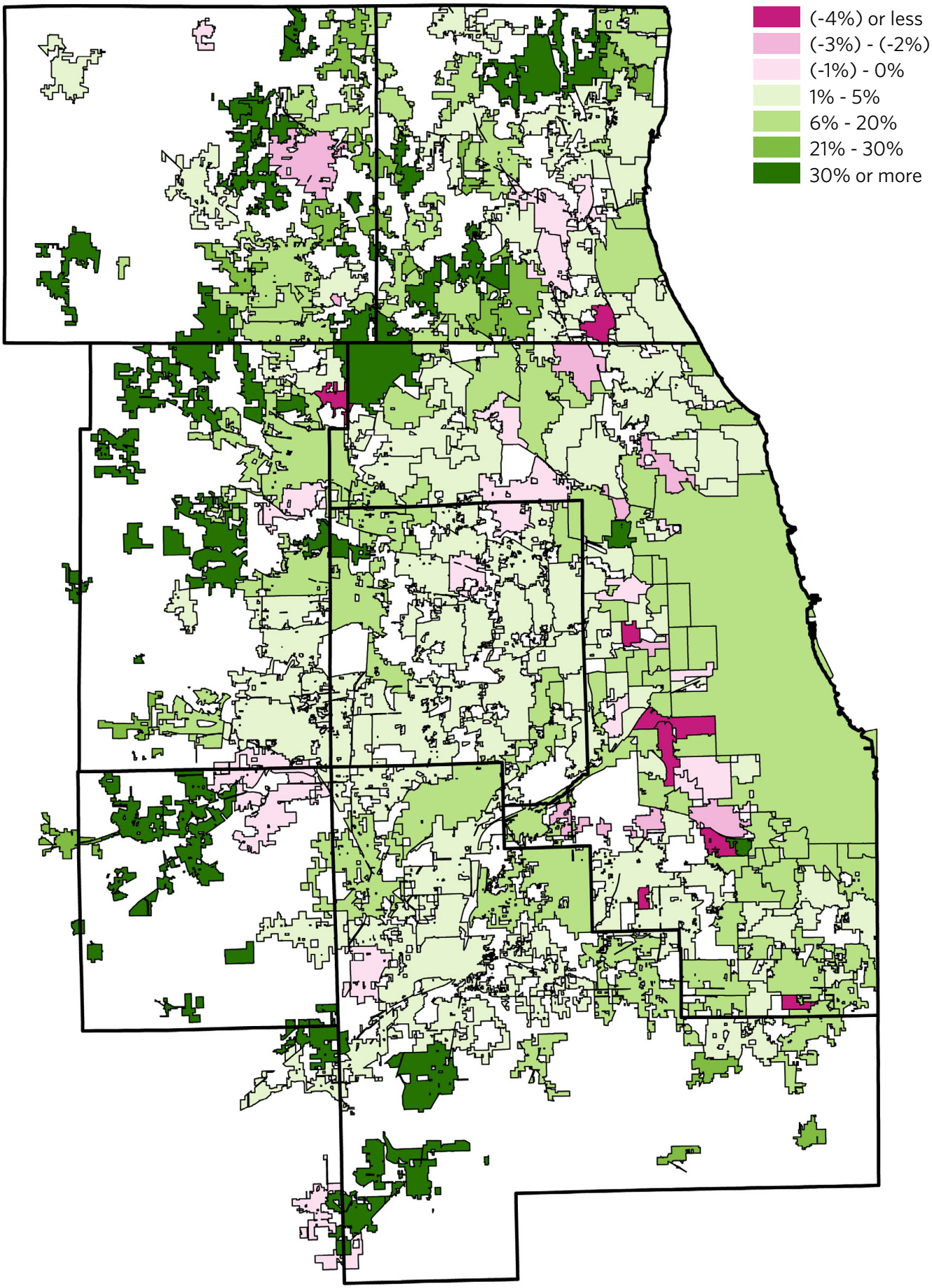


Figure 8: Percentage change in employment by municipality in northeastern Illinois, 2020 to 2050



Evaluating the local forecast

A model run represents a specific configuration of explanatory variables across the sub-models, along with defined input datasets such as development records from the NDD. Different local forecast model runs produce different results. CMAP evaluates model runs to determine which one best represents regional trends at the local level and produces reasonable changes between 2020 and 2050. The following four-step process was used to evaluate the local forecast:

- **Technical validity:** *Does this forecast have any obvious mistakes?*
  The data used in the forecast model is complete and accurate. The model follows zoning rules and geographic limitations when predicting where people will locate and how many units will be built. Job counts by sector sum to total employment.

- **Trend comparison:** *Does this forecast align with trends from the recent past?*
  One evaluation compares how well the forecasted growth from 2020 to 2050 aligns with the relative pattern of growth observed from 2010 to 2020 using Spearman correlation. Model population estimates for 2020 to 2024 are checked for alignment with Census population counts over the same period.

- **External forecasts:** *Does this forecast align with what others are predicting for the region?*
  External forecasts are used to benchmark alignment with the 2020 to 2050 local forecast. This comparison focuses on whether Moody's Analytics, a leading economic research firm, and CMAP project a similar number of jobs in 2050, and whether the Illinois Department of Public Health and CMAP project similar population totals in 2035, the horizon year of the IDPH forecast.

- **Subject matter expert review:** *Do CMAP's local experts think this forecast is reasonable?*
  CMAP policy and urban planning experts assess whether the forecast is reasonable based on their knowledge of the region.

The final forecast ranked higher than the other model runs across these steps.

Conclusion

The CMAP region is forecast to grow by over 300,000 people — roughly the population of the city of Orlando — between 2020 and 2050. While the region is still projected to grow, that growth is slower than previous forecasts due to recent population trends, lower employment projections, and declining birth rates. At the county level, Cook and DuPage counties are projected to grow more slowly than the rest of the region and make up a smaller share of the region's population in 2050. The remaining counties are projected either to maintain their share of regional population or to increase their share over time. Overall, the region is expected to continue gaining residents, but at lower levels than previously projected, with a larger share of that growth occurring in the outer counties.

Acknowledgments

CMAP staff organized two advisory groups to help with the forecast process. The technical advisory group includes demographic and forecasting experts to review forecast methodology, provide feedback on questions, and suggest improvements. The local advisory group helped CMAP staff incorporate local knowledge into the forecast and to help review model results. Members of each advisory group are listed below.

Socioeconomic forecast technical advisory group

- **Sheng Chen**, Section Chief, Travel Demand Modeling and Forecasting, Illinois Department of Transportation
- **David Egan-Robertson**, Demographer, Applied Population Lab, University of Wisconsin–Madison
- **Craig Heither**, Principal, Chicago Metropolitan Agency for Planning
- **Lewis Hopkins,** Emeritus Professor, University of Illinois Urbana-Champaign
- **Zach Kennedy**, Center Lead, Illinois State Census Data Center
- **Mohammed Shahidullah**, State Demographer, Illinois Department of Public Health
- **Nebiyou Tilahun**, Associate Professor and Director of Graduate Studies, University of Illinois Chicago

Socioeconomic forecast local advisory group

- **Scott Anderson**, Village Manager, Barrington
- **Ben Benson**, City Administrator, Lockport
- **Jim Bernahl**, Director of Engineering, Winnetka
- **Rithvika Dara**, Senior Transportation Planner, Lake County
- **Michael Fricano**, Planning Coordinator – Central Council of Mayors, West Central Municipal Conference
- **Heidi Files**, Chief of Planning and Programming, Kane County Division of Transportation
- **George Kandathlil**, Regional Planning Liaison, Kane Kendall Council of Mayors
- **David Kovarik**, Planning Liaison, McHenry County
- **Lesli Melendy**, Executive Director, Metro West Council of Government
- **Bart Olson**, City Administrator, Yorkville
- **Kurtis Pozsgay**, Community Development Director, Itasca
- **Jennifer Tennant**, Director of Development Services, Barrington
- **Chris Toth**, Planner, Kane County Development & Community Services Department
- **Sarah Waks**, Director of Planning & Technical Assistance, South Suburban Mayors and Managers Association
- **Nicole Woods**, Director of Community Development, Buffalo Grove

FY26-0027

2026 Regional Transportation Plan

The Chicago Metropolitan Agency for Planning (CMAP) is the region's comprehensive planning organization. The agency and its partners developed and are now implementing ON TO 2050, a long-range plan to help the seven counties and 284 communities of northeastern Illinois implement strategies that address transportation, housing, economic development, open space, the environment, and other quality-of-life issues.

See **cmap.illinois.gov** for more information.

Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

cmap.illinois.gov
312-454-0400