CMAP

GO TO 2040
UPDATE APPENDIX

Socioeconomic Forecast Update Overview

DRAFT

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Introduction

In October 2010, CMAP released its 2040 forecast of population, households, and employment in conjunction with the publication of GO TO 2040. Base-year (2010) figures that served as the forecast foundation were derived from mid-decade estimates due to the unavailability of 2010 U.S. Census or state employment data. As 2010 data became available, it was apparent that these initial estimates for population and employment were high in many locations. As such, any adjustment of 2010 activity could impact the 2040 forecast, both in terms of regional total and sub-regional distribution. This document describes the process involved in developing the 2040 forecast update, which was undertaken in compliance with federal regulations and primarily addresses this overestimation issue in the original GO TO 2040 forecasts.

It should be noted that this adjusted forecast does not revisit original forecast methodology or assumptions; rather, it starts with the GO TO 2040 forecast as a starting point, and then:

- Corrects for the base-year error by applying the forecasted increase to the new (actual) 2010 base.
- Takes advantage of new datasets to estimate growth capacity and re-allocate forecast activity in a manner consistent with the planning principles outlined in GO TO 2040.

Table 1. Revised 2040 forecast totals for the region, counties, and the City of Chicago

	Population in Households				Households				Employment			
	2010	2040	CHANGE	GROWTH	2010	2040	CHANGE	GROWTH	2010	2040	CHANGE	GROWTH
Cook	5,104,393	6,166,836	1,062,443	21%	1,966,356	2,304,045	337,689	17%	2,379,923	2,814,972	435,049	18%
DuPage	904,784	1,136,624	231,840	26%	337,132	412,100	74,968	22%	608,709	768,282	159,573	26%
Kane	508,482	780,495	272,013	53%	170,479	265,774	95,295	56%	186,768	340,509	153,741	82%
Kendall	114,528	209,801	95,273	83%	38,022	74,382	36,360	96%	22,066	71,830	49,764	226%
Lake	682,753	923,690	240,937	35%	241,712	318,170	76,458	32%	314,717	401,748	87,031	28%
McHenry	307,113	513,275	206,162	67%	109,199	179,215	70,016	64%	88,947	153,389	64,442	72%
Will	669,013	1,155,009	485,996	73%	225,256	393,148	167,892	75%	201,854	437,110	235,256	117%
REGION	*8,291,066*	*10,885,731*	*2,594,665*	*31%*	*3,088,156*	*3,946,835*	*858,679*	*28%*	*3,802,984*	*4,987,839*	*1,184,855*	*31%*
Chicago *	2,654,078	3,211,312	557,234	21%	1,052,891	1,220,388	167,497	16%	1,221,758	1,458,527	236,769	19%

**Includes O'Hare portion in DuPage County.*

Sources: U.S. Bureau of the Census (2010 Population & Households); Illinois Department of Employment Security (2010 Employment); CMAP (2040 Projections)

About Forecast Geography

This document makes frequent reference to the "subzone," which is the foundation geography for this forecast and for all CMAP travel modeling activities. For most of the CMAP region, the subzone is based on the Public Land Survey System quarter-section (a regular grid of ½-mile squares or 160 acres). In downtown Chicago (the Central Business District) subzone size is the quarter-quarter section (40 acres).

Original (2010) Forecast

The 2040 forecast of population, households, and employment released in 2010 for the GO TO 2040 plan is the foundation of this update. The process used to develop the forecast is described in detail in the document *Socioeconomic Inventory Validation and Forecasting Method*, available on the CMAP website's Population Forecast web page. A brief summary of the process is provided as follows.

Base-Year (2010) Conditions

Population and household data were based on the latest-available (2007) population estimates at the township level published by the U.S. Census Bureau. Totals were annualized forward to 2010, and disaggregated to the subzone level, allocating growth based on a set of regional accessibility indicators. Since the Census estimate for the City of Chicago was for the city as a whole, its total was apportioned to Community Areas based on government and private-sector reports of real estate activity.

Employment estimates were based on Employment and Wages (ES-202) data provided by the Illinois Department of Employment Security (IDES), which contains employer address, number of employees, and North American Industrial Classification System classification. Employer locations were then summarized to the subzone level. Employment growth to 2010 was annualized based on external regional economic forecasts.

2040 Forecast

A reference scenario of 2040 population and employment was generated based on an extrapolation of the previously (2030 Regional Transportation Plan) adopted forecast. An "access product" was calculated based on each subzone's land value and accessibility to regional markets. This access product was then manipulated through mathematical representation of policies articulated in GO TO 2040 (i.e. brownfield redevelopment, open space protection) to alter the land value and/or accessibility of a subzone, thus changing its desirability and potential for future development. Forecasted urban activity was then re-allocated to match the revised set of assumptions.

Forecast Update

The remainder of this document describes the steps undertaken to generate the revised forecast.

Preliminary Retail Adjustment

After the release of the GO TO 2040 forecast, corrections were made to the retail portion of overall employment. Retail employment is both measured and forecasted as a subset of total employment because it serves two purposes in travel demand modeling: as the "work" end of home-to-work trips for retail workers and as an input for generating estimates of non-work-based trips by measuring the level of retail activity in a subzone.

Generally speaking, the spatial relationship between residential areas and retail centers is greater than that between residential areas and non-retail employment centers, such as office campuses and industrial parks. A new model was developed that determined current retail potential for a subzone based on the 2010 distribution and density of households and retail employment throughout the region. This retail potential model was then applied to the forecast 2040 distribution of households to predict areas of increased retail demand.

Since the purpose of this exercise was to re-allocate forecasted retail employment to better conform with predicted residential distribution, the regional total for 2040 employment remained unchanged.

Establishing a New Regional Forecast Total

The first step in the revision process was to correct the regional forecast for 2040 in terms of the new base-year total. The table below depicts the magnitude of the base-year change:

Table 2. Comparison of estimated 2010 base to actual population (U.S. Census) and employment (IDES)

	Population in Households			Employment		
County	GO TO 2040 Estimate	Census 2010	% Over	GO TO 2040 Estimate	IDES 2010	% Over
Cook	5,267,993	5,104,393	3.2%	2,551,082	2,379,923	7.2%
DuPage	935,102	904,784	3.4%	628,469	608,709	3.2%
Kane	532,852	508,482	4.8%	224,546	186,768	20.2%
Kendall	114,616	114,528	0.1%	26,765	22,066	21.3%
Lake	728,908	682,753	6.8%	384,259	314,717	22.1%
McHenry	332,766	307,113	8.4%	123,513	88,947	38.9%
Will	726,238	669,013	8.6%	229,489	201,854	13.7%
TOTAL	8,638,474	8,291,066	4.2%	4,168,122	3,802,984	9.6%

Sources: U.S. Bureau of the Census (2010 Population); Illinois Department of Employment Security (2010 Employment); CMAP (Population and Employment Estimates)

The new forecast total was established by applying the original forecast increase to the corrected 2010 base, or:

2040_Updated = 2040_Original - (2010_Estimate - 2010_Actual)

This approach was applied at the subzone level, generating an initial corrected forecast that adjusted for the new 2010 data. Subsequent corrections were applied to any areas where the 2010 total exceeded the forecast. These revised subzone totals were then summarized to the region level to establish the new regional forecast total.

Capacity Estimation

The next step was to account for local conditions and make an estimate of total activity (household and employment) capacity in a manner consistent with the planning strategies put forth in GO TO 2040, particularly the encouragement of infill development and the preservation of open space. This was accomplished by utilizing additional datasets, such as:

- *2010 Land Use Inventory (draft)*, for a more accurate depiction of existing conditions and land availability
- *Green Infrastructure Vision (GIV 2.0)*, to aid in articulating open space preservation goals
- *Northeastern Illinois Development Database (NDD)*, for an accurate accounting of near-term growth where development was underway or imminent

Capacity (expressed as potential households and jobs that a subzone could support) was estimated as a factor of several considerations:

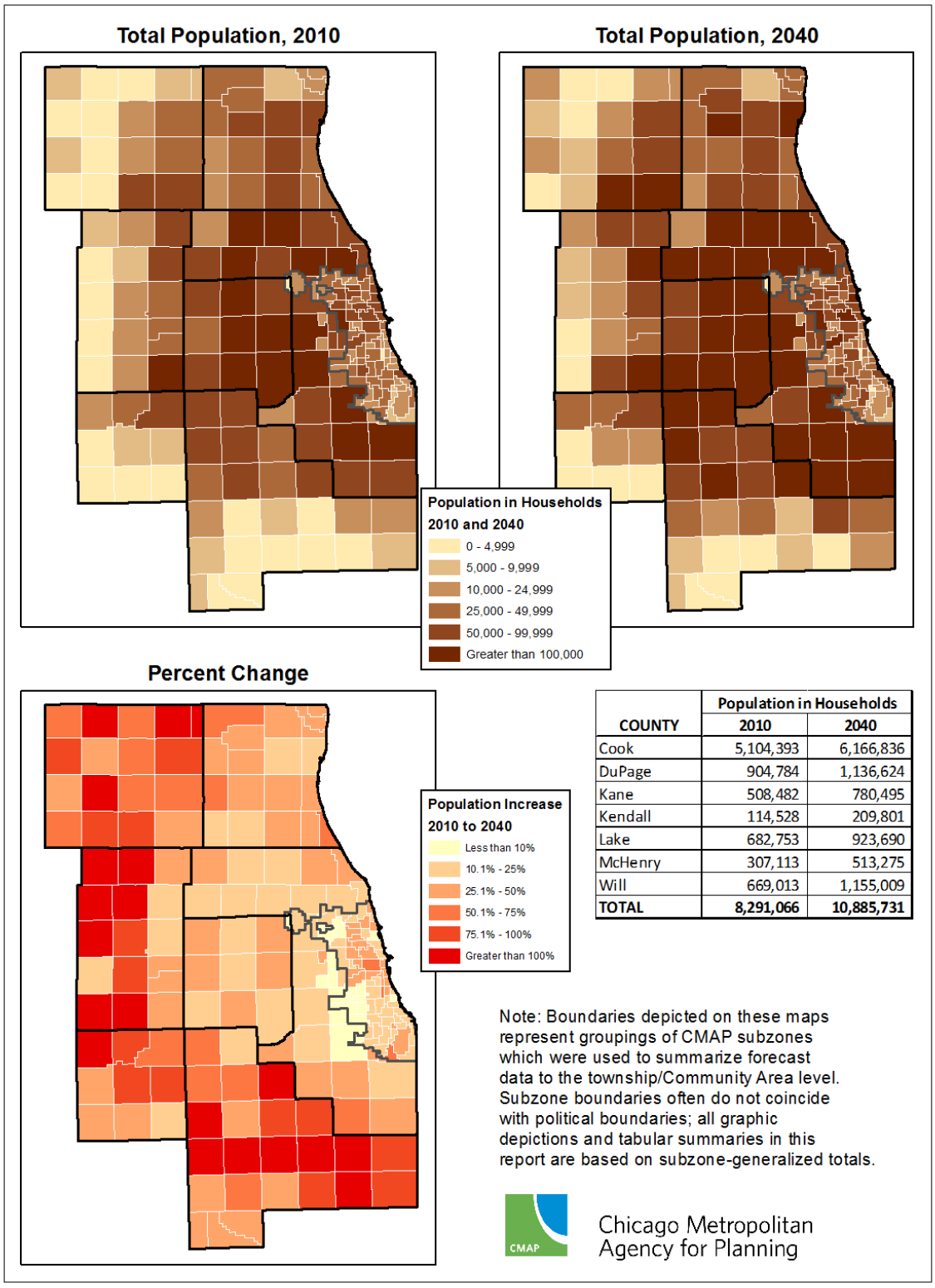
- Existing (2010) population and employment
- Proximity to transit
- Mixed-use redevelopment potential
- Increased residential density assumptions (via redevelopment)
- Correction for recession-affected employment
- NDD developments identified as committed or under construction
- Capacity for "available" (vacant or agricultural) land
- Green infrastructure

Reallocation of Forecast Activity

Subzone capacity was compared to the base-corrected household and employment forecast totals. Subzones with forecast activity exceeding estimated capacity were lowered to at-capacity levels, with the excess shifted to nearby subzones with available capacity, so as to not contradict the goals of GO TO 2040 or to imply a change in planning assumptions.
The results of the reallocation process were then reviewed by CMAP's Local Technical Assistance (LTA) staff. LTA project managers compared reallocation results at the subzone

level to project assumptions, and made corrections in areas where there was a noticeable discrepancy between the modeled output and LTA project recommendations.

Figure 1. Updated forecast: population living in households by township and Chicago Community Area



COUNTY	Population in Households 2010	2040
Cook	5,104,393	6,166,836
DuPage	904,784	1,136,624
Kane	508,482	780,495
Kendall	114,528	209,801
Lake	682,753	923,690
McHenry	307,113	513,275
Will	669,013	1,155,009
TOTAL	**8,291,066**	**10,885,731**

Note: Boundaries depicted on these maps represent groupings of CMAP subzones which were used to summarize forecast data to the township/Community Area level. Subzone boundaries often do not coincide with political boundaries; all graphic depictions and tabular summaries in this report are based on subzone-generalized totals.

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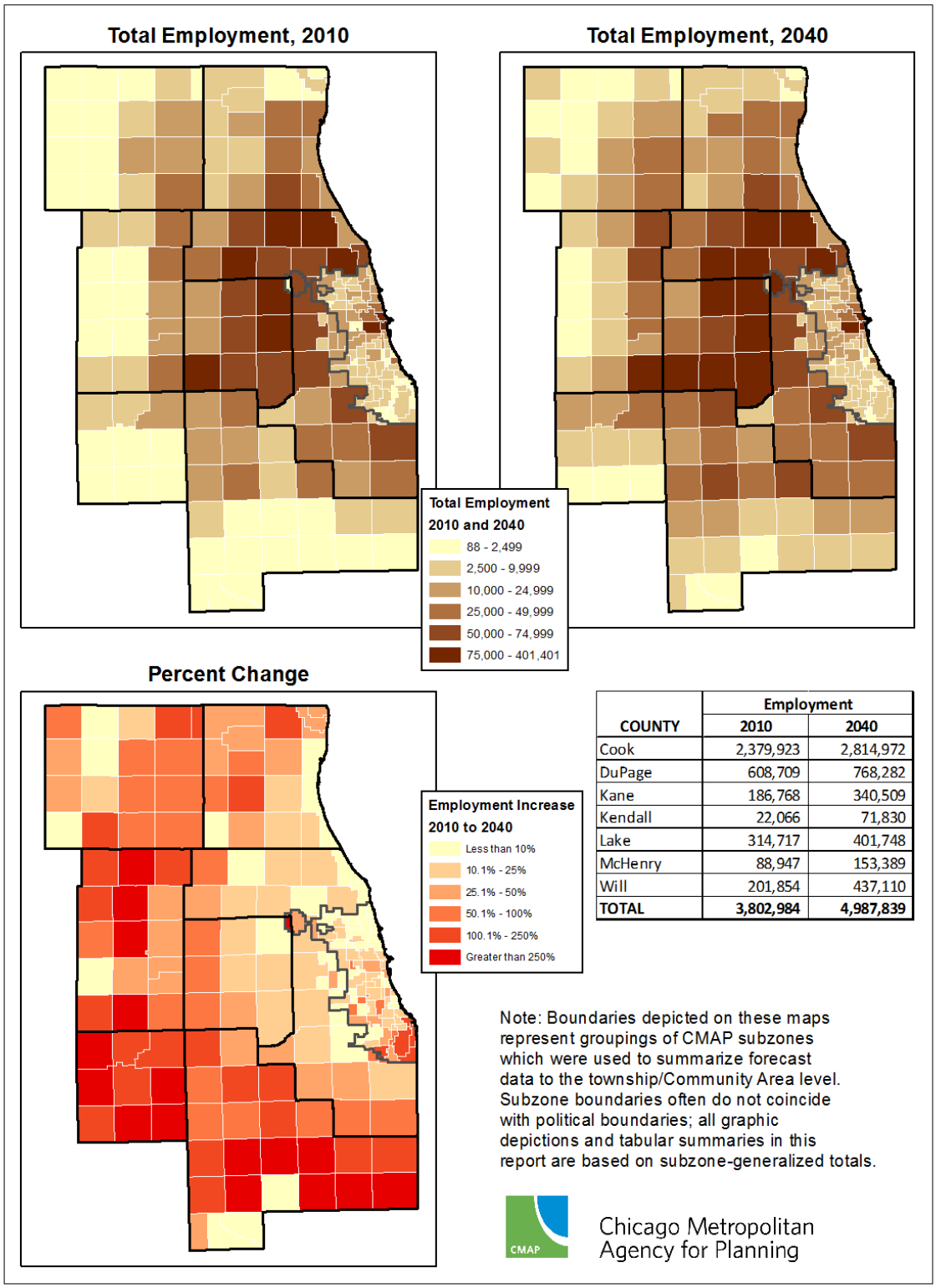
Figure 2. Updated forecast: total employment by township and Chicago Community Area



COUNTY	Employment 2010	Employment 2040
Cook	2,379,923	2,814,972
DuPage	608,709	768,282
Kane	186,768	340,509
Kendall	22,066	71,830
Lake	314,717	401,748
McHenry	88,947	153,389
Will	201,854	437,110
TOTAL	**3,802,984**	**4,987,839**

Note: Boundaries depicted on these maps represent groupings of CMAP subzones which were used to summarize forecast data to the township/Community Area level. Subzone boundaries often do not coincide with political boundaries; all graphic depictions and tabular summaries in this report are based on subzone-generalized totals.

CMAP Chicago Metropolitan Agency for Planning

Chicago Metropolitan
Agency for Planning

233 South Wacker Drive, Suite 800
Chicago, IL 60606

312-454-0400
info@cmap.illinois.gov

www.cmap.illinois.gov

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