



Water Demand Forecasting: New data available for communities

June 4, 2019



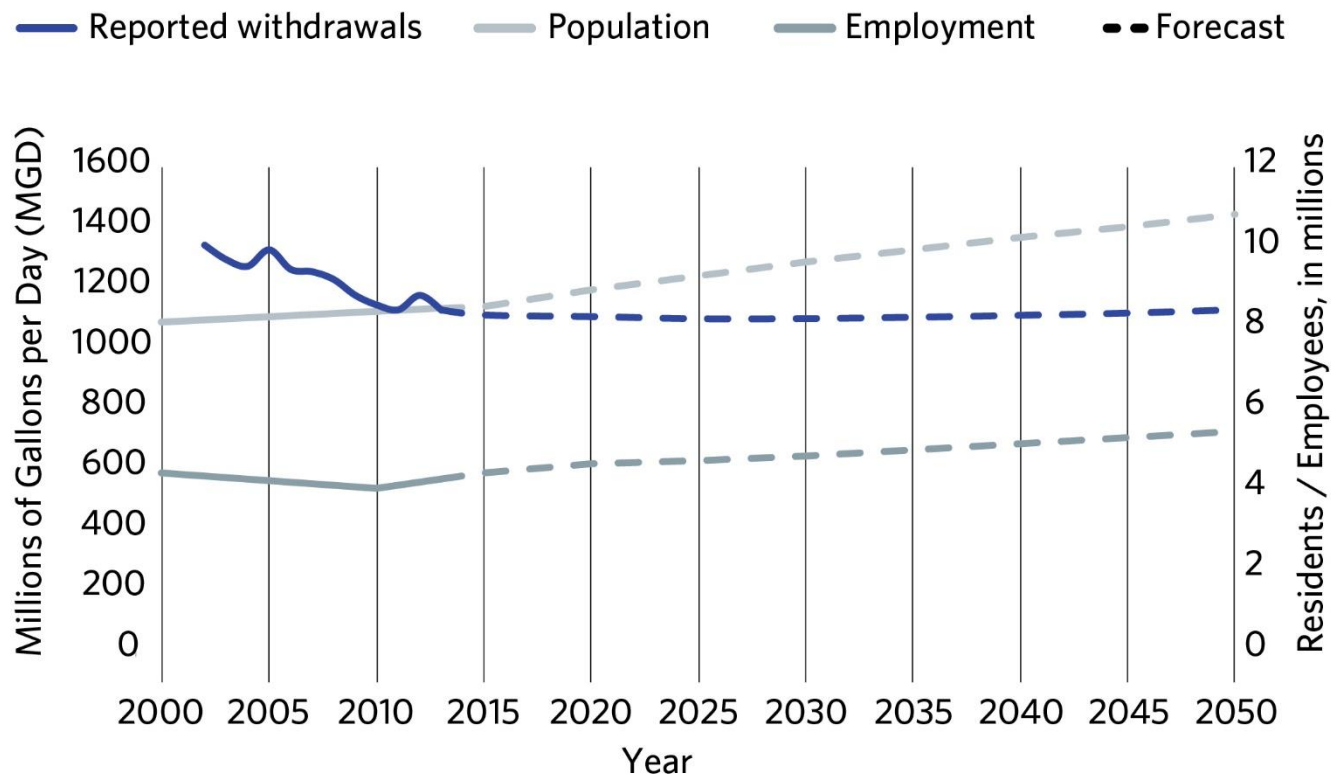
Water demand by 2050 for the Chicago region

Regional demand for water by 2050

Regional Water Demand and Socioeconomic Forecast

Note: Private residential wells are not included.

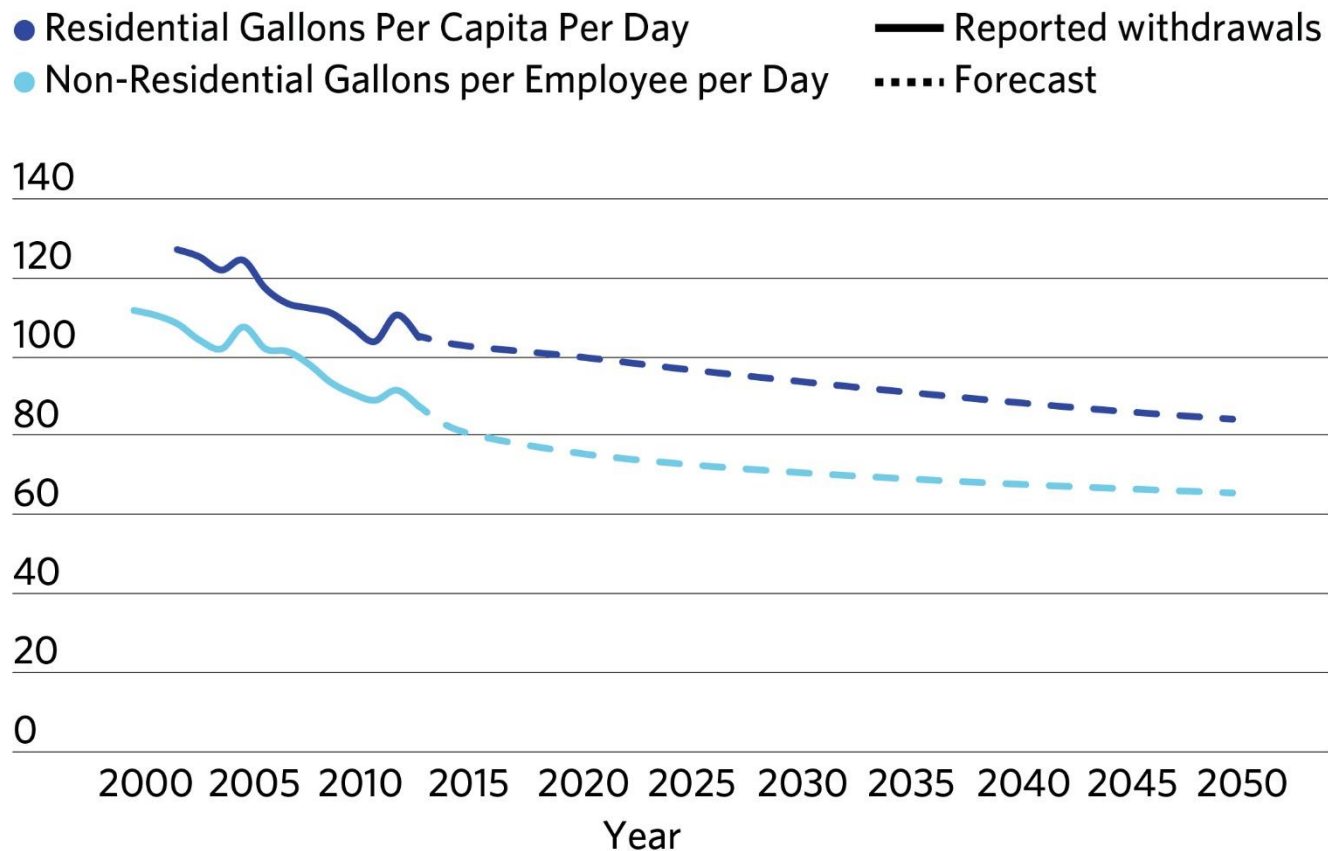
Source: CMAP ON TO 2050
Regional Water Demand Forecast
CMAP ON TO 2050
Socioeconomic Forecast.



Conservation and efficiency continues

Daily per capita / employee water use by sector

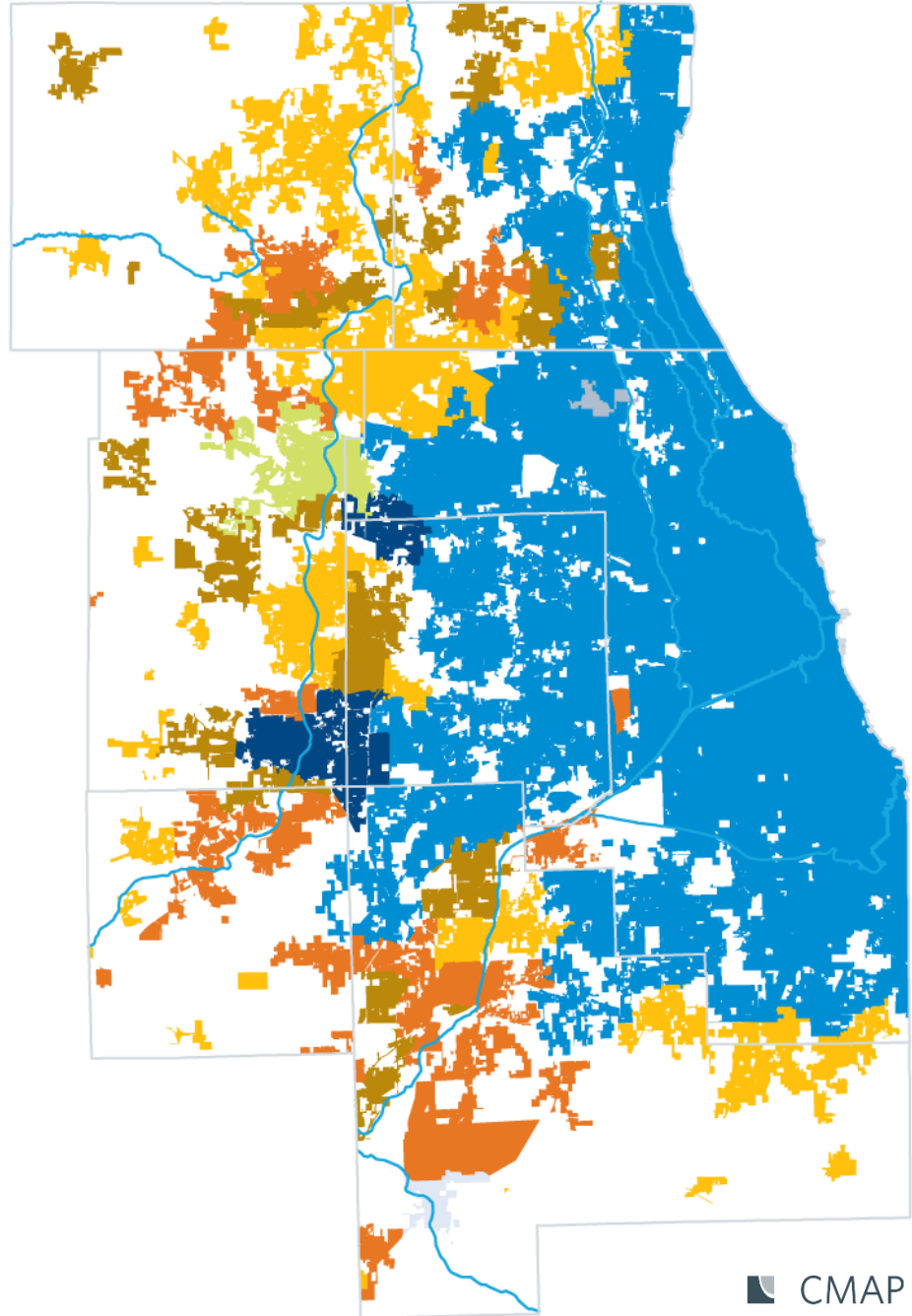
Source: CMAP ON TO 2050 Regional Water Demand Forecast.



Water source by locale

- Groundwater, shallow bedrock/glacial
- Groundwater, sandstone
- Mixed groundwater sources, shallow/sandstone
- Mixed sources, Fox River/groundwater
- Mixed sources, Lake Michigan/groundwater
- Surface water, Lake Michigan
- Surface water, Fox river
- Surface water, Kankakee River

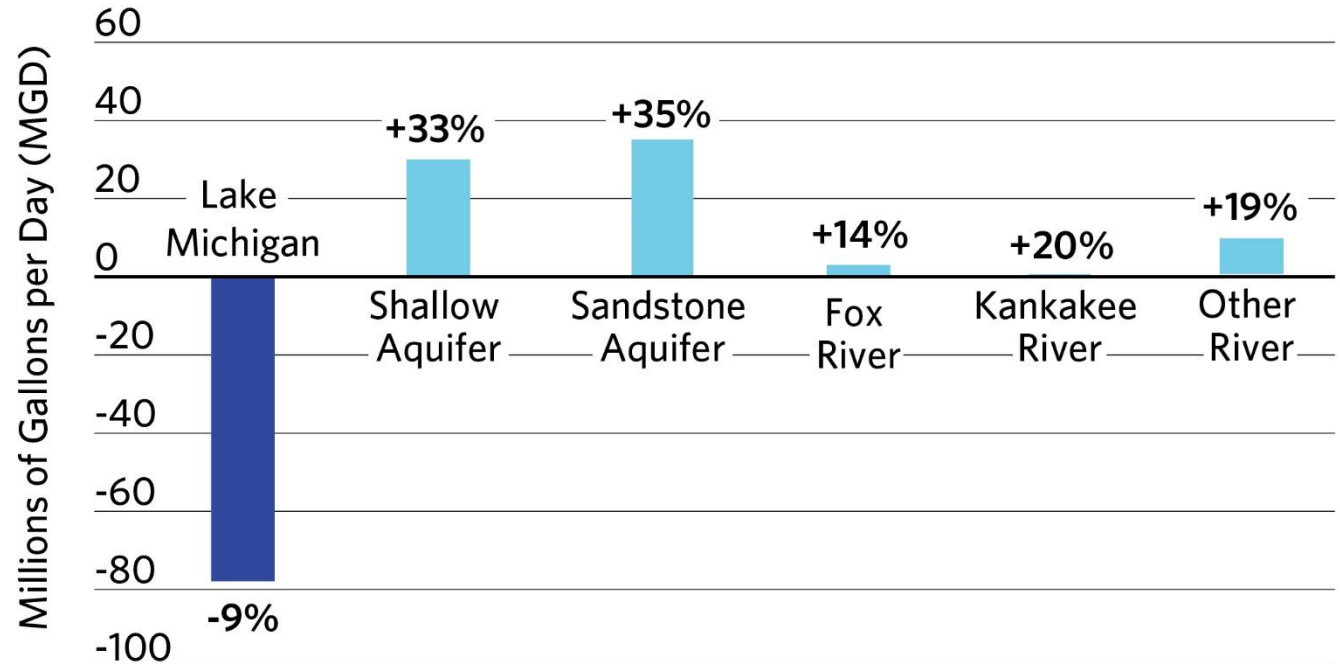
Source: Illinois State Water Survey, 2014



Forecasted demand exceeds groundwater supplies

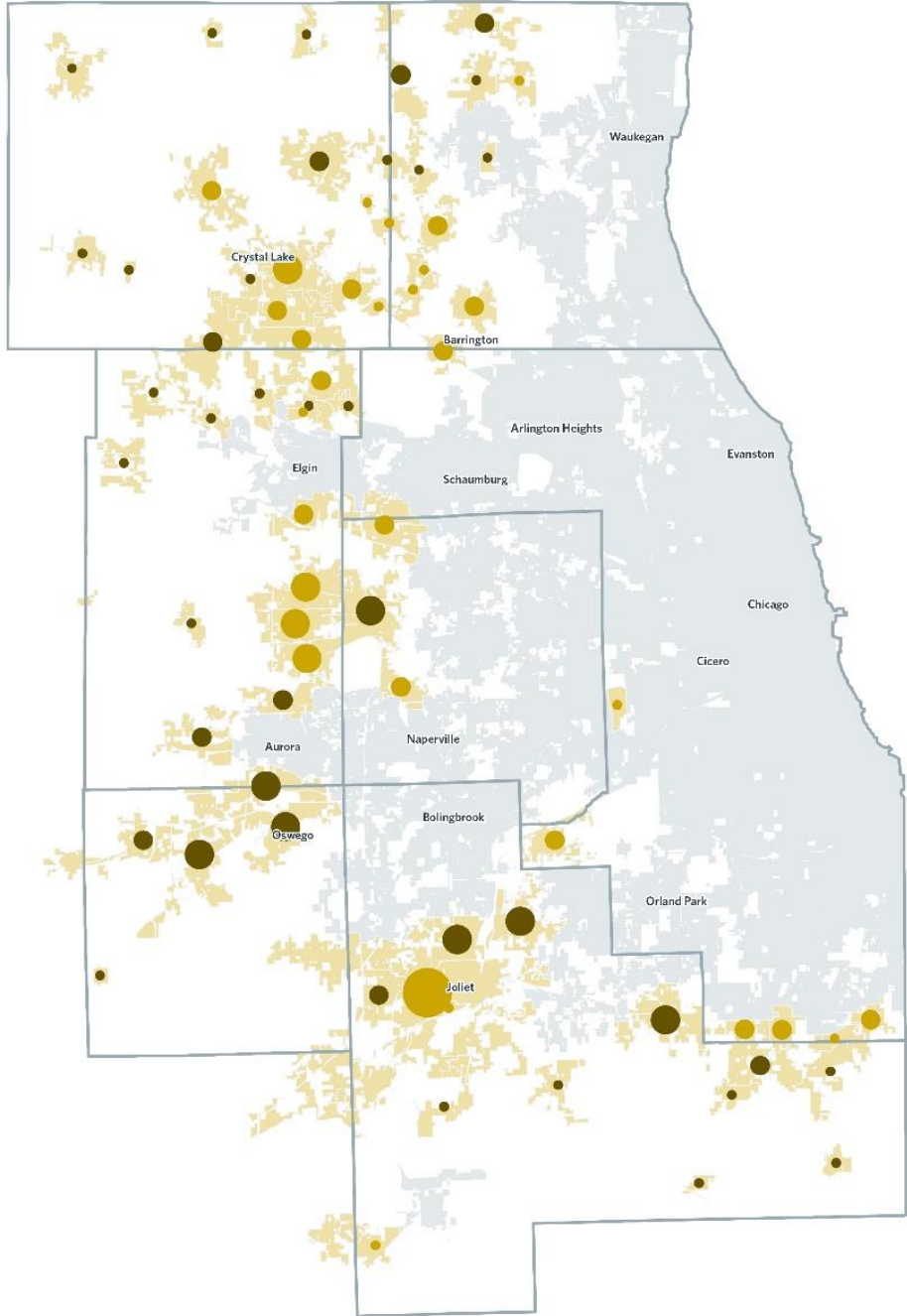
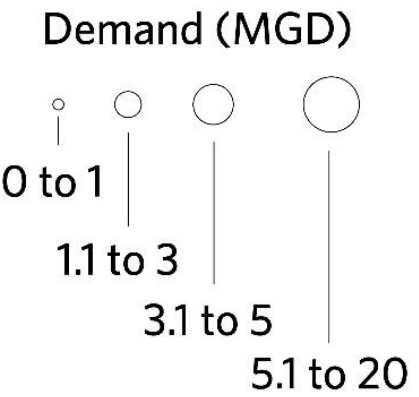
Projected changes in water demand by water source, 2011-50

Source: CMAP ON TO 2050
Regional Water Demand
Forecast.



Forecasted 2050 water demand for groundwater dependent municipalities

- Demand decreased between 2011-50
- Demand increased between 2011-50
- Surface water
- Groundwater

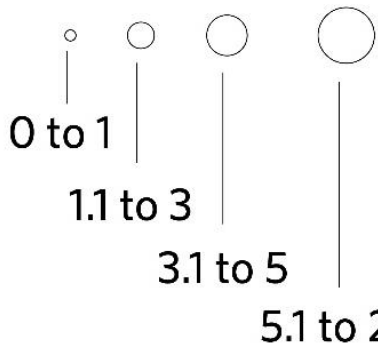


Source: CMAP ON TO 2050 Regional Water Demand Forecast.

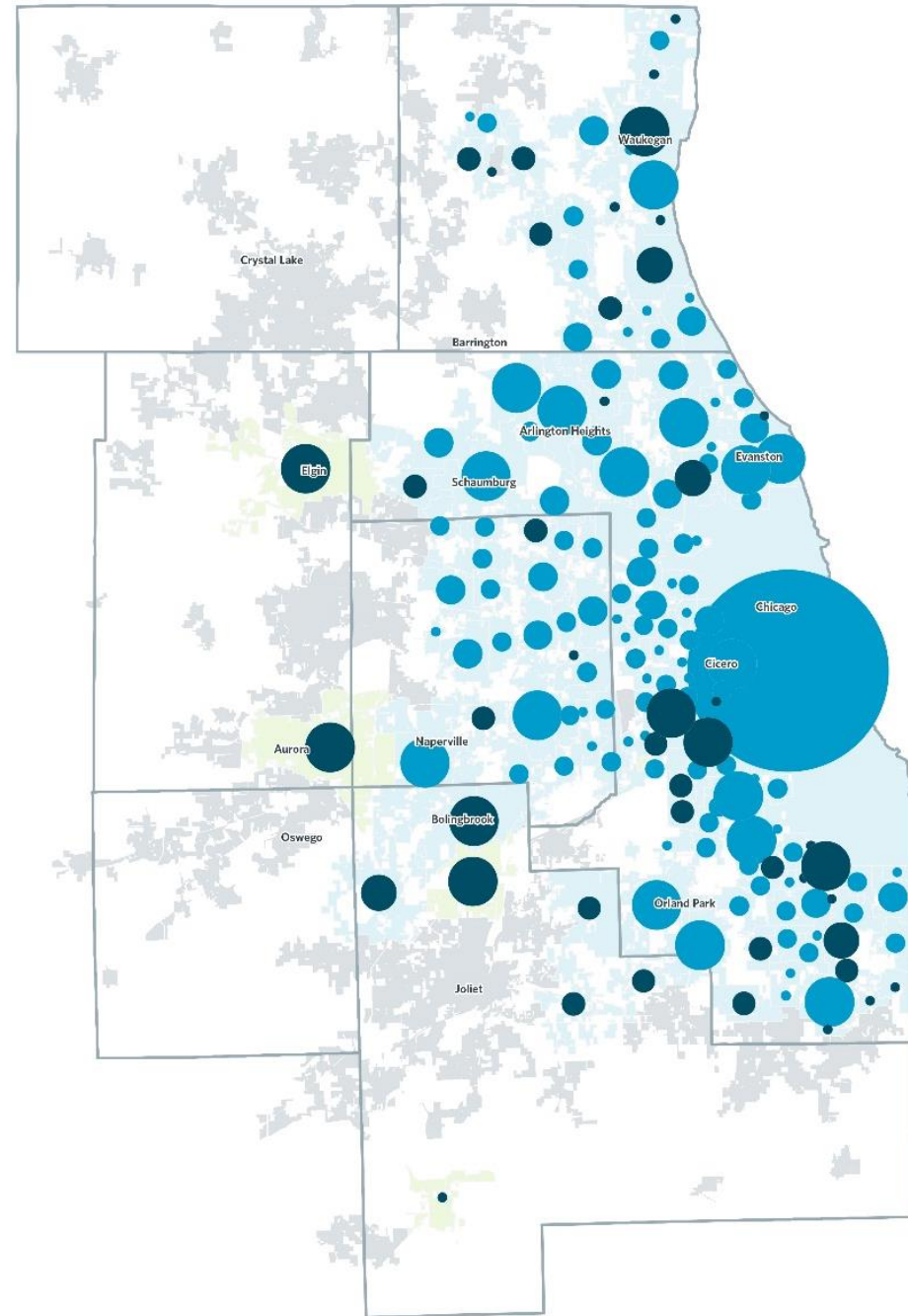
Projected change in demand for Lake Michigan and river dependent municipalities, 2011-50 (MGD)

- Demand decreased between 2011-50
- Demand increased between 2011-50
- Groundwater
- River
- Lake

Demand (MGD)



Largest symbol size (Chicago) represents 432 MGD



Factors of water demand

Population

Housing density

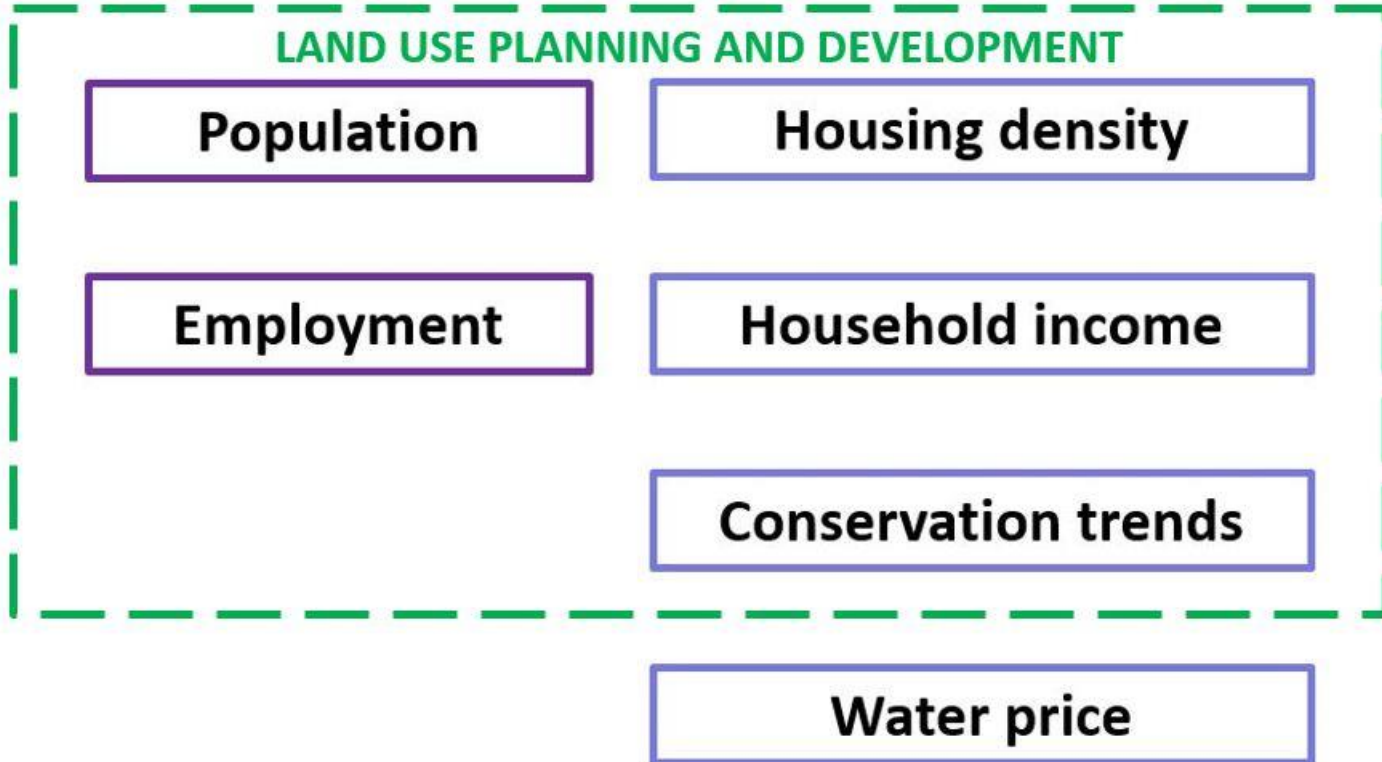
Employment

Household income

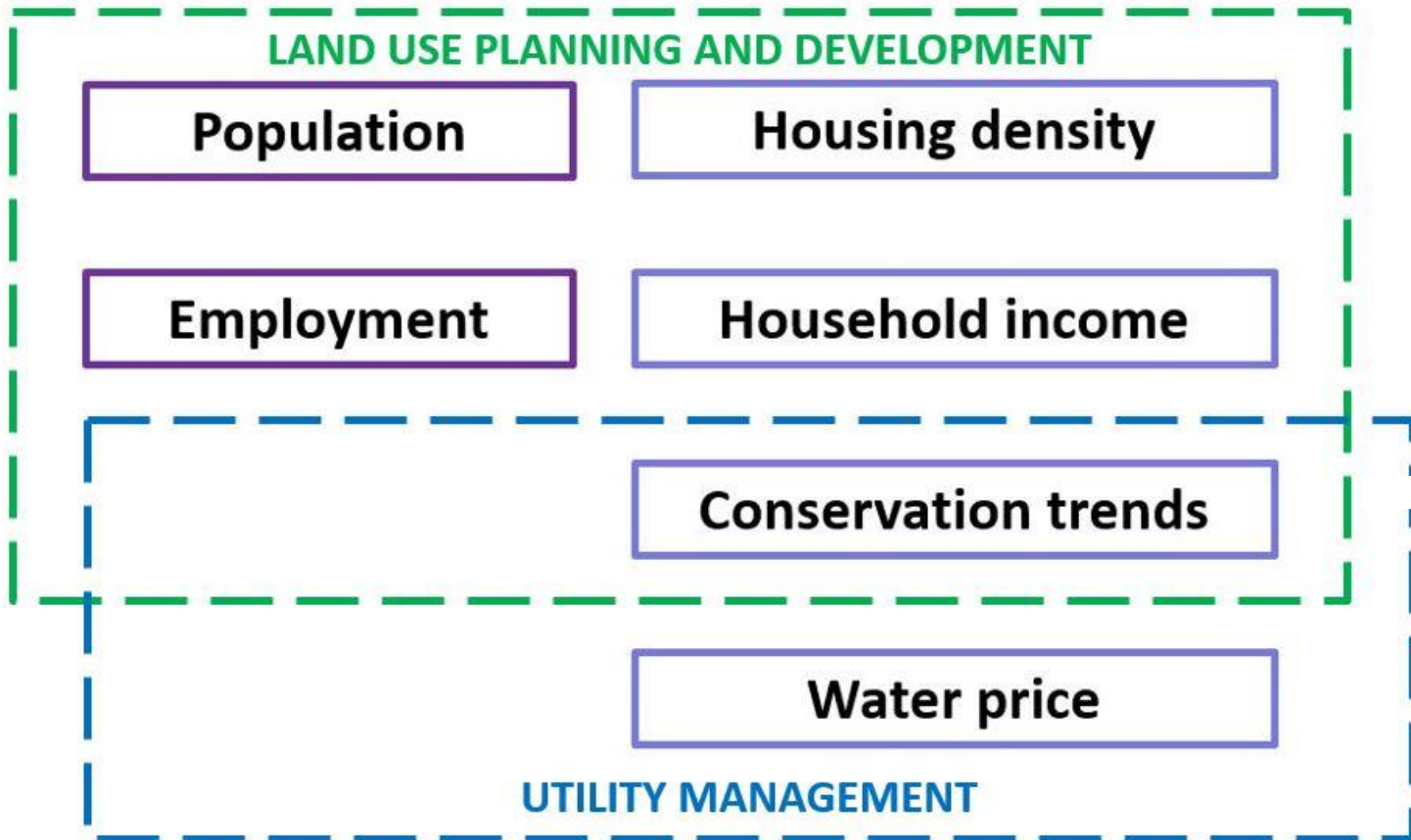
Conservation trends

Water price

Integrate water and land use decisions

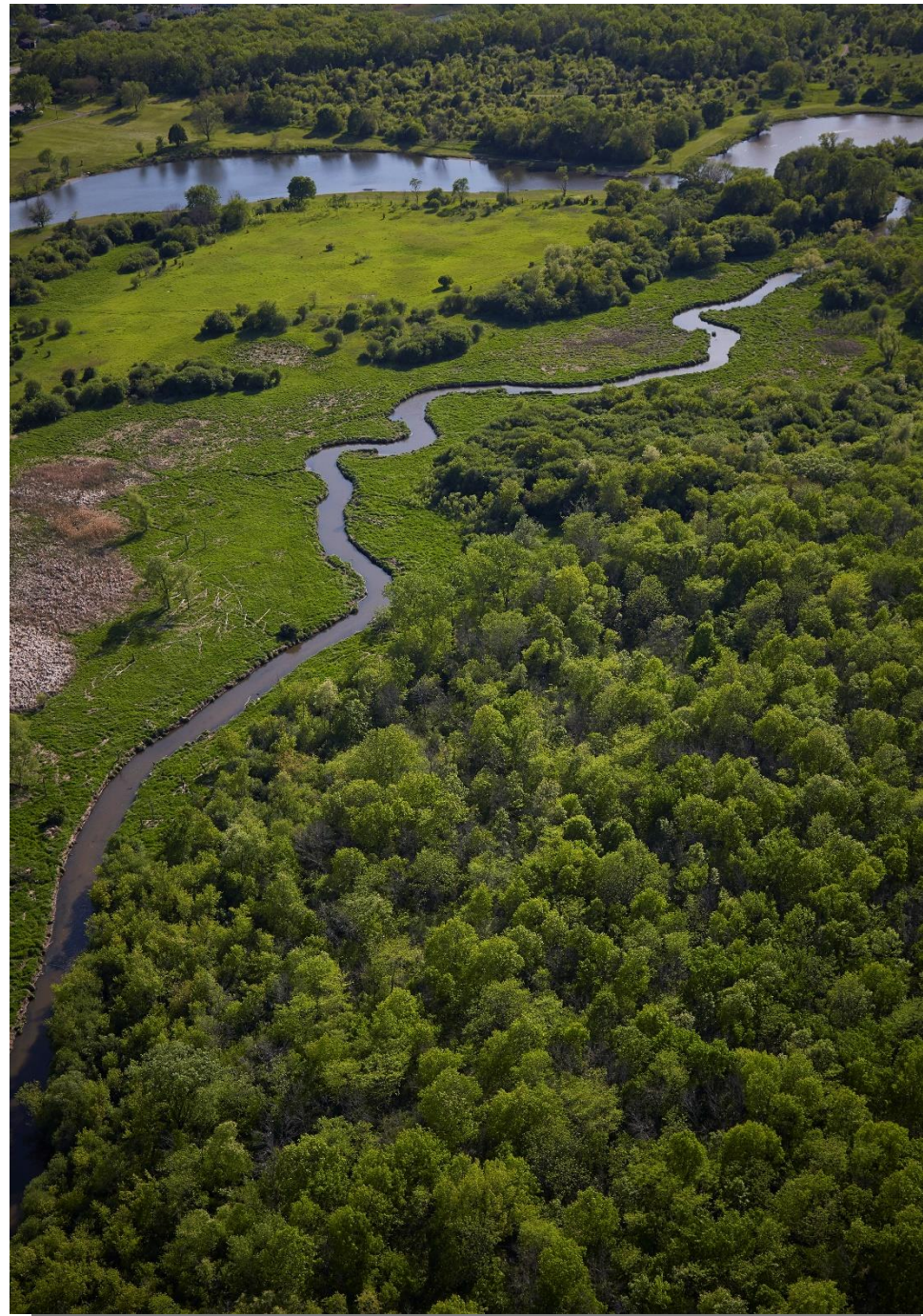


Integrate water and land use decisions



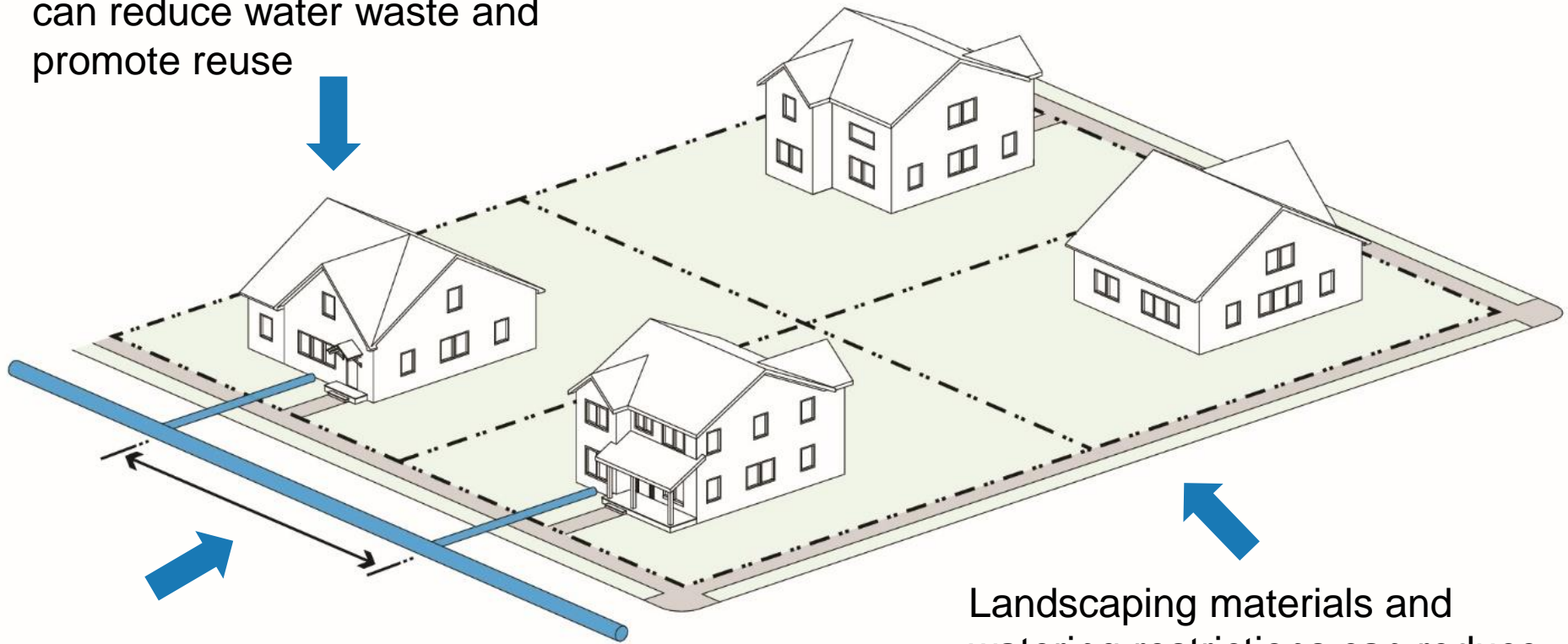
**Incorporate water
supply and demand
considerations into
local planning**

Protect the quantity and quality of drinking water sources



Reduce water use and infrastructure costs

Water efficient plumbing fixtures can reduce water waste and promote reuse



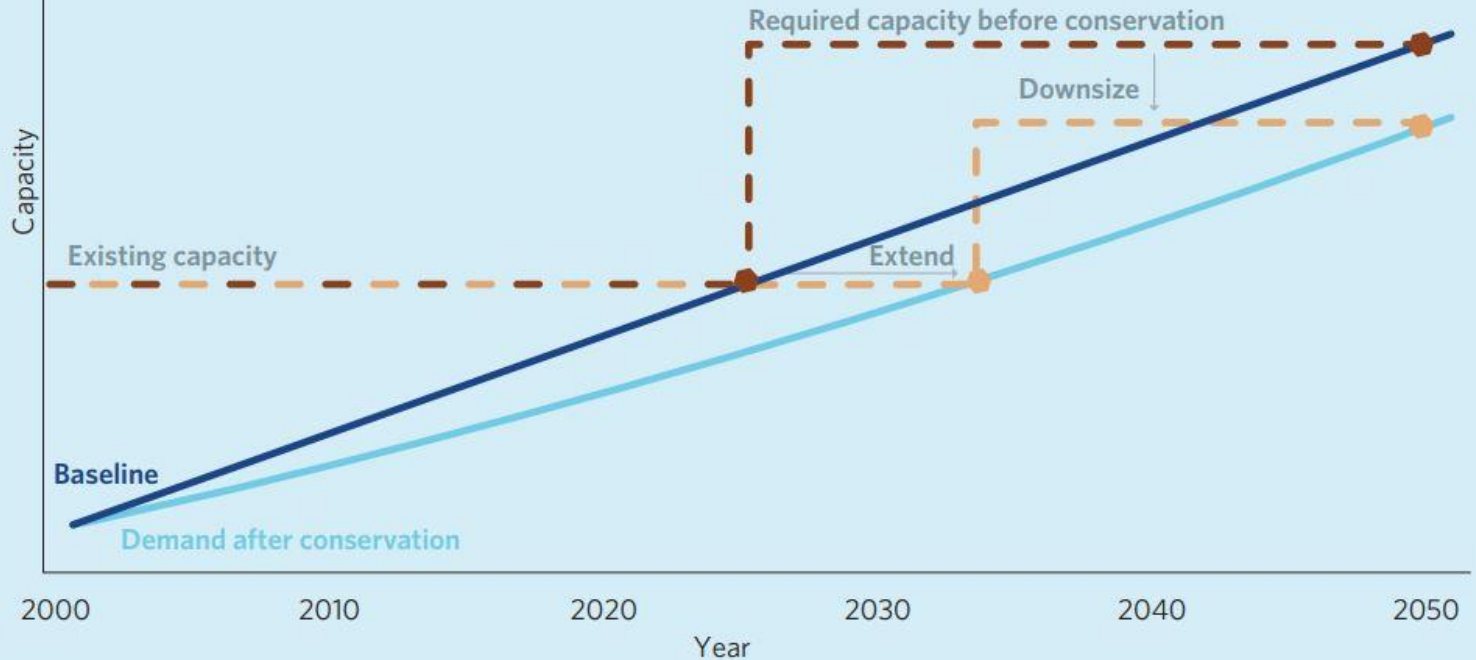
Compact development can minimize the amount of infrastructure needed per household

Landscaping materials and watering restrictions can reduce water use

Conservation can delay and minimize expensive infrastructure investments

Example of extending or downsizing a capital facility, peak demand/capacity in million gallons per day

Source: American Water Works Association, 2006. Water Conservation Programs - A Planning Manual. AWWA Manual M52, First Edition, page 75.



Municipal data

How municipal characteristics shape the regional water demand forecast

Source: Chicago Metropolitan Agency for Planning.

1



**Collect
annual data
community
characteristics**

2



**Analyze past
demand trends**

3



**Anticipate
future
conditions**

4



**Calculate future
water demand
per municipality**

5



**Add up
demand
estimates
for each
community**

Available data by municipality

Reported and Forecasted:

Total annual withdrawals

Withdrawals by source

Residential withdrawals

Residential GPCD

Residential population

Non-residential withdrawals

Non-residential GPED

Non-residential employment

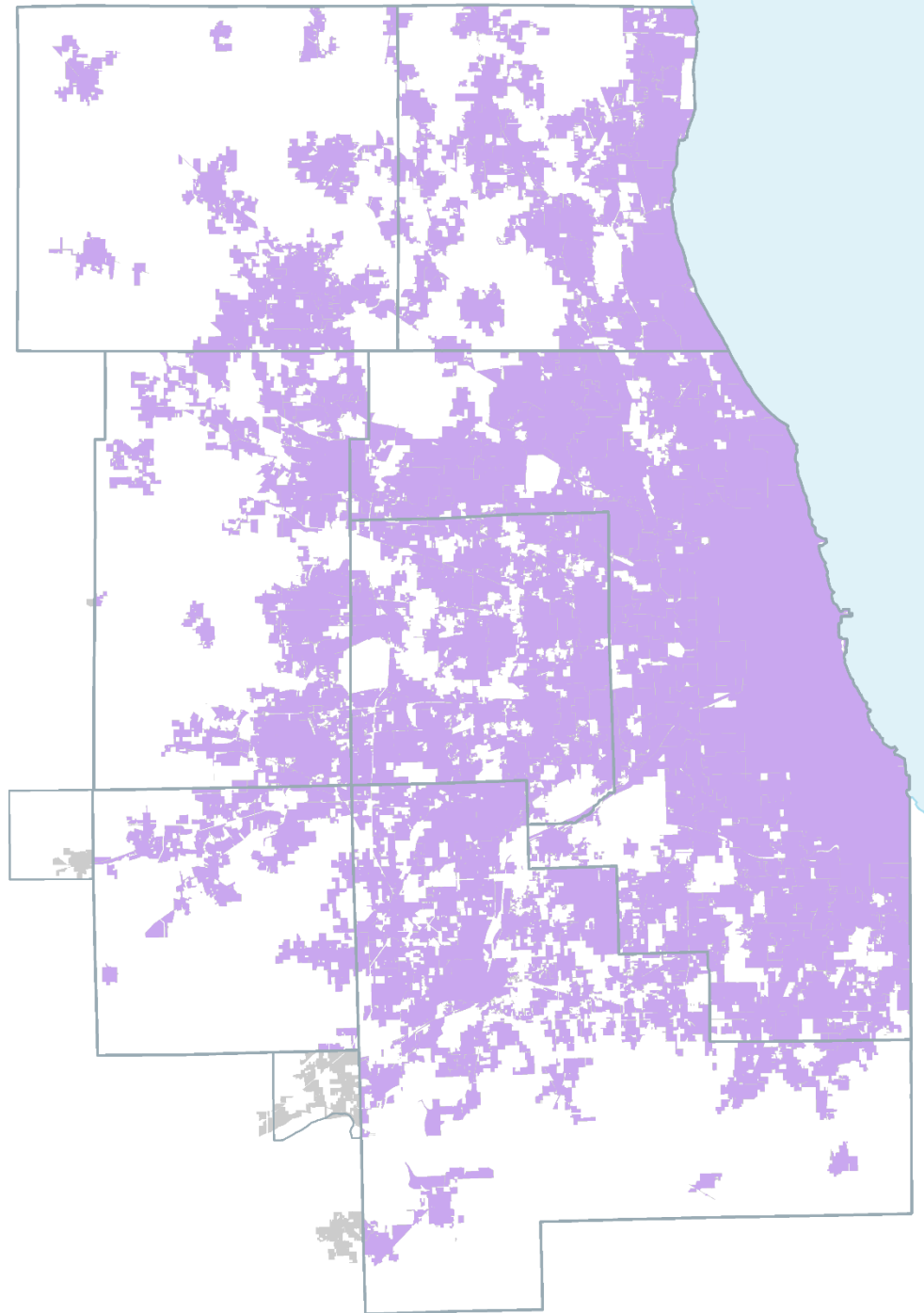
Marginal Price

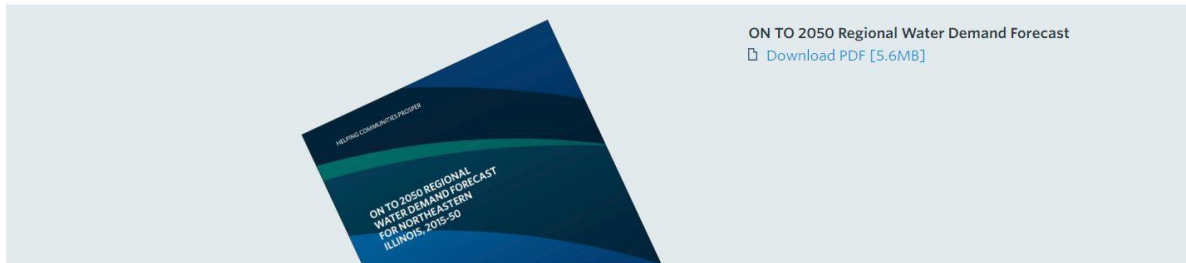
Median household income

Housing density

Marginal Price

Additional regression data





ON TO 2050 Regional Water Demand Forecast

[Download PDF \[5.6MB\]](#)

Dec 19, 2018

ON TO 2050 Regional Water Demand Forecast

Communities across the globe face an increasing array of water resource challenges and the Chicago region is not immune. Despite access to Lake Michigan, significant portions of the region are already encountering water supply and quality issues. To maintain a long-term drinking water supply, ON TO 2050 recognizes the need to coordinate and conserve its shared water supply resources. Assessing long-range forecasted demands in the context of available water supply can inform local and regional planners about the sufficiency of water supply and encourage actions that conserve water, protect supply, and/or pursue alternative drinking water sources.

CMAP, in partnership with [Illinois-Indiana Sea Grant](#) and [University of Illinois Extension](#), developed the [ON TO 2050 Regional Water Demand Forecast](#) to inform decisions about land use, transportation, and infrastructure that affect water supply and demand. This forecast builds on the previous regional water demand forecast for Water 2050, [Regional Water Demand Scenarios for Northeastern Illinois: 2005-2050 \(2008\)](#) and is based on the ON TO 2050 Socioeconomic Forecast. The forecast is presented in 5-year intervals to the year 2050 at the municipal, county, and regional scale, as well as by drinking water source and sector for the seven counties of the Chicago region. It focuses on the largest water sectors -- residential public water supply, non-residential water supply, and domestic self-supply -- and provides individual forecasts for 245 municipalities in the region. As a long-range water demand forecast, it is intended for planning purposes and is not suited for assessing infrastructure capacity or peak demands at the system level.

Forecast data is available for download on the [CMAP Data Hub](#). For additional information on the water demand forecast methodology and

Full report and data are at www.cmap.illinois.gov

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2050 Forecast of Water Demand

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Organization: Chicago Metropolitan Agency for Planning (CMAP)

2050 Forecast of Water Demand

Data and documentation associated with the ON TO 2050 Regional Water Demand Forecast.

Data and Resources

- ON TO 2050 Regional Water Demand Forecast Report** (PDF) - This document describes the methodology used to develop the ON TO 2050... [Explore](#)
- Region and County Totals** (XLS) - Spreadsheet reported and projected water withdrawals at the region and county... [Explore](#)
- Municipal Totals** (XLS) - Spreadsheet with reported and projected water withdrawals by sector at the... [Explore](#)

Forecast Municipality ON TO 2050 Socioeconomic Water

Additional Info

Field	Value
Source	www.cmap.gov
Author	Chicago Metropolitan Agency for Planning
Maintainer	Map Data

**Or visit datahub.cmap.illinois.gov
and search for “water forecast”**



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