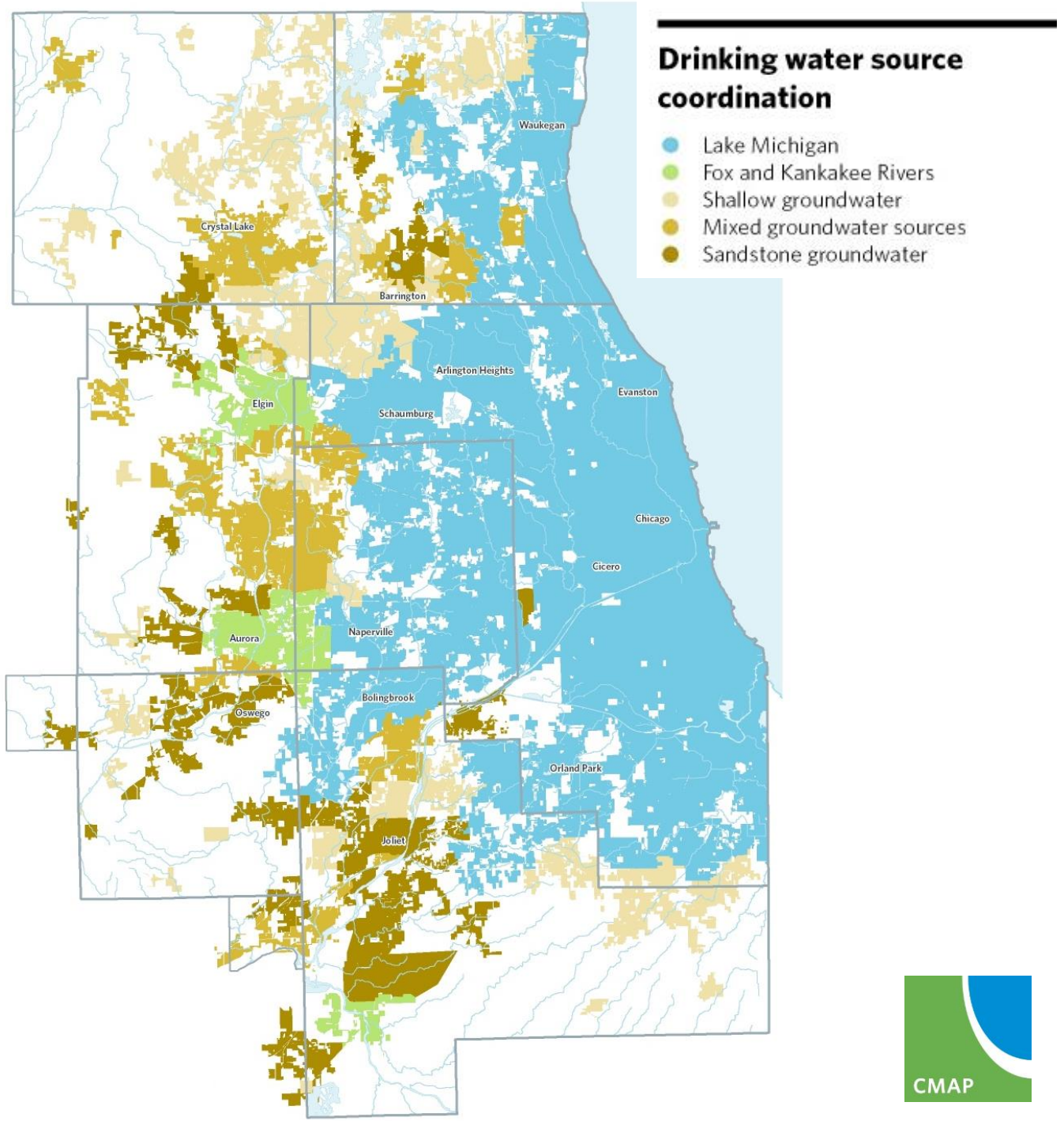
ON TO 2050
Regional Water Demand Forecast

CMAP Environment and Natural Resources Working Committee

October 4, 2018

Agenda

- Overview
- Results
- Potential applications
- Next steps



Overview

Purpose and goals

Provide an updated baseline water demand forecast for the 7-county region to the year 2050.

1. Provide a municipal-scale forecast to promote integration of water demand considerations into land use and infrastructure planning.

2. Develop a transparent methodology that allows stakeholders to update their municipal-scale forecast based on new/updated data or potential alternatives.

Methodology

Three water use sectors:

1. Residential Water Supply (CWS and PWS)
2. Non-residential Water Supply (CWS, PWS, and Self-Supply)
3. Domestic Self Supply

Three forecast types:

1. Reference forecast (baseline unit use X ON TO 2050 Socioeconomic Forecast)
2. Baseline forecast (adjusted baseline unit use based on simple assumptions)
3. Updated Coefficients for Baseline Forecast using Demand Estimation

Residential Municipal-Scale Water Supply Demand Estimation Variables

Dependent Variables:

- GPCD

Independent Variables:

- Price
- Housing density
- Conservation trend
- Income
- Dummy variables

Future assumptions:

- Population -- ON TO 2050 Forecast
- Price -- historic trend
- Housing density -- ON TO 2050 Forecast
- Income -- 1.20% growth per year
- Conservation trend -- historic trend

Non-Residential Municipal-Scale Water Supply Demand Estimation Variables

Dependent variable:

- GPED

Independent variables:

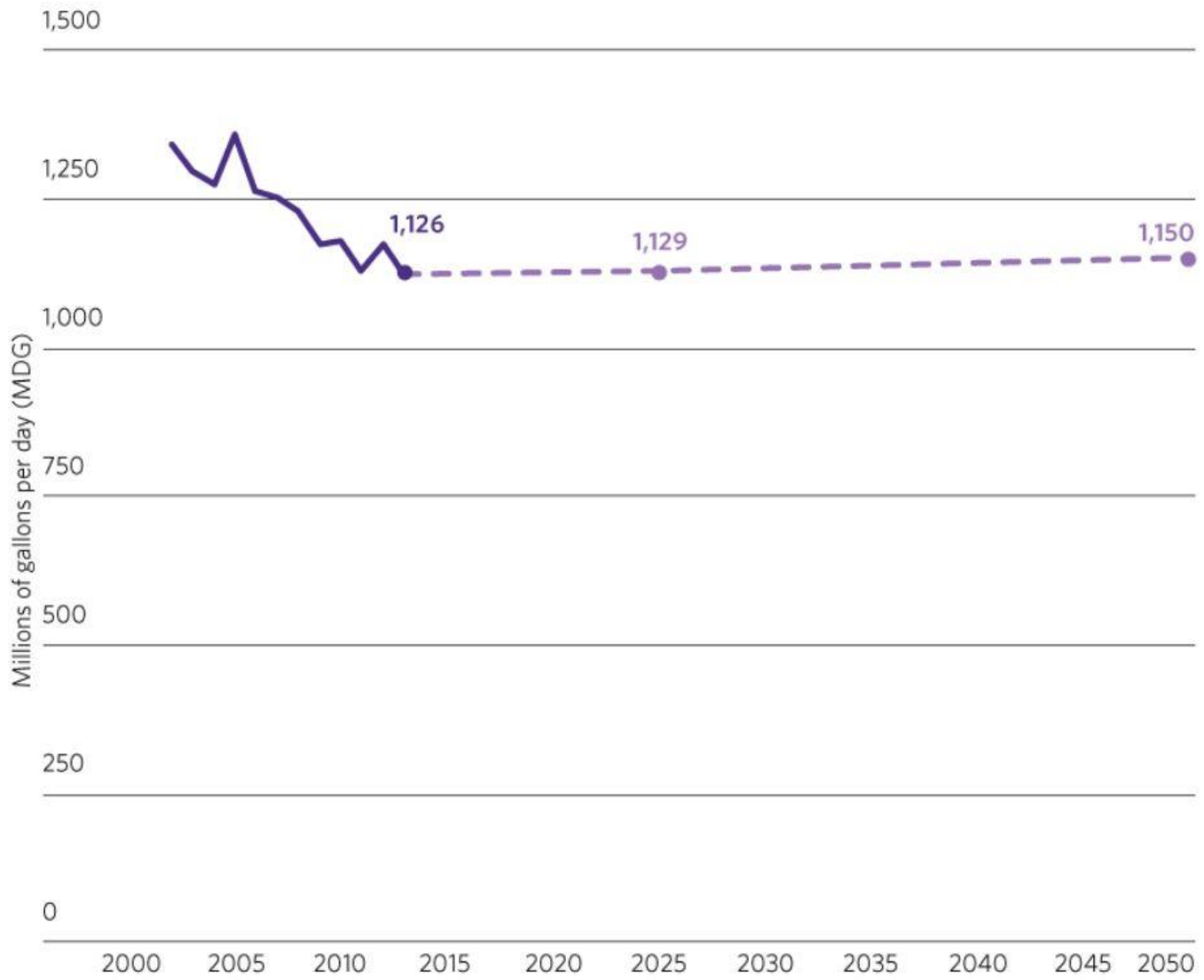
- Price
- Sectoral employment
- Conservation trend
- dummy variables

Future assumptions:

- Employment -- ON TO 2050 Forecast

- Price -- historic trend
- Sectoral employment -- ON TO 2050 Forecast
- Conservation trend -- historic trend

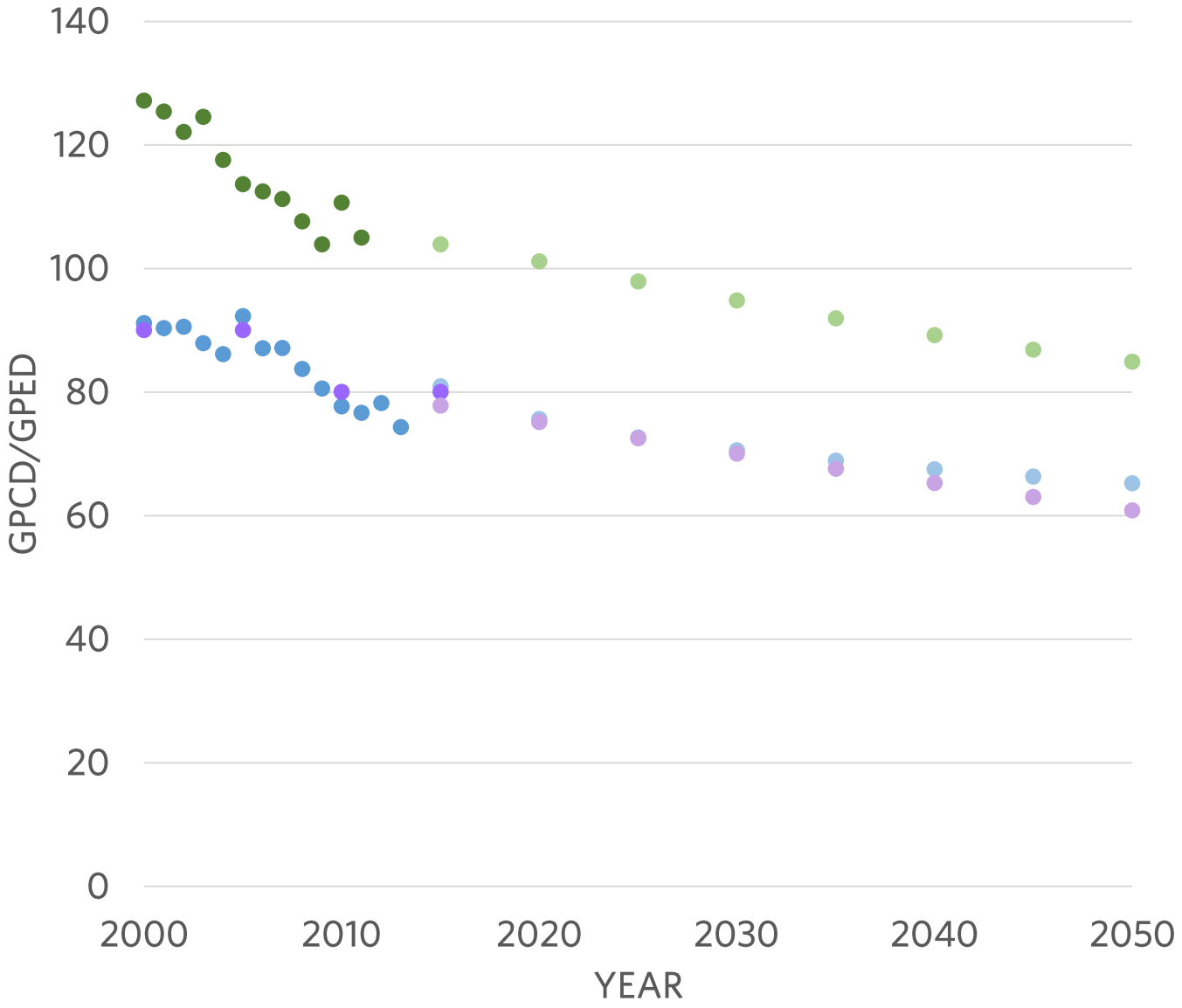
Results

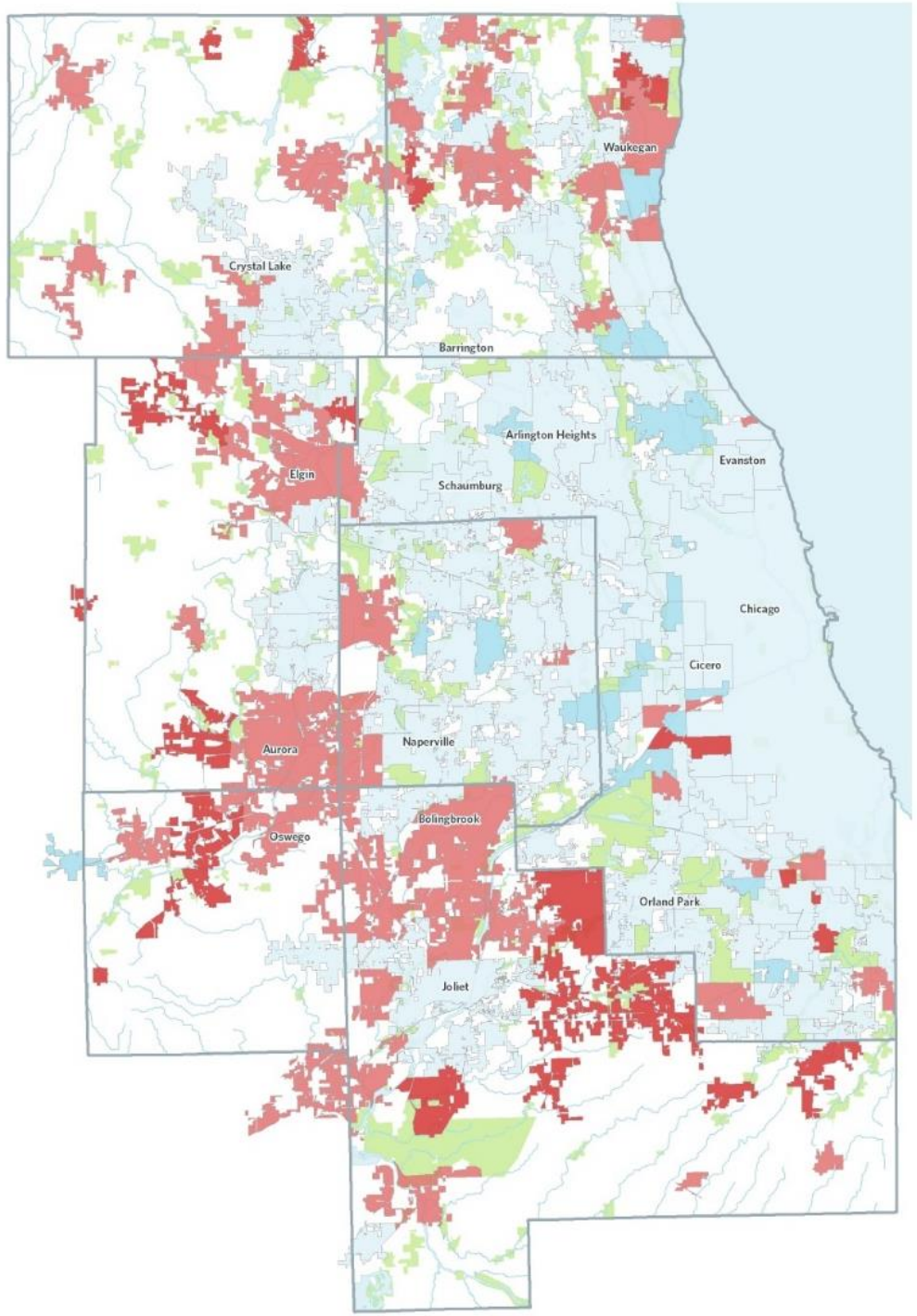


Total regional water demand, mgd

- Reported withdrawals
- Projected withdrawals

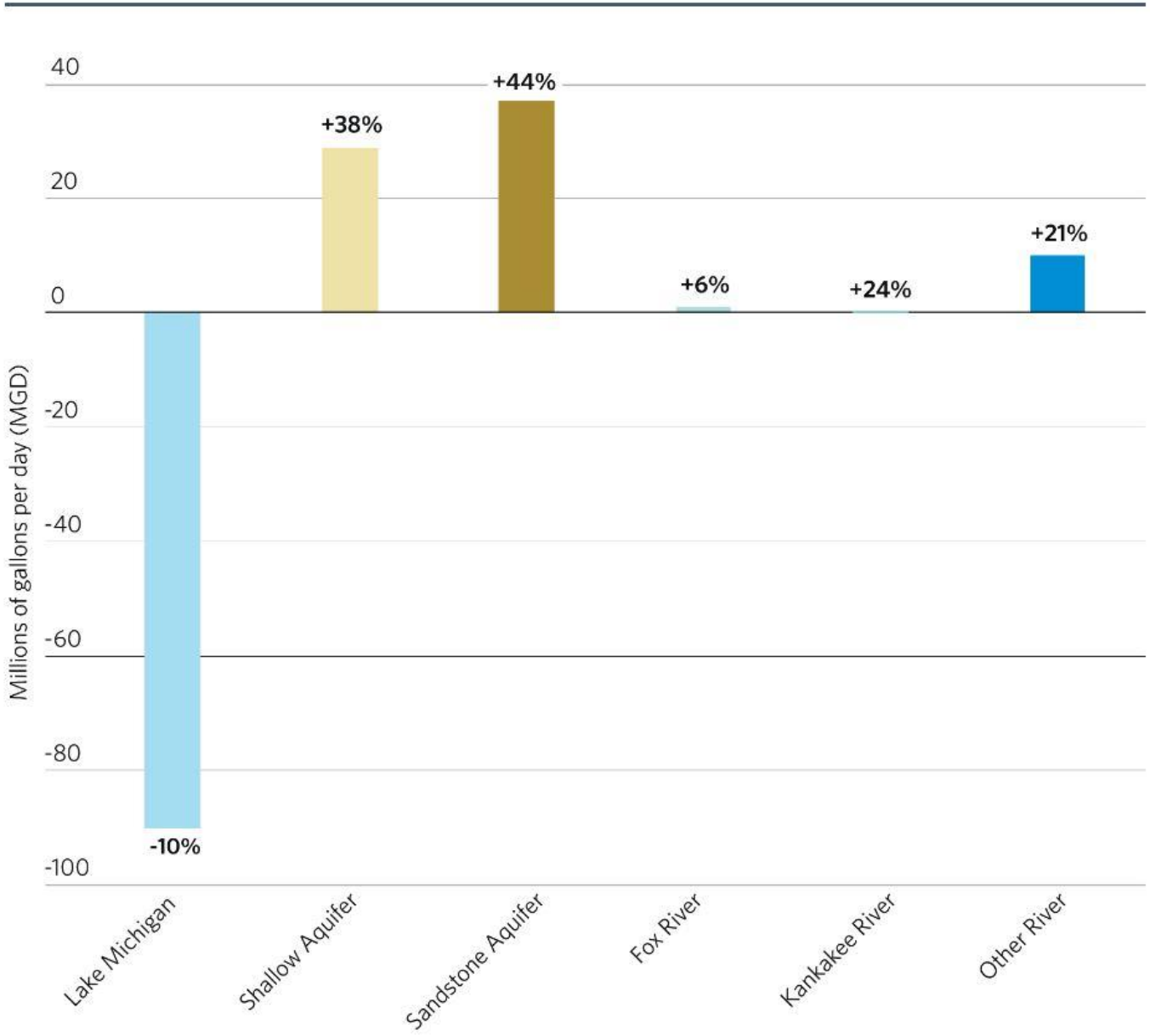
Total regional water demand by sector, GPCD/GPED





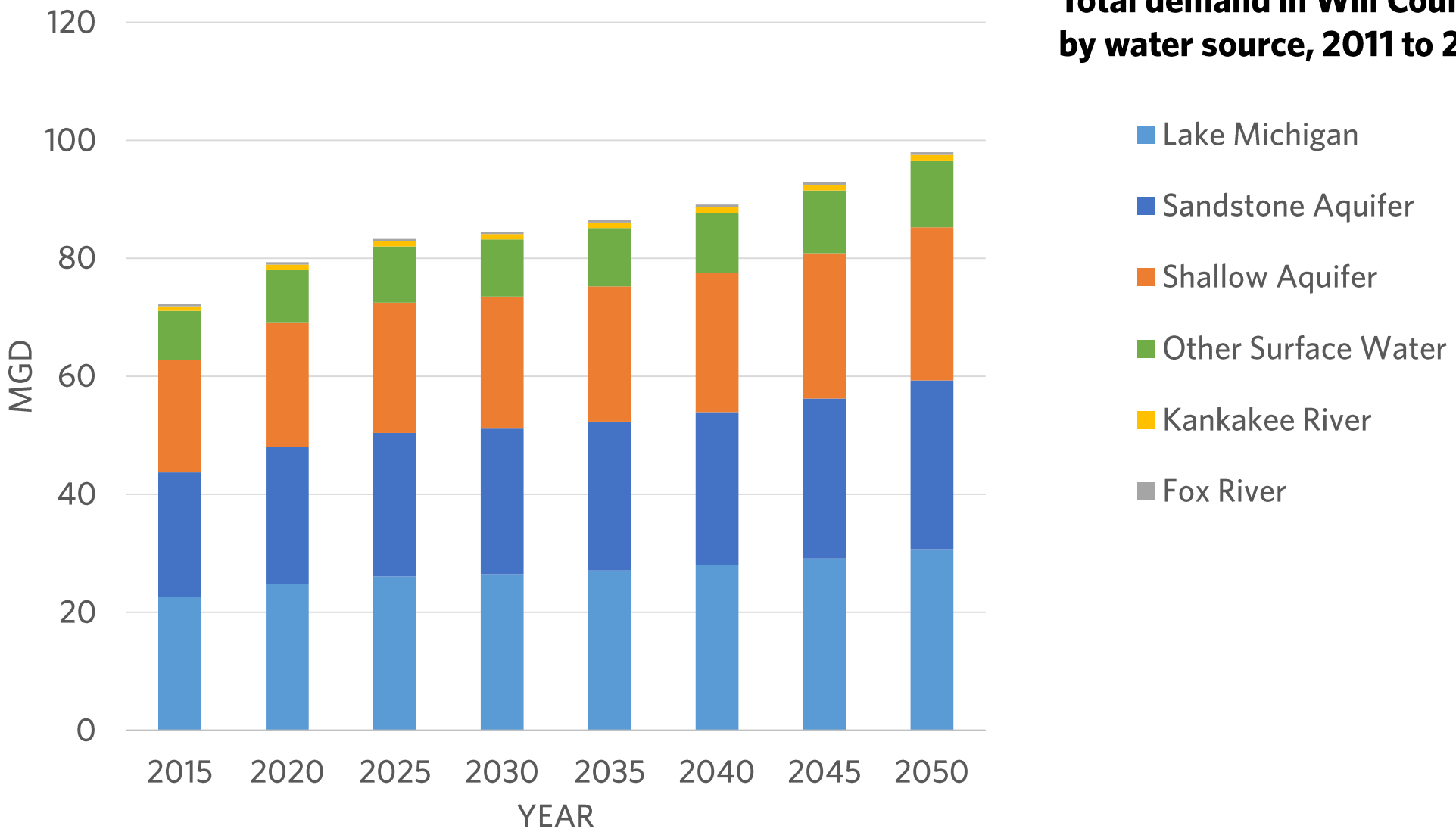
Percent change in water demand, 2011 to 2050

- -136% - -26%
- -25% - 0%
- 1% - 25%
- 26% - 50%



Percent change in demand by water source, 2011 to 2050

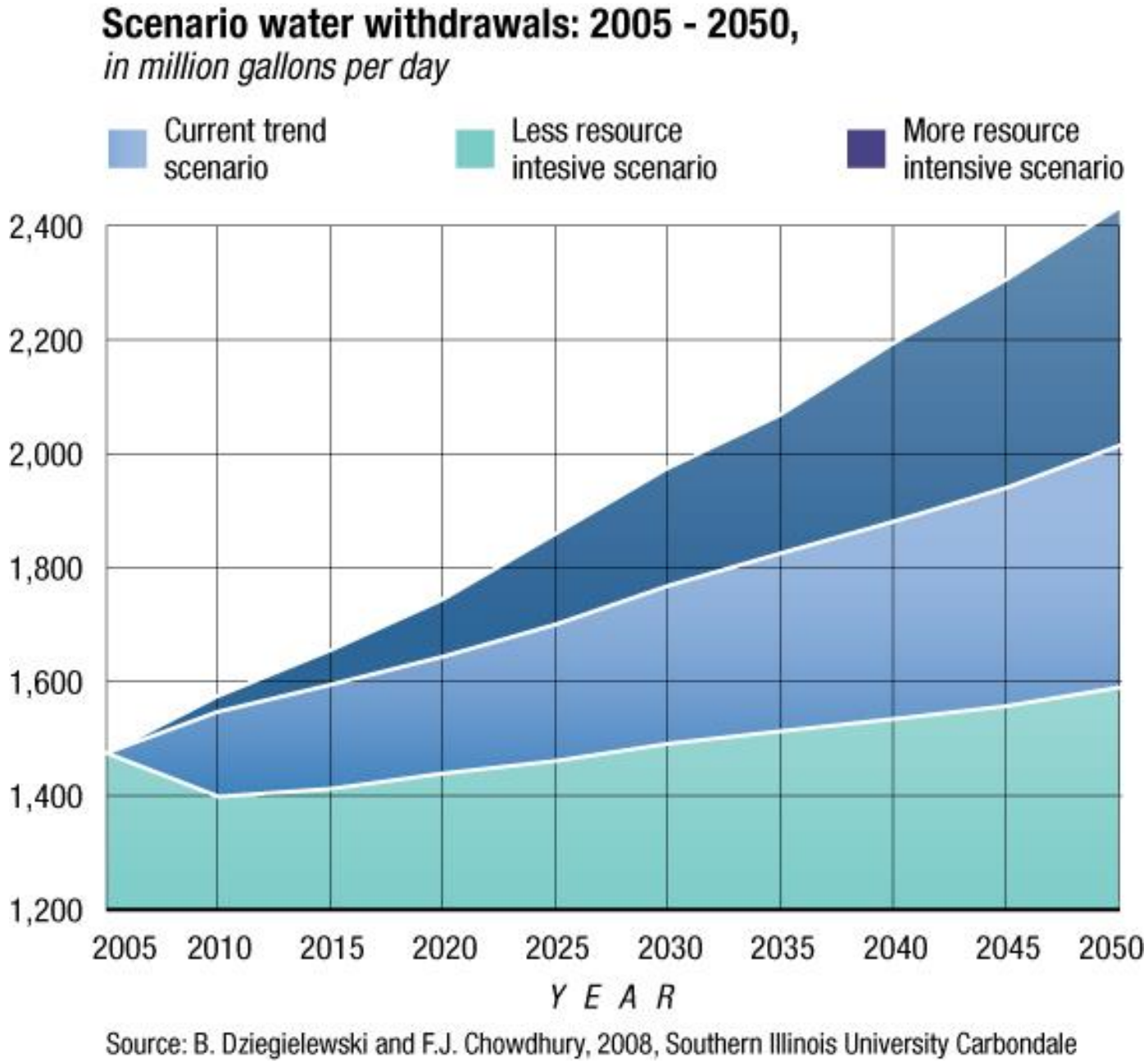
Total demand in Will County by water source, 2011 to 2050



Comparison with Water 2050

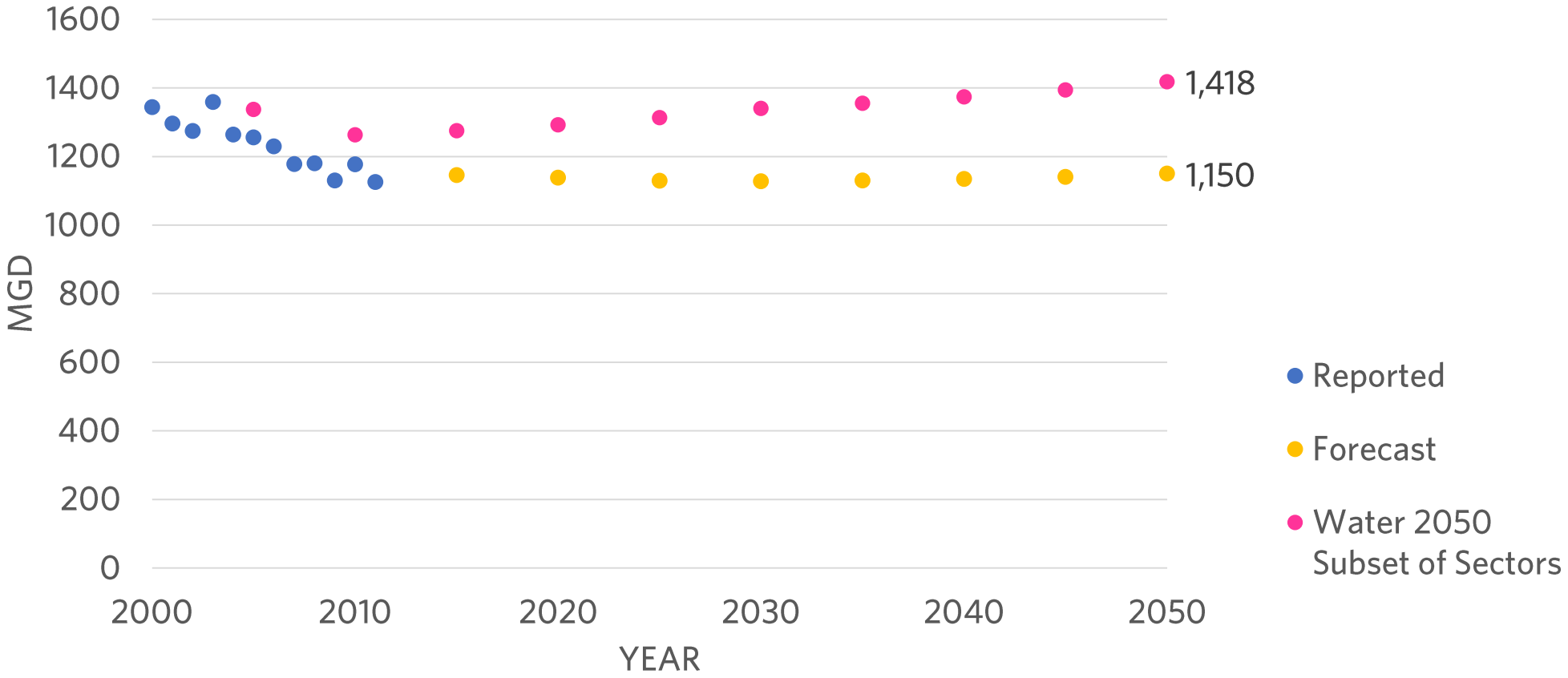
Water 2050

Three scenarios



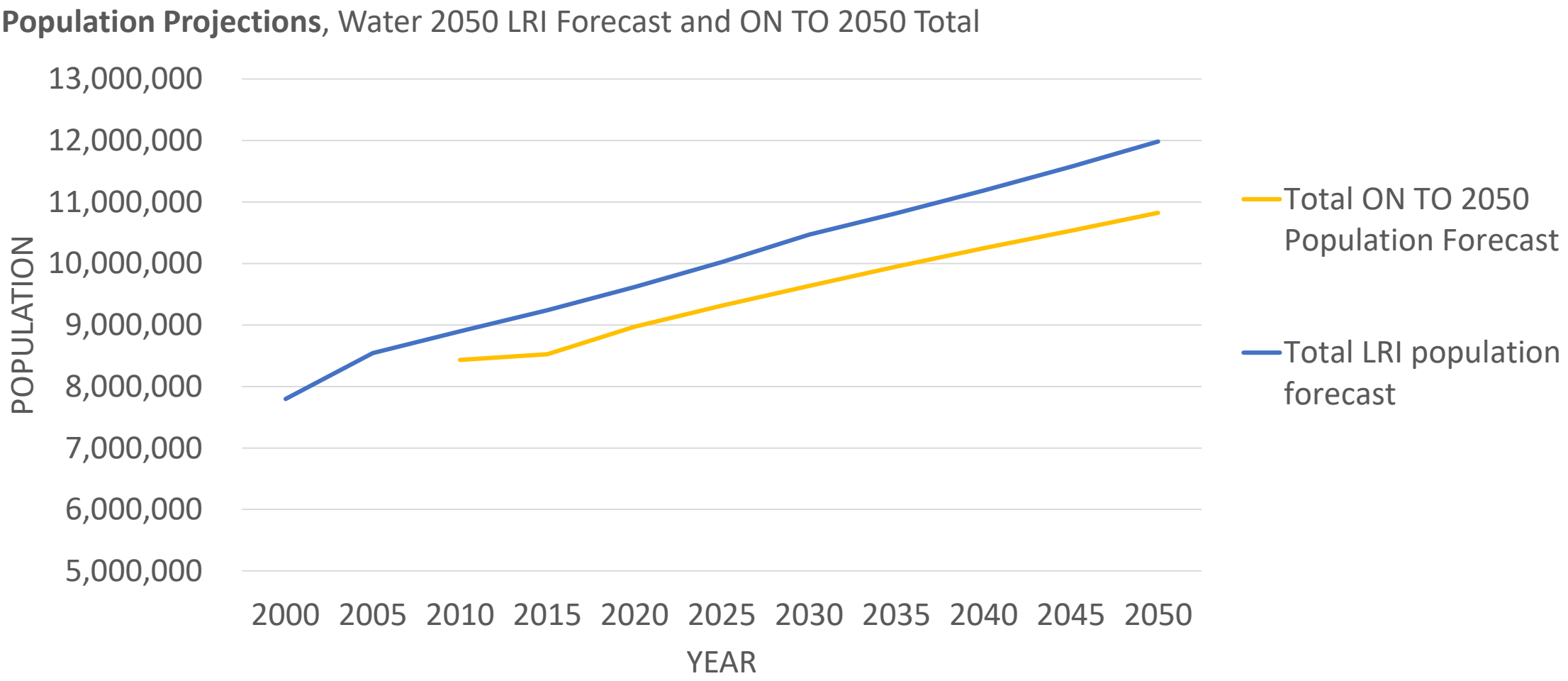
ON TO 2050 and WATER 2050 LRI for 7 counties

Total ON TO 2050 demand forecast compared with Water 2050 LRI for subset of sectors,* MGD



* Water 2050 sectors include Public Water Supply, Domestic Self-Supply, Industrial and Commercial Self Supply

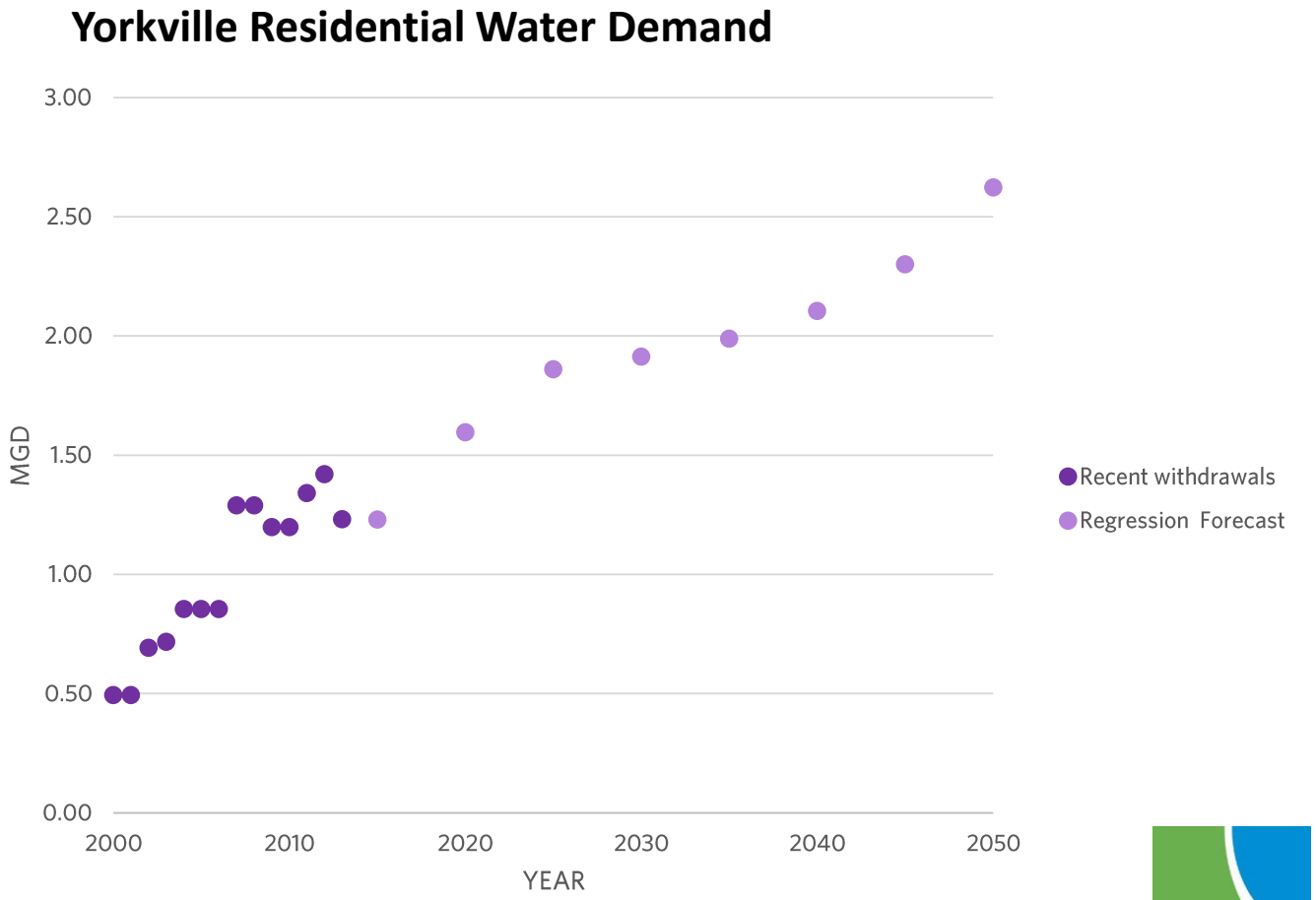
Population forecast comparison



Applications

Integrate into municipal planning

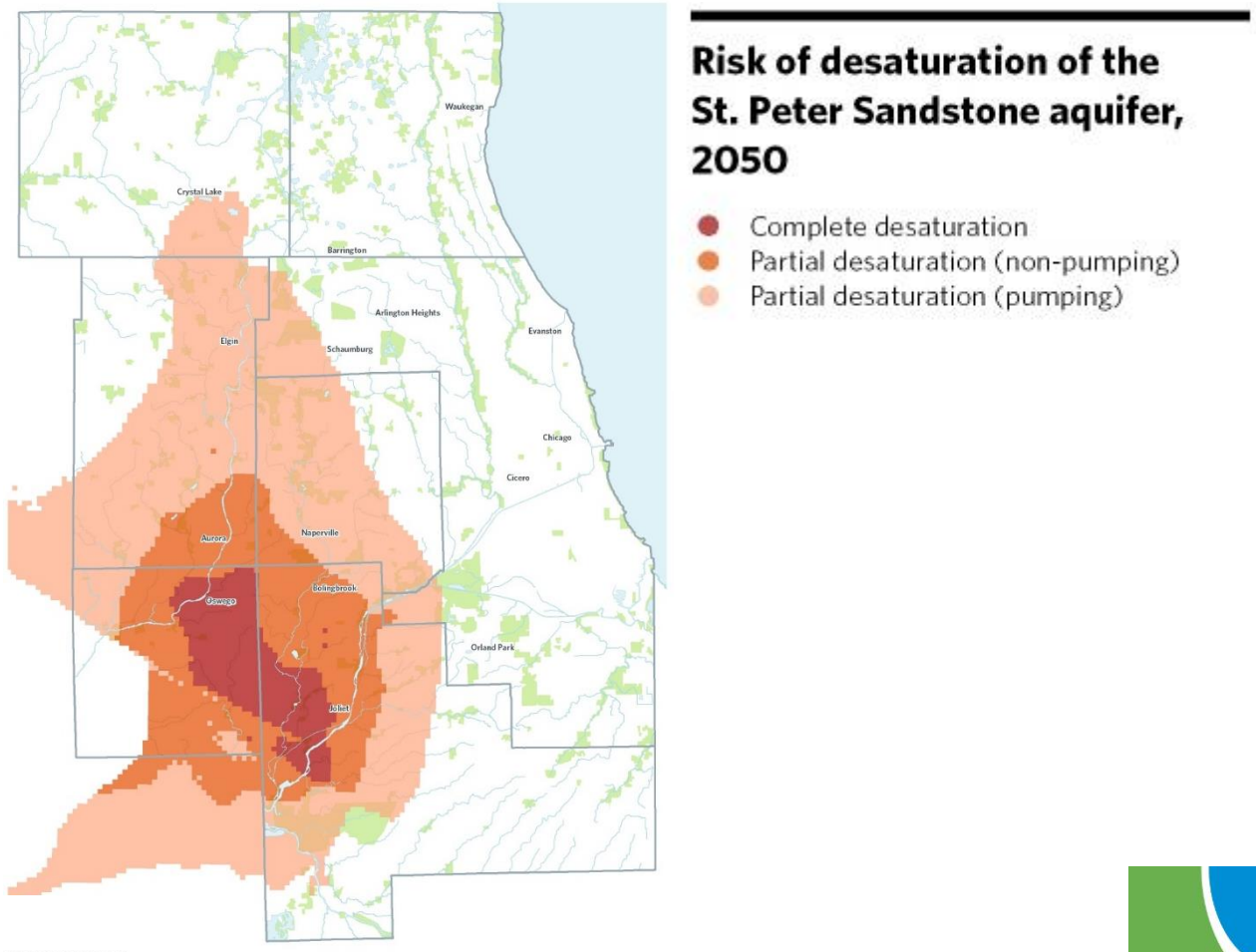
- Long-range forecast for planning purposes
- Pair demand and supply information
- Inform land use planning



Inputs into source assessments

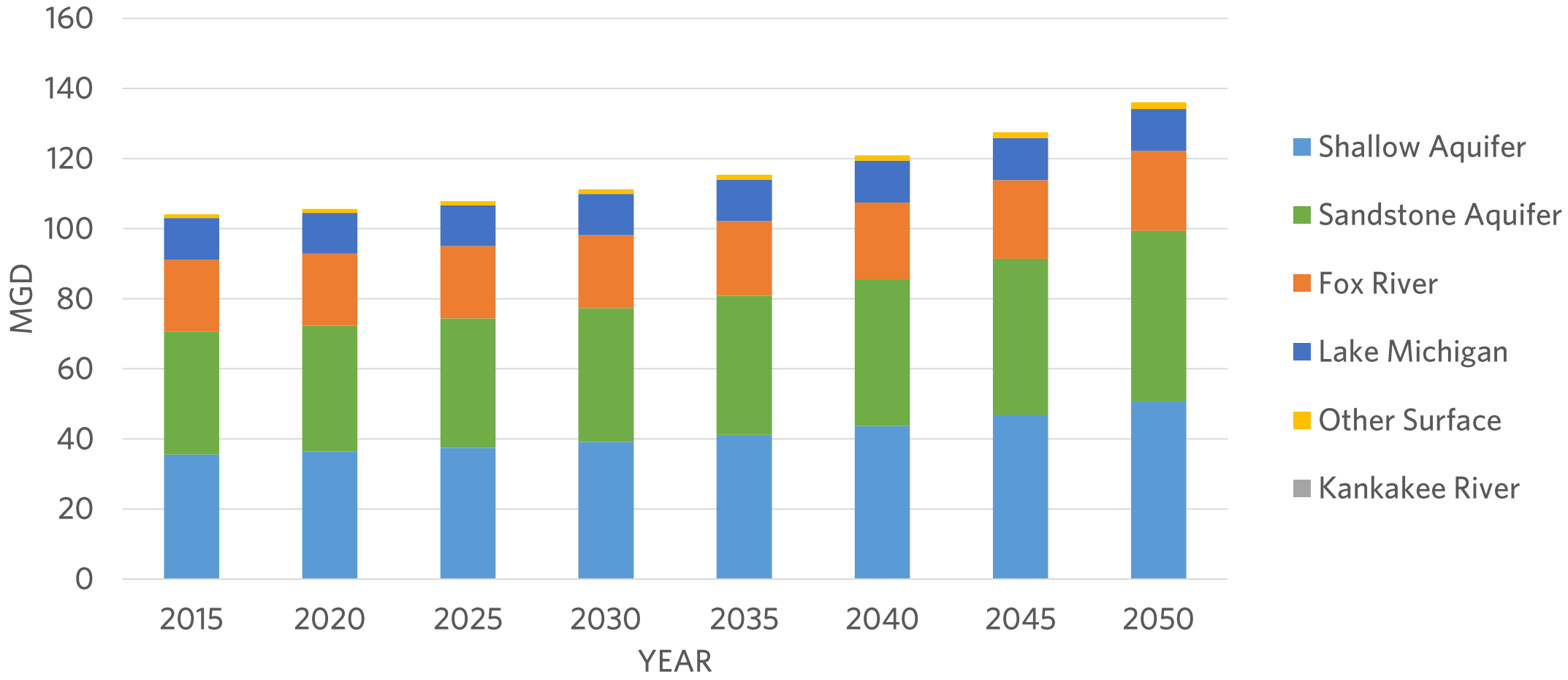
Demand forecast can be used in used in:

- Groundwater flow model
- Lake Michigan allocation
- Other source assessment analysis



Multi-jurisdictional discussions

Projected withdrawals by source for NWPA communities



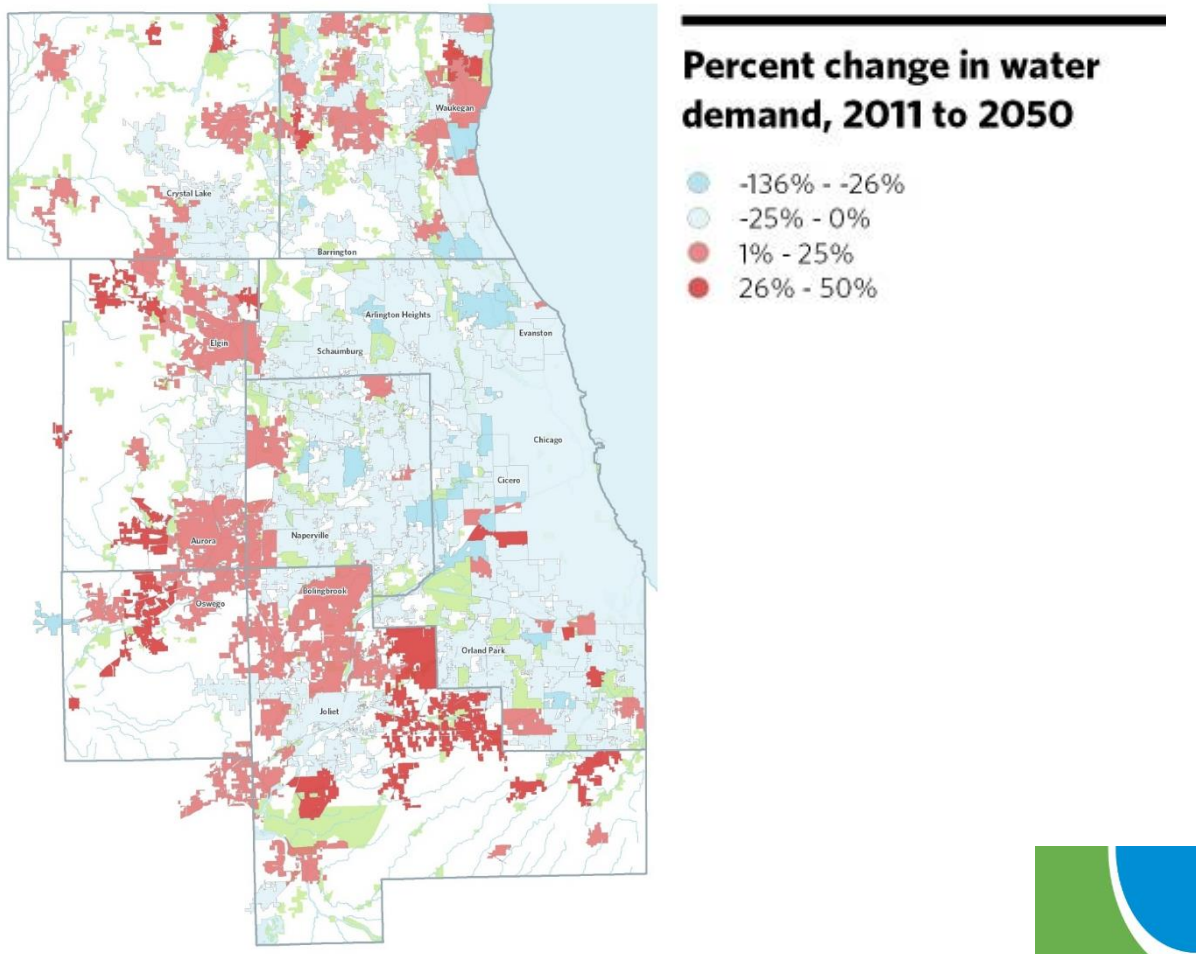
Next steps

Immediate next steps

Posting forecast data and methodological guide at the end of October

Integrate into LTA projects in FY 19

- LTA call for projects



Next two years

- Integrate into CMAP's community data snapshots
- Explore forecast results in a series of policy updates
- Examine data needs for a land use-based forecast
- Explore forecast scenarios with NWPA

Comments, questions?

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