

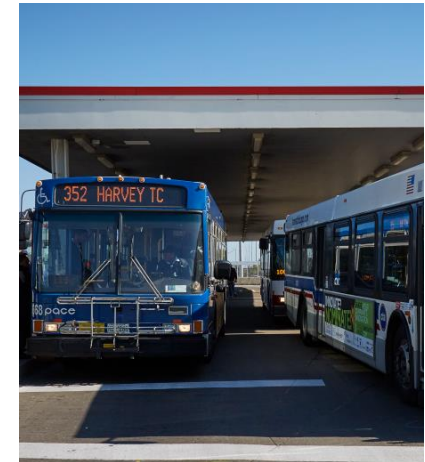


Chicago Metropolitan  
Agency for Planning



# NWPA Water Supply Sustainability Plan: Incorporating stakeholder feedback

NWPA TAC Meeting  
January 28, 2025



# Agenda

Plan feedback

Key revisions to NWPA's WSSP

Timeline and next steps

# Plan feedback

# Who we heard from

TAC members at the November meeting

McHenry, Kane, and Kendall County representatives

ISWS staff

Two municipal PWS communities

Additional feedback/review:

- Illinois-Indiana Sea Grant
- NWPA TAC co-chairs

# What we heard

- Need for more explanation of the ISWS's sustainable water supply estimates, including their constraints and limitations
- Need for more emphasis on the uncertainty and challenges water quality poses on water quantity
- Interest in a clearer presentation of the demand and supply data
- Need for stronger narrative prompting communities to take water conservation and efficiency actions

# Key revisions

# Reordering plan chapters

## *First draft (November 2024)*

1. Introduction
2. NWPA profile
3. Call to action
4. Water conservation framework for achieving sustainable supply
5. Water conservation strategies and potential water savings

## *Revised draft (January 2025)*

1. Introduction
2. NWPA profile
3. Water conservation and efficiency framework
4. Water conservation strategies and potential water savings
5. A guide to local action in the NWPA region

# Reordering plan chapters

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- 2. NWPA profile**
- 3. Water conservation and efficiency framework**
- 4. Water conservation strategies and potential water savings**
5. A guide to local action in the NWPA region



# Chapter 2: NWPA Profile

## Demographic and development patterns (previously 'A growing region')

Outlines the NWPA region's characteristics relevant to water demand

### What we heard

- Could benefit from more data points and explanation around how community characteristic influence water use

### What we changed

- Further described relationship between community characteristics and water use
- Added demographic info (e.g., population and employment projections by county)
- Added land use and housing information for NWPA's 5-co region

# Chapter 2: NWPA Profile

## Water sources and sectors (previously ‘Public water supply systems’ and ‘Water sources’)

Describes how water is being used and by whom

### What we heard

- Need for more description of sectors other than the municipal PWS sector
- Update source map (some communities inaccurately assigned to some sources)

### What we changed

- Further described other water sectors (in addition to municipal PWS sector)
- Updated municipal PWS systems count based on updated *Regional Water Demand Forecast for Northeastern Illinois, 2020-2050*
- Updated/clarified water source map



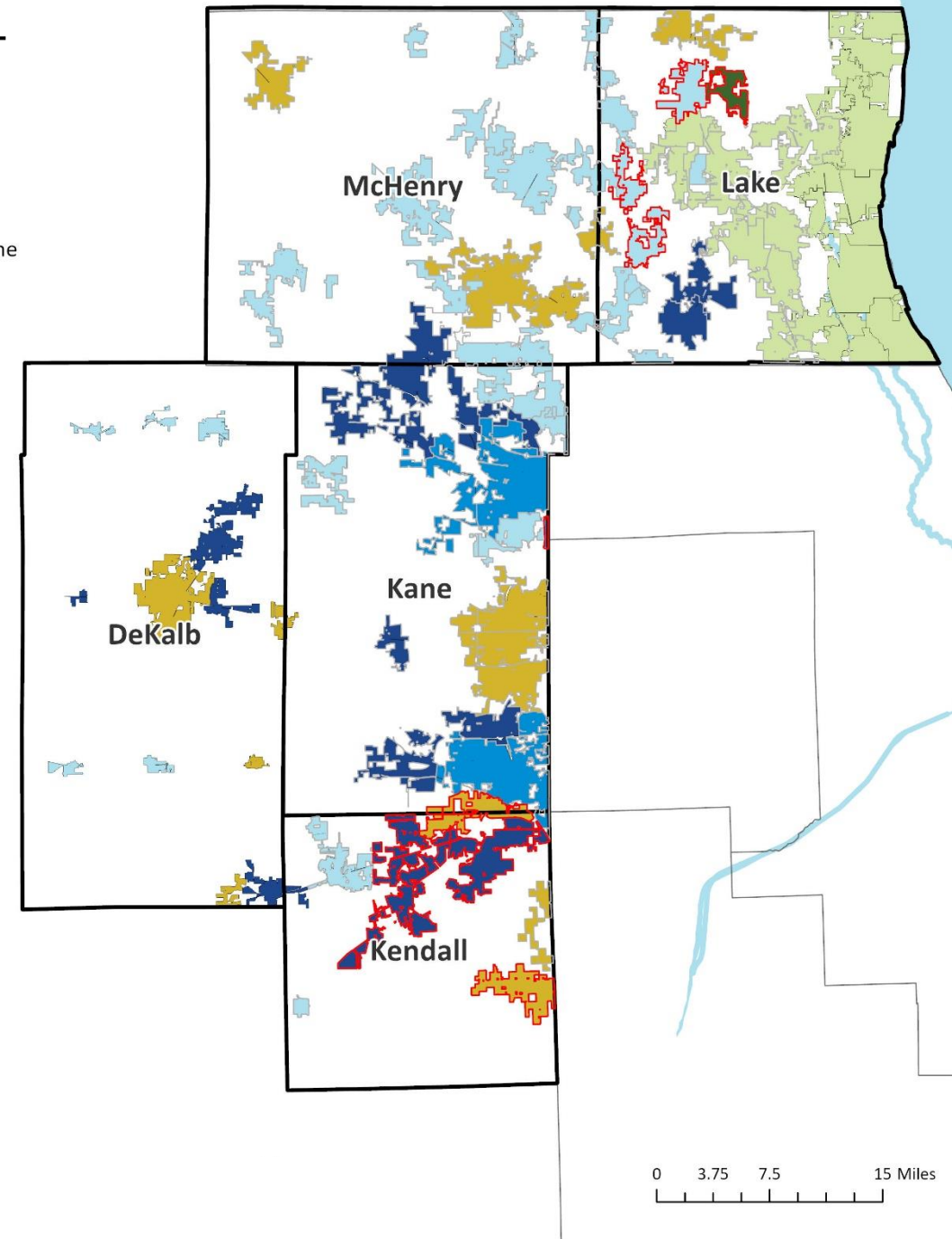
# Chapter 2: NWPA Profile

## Water sources and sectors

- Water sources used by NWPA PWS communities
- Based on a 2013-2018 historical average of water sources used

### Municipal water sources, average source mix, 2013-2018

- Groundwater, sandstone
- Groundwater, shallow bedrock/glacial
- Mixed groundwater sources, shallow/sandstone
- Mixed sources, Fox River/groundwater
- Mixed sources, Lake Michigan/groundwater
- Surface water, Lake Michigan
- Municipality with planned source switch



# Chapter 2: NWPA Profile

## Water supply challenges (previously called ‘Supply challenges’)

Describes the supply challenges facing the NWPA region’s water supply sources

### What we heard

- Key challenges were hard to decipher within previous content/formatting
- Challenges should focus on all water sources, not just groundwater

### What we changed

- Added subheadings clearly denoting key challenges
  - *Excessive drawdown*
  - *Degraded water quality*
  - *Regulatory and financial limitations*
- Expanded explanation of the challenges across all water sources (as applicable)

# Chapter 2: NWPA Profile

## Existing and project water supply and demand

Describes the ISWS sustainable water supply estimates and CMAP-IISG water demand forecast (2024); compares the NWPA region's water demand and supply

### What we heard

- Need for more details on water supply sustainability estimates and their constraints/limitations; emphasis on water quality uncertainties
- Clearer comparison of demand and supply estimates

### What we changed

- Added ISWS definitions and assumptions (including ISWS' tiered approach) for supply estimates
- Shifted to tables and maps to communicate regional water demand and sustainable water supply

# NWPA regional water demand, 2018 and 2050

County	Total use, MGD		Change in demand	
	2018	2050	MGD	Percent
DeKalb	8.3	10.0	+1.7	+20.7%
Kane	45.2	47.9	+2.7	+6.0%
Kendall	8.5	10.2	+1.7	+19.8%
Lake	73.0	64.0	-9.0	-12.3%
McHenry	24.6	24.0	-0.6	-2.6%
<b>Total</b>	<b>159.6</b>	<b>156.1</b>	<b>-3.5</b>	<b>-2.2%</b>

Note: DeKalb County demand estimates from ISWS, Water Budget Vista, 2024, which uses a different forecasting methodology and does not account for passive conservation trends.

Source: CMAP and IISG, 2024; ISWS, 2024.

# NWPA regional water demand, 2018 and 2050

Water source	Total use, MGD		Change in demand	
	2018	2050	MGD	Percent
Rivers	23.4	19.2	-4.1	-17.7%
Lake Michigan	51.7	56.4	4.7	9.2%
Sandstone aquifer	37.9	31.6	-6.2	-16.5%
Shallow aquifer	46.7	48.8	2.1	4.6%
<b>Total</b>	<b>159.6</b>	<b>156.1</b>	<b>-3.5</b>	<b>-2.2%</b>

Note: DeKalb County demand estimates from ISWS, Water Budget Vista, 2024, which uses a different forecasting methodology and does not account for passive conservation trends.

Source: CMAP and IISG, 2024; ISWS, 2024.

# ISWS Tier 1 definitions for sustainable water supply estimates

**Deep groundwater:** focuses on limiting desaturation, which may be difficult to achieve in areas of heavy water use; estimates calculated as the theoretical maximum water that can enter the aquifer via vertical leakage (recharge)

- For some counties (applicable to Kane, Kendall, and DeKalb) where sandstone aquifer is near the land surface and shares the same recharge as nearby shallow aquifers, estimates are calculated using the same methodology as shallow groundwater

**Shallow groundwater:** focuses on reducing impacts on aquatic ecology; estimates are based on a 15% reduction in recharge as a proxy for a 15% reduction in natural groundwater discharge to streams

- Does not consider water quality issues/concerns

**River:** Reflects maximum existing demand from public rivers over the past five years

- Does not consider limitations during drought, water quality issues, or navigation concerns

**Lake Michigan:** based on existing infrastructure and Lake Michigan allocations permitted by the state in 2017



# Tier 1 sustainable supply estimates for the NWPA region

County	Shallow groundwater	Deep groundwater	Rivers	Lake Michigan	Total
DeKalb	11.3	11.3	n/a	n/a	22.6
Kane	11.3	11.3	14.8	2.3	39.8
Kendall	5.1	5.1	n/a	2.6	12.7
Lake	8.1	2.3	n/a	73.5	83.9
McHenry	26.9	17.8	0.1	n/a	44.8
<b>Total</b>	<b>62.7</b>	<b>47.8</b>	<b>14.9</b>	<b>78.4</b>	<b>203.8</b>

Note: Lake Michigan values reflect existing allocations as of 2017 and do not include planned source switches by several NWPA communities. They also do not consider the Illinois Water Inventory Program purchase network, which accounts for the purchasing or selling of water by municipal PWS systems or water commissions that supply water to multiple municipal PWS systems. Therefore, the Lake Michigan value in Kane is associated with demand in Hoffman Estates and the value in Kendall is associated with demand in Plainfield. The ISWS plans to update these estimates to reflect the purchase network work in the future.

# Chapter 2: NWPA Profile

## Existing and project water supply and demand

Demand-to-sustainable supply ratio maps shallow and deep groundwater sources

Ratios greater than one indicate that demand surpasses the county's estimated sustainable supply

Counties may still face risks of water stress

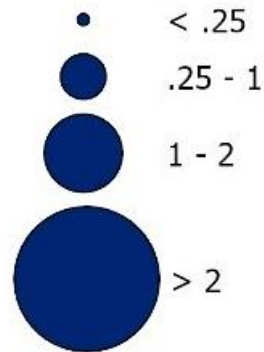


# Shallow demand exceeds supply in some areas

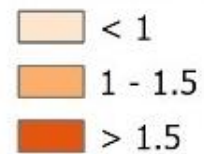
Wells may face risks such as reduced yields, drying up, or water quality challenges

## Shallow groundwater, 2050

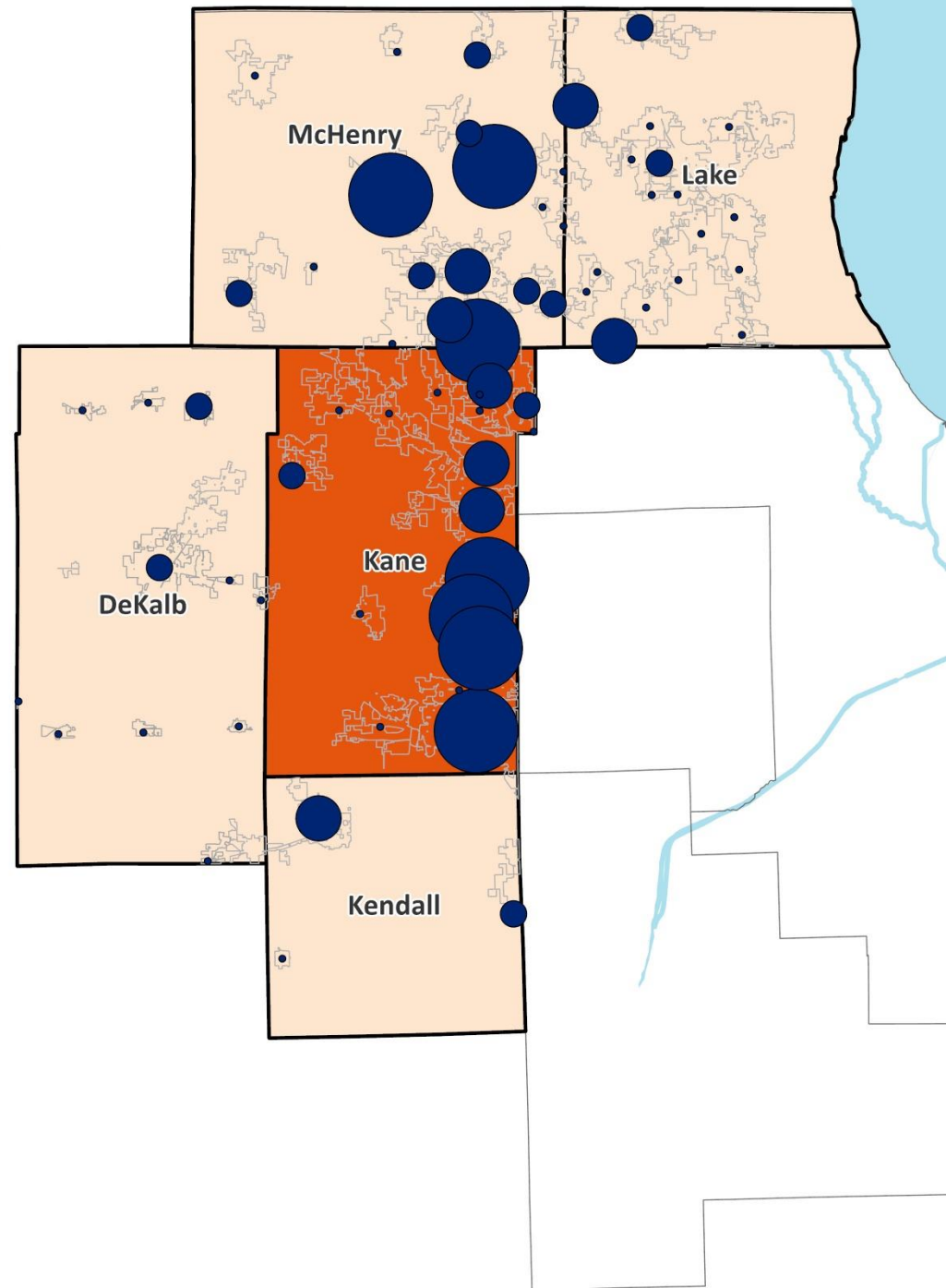
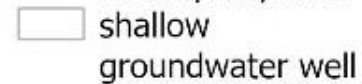
Municipal public water system demand



Demand-to-supply ratio



Municipality with shallow groundwater well



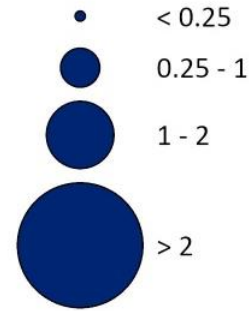


# Deep sandstone demand exceeds supply in some areas

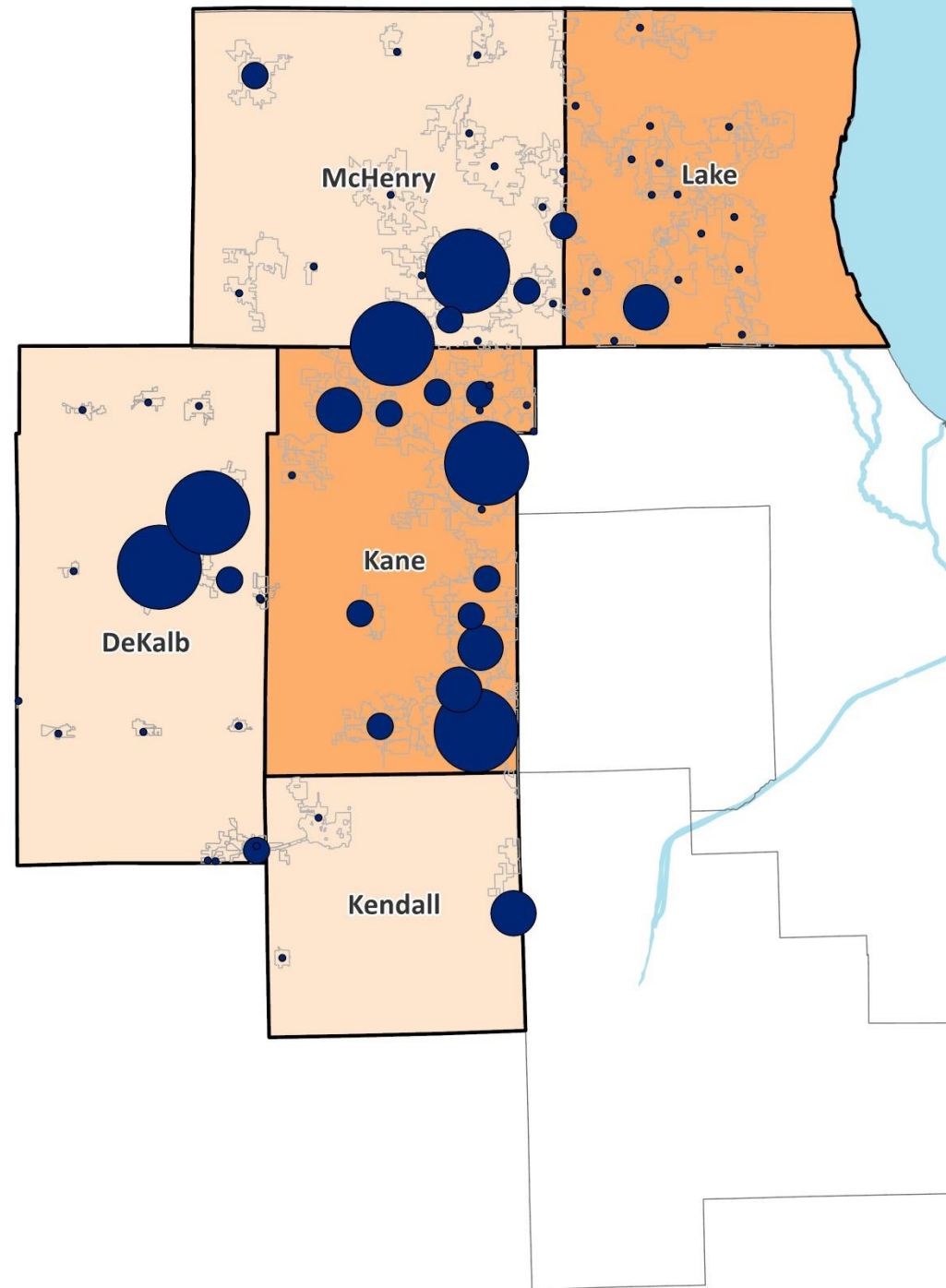
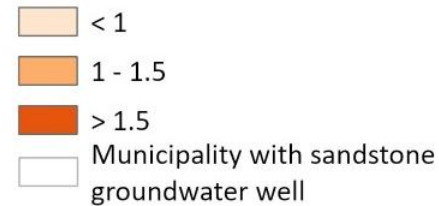
Specific areas in DeKalb, Kendall, and McHenry counties face risks of water stress due to concentrated demand or unique geological conditions

## Sandstone groundwater, 2050

Municipal public water system demand



Demand-to-supply ratio



# Demand reduction needed to align with groundwater sustainable supply, 2050

County	Reduction needed (MGD)
DeKalb	-
Kane	12.6
Kendall	-
Lake	0.1
McHenry	-
<b>NWPA region</b>	<b>12.7</b>

# Chapter 3: Water conservation and efficiency framework

Outlines plan vision, water source goals, benefits of water conservation, priority water conservation strategies, comparison of sustainable supply and combined savings, and need to act locally

## What we heard

- State vision and goals of the plan earlier
- Improve communication around the need for water conservation action

## What we changed

- Flipped order of chapters
- *New subsection: Comparison of sustainable supply and combined savings*
  - Provided water savings at the county and source level
- *New subsection: Act locally (preview to chapter 5)*

# Greatest potential water savings across groundwater sources

County	Groundwater savings estimates, (100% program participation), MGD	Fox River savings estimates, (100% program participation), MGD	Lake Michigan savings estimates, MGD(100% program participation), MGD	Total, MGD
DeKalb	2.1	0.0	0.0	2.1
Kane	9.4	3.3	0.0	12.7
Kendall	3.0	0.1	0.1	3.2
Lake	2.1	0.0	11.7	13.8
McHenry	6.7	0.0	0.0	6.7
NWPA region	23.3	3.4	11.8	38.4

# Groundwater savings can significantly cut demand reduction needed

County	Reduction needed to align with groundwater sustainable supply estimates, MGD	Groundwater savings estimates (100% program participation), MGD	Reduction remaining to align with groundwater sustainable supply estimates, MGD
DeKalb	-	2.1	-
Kane	12.6	9.4	3.2
Kendall	-	3.0	-
Lake	0.1	2.1	0
McHenry	-	6.7	-
NWPA region	12.7	23.3	3.2



# Greatest water savings strategies vary by county

## (under 100% program participation)

County	Residential retrofits savings estimates	Outdoor landscape efficiency savings estimates	New residential development savings estimates	Water loss savings estimates	CII conservation programming savings estimates	Total
DeKalb	0.6	0.1	0.4	0.7	0.3	2.1
Kane	3.2	0.3	2.9	4.3	2.1	12.7
Kendall	0.6	0.1	1.3	0.8	0.4	3.2
Lake	3.9	0.4	1.4	5.5	2.6	13.8
McHenry	1.8	0.2	2.0	1.9	0.9	6.7
NWPA Region	10.1	1.1	7.9	13.1	6.2	38.4

# Potential water savings from water loss control techniques

County	Groundwater savings estimates, 100% scenario	Fox River Savings Estimates, 100% scenario	Lake Michigan Savings Estimates, 100% scenario	Total
DeKalb	0.7	0.0	0.0	0.7
Kane	3.1	1.1	0.0	4.3
Kendall	0.8	0.0	0.0	0.8
Lake	0.8	0.0	4.6	5.5
McHenry	1.9	0.0	0.0	1.9
NWPA region	7.4	1.1	4.7	13.1

# Chapter 4: Water conservation strategies and potential water savings

Summarizes the total potential water savings that can be achieved by the strategies; provides detailed overview of the five prioritized strategies, their savings, and implementation resources

## What we heard

- Improve communication around the need for water conservation action
- Water savings estimates appeared low

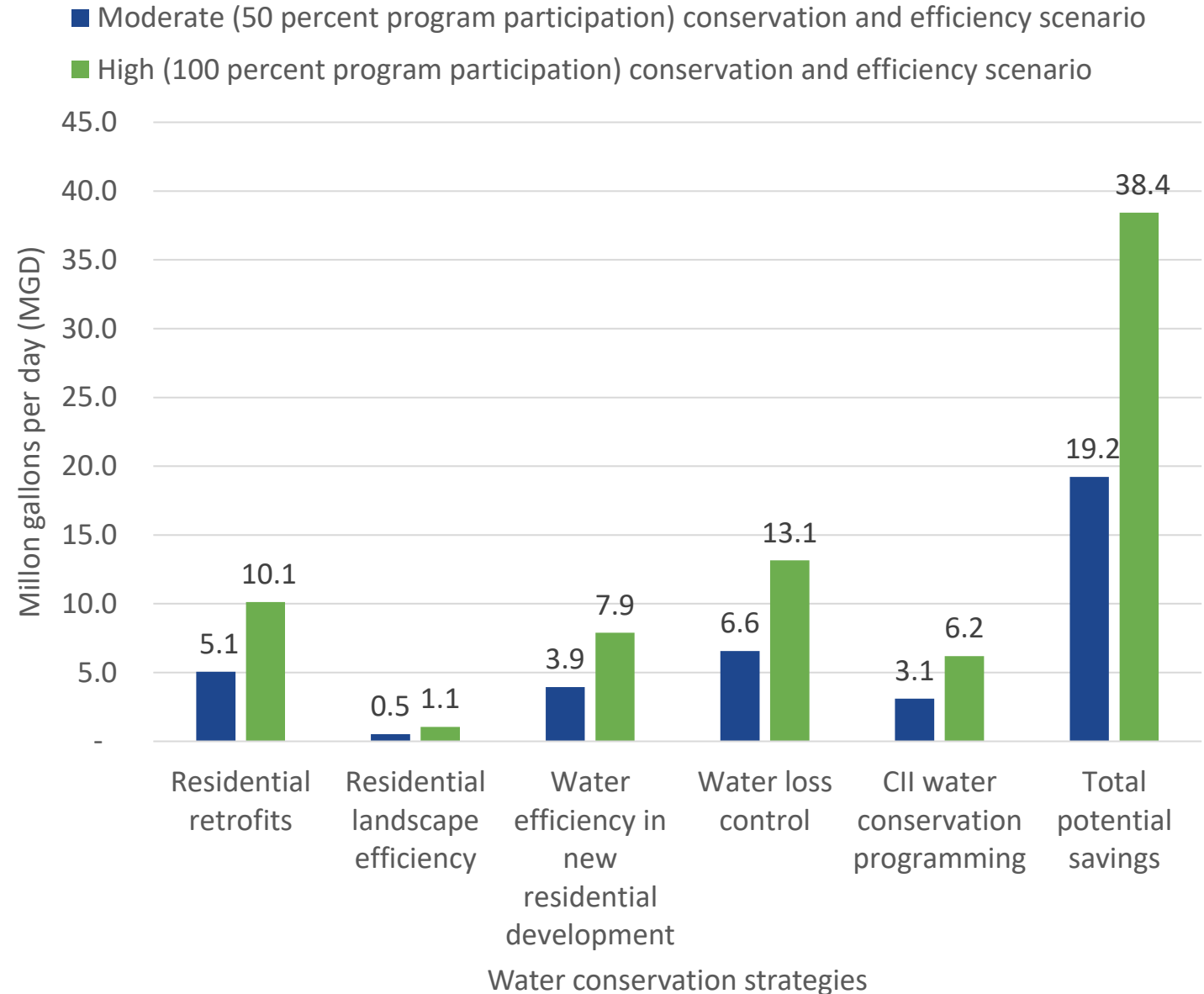
## What we changed

- Shifted from showing 10-50% program participation to 50-100%
- Renamed conservation scenarios
  - Moderate conservation (50% program participation)
  - High conservation (100% program participation)
- Water loss strategy savings methodology adjusted to reflect IDNR's goal for non-revenue water



# Potential water savings achieved by prioritized strategies

Water loss control and residential retrofits provide region the greatest savings



# Key revisions by chapter

## Chapter 2: NWPA Profile

- Improved description of supply challenges
  - Emphasis on water quality and its potential impact on water quantity
- Added water supply sustainability estimate definitions, assumptions
  - Description of ISWS Tier 1,2,3 assessments
- More description of the regional water demand forecast
- Provide a clearer comparison of NWPA's demand and supply

## Chapter 3: Water conservation and efficiency framework (previously Ch. 4)

- Brought vision and goals to top of chapter
- Added combined strategy savings by county by water source and by county

# Key revisions by chapter

## Chapter 4: Water conservation strategies and potential water savings (previously Ch. 5)

- Water savings estimates shown at a 50% and 100% program participation standard (previously 10% and 50%)
- Water loss strategy based on IDNR's goal of non-revenue water being no greater than 10 percent of a utility's net pumpage

## Chapter 5: Guide to local action in the NWPA region (previously Ch.3)

- Highlights the need for local actions
- Refined steps for getting started

# Next steps

# Next steps

CMAP/IISG to present plan to NWPA EC on Thursday, Jan 30

- EC will be given the final draft Plan to review and provide written feedback

Begin adoption process (Feb – Mar)

- EC to meet in February to review the Plan and discuss revisions
- EC to meet in March to consider plan adoption





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# Thank you

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