

An aerial photograph of a river basin, showing a large river flowing through a landscape of green fields and brown soil. The river is highlighted in a bright blue color. A semi-transparent white rectangular box is overlaid on the center of the image, containing the title and date. The background shows a mix of natural terrain and agricultural patterns.

Water Strategy Development

November 2016

Water Strategy Paper

Today

- CMAP policies, role, and activities
- Issues and challenges

Organization

- Water quality: watershed planning and assistance; wastewater planning; streams, rivers, lakes, and Lake Michigan
- Water supply: sources, quantity & quality, conservation, management
- Waterways: major river systems, the CAWS, Lake Michigan
- Stormwater is being addressed separately, but overlaps

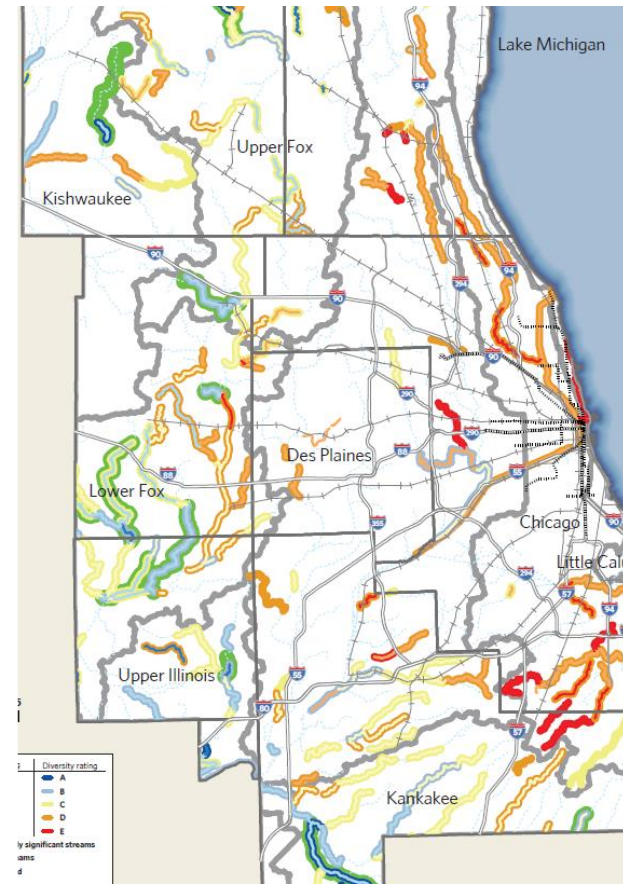
Relevance to CMAP and the region

- Clean, abundant surface and groundwater drives industry, economy, household use, energy generation, recreation, and aesthetics, leading to high quality of life for residents and businesses (and critters)
- Waterways are important for movement of goods
- Water quality, drinking water sources, and the integrity of our waterways are impacted by land use, transportation, and wastewater development and management decisions
- Current water resource planning and management structure is uncoordinated, spans jurisdictional boundaries and agencies, and requires regional view and coordination

Water Resource Planning in GO TO 2040

GT2040 approach could be improved upon

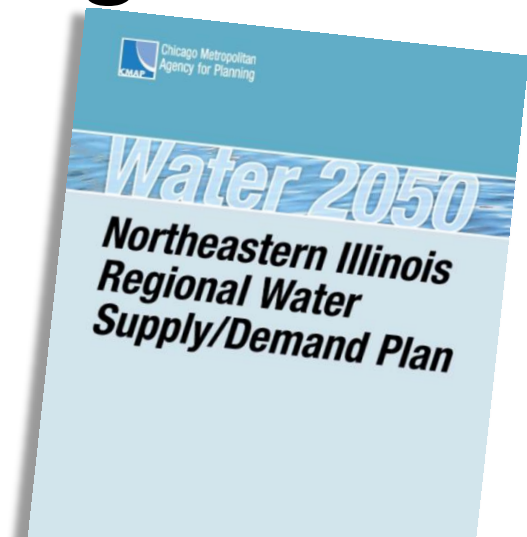
- Manage and Conserve Energy and Water Resources chapter recommends *sustainable management of water resources*
 - Integrate land use policies and site planning with water resource management and conservation
 - Support water use conservation efforts
 - Optimize water and energy sources and scale of operation (water-energy nexus), e.g., consolidate community systems for efficiency, quality output, and lower risk
 - Encourage watershed planning and stormwater infrastructure retrofits / green infrastructure
- Waterways and corridors are embedded within open space, greenways, and conservation recs;
- Transportation role of waterways is acknowledged



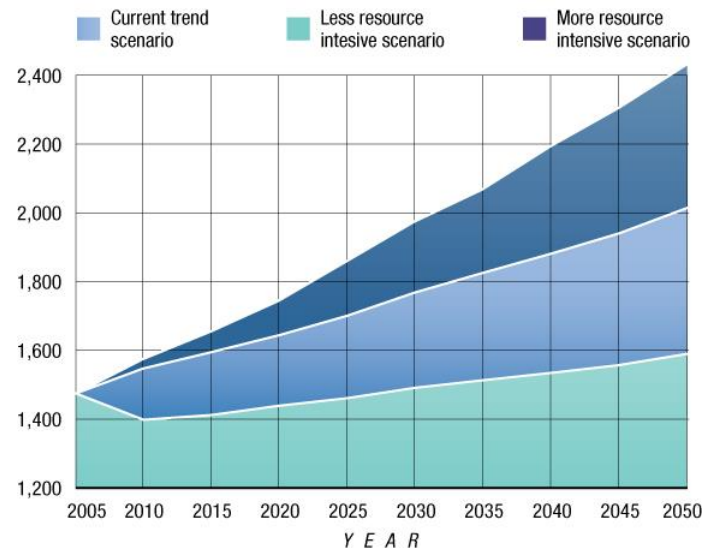
Water Resource Planning in W2050

Water 2050 assessed current water supply conditions and future projections / scenarios for 11-county area

- 4 land use and 13 demand management strategies and recs
- Water demand targets incorporated as indicator in GT2040



Scenario water withdrawals: 2005 - 2050, in million gallons per day



Source: B. Dziegielewski and F.J. Chowdhury, 2008, Southern Illinois University Carbondale

CMAP role and activities

IEPA

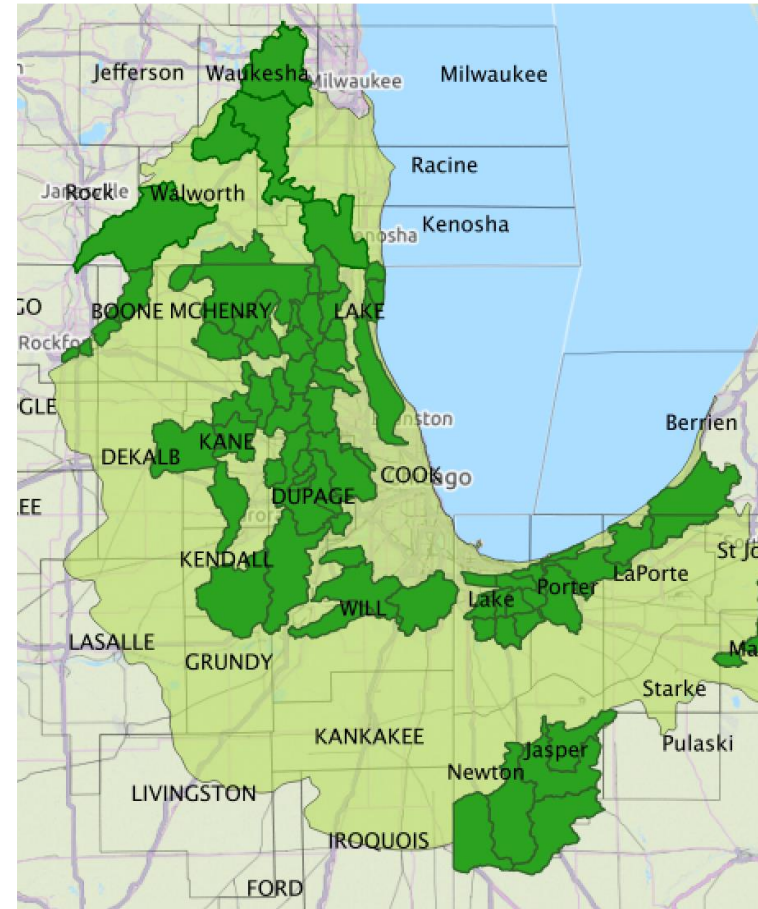
- Watershed planning and technical support
- Lakes monitoring and management
- WQMP consistency reviews and partner notification for NPDES, SRF, and facility plans
- Wastewater planning role

LTA

- Stormwater management planning
- Local and river corridor plans and ordinances

Regional scale

- Lake Michigan Lakewide Management Plan
- Waterway Management Strategy on existing conditions, impacts, and benefits
- Green Infrastructure Vision (GIV)
- Trails and greenways planning
- Ports and freight via policy team



CMAP role and activities

Through support of IDNR and in collaboration with partners (IISG, MPC, NWPA)

- Technical resources for communities: Model Water Conservation Ordinance, water bill inserts, municipal conservation and efficiency plans, Full Cost Water Pricing manual.
- Water loss monitoring and data collection for Lake Michigan permittees, and draft guidelines for LM Water System Improvement Plans to address water loss as condition of permit
- Support Northwest Water Planning Alliance Strategic Planning efforts (incomplete) and Technical Advisory Committee (with IISG)
- Convened short-lived Water 2050 Regional Forum
- Exploring how to incorporate water supply issues in LTA plans via water loss data and identification of sensitive aquifer recharge area protection in relevant communities

Water Quality Planning: Issues and Challenges

- Lack of holistic view and integration of water resource planning with land use and transportation planning, climate change considerations, etc.
- Current federal (USEPA) and state (IEPA) freshwater management policies may be inadequate to restore WQ cost-effectively over reasonable time period
- Remaining point and nonpoint source challenges include nutrients, emerging contaminants (pharm, hormones, bacteria/bugs), chlorides, metals, CSOs; nonpoint sources of pollution are increasing, hard to control, and costly to retrofit the built environment
- Gulf hypoxia and Illinois' significant contribution of nutrients
- Septic systems and groundwater quality
- Habitat and water quality impairments of our rivers and streams, including toxic cyanobacterial blooms, invasive species, physical and chemical degradation, etc.
- Resource recovery and reuse of stormwater and wastewater streams: water reuse, biosolids, energy, etc.
- Aging infrastructure (maintenance, replacement, funding, I&I, CSOs)

Waterways Planning: Issues and Challenges

- Urban waterways are in poor condition: habitat loss and degradation, channel modification, point and non-point discharges
- Waterway use for recreation can be a public health concern (CSOs, fish consumption), and cause congestion and user group conflicts
- Shipping industry faces challenges related to efficient movement of goods – locks, channel depth/width, overhead clearances, aging infrastructure, and nuisance species
- Uncertainty in Lake Calumet's future use(s)
- Lack of coordination and funding resources for water infrastructure; programs in place are difficult to implement (e.g. WRDA and WRRDA)
- Lake Michigan's nearshore and shoreline habitats (including wetland and riparian) are threatened by habitat loss, degradation and fragmentation
- Headwater streams are extremely important to stream integrity
- Watershed planning is one strategy, but how effective is it?
- Diversions and interbasin transfers

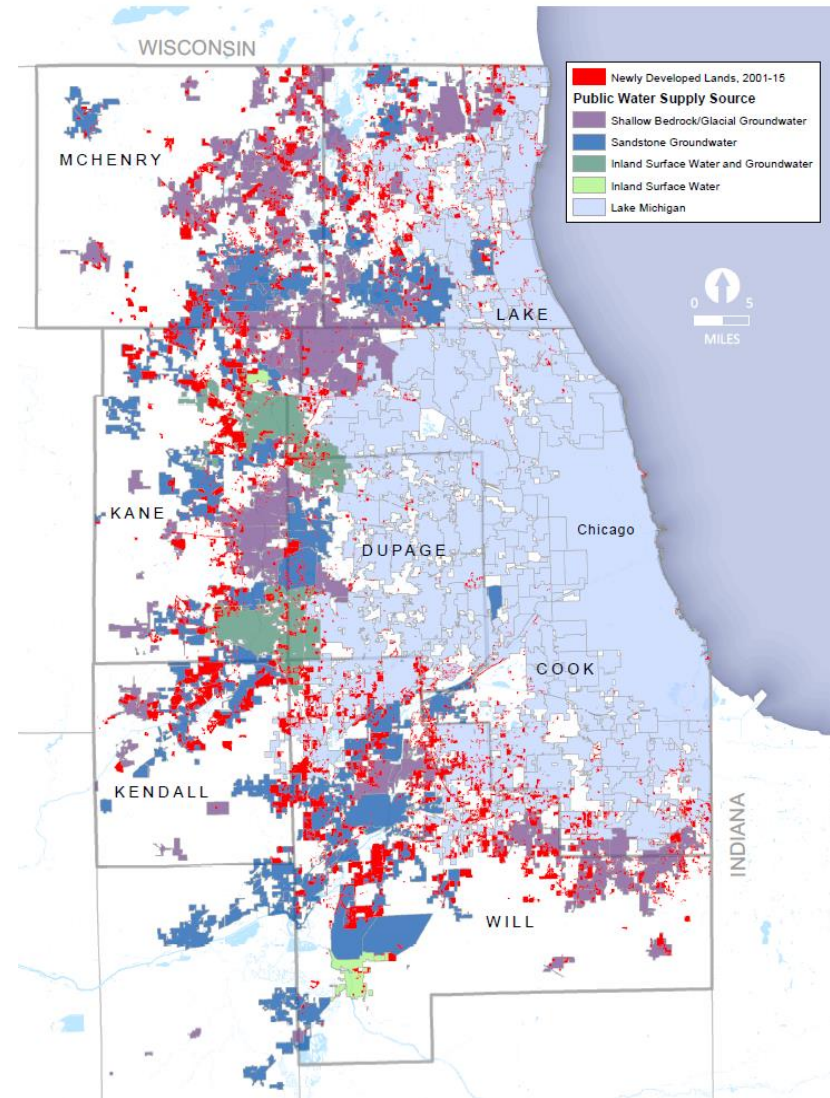
Water Supply Planning: Issues and Challenges

Water supply & quality

- Sandstone Aquifer Drawdown
- Shallow Groundwater Contamination
- River quality and future quantity
- Limited Lk Michigan allocation
- New development/ demand occurring in areas with water supply/ quality constraints

Conservation and asset management

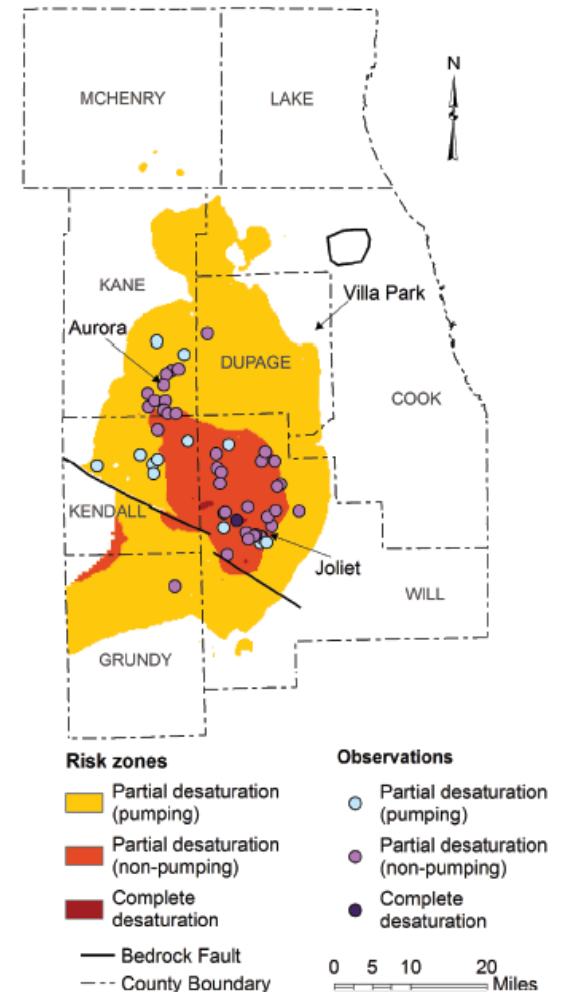
- Lack of conservation-oriented water rates
- Substantial water loss for Lake Michigan users; loss levels unknown for others
- Small systems lack economies of scale and staff capacity.
- Aging infrastructure
- Upcoming lead and copper replacement State and Federal requirements



Water Supply Planning: Issues and Challenges

Lack of coordinated source management

- Many unknowns about groundwater supply
- Difficult to connect supply info with utility management and development decisions
- Government oversight divided between multiple state agencies
- Permits for new wells ignore supply
- No collective water use monitoring system
- No statutory remedies for disputes
- No contingency plan for droughts



Climate Adaptation: Issues and Challenges

- More extreme and fluctuating hydrologic events, greater runoff and flooding, at-risk facilities (e.g., near 100yr and within 500yr floodplain)
- More extreme drought, greater water demand, lower lake levels and baseflows, exposed water intakes, lower water quality due to lower volume, less receiving water volume for waste dilution, less groundwater recharge due to less consistent rainfall
- Climate impacts may cause national population, business, and industry shifts towards the Great Lakes, driving up water demand
- Lake Michigan physical composition is projected to change along with a decline in cold-water fish species

Next Steps

- Prioritize issues and challenges based on CMAP priorities and ability to influence
- Conduct research and analysis that can inform understanding of issues and challenges and potential policy directions
- Identify potential policy directions for ON TO 2050