



MEMORANDUM

To: CMAP Committees

From: CMAP staff

Date: March 7, 2018

Re: Outline of the proposed recommendations of the ON TO 2050 environment element

This memo contains the proposed recommendations of the ON TO 2050 chapter on the environment. Since 2016, CMAP staff have conducted extensive research and collaborated with partners to develop ON TO 2050. The recommendations described in this memo were refined through numerous [strategy papers](#) and [snapshots](#), including the [Natural Resources Snapshot](#) and the [Climate Resilience](#), [Integrating Green Infrastructure](#), [Lands in Transition](#), [Water Resources](#), and [Stormwater and Flooding](#) strategy papers. These proposals build on GO TO 2040's focus on reinvestment, preserving open space, and fostering livable communities to explore new policies and strategies and provide implementers with more specific direction. This is the second of a series of memos that will be used to introduce the core concepts of ON TO 2050 and seek feedback from CMAP committees and stakeholders.

ON TO 2050 outline

ON TO 2050 will be conveyed primarily on the web. The structure assumes that readers will not approach the document linearly. The plan will be organized around five topical areas, each containing a set of recommendations that may repeat across chapters, as will some strategies within those recommendations. Each recommendation will describe its support for the three principles of the plan: Inclusive Growth, Resilience, and Prioritized Investment. The following lists the plan sections to provide context for land use chapter:

- Introduction
- Principles to move the region forward
 - State of the region
 - The three principles
- Engagement
- Land Use
- Environment: *Proposed recommendations provided below*
- Economy

- Governance
- Mobility

Introduction

ON TO 2050 strongly affirms that the region's natural resources are critical to continuing to provide a high quality of life and vibrant economy. The region's abundant water supply has been crucial to attracting people and investment, and its extensive green infrastructure network provides invaluable habitat and species diversity, protects environmental quality, aids in flood mitigation, and is an important line of defense against the impacts of climate change. In recent history, CMAP, counties, municipalities, conservation organizations, forest preserve districts, and others have made a sustained effort to protect, restore, and expand the region's natural resources.

At the same time, our natural resources face many challenges and new threats. While the region permanently preserved 61,500 acres of natural and agricultural lands from 2001 to 2015, an additional 140,000 acres of these lands were lost to development – an area roughly equivalent to the land area of the City of Chicago. Despite increased awareness of the importance of environmental assets, constrained funding at all levels and competing priorities hinder our ability to adequately protect and enhance them. Climate change, which manifests in our region as more frequent and severe storms, extreme temperatures, and drought, is already significantly impacting our economy, ecosystems, and people. In particular, the region faces substantial flooding issues, which will continue to be exacerbated by the intense storms brought by climate change and increased impervious coverage from development. Flooding can cause extensive property damage and impaired water quality. And as development continues to push outward into the fringes of the region, groundwater supplies may dwindle while the costs of providing infrastructure and services rise, making continued expansion unsustainable. The impacts of these trends do not affect all populations equally. Vulnerable populations in particular may experience heightened risks, costs, and liabilities, including high water rates, compromised infrastructure, and repetitive flooding.

ON TO 2050 proposes a comprehensive suite of actions by a range of stakeholders to address these and other environmental issues. When fully implemented, these actions will result in a region that is resilient to the anticipated impacts of climate change, particularly flooding; has sustainable and clean water resources; preserves the most important agricultural and natural lands while accommodating sensible growth; and bolsters the residents of the region who are most vulnerable to environmental impacts.

Proposed environment chapter recommendations

The proposed recommendation areas for the ON TO 2050 environment chapter include the following.

- Plan for climate resilience



- Manage stormwater to reduce flooding
- Protect and enhance the integrity of aquatic systems
- Coordinate shared water supply resources
- Target preservation and stewardship efforts to key natural and agricultural areas

The environmental recommendation areas for ON TO 2050 were selected to complement and build upon GO TO 2040's environmental recommendations, rather than restate them. The broad environmental recommendation areas in GO TO 2040 included Manage and Conserve Energy and Water Resources; Expand and Improve Parks and Open Space; and Promote Sustainable Local Food. The Plan also emphasized the importance of greenhouse gas emission reductions and climate mitigation as well as brownfield remediation.

The following outlines the initial recommendations and strategies proposed for ON TO 2050 in the environment chapter. This proposal will be revised per stakeholder feedback, and followed by a full draft of the environment chapter of the plan.

Plan for climate resilience

Summary: The effects of climate change will have significant implications for the built environment, economy, ecosystems, and people of this region. The region must prepare for and be poised to recover from the acute shocks, such as extreme flooding events, and chronic stresses, such as long-term damage to transportation infrastructure, posed by climate change. Planning for climate resilience entails a wide variety of strategies that work to reduce risk, strengthen our built and natural environment, and improve our operational response to specific events. Regional stakeholders, from local elected officials to business leaders, need access to up-to-date data on climate science to make informed decisions. At the same time, many resilience strategies require coordinated sub-area, regional, or statewide action. Resilient and livable communities should also continue to mitigate the emissions that contribute to climate change.

The following outlines strategies to implement this recommendation.

- Incorporate climate resilience and adaptation measures into planning and development
- Strengthen transportation infrastructure to withstand climate change
- Improve the operational response to weather events to ensure mobility
- Explore a regional climate resilience platform to coordinate initiatives and provide data and resources

The following example illustrates how a selected strategy, "Incorporate climate resilience and adaptation measures into planning and development," includes action steps to guide implementation.



- *CMAP* should develop an approach for integrating climate change and vulnerability into local planning efforts, and employ that approach through the LTA program
- *CMAP, counties, and other partners* should support continued pre-disaster planning efforts and identify opportunities for coordination
- *CMAP and other partners* should identify planning best practices and strategies to meet resilience goals
- *CMAP, municipalities, and counties* should allow for and encourage the development of decentralized and renewable energy systems
- *Municipalities and counties* should integrate climate impacts and vulnerability into relevant plans and regulations and coordinate with appropriate actors during planning processes, with particular attention to engaging vulnerable populations
- *CMAP and partners* should analyze the effects of climate change on vulnerable populations and develop strategies to build resilience for those residents

Manage stormwater to reduce flooding

Summary: Flooding presents significant economic, social, infrastructural, and environmental challenges that can make it difficult for communities to implement regional and local goals. Extreme storm events are predicted to increase, yet much of the region’s grey and green infrastructure system already struggles with today’s storms. The region must advance planning and development techniques to reduce current and future flooding risk. Armed with up-to-date precipitation trends and floodplain maps, municipalities can work to protect natural areas, streamline development techniques that reduce runoff, and integrate stormwater management best practices into public investments, such as streets and neighborhood parks. The region should continue to work to identify the most vulnerable portions of our transportation network to maintain mobility under changing climate conditions.

The following outlines strategies to implement this recommendation.

- Identify and communicate flooding risk
- Advance planning and development techniques to reduce current and future risk
- Maintain and invest in grey and green infrastructure
- Address flooding vulnerability of the transportation network
- Integrate stormwater management into transportation projects

The following example illustrates how a selected strategy, “Address flooding vulnerability of the transportation network,” includes action steps to guide implementation.

- *Transportation implementers* should conduct studies to determine the flooding vulnerability of transportation infrastructure.
- *CMAP and partners* should conduct a regional climate vulnerability assessment to inform long-range transportation planning and programming.



- *CMAP* should assess flood vulnerability in its evaluation of regionally significant projects
- *Transportation implementers* design transportation infrastructure for the climate of its designed lifespan
- *CMAP* should develop a regional pavement flooding reporting system to help plan for flood events

Protect and enhance the integrity of aquatic systems

Summary: The region has a wealth of water resources, including many wetlands, lakes, rivers, and streams. While we have made substantial improvements in water quality, resources are still plagued by agricultural and urban stormwater runoff and the loss of habitat. Many of our challenges are the result of isolated actions that do not consider the interconnected nature of water resources. The region must align and coordinate actions to improve watershed health. State regulations and programs can help to coordinate across water sectors as well as jurisdictional boundaries. Watershed plans can take on multiple objectives to discover synergies with potential implementers. And as communities grapple with aging water infrastructure systems – including drinking water, wastewater, and stormwater – integrated approaches can provide essential, resilient, and reliable services now and into the future.

The following outlines strategies to implement this recommendation.

- Improve water resource management and coordination
- Incorporate water resource management into local planning
- Create and implement multi-objective watershed plans
- Optimize water infrastructure investment
- Be a steward of Lake Michigan and the Great Lakes

The following example illustrates how a selected strategy, “Create and implement multi-objective watershed plans,” includes action steps to guide implementation.

- *CMAP, IEPA, and watershed management entities* should engage a diverse set of stakeholders, including stormwater and wastewater managers, in workgroups to plan and implement watershed plans.
- *CMAP* should continue to advance the state of the science of watershed planning, develop, and help implement watershed plans in the region.
- *CMAP and partners* should explore funding opportunities and strategies that support collaborative efforts, such as the State Revolving Fund and the use of transfers, credits, and water quality and volume trading programs to achieve regional water resource goals.
- *Wastewater managers, stormwater managers, and local governments* should focus efforts on addressing priority pollutants through watershed planning and



implementation: nutrients, chlorides, and emerging pollutants such as pharmaceuticals.

Manage shared water supply resources

Summary: Maintaining a long term supply of high quality drinking water -- from Lake Michigan to deep bedrock aquifers -- requires protection and sustainable management of our source waters. Understanding future water demand associated with new population growth and businesses is essential for the region as well as local decision makers. Assessing forecasted water demand against available water supply and infrastructure capacity can inform local planners on whether there is sufficient water supply and can encourage actions that reduce demand, protect supply, improve infrastructure, and pursue alternative drinking water sources.

The following outlines strategies to implement this recommendation.

- Incorporate water supply and demand considerations into local and regional planning
- Strengthen regional water supply management
- Maintain drinking water infrastructure and manage demand

The following example illustrates how a selected strategy, "Incorporate water supply and demand considerations into local and regional planning," includes action steps to guide implementation.

- *The State* should streamline community water supplier reporting requirements and improve data sharing across agencies.
- *The State* should fund critical surface and groundwater supply research and expand groundwater quality and quantity monitoring.
- *Local governments* should protect water sources, such as groundwater recharge areas, through land use planning techniques.
- *CMAP* should regularly update the regional water demand forecast in conjunction with socioeconomic forecast updates.
- *Local governments and other community water suppliers* should conduct local water demand forecasts and incorporate findings in land use and infrastructure planning efforts.
- *CMAP and partners* should provide technical assistance to communities to incorporate local water demand forecasts in local plans.
- *Local governments* should review the expansion of drinking water services in new development with consideration of long-term water availability and infrastructure costs.



Target preservation and stewardship efforts to key natural and agricultural areas

Summary: Conserving the region’s highest quality natural resources and agricultural areas preserves their ecosystem benefits and complements the region’s overarching goal of reinvesting in already-developed areas. While preservation decisions are often driven in part by opportunity, strategic frameworks like the ON TO 2050 conservation areas layer can help maximize the benefits of land protection by coordinating different actors across jurisdictional boundaries. These efforts can occur anywhere in the region, but are particularly important at its developing edge. And when development of these lands does occur, sensitive land development techniques, such as conservation design, should be employed to preserve high quality natural areas to the extent possible.

The following outlines strategies to implement this recommendation.

- Identify and plan for the protection of high-priority natural areas and key agricultural lands
- Prioritize and fund preservation and stewardship of critical lands
- Diversify agricultural systems to promote resilience
- Deploy sensitive development techniques in new development

The following example illustrates how a selected strategy, “Deploy sensitive development techniques in new development,” includes action steps to guide implementation.

- *Local governments* (per the coordinated growth areas layer) should adopt conservation-oriented development standards and avoid development on key natural areas.
- *CMAP* should investigate conservation design practices that work best with agricultural activities.
- *Municipalities* should build on fiscal impact analyses to enact adequate taxes and fees to cover the cost of infrastructure and services over the lifespan of new development.
- *Counties and municipalities* should conduct detailed development site inventories and mitigate the natural resource impacts of development through actions such as equivalent protection of conservation areas.
- *Municipalities* should consider the capacity of land and water resources to support growth in decisions about the intensity and extent of development.

ACTION REQUESTED: Discussion

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