# Stormwater Management Opportunity Planning

Document

**Stormwater Management Opportunity Planning**

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Localized stormwater flooding is a common concern among the region's municipalities, yet many lack the resources to identify opportunities and strategies to address flooding issues. For example, a village may be aware of an area that floods regularly, but they may not know the cause or the drainage area that flows to the flooded area. One strategy for addressing this is to better integrate stormwater management into decisions about land use and development. The location and form of our development patterns play a large role in the amount of stormwater runoff generated and can be a key part of the solution.

To better position communities to improve stormwater management, CMAP has developed an approach to help identify problem areas and causes and begin to articulate discrete, on-the-ground opportunities for improvements that can reduce flooding. The purpose of this approach is to present a cost-efficient planning tool to assess flooding issues, inform stakeholders and decision makers about potential flood mitigation options, particularly green infrastructure (GI) and land use solutions, and to incorporate those solutions into land use and transportation decisions. CMAP is using this approach in local planning projects though the Local Technical Assistance (LTA) Program.

With support from the MacArthur Foundation, CMAP created a step-by-step guide to the spatial analysis and a stormwater planning data inventory to assist partners in planning efforts. The guide, Stormwater Management Opportunity Planning: Spatial Analysis Methodology, details the four main tasks of the approach, including data collection and development of a GIS database, data analysis to identify flooding problems and opportunities in a community, prioritization of implementation, and preparation of a draft plan.

Given the severity of urban flooding in Northeastern Illinois, and the large, watershed-scale challenge of addressing overbank flooding, this methodology concentrates more on localized drainage problems and less on riverine flooding. This approach is not meant to identify specific engineered structural (grey infrastructure) solutions to the identified problems, which require advanced engineering analysis by the municipality, county stormwater management agencies, or other entities.

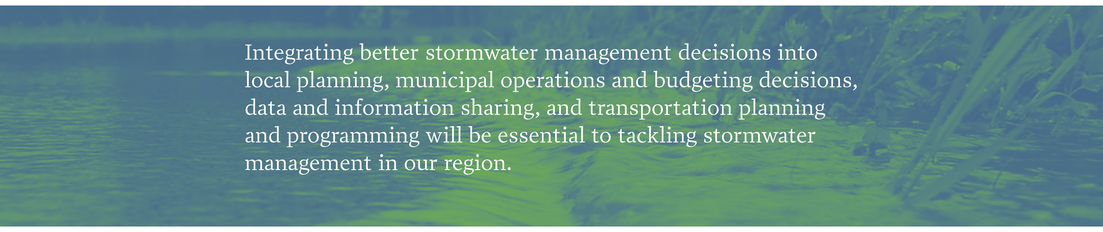
For additional information on the publication, contact Kate Evasic (kevasic@cmap.illinois.gov or 312-386-8782).

# Stormwater Planning Data Inventory

Local and regional analysis of flooding issues relies upon regularly-updated geospatial information about a variety of indicators – including land cover/use characteristics, topography, and soils. The Stormwater Planning Data Inventory, a list of useful datasets, is shown below. Some of these datasets are used in the Stormwater Management Opportunity Planning: Spatial Analysis Methodology. Each record includes the most recently available vintage and provides a link to download or request the data.

| Source | Data Download / Request | Age | Description |
|---|---|---|---|
| EPA | National Hydrography Dataset "Plus" | 2012 | Hydrologic data framework which incorporates the National Hydrography Dataset, the National Elevation Dataset, and the National Watershed Boundary Dataset. Includes HUC12 boundaries. |
| Counties | Streams and Water Bodies<br>Download/Request: Cook, DuPage, Kane, Kendall, Lake, McHenry, Will | Various | Hydrographic lines and polygons created and/or hosted by County GIS departments. |
| ISGS; Counties | Light Detection and Ranging (LiDAR) Digital Elevation Model (DEM) data | Various | High-resolution LiDAR-derived elevation grids. |
| Counties; Municipalities | Building Footprints<br>Download/Request: Chicago, DuPage, Lake, Will | Various | Overhead extent of building footprint as extracted or digitized from aerial photos. Footprints are known to exist for those areas with download/request links. For other areas, contact counties or municipalites to determine availability. |
| CMAP | ArcHydro Modeling Outputs | 2017 | Includes hydrologically-corrected DEM, flow direction, flow accumulation, drainage lines, catchments, and depressions. See data packages for additional information. |
| CMAP | Land Use Inventory | 2013 | Comprehensive parcel-based Land Use Inventory, containing 59 different use classes for over 2.5 million parcels. |

# Stormwater



Integrating better stormwater management decisions into local planning, municipal operations and budgeting decisions, data and information sharing, and transportation planning and programming will be essential to tackling stormwater management in our region.

## Where is CMAP involved on Stormwater?

### Stormwater Management Opportunity Planning

Urban flooding is a common concern among the region's municipalities, yet many lack the resources to identify opportunities and strategies to address flooding issues. CMAP has developed an approach to help identify problem areas and begin to articulate discrete, on-the-ground opportunities for improvements that can reduce flooding. CMAP is incorporating this approach in local planning projects though the Local Technical Assistance (LTA) Program.

### Calumet Stormwater Collective

CMAP is an active member of the Calumet Stormwater Collaborative, which was formed in 2014 to improve stormwater management through investments in and coordination of green infrastructure solutions.

### Stormwater Utilities

Storm sewers, culverts, and a host of other stormwater infrastructure components need repair, but funding for capital improvements is scarce. CMAP has outlined the legal authority and key components of a establishing a stormwater utility to respond to these challenges.

### Stormwater Planning Data Inventory

The Stormwater Planning Data Inventory includes a list of datasets that can inform local and regional analyses of flooding issues.

## Why is Stormwater a challenge to our region?

Stormwater management and flood prevention in northeastern Illinois can be particularly challenging due to the region's flat topography and broad floodplains. Agricultural and urban development has not fully considered the long-term consequences of altering the region's landscape. As a result, the existing grey and green infrastructure designed to handle runoff is currently inadequate and requires significant investment in order to reduce negative impacts of flooding on private property, local infrastructure, regional transportation, an natural resources. Future development poses new challenges due to the reduction of the landscape's ability to absorb precipitation and the continuing pressure to develop flood prone areas. In addition, studies have indicated that climate change has been leading to an increase in the severity and frequency of extreme storms and that this will be particularly true in the upper Midwest, including the Chicago region.

Stormwater crosses jurisdictional boundaries and the amount of stormwater runoff generated is heavily influenced by land use and transportation. The design of our streets and roads, which are a large contributor to stormwater runoff and are also in public ownership, can play a key role in reducing the negative impacts of future storm events. Land use and development, and the corresponding regulations, can help prevent new development and redevelopment from contributing to the problem and could potentially offer shared solutions for existing neighborhoods. Figuring out ways to better manage stormwater can also help the regional economy by reducing the stress flooding can cause on municipal budgets, the use of clean water and wastewater treatment costs, and private property damage and loss.

# Programs

## CMAP operates several important programs that help implement the goals of GO TO 2040 throughout our region.

### Local Planning Programs

**Local Technical Assistance (LTA)**
CMAP has initiated 112 LTA projects with local governments, nonprofits, and intergovernmental organizations to address local issues at the intersection of transportation, land use, and housing, including the natural environment, economic growth, and community development.

**Local Ordinances and Toolkits**
CMAP provides model plans, ordinances, codes, and other tools to municipalities interested in pursuing policies that are aligned with GO TO 2040 recommendations.

### Regional Transporation Programs

**Surface Transportation**
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**Transportation Alternatives**
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**Congestion Mitigation and Air Quality Improvement**
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### Other Programs

**Training**
CMAP provides training for municipal officials and others who want to learn about tools for planning, GIS, economic development, data analysis, and more.

**Municipal Survey**
To inform agency work and track the progress of GO TO 2040 implementation, CMAP conducts a biennial survey of municipal governments.

# Resources

## CMAP publishes many reports, plans, guides, and papers that cover a wide range of relevant topics.

Livability
Climate Resilience
Community Development
Energy
Housing
Land Use
Local Food
Open Space
Stormwater
Water Supply

Mobility
Freight
Roads
Strategic Investment
Transit
Walking & Cycling

Economy
Industry Clusters
Innovation
Regional Economic Indicators
Tax Policy
Workforce