DEVELOPING A COMPREHENSIVE AND INTERACTIVE COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING SYSTEM
FOR
KANE COUNTY, ILLINOIS

March 2022

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Water Resources
719 Batavia Ave.
Geneva, IL 60134

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Fundamental Drainage Questions:

- **How much land drains to my point of concern?**

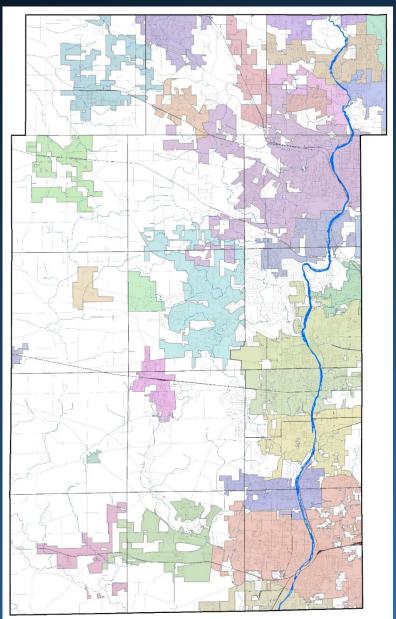- **Where does the stormwater flow to once it leaves my point of concern?**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Kane County Area: 524 mi^2

Unincorporated Areas: 312 mi^2

Municipalities: 212 mi^2

<u>645 miles of shared boundary between the municipalities and unincorporated Kane County</u>

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Kane County Area: 524 mi^2

Unincorporated Areas: 312 mi^2

Municipalities: 212 mi^2

<u>645 miles of shared boundary between the municipalities and unincorporated Kane County</u>

<u>Also:</u>
Section 9-83 of 2019 Stormwater Ordinance Update requires downstream jurisdictions to be notified (other municipalities, the County, active drainage districts, etc.)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
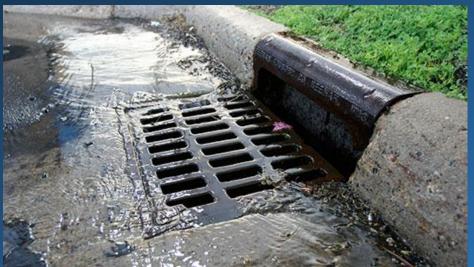## KANE COUNTY, ILLINOIS

Fundamental Drainage Questions:

- How much area drains to my point of concern?

- Where does the stormwater / floodwater flow from my point of concern go?

Who Needs to Know?

- **Public works staff?**

- **Developers?**

- **Design Engineers?**

- **Emergency Response Personnel?**

- **General public?**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
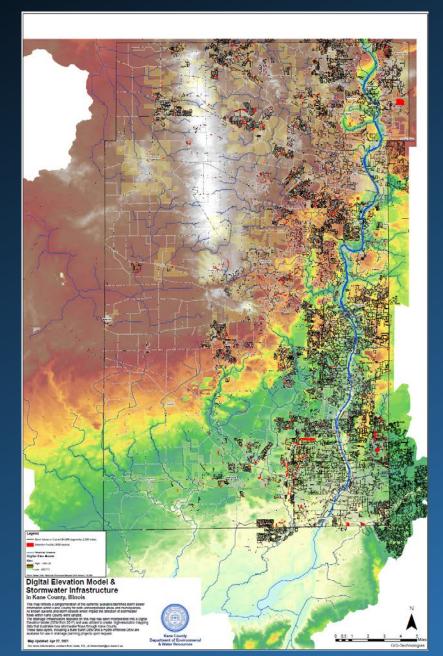## KANE COUNTY, ILLINOIS

Goals:

- **Provide comprehensive, <u>planning-level</u> stormwater infrastructure mapping data that spans across the unincorporated areas as well as municipalities.**

- **Facilitate discussion and improve collaboration between municipalities (& the county) to address drainage problems & environmental resource issues from a watershed perspective.**

- **Create a tool that allows users to quickly and accurately answer those fundamental questions:**

    1. How much area drains to this point (anywhere within Kane County)?

    2. Where does the water flow to and exactly what flow path does it take to get there?

Digital Elevation Model & Stormwater Infrastructure in Kane County, Illinois

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
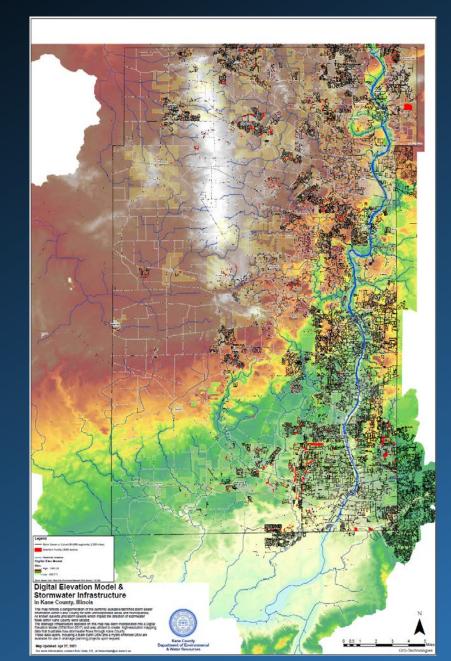## KANE COUNTY, ILLINOIS

Deliverables – GIS Layers

- **Stormwater Detention Basins**
- **Storm sewers, roadway, railroad & driveway culverts**
- **Countywide storm flow path network**
- **Potential Flood Inundation Areas & True Depressional Storage Areas**
- **Bare Earth Digital Elevation Model**
- **Hydro-enforced Digital Elevation Model**

Deliverables – PDF Maps

- **By Township; Showing stormwater basins, storm sewer, culverts, storm flow paths, regulatory floodplain, depressional storage areas, areas potentially vulnerable to urban flooding, hydric soils, ADID wetlands, dams, etc.**
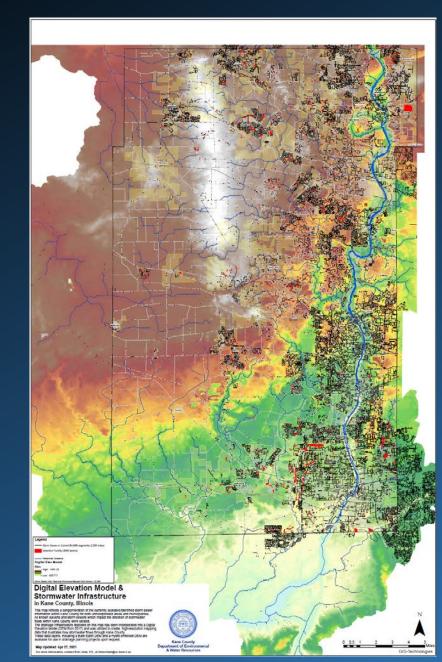
Deliverables – Real Time Flow Trace / Watershed Tool

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Data & Resulting Maps & Map Tools can be used for:

- **Drainage Investigations**

- **Stormwater Permitting**

- **Watershed Planning**

- **Stormwater Modeling & Master Planning**

- **Floodplain Modeling & Remapping**

- **MS4 Illicit Discharge Tracing**

- **Hazard Mitigation Planning**

- **Public Education / Outreach to increase stormwater awareness**

Digital Elevation Model & Stormwater Infrastructure in Kane County, Illinois

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
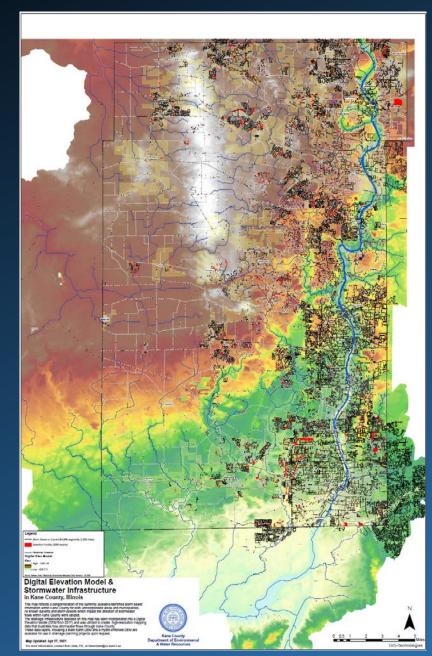## KANE COUNTY, ILLINOIS

GIS Products

Three File Geodatabases:

- **Areas of Potential Flooding** (Flood Inundation Layer)
  - Areas of Ponding, NOT Calculated Floodplain

- **Stormwater Infrastructure**
  - Storm sewers, culverts, detention basins, and inlets, manholes, etc.

- **Stormwater Flow Path**

Two Digital Elevation Models (DEMs)

- **Bare Earth DEM**

- **Hydro-conditioned DEM**
  - Storm sewers & culverts burned into the surface

Digital Elevation Model & Stormwater Infrastructure in Kane County, Illinois

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
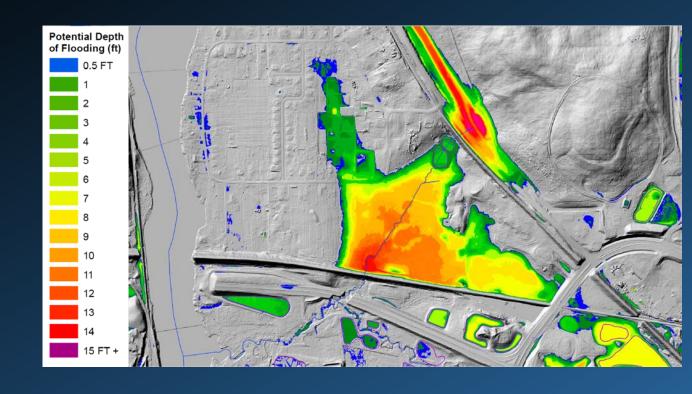## KANE COUNTY, ILLINOIS

Potential Flood Inundation Layer
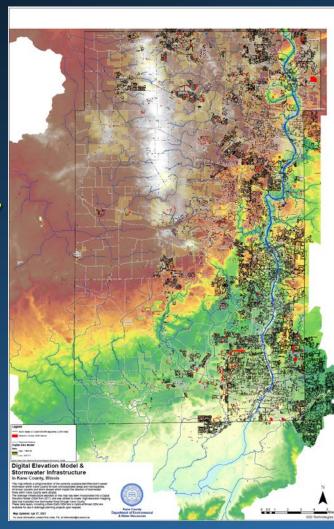
(CountywideDepressionalStorage.gdb; 1.7 GB)

- **File geodatabase that contains polygons for each 0.5 foot of flood depth for every depression in the landscape** (using Bare Earth raster DEM)

Spring 2018

2021

2021 w/ Flood Inundation Layer

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Flood Inundation Layer

(CountywideDepressionalStorage.gdb; 1.7 GB)

- **File geodatabase that contains polygons for each 0.5 foot of flood depth for every depression in the landscape** (using Bare Earth raster DEM)

Potential Depth of Flooding (ft)

- 0.5 FT
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15 FT +

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2022.gdb

Contains GIS layers for:

- **Streams** (updated to alignments/extents reflected in 2017-2021 time period)

- **Storm Sewers** (municipal storm sewers, railroad & roadway culverts, driveway culverts, drain tiles, etc.)

- **Storm Structures** (inlets, catch basins, flared end section inlets & outfalls, etc.)

- **Stormwater Storage Basins** (detention basins, recreational ponds, quarries, etc.)

- **Watershed Boundaries** (updated to factor in sewers & culverts)

Digital Elevation Model & Stormwater Infrastructure in Kane County, Illinois

Kane County Department of Environmental & Water Resources

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2021.gdb

Streams

- Updated to reflect the alignment of perennial stream channels in the 2017-2021 aerials

- Default was 2017 aerial as this corresponds to the Bare Earth DEM, but used 2019 – 2021 aerials where it was evident that major shift in channel alignment occurred (such as in places where a man-made project was done which realigned the channel.

- Many streams were "shortened" as the old Kane County streams layer reflected stream channel which had long ago been buried and converted to farm tile (no stream actually present).

2001

2021

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2022.gdb

Stormsewers

- **Unincorporated storm sewers digitized from subdivision record drawings & KDOT plans.**

- **Municipal sewers were digitized manually using GIS data from municipalities as a guide.**
  - **Corrected whenever possible to match 2019 engineering-grade aerial ortho-pictometry.**
  - **Some GIS layers were off by 10-40 feet!**

- **Key inlets at street intersections included; all lateral inlets will eventually be added in.**

- **Storm sewers for which data was not 100% verified are coded with "VERIFY" in notes so that municipal staff can query the data, check these segments and provide confirmation that sewer is correctly represented or (ideally) provide better info, if possible.**

- *Goal for this layer is to illustrate system connectivity and provide data for hydro-conditioning of the DEM; it is NOT intended to be a replacement for each municipality's storm sewer GIS layer if the municipality has a current & well maintained GIS database of its storm sewers and structures.*
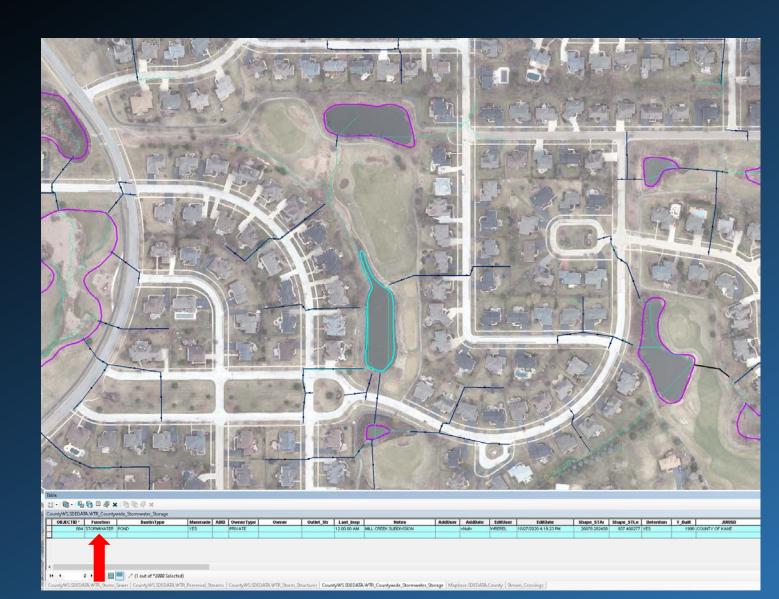

Municipal Storm Layer (uncorrected)

Countywide Storm Layer (corrected)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2022.gdb

Storm Structures

- Mainly contains structures for unincorporated storm sewered areas (county subdivisions & roads under KDOT jurisdiction/ownership)

- Some municipalities' storm sewer structures were included as they had to be created in order to convert those municipalities' CADD & PDF storm sewer data into GIS data.

- Inlets in municipal jurisdictions where no municipal storm sewer was provided (highlights areas where storm sewer is needed to refine the storm flow path mapping)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2022.gdb

Stormwater Storage Basins

- **Includes all water features:** Stormwater Detention Basins, ponds, lakes, quarries & wetlands

- **Best viewed by classifying by FUNCTION in attribute table** (All detention facilities are classified as Function = "Stormwater")

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS
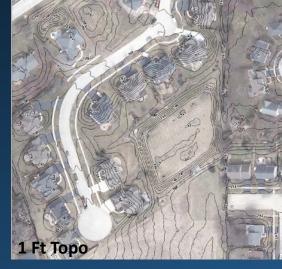
Mapping Detention Basins in Kane County

Data Sources:
- Aerial photos 1939-2021
- Subdivision plans / record drawings
- 1 foot topography (2017)
- Municipal & Unincorporated storm sewer mapping
- Flood Inundation Analysis
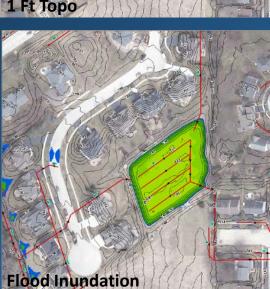
Aerial

1 Ft Topo

Storm Sewer

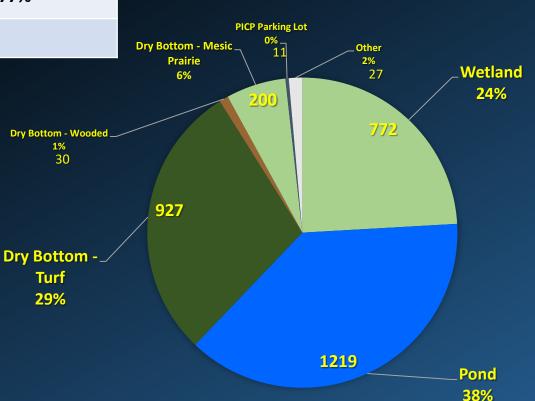Flood Inundation

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Detention Basins in Kane County

3186 total

DETENTION BASINS
(BY JURISDICTION)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS
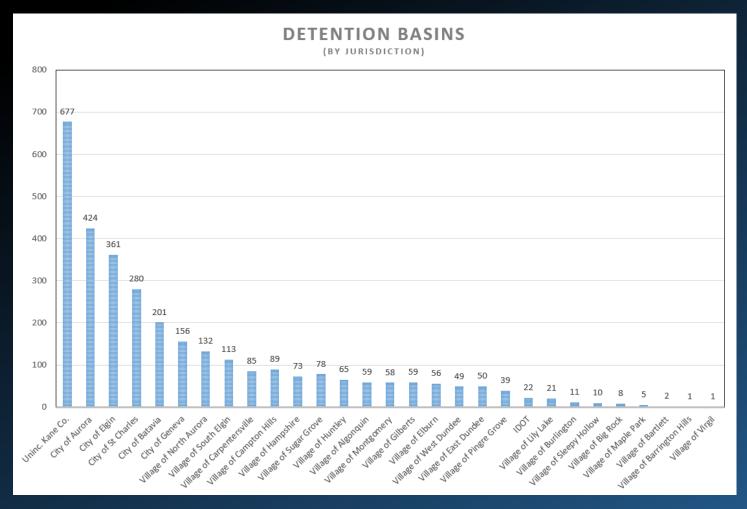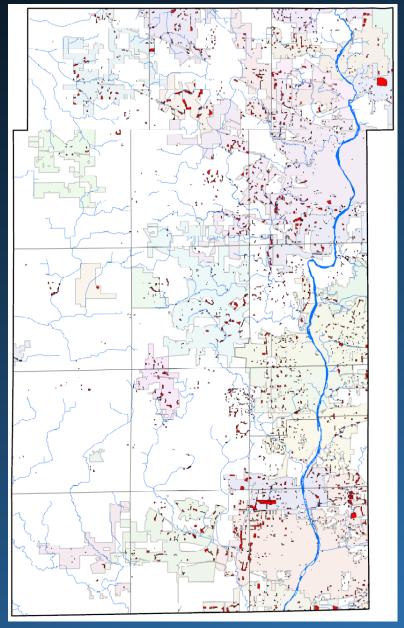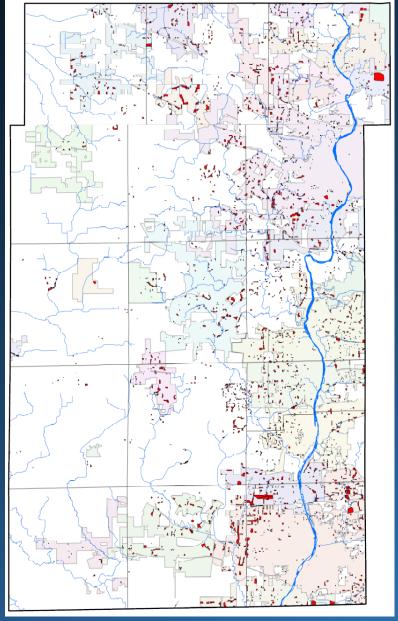
Detention Basins in Kane County
(3186 Total)

Ownership	Det. Basins	Percentage
Public	725	23%
Private	2461	77%
	3186	

Pie chart:
- Dry Bottom - Mesic Prairie 6% — 200
- PICP Parking Lot 0% — 11
- Other 2% — 27
- Wetland 24% — 772
- Dry Bottom - Wooded 1% — 30
- Dry Bottom - Turf 29% — 927
- Pond 38% — 1219

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Detention Basins in Kane County

(3186 Total)

Detention Basin Construction By Date

Period	Count
Pre-1980	127
1980-1990	358
1991-2000	1083
2001-2008	1228
2009-2015	222
2016-2019	155
2020-2021	11

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Storm Flow Paths

2 Versions:

- **Hydro-enforced**
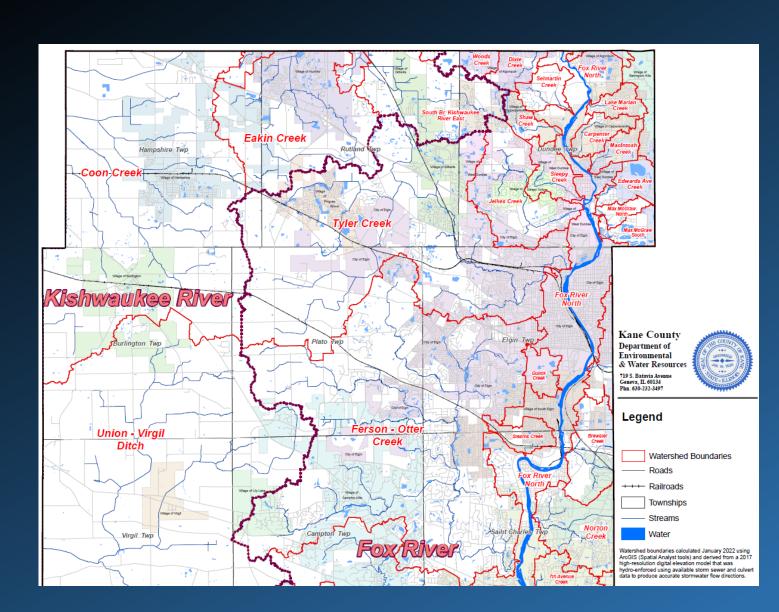
  (Sewers/culverts burned in)

- Unconditioned

  (Bare Earth)

Storm Flow Path under expected conditions (storm sewer working)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

KC_StormwaterDataFeb2022.gdb

Watersheds
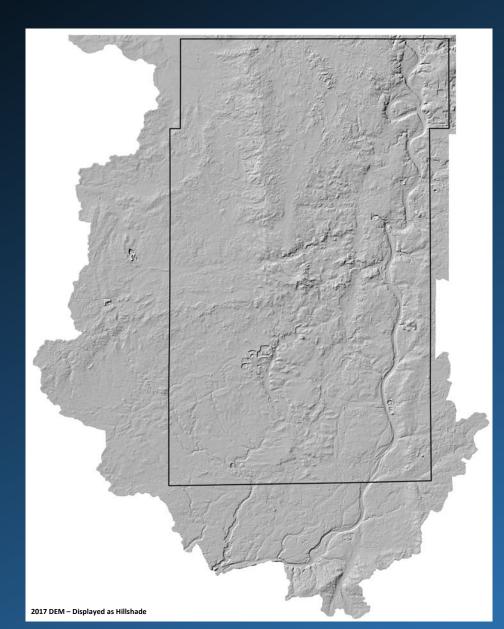
- File name: *Watersheds_Jan2022*

- Represents watersheds for the perennial streams in Kane County and is based on the hydro-enforced DEM created on 1/1/2022

- 51 named watersheds (vs. 12 in original Kane County Watershed Layer)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Digital Elevation Model

- **Derived from LiDAR points flown Spring 2017**
  - **20 points per square meter;**
  - **0.2ft +/- Vertical Resolution (on hard surfaces)**
- **2ft X 2ft Horizontal Resolution**
- **30.8 miles E-W by 39.3 miles N-S**
- **832 sq. miles (Kane County = 524 sq. mi.)**
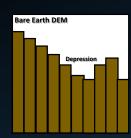- **5.8 Billion Pixels**

2017 DEM – Displayed as Hillshade

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

2019 Aerial Imagery

Streams

Detention Ponds

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

2017 Digital Elevation Model

- **Bare Earth DEM**
  - **Bridge decks removed**
  - **Buildings removed**
- **Hydro-flattened**
  - **Water surface made flat**
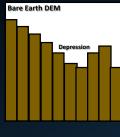- **Underground sewers & culverts are NOT reflected in the DEM**

Bare Earth DEM

Depression

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

2017 Digital Elevation Model

- "Filled" DEM or "Depressionless" DEM
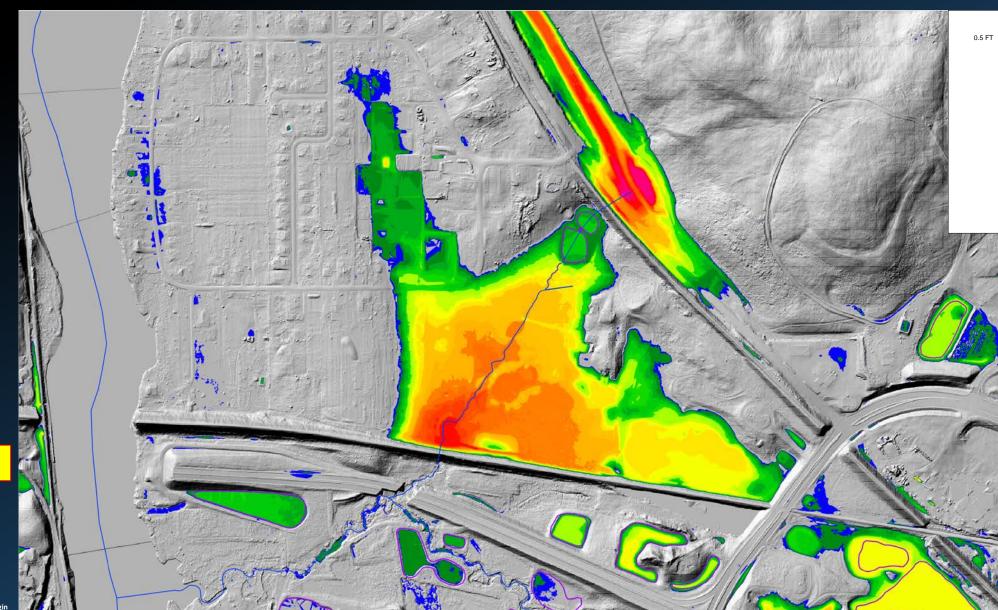
Bare Earth DEM

Depression

Filled DEM

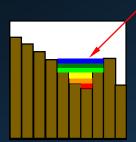Depression "filled" in

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Comparing Bare Earth DEM to the Filled DEM to generate a Flood Inundation Layer

0.5 FT

Flood Inundation Layer

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Flood Inundation Layer displayed over aerial photography

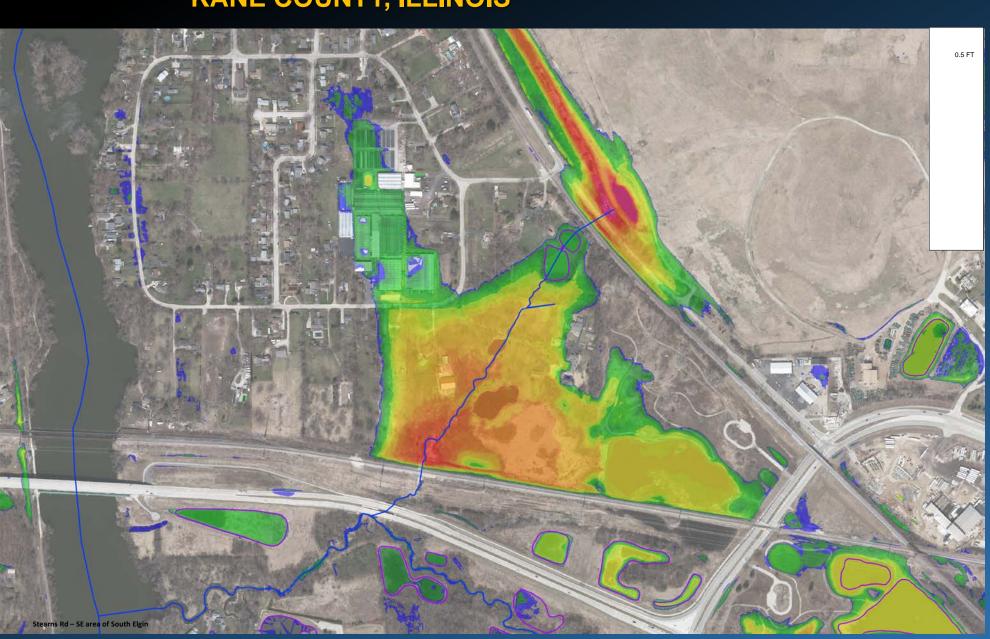**Aids in identifying & visualizing potential urban flooding problems.**

Helps answer questions:

"How deep could the water get around that house?"

"How deep could the water get on our street if the storm sewer failed during a storm & could it impact emergency vehicle access during a flood?"
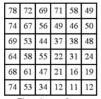
Future Analysis will tell us:

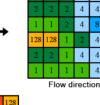**"How many acre-feet of stormwater is stored in our detention basins?"**

0.5 FT

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Developing an accurate Storm Path Network
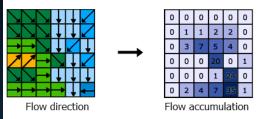
Storm flow path without manmade drainage infrastructure incorporated into DEM

Elevation surface → Flow direction

Direction coding

Flow direction → Flow accumulation

Direction coding

Culvert not represented in DEM

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS
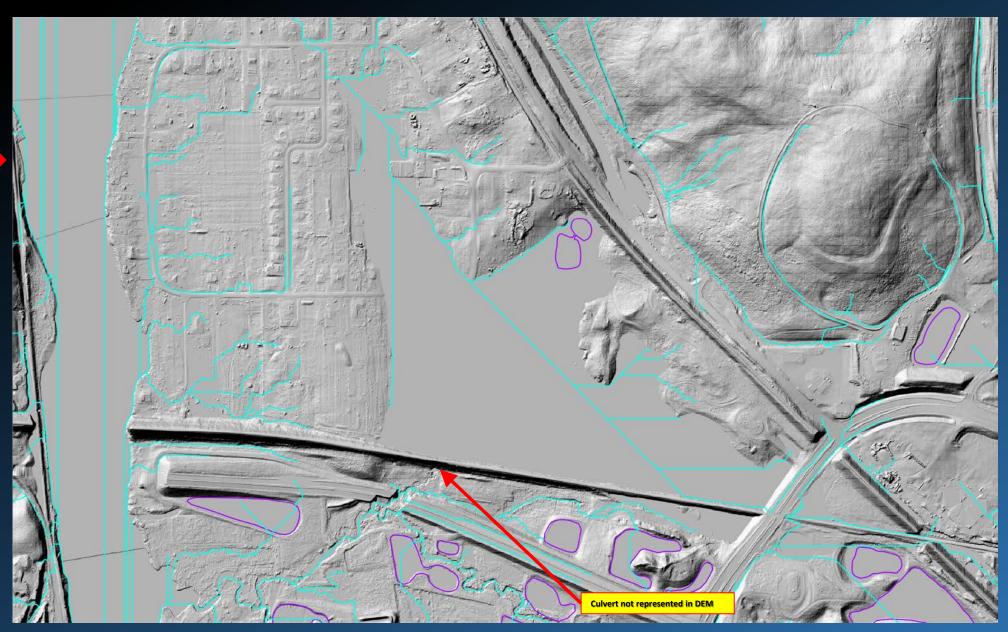
Developing an accurate Storm Path Network

Manmade drainage infrastructure & stream centerlines to be incorporated into Bare Earth DEM

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Developing an accurate Storm Path Network

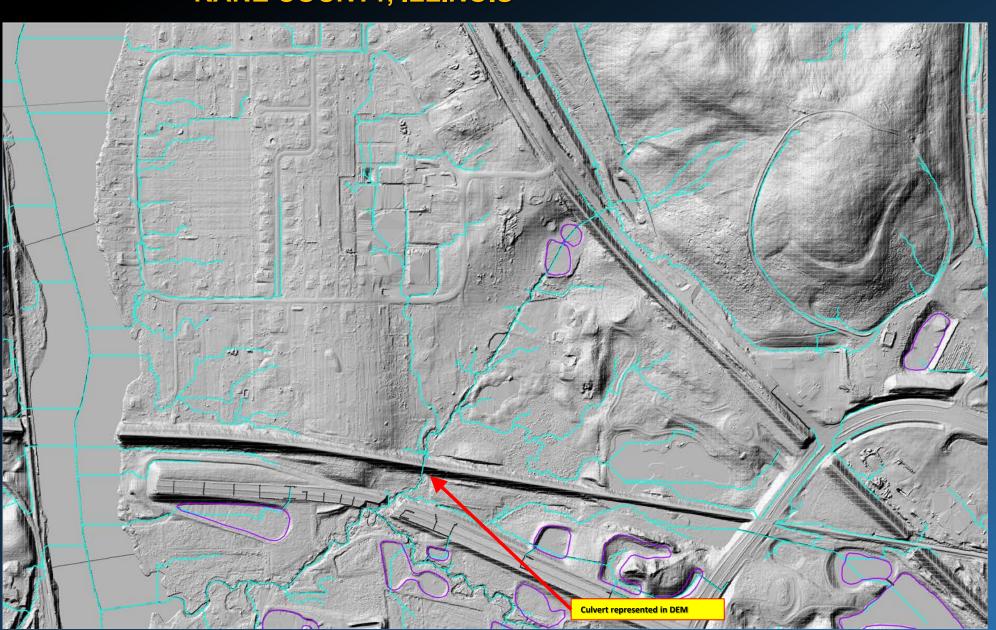**Manmade drainage infrastructure & stream centerlines "burned" into Bare Earth DEM**

Bare Earth DEM

Elev 835

Elev 688

Stream / Culvert / Storm Sewer (not reflected in Bare Earth DEM)

Hydro-enforced DEM

Elev 835

Stream / Culvert / Storm Sewer "burned" into DEM

Elev 688

Elev 100

Stearns Rd – SE area of South Elgin

Elev 688

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Developing an accurate Storm Path Network

Burning the drainage infrastructure into the Bare Earth DEM creates a hydro-enforced Digital Elevation Model

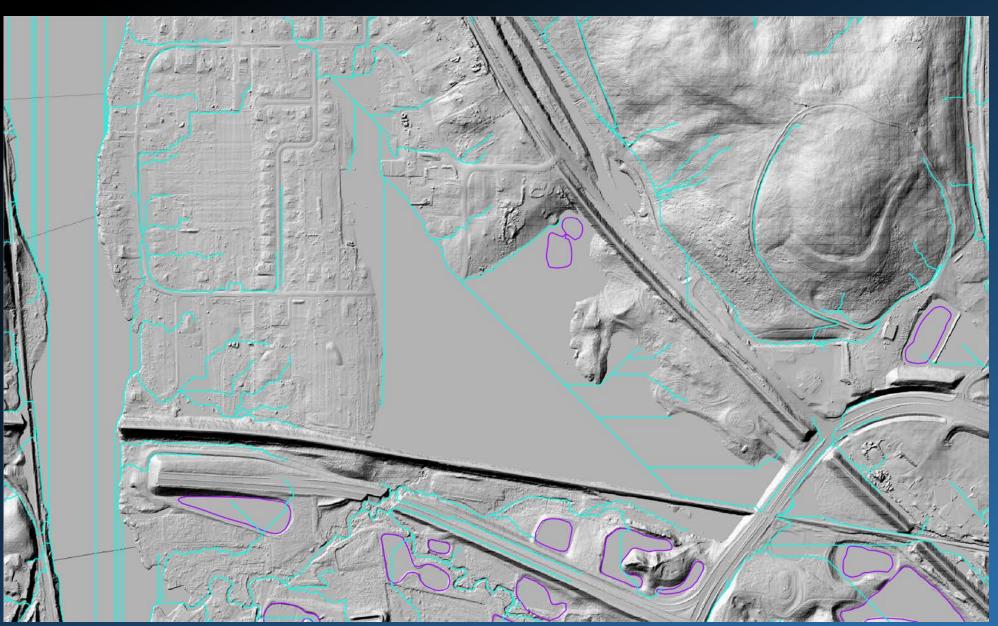**Storm flow path WITH manmade drainage infrastructure incorporated into DEM**

Resolution of Storm Path Network can be adjusted to any drainage area threshold desired (this image shows 1 acre threshold)

Stearns Rd – SE area of South Elgin

Culvert represented in DEM

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
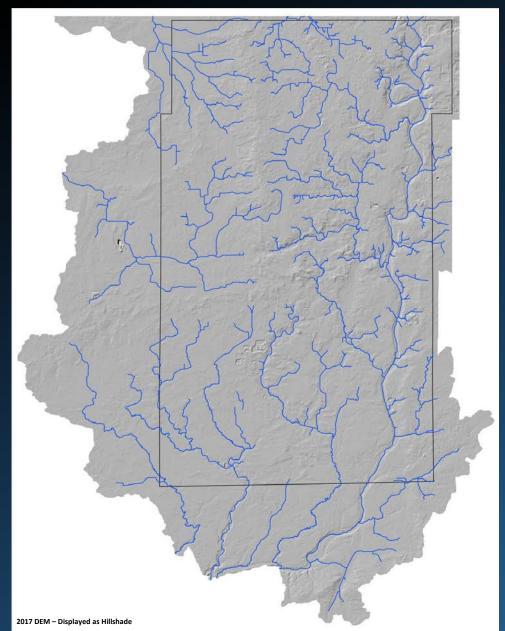## KANE COUNTY, ILLINOIS

No hydro-enforcement

Not necessarily an incorrect Storm Path Network – but a Storm Path Network that sheds light on how stormwater may flow during extreme events if parts of the underground drainage infrastructure fails.

Stearns Rd – SE area of South Elgin

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

653.3 Miles of Stream Channel

Centerline alignment manually adjusted using aerial photos, topo, & flood inundation analysis. (all 3.4 million feet!)
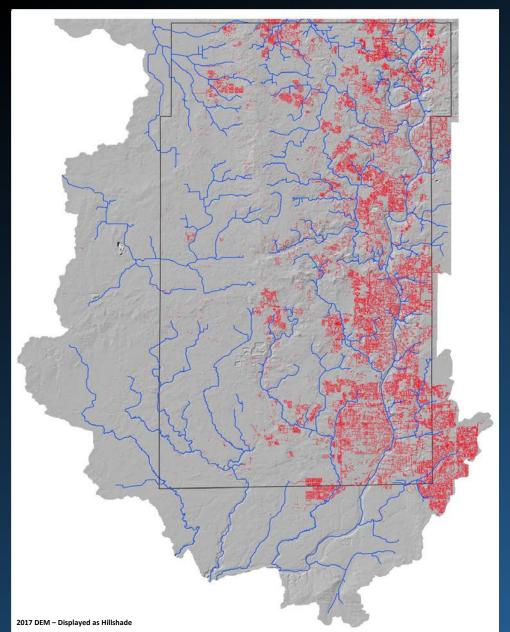

2017 DEM – Displayed as Hillshade

Published Streams Layer

Corrected Streams Layer

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

653.3 Miles of Stream Channel

2,482 Miles of Storm sewer Mapped

(as of February 2022)

- 225 Railroad Culverts

- 12687 Driveway Culverts

- 4163 Roadway Culverts

- 8293 Unincorporated Storm Sewer Segments (Kane Co / KDOT / IL Tollways)

- 53,528 Municipal Storm Sewer Segments

- 21,166 structures (mostly unincorporated areas; some municipal structures where sewer alignment is currently unmapped)

- 1332 Ag Drain tiles (132.4 miles NOT included in 2,482 miles of storm sewers)

- Started with unincorporated culverts & storm sewer

- Next major municipal storm sewers

- Then minor storm sewers

- Some street inlet laterals not included (yet)

Could not be done without the previous (& continued!) cooperation of municipal staff – THANK YOU!

2017 DEM – Displayed as Hillshade

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

1 acre Storm Flow Network (as of 2/24/22)
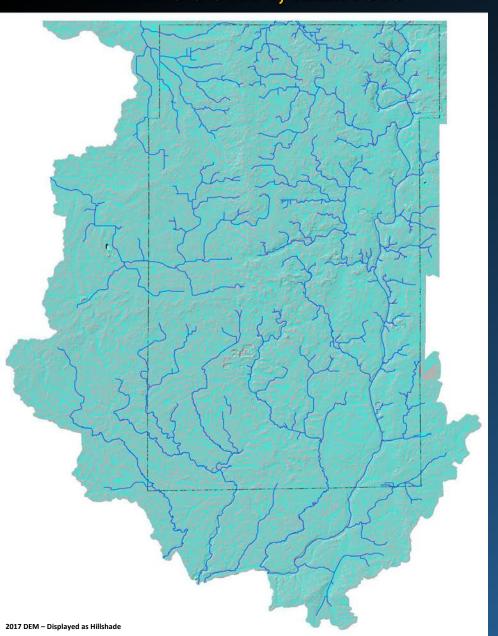
- **18,143 miles**

- **1,371,588 segments**

1500+ Hours to manually digitize/draw storm sewer

Processing Time (QGIS/ArcGIS):

- **8 hrs to "burn" storm sewer into DEM**

- **8 hrs to "fill" DEM**

- **6 hrs to compute Flow Direction Raster**

- **48 hrs to compute Flow Accumulation Raster**

- **2hrs to extract Storm Flow Path**

- **8hrs to calculate watershed boundaries**

Raster DEM File Sizes: 32GB

About 130GB file space needed for each iteration

2017 DEM – Displayed as Hillshade

0.1 acre Storm Flow Network (as of 2/24/22):

- **65,052 miles**

- **11,667,905 segments**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Draft Flood Inundation Maps are available on-line now at KCDEWR webpage

- **Considered Draft– updated as additional storm sewer data is incorporated into the hydro-conditioned DEM**

- **Static PDF maps viewable/downloadable by public**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

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KANE COUNTY, ILLINOIS

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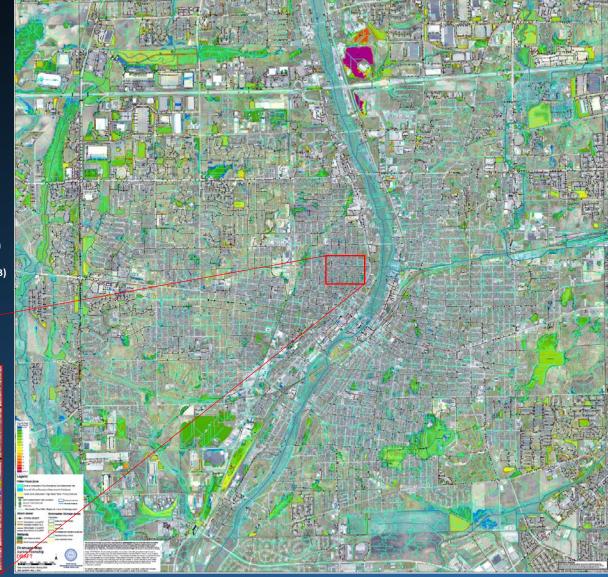
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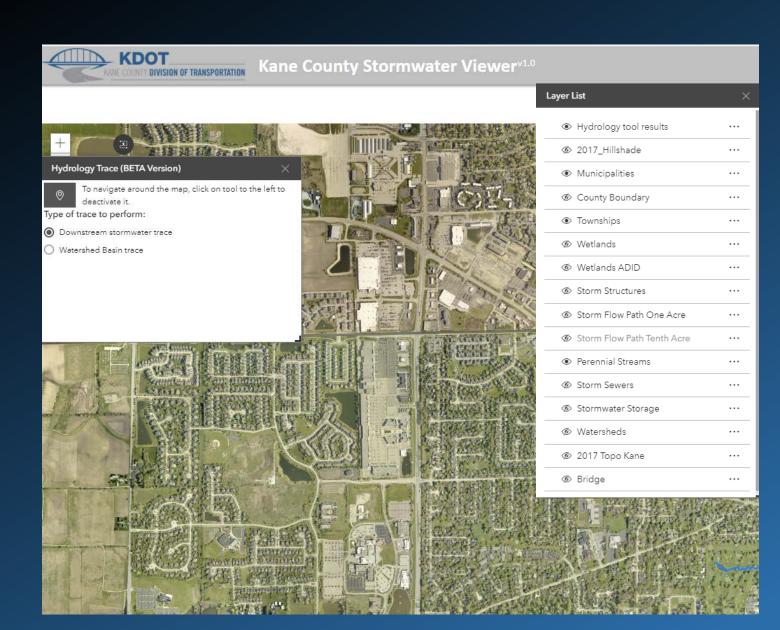
Have better data?

See something that's incorrect?

Send us your drainage info and we'll incorporate it!
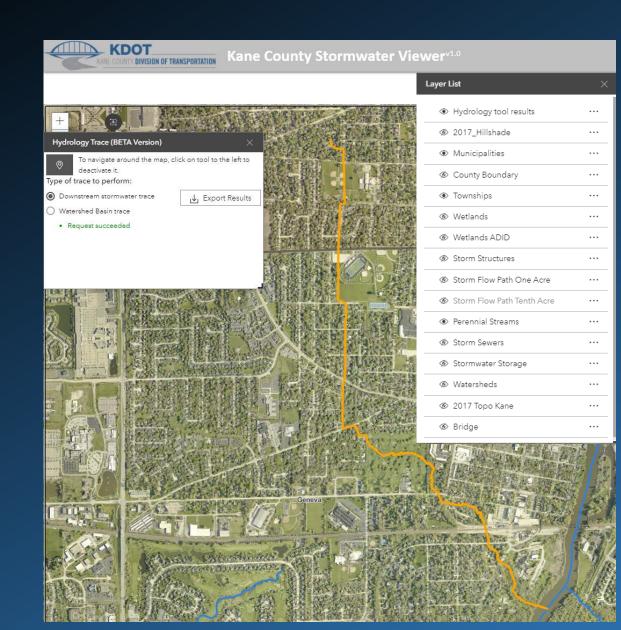
Drainage Map of Aurora Township
(PDF format;400dpi/105MB)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

On-Line Stormwater Viewer
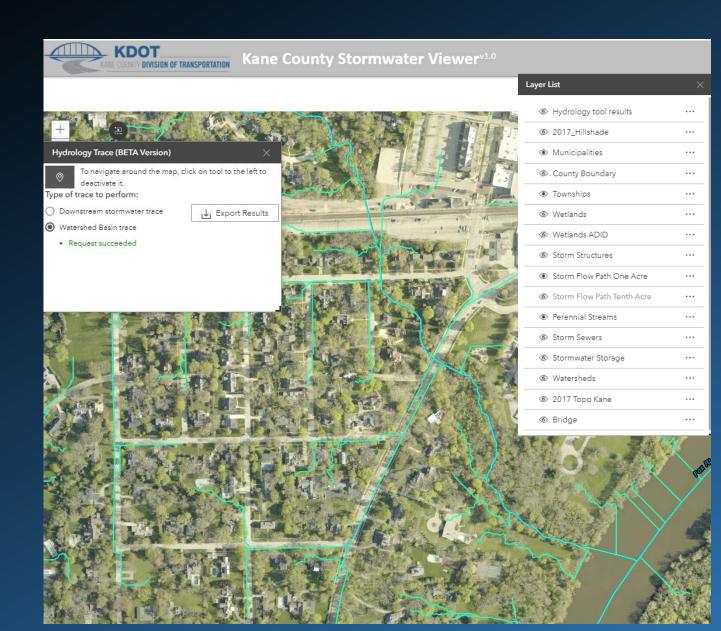
- **Beta Testing Spring 2022**

- **Live & available Summer 2022**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

On-Line Stormwater Viewer
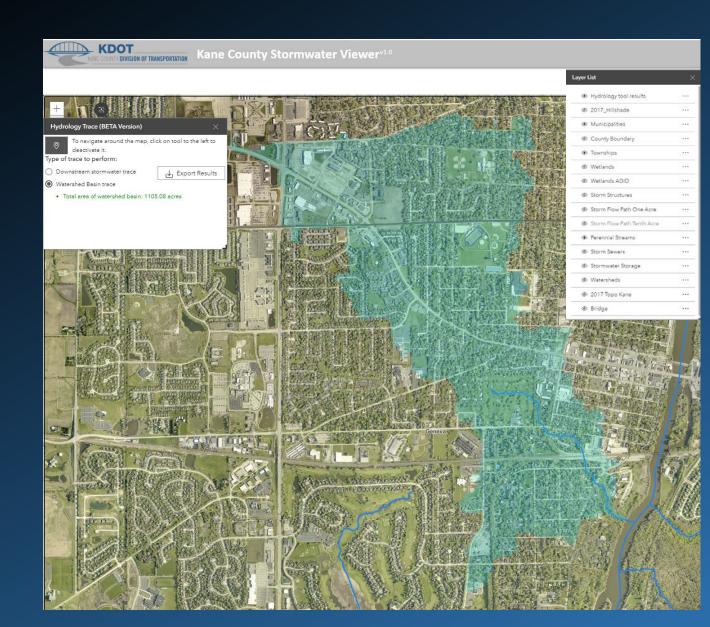
- **Downstream Flow Trace**

- **Performed real time from any point in the County**

- **10-60 sec run time depending on flow length to river**
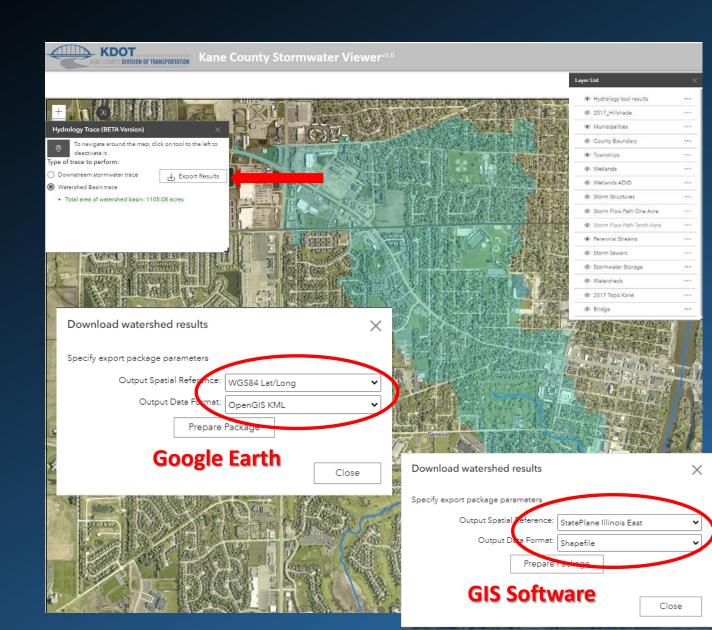
COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

On-Line Stormwater Viewer

- **Upstream Watershed Delineation**

- **Performed real time from any point in the County**

- **60 sec – 10 min. run time depending on watershed size**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

On-Line Stormwater Viewer

- **Upstream Watershed Delineation**

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COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

On-Line Stormwater Viewer

- **Upstream Watershed Delineation**

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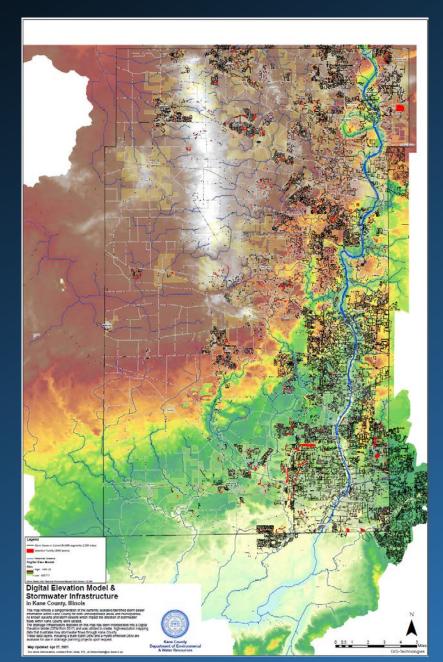# COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Special Thanks to those who have contributed data to make this project possible:

- City of Elgin
- City of Aurora
- City of St Charles
- City of Geneva
- City of Batavia
- Village of Algonquin
- Village of Carpentersville
- Village of West Dundee
- Village of East Dundee
- Village of Pingree Grove
- Village of Hampshire

- Village of Huntley
- Village of Elburn
- Village of Sugar Grove
- Village of North Aurora
- Village of Montgomery
- Village of Barrington Hills
- Village of Gilberts
- Village of South Elgin
- IL Toll Authority
- Kane County DOT
- CMAP

Additional thanks to those who contributed technical expertise and guidance:

Kurt Lebo, Kane County IT Dept (Potential Flood Inundation Layer)

Tom Nicoski, Kane County GIS Dept (KaneCAD GIS Data Integration)

Brett Lawson, GIS Solutions, Inc. (Flow Trace & Watershed Mapping Tool)

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Questions?

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Water Resources
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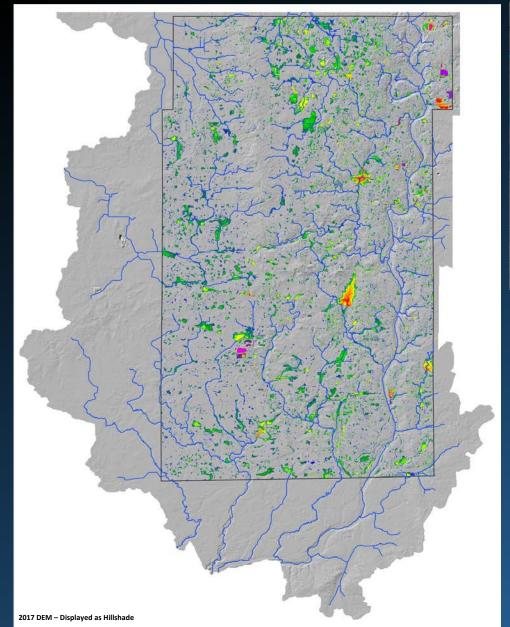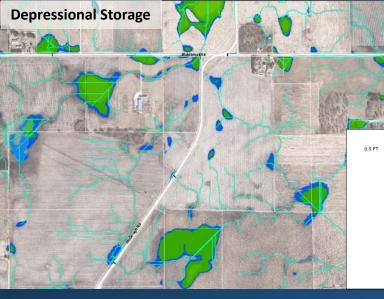
COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Flood Inundation Mapping

- **Isolated Depressional Storage**

- **Potential Urban Flooding**

- **Restrictive Culverts/Bridges**

- **93,319 individual areas**

- **77,430 smaller than 5000 ft^2**

- **9,358 bet. 5000 ft^2 – 25,000 ft^2**

- **1,995 bet. 25,000 ft^2 - 43,560 ft^2**

- **4,536 > 1 acre (43,560 ft^2)**

2017 DEM – Displayed as Hillshade

Depressional Storage

0.5 FT

Potential Urban Flooding

0.5 FT

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Schedule

Spring 2022:

- **Share GIS Layers**
  - **Flood Inundation Layer**
  - **Bare Earth DEM**
  - **Storm Flow Path (2nd Edition)**
  - **Countywide Storm Sewer & Culvert layer**
  - **Updated Watershed Boundaries**
  - **Hydro-enforced DEM (1st Edition)**
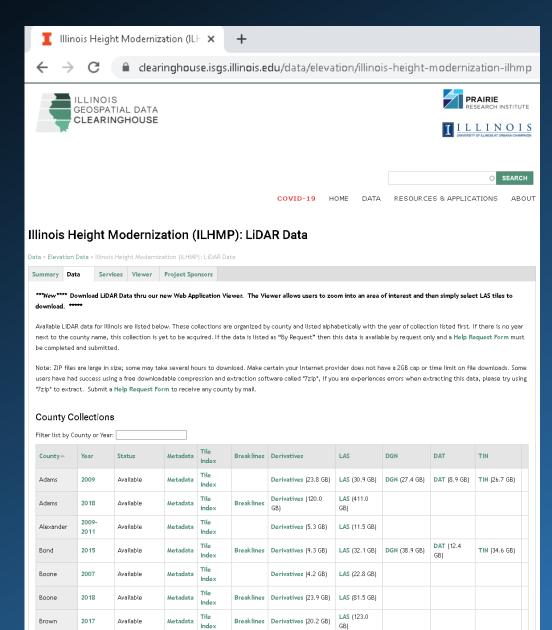
Summer 2022

- **Real-time online watershed / subcatchment delineation tool**
- **Real-time online flow tracing tool**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Need Elevation Data Now?

2017 LiDAR (point) data for Kane County is available at IHMP website

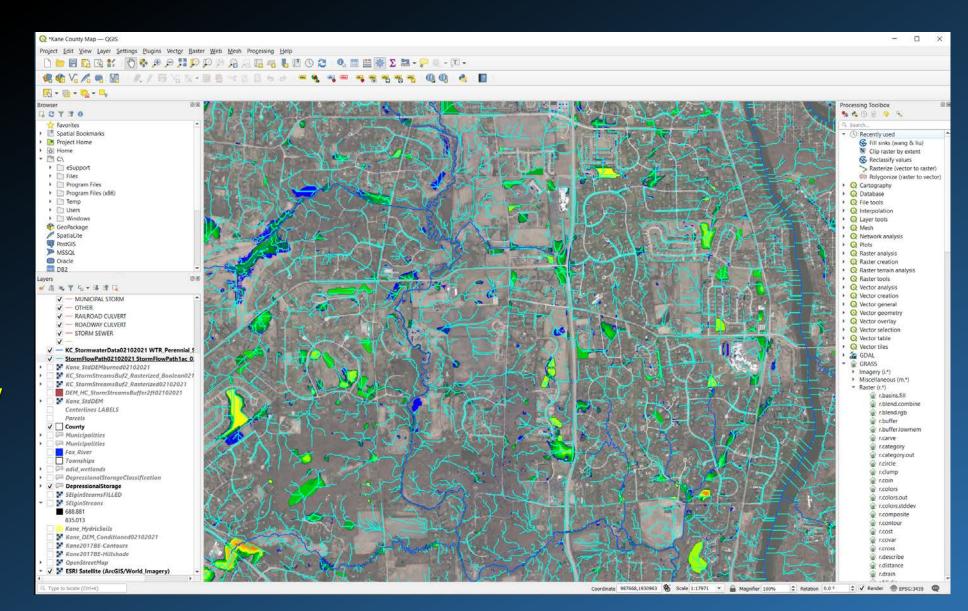# COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Want to work with GIS Data but don't have ArcGIS?

Download Open Source GIS Software

- **QGIS version 3.22**

- **It's FREE!**

- **Powerful DEM visualization & processing tools**
    - **Drainage Area Delineation**
    - **Storm Flow Network Mapping**
    - **Terrain Analysis**

- **LOTS of video training available on YouTube**

- **Leverage available data and free software to quickly and more easily see how the landscape drains and help make informed decisions on addressing potential drainage problems**

- **www.qgis.org**

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Data Disclaimer / Liability Waiver accompanying shared GIS layers

COUNTY OF KANE

KANE COUNTY DEPARTMENT OF
ENVIRONMENTAL & WATER RESOURCES

Jodie L. Wollnik, P.E., CFM
Director

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719 S. Batavia Avenue
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DATA SUMMARY

Kane County Department of Environmental & Water Resources (KCDEWR) has created a Countywide Stormwater GIS Database, which consists of a set of planning-level GIS layers for stormwater features that span the entire area within Kane County. The datasets were created from a combination of analysis and interpretation of digital elevation models and aerial photography, mapping storm sewer infrastructure shown on archived subdivision development plans and record drawings for unincorporated areas, and digitizing storm sewers within incorporated areas using storm sewer layers provided by municipalities as a guide. The Countywide Stormwater GIS Database contains the following layers: Bare Earth DEM, Hydro-conditioned DEM, Streams, Watersheds, Storm Sewers, Stormwater Storage (layer includes lakes, ponds, wetlands, quarries & stormwater detention basins), Flood Inundation Layer (mapping of maximum potential flooding depth all depressions/basins within the Bare Earth DEM), stormwater flow paths with no hydro-conditioning (no sewers/culverts included), and stormwater flow paths with hydro-conditioning (storm sewers & culverts factored in).

The Countywide Stormwater GIS Database is an on-going project that will be periodically updated by KCDEWR, as new data/corrections are provided to the department and as the department has time to incorporate additional subdivision plans and record drawing information into the stormwater data layers. Digital storm sewer mapping information was contributed to this project by the following organizations: Village of Algonquin, Village of Barrington Hills, Village of Huntley, Village of Carpentersville, Village of East Dundee, Village of West Dundee, Village of Pingree Grove, Village of Gilberts, Village of Elburn, Village of Hampshire, City of Elgin, Village of South Elgin, City of St Charles, City of Geneva, City of Batavia, Village of North Aurora, City of Aurora, Village of Montgomery, Village of Sugar Grove and the Illinois Toll Authority.

DATA DISCLAIMER

This data is being provided with the express understanding that there is no guarantee that the data is free of errors or omissions. There is no guarantee that any updates will be supplied as errors or omissions become apparent or if updates are available. This is planning level data and is not intended to supersede engineering data or on-site topographic survey data.

By using digital data from the Kane County Countywide Stormwater GIS Database, you are agreeing to indemnify, defend, and hold harmless the County of Kane and all organizations who contributed data from any and all liabilities, claims, demands, damages, losses and expenses (including, without limitation, defense costs and reasonable attorney fees) arising out of, or resulting from, the lack of accuracy or correctness of the data, or the use of the data. Please acknowledge 'Kane County Countywide Stormwater GIS Database' as a source, when this data is used in the preparation of reports, papers, maps, models, and other products. Neither the County of Kane nor those organizations who contributed data assume any liability for the data or derivative products based on the data supplied. To ensure that appropriate documentation and data limitations are provided, these databases shall not be redistributed to any other parties.

Inquiries about the Kane County Countywide Stormwater GIS Database should be directed to:
Rob Linke, P.E., CFM
Kane County Department of Environmental & Water Resources
719 Batavia Avenue
Geneva, IL 60134
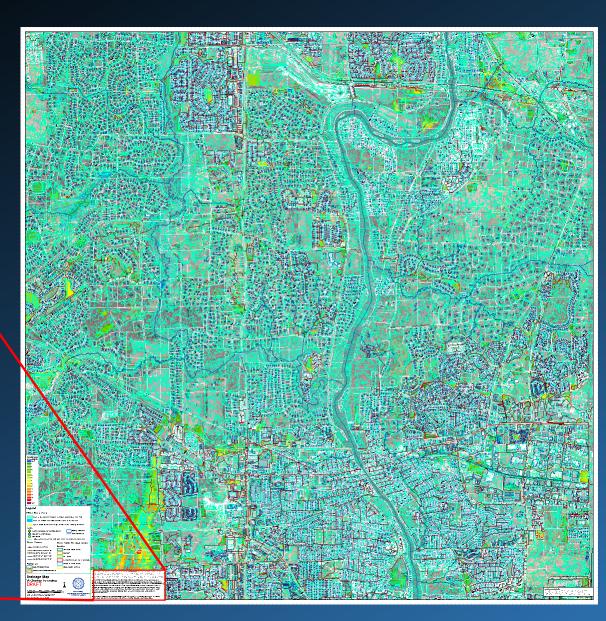630-232-3498 / linkerobert@co.kane.il.us

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
KANE COUNTY, ILLINOIS

Data Disclaimer on PDF Countyide Drainage Maps
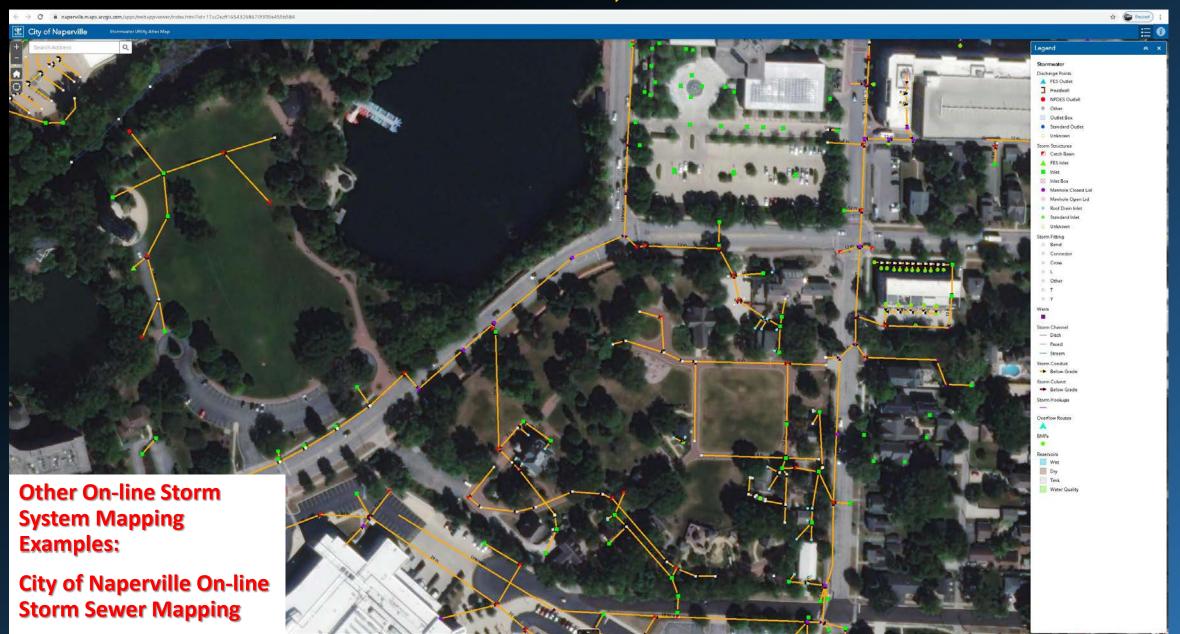
(split up by Township)

The purpose of this map is to provide a comprehensive, <u>planning-level</u> map that illustrates where stormwater may accumulate and how it flows across Kane County. Storm sewers and detention basins shown on this map represent the best available data inventoried by the County to date and/or provided to Kane County by cooperating municipalities. This data is considered planning level information and is not intended to serve as a regulatory map. Regulatory floodplain boundaries prepared by FEMA are shown on this map as a courtesy.

Areas of POTENTIAL flooding (see graduated color scale on the left) were determined through a simple surface "fill" analysis using the latest Digital Elevation Model (DEM) for Kane County (created from 2017 LiDAR data; 0.2ft vertical accuracy). The analysis illustrates the maximum potential flooding depth of all depressions in the landscape. These areas of potential inundation reflect the maximum possible level of flooding if the underlying drain tile, storm sewer or culvert intended to drain these areas were not functional under extreme storm conditions; thus providing the viewer with a "worst case scenario" illustration of possible flooding if the manmade infrastructure malfunctioned or became inoperable.

For specific questions about possible flooding within in a given municipality, contact the municipal public works or engineering department for that municipality to obtain more information.

COUNTYWIDE STORMWATER INFRASTRUCTURE MAPPING
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Other On-line Storm System Mapping Examples:

City of Naperville On-line Storm Sewer Mapping

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Other On-line Storm System Mapping Examples:

Village of Gurnee On-line Storm Sewer Mapping