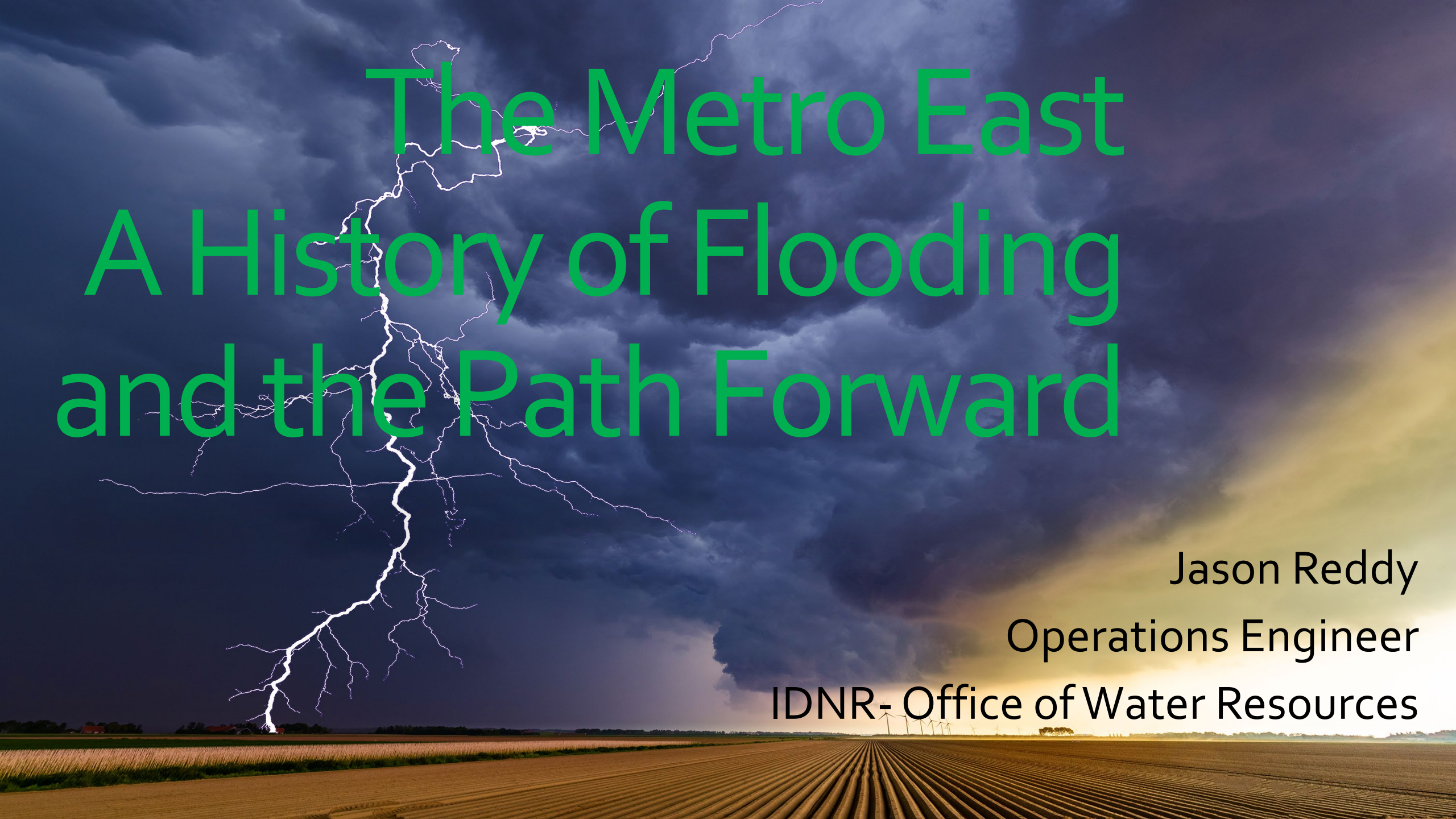




The Metro East A History of Flooding and the Path Forward

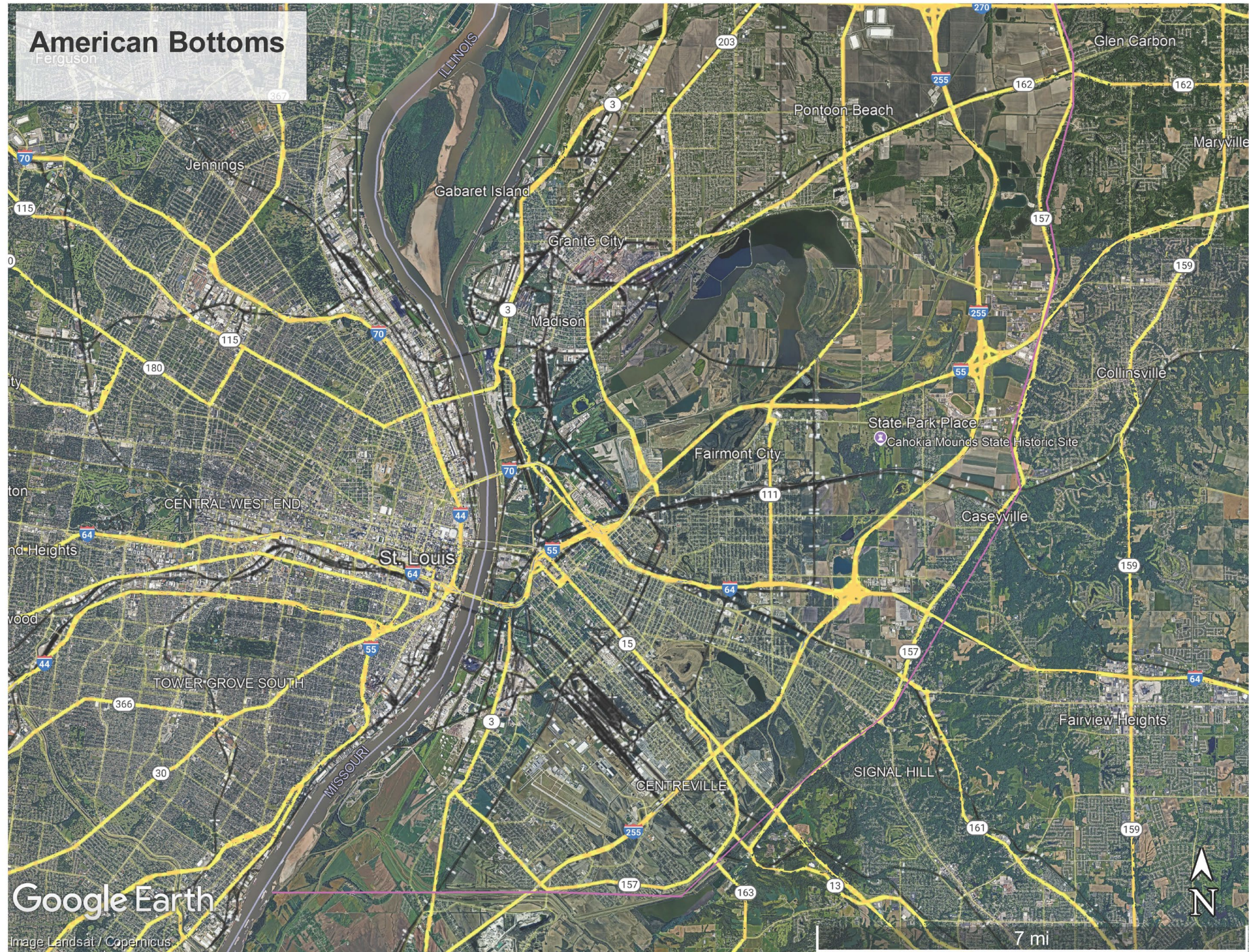
Jason Reddy
Operations Engineer
IDNR- Office of Water Resources

Today's Topics

- History of flooding in the area.
- Causes of the flooding and Complicating factors.
- Efforts to help the communities.
- What you can do to help.

American Bottoms

Ferguson



Google Earth

Image Landsat / Copernicus

July 26th 2022



Caseyville – Little Canteen Creek Levee
overtopped



East St. Louis - Harding Ditch at I-255 and
State St.

What Happened?



7.23" of Rain



12 to 18 Hours



1% (100-year) Storm
Event



9,158 Damage Reports
(Homes, Businesses,
Vehicles)



\$27.3 Million in
damages

July 16th 2024



Cahokia Heights – Piat Place
Neighborhood



Caseyville- Notched the Little Canteen Creek Levee.
Prevented the July 2022 flooding from re-occurring

What Happened?



6+” of Rain



6 to 7 Hours



1% (100-year) Storm
Event



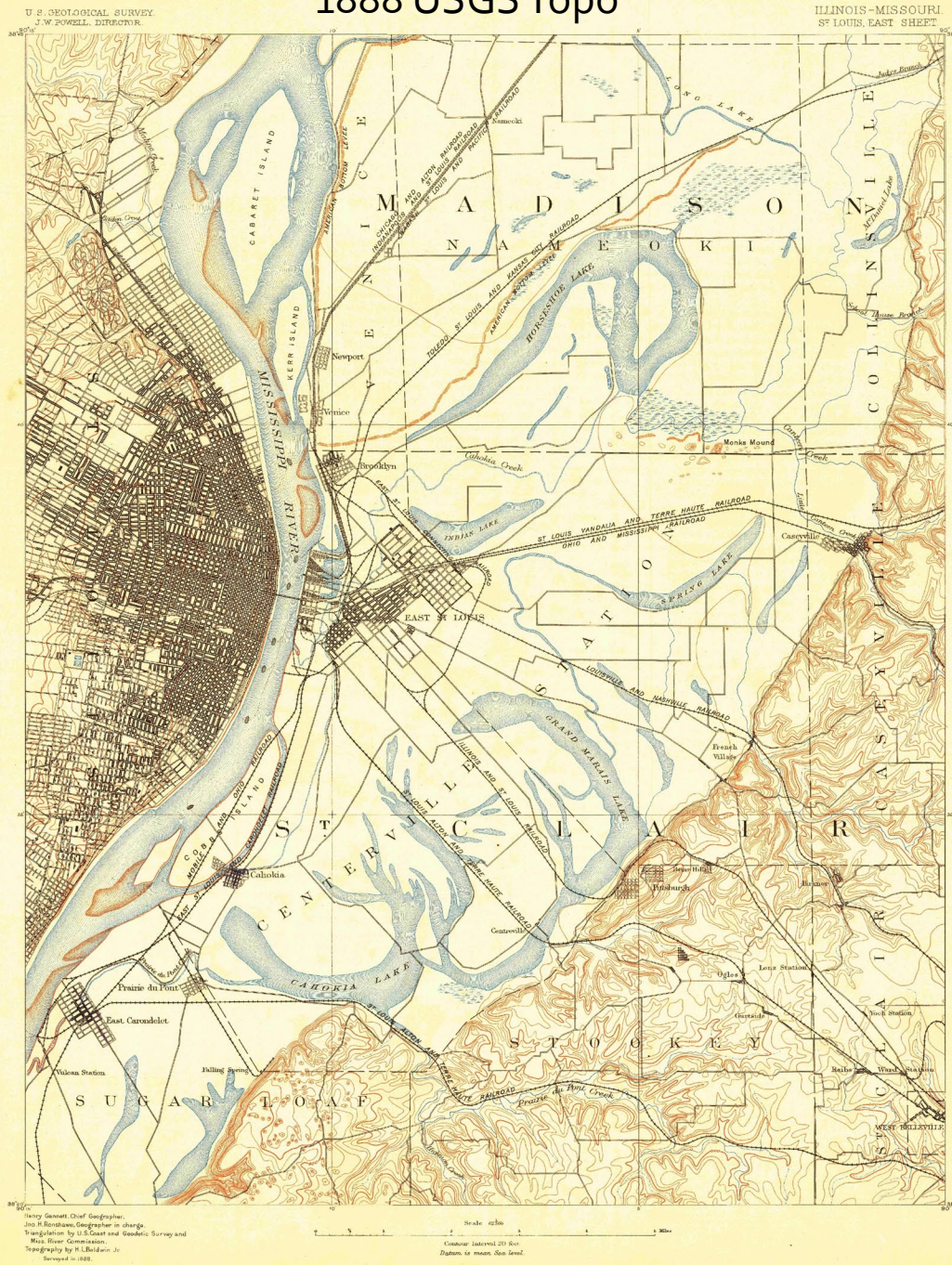
1,052 Damage Reports
(Homes, Businesses,
Vehicles)

Underlying Conditions

- Natural Geography and Geology
 - American Bottoms is the Historic Flood Plain for the Mississippi River. A total of 137,000 acres of watershed drain to this area.
 - A flood plain is naturally very flat.
 - Only 2 outlets for water to drain into the Mississippi. South Pump Station on the Harding Ditch and the North Pump Station on the Cahokia Canal.
 - Flat topography + Limited outlets = Localized Flooding
 - High Groundwater table also complicates drainage.
- Growth, Development, Industrialization.
 - Despite these natural challenges, the confluence of the Mississippi and Missouri River attracts industry and people.
 - East St. Louis is a major transportation hub for the nation. Distributing goods by Rail, Truck, and Barge.
 - People displace nature, but the water comes back.
 - Plans and projects are needed to allow local communities to coexist with these natural conditions.

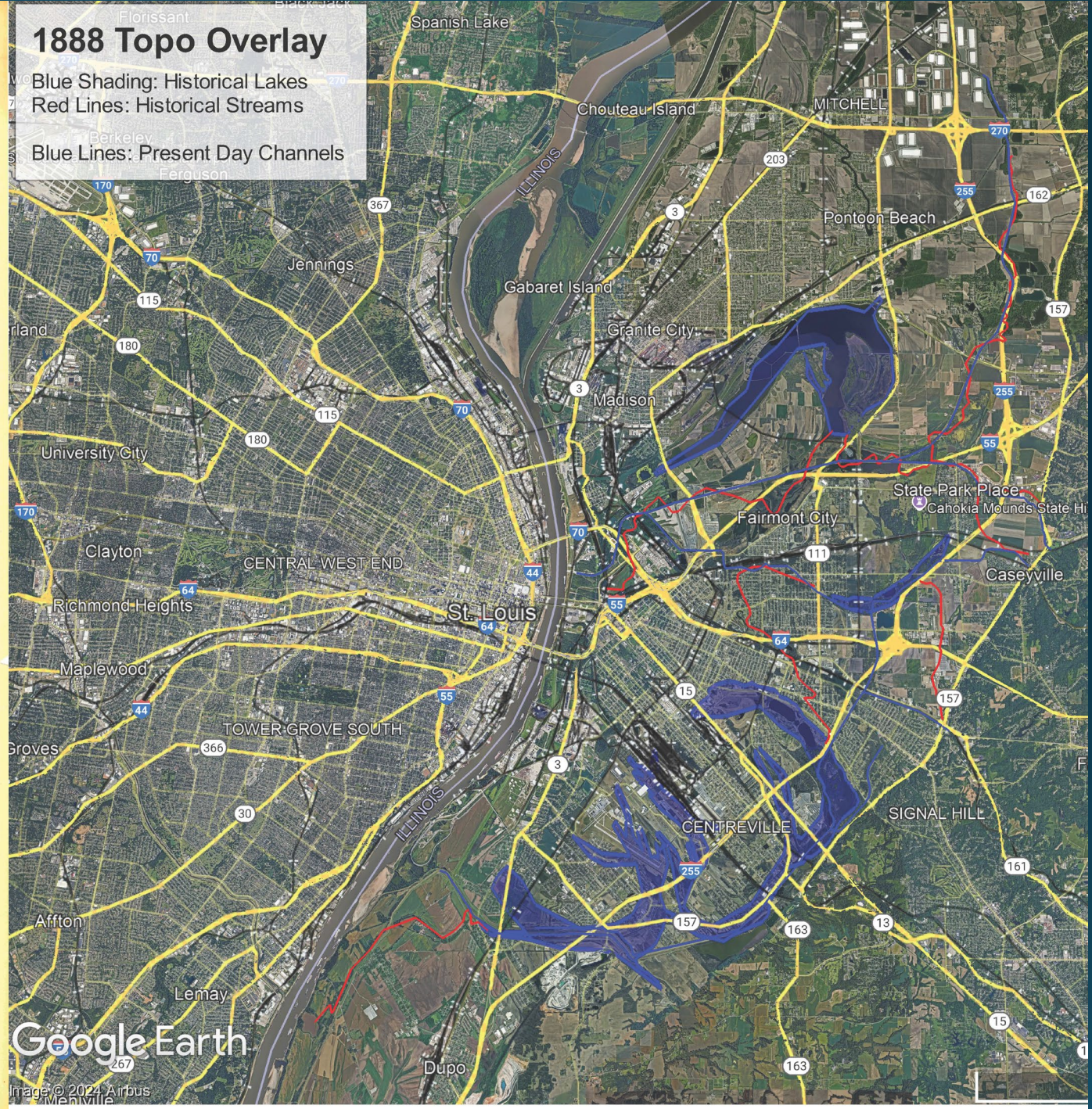


1888 USGS Topo



1888 Topo Overlay

Blue Shading: Historical Lakes
Red Lines: Historical Streams
Blue Lines: Present Day Channels



We have profoundly changed the local landscape over 140 years.

- Hundreds of acres of lakes and wetlands gone.
- Historic Streams are straightened and leveed.
- Cities and towns grow, replacing green space with concrete and asphalt

What are the consequences?

- Loss of lakes and wetlands eliminates storm and flood water detention
- Channelized streams increase water velocities. Concentrated flow makes areas prone to flash flooding and contributes to erosion and siltation
- Urban sprawl without effective storm water management increases run-off. Communities in the bluffs can have an outsized effect on their downstream neighbors.

Complicating Factors

- Industrial Collapse
 - Industry and Factories leave the area, taking good paying jobs as they go.
 - People follow the jobs and move away. 63,897 people left East St. Louis in the last 70 years.
 - Double Whammy of job loss and population loss devastate local tax revenues and municipal funds.
 - No money = No maintenance. Sanitary Sewers, Storm Sewers, Drinking Water, Roads, infrastructure begin to fail.
 - One failure in that infrastructure creates a domino effect of cascading failures. Failed stormwater infrastructure surcharges crumbling sanitary sewers.





Plugged Storm Sewer Inlets



Canal No. 1 from 2020 and early 2021





Lake Drive Bridge over Canal No. 1 early 2021

Complicating Factors

- Whose Job is it?
 - Storm Sewers, Sanitary Sewers, Canals are all interconnected crossing different jurisdictions and municipal boundaries.
 - Infrastructure problems in one community affects their neighbors.
 - Long forgotten IGA's and agreements. Many times communities have forgotten or don't know what maintenance they are responsible for.
- Insufficient Design
 - Larger and more frequent storm events. Storm Sewers and culverts built 50 years ago are not large enough to handle the storms of today.
 - Many storm sewer systems designed for a 10-year event. Is this sufficient?
 - Do we have sufficient storm water and flood plain ordinances in place?
- Unintended Consequences
 - Buyout programs help home-owners and businesses in flood prone areas. Buy-out programs can accelerate population loss and reduce the local tax base.
 - Large State and Federal projects could put a large maintenance burden on local communities. Did we just create an unfunded mandate?

Underlying conditions and Complicating Factors Creates a patchwork of:

- Infrastructure
 - Jurisdictions
 - Laws
 - Authority
 - Resources
 - Communities
- These Separate Communities all stitched together into the greater American Bottoms region.
 - Each community is tied to their neighbor and they need State and Federal assistance to address a problem that is bigger than themselves.



What are we doing?

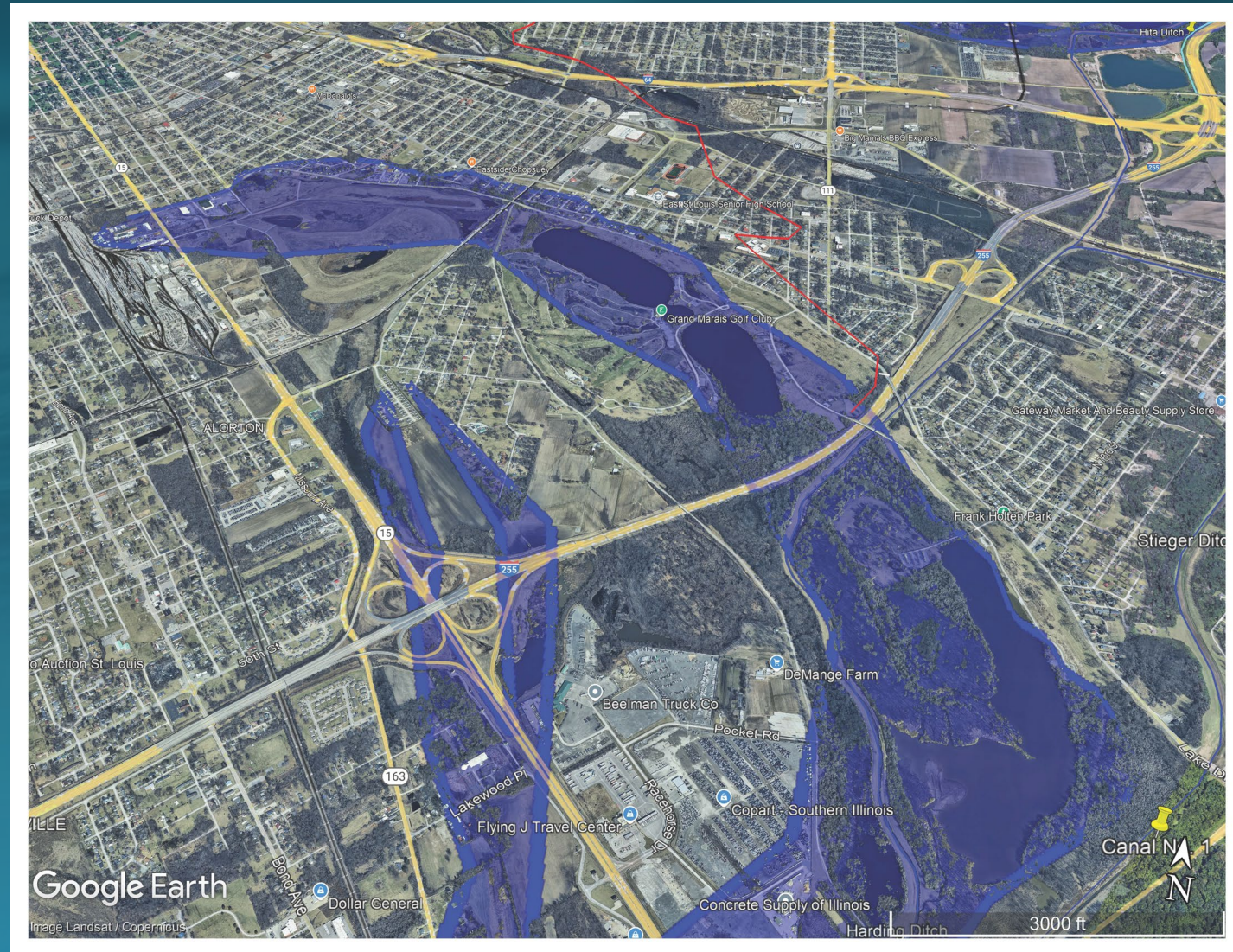
- Local Community has highlighted a forgotten problem and brings national attention.
- Local communities vote to consolidate, creating the town of Cahokia Heights.
- State Agencies start delivering resources
 - IEPA has \$10 Million for Sanitary Sewer repairs
- Federal Agencies start delivering resources
 - Congressional earmarks and the USACE start a sanitary sewer lining project.
- Deferred maintenance restarts.
- IDNR hosts regional planning meetings
 - Local Communities
 - State Agencies
 - Federal Agencies
 - Congressional Offices
 - Meetings highlight specific problems to help bring targeted resources.

What are we doing?

- Federal and State aid in the form of grants, earmarks, and technical assistance starts being delivered.
 - This aid takes time to be dispersed. Citizens asked for help in 2020, project implementation starts in 2023 and 2024.
- Good start, but there is a long road ahead to help the area.

How does my project affect my neighbors?

- Our projects do not occur in isolation.
- Rail, Streets, interstates, disrupt and disconnect local drainage.
- What other affects should my project account for?



What can you do?



- As employees of the State we plan, design, and review projects that provide services and benefit residents.
- When planning these projects there are things we can do to help alleviate these problems so that our children and grandchildren aren't left to clean up this mess.
- Stormwater management
 - Are we being good neighbors?
 - Bigger culverts and bigger ditches may not be the solution.
 - Do we need catch basins and detention storage?
 - Can Nature Based Solutions and green infrastructure help? Stop fighting nature, but leverage it as a resource to help solve the problem.
- As an agency do we put unreasonable burdens or maintenance responsibilities on the local community?

What can you do?

- Is our data and information up to date?
 - ISWS Bulletin 75 was published in 2020 with up-to-date rainfall data. Consider future rainfall projections.
 - FEMA has released preliminary flood plain maps for Madison and St. Clair County. Adoption and of preliminary maps is imminent.
 - Are HEC-RAS models updated and accurate.
- Do we know the latest laws and regulations? What is Public Act 103-0905?
 - FEMA determined that Illinois, and all other states, are considered participating communities under their National Flood Insurance Program.
 - In order for IL to access to FEMA disaster funds, the state must construct facilities in compliance with NFIP guidelines and regulations.
 - Public act 103-0905 and was signed into law by Governor Pritzker on 8/9/2024. The act grants IDNR the authority to regulate and permit construction of state facilities to comply with FEMA's NFIP guidelines.
 - All facilities built in special flood hazard assessment areas (mapped floodplains), including roads, bridges, pump stations, etc. must comply with these standards.



Questions?