

2019 IAFSM Annual Conference

2-D Modeling
Roundtable Discussion



Goals of this 2D Modeling Roundtable Discussion

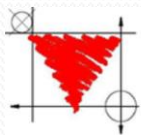
1. Launch the “Advanced Hydraulic Modeling Subcommittee”
2. Provide updates since the March 2015 unsteady modeling panel discussion
3. Develop awareness of the 2D modeling issues that arise in the regulatory side of modeling/mapping, including Floodway issues.
4. Establish a vision for a path forward to use 2D models in Illinois

2D Modeling Background

1. Advancements in two-dimensional modeling capabilities have improved upon model accuracy and output.
2. Cost of 2D modeling is affordable, use of models is easy (too easy?).
3. HEC-RAS 5.0 now includes a robust and efficient 2D engine that drastically increases modeling capabilities.
4. Certain review agencies are not accepting 2D analyses yet, and require modeling be conducted in 1D only.

Advanced Hydraulic Modeling Subcommittee forming

- Bob Dalton (Vasconcelles)
- Tony Comerio (Hanson)
- Bryan Martindale (Knight)
- Roger Denick (Stantec)
- Glenn Heistand (ISWS)
- Greg Byard (ISWS)



vasconcelles
engineering corporation
Professional Engineering Firm



HANSON

Engineering | Planning | Allied Services



Stantec

I ILLINOIS

KNIGHT

Engineers & Architects

Update since Last Panel Discussion at 2015 Conference



- Unsteady Flow Modeling Checklist (March 2015)
- Development of issue paper outline (March 2015)
- ASFPM Unsteady Flow Modeling White Paper, including 1D and 2D (November 2015)
- ASFPM Unsteady and 2D Modeling and Mapping Work Group -- Initial meeting (August 2018)
- IAFSM Unsteady Modeling Subcommittee re-engages to explore 2D modeling (March 2019)

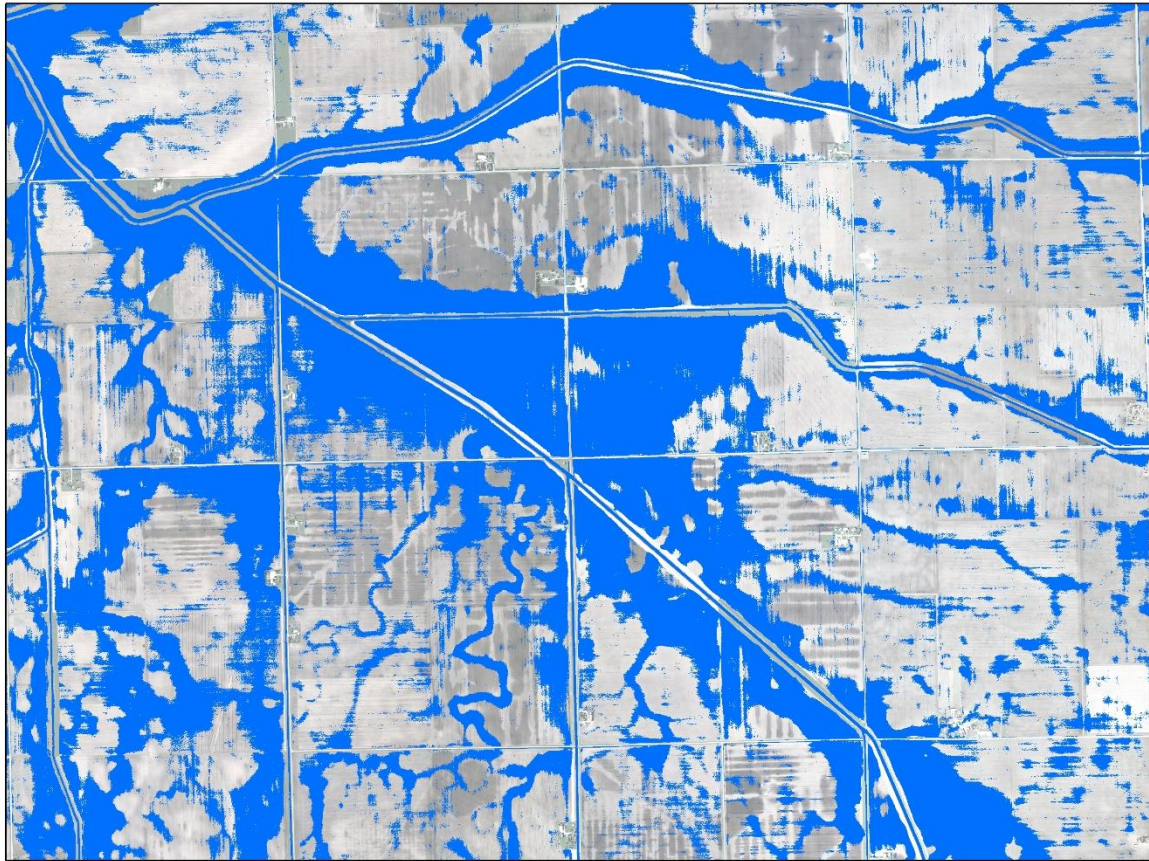
Develop Awareness of 2D Modeling Issues

1. Assemble a set of questions and issues that need to be addressed for 2D models to be practical in Illinois
2. Receive feedback from practicing engineers about their experience using 2D models in Illinois or elsewhere
3. Receive feedback from regulators and reviewers about their experience dealing with 2D models.

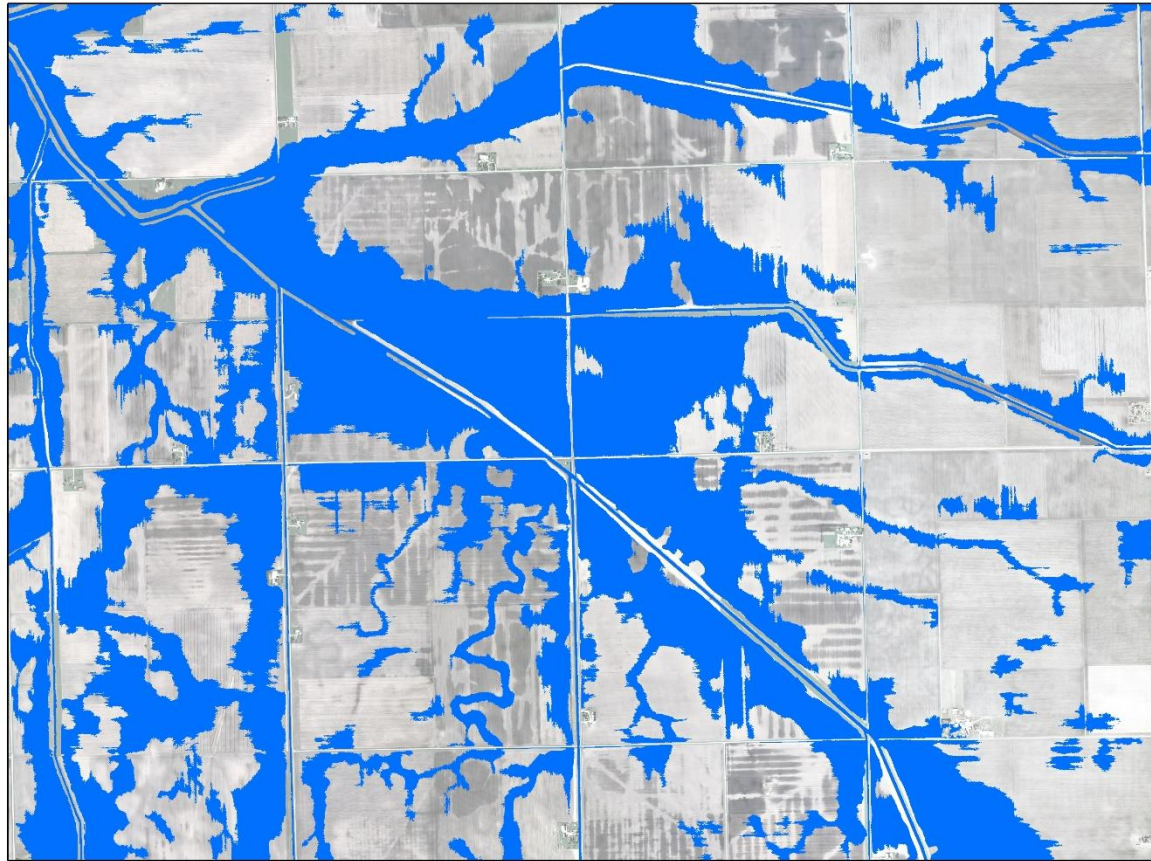
Vision For a Regulatory Path to use 2D Models in Illinois

1. Integrate efforts with the existing ASFPM committee that is dealing with this issue on the national scale
2. Form framework to identify obstacles and solutions

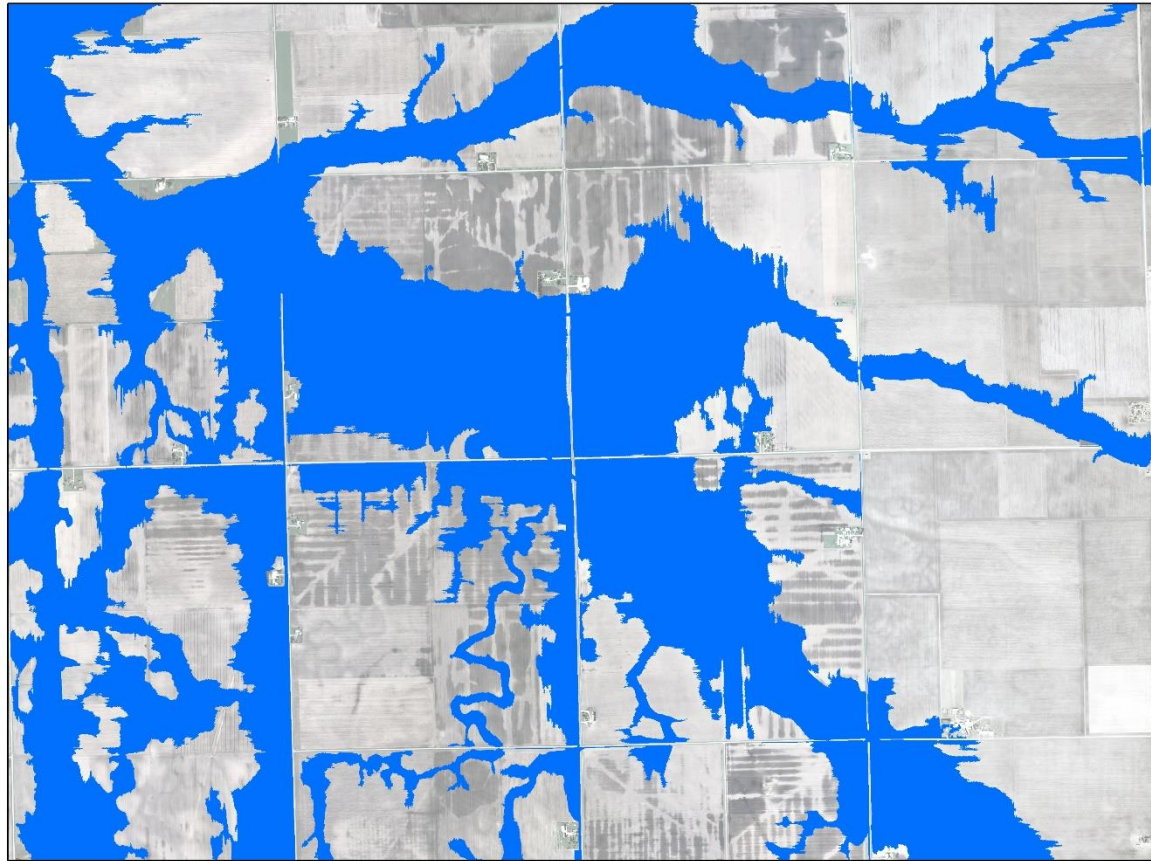
Rural Example: Ford County, IL



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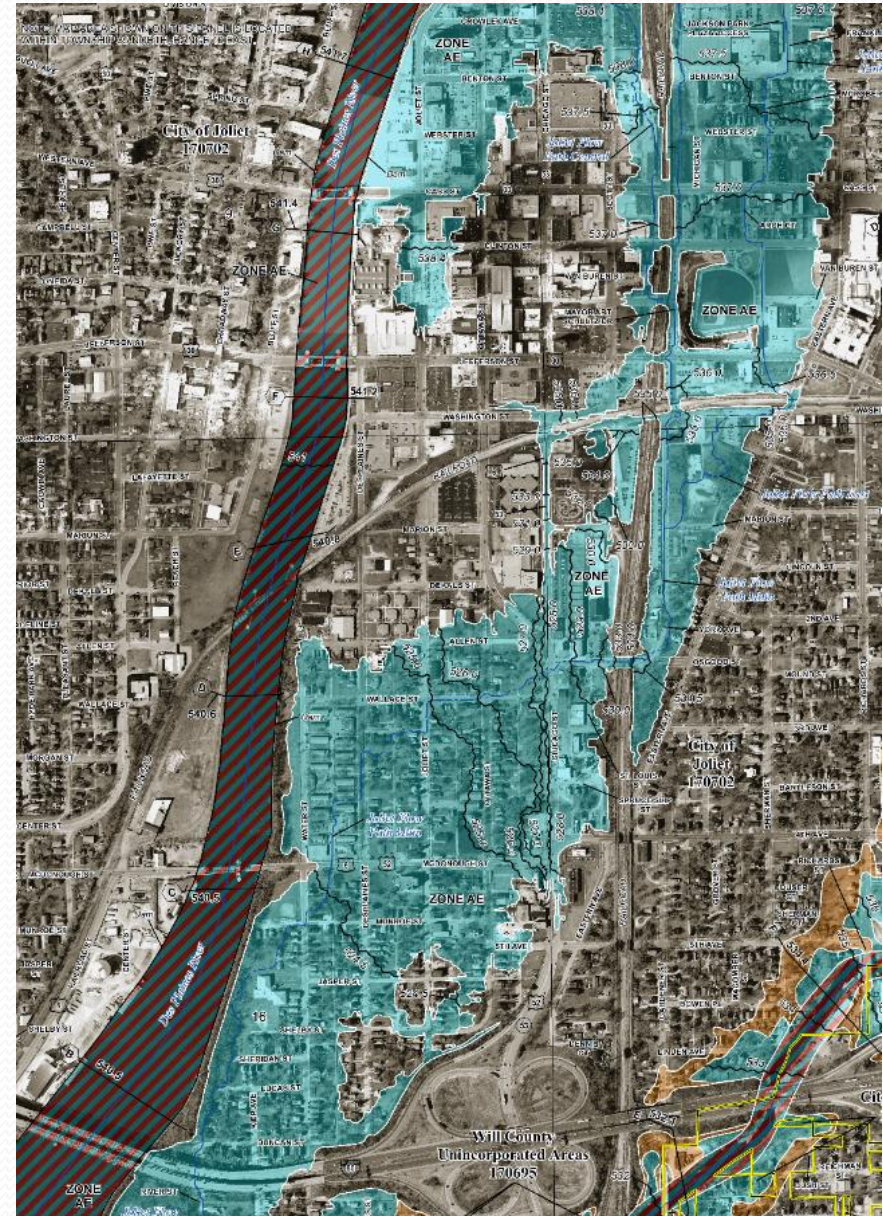


Rural Example: Ford County, IL



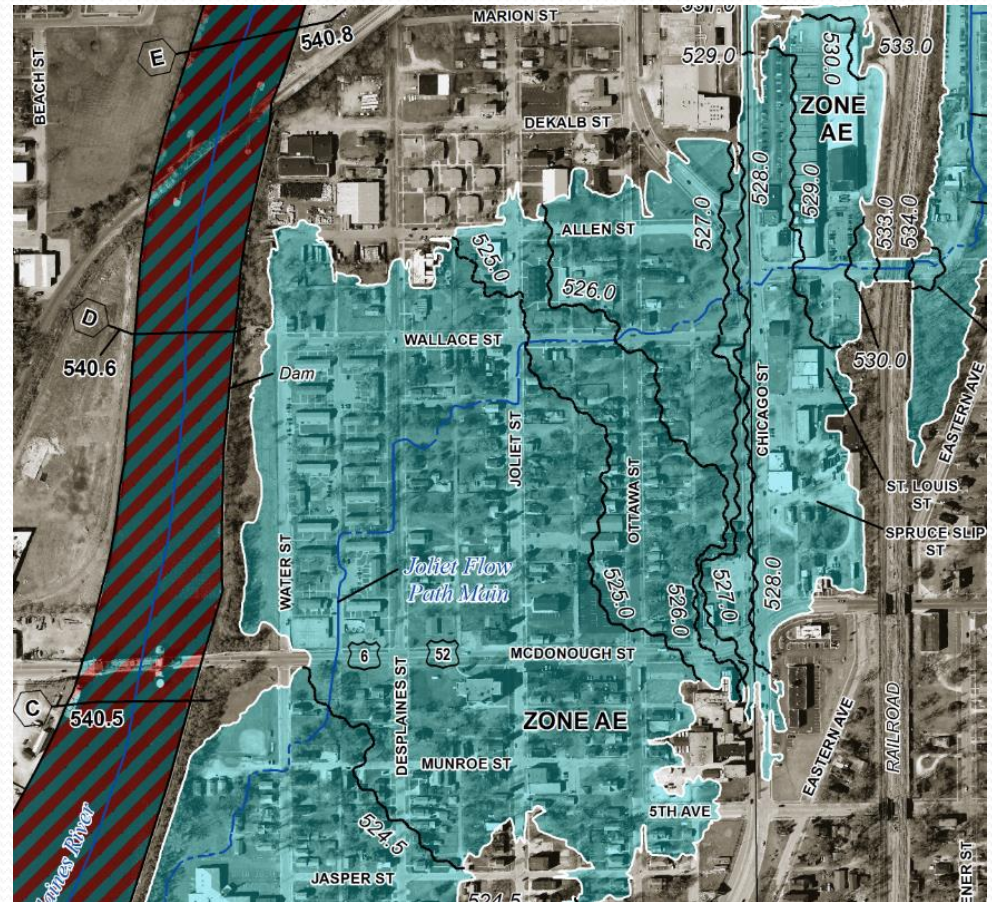
Urban Example: City of Joliet, IL

- Model buildings or not? Use roughness, block-out?
- DTM creation details and parameters



Urban Example: City of Joliet, IL

- Highly urbanized areas have certain challenges such as:
- Increased level of topographical detail
- Complexity of terrain, i.e. roads, curbs and inlets
- Network of inlets and pipes
- Stormwater management features such as ponds, pumps



Group Discussion



Thanks for Your Participation

