

JOPLIN
MISSOURI

Creating a Stormwater Management Chapter in the City Code

Purpose

- Proposal for implementation of a centralized stormwater management section within City of Joplin Code.
- Improve MS4 compliance, clarity, and accessibility.
- Explanation of benefits to the City and the Public.
- Incorporate and reference Aesthetics and Design Standards found through the Comprehensive Plan zoning regulations, subdivision codes, and land development requirements.
- Ensure appropriate incorporation of Complete Street Standards, Planned Development Corridors, and Infill Development.

CURRENT STATE OF STORMWATER CODE

Chap. 26. - Building and Building Regulations
Article 11. – **Floodplain Management**

Chap. 118. - Utilities
Article 2. – Sewers and Sewage Disposal
Division 9. – **Illicit Discharge Detection and Elimination**.

Appendices
Appendix 29E. – **Stormwater Management Regulations**
Appendix 29F. – **Erosion and Sediment Control Regulations**

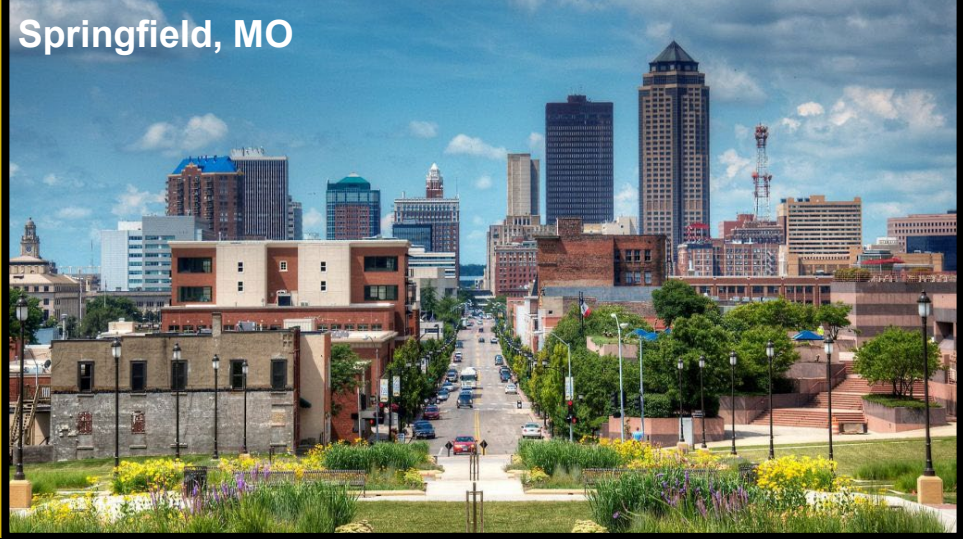
That’s 4 different locations for answers to potential stakeholder questions!

(One of which references another document)

Why a Dedicated Chapter is Needed

- Transparency: Simplify navigation for developers, city staff, and the public.
- Consistency: Reduce conflicting language across code sections.
- Compliance: Recommended by AMA through our MS4 Work Authorization for DNR reporting.

OTHER COMPARABLE COMMUNITIES







OTHER COMPARABLE COMMUNITIES

Springfield, MO

Chap. 96 – Storm Water
Article 1. – Flood Control and Water Quality Protection
Article 2. – Discharge of Pollutants
Article 3. – Land Disturbance Activity

Columbia, MO

Chap. 12A – Land Preservation
Article 2. – Land Disturbance Permit Requirements
Article 4. – Erosion Control Requirements
Article 5. – Stormwater Management
Article 8. – Stormwater Utility
Article 9. – Detection and Elimination of Illicit Discharge
Article 10. – Stream Buffer Requirements.

Some articles were omitted for brevity

Fayetteville, AR

Chap. 168 – Flood Damage Prevention Code
Chap. 170 – Stormwater Management and Drainage
Chap. 179 – Low Impact Development

Benefits to the City

- Improved clarity for staff, developers, and citizens.
- Streamlined enforcement and review.
- Increases audit readiness for DNR/EPA inspections.
- Legal defensibility of enforcement procedure.
- Support of long-term infrastructure health.
- Ensure Aesthetics and Beautification Design Standards of the Comprehensive Plan are incorporated into infrastructure projects.

Next Steps?

- AMA has a draft of suggested changes to our ordinance to increase compliance with DNR/EPA guidelines.
- AMA is on retainer to support amending and modifying our stormwater and MS4 ordinances underneath an existing work order.
- Authorizing this process will count as a positive mark on our yearly MS4 report.

Jasper County Floodplain Remapping

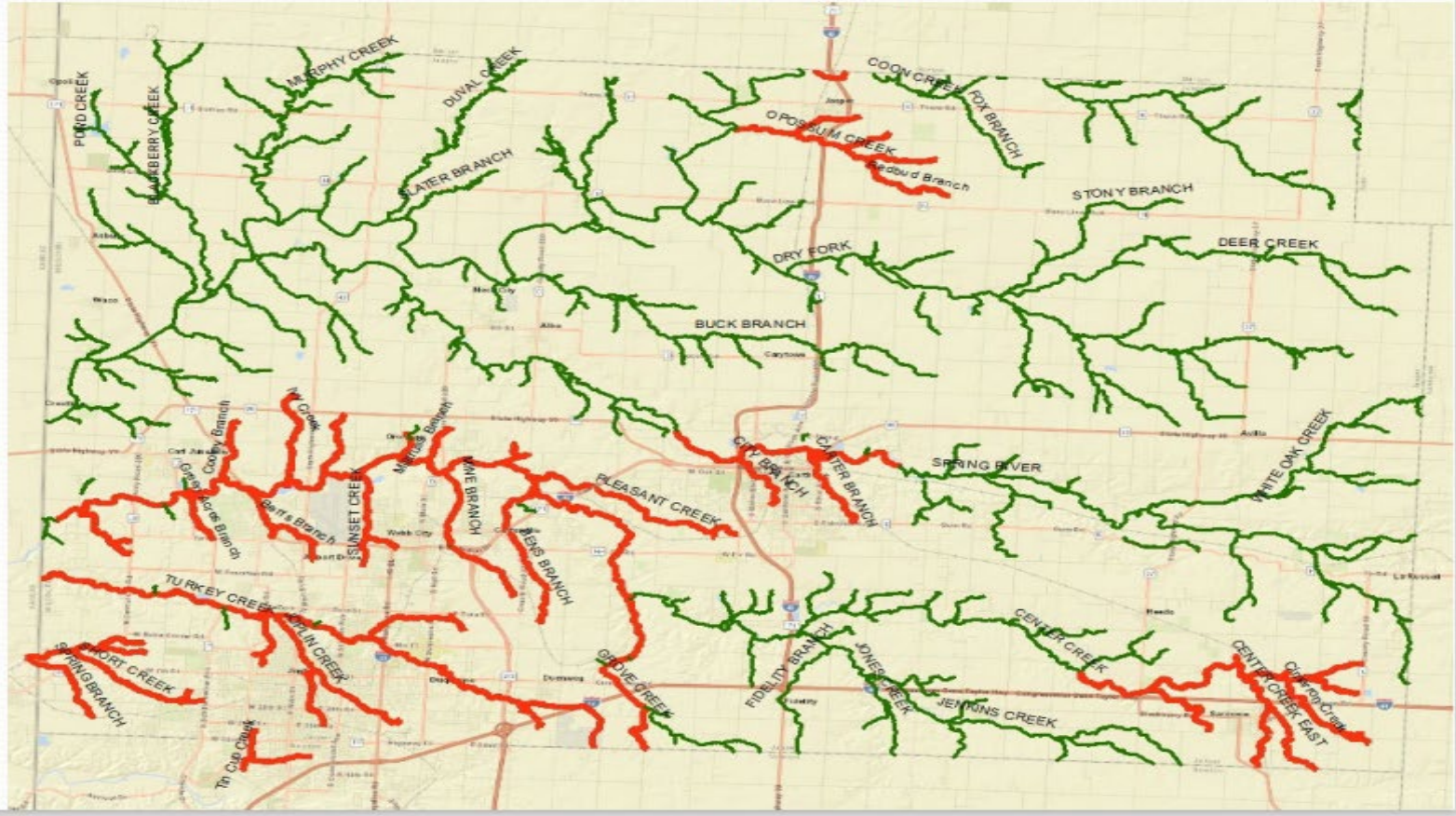
Council Update

Project Goals

Mapping 604 miles of streams

Red indicates Detailed studies with Zone AE designation

Green indicates Approximate studies with Zone A designation



Why 2D Modeling?

- Two-Dimensional (2D) modeling is the **new industry standard** for riverine modeling.
- Advances in computer technology along with increased **accuracy** of data have driven this change.
- The goal of the hydraulic model is to accurately simulate actual flow paths, storage and depths.
- Less assumptions are made resulting in improved accuracy.
- High visual graphic output of 2D models enhances communication.
- Accurate representations for complex conditions where water does not travel directly downstream.

Benefits of 2D Hydraulic Modeling

Hydraulic Variables	One-dimensional (1D) Modelling*	Two-dimensional (2D) Modelling*	Stream Near You
Flow direction	***Assumed*** by user	***Computed***	
Flow paths	***Assumed*** by user	***Computed***	
Channel roughness	***Assumed*** constant between cross sections	***Assumed*** at each element	
Ineffective (blocked) flow areas	***Assumed*** by user	***Computed***	
Flow contraction and expansion through bridges	***Assumed*** by user	***Computed***	
Flow velocity	***Averaged*** at each cross section ***Assumed*** in one direction	Magnitude and direction ***Computed*** at each element	
Flow distribution	***Assumed*** based on conveyance	***Computed*** based on continuity	
Water surface elevation	***Assumed*** constant across cross sections	***Computed*** at each element	
Momentum	Not accounted for	***Computed*** at each element	

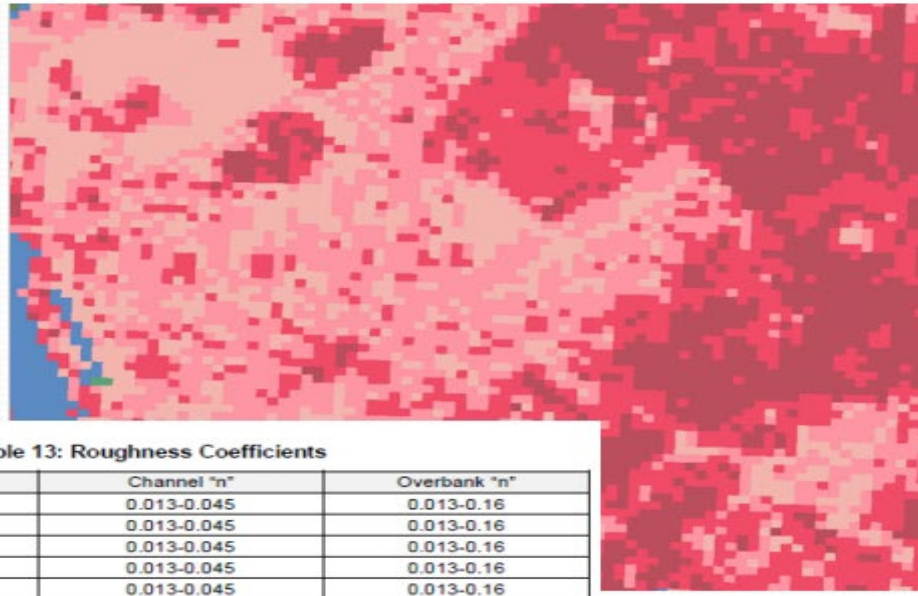
Detailed Landuse

Model Landuse Layers for CN per Mesh

Detailed per New Aerials



National Landuse Layer

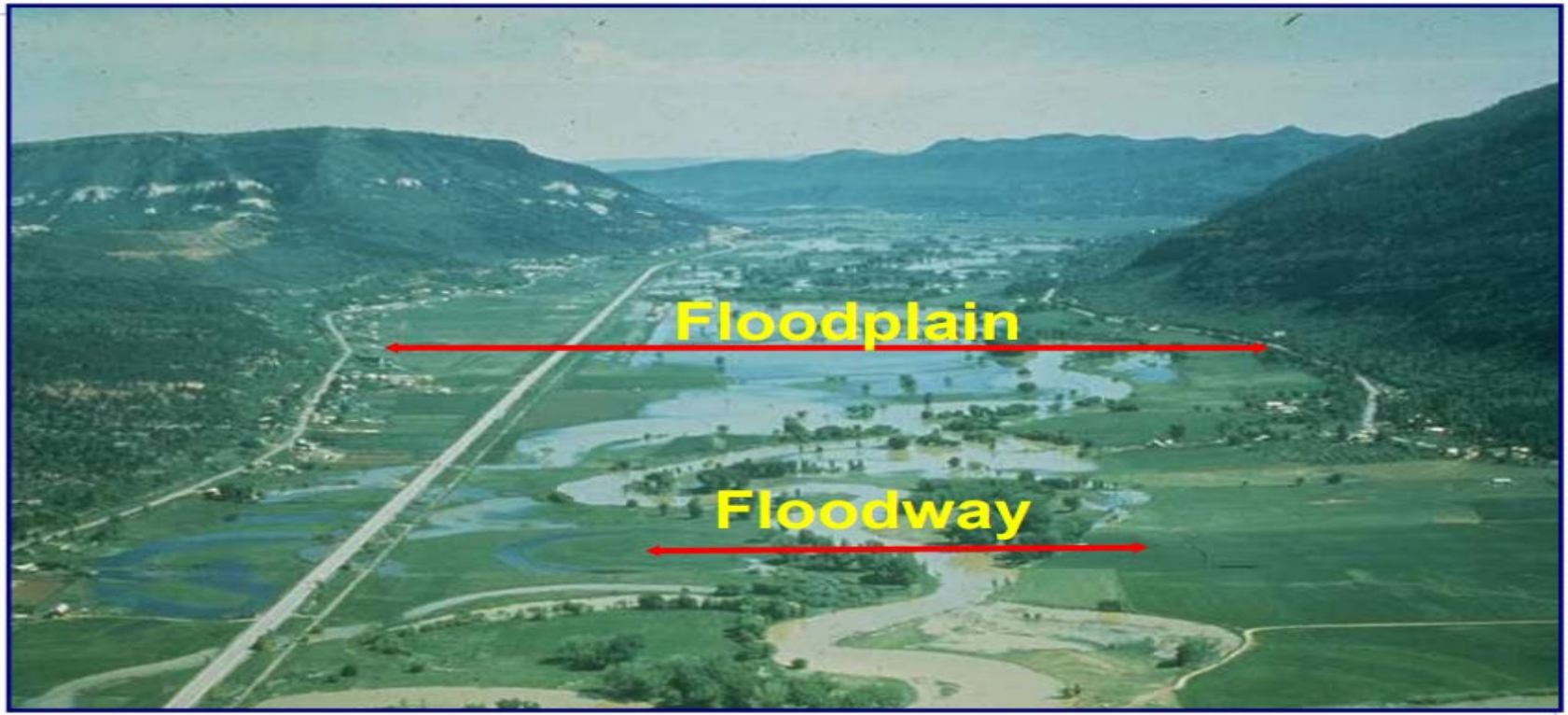


Examples

Table 13: Roughness Coefficients

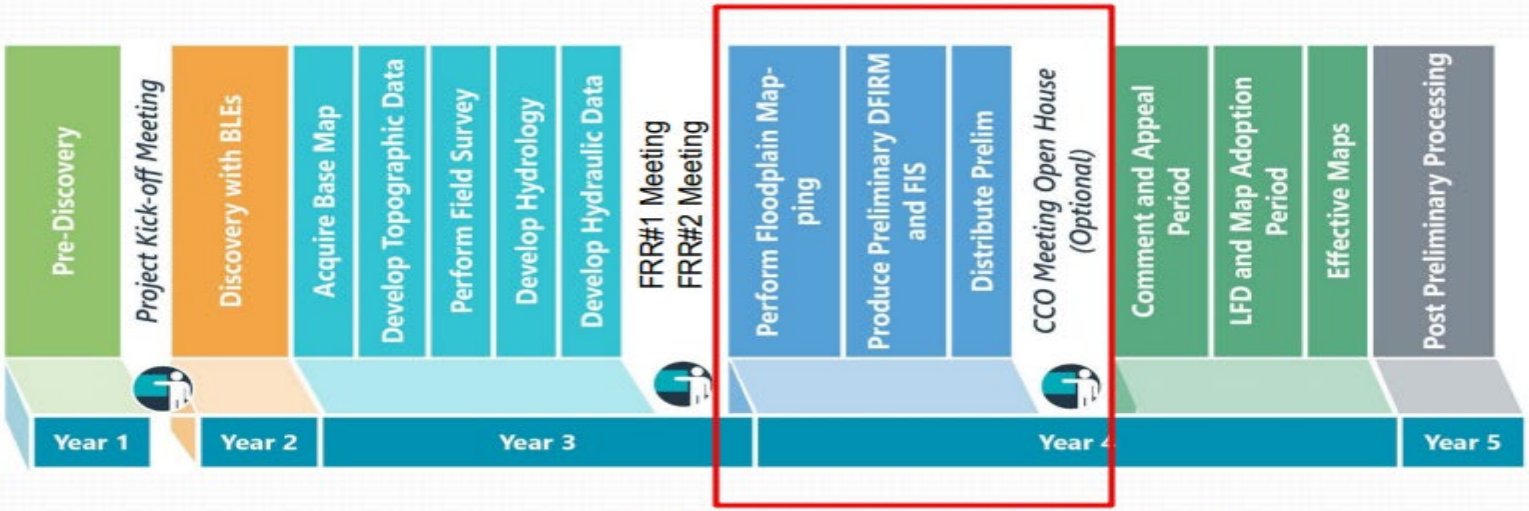
Flooding Source	Channel "n"	Overbank "n"
Bear Creek	0.013-0.045	0.013-0.16
Bear Creek Tributary 20	0.013-0.045	0.013-0.16
Bear Creek Tributary 22	0.013-0.045	0.013-0.16
Bear Creek Zone A Streams	0.013-0.045	0.013-0.16
Big Creek	0.013-0.045	0.013-0.16
Davis Branch	0.013-0.045	0.013-0.16
East Middle Chariton Watershed Zone A Streams	0.013-0.045	0.013-0.16
Fabius Watershed Zone A Streams	0.013-0.045	0.013-0.16

Floodplain vs. Floodway



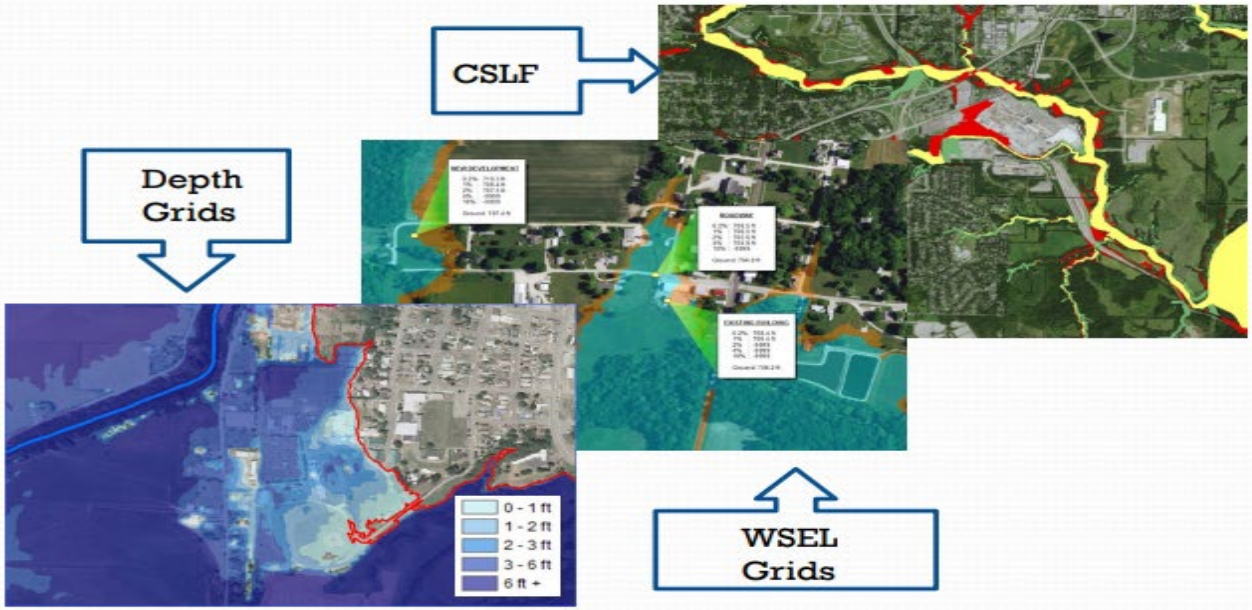
Red streams will have a Floodway

Preliminary Map Products and Communications



Fall 2025 and Winter 2025/2026

Flood Risk Products



- Depth Rasters
- Water Surface Elevation Rasters
- Changes Since Last FIRM
- Percent Annual Chance Raster
- 30 Year Percent Chance Raster
- Freeboard Rasters

Questions?