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Twin Creeks Watershed Planning Goals



Project Summary

The goal of this project is to better understand stream geomorphology in the watershed in order to guide development appropriately. The approach allows the City to move beyond *one-size-fits-all* regulation to a framework that allows an appropriate level of stormwater discharge based on:

- A site's location within the landscape
- Proximity to the stream
- The stream's resiliency in the built environment

It will also inform the effectiveness of the current stream setback policies and could lead to adjustments, as needed, to protect property and prevent erosion using a science-based approach.

Study Objectives

- Describe stream geomorphology
- Determine how the streams may change over time
- Estimate the streams capacity to absorb impacts from future development
- Determine how much stormwater can be discharged without damaging the streams

Approach

Compare stream historical stream locations from high resolution photography

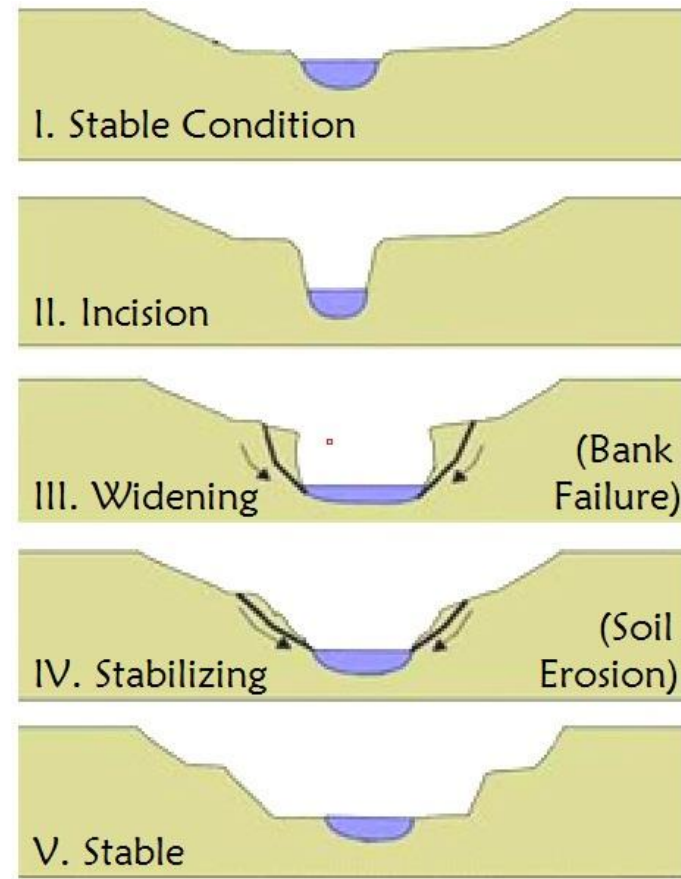
Perform modeling to estimate:

- Flow Volume and Rate
- Stream Power
- Erosion potential

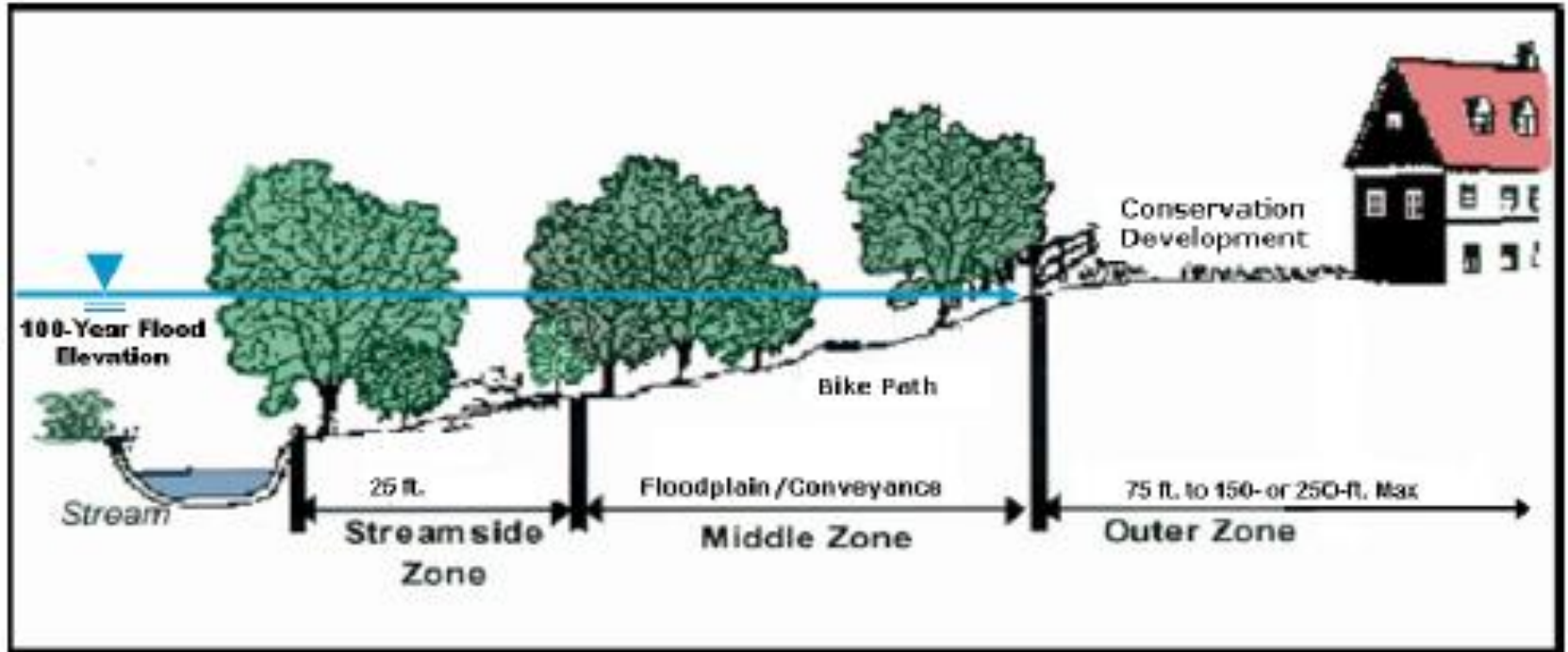
Determine stream flood depths and extents to sub-acre drainage areas

Stream Geomorphology

The study of the origin and evolution of features created by physical or chemical processes at the earth's surface



Stream Setback



Watershed planning goals will not replace stream setback but may provide more information for determining it

Flood Warning Components that Help Protect Life and Property From Flood Risks

1. Flood Risk

- Where flooding occurs
- When it is likely to occur
- What is impacted

2. Understand Consequences of Flooding

3. Response

- What action to take
- How much time to respond

Response Tools:

Flood Warning System (FWS)

Emergency and First Responders

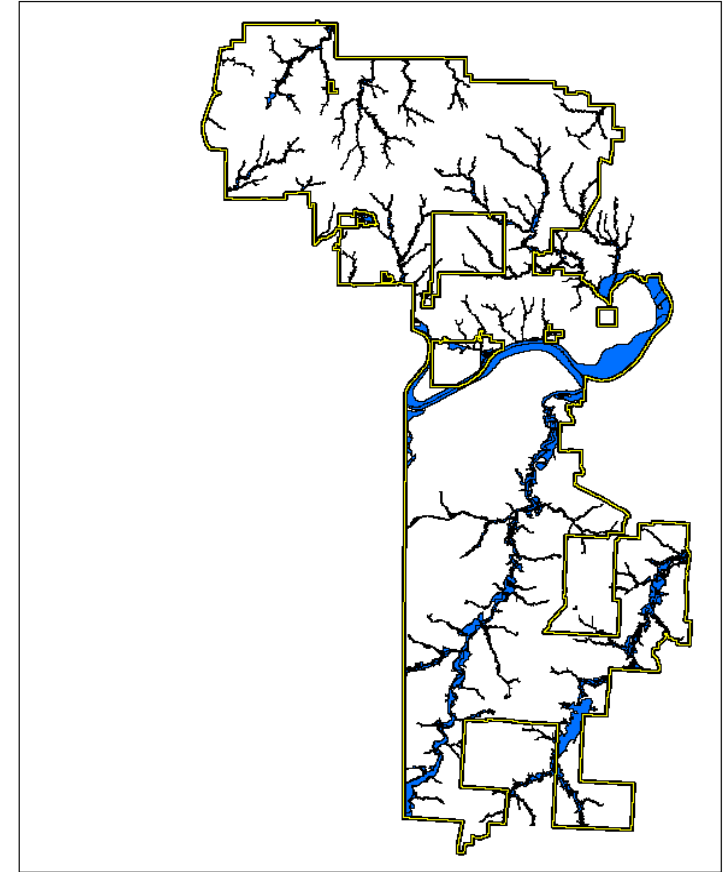
USGS Blue River Inundation Mapper

Meteorology Alerts



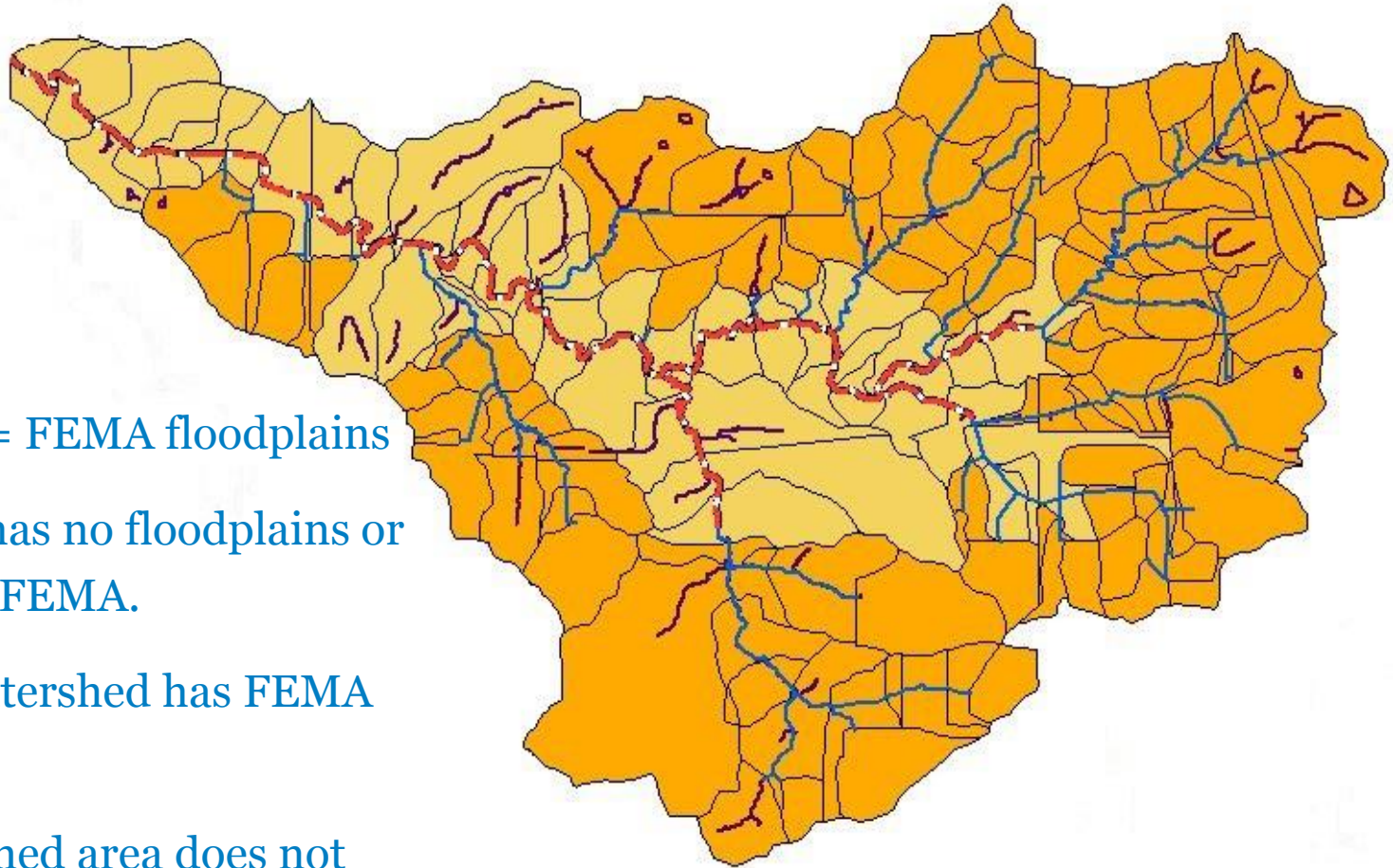
FEMA Flood Risk Guidance

- **FEMA's floodplains do not include all floodplain - they stop where tributaries are 1 square mile in size**
- **KCMO will have new effective FEMA maps next year based on 2009 land cover**
- **This effort will not increase federal floodplain regulated areas**



FEMA Regulatory Floodplains

Floodplain Data, East Fork Line Creek



- Light Orange = FEMA floodplains
- Deep Orange has no floodplains or Hydraulics by FEMA.
- 34% of this watershed has FEMA floodplains.
- 66% of watershed area does not

FEMA Floodplains Do Not Address...

- < 100 year return period events
- FEMA mapping is good at assessing the risk of catastrophic losses for insurance rates
- We want flood risk and public safety, not just insurance
- Many structures that are not in regulatory floodplain are damaged in wet weather
- Stream flooding is not the whole story—surface flow paths matter, too

Study Benefits

- Identify the risks of potential flooding and erosion problems for all property owners
- Protect stream corridors and associated natural resources
- Avoid one-size-fits-all requirements / avoid excessive regulation
- Reduce the engineering that needs to be done for development on the project level

Questions?

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