



City of
CHAMPAIGN



Farnsworth
GROUP

PRESENTATION

Boneyard Creek

How a Flood Mitigation Project
Became an Economic Development
Showcase in Champaign

Introductions / Agenda



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Firm Overview / Water Resources



Boneyard Creek – Overview



Boneyard Creek – History, Design, Outcomes



Lessons Learned



Main Take Aways

A decorative graphic on the left side of the slide, consisting of a diagonal band filled with a green hexagonal pattern, resembling a honeycomb or molecular structure.

Farnsworth Group

Firm Overview / Water Resources

Farnsworth Group | Firm Overview



- Full-service Architecture and Engineering firm
 - 475 employees across 24 offices
 - Top rated design firm in multiple disciplines
- Water Resources Group

SUSTAINABLE & ECOLOGICAL DESIGN

- + Stream restoration
- + Streambank stabilization
- + Green infrastructure design
- + Stormwater wetland design
- + Natural channel design
- + Low impact design
- + Best Management Practices

STORMWATER INFRASTRUCTURE DESIGN

- + Stormwater management
- + Flood mitigation
- + Storm sewer design
- + Detention basin routing and design
- + Erosion and sediment control plans
- + Water quality management
- + Permitting

SURFACE WATER MODELING & MAPPING

- + Hydrologic and hydraulic analysis
- + FEMA floodplain / floodway modeling, mapping, and revisions
- + FEMA review process
- + Community rating system
- + Master planning
- + Drainage investigations
- + 2D hydraulic analyses

A blue geometric pattern consisting of interlocking hexagons and pentagons, resembling a honeycomb or crystalline structure, located on the left side of the slide.

Boneyard Creek Overview

Boneyard Creek | Area



Boneyard Creek | Flooding History

- History of flooding
- Half of Green Street in floodplain
 - Preventing development
- Personal property damage
- Unsustainable flooding



Boneyard Creek | Flooding History



"BONEYARD BRANCH" BURNS

Came Near Being Destroyed by Fire Saturday.

Champaign came very near losing "Boneyard Branch" by fire Saturday afternoon.

The classic stream caught fire at a spot at the rear of the Mathews home, on North First street, about 3:30 p. m. and sent up a heavy cloud of thick black smoke which led people to believe that some large building was burning. When the crowd arrived it was found that the fire was on the surface, having failed to consume the heavy coat of grease and other combustibles which protected the water for a time.

The blaze extended for a distance of several rods and was so stubborn that one of the chemical tanks was emptied before it was brought under control.

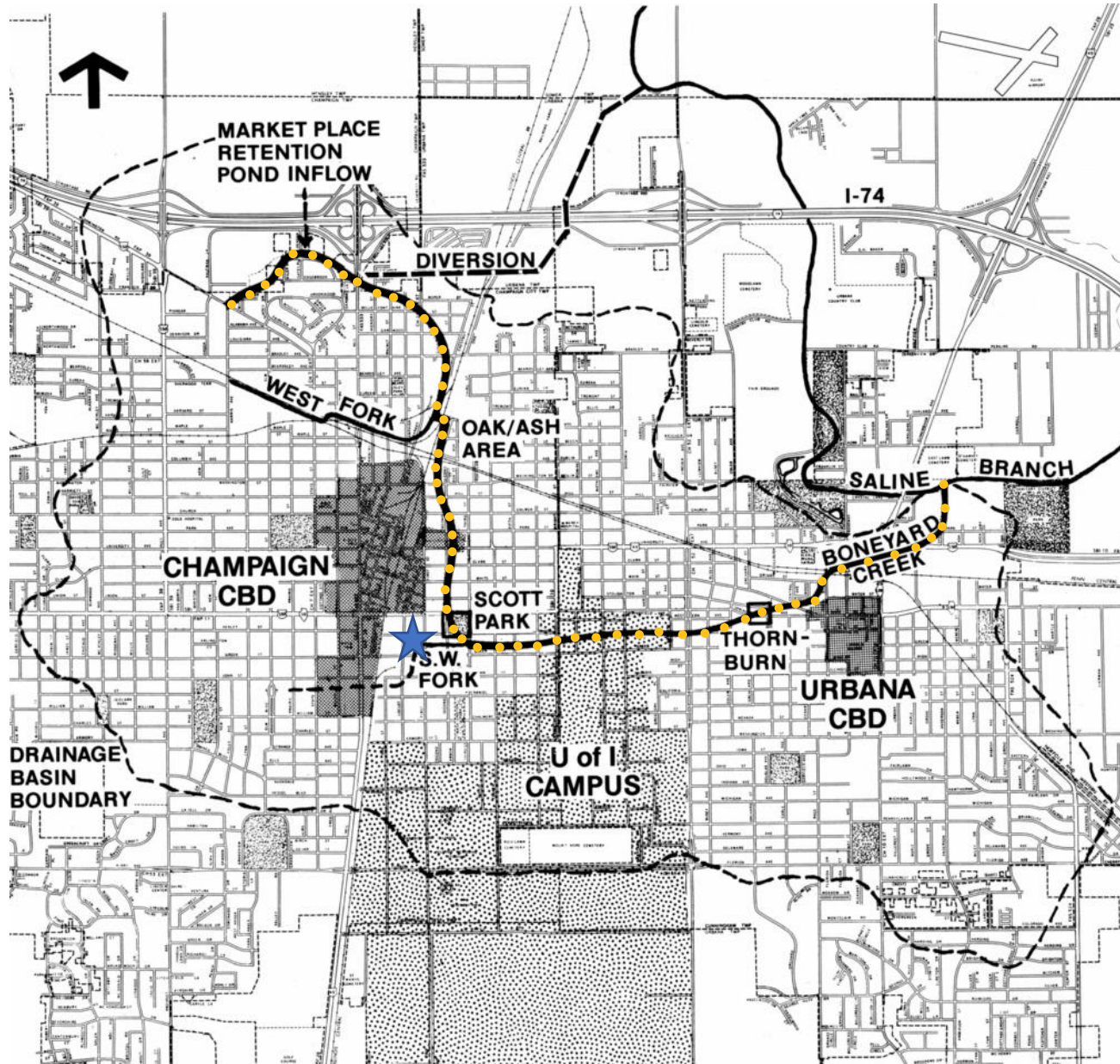
The fire was stated by Mrs. Mathews throwing a piece of burning paper into the ditch in order to learn where the odor of gas was coming from. As soon as the paper struck the gas impregnated atmosphere, there was a flash and soon the whole surface was ablaze and the buildings in the neighborhood were threatened with destruction. The trouble is believed to have been caused by a leak in a gas main which crossed the ditch.







A blue geometric pattern consisting of interlocking hexagons and pentagons, resembling a honeycomb or stone masonry texture, located on the left side of the slide.

Boneyard Creek

History, Design, Outcomes

Healey Street | History



-  Boneyard Creek
-  Saline Branch
-  Diversion
-  Drainage Basin Boundary
-  Central Business District
-  Healey Detention Basin

Healey Street | Design

- Storage solution → create basin in City block

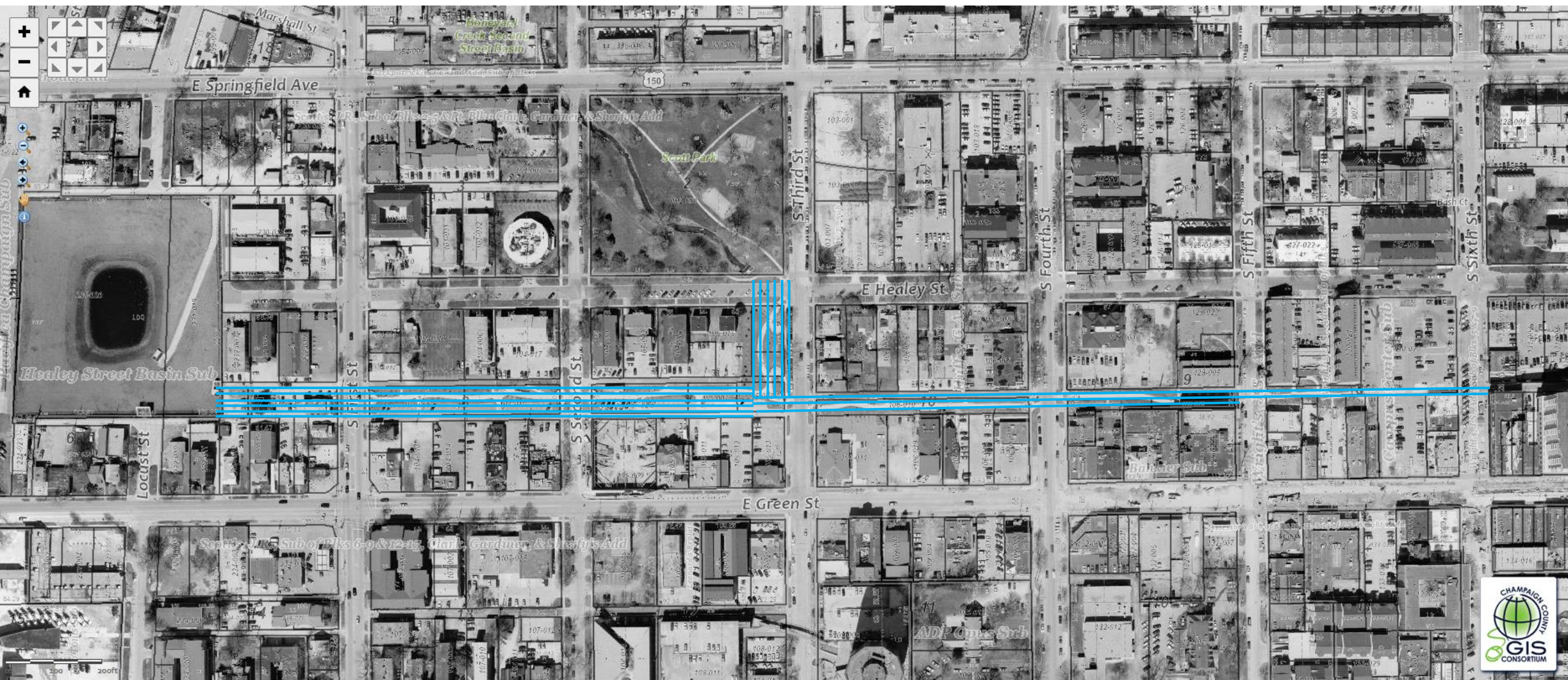


Green Street | History

- Flooding inhibited new development



Green Street | Design



Green Street | Design



Healey Street & Green Street | Outcomes

- Starting to see more development



Healey Street & Green Street | Outcomes

- Current day development



Second Street Basin & Scott Park | History



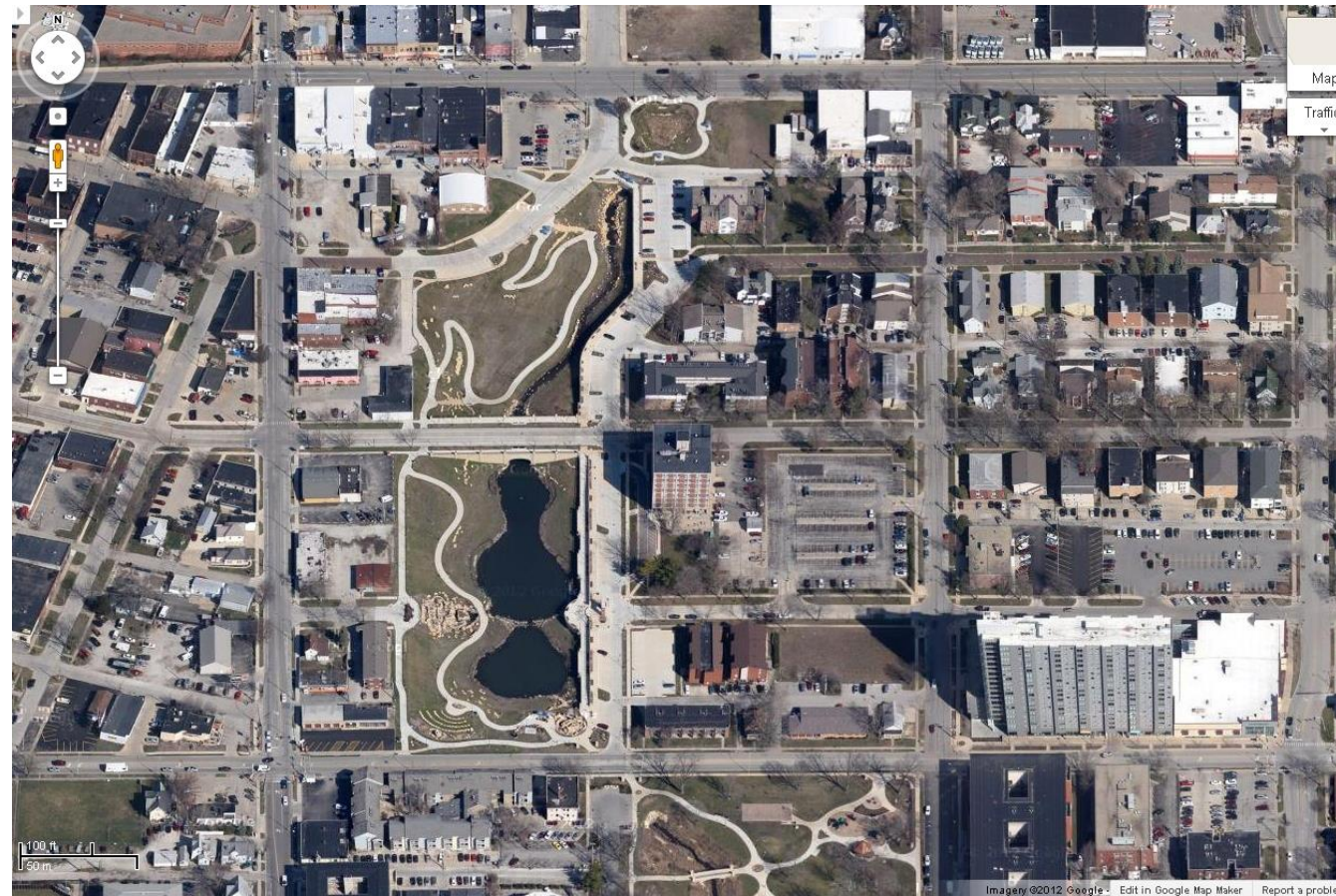
Second Street Basin & Scott Park | Design

- Primary goal → protect City from 100-year storm event
- Secondary goals
 - Create community amenity
 - Support economic development
 - Maintain and improve circulation



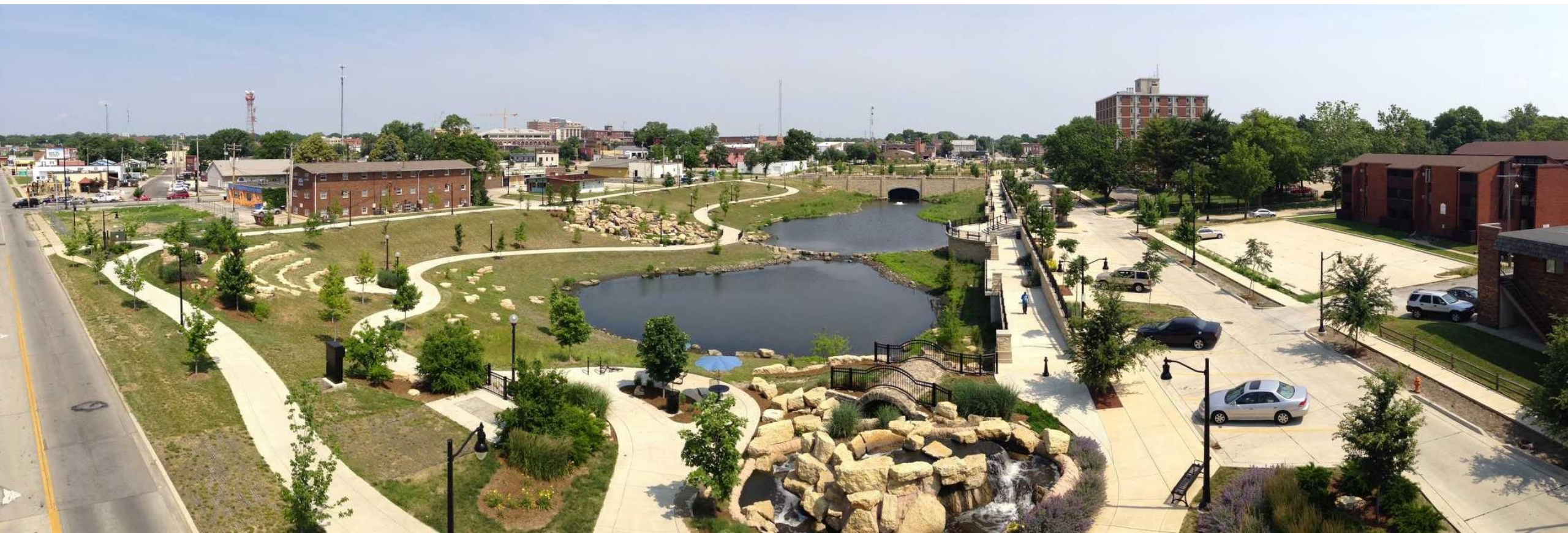
Second Street Basin & Scott Park | Design

- Flood storage elements
 - + Wet basin area
 - + Creek area with flood capacity
 - + Rain garden forebay



Second Street Basin & Scott Park | Design

- Connectivity → trails within and outside of floodplain to allow access to water, and pathway during storm events
- Community amenity



Second Street Basin & Scott Park | Design

- Scott Park design elements
 - Underground conveyance
 - Natural stream above
 - Fish Ladder



Second Street Basin & Scott Park | Design

- Park amenities
 - Waterfalls
 - Playground benches
 - Native plantings
 - Stone terrace

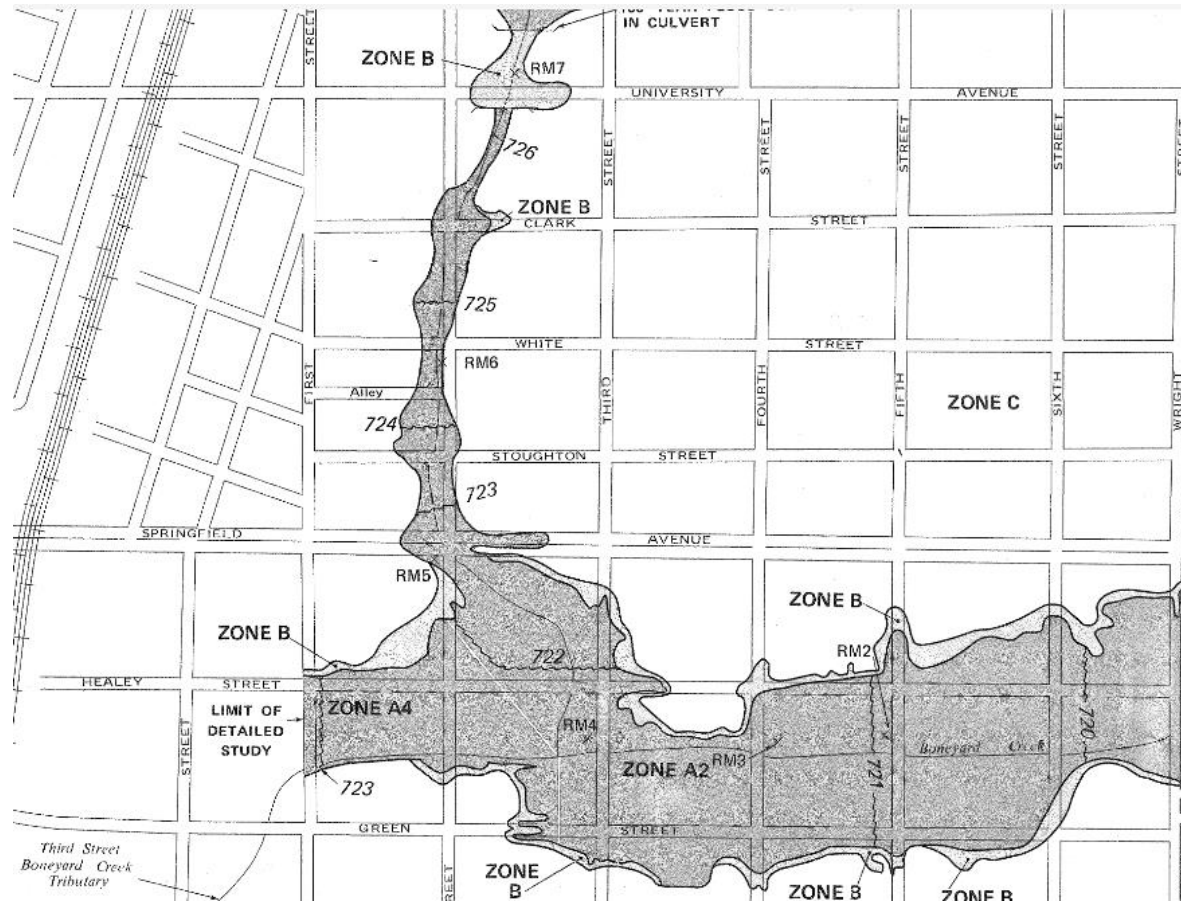


Second Street Basin & Scott Park | Outcomes

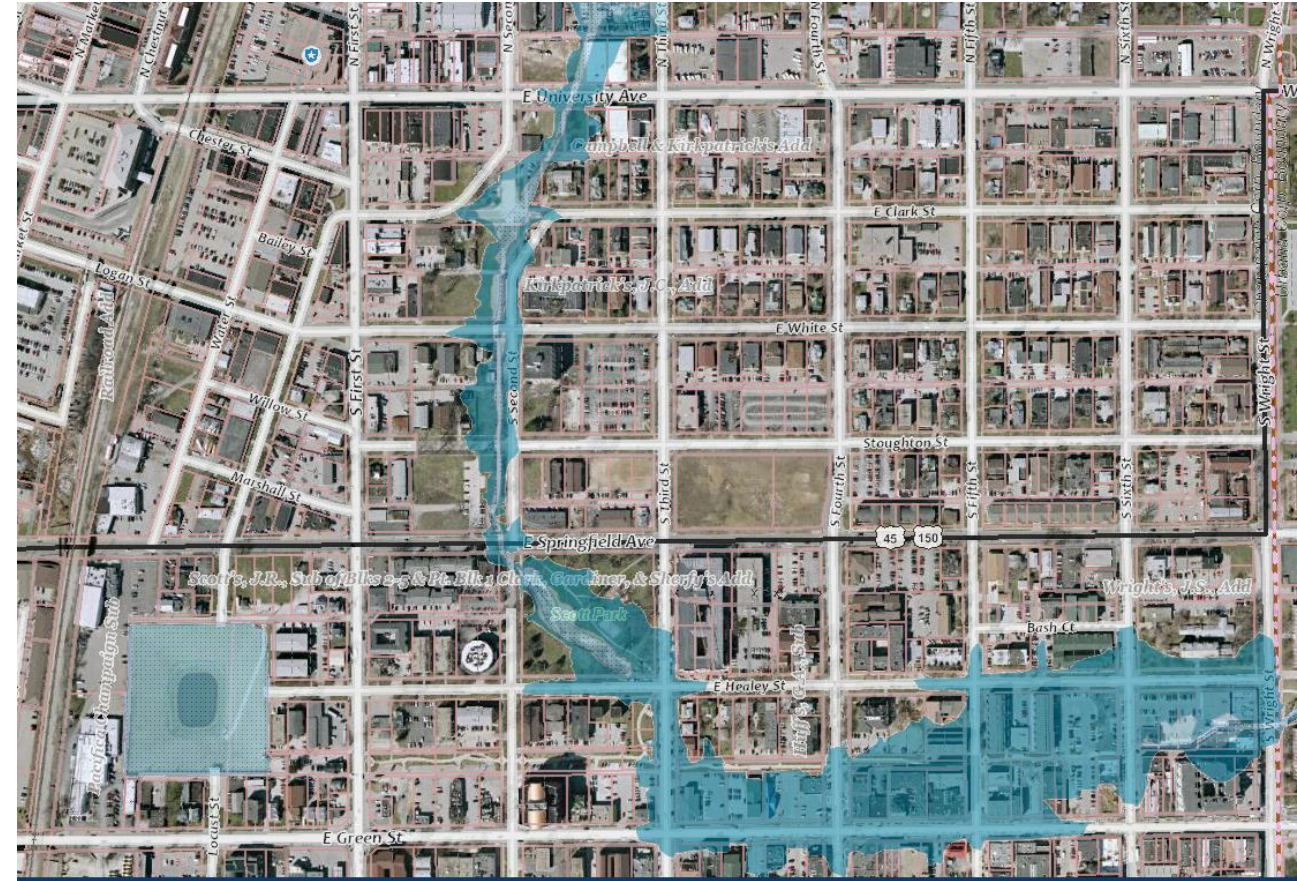
- Mitigate flooding



Second Street Basin & Scott Park | Outcomes



Effective 1981



Effective 2013

The map displays a residential neighborhood with various streets and flood zones. Key features include:

- Streets:** CLARK ST, GREEN ST, HEALEY ST, MARSHALL ST, STOUGHTON ST, WRIGHT ST, BURRELL AVE, EVERETT LAB ACCESS RD, and KINGSHIGHWAY.
- Flood Zones:**
 - ZONE AE (EL 723):** Indicated by red and blue diagonal hatching.
 - ZONE AE:** Indicated by orange shading.
 - ZONE AE:** Indicated by blue shading.
- Water Features:**
 - Boneyard Creek:** A blue line representing the creek.
 - Healey Street Detention Basin:** A blue area at the bottom left.
 - Culvert:** Several locations marked with 'C' and 'M'.
- Elevation Markers:**
 - 722.6, 722.1, 721.9, 718.5, 717.7, 716.6, 716.4, 715.8, 715.7, 714.1, 714.0, 714.0, 714.0.
- Legend:**
 - Orange shading: 1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN STRUCTURE
 - Blue shading: 0.2% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN STRUCTURE
 - Blue line: 1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT

Second Street Basin & Scott Park | Outcomes

- Development → \$400M worth of development along Green Street and Second Street Basin



Second Street Basin & Scott Park | Outcomes



Second Street Basin & Scott Park | Outcomes

- Green space → wildlife habitat, outdoor space for people, and connectivity



North Boneyard Future Phases | History



From the archives: Boneyard Creek

Photographer: Delfina Colby

Debris in the Boneyard behind the Martin Luther King subdivision in Champaign,
June 8, 1988.



North Boneyard Future Phases | Design



North Boneyard Future Phases | Intended Outcomes



Boneyard Creek | Next Steps

- Using Boneyard as model of other stormwater projects
- Dubbed “decorated drainage basins”



Glen Park, Champaign



Lessons Learned

Lessons Learned

- Maintenance access to basins, particularly Second Street
- Native vegetation requires long-term maintenance plan
- Bike path behind Green Street / daylighting creek





Main Take Aways

Main Take Aways | Boneyard Creek

- Single and multi-functional flood mitigation project
- Increased economic development
- Attribute success to City's forward thinking regarding flood mitigation





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thank you

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