After the Storm: Upgrading Stormwater Resiliency at Scott AFB

SAME - 19 September 2017

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Agenda

- Hydro History
- Recent Flooding Events
- SAFB Response
- Regional Watershed Approach
Hydro History

- Watersheds
  - Mississippi River
    - Kaskaskia River
      - Silver Creek
        - Ash Creek
        - Cardinal Creek
        - Mosquito Creek
        - Loop Creek
Hydro History

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Hydro History

Longitudinal Profiles of Water Surface Elevations for Ash Creek

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Hydro History

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Hydro History

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Recent Flood Events

- Frequency of flooding on Scott AFB (2 less than 15-year rainfall events have prompted release of non-essential personnel within the last five years).
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Recent Flood Events
Recent Flood Events
Recent Flood Events

Notice height of debris mark in the Scott Inn basement.
SAFB Response

- Three prong approach:
  - Waterways
  - Stormwater Piping
  - Green infrastructure
SAFB Response

- Waterways
  - Cardinal Creek maintenance
  - Ash Creek maintenance
  - South Ditch maintenance
  - Ash Creek perimeter fence
  - Silver Creek debris
  - Raising Cardinal Creek channel bed
  - Streambank stabilizations
SAFB Response

- Waterways

Estimated 50 Year Water Surface Elevation - Current Channel

Estimated 50 Year Water Surface Elevation - Design Channel

Approximately 36.4% difference in capacity

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SAFB Response

- **Stormwater Piping**
  - Ward Drive drainage and pump station
  - Galaxy Housing pipe repair
  - Hangar 3 flood proofing
  - Taxiway F pipe repair
  - South Runway pipe repair
  - North Runway pipe repair
  - Golf Course Rd. pipe repair
  - Hangar Rd. pipe and mainline repair
SAFB Response

- Stormwater Piping
  - Design standards
    - 24-hour/15 year design storm
    - Smooth-wall pipes
    - Minimum slope of 1%
    - Minimum size of 15”
    - Duckbill flap gates
SAFB Response

- Green infrastructure – promote infiltration, retention and detention
  - Enlisted Drive detention basin
  - B1600 infiltration basins
  - B40 infiltration basins
  - Golf Course Rd. infiltration basins
  - B1600 regrading
  - B1575 infiltration swale
  - Scott Club infiltration basins
  - 400-500 curb cuts w/ concrete flumes
SAFB Response

Section 438 of the Energy and Independence and Security Act (EISA) of 2007

• Requires federal agencies to reduce stormwater runoff from federal development projects
• Achieved through the use of green infrastructure/low impact development (GI/LID)
• DISA
• Various parking lots
• Basewide pavement demolition
• All future projects over 5,000 sq. feet
Regional Approach

- Community Partnership
- Lower Silver Creek Watershed Plan
- USACE Silver Jackets
- Rain gage network
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Questions

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