Illinois Avenue Culvert Replacement Project
City of Aurora, IL

March 14, 2012

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City of Lights
Blackberry Creek – City of Aurora

- Kane -Kendall Counties
- Tributary to Fox River
- Watershed 71 Sq Mi
- Aurora Tributary (Chain O’Lakes) Approx. 4 Sq. Mi
- 2nd largest City (198,000) incorporated in 1837
- City Limits 44 Sq. Mi.
- City of Lights (1881 Electric Street Lights)

Chronology of Study Area

- **1940 – 1970**  Majority of the Development within Aurora Tributary
- **1996**  16.2” Rain in 24 hours (Back to Back 100 year Events)
- **1998**  City Completed Study & began regulating local floodplain by Ordinance
- **2003**  Kane County Completed Natural Hazards Mitigation Plan
- **2004**  City updated the Flood Study
- **2006**  Kane County Environmental Management Department commissioned USGS study Blackberry Creek Watershed
- **2007**  Kane County contracted with CBBEL to analyze Blackberry Creek Watershed for potential Flood Mitigation Projects
- **2008**  City applied for IEMA Flood Mitigation Grant for the Illinois Ave Culvert
- **2009**  Updated FIRM (Map Modernization) included the Aurora Tributary
- **2009**  Hurricane Katrina disaster affected Grant Funding and stalled application
- **2010**  Finalized Grant, completed Final Engineering Plans and obtained Permits
- **2011**  Bid and Constructed project and Applied for LOMR
Aurora Floodplain Projects

- Orchard Corridor Office Park
  - Added 37 Acre-ft 2007
- Greenfield Lake:
  - Added 48 Acre-ft 2006
- Orchard Rd Expansion
  - Added 33 Acre-ft in 2005
- Orchard Lake Development
  - Added 100 Acre-ft in 2009
- 218 Acre-ft Total Floodplain Storage Added
Study Area History

Projects:
- 2004 Culvert Project on Indian Trail Road
- 2009 Indian Trail Road Culvert Project
- 2009 Galena Boulevard Culvert Project
Flood Photos
Blackberry Creek Watershed Study

• Kane County Department of Environmental Management
  – Project Management funding
• U.S. Geological Survey
  – HSPF hydrologic and HEC-RAS hydraulic models
  – City provided Aurora Tributary Study for Remapping
• IDNR-OWR
  – Economic Survey
• ISWS
  – Floodplain remapping
• CBBEL
  – economic analysis and identification of flood control projects
Baseline Floodplain Mapping by USGS

2009 FIRM

City of Aurora

Orchard Rd.

I-88

Galena Blvd.

IL 56
• Damage clusters identified
• Transferred to IDNR-OWR for survey
• GIS database created for 412 surveyed properties
• “Damages4” economic analysis
Hydraulic Analysis & Project Identification

- 10 projects identified
  - Flood storage
  - Conveyance improvements
- Illinois Avenue Culvert
  - Replace restrictive culverts
  - >50 properties affected
  - B/C Ratio >1
  - Additional storage in watershed
  - Project cost ≈ $250,000
Funding Breakthrough

• City engages Molly O’Toole & Associates
• October 22, 2008
  – Disaster FEMA-DR-1722-IL (August 2007 event)
  – $273,000 available
• Move on to Part 2
Blackberry Creek Watershed Study

• City of Aurora
  – Project Management funding
• Molly O’Ttoole & Associates, Ltd.
  – Grant preparation
• Illinois Environmental Management Agency (IEMA)
  – Grant administration
• Federal Emergency Management Agency (FEMA)
  – The folks with the money
• CBBEL
  – Design, permitting and remapping
Design Constraints

- Utilities
Design Constraints

• Design modification after survey
Permitting and Re-Mapping

- Part 3700 Permit from IDNR-OWR - 2011
- Re-Mapping through FEMA
Administration of the Grant

- Hazard Mitigation Grant Program (HMGP) - 75%/25% cost share
- FEMA Review
- Issue a Public Notice
- Update City Resolution to re-adopt Kane County Natural Hazard Mitigation Plan
- City & IEMA executed Inter-Government agreement
- Bid and Construction 2011
- City has Received Reimbursement (Thanks Ron)
- 36 Houses to be removed from the floodplain
- Applied to FEMA for the LOMR
Construction photos
Construction photos
Pre and Post Construction photos

Before 2000

After

Before

After

AURORA City of Lights
Lessons Learned

• Be pro-active
• Be patient
• Its worth it
• Partnerships – Kane County, IEMA, USGS, Consultants