Village of Bartlett
Village-Wide
Drainage Improvements

by

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Village of Bartlett

- Incorporated 1891
- Village Population
  - 1900 – 390
  - 1970 – 3,500
  - 2007 – 41,500
- 15 square miles
- Residential
- Commercial
- Industrial
- Open Spaces & Forest Preserves
September 2008 Flood Event

- September 13-15 2008
  - 8.8 inches of rain over 30 hours at Bartlett WWTP
  - Home weather stations report over 10 inches of rain

- 206 flood questionnaires returned

- Types of flooding reported*
  - Overland flow through windows or doors (68)
  - Seepage and Sump Pump failures (118)
  - Sanitary surcharge (39)

*some questionnaires reported multiple flooding types
Project Approach

- GIS-based categorization of flood questionnaires
- 3 “Major” study areas within Village
- Causes of flooding:
  - Residential areas built in the 1980s or earlier
  - Low entry elevations of homes below overland flow routes
- Drainage Improvements:
  - Short term and long term improvements
  - Storm sewers, flood storage, overland flow routes, etc.
- Inter-governmental cooperation and coordination
- Public meetings
Golf View Drive Study Area

- 50 acres tributary to golf course detention pond
- Runoff from heavy rain exceeds detention basin capacity of 2.9 acre-ft
- Overland flow route blocked & water directed towards homes (10 impacted)
- XP-SWMM Analysis
• Short Term Improvement:
  – Residential Flood Proofing
  – Replace 24” RCP with 48” HDPE
  – Inlet structures
  – Overland flow route enhancement
  – 100-Yr level of protection
• Long Term Improvement:
  – Upstream storage
Golf View Drive Study Area

• Short Term Solution
  Started October 2009
  – Utility coordination
  – Adjacent residential structures
  – 12-foot wide construction corridor
  – Landscaping
  – Construction Cost = $135,000
  – Village Funding
North Avenue & Hearthwood Farms

Study Area

- Watershed size = 2.1 mi²
- Drainage area includes Villages of Bartlett, Streamwood and Hanover Park
- Drainage problems
  - Insufficient storm sewer capacity
  - Historic overland flow path blocked by railroad
  - Water flooded low areas and entered adjacent residences
North Avenue/ Hearthwood Farms Study Area

- September 2008
  - 46 residential structures with surface water flooding
  - Several below 10-year flood elevation
North Avenue
Hearthwood Farms Study Area

- Short Term Improvement:
  - Beaver Relocation
  - Phase 1 Flood Storage
    - 10 acre-ft
    - Storm sewer

- Long Term Improvement:
  - Phase 2 Flood Storage
    - 75 acre-ft
  - Hearthwood Farms Flood Storage
    - 16 acre-ft
North Avenue/ Hearthwood Farms Study Area

- Short Term (Phase 1) improvement started June 2009
  - IGA with Village of Streamwood
  - XP-SWMM Modeling
  - Design plans and wetland permitting
  - 16,000 cy excavation
  - Construction completed November 2010
  - Construction Cost = $342,000
  - Village Funding
North Avenue/
Hearthwood Farms Study Area

- Long Term Improvement
  - Phase 2 Flood Storage
    - Wetland permitting
    - 118,000 cy excavation
    - Estimated cost = $2.5M
  - Hearthwood Farms Flood Storage
    - Land Acquisition
    - 26,000 cy excavation
    - Storm sewer upgrades
    - Gas transmission pipeline
    - Estimated Cost = $2.0M
  - Applying for State and Federal Funding
Beaver Pond Study Area

- Watershed = 1.5 mi²
- Headwaters of Brewster Creek
- Drainage pattern from north to south
- Drainage outlets into DuPage County Forest Preserve
  - Wayne Grove Forest Preserve
  - Pratt’s Wayne Woods Forest Preserve

June 6, 2011

Bartlett Village-Wide Drainage Improvements
Beaver Pond Study Area

- Pipe outlet below downstream channel invert
- No safe overland flow route
- Finite storage in Beaver Pond
Beaver Pond Study Area

- 11 homes at or below September 2008 flood elevation
- 6 additional homes surrounded by water on 3 or more sides
- 51 homes isolated for days from flooded roads
Beaver Pond Study Area
Short Term Drainage Improvements

- Short Term Improvements:
  - Inter-governmental coordination
    - DuPage County, FP, Village, DuDOT, IDOT
  - Drain tile repairs by Forest Preserve
  - Forest Preserve District clearing of outlet channel in Pratt’s Wayne Woods FP
  - Preparation of Watershed Plan

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Bartlett Village-Wide Drainage Improvements
Long Term Improvement:
- 2,600 l.f. 60-inch RCP under Stearns Road
- Control Weir
- 55 acre-ft flood storage facility on FP property
- Estimated Cost = $5.0M
- Estimated Fall 2011 Letting
• Long Term Improvement
  – 3,600 lf storm sewer (15-inch HDPE)
  – Re-graded overflow routes
  – Estimated Cost = $500,000
  – Estimated Fall 2011 Letting
Project Summary

• Identification of Study Areas
  – Golf View Drive
  – North Avenue/Hearthwood Farms
  – Beaver Pond

• Development of Short Term and Long Term Improvements

• Inter-Governmental Cooperation