

City of Urbana Existing Storm Water Program

The City of Urbana manages a system that includes over 130 miles of storm sewer pipe, nearly 8,000 storm water inlets, and an extensive network of ditches, drainage channels, ponds and a pump station to provide the following stormwater management benefits to its residents:

- Flood protection during periods of intense rainfall
- Full access to roadways to allow traffic flow during and after periods of intense rainfall
- Prevention of stormwater pollution and maintenance of stormwater quality standards set forth by federal and state guidelines

These objectives are met with the following key activities to maintain and repair the City's stormwater infrastructure:

1. Storm Sewer Operations and Maintenance
2. Engineering Services
3. Boneyard Creek and Regional Pond Maintenance
4. Capital Improvement Program
5. Sump Pump Reimbursement Program
6. GIS-based Mapping
7. Streamflow and Rainfall Gaging Program (in conjunction with USGS)

The City's existing stormwater program requires the following resources:

- Labor
 - Engineering staff
 - Maintenance personnel
 - Administrative staff
- Materials
 - Pipes, manholes, inlet castings
 - Backfill, pavement
- Equipment
 - Construction equipment
 - Street sweepers
- Outside Services
 - Contractors
 - Engineering consultants
- Fees / Financial Obligations
 - USGS streamflow and rain gage maintenance
 - Fees to Champaign County (GIS maintenance fees)
 - State permit fees (NPDES)
 - Annual payments to St. Joseph Drainage District

The following pages provide detail on the individual activities listed above.

1. Storm Sewer Operations and Maintenance

- Sewer and inlet repair
- Manhole repair
- Sewer cleaning / video inspection
- Curb inlet cleanout
- Flooding and drainage complaint response program
- Street sweeping
- Storm sewer lining and rehabilitation
- Minor ditch grading and mowing



Sewer Televising Showing Collapsed Pipe



Street Flooding from Clogged or Undersized Storm Sewers

130 miles of storm sewer in the City of Urbana

2. Engineering Services

- Site plan review for development and redevelopment
- Oversight and implementation of City's NPDES storm water permit compliance activities
- Enforcement of floodplain ordinance
- Respond to individual flooding complaints
- Design of storm sewer replacement or improvement projects
- Work with landowners to remove structures from high-risk flood areas
- Enforce "good housekeeping" practices at City's Public Works facilities



Public Education Program (NPDES Requirement)



FEMA Floodplain Map with Pending Revisions (Downtown Urbana)

3. Boneyard Creek and Regional Pond Maintenance

- Repair channel erosion
- Remove flow blockages, debris
- Manage vegetation along channels (i.e. mowing, clearing/grubbing of woody vegetation)
- Detention pond inspections, mowing, inlet/outlet repairs
- Hydraulic modeling for flood control purposes
- Maintenance inspections
- Maintain Vine Street viaduct pump station
- Make annual payment to St. Joseph Drainage District



Boneyard Creek at Race Street



Vine Street Viaduct Pump Station

4. Capital Improvement Program

- Sewer Replacement and Enlargement Projects
- Stormwater Master Planning
- Projects include:
 - Street repair
 - Utility relocations
 - Design
 - Construction management
 - Regulatory commitments

Broadway Avenue Storm Sewer Replacement



5. Sump Pump Reimbursement Program

- Eliminate hazardous discharges from basement sump pumps
- Reduce/eliminate icing along sidewalks and roadways
- Maintain cost-share program with residents to modify basement pumping systems

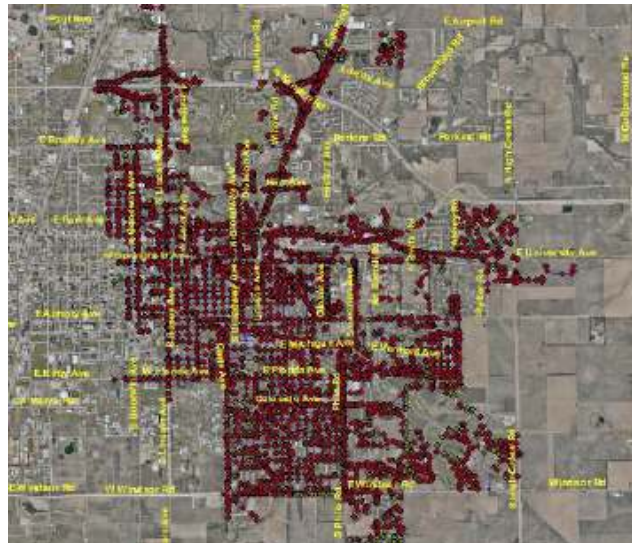


Typical basement sump pump

6. GIS-based Mapping

- Create and maintain inventory of manholes, inlets, and storm sewer pipes
- Requires constant updates to reflect land development
- Track drainage complaint locations
- Floodplain mapping
- Champaign County GIS Consortium membership fees
- GIS software and hardware costs
- City staffing required to maintain GIS program

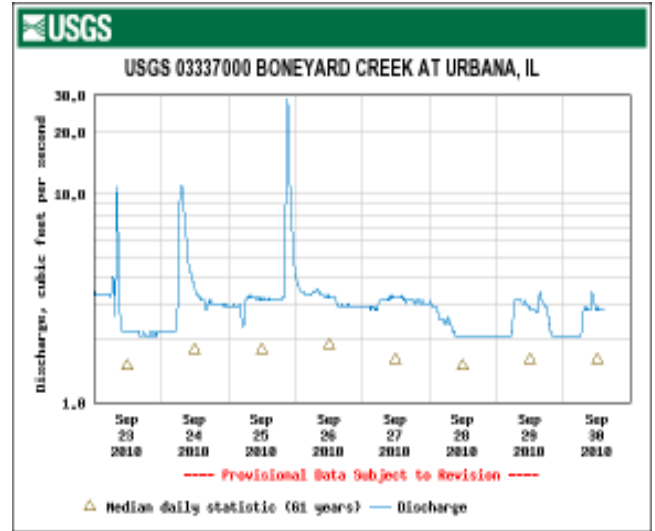
GIS (Geographic Information System) is an important tool to maximize the efficiency of ongoing system maintenance and is an indispensable planning tool



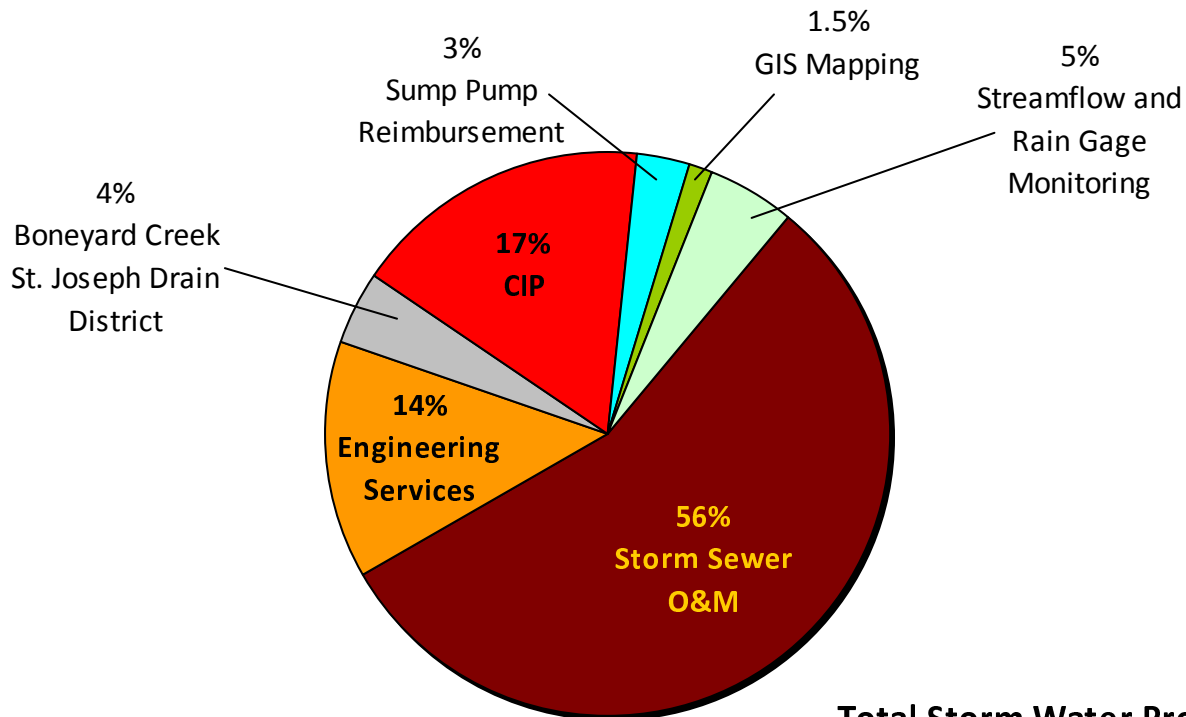
Storm Sewer GIS Mapping
(~8,000 Storm Sewer Structures Shown on Map)

7. Streamflow and Rainfall Gaging Program (w/USGS)

- USGS owns and maintains streamflow and rain gages along the Boneyard Creek. Benefits include:
 - Real-time monitoring of flow rates and water levels
 - Useful planning tool for future capital improvements
 - Evaluate impacts of storm water detention in Champaign
 - Assists in future floodplain mapping updates



USGS Real-Time Flow Data
Boneyard Creek



**Total Storm Water Program:
\$811,000**

NOTES:

- Storm Sewer O&M includes \$188,000 per year in street sweeping costs.
- Engineering Services includes 0.5 FTE Civil Engineer and 0.5 FTE Engineering Technician for general design, floodplain, flood response, and NPDES programs. Also includes 0.25 FTE Engineering Technician for erosion control inspections.
- Boneyard Creek Maintenance includes \$20,000 annual payment to St. Joseph Drainage District
- Sump Pump Reimbursement based on City-provided budget data