Using GIS as a Storm Water Management & Pond Inventory Tool

City Engineers Association of Minnesota

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GIS as a Stormwater Management & Pond Inventory Tool

• Plymouth and Geographic Information Systems (GIS)
  – There are many uses for GIS.
  – Plymouth maintains a GIS database for stormwater management and includes waterbodies, storm sewer, topography, and other features to better understand the complex relationship of all features within our drainage system.
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• Plymouth and Geographic Information Systems (GIS)
  – We do this to balance the many needs for information on our drainage system including:
    • NPDES as administered through the MPCA MS4 Permit Program and the MPCA requirements
    • Watershed Requests
    • Resident Complaints
    • Maintenance Needs
    • Development Requests
    • And more...
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1. LiDAR
2. Roads
3. Utilities – Storm Sewer
4. Buildings
5. Ponds
6. Wetlands
7. Parcels
8. Aerial Photo
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• Waterbodies
  – Lakes, wetlands, ponds, and wetland mitigation
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• Storm Sewer
  – Pipes, flared end sections, catch basins, manholes, sump manholes, lift stations
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Inverts
Pipe Size
Pipe Length
Pipe Type
As-Built Sheet No.’s
Red Flags
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• Topography
  – LiDAR
    • Light Detection and Ranging
    • Two-foot Contours
    • Digital Elevation Model (DEM)
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LiDAR – Light Detection and Ranging

2ft Contours

+/- 0.5ft

Free Data
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DEM – Digital Elevation Model
Free Data
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• Other Features
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1. Acres
2. ID
3. Photos
4. Wetland Delineation
5. Wetland Mitigation
6. TMDL Plan
7. Red Flags
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• From the Office to the Field
  – With so much information readily accessible in the office, how do we get it to all the staff who may need it in the field?
  – Web-based software (ex. MS4Front) and mobile devices (iPad).
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# GIS as a Stormwater Management & Pond Inventory Tool

## MS4 Permit Manager - City of Plymouth

### Pond-Wetland-Waterbody Inventory

<table>
<thead>
<tr>
<th>Water Name</th>
<th>Alias Name</th>
<th>Type</th>
<th>Surface Area</th>
<th>Comments</th>
<th>Ownership</th>
<th>Maintenance Authority</th>
<th>Delete</th>
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</table>
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• Conclusions
  – Advantages
    • Information at your fingertips
    • Answer resident questions/complaints
    • Development Review
    • Mobility for all staff
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• Conclusions
  – Disadvantages
    • Lots of information will take some time to compile into one package.
    • Some information can rapidly become outdated.
      – Ex. A rapidly developing community
    • Another software program
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