Township Financing of Drain Projects through the Drain Code

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Delhi Charter Township
Drain Code is Delhi Township’s Storm Water Utility

- Move from conflict based solutions to interest based solutions through collaboration and consensus
- Reduce unintended consequences
- Provide cost effective and administratively efficient solutions to drainage problems
- Find opportunities for added value
Evolution of Michigan Drain Law

- Drain Law Administered at the Township Level
  - 1839 - Chapter 80 First codification of Drain Law, in the first Michigan legislative session, entitled “An Act to Provide for the Draining of Swamps, Marshes, and Low Lands”
  - 1846 - Chapter 131 First amendments to the original law

- Drain Law Administered at both the Township and County Level
  - 1847 - Act 104 County could appoint Drain Commissioners (3)
  - 1857 - Act 169 County must appoint Drain Commissioners (3)

- Drain Law Administered at the County Level
  - 1897 - Act 254 Appointed office of County Drain Commissioner (1)
  - 1909 - Act 118 Elected office of County Drain Commissioner (1)
  - 1923 - Act 316 First recodification of Drain Law
  - 1956 - Act 40 Second recodification of Drain Law and the current Drain Code

- Drain Law Administered at the ??? Level
  - Future
Township / Drain Commissioner Relationship

- Petition for drainage improvements and consolidation
- Authorize an increase in maintenance spending by resolution
- Provide work, materials, and funding prior to petition project
- Assume jurisdiction and control of drains located wholly within the Township
- Participate in paying for drains
Recent Drain Projects in Delhi Township
Cook and Thorburn Drain
Cook and Thorburn Drain

- **Project 1**
  - Petitioned by Township
  - Lower Floodplain for Future Development and Major Road
  - $966 Thousand Total Cost, $493 Thousand Construction Costs (51%)

- **Project 2**
  - Petitioned by State
  - Improve Water Quality and Additional Flood Relief
  - 10.385 Million Total Cost, $3.65 Million Construction Costs (35%)
Cook and Thorburn Drain Project 1

- Relief Drain
- Increased Capacity
- Completed 2004
Cook and Thorburn Drain Project 2

- Installed mechanical water quality units
- Constructed in-channel sedimentation basins, wetland filters, and gravel media filters
constructed 8,000 feet of linear treatment wetland
Completed 2011
Petition by landowners
- Flooding relief within newer subdivision
- Existing outlet tile undersized and nearing 100 years old
- $677 Thousand Total Cost, $393 Thousand Construction Costs (58%)
Added new rear yard structures, replaced 4600 feet of outdated tile, day-lighted an additional 800 feet, increased channel capacity

Provided adequate outlet for developable land, included design for future county road crossing

Completed 2009
Gilbert, Loch Woode Drain
Gilbert, Loch Woode Drain

- Petition from subdivision landowners w/ basement and rear yard drainage problems
- Detention basin lacked overflow
- $675k Total Cost, $345 Thousand Construction (51%)
- Installed rear yard drains, improvements to detention basin outlet
- Completed in 2012
Green, Glens of Willoughby Drain
Petition from landowners within condominium with flooding problems

$595k Total Cost, $342 Thousand construction (57%)
- Install rear yard drains and connected roof drains and sumps to the system, improve conveyance and capacity, new detention outlet
- Completed 2014
Delhi Township Drain Consolidations

- Petitioned by Township
- 135 County Drains, Overlaps and Gaps
- 44 Drains consolidated into 4 Drains
- 28% of Delhi Charter Township
1938: Farmfields and Residential Served by an Open Agricultural Drain
Delhi Center Drain
Established 1895 by
Township Drain Commissioner

First Order of Determination

Whereas an application in writing bearing
date January 3, 1894 has been made and filed
with me, the Township Drain Commissioner
of the Township of Delhi County of Ingham
State of Michigan, pray for the reconstruction of
a certain Drain Known and Designated as the Delhi
Center Drain, which said application was signe
1955: Drain Enclosed for Developing Commercial and Residential
1981: Continuing Infill Development and Additional Runoff w/o Outlet Improvements
Flooding Complaints Began in the 1980s
July 27-29 2011 Rain Events
(Total 8.0 Inches)

- **First Night**
  - 5.8 Inches
  - 200 Year / 12 Hour Recurrence Event

- **Second Night**
  - 2.3 Inches
  - 10 Year / 3 Hour Recurrence Event

Massive Flooding Throughout District; Basements, Yards, Roads, Commercial Parking Lots
Petition submitted by landowners within a week of rain events for two Drain Districts in this core area

Township submitted petition to include these 2 Districts and 5 others to be consolidated into the Green #4 Consolidated Drain
Section 434 of the Drain Code - A drainage district may ..........accept the advance of work, material, or money from a public or private corporation,........for the payment of, or in connection with the construction of, any part of a drain project......and be reimbursed by the drainage district......when funds are available.
Building Consensus Among Stakeholders On Project Goals

- Drain Commissioner
- Township Board
- Road Department
- Downtown Development Authority
- Neighborhood Residents
- Utilities
- Commercial Landowners
Project Basis of Design

- Reduce frequency, duration, and depth of flooding.
- Provide cost effective solution
- Minimize future Operation and Maintenance Costs
- Avoid disturbance on major roadways
- Compliance with statutes, including Phase II
- Minimize and mitigate downstream impacts
# Summary of Feasible Alternatives

<table>
<thead>
<tr>
<th>Alternative Description</th>
<th>Estimated Construction Cost</th>
<th>Most Cost Effective</th>
<th>Avoid Disturbance at Major Roads</th>
<th>Minimize Downstream Impacts</th>
<th>Reduces Flooding</th>
<th>Complies with Phase 2</th>
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<tbody>
<tr>
<td>5. Conveyance, w/o storage, for 100 Year Storm</td>
<td>$15-17M</td>
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<td>6. Conveyance, all through existing outlet, with regional storage</td>
<td>$4.5-5M</td>
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<td>7. Conveyance, a portion through existing outlet, with relief drain and LID</td>
<td>$3-3.5M</td>
<td>X</td>
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Relief Drain with LID
Infiltration Swales

- 128 Individual Swales
- Constructed on Both Sides of Road ROW
- 12-24” Perforated Underdrain
- Planted w/ Tall Fescue Turfgrass
- Meets Phase II requirements
- Captures 100 yr., 24 hour recurrence event
Detention Basin

- Property sold by the Township to the Drainage District for $1
- Outlet for the Green #4 Consolidated Relief Drain to the Diehl Consolidated Drain
- Designed to prevent detrimental impacts downstream
- Provides additional treatment and storage of storm water
Before

After
Before

After
Improvements Coordinated w/ Drain Project

- Township Complete Street Sidewalks
- Township and County road upgrades
- Gas utility upgrades
Green #4 Consolidated Drain

- $5.59 Million Total Cost, $3.44 Million Construction Cost (62%)
- To be completed 2015