Inflow & Infiltration Mitigation Efforts
City of Eagan

MCES Workshop
I & I Regional Efforts
February 16, 2012

Tom Colbert
Director of Public Works
Meter Flow Recordings showing sewer flow peak resulting from 4.5” rainfall event at SENECA Waste Water treatment plant in Eagan on 10/5/05
Inflow & Infiltration (I/I) Impacted Communities (37)

Arden Hills
Bayport
Chanhassen
Columbia Heights
**EAGAN**
Eden Prairie
Edina
Excelsior
Farmington
Golden Valley
Greenwood
Hopkins
Lauderdale

Lilydale
Long Lake
Maple Plain
Maplewood
Medicine Lake
Mendota
Minneapolis
Minnetonka
Minnetonka Beach
New Hope
Oakdale
Orono

Osseo
Roseville
St. Louis Park
Saint Paul
Savage
Shoreview
South St. Paul
Stillwater
Tonka Bay
Vadnais Heights
Waconia
West St. Paul
District 8 (WM28M2401)
Eagan, MN

Rainfall

08/07/09 - 08/08/09
07/31/09 - 08/01/09

Peak Rainfall - .92 in/hr

Max Flow Rate - 1809.9 gpm

Prior Week Flow Rate - 167.7 gpm

7 Fri Aug 2009
CITY OF EAGAN
INFLOW/INfiltration (I/I)

40% City system
60% Private system
Section 3.40
Rules and Regulations relating to sewer service

- Clear Water Discharge Prohibited
- Compliance Inspection mandatory
- Corrective Repairs required within 60 days
- Utility Bill Surcharges for non-compliance
  - $150/month (residential)
  - $500/month (non-residential)
- City reimburses 50% of costs
Sanitary Sewer Lateral and Sump Pump Inspection Program Work Flow

First Letter Sent to Resident For Inspection

Resident Calls For Inspection

Inspection Time And Date are Setup

Inspection Not Performed Due to a Lack of Access

Resident does Not call for an Inspection

Second Letter is Sent and/or Resident Is called

15 Days

Resident still Does Not Respond to Letter

Service Lateral Non-Compliant

- Notice of Non-Compliance is left with the Resident
- Correction Work Order is Mailed to Resident and Property Owner

- Sewer Permit is Obtained
- Construction Agreement Is Executed
- Contractor Completes Work

Sump Pump Is Non-Compliant

- Plumbing Permit is Obtained
- Work is Completed

Resident Calls for an Inspection and Is Compliant

Property is Compliant

Letter of Compliance Is Sent to Resident and Property Owner

Resident Does Not Have Work Completed with a Scheduled Final Inspection

Letter informing Resident and Property Owner of Surcharge on The Utility Bill to be Effective That Month
FIRST PHASE

2010

Sewer Districts

• # 1
• #8
• #21
CITY OF EAGAN
INFLOW and
INFILTRATION (I/I)

SECOND PHASE
2011
Sewer Districts
• #2
• #3
• #4
CITY OF EAGAN
INFLOW and INFILTRATION (I/I)

Smoke Testing
(2010 & 2011)
Sewer Districts

- #2
- #18
- #19
- #20
- #21
CITY OF EAGAN
INFLOW and INFILTRATION (I/I)

THIRD PHASE (2012)
Sewer Districts
- #11
- #12
- #13
SUMP PUMP CONNECTION
Beaver Board collection system
Beaver Board
Tile Drain
Connection
BEAVER BOARD OPENING – SURFACE DRAINAGE
### EAGAN’S I & I MITIGATION

**By the numbers**

**Public System –**  
Studies and Public Improvements

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$193,621</td>
</tr>
<tr>
<td>2007</td>
<td>$360,796</td>
</tr>
<tr>
<td>2008</td>
<td>$256,465</td>
</tr>
<tr>
<td>2009</td>
<td>$426,728</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,237,610</td>
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</table>
# EAGAN’S I & I MITIGATION

By the numbers

## Private System – Inspection Services

<table>
<thead>
<tr>
<th>Year</th>
<th># of Insp</th>
<th>Amount</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2,675</td>
<td>$632,696</td>
<td>$236.52</td>
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<tr>
<td>2011</td>
<td>5,799</td>
<td>$754,936</td>
<td>$130.18</td>
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<tr>
<td>TOTAL</td>
<td>8,474</td>
<td>$1,387,632</td>
<td>$163.75</td>
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<tr>
<td>2012</td>
<td>7,000+</td>
<td>?</td>
<td>?</td>
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## EAGAN’S I & I MITIGATION

### By the numbers

#### Private System – Reimbursements/Co-Pays

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
<th># of Prop</th>
<th>Highest $</th>
<th>Lowest $</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>$13,658</td>
<td>34</td>
<td>$2,625</td>
<td>$8.65</td>
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<tr>
<td>2011</td>
<td>$25,549</td>
<td>140</td>
<td>$1,409</td>
<td>$10.13</td>
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<tr>
<td>TOTAL</td>
<td>$39,207</td>
<td>177</td>
<td></td>
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</table>
## PRIVATE INSPECTIONS

<table>
<thead>
<tr>
<th>YEAR</th>
<th># of Insp</th>
<th>Non-Compliant</th>
<th>Sump Pumps</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2,675</td>
<td>175 (7%)</td>
<td>128 (5%)</td>
<td>59 (2%)</td>
</tr>
<tr>
<td>2011</td>
<td>5,799</td>
<td>279 (5%)</td>
<td>257 (4%)</td>
<td>30 (1%)</td>
</tr>
<tr>
<td>2012</td>
<td>1,054</td>
<td>27 (3%)</td>
<td>27 (3%)</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>9,528</td>
<td>481 (5%)</td>
<td>412 (4%)</td>
<td>89 (1%)</td>
</tr>
<tr>
<td>YEAR</td>
<td># of Prop</td>
<td>Amount</td>
<td>Appeals</td>
<td>Adjustments</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
<td>----------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>2010</td>
<td>178</td>
<td>$22,500</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>2011</td>
<td>373</td>
<td>$56,650</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>TOTAL</td>
<td>551</td>
<td>$79,150</td>
<td>31</td>
<td>60</td>
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CITY OF EAGAN
INFLOW/INfiltration (I/I)

Smoke Testing
64% of issues identified via 2010 Smoke Testing were privately owned
72% of issues identified via 2011 Smoke Testing were privately owned