I&I Workshop: Metropolitan Council Program Updates

February 16, 2012
Presentation Overview

1. Ongoing I&I Mitigation Program >> Kyle Colvin
2. MCES I&I Work Efforts >> Bill Moeller
3. Grant Programs >> Jason Willett
Ongoing I&I Mitigation Program

Kyle Colvin
Assistant Manager
Engineering Services
Purpose

- Address excessive wet weather peak flow in regional wastewater system

Findings

- Sufficient capacity with normal I&I to accommodate future growth
- At current levels of excessive I&I, future regional growth cannot be accommodated without extensive system capacity expansion
Recommendations

- **MCES:**
  - Design standard for peak flow allowance is reasonable and its use should continue
  - Must pursue strategy of I&I flow reduction rather than system expansion
- **Communities:**
  - Those with excessive I&I should be accountable for excess costs to regional system
- **Council:**
  - Implement a demand charge for continued excessive I&I flow to system
6/04–6/10: Monitored for excess I&I
‘07–‘11: Implemented I&I mitigation plans
2012: Extended work completion deadline
  ◦ Communities given choice to implement I&I mitigation plan versus surcharge
    • All communities chose to implement mitigation plan
### Standard Exceedance Chart

<table>
<thead>
<tr>
<th>MGD</th>
<th>Flow w/TT</th>
<th>Average</th>
<th>Peak Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

**Rainfall**

Total Rainfall: 3.69"

- **Surcharge based on excess MGD peak only @ $384,000 per MGD (Estimated 2013 Rate).**

**3-year Average**

**Hourly Metered Flow**
I&I Excessive Communities

Arden Hills  Maplewood  St. Anthony
Bayport    Medicine Lake   St. Bonifacius
Bloomington  Medina     St. Louis Park
Chanhassen  Mendota     St. Paul
Chaska      Minneapolis  Stillwater
Columbia Heights  Minnetonka  Tonka Bay
Eagan       Minnetonka Beach  Vadnais Heights
Eden Prairie    Mound     Waconia
Edina       New Brighton  West St. Paul
Excelsior  New Hope  
Farmington  Newport 
Golden Valley  Oakdale 
Greenwood     Orono  
Hopkins      Osseo  
Lakeville    Plymouth  
Lauderdale   Roseville 
Lilydale     Savage  
Long Lake  Shoreview  
Maple Plain  South St. Paul

Total = 47 communities
Local Mitigation Efforts

- **Public infrastructure**
  - Investigative studies, system modeling and inspections
  - Pipe line rehabilitation/replacement
  - Man hole and lift station wet well rehabilitation

- **Private property**
  - Cross connection discovery and disconnection
  - Sump pump/foundation drain drain disconnection program
  - Rain leader disconnection program
  - Service line inspection/repair/replacement
Local Reported Expenses

<table>
<thead>
<tr>
<th>Period</th>
<th>Annual Reported Expenses (Millions)</th>
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<tr>
<td>2004–2007</td>
<td>$20</td>
</tr>
<tr>
<td>2008</td>
<td>$15</td>
</tr>
<tr>
<td>2009</td>
<td>$11</td>
</tr>
<tr>
<td>2010</td>
<td>$60</td>
</tr>
<tr>
<td>2011 (est.)</td>
<td>$7</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>$113</strong></td>
</tr>
</tbody>
</table>

- 2010 figure includes $52 million reported expenses from Minneapolis for work completed in 2004–2010
- 2011 expense documentation from communities due to Council by 3/31/12; figure based on work plans for 2011
2011 expense documentation from communities due to Council by 3/31/12; figure based on work plans for 2011 and anticipated completion of community work plans
2009–2011 dry climate period characterized by lower ground water tables and fewer intense snowmelt/rainfall events

- Complexity of rainfall events & response analysis
- Lowered annual goal/threshold due to lower 3–year flow average

**Allocated Volume (MG)**

<table>
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<tr>
<th>Year</th>
<th>Volume (MG)</th>
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<tr>
<td>2005</td>
<td>94,567</td>
</tr>
<tr>
<td>2006</td>
<td>91,860</td>
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<tr>
<td>2007</td>
<td>95,633</td>
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<td>2008</td>
<td>90,664</td>
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<td>2009</td>
<td>91,958</td>
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<tr>
<td>2010</td>
<td>84,519</td>
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<tr>
<td>2011</td>
<td>85,294</td>
</tr>
<tr>
<td>2012</td>
<td>93,681</td>
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</table>
# Comparison: Ongoing Program vs. Surcharge Program

<table>
<thead>
<tr>
<th>Program Component</th>
<th>Ongoing</th>
<th>Surcharge</th>
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<tbody>
<tr>
<td>Performance based on metershed basis</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Choice to mitigate vs. pay surcharge</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pre-approval of local I/I mitigation plan</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Required annual submittal of work expenses</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Goals/threshold based on applied peaking factors</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>25% Cap Option</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mitigation work plan duration</td>
<td>4-year</td>
<td>5-year</td>
</tr>
<tr>
<td>Program duration</td>
<td>Ongoing</td>
<td>5-year sunset</td>
</tr>
<tr>
<td>Mitigation expenses can predate storm event</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Averaged flow basis</td>
<td>10 years</td>
<td>3 years</td>
</tr>
<tr>
<td>Adjustments to average flow &amp; measured peaks</td>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>
Ongoing I&I Program

- **Adjustment for Growth**
  - Estimated flow from growth within 10-year rolling period
  - Add 50% of growth flow to 10-year average flow

- **Adjustment for Water Conservation and I&I Mitigation Work**
  - Estimated flow reduction within 10-year rolling period not reflected in 10-year average
  - Add 10% (1% per year of 10-year rolling average) to 10-year average flow
Adjustment for I&I into Council interceptors

- Peak flow reduction to individual exceedances based on existence of interceptors within communities
- Reduction based on proportion of regional wastewater system size & length to total wastewater system size and length (local + regional)
- 30% assigned to private property sources
- 70% proportioned between local & regional
- Example:

<table>
<thead>
<tr>
<th>Local System In. Dia.–Mi.</th>
<th>MCES Interceptor In. Dia.–Mi.</th>
<th>Event Exceedance MGD (Peak Hr.)</th>
<th>MCES I&amp;I MGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,000</td>
<td>400</td>
<td>5.00</td>
<td>[(0.7 x 5.00mgd) x (400/4,400)] = 0.32</td>
</tr>
</tbody>
</table>

Peak hourly exceedance would be reduced by 0.32 MGD
Ongoing I&I Program

- Implementation schedule
  - Dec. 12, 2011 letter: communities notified of goals/thresholds
    - 2013 (Community Work Plans)
  - July 1, 2012–June 30, 2013 (Peak Flow Measurement)
    - 2014 (Community Work Plans)
  - MCES continual effort to assess program effectiveness
Questions?

- **Contact info:**
  Kyle Colvin
  Engineering Services Group
  651-602-1151
  kyle.colvin@metc.state.mn.us

- **Demand Charge Task Force Report:**
  www.metrocouncil.org/environment/
  ProjectTeams/documents/
  DemandChargeTaskForce_Final%20Report_
  September%202010.pdf
MCES I&I Work Efforts

Bill Moeller
Assistant General Manager
Interceptor Services
MCES I&I Mitigation Program

Goal: MCES interceptors have inflow/infiltration levels within allowable standards or better

- In-house program focused on I&I reduction
- Contracted support to in-house
- Program goal to inspect system on 10 to 15 year cycle and more frequently on “hot spots”
- Develop capital projects to eliminate I&I
Condition Assessment

- **Priority setting**
  - Inflow/infiltration susceptibility
  - Age
  - Pipe material
  - Last inspection date
  - Environmental impact
  - Failure probability

- **Inspections**
  - Physical above ground
  - Maintenance structures
  - In-house CCTV
  - Contracted CCTV
Inspections

- ’04–‘11: Inspections performed in 70% of communities affected by I&I surcharge with MCES gravity pipes
- 2012: Contracted CCTV; inspections scheduled for MCES gravity sewer system in Minnetonka area tributary to Blue Lake Plant
  - Minnetonka, Eden Prairie, Chanhassen
- 2012–2013: Contracted CCTV; inspections of North Suburban system
  - New Brighton
**MCES In–house Rehab**

- **Inflow reduction**
  - Raise low man holes—risers and mastic
  - Solid man hold covers
  - Watertight man holes with double covers
  - Fill around low man holes

- **Infiltration reduction**
  - Grout-leaking man holes
  - Snap in place spot repair bands
I&I related capital projects in 14 I&I communities

Project methods:
- Cured in place pipe (CIPP) or slip-lining
- Tunnel rehabilitation
- Remove and replace
- Point repair and joint repair
- Man hole relocation
- Man hole casting or cover replacement (no pick holes)
- Elimination of adjusting rings
- Re-grading
- Leak grouting
- Chimney seals
Projects/Improvements

- Project/improvement priorities:
  - Safety
  - Structural
  - Inflow/Infiltration
  - Environmental
  - Capacity
  - Maintenance
MCES Projects

• MCES projects in communities with I&I goals
  ◦ Chanhassen
  ◦ Columbia Heights
  ◦ Eagan
  ◦ Golden Valley
  ◦ Lakeville
  ◦ Maplewood
  ◦ Minneapolis
  ◦ New Brighton
  ◦ Oakdale
  ◦ Roseville
  ◦ Shoreview
  ◦ St. Bonifacius
  ◦ St. Louis Park
  ◦ St. Paul
Cooperative Projects

- Joint studies, inspections, metering:
  - Minneapolis combined sewer overflow (CSO) study and monitoring
  - Lakeville flow monitoring
  - Eden Prairie monitoring
  - Chanhassen flow monitoring, inspection
  - Golden Valley inspection
  - Oakdale inspection
  - St. Paul inspection and monitoring
Questions
Grant Programs

Jason Willett
MCES Finance Director
Metro Cities requested state help for city I&I work
- $3 million appropriated to Council from state’s general obligation bond funds

Grants for capital improvements to reduce I&I into municipal wastewater collection systems
- City must have been on MCES excessive I&I list
- Only construction costs qualified (no studies, design or planning)
- Reimbursement of eligible costs, up to 50%
Qualified Cities (46)

Arden Hills  Maple Plain  St. Anthony
Bayport    Maplewood    St. Bonifacius
Bloomington Medicine Lake    St. Louis Park
Chanhassen    Medina    St. Paul
Chaska        Mendota    Stillwater
Columbia Heights Minneapolis    Tonka Bay
Eagan    Minneapolis    Vadnais Heights
Eden Prairie    Minnetonka    Waconia
Edina        Minnetonka Beach    West St. Paul
Excelsior    Mound    Eden Prairie
Farmington    New Brighton
Golden Valley    New Hope
Greenwood    Oakdale
Hopkins    Orono
Lakeville    Osseo
Lauderdale    Plymouth
Lily dale    Roseville
Long Lake    Savage

Metropolitan Council
I&I Grant Eligible Costs

- **Pipeline rehabilitation and repair**
  - Lining, 50% of total costs considered eligible
  - Replacement, 50% is eligible
  - Joint sealing, 100% is eligible

- **Maintenance structures**
  - Lining, 50% is eligible
  - Replacement, 50% is eligible
  - Sealing, 100% is eligible
  - Joints, castings, covers, chimney seals
  - Casting elevation changes, 100% is eligible
Eligible Work

- **Flood mitigation**
  - Surface drainage improvements, 10% eligible
    - Surface grading, ditch cleaning, storm system and culvert improvements
  - Cross connection elimination
    - Storm/sanitary cross connects, 100% eligible
    - Catch basins and area drains, 100% eligible
Problem
- Minnesota Management & Budget (MMB) required filing of real estate declarations in legal documents
- I&I projects may have impact on potentially hundreds of properties

Solution
- MMB issues revised order allowing waivers from filing declarations when filing would be onerous and asset(s) to be improved is(are) unlikely to be sold
Local Government Requirements

- Formally acknowledge that property or rights are “state bond financed property”
- Subject to M.S. 16A.645 and commissioner’s order
  - Commissioner must consent to sale
  - State money returned if sold or abandoned
# Municipal I&I Grants

<table>
<thead>
<tr>
<th>CITY</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arden Hills</td>
<td>$203,779</td>
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<tr>
<td>Bayport</td>
<td>$56,314</td>
</tr>
<tr>
<td>Bloomington</td>
<td>$169,571</td>
</tr>
<tr>
<td>Chanhassen</td>
<td>$78,760</td>
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<tr>
<td>Eagan</td>
<td>$180,585</td>
</tr>
<tr>
<td>Edina</td>
<td>$119,923</td>
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<tr>
<td>Excelsior</td>
<td>$45,988</td>
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<tr>
<td>Golden Valley</td>
<td>$182,352</td>
</tr>
<tr>
<td>Greenwood</td>
<td>$48,384</td>
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<tr>
<td>Hopkins</td>
<td>$134,639</td>
</tr>
<tr>
<td>Maple Plain</td>
<td>$114,703</td>
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<tr>
<td>Medicine Lake</td>
<td>$5,130</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>$461,780</td>
</tr>
<tr>
<td>Minnetonka</td>
<td>$54,250</td>
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<tr>
<td>Mound</td>
<td>$31,375</td>
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<tr>
<td>Newport</td>
<td>$192,775</td>
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<tr>
<td>Roseville</td>
<td>$156,662</td>
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<tr>
<td>South St. Paul</td>
<td>$166,811</td>
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<tr>
<td>St. Anthony Village</td>
<td>$103,626</td>
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<tr>
<td>St. Paul</td>
<td>$125,000</td>
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<tr>
<td>Stillwater</td>
<td>$106,236</td>
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<tr>
<td>Waconia</td>
<td>$37,360</td>
</tr>
<tr>
<td>West St. Paul</td>
<td>$181,660</td>
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**TOTAL** $2,957,660
## Municipal I&I Grant Payments

<table>
<thead>
<tr>
<th>CITY</th>
<th>PAYMENTS TO DATE</th>
<th>REMAINING AMOUNT TO PAY</th>
</tr>
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<tbody>
<tr>
<td>Arden Hills</td>
<td>$23,852</td>
<td>$179,927</td>
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<tr>
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<td>$53,334</td>
<td>$2,980</td>
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<td>Bloomington</td>
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<td>Chanhassen</td>
<td>$0</td>
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<tr>
<td>Eagan</td>
<td>$0</td>
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<td>Excelsior</td>
<td>$31,338</td>
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<td>Golden Valley</td>
<td>$182,352</td>
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<td>Maple Plain</td>
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<td>Medicine Lake</td>
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<td>$461,780</td>
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<td>St. Paul</td>
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<td>Stillwater</td>
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<td>Waconia</td>
<td>$8,893</td>
<td>$28,467</td>
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<tr>
<td>West St. Paul</td>
<td>$0</td>
<td>$181,660</td>
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<td><strong>TOTAL</strong></td>
<td><strong>$803,117</strong></td>
<td><strong>$2,154,543</strong></td>
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Other Grant Pursuit

- Clean Water Legacy funding for private infrastructure fixes
- 2012 Capital Bonding Bill—Charlie Vander Aarde