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

2004 Task Force

- 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

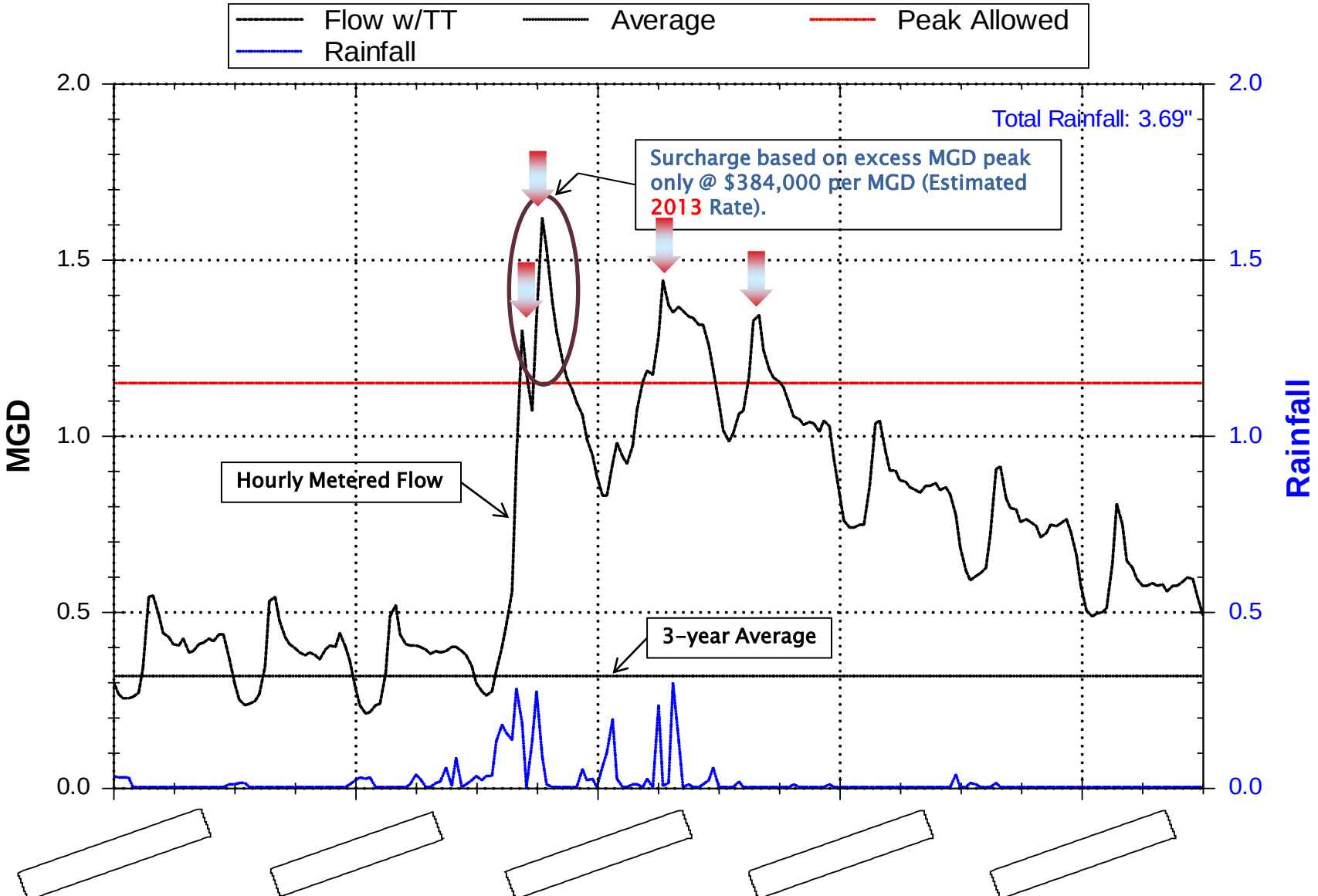
2004 Task Force

- 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

2007–2011 Surcharge Program

- 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



I&I Excessive Communities

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

Local Reported Expenses

Period	Annual Reported Expenses (Millions)
2004-2007	$20
2008	$15
2009	$11
2010	$60
2011 (est.)	$7
Total:	**$113**

- 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

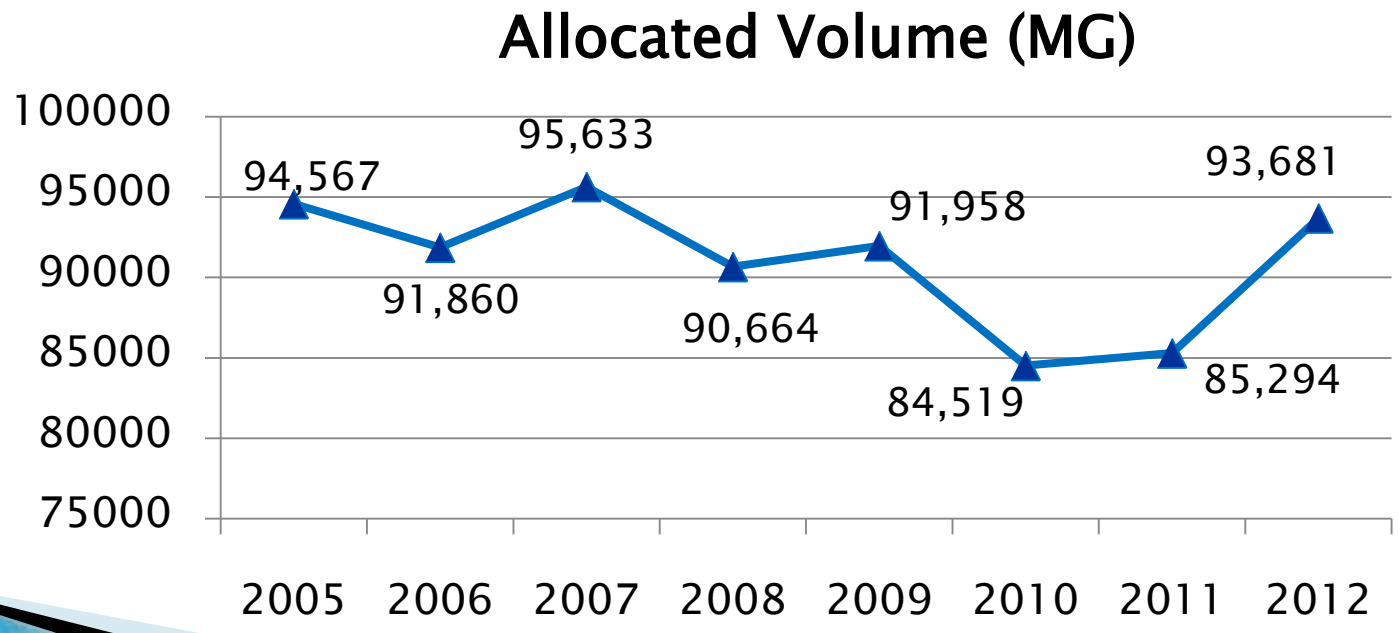
Phase 1 Status (through 2011)

Identified Need to Develop Work Plans	47
Anticipated Completion by 2011*	41
One Year Extension to 2012	2
Extended Completion via 25% Cap Provision	4

- 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

Mitigation Effort Results

- 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



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Comparison: Ongoing Program vs. Surcharge Program

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

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

Ongoing I&I Program

- 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:

Local System In. Dia.-Mi.	MCES Interceptor In. Dia.-Mi.	Event Exceedance MGD (Peak Hr.)	MCES I&I MGD
4,000	400	5.00	[(0.7 x 5.00mgd) x (400/4,400)] = 0.32

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

Jan. 1, 2012–June 30, 2012
(Peak Flow Measurement)

↓

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:
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  Engineering Services Group
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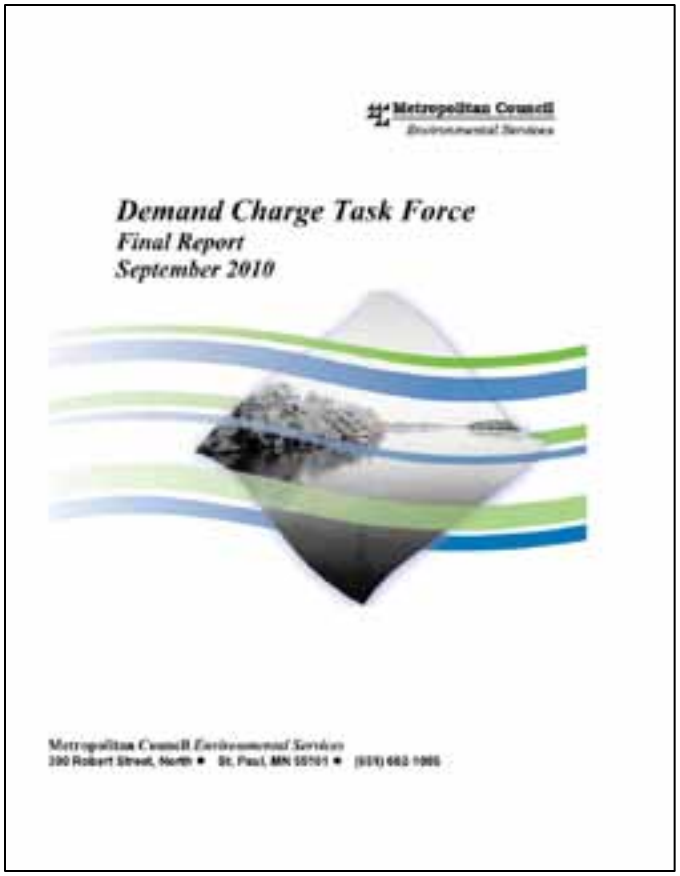

- Demand Charge Task Force Report:
  www.metrocouncil.org/environment/ProjectTeams/documents/DemandChargeTaskForce_Final%20Report_September%202010.pdf

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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 to15 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

Contracted Rehab Projects

- 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

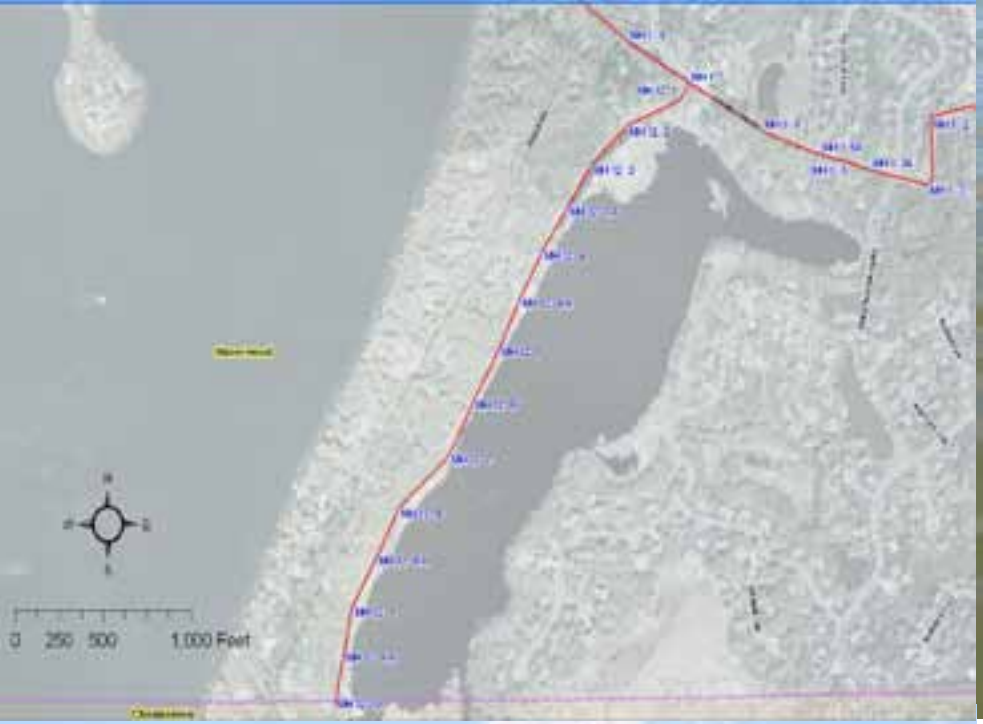
- MCES projects in communities with I&I goals
  - Chanhassen
  - Columbia Heights
  - Eagan
  - Golden Valley
  - Lakeville
  - Maplewood
  - Minneapolis
  - New Brighton
  - Oakdale
  - Roseville
  - Shoreview
  - St. Bonifacus
  - St. Louis Park
  - St. Paul

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

52.5 FT.

273.6 FT.



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Questions

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Grant Programs

- Jason Willett
  MCES Finance Director

Background

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

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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

2010 Delay

- 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

	CITY	Award
1	Arden Hills	$203,779
2	Bayport	$56,314
3	Bloomington	$169,571
4	Chanhassen	$78,760
5	Eagan	$180,585
6	Edina	$119,923
7	Excelsior	$45,988
8	Golden Valley	$182,352
9	Greenwood	$48,384
10	Hopkins	$134,639
11	Maple Plain	$114,703
12	Medicine Lake	$5,130
13	Minneapolis	$461,780
14	Minnetonka	$54,250
15	Mound	$31,375
16	Newport	$192,775
17	Roseville	$156,662
18	South St. Paul	$166,811
19	St. Anthony Village	$103,626
20	St. Paul	$125,000
21	Stillwater	$106,236
22	Waconia	$37,360
23	West St. Paul	$181,660
	TOTAL	**$2,957,660**

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Municipal I&I Grant Payments

	CITY	PAYMENTS TO DATE	REMAINING AMOUNT TO PAY
1	Arden Hills	$23,852	$179,927
2	Bayport	$53,334	$2,980
3	Bloomington	$46,183	$123,388
4	Chanhassen	$0	$78,760
5	Eagan	$0	$180,585
6	Edina	$0	$119,923
7	Excelsior	$31,338	$14,649
8	Golden Valley	$182,352	$1
9	Greenwood	$33,690	$14,694
10	Hopkins	$0	$134,639
11	Maple Plain	$37,264	$77,439
12	Medicine Lake	$0	$5,130
13	Minneapolis	$0	$461,780
14	Minnetonka	$54,250	$0
15	Mound	$0	$31,375
16	Newport	$0	$192,775
17	Roseville	$23,988	$132,674
18	South St. Paul	$166,811	$0
19	St. Anthony Village	$34,926	$68,700
20	St. Paul	$0	$125,000
21	Stillwater	$106,236	$0
22	Waconia	$8,893	$28,467
23	West St. Paul	$0	$181,660
	TOTAL	**$803,117**	**$2,154,543**

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Other Grant Pursuit

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