PROGRAM YEAR 2020

ONGOING INFLOW AND INFILTRATION PROGRAM

Procedure Manual

METROPOLITAN COUNCIL

December 2017

The vision of Metropolitan Council Environmental Services is to be a valued leader and partner in water sustainability

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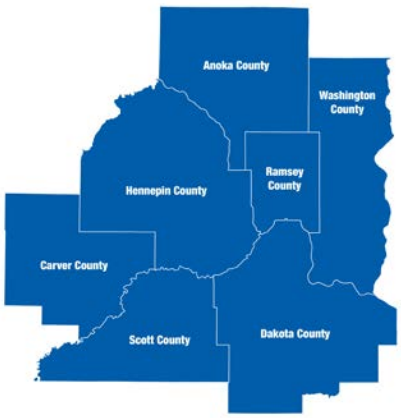

The Metropolitan Council is the regional planning organization for the seven-county Twin Cities area. The Council operates the regional bus and rail system, collects and treats wastewater, coordinates regional water resources, plans and helps fund regional parks, and administers federal funds that provide housing opportunities for low- and moderate-income individuals and families. The 17-member Council board is appointed by and serves at the pleasure of the governor.

On request, this publication will be made available in alternative formats to people with disabilities. Call Metropolitan Council information at 651-602-1140 or TTY 651-291-0904.

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Metropolitan Council Contacts

Table 1: MCES Contacts

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Background and Authority

The Metropolitan Council (Council) appointed a task force that met in 2003/2004 to address the impacts of excess inflow and infiltration (I/I) on the regional sanitary sewer system by developing recommendations for an I/I reduction program. The I/I Task Force estimated that the cost to store, convey, and treat excess I/I was in the $900 million range while the cost for source removal was in the $150 million range. The Task Force recommended a program to mitigate excess I/I rather than increase system capacity.

The Council's existing I/I program focuses on source removal. This approach was affirmed by the Council's Demand Charge Task Force which met in 2009/2010 and reviewed goals for the ongoing I/I program, including a possible demand charge. This Task Force recommended that the Council:

a) Implement an ongoing program similar to the existing program rather than implement a demand charge.
b) Use its discretion to institute a demand charge in cases where a community is not meeting its I/I Goal or if necessitated to ensure regulatory compliance. The Task Force's recommendations were incorporated into Council policy. This procedures manual reflects that policy.

Inflow and Infiltration program procedures are adopted by the Council pursuant to Minnesota Statutes (M.S.), chapter 473, including section 473.145-146 and section 473.858, and the MCES' Waste Discharge Rules, and are declared to be necessary for the efficient, economic, and safe operation of the regional sanitary sewer system and for protection of the health, safety, and general welfare of the public in the metropolitan region. MCES' policy regarding I/I is contained in the 2040 Water Resources Policy, adopted by the Metropolitan Council in May, 2015 and amended to reflect the Demand Charge Task Force recommendations. I/I policies are:

- The Council will not provide additional capacity within its interceptor system to serve excessive inflow and infiltration.
- The Council will establish inflow and infiltration goals for all communities discharging wastewater to the regional wastewater system. Communities that have excessive inflow and infiltration in their sanitary sewer systems will be required to eliminate the excessive inflow and infiltration within a reasonable time period.

The Council reserves the right to modify the Ongoing Inflow and Infiltration Program in response to new regulations or changes in existing regulations imposed on the Council by regulatory agencies.

Roles and Responsibilities

Inflow and infiltration mitigation plans are required of all communities as part of the comprehensive sewer plan regardless of whether the community has previously experienced an I/I exceedance.

MCES will:

1. Establish metershed I/I Goals
2. On a monthly basis, correspond with individual communities regarding:
    a. Exceedance events that occur within each community.
    b. Meter response when the peak flow is at least 80% of the metershed I/I Goal
3. Work to identify and eliminate excess I/I within MCES interceptors.
4. Provide technical assistance to communities by:
    a. Maintaining an I/I Tool Box (at www.metrocouncil.org) that explains the MCES I/I program and information resources for communities.
    b. Providing general information on a case-by-case basis to communities regarding I/I and strategies to mitigate I/I.
5. Upon request, meet with communities to explain the program or to review the community I/I work plan and implementation schedule for eligibility.
6. Ensure timely communications with communities.
7. Implement, manage, and assess the program.

Local communities will:

1. Continue maintenance programs for local sanitary systems.
2. Create I/I mitigation plans for local systems. Work cooperatively with nearby communities to develop an I/I mitigation plan for flow entering the community from another community or from property not controlled by the community.
3. Work with MCES to identify sources of I/I that enters the MCES system that contribute to peak flows within their geographic area.
4. Manage local I/I reduction programs to meet the community's I/I Goals.
5. Be responsible for eliminating excess I/I. MCES assumes no liability for the effectiveness of the methods or approach selected by the community for I/I mitigation. Moreover, MCES makes no representation that the work plan and/or related mitigation work are sufficient to resolve excessive I/I.

Procedures

Program procedures are summarized in Table 2 and apply to all communities that discharge to the MCES wastewater collection system. See the listed appendices for additional information and key dates and time periods in Table 3.

Table 2: Program Procedures

Item	Procedure	Reference
I/I Goal	• Each metershed I/I Goal is the maximum allowable discharge to the regional wastewater system, expressed as a peak hourly flow rate and measured in million gallons per day (mgd). • The I/I Goal is the 10-year rolling average daily flow adjusted for growth and multiplied by the MCES peak hourly flow factor, based on community specific data (see Appendix B). • MCES calculates and notifies each community annually of the I/I Goal prior to the beginning of the monitoring period.	Appendix B
Excessive I/I Determination, Notification, and Work Plan Assignment	• Excessive I/I: measured and verified hourly flow rate that is greater than the metershed I/I Goal. The exceedance may be adjusted in accordance with Appendix C, if applicable. • MCES sends monthly notifications to communities if flow discharged from a metershed is at least 80% of the I/I Goal. • Exceedance of the I/I Goal results in a work plan assignment, expressed in dollars, at the rate (see Appendix C) per hourly mgd for the greatest amount of excess I/I measured during the monitoring period.	Appendix C
Community Response to Work Plan Assignment	• (1) Community may choose to perform I/I mitigation work that is eligible for credit to satisfy the requirements of the work plan assignment: o Community selects "Community chooses I/I Mitigation" on *I/I Program Work Documentation Form* (see Appendix D), completes remainder of form, and submits it. The community may apply for credit under the look-back period (see Appendix D). o MCES reviews the proposed mitigation work for eligibility and responds to community. o Community has up to four years (implementation period) to complete mitigation work. o During the implementation period, community submits *I/I Mitigation Work Verification Form* (see Appendix D) annually to detail the actual costs for I/I mitigation activities completed. • (2) Community may choose to pay mitigation amount directly to MCES as a surcharge: o Community selects "Community chooses I/I Surcharge" on *I/I Program Work Documentation Form* (see Appendix D) and submits form. o MCES annualizes the estimated I/I mitigation cost over the implementation period and bills proportionately on a monthly basis. • During work plan implementation period, if an exceedance greater than the initial exceedance occurs: o MCES calculates the incremental exceedance and the remaining work plan assignment is revised. o Community may choose to perform mitigation work or pay a surcharge for the incremental exceedance. • At the end of the implementation period, the program starts over. o Exceedance of I/I Goal results in a new work plan assignment.	Appendix D

Item	Procedure	Reference
Program Cap	• If the annualized work plan assignment value exceeds 25% of the community annual municipal wastewater charge, the community may request program cap. • MCES adjusts the annualized work plan assignment to 25% of the annual wastewater charge and extends the work plan implementation period longer than four years. The total work plan assignment remains the same value.	Appendix E
Appeal	• Community may appeal the work plan assignment, based on one or more of the following conditions (see Appendix F): o Allowance for water conservation and previous I/I mitigation o Peak flow associated with an exceedance o Estimated I/I mitigation work o Eligibility of proposed I/I mitigation activities o Mitigation time period in cases where significant I/I source investigations have not successfully located I/I sources • MCES will treat disputed item based on community's claim. Upon completion of appeal, MCES will reconcile disputed item to reflect appeal decision.	Appendix F

Table 3: Key Dates and Time Periods

Item	Dates
MCES sends I/I Goals to each community	Sent October 31, 2017
Flow monitoring period	January 1, 2018 – December 31, 2018
MCES sends notification if metershed discharges at least 80% of I/I Goal	Monthly, following peak flow event
MCES determines exceedances and sends work plan assignments	Before March 1, 2018
Community sends *I/I Program Work Documentation Form (*and any supporting documentation) for planned I/I mitigation activities	September 30 annually each year before I/I mitigation activities until the work plan is completed.
Community may appeal work plan assignment	See Appendix F.
MCES reviews work plan and provides feedback on eligibility of mitigation activities	By December 31, 2018
MCES may bill a surcharge to a community that exceeded the I/I Goal and: • did not submit a work plan for planned mitigation activities (I/I Program Work Documentation Form) • requested a surcharge	Monthly addition to wastewater charges.
Community implements work plan activities (implementation period)	January 1, 2020 – December 31, 2023. Implementation period may be extended if community requests and qualifies for program cap.
Community completes *I/I Program Work Documentation Form (*and any supporting documentation) for completed I/I mitigation activities	March 31 annually each year after I/I mitigation activities until the work plan is completed.
MCES sends Acknowledgement Letter	Annually following receipt of *I/I Program Work Documentation Form* until work plan is completed.

Appendix A: Abbreviations, Definitions, and References

ABBREVIATIONS & DEFINITIONS

CCTV: Closed circuit television – a technique used to visually inspect the inside of utility pipes

CPI-U: Consumer Price Index – Urban – published by the U.S. Department of Labor (see web site: *https://www.bls.gov/news.release/cpi.t04.htm*).

Demand Charge: The cost of wastewater storage facilities and/or other improvements necessary to avoid overloading MCES conveyance and treatment facilities, plus the appropriate service availability charges for use of MCES conveyance and treatment facilities. The charge is not a penalty. MCES may charge a community for the cost of excess capacity needed in the MDS for a community that has not reduced peak flows to less than the I/I Goal(s). This may be enacted if the community has not been implementing an effective I/I reduction program in the determination of the Council or if regulations and/or regulatory permits require MCES action to ensure regulatory compliance. See *Water Resources Management Policy Plan*, page 28.

Exceedance peak hour flow (PHF): The metershed peak hour flow that exceeds the respective I/I Goal. This may be adjusted, if applicable, for I/I into MCES interceptors.

Exceedance Rate: The charge per mgd of excessive I/I. MCES updates the exceedance rate annually, adjusting for inflation as measured by the CPI-U. MCES reserves the right to increase the rate beyond inflation if MCES is subject to regulatory costs related to I/I. The 2020 program year rate is $428,000/mgd of exceedance. MCES initially set this rate for the 2007 program year (see p. 11 of *Preliminary Inflow/Infiltration Surcharge Program*, October 2005).

Excess I/I: Wastewater flows that exceed the I/I Goal for the metershed.

Excessive I/I Event: A wet weather period when excessive I/I is discharged to the MDS.

gpm: Gallons per minute

I/I: Inflow and infiltration (see below) – the component of sanitary sewage flow that originates from clear water sources. It is water that would normally not require any type of treatment. However, once it is comingled with sanitary wastewater it cannot be separated, and must be treated as wastewater.

I/I Goal: The maximum allowed peak hourly flow discharge limit from each metershed calculated by MCES as the product of the previous ten-year average daily flow and the standard peaking factor adopted by the Metropolitan Council.

IITC: Inflow/Infiltration Total Cost – the total cost estimated to mitigate excess I/I calculated by MCES as the product of the exceedance peak hour flow and the exceedance rate.

I/I Tool Box: An online MCES guide of tools and resources to assist communities planning and implementing inflow and infiltration reduction programs.

Infiltration: Typically, groundwater that increases base flow as it gradually enters the wastewater system through cracks and openings in sewer mains, service laterals, joints, and deteriorated manholes.

Inflow: Typically stormwater that increases peak flow in the wastewater system during and after rainfall events from point sources such as broken manhole covers, sewer cleanouts, sump pumps, foundation drains, and rain leaders.

Look-back Period: Two-year period for I/I reduction work eligibility as defined in Appendix D.

MDS: Metropolitan Disposal System – wastewater collection and treatment facilities owned and operated by the Metropolitan Council.

mgd: Million gallons per day

Max Excessive I/I Peak Flow Event: An event in which the rate of flow measured for a metershed exceeds the metershed I/I Goal and is greater than previous exceedances measured during the program year.

Metershed: The area tributary to an MCES flow meter. Some communities have multiple metersheds.

MWC: Municipal Wastewater Charge

SAC: Sewer Availability Charge – a charge to Customer Communities for the reserved capacity costs of the Metropolitan Disposal System. Allocating future costs is authorized by Minnesota Statues section 473.517 subdivision 3. This fee is assessed based upon the estimated maximum potential daily wastewater flow usage at individual properties and collected at the time of building permit.

Peak hour flow factor: Flow variation factors that allow for an acceptable level of I/I into the wastewater system(s) (see *Water Resources Management Policy Plan* Appendix A). The factor is multiplied by the adjusted ADF to determine the I/I Goal for each community (see Appendix B).

Surcharge: The dollar amount a community may choose to be billed that is equal to the IITC.

WWTP: Wastewater Treatment Plant.

REFERENCES

2016 Inflow and Infiltration Task Force Report
https://metrocouncil.org/Wastewater-Water/Publications-And-Resources/WASTEWATER/Inflow-Infiltration/Inflow-Infiltration-Task-Force-Report,-2016.aspx

Demand Charge Task Force Report
http://www.metrocouncil.org/Wastewater-Water/Publications-And-Resources/DemandChargeTaskForce_Final-Report_September-2010.aspx

I/I Toolbox
https://metrocouncil.org/Wastewater-Water/Planning/Wastewater/Inflow-and-Infiltration.aspx

2040 Water Resources Policy Plan
https://metrocouncil.org/Wastewater-Water/Planning/2040-Water-Resources-Policy-Plan.aspx

Appendix B: I/I Goals

Each metershed I/I Goal is the maximum allowable discharge to the regional wastewater system, expressed as a peak hourly flow rate and measured in million gallons per day (mgd).

- The I/I Goal is equal to the adjusted ADF multiplied by the respective peak hourly flow factor. These are defined below.

10-year rolling average daily flow (ADF) calculation:

- The 10-year rolling ADF is calculated from the previous 10 years of flow data from each metershed. If flow data are not available or other anomalies exist, adjustments are made on a case-by-case basis.
- Previously, a three-year rolling ADF was used. The current approach to use the 10-year rolling ADF is intended to normalize the effects of precipitation (drought and wet periods).

Adjusted ADF calculation:

- The 10-year rolling ADF is adjusted upward by the population growth from the last ten years to the average to account for growth in the future. The result is a higher allowable discharge.

MCES standard peak hourly flow factors account for flow variations including an acceptable, non-excessive level of I/I. The factors vary based on ADF and are shown in Table B-1 below and in Table A-2 of the Thrive 2040 Water Resources Policy Plan.

- Regional data indicate that average flow is approximately 85 gallons per capita per day (gpcd) instead of the expected amount of 100 gpcd.
- To account for the lower regional average flow per capita, the previous peaking factors were adjusted upward (divided by 0.85), which reflects available capacity for I/I, and results in a higher allowable discharge.

Table B-1: MCES Peak Hourly Flow Factor

Average Flow (mgd)	Peaking Factor		Average Flow (mgd)	Peaking Factor
< 0.10	4.5		2.51 – 3.00	3.2
0.11 – 0.20	4.4		3.01 – 3.50	3.1
0.21 – 0.30	4.3		3.51 – 4.00	3.0
0.31 – 0.40	4.2		4.01 – 4.50	2.9
0.41 – 0.50	4.1		4.51 – 5.00	2.8
0.51 – 0.60	4.0		5.01 – 6.00	2.7
0.61 – 0.70	3.9		6.01 – 8.00	2.6
0.71 – 0.80	3.8		8.01 – 10.00	2.5
0.81 – 1.00	3.7		10.01 – 12.00	2.4
1.01 – 1.20	3.6		12.01 – 16.00	2.3
1.21 – 1.50	3.5		16.01 – 20.00	2.2
1.51 – 2.00	3.4		20.01 – 30.00	2.1
2.01 – 2.50	3.3		> 30.00	2.0

Appendix C: Excessive I/I Determination and Notification

Excessive I/I Determination & Notification

- MCES monitors flow rates for each metershed during the monitoring period.
- MCES sends monthly notifications to communities if discharged flow is at least 80% of I/I Goal.
- After the end of the monitoring period, MCES determines the highest peak hourly flow from each metershed. If the community exceeds the I/I Goal, a work plan is assigned.
    - If a community has an active work plan assignment, the exceedance is compared to the previous excessive I/I flow to determine which is the maximum excessive I/I peak flow event. The work plan is adjusted incrementally if the new exceedance is greater than the previous exceedance of the I/I Goal.

I/I into MCES Interceptors

- Where applicable, the measured amount of excess I/I from a metershed is adjusted to account for potential I/I into MCES interceptors that are in the metershed.
- Assumptions/ process:
    - 30% of peak flow: community responsibility
    - 70% of peak flow: split responsibility of community and MCES, as shown in the example in Table C-1. The proportion of community responsibility is based on the proportion of local sewer piping within the metershed, based on the diameter inches multiplied by the length in miles (in.dia-mi).

Table C-1: Adjustment for I/I into MCES Interceptors (example)

Local Sewers (in.dia-mi)	MCES Interceptor (in.dia-mi)	Total Conveyance Piping (in.dia-mi)	Measured Exceedance (mgd)	Adjusted Excessive I/I (mgd)
=12 in x 76 miles = **760**	= 60 in x 4 miles = 240	= 760 + 240 =**1,000**	**2.00**	=[30% x 2.00 mgd] + [70% x 2.00 mgd x 760/1,000] = **1.66**

Estimated I/I Mitigation Cost of Maximum Exceedance in Monitoring Period

- Work plan assignments are expressed in dollars, based on the exceedance rate, which is currently $421,000/mgd.
    - MCES updates the unit cost annually, adjusting for inflation as measured by Consumer Price Index-Urban
- For the example in Table C-1, the work plan assignment would be:
    - (1.66 mgd) x ($421,000/ mgd) = $698,860

Appendix D: Community Response to Excessive I/I Notification

In response to maximum excessive I/I notification, community chooses to complete mitigation work or pay a surcharge.

- I/I mitigation work must meet requirements in Table D-1

Look-back period: Communities may request that work performed during a defined "look-back period" be credited as I/I mitigation work

- The work must be completed within two years prior to the beginning of the first year of the I/I mitigation work plan. Credits applied to the look-back period cannot be credited to previous exceedances as mitigation work.

Table D-1: I/I Mitigation Work Credit Eligibility

Type of Work	Eligible Amount
1. I/I Study a. Temporary flow monitoring b. Field investigation for inflow sources c. CCTV inspection d. System modeling e. System analysis and work prioritization f. Cost estimating of reduction program g. New SCADA system for use in data analysis and investigation of I/I	Yes; 100% (up to 20% of work plan assignment). Costs greater than 20% of the work plan must be pre-approved by MCES.
2. Public Facility Improvements a. Eliminate storm sewer cross connections b. Eliminate yard drains and drain tile connections c. Replace maintenance hole (MH) covers that have drain holes with sealed covers d. Install watertight MH covers in areas vulnerable to high water levels e. Provide chimney seals and MH sealing f. Raise MH in areas where surface water ponds g. Move MHs out of wetlands; realign sewer h. Place drain tile behind curbs to provide a discharge point dedicated for building sumps, foundation drains, and rain leaders	Yes; 100%
3. Public Facility Improvements a. Pipe lining b. Line replacement c. Installation of new storm sewers that convey redirected flow from building sumps, foundation drains, and rain leaders in addition to other surface water d. Drainage improvements that eliminate indirect inflow sources e. Pipe joint and crack sealing completed solely to mitigate I/I	All work must be pre-approved by MCES. a. Yes; 50%. See note 1. b. Yes; 50%. See note 1. c. Yes; 50% d. Yes; 10% e. Yes; 100%
4. Private Property Improvements a. Inspection costs for looking for sump pumps, drain tile, yard drains and rain leaders connected to the sanitary sewer b. TV inspection of service laterals c. Disconnect sump pumps, drain tile, area drains, and rain leaders from the sanitary sewer system d. Repair or replace broken service laterals e. 25% credit of private property work subtotal may be added to private property work improvements in recognition of staff time (see I/I Program Work Documentation Form, Part B)	Yes; 100% of reasonable, actual, or standard costs. See note 2.
5. Public Staff Costs ***a.*** Reasonable, verifiable, direct costs completed solely to mitigate I/I. Includes municipal and non-municipal public staff, and engineering services.	Administrative costs are not eligible. a. Yes; 100%

Notes:

1. Allowed if the work is identified in the communities' annual I/I reduction plan and data support the expenditures by clearly indicating a flow response to wet weather (examples of data include CCTV inspection reports or temporary flow monitoring, ideally during storm events).
2. Standard costs: $150 per dwelling for sump pump disconnections; $3,000 per building for foundation drain disconnections; $100 per single family dwelling for rain leader disconnections; $3,000 per commercial dwelling for rain leader disconnections; $5,000 per repair for service lateral repairs).

Appendix E: Program Cap

If the annualized work plan assignment exceeds 25% of a community annual adjusted municipal wastewater charge (MWC) then community may request program cap.

- Adjusted MWC: community MWC adjusted to reflect any amount of annual SAC transfer shifted to MWC as permitted by legislation (473.517 subd.3b).
- Community's annualized mitigation cost capped at 25% increase in annual wastewater charges.
- MCES adjusts the annualized work plan assignment to 25% of the adjusted MWC and extends the work plan implementation period longer than four years. The total work plan assignment remains the same value.
- Program cap may be applied to an incremental work plan assignment if the annualized costs exceed 25% of the adjusted MWC.

Appendix F: Appeal Process

Table F-1: Appeal Process

Item to be Appealed	Timeframe & Method for Community Appeal	Timeframe for MCES Response	Other Appeal Requirements
Allowance for water conservation and previous I/I mitigation	Written letter 60 days from receipt of I/I Goal notification	Written letter 60 days from receipt of community's appeal	Documentation signed by licensed PE detailing technical basis for appeal
Peak flow from an exceedance event	Written letter 60 days from receipt of exceedance notification letter	Written letter 60 days from receipt of community's appeal	Community's appeal letter must document: (1) Excessive I/I being out of community's control, or (2) Excessive I/I being caused by extenuating circumstances
Estimated I/I mitigation cost	Written letter 60 days from receipt of I/I mitigation cost letter	Written letter by December 31, 2018	Community's appeal letter must justify appeal based on: (1) I/I reduction activities are underway in excess of the amount required (2) The value of the I/I reduction activities is more than necessary (3) The value of the I/I reduction activities exceeds 25% of the community's municipal wastewater charge
Eligibility of proposed I/I reduction activities	Written letter 60 days from receipt of eligibility determination letter	Written letter 60 days from receipt of community's appeal	Community's appeal letter must contain detailed supporting information such as CCTV inspection reports or temporary flow monitoring (ideally during storm events)
Extension or deferral of the I/I mitigation period for a defined period of time	Written letter 60 days from receipt of I/I mitigation cost letter	Written letter by December 31, 2018	In its appeal letter, community must submit a report by a licensed PE documenting: • What steps were taken to locate I/I source • Inability to locate I/I source • Proposed extension or deferral time period and rationale for time period • What steps will be taken to locate source

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MCES I/I Program Work Plan Documentation Form

This form references sections of the MCES *Ongoing Inflow and Infiltration Program Procedure Manual* and is to be completed by communities that have an active work plan assignment from MCES. Additional documentation may be requested by MCES to verify actual or planned expenditures.

Please indicate which of the following that you are using the form to document:

☐ **PLANNED** Mitigation Work	☐ **COMPLETED** Mitigation Work
Describe the planned mitigation activities and expected credit amounts for the following year.	Describe the work completed during the previous calendar year and apply for work plan credits.

Please send the completed form and any supporting documentation to:

Mail: Marcus Bush, PE
Principal Engineer, MCES Community Programs
390 N. Robert Street
St. Paul, MN 55101

Email: *marcus.bush@metc.state.mn.us*
i.i@metc.state.mn.us

Fax:
Attn: MCES Technical Services
Community Programs
(651) 602-1030

Community: _____

Calendar Year of mitigation work: _____

Work Plan Credit (Sum of SUBTOTALS from Page 2 of this form): $_____

City or Township Official (print): _____

Title/ Role: _____

Mailing Address: _____

_____

_____

Signature of City or Township Official:

_____

I hereby certify the information provided is true, accurate and complete.

Date Signed: _____ Phone #: _____

Email: _____

***Part A*:** Please indicate the method the community chooses to address excessive I/I:

□ Community chooses **I/I Mitigation** □ Community chooses **I/I Surcharge** (Pay monthly charge added to monthly wastewater bill.)

***Part B*:** See Appendix D

Attach a detailed description of the I/I mitigation work on the public and private sanitary sewer systems in the community during the calendar year listed on Page 1. Itemize the types and costs of work that are eligible for work plan credit.

1. Public Infrastructure: See Items 1, 2, 3, and 5 of Table D-1.

1. I/I Study = $_____

2. Public Facility Improvements = $_____

3. Public Facility Improvements = $_____

5. Public Staff Costs = $_____

Other (Describe below) = $_____

Description: _____

_____

_____

_____

Public Infrastructure **SUBTOTAL (B1)** **= $**_____

2. Private Infrastructure: See Item 4 of Table D-1.

Please indicate the quantity and total cost for each item, if available. Mitigation costs may be estimated using the standard values listed below if the actual costs are not documented.

_____ Sump pump disconnections ($150 per dwelling) = $_____

_____ Foundation drain disconnections ($3,000 per building) = $_____

_____ Rain leader disconnections ($100 per single family dwelling) = $_____

_____ Rain leader disconnections ($3,000 per commercial dwelling) = $_____

_____ Service lateral repairs ($5,000 per repair) = $_____

_____ Other (Describe below) = $_____

Description: _____

_____

_____

_____

Private Infrastructure **SUBTOTAL ($B2_1$)** **= $**_____

_____ Staff time allowance ($0.25 \times (B2_1)$) = **SUBTOTAL ($B2_2$)** **= $**_____

3. Look-Back Credit: See Section 4 and Appendix D.

If this is the first year of a work plan assignment, this credit may apply.

Look Back Credit **SUBTOTAL (B3)** **= $**_____