NEW Water Infiltration and Inflow Program Plan

SAG Meeting June 16, 2021

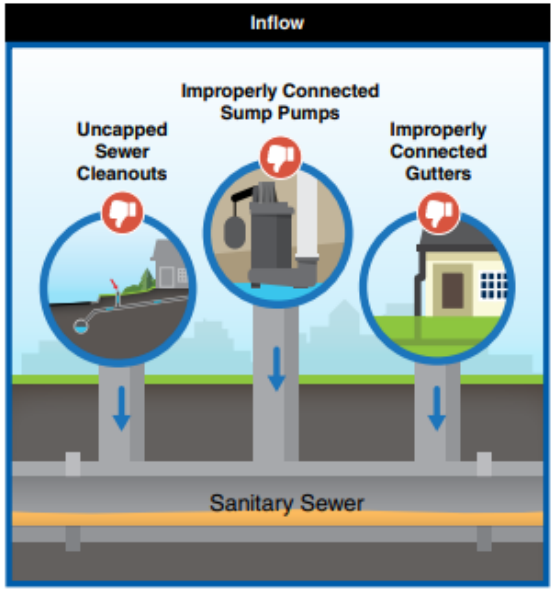
Brown AND Caldwell

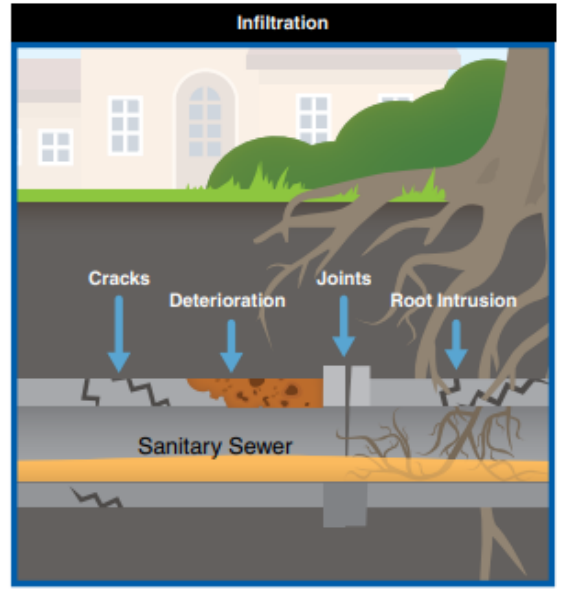
Agenda

1. Overview of Workshop
2. I&I Program Objectives and Vision
3. Current I&I Conditions in Service Area
4. Overview of Regional I&I Programs
   - Common Elements
   - Motivation Techniques
5. Case Studies of I&I Programs
6. Discussion and Summary

Why is a Regional I&I Program Needed?

- Increasing Flow Volumes to WWTPs, Peak Flows at NEW Water Facilities
- CMOM Requirements for Excessive I&I Management
- Local Capacity Problems
- Aging Infrastructure Will Make Problems Worse





I&I Program Vision

Reduce	Reduce flow volumes to WWTPs, peak flows at NEW Water conveyance facilities
Comply	Comply with CMOM Requirements
Address	Address local capacity problems
Aging	Aging infrastructure and future development will make flow problems worse – I&I mitigation can maintain or reduce flows

Overview of Regional I&I Programs

Common Elements

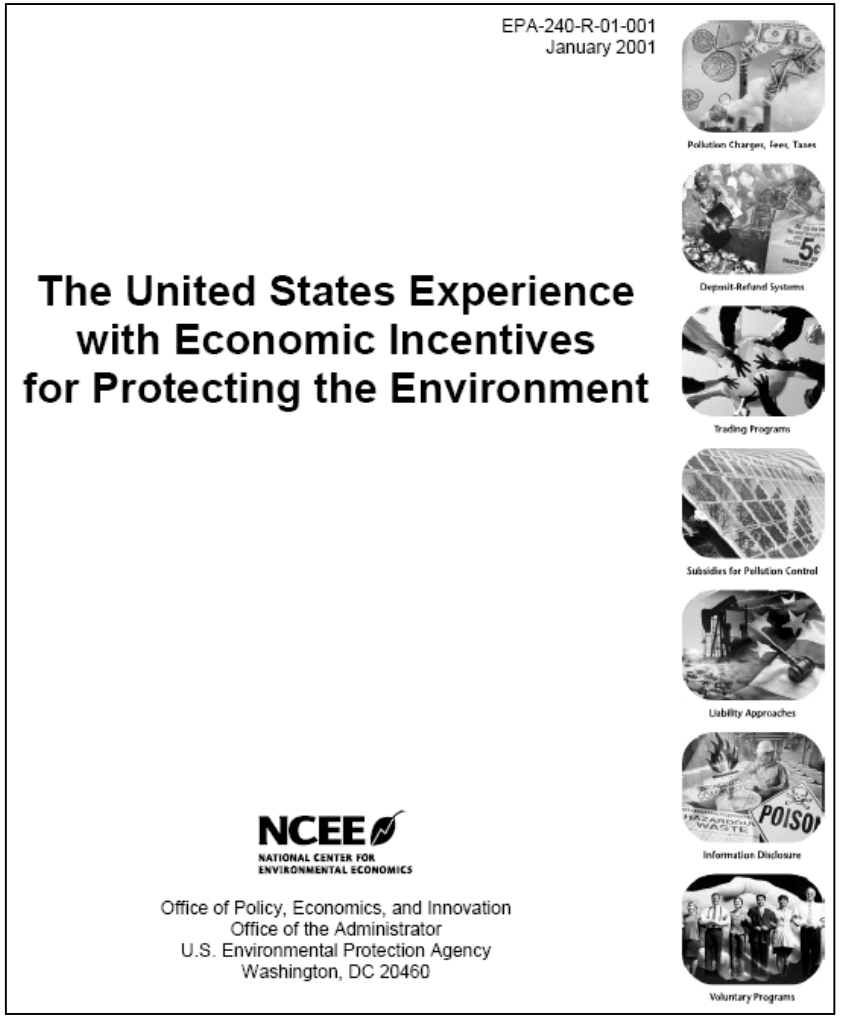
- Documented Wet Weather Issues
- Regional Funding Available
- Regional Funding Mechanism
- Satellite Agency Cost-Share
- Homeowner Cost-Share
- Public Education Support
- Excessive Flow Standard
- Flow Monitoring
- Pilot Studies
- Mandatory Participation

Basis for I&I Reduction Motivation

- I&I reduction motivation is believed to be necessary to:
  - Reduce Existing I&I to Acceptable Levels
  - Maintain Current Levels of I&I to Combat System Degradation
- Several models exist in the sewer industry
- Motivation frameworks can be adapted from other applications
- Any motivation concept would likely need some backup provision in cases of inaction

USEPA Evaluation on Economic Incentives for Protecting the Environment

- Studied the application of financial incentives in regulatory settings to achieve pollution reduction
- Found that in many cases, incentives were more successful than imposing regulations
- Market forces contribute heavily to the effectiveness of these programs
- Although traditional “market forces” may not exist for I&I reduction, other forces will apply and can ensure success



I&I Reduction Motivation Alternatives Review

- Each presented on how they would be applied to a NEW Water Regional I&I Program
- Discuss chances for successful implementation
- Discuss ability to implement by some future date

Motivation Categories

- Voluntary actions (indirect economic)
- Information disclosure (indirect economic)
- Subsidies
- Deposit-refund systems
- Marketable permits (Cap/Trade/Credit)
- Risk-based user charge (Liability)
- Fees, charges, and taxes

MOTIVATION

- Prohibitions
- Flow restriction
- NEW Water Program ineligibility

CONSEQUENCES OF INACTION

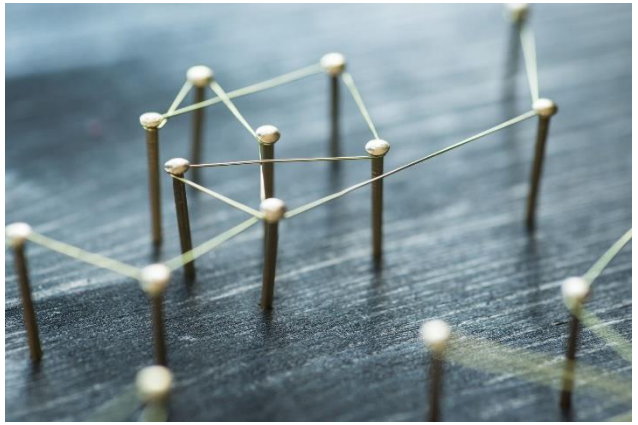
Potential Motivation: Voluntary Actions

- Similar to the current Status Quo position
- Additional education activities, such as
  - I&I reduction liberates conveyance and treatment capacity (NEW Water specifics)
  - Good system preventive maintenance includes I&I management and results in lower overall cost of ownership
- Status Quo ***could be*** further supported by additional technical support by NEW Water

Potential Motivation: Information Disclosure

- NEW Water would need to produce a very public document on I&I rates, specific to the status of each community
- Publication could cite the cost of managing I&I in the regional system
- The document would make the case that I&I control/management is a very “sustainable” approach to managing wastewater
- Public pressure around “sustainability” in each community could create the incentive to reduce or avoid increases in I&I from public AND private sources

Potential Motivation: Subsidies

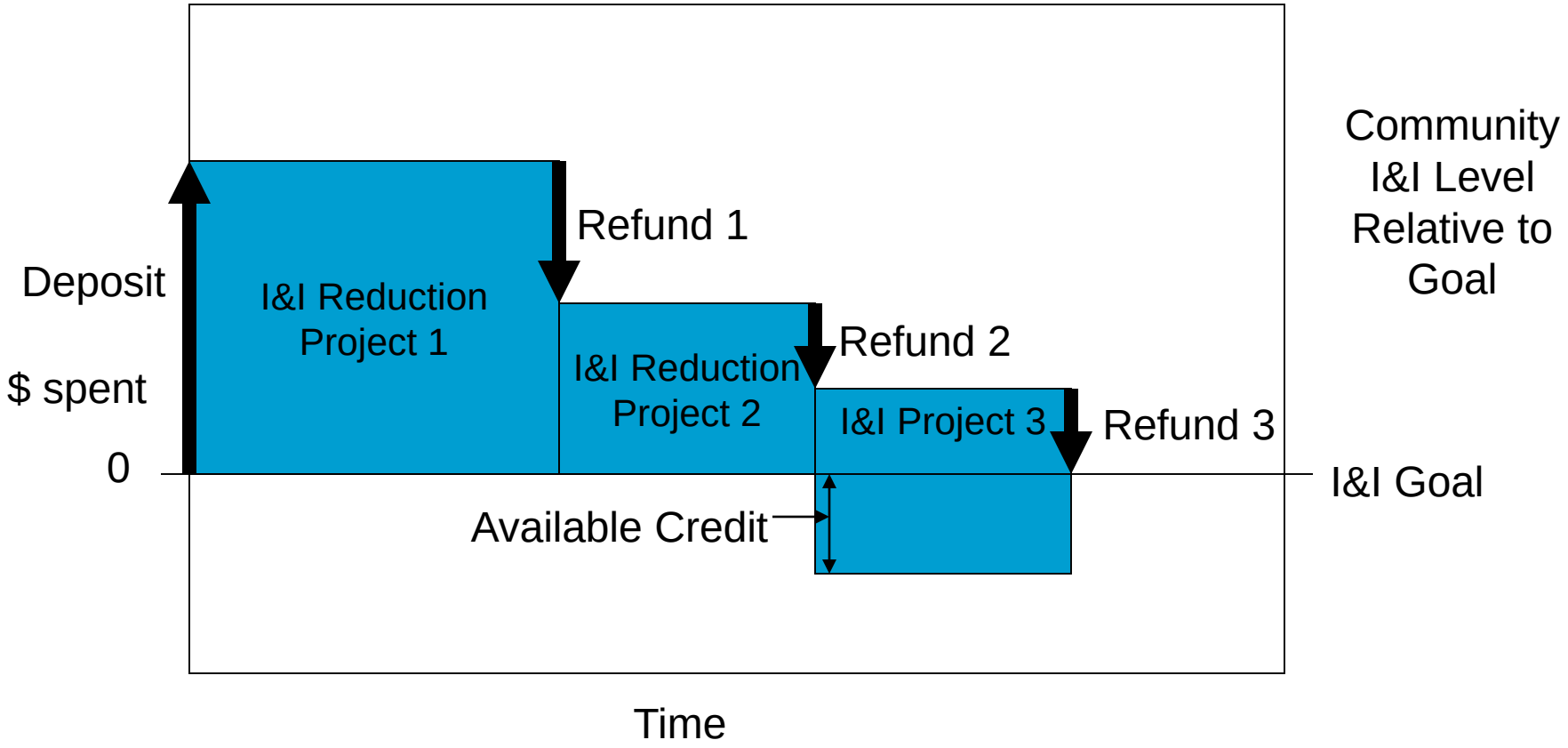


- I&I reduction will involve metering, modeling, field investigations, design, bidding, and construction
- Some projects will need to be substantial, possibly making them a larger burden on economically disadvantaged communities
- Strategies could target phases of the work (e.g. design) or elements of the system targeted (e.g. private I&I sources)
- Potential to provide funding for the work
  - Allow the community to pay back the cost over time
  - If I&I reduction is confirmed with monitoring and modeling, the loan could convert to a grant
- *Note: Wisconsin statutes may prohibit NEW Water funding improvements of the municipal public sewer systems, but it may be possible to fund studies in advance of work*

Potential Motivation: Deposit-Refund System

- Up front deposit required of any areas in excess of flow limits expressed in contracts
- Sewer Use Ordinance (SUO) Unreasonable Endangerment Surcharge language
- Deposit is based on (per SUO) 3 times daily billing rate assigned per contract
- Refund:
  - SUO – based on construction performed
  - Potential enhancement: Refunds linked to documented flow reduction results - if entire I&I reduction goal is achieved, entire deposit is refunded

Deposit-Refund System Example

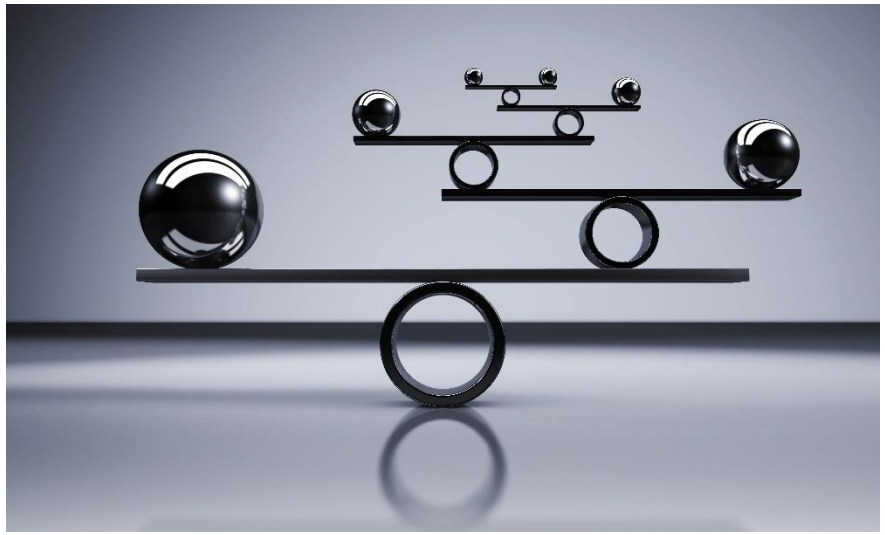


Potential Motivation: Marketable Permits

- I&I limits have been established per contract and can be enforced via SUO
- I&I reductions will occur within sewersheds or communities and NEW Water will determine flow reduction goals
- Reductions beyond the goals can be sold to “buyers”
- Buyers can be
  - Those needing to reduce I&I today
  - Those that want to purchase “futures” to offset anticipated I&I growth
- In both cases, “buyers” will be those looking for a good deal relative to what they would otherwise spend for I&I reduction

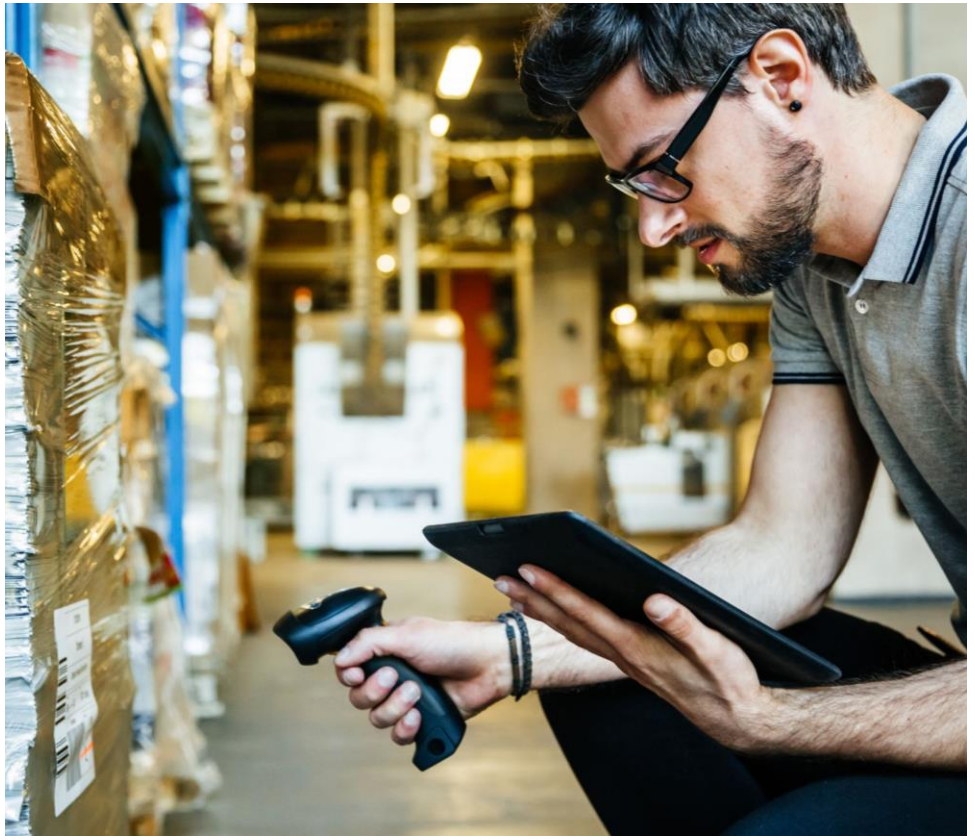
Potential Motivation: Risk-Based User Charge

- I&I from local communities contributes to SSO risks, making NEW Water vulnerable to regulatory action
- Legal settlements to those actions and lawsuits routinely result in paying fines and capital spending on new facilities
- User charges would transfer financial liability to communities that exceed their peak flow capacity allocation
- Communities would reduce I&I in order to minimize their cost exposure due to lawsuit



Potential Motivation: Fees, Charges, and Taxes

- Establish fee units for exceedances of flow standards (e.g. peaking factor)
- Rate would be related to cost to keep I&I in the system (i.e. incremental “damage”)
- Need to know the cost of not keeping within the I&I limits
- Alternatively need to know what rate would cause a change in behavior - spending on effective I&I reduction



Consequences of Inaction Examples

- Prohibitions
- Flow restriction
- NEW Water Program ineligibility

Regional I&I Program Case Studies

Regional I&I Program Case Studies

- Milwaukee Metropolitan Sewerage District (Milwaukee MSD)
  - MMSD Private Property I & I Documents
- Metropolitan Council Environmental Services (MCES)
  - Inflow and Infiltration - Metropolitan Council (metrocouncil.org)
- Northeast Ohio Regional Sewer District (NEORSD)
  - Member Community Infrastructure Program (MCIP) – Northeast Ohio Regional Sewer District (neorsd.org)
- East Bay Municipal Utility District (EBMUD)
  - East Bay Municipal Utility District: Private sewer laterals (ebmud.com)
- Hampton Roads Sanitation District (HRSD)
  - EPA Wet Weather Consent Decree | HRSD.com
- King County Wastewater Treatment Division (WTD)
  - Regional Infiltration and Inflow Control Program - King County

Next Steps

HAVE MEETINGS WITH COMMUNITY CUSTOMERS TO DISCUSS CURRENT I&I PRACTICES

DIGEST FINDINGS FROM STAKEHOLDER ADVISORY GROUP MEETING TODAY

START DEVELOPING A REGIONAL I&I PROGRAM