

# I/I Correction... An Organizational and Financial Challenge

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# Outline of the Presentation

- Purpose and Approach for I/I Workshops in MWRD Service Area
- Review of Some of the Content
- Sampling of the Feedback from the Satellite Communities



MWRD has 126 Satellite Communities

Excessive I/I **estimated** at exceeding 20% of influent at Treatment Plants – 340 mgd or more

Time to Update 1985  
Sewer Summit  
Agreement

# Purpose of ½ Day Workshops With Satellite Communities

- Strengthen partnership for efficiency and effectiveness
- Learn about:
  - > Impacts of I/I
  - > Potential Future Regulatory Programs
  - > Other Regional Approach to I/I Reduction
- Hear from participants about sewer operations, maintenance and other relevant programs
- Interact & learn from each other

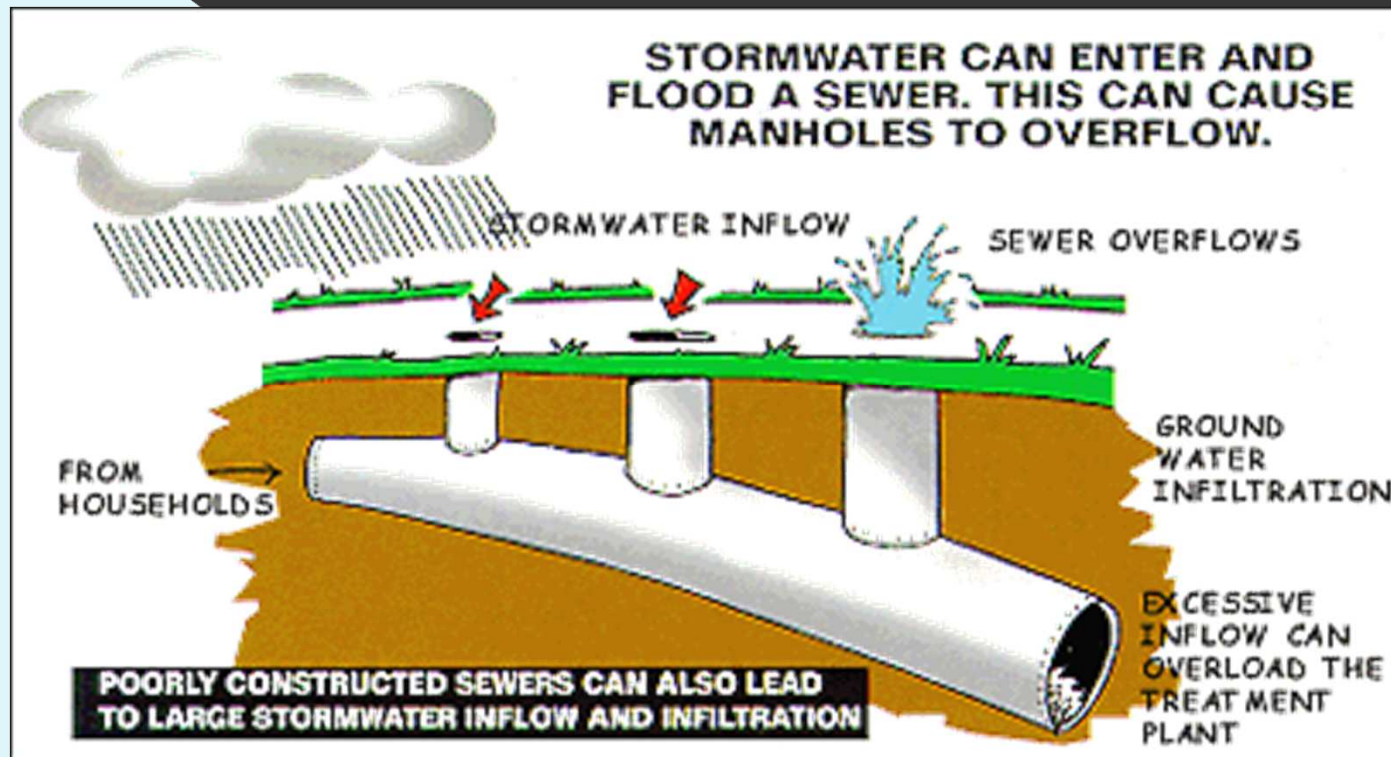


# Outline and Content of Workshops



- Introduction to I/I and Defining the Problem
  - Breakout group to talk about I/I control program - report back to larger group
- What Are Other Regions Across the Country Doing About I/I
  - Breakout and Report back on ideal program for the area and barriers to implementation
- Private Sewer Lateral
- Brainstorming to Envision Success and How to Get It
- Binder of Materials for Participants

# Define the Problem:



- What is I/I
- What are the consequences of I/I
- Enforcement around the country of SSOs
- Potential New Regulatory Structure



# Size Does Not Matter – EPA Can, Will and Does Enforce Against SSOs and Basement Flooding



# What Are Agencies Across the Country Doing About I/I ?

- Common Drivers for I/I Reduction
- Challenges and Potential Solutions
- NACWA Issue Paper
  - Financing Models
- Five Key Elements of a Regional Program





# Common Drivers for I/I Reduction

- ◉ Response to regulatory mandates in permit or enforcement action
  - EBMUD, MWRA, MMSD
- ◉ Anticipation of a regulatory or enforcement action
  - Orange County Sanitation District
- ◉ A way to reduce the cost of capital investment.
  - ReWa, King County, MCES

# Challenges and Potential Solutions to Regional Approach #1

## Challenges

**Governance** 126 different boards; MWRD is an independent and taxing body, established by legislature; many satellites are general purpose, sewer are only one of many issues

## Potential Solutions

### Define Legal Authority

Basis of relationship, 4 types

1. Contracts
2. Ordinances
3. Joint Powers Authority
4. State Law

# Challenges and Potential Solutions to Regional Approach #2

## Challenges

**Data to Define the Problem:** data drives successful programs

- peak flow from each satellite
- Specific flow models to understand stress on system
- Delineation of cost of asset management to accept I/I vs. sunk cost of the existing facilities

## Potential Solutions

**Flow meters:** Design and implement a flow monitoring **network**

- MCES: 190 meters covering 99% of regional system
- EBMUD: 107 meters at 15 minute intervals for 2 years
- King County: 800 meters over two wet seasons to calculate and map I/I

# Challenges and Potential Solutions to Regional Approach #3

## Challenges

### Common understanding:

- It is not just a problem for one community but regionally;
- Lack of data to understand the regional nature
- Lack of forums share information and best practices

## Potential Solutions

### Jointly defining goals:

- Develop a forum where working together participants can define and agree on goals
- Develop a program description for reaching the goals
- Communication and Technical Assistance
- Regular Technical Forums

# NACWA Issue Paper – 2009

## Models to Pay for I/I

### ● Fees, Charges and Taxes

- charges for wet-weather flow to the systems
- intended to motivate reduction or at the least pay for increased capacity
  - do not guarantee reductions of I/I
  - requires an understanding of the cost of I/I to the regional system and
  - quantification of the level of contribution to the system (using flow data and or models) from individual satellite sewer systems.

# Subsidies is another model

- ◉ Grants and or loans,
- ◉ Reduced fees,
- ◉ Technical support,
- ◉ Procurement support or subsidies allow increased size of procurement and timing of construction or procurements
  - > Lower unit cost





# Example of Subsidies

- King County

- > Driver was to reduce size and cost of new capital facilities
- > Develop a consensus based regional study
- > Nine Pilot projects to demonstrate cost-effectiveness
  - \$73 million
- > Public Outreach and Information



# Voluntary Action to reduce I/I

- NACWA White Paper defines this as the status quo;
  - Satellite agencies will undertake I/I reduction if they want to
- Motivate the voluntary action
  - Technical support
  - Information on management practices

# Five Key Concepts about Regional I/I Reduction Program

1. Voluntary Programs are not Reliable to control excessive I/I
2. Regulatory and Financial Drivers need to be identified
3. Flow Data is Essential
4. To Jointly understand problem and define goals requires a regular Technical Forum
5. Satellites will Need Support from Regional Agency

# Regional Approach



Data to support problem understanding, develop models and support cost-effective solutions

Common Understanding of the Problem, Goals and Solutions

Regular reporting of SSO events and causes drive a regional program to reduce

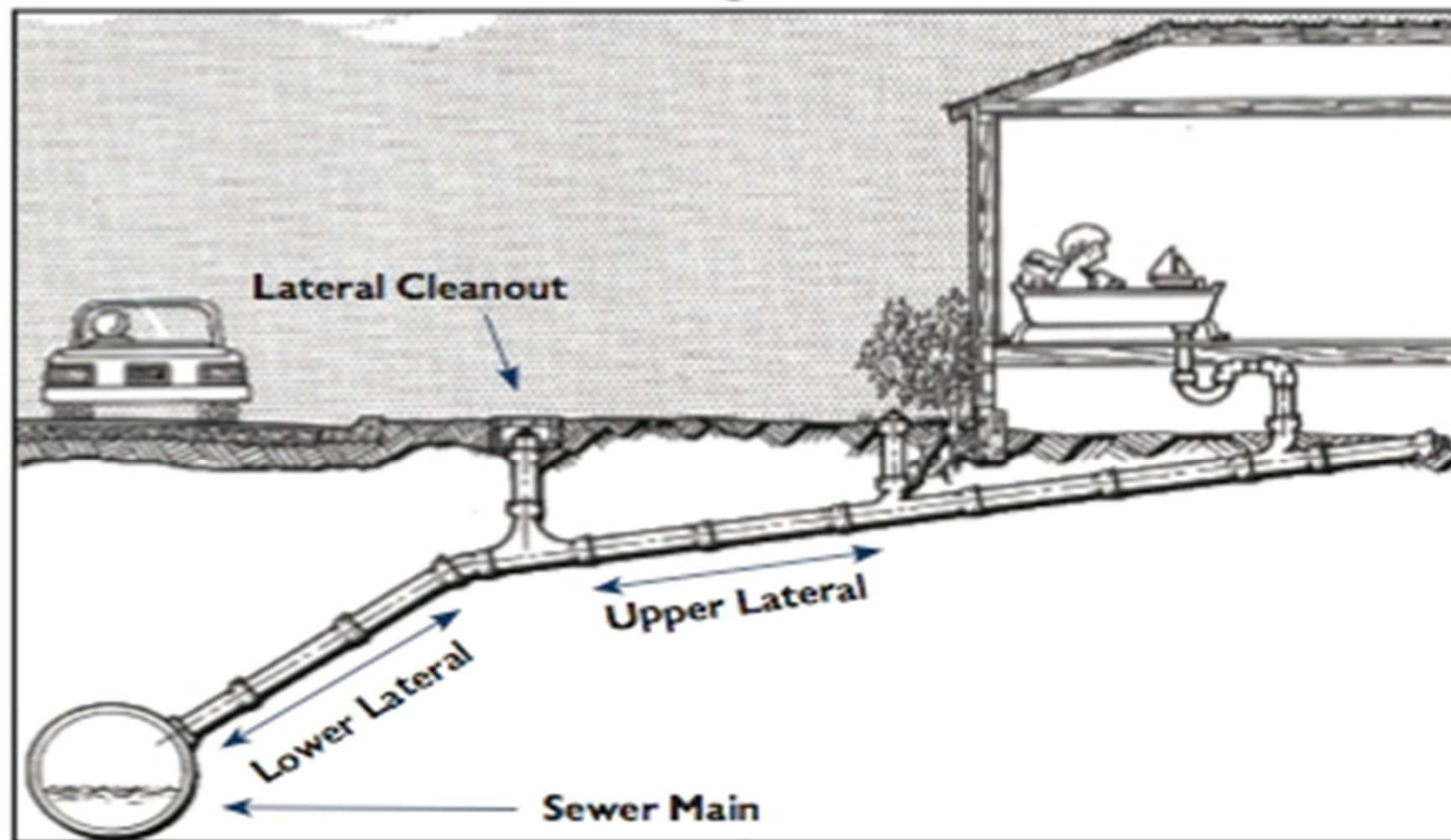
Regional Technical Committees and public outreach

# Workshop Feedback

- ◉ Need a Forum to Interact and work together
- ◉ Support a Regional public information and outreach program
- ◉ Support Regional flow monitoring
- ◉ Wanted more transparent relationship with Regional Agency – data, reports, meetings and technical support



# Private Sewer Lateral Repair Programs

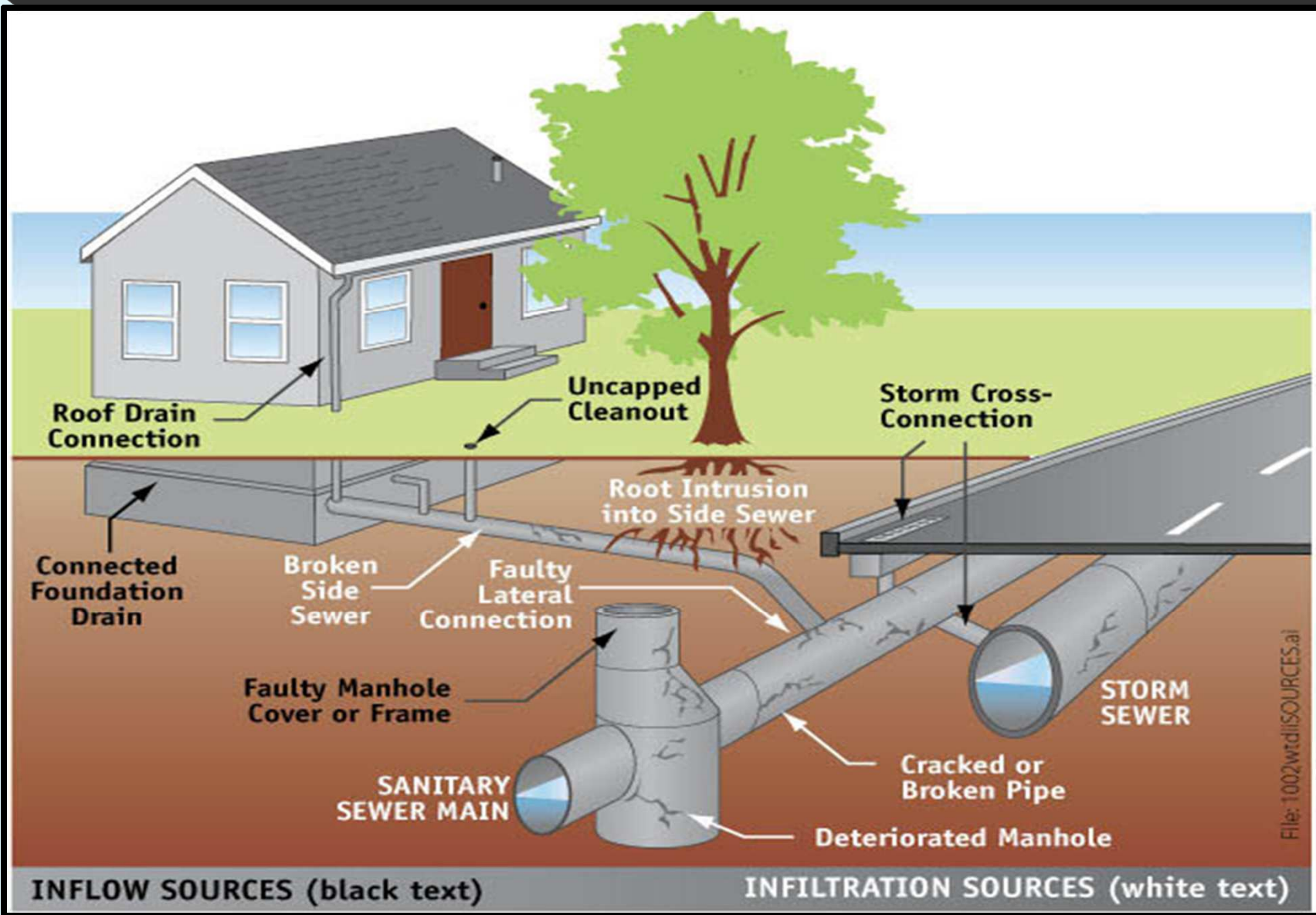


A sewer lateral is the pipe that connects indoor plumbing to the sewer main.



# PSLs Part of the Problem and Part of the Solution

- All the same concerns and issues as with public sewers
  - Cracks, roots, FOG and other blockages, lose joints or connections
- Infrastructure of PSLs as much as 50% of total of sewer miles
  - ALCOSAN has 4,000 miles of PSLs and 4000 miles of public sewers
- King County; I/I from PSLs as much as 75% of problem in individual sewershed



# Common Attributes of a PSL Programs

- Legal Authority
- Flow Monitoring Data and Modeling to determine PSL contribution
- Regional Agency Technical Support
- Public Information Program

# Reasons Why PSLs are Inspected

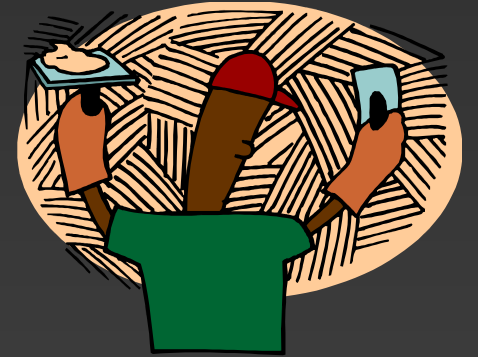
- **Opportunistic Inspection** – sewer main is inspected and PSL issues shows up
  - Santa Barbara, CA – when problems are found, property owner is responsible for correction
- Water Main repair and replacement requiring inspector on private property
  - EBMUD – requires lateral to be tested then

# Point of Sale



- Like a termite or roof inspection
  - If home is more than 25 years old
- Local ordinance is needed to require this
  - Real Estate Industry often opposes
- Inspections done by private business
  - In some cases inspection must be witnessed by muni rep
- Funds in escrow to make repairs

# Major Remodeling

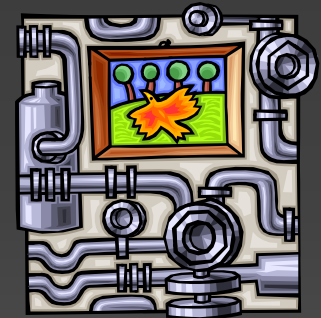


- Property is getting permits
  - > Berkeley, CA major remodel > \$100,000
- Inspection done by private firm and witnessed by muni rep
  - > Could have City Building inspector review paperwork
- This approach can be part of program that includes POS



# Installation of Major Plumbing Fixtures

- Often when plumbing fixtures are installed and plumbing inspection is required
- Opportunity to also inspect PSL
  - Check for water in basement
  - Check illegal connections to sewers
  - Make sure that any illegal connections are corrected to pass inspection



# Cost is a Barrier

- ◉ Five Types of Financial Incentives and Insurance Programs
  1. Loans and Grants to Satellite Agencies
  2. Loans or grants to property owners
  3. Cost reductions due to scale of construction (subsidy)
  4. Use of Public Capital Funds
  5. Private Insurance



# Loans and Grants to Satellites

- MMSD and MWRA

- > On-going program with clear criteria and application process
- > MMSD \$1 million/yr over next five years
- > Only available for poorly performing sewershed

# Loans and Grants to Property Owners

- Generally managed by satellite agency
- Loans repaid overtime through rates or as part of property tax
- Grants are not 100%, rather matches property owners money
  - Property owner has a stake in this



# Mandatory Municipal Insurance

- Collect small amount for each rate payer for insurance fund
  - > City of Ferguson, Mo \$28/year
- Fund supports property owners to repair
  - > Owner must fully pay for inspection
  - > If City agrees it has to be replace, cost of inspection included in insurance
  - > Ferguson covers 85% of cost of repair/replacement



# Cost Reductions Due to Scale of Construction

- Variation on the theme of grants or loans
- Sewer Main or Water Main work in area
  - > Get owners to sign up for PSL repair
  - > Contractor then provides bid to include “opportunistic” PSL work
  - > Unit cost is much lower for private property owners
- Repay cost through rates or property tax
- Tamalpias Community Service District





# Use Public Capital Funds

- Public funds cover 100% of PSL repair and replacement in critical sewershed
- Homeowner provides waiver to allow public agency to do the work
  - > King County WA – avoided larger cost of new capital facilities by using public funds to repair and replace PSLs.
  - > Only able to prove cost-effective due to large scale flow monitoring and modeling

# Voluntary Service Line Protection Programs – Private Insurance



- Not financial aid or a subsidy
- Can reduce the barrier to property owner
- An independent contractor is dispatched to home on a 24 hour basis
- Considered “affordable” by the insurance industry
  - Payment on water bill based on agreement between utility and private insurance provider

# Common Attributes of PSL Program



- Flow Monitoring and Modeling to quantify the contribution from PSL
- Support ordinances, funding and other program development
- Legal Authority to require or provide incentives to inspect, repair and replace
- Public Information and Education to inform property owners of their responsibilities
- Regional Agency support of satellites
  - Public information,
  - Technical support
  - Financial barriers

# Vision of Success



- ◉ Quantifiable Reductions
- ◉ Trusted, accurate and accessible flow data
- ◉ Reduction in basement backups
- ◉ Program funding
- ◉ Satisfied and happy customers – no calls to the Mayor
- ◉ Cleaner environment
- ◉ Regional Partnership
- ◉ **Barriers Included:**
  - Funding; Cooperation; Lack of information & misinformation
- ◉ **Overcome Barriers:**
  - Leadership; regional focus; legislation/authority; funding