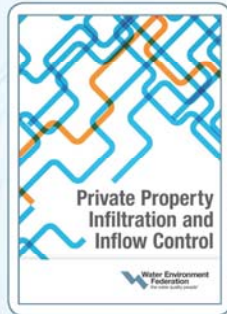


Pre-order *Private Property Infiltration and Inflow Control* and save 10%*



Order No. P160001

List: ~~\$130.00~~ **\$107.00**

Member: ~~\$104.00~~ **\$85.00**

*Books to ship on or before May 9, 2016

Online: www.wef.org/ShopWEF | Call: 1.800.666.0206

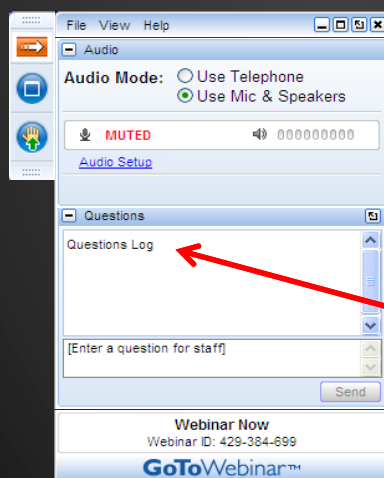


Private Property I/I Reduction - Policy, Funding, Public Outreach

March 30th, 2016
1:00 - 3:00 pm Eastern



How to Participate Today



- Audio Modes
 - Listen using Mic & Speakers
 - Or, select "Use Telephone" and dial the conference (please remember long distance phone charges apply).
- Submit your questions using the Questions pane.
- A recording will be available for replay shortly after this webcast.



Today's Webcast is Brought to You by:

WEF's Collection Systems Committee Webcast Subcommittee

Rudy Fernandez, Committee Chair
Louis Leon, Vice-Chair
Bri Nakamura, WEF Liaison



Webcast Sub-Committee Members

John Nelson	Scott Helfrick
Mattie Engels	Chris Johnson
Abraham Araya	Lisa Riles
Maureen Durkin	Reggie Rowe
Chris Gainham	Chip Smith
Gunilla Goulding	Jodel Wickham

Special Thanks to WEF Staff:

Bri Nakamura
Heidi Tierney
Beth Conway



Today's Moderator



Chris M. Stamborski, P.E.
Assistant Director of Municipal Services
Milwaukee, WI



Today's Speakers and Agenda



Jackie Zipkin
Manager of Environmental Services
for East Bay Municipal Utility
District

EBMUD's Lateral Program



Phil Hubbard
Special Assistant for Compliance
Assurance, HRSD

Magnum PP11



Chris Stambrowski
Assistant Director of Municipal
Services, RA National

Moderator



East Bay Regional Sewer Lateral Programs

Jackie Zipkin
East Bay Municipal Utility District



Agenda

- Background
- Regional Private Sewer Lateral (PSL) Program
- EBMUD PSL Rebate Program - Lessons Learned
- Next Steps



Background

- EBMUD is located in the San Francisco Bay Area
- Provide regional wastewater treatment for 650,000 people
- Collection systems are owned and managed by seven Satellite agencies



Background



- EBMUD currently operates three Wet Weather Treatment Facilities (WWFs)
- Developed in the late 1980s as a solution to wet weather capacity challenges

Background

- Permit was remanded in 2007 on the grounds that the WWFs do not meet secondary treatment standards
- EBMUD Entered into a Stipulated Order (SO) in July 2009 aimed at reducing I/I in the system and ultimately reducing WWF discharges
 - Required implementation of a Regional Private Sewer Lateral Program
- EBMUD and our 7 Satellite Agencies entered into a Consent Decree in September 2014
 - Continued implementation of PSL Program, along with Satellite rehab of mains and manholes



Why a PSL Program?



- PSLs represent ~50% of the pipe in the system
 - Align asset ownership with asset management responsibilities
- Focusing on public infrastructure only does not result in sufficient I/I reductions
 - Water migrates
- Review of historical property sale data indicated that 80% of properties turn over in 30 years



Regional PSL Ordinance

- Property owners must obtain a Compliance Certificate from EBMUD as proof that their private sewer laterals are free of leaks when:



buying or selling their property



performing construction or remodeling valued at or greater than \$100,000, or



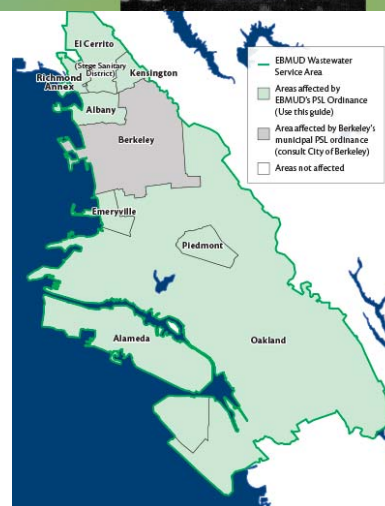
increasing/decreasing water meter size

- All property types - residential, commercial, industrial*

EAST BAY REGIONAL PRIVATE SEWER LATERAL PROGRAM

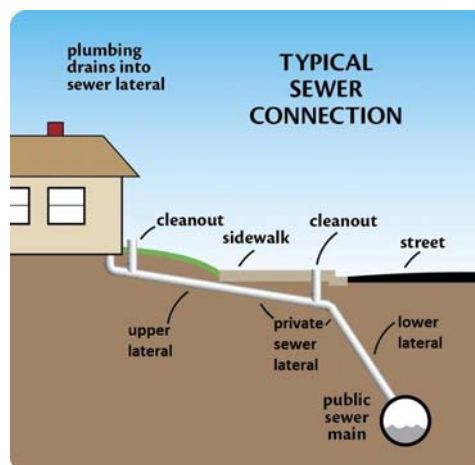


AGENCY	EFFECTIVE DATE
<ul style="list-style-type: none"> Piedmont Emeryville 	August 22, 2011
<ul style="list-style-type: none"> Stege Sanitary District 	October 17, 2011
<ul style="list-style-type: none"> Oakland 	January 16, 2012
<ul style="list-style-type: none"> Albany Alameda 	January 1, 2015



PSL Responsibility

- In Emeryville, Oakland, Piedmont, and Stege, property owner responsible for entire lateral, including connection to the main
- In Alameda and Albany, property owners are only responsible for the private upper lateral, except in a private system
- Per Consent Decree, cities must replace lower laterals when they replace mains



Special Requirements / Exemptions

1. Time extension - up to 6 mos. *(For Property Sale only and requires \$4500 to be deposited with EBMUD)*
2. Exemption - some types of title transfers qualify for exemptions, as well as laterals that have been completely replaced within 10-25 years of the start date of the program
3. HOA properties, such as condos and single family homes, where the HOA is responsible for sewer lateral maintenance have until July, 2021 to comply
4. Properties with more than 1000 feet of laterals must develop a Condition Assessment Plan and Corrective Action Plan

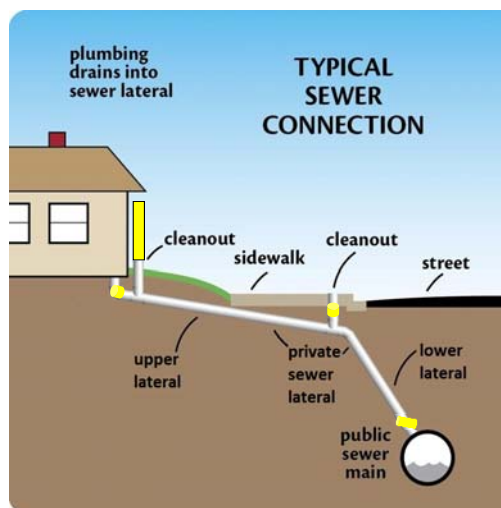
What do property owners need to do?

- Step 1: Check lateral condition
- Step 2: Obtain city permits
- Step 3: Have any required work done
- Step 4: Schedule an EBMUD verification test
- Step 5: Pass the verification test and print Certificate
- Step 6: Present a copy of the Compliance Certificate as part of property-related transaction



EBMUD Verification Test

- EBMUD inspector observes a water or air pressure test (verification test) to confirm that the repaired or replaced lateral is free of leaks
- Satellite inspector ensures compliance of the work with local specs



Sample Compliance Certificate



EAST BAY MUNICIPAL UTILITY DISTRICT **Regional Private Sewer Lateral Program**

Compliance Certificate for Private Sewer Lateral

Parcel Address: **1234 ANY STREET, ANYCITY** Certificate Number: **888**
 Parcel Number: **000-000-000-0** Issue Date: **11/17/2011**
 Expiration Date: **11/17/2031** Type **Compliance: replaced Lateral**

Special Instructions:
 Retain this PSL certificate for your records for any future parcel sale, remodel greater than \$100,000 or change of water meter size.

- Passed verification test with or without repairs = 7 years
- Passed verification test after full lateral replacement = 20 years

PSL Program Fees

- Compliance Certificate: \$225
- Time Extension Certificate: \$94
- Inspection Rescheduling: \$73
- Extra Lateral or Verification Test: \$66
- Off-Hours Verification Test: \$200 (2.5 hrs)

Program Performance

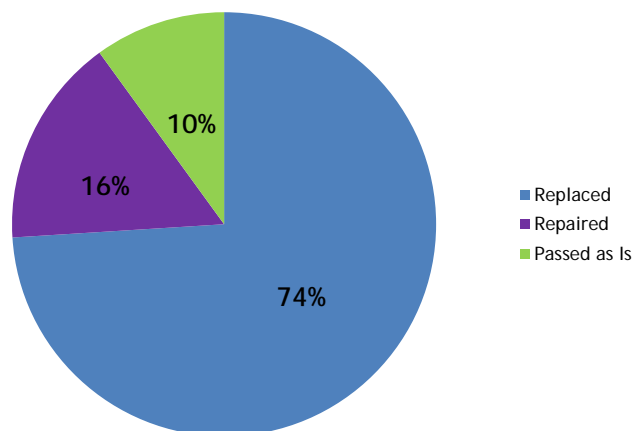
- EBMUD has granted nearly 20,000 Compliance Certificates

AGENCY	COMPLIANCE CERTIFICATES ISSUED
Alameda	438
Albany	125
Emeryville	178
Oakland	16,429
Piedmont	832
Stege Sanitary District	1,666
Total	19,668

Data through March 18, 2016



Need for PSL Work



Data from FY15



PSL Program Compliance

- EBMUD checks property sale data against compliance database monthly
- For non-compliant properties:
 - 2 Courtesy Notices
 - Notice of Violation
- Compliance rate following the enforcement notices is >90%



Secrets of Success

- Strong ordinance language
- Interactive data management system
- Internal stakeholder communication
- External stakeholder outreach
- Dedicated resources



Regional PSL Ordinance

- Initially adopted as part of Wastewater Control Ordinance
- Updated to incorporate lessons learned and adopted as a standalone PSL ordinance
- Lays out, primarily in plain language, program requirements
- <http://www.eastbaypsl.com/eastbaypsl/doc/RegionalPSLOrdinance.pdf>



EBMUD PSL Online System

- Enables contractors or property owners to schedule EBMUD verification test appointment online
- EBMUD inspectors use iPads to enter field results directly into the system
- Customer can instantly print Compliance Certificate after successful inspection

The screenshot displays the 'EAST BAY REGIONAL PRIVATE SEWER LATERAL PROGRAM' website. It includes a sidebar with navigation links like 'Home', 'What is a PSL?', 'PSL Search', 'Guidelines', 'Selling a Property', 'Building & Remodeling', 'Changing Meter Size', 'Exemption', 'FAQ', 'Help using this site', and 'Tools for Professionals'. The main content area is titled 'Reservation Request for PSL Inspection for Compliance Certificate'. It contains a form with fields for 'Property Address' (760 11TH ST OAKLAND), 'Parcel Number' (902-0009-022-00), 'Owner Name', 'Owner Email', 'Owner Phone', and 'EBMUD Acct. No.'. Below these are fields for 'Contractor Company' (Steven's Sewer Repair), 'Contractor Phone' (555-5555), and 'Contractor Mobile Phone'. There is also a 'Special Instructions' text area. At the bottom, a section titled 'Please select an inspection appointment window from the following:' shows a calendar grid with a date selected. A note at the bottom states: '(Contractor must be ready for the inspection at the beginning of the appointment window! Warning: any changed or cancelled reservation within 48 hours of the appointment will forfeit your fee.)' with 'Print Invoice' and 'Send Invoice' buttons.



Internal Stakeholders and Impacts

STAKEHOLDER	IMPACT
Field Services	Messaging, inspections
Customer Service	Messaging
New Business Office	Messaging, walk-in customers, water meter trigger
Information Systems	Develop on-line system
Accounting	Financial transactions
Remittance	Financial transactions
Public Affairs	Messaging, pushback
Graphics	Outreach materials
Legal	Ordinance language
Board of Directors	Messaging, pushback

External Stakeholders and Impacts

STAKEHOLDER	IMPACT
Property Owners	Understanding Program, Finding Contractor, Lateral Cost
Real Estate Professionals	Understanding Program & Liability, Disclosure Requirements
Escrow Professionals	Understanding Program, Enforcement of Contracts
Contractors	Understanding Program, Licensing Pressure Test
Satellite Agencies	Building & Remodel Permits, Sewer Permits, Exemption Certificates, Inspections, Messaging, Pushback, Partnering
Regulators	Messaging, Pushback, Partnering

External Stakeholder Outreach - Guidelines

Guidelines for Contractors

These guidelines provide information about private sewer lateral (PSL) testing requirements and procedures to enable planning contractors to help their customers meet Regional Private Sewer Lateral Program requirements and obtain a Compliance Certificate.

Regional PSL Program Requirements Overview

The Regional PSL Program requires that affected property owners obtain a certificate from EBRACD indicating that their private sewer lateral (PSL) are free of leaks. The program applies to property owners who sell their property, build or remodel in excess of \$100,000, or change the size of their water meter. The program requires the PSL be repaired or replaced as necessary, and pass an air or water verification test.

When the PSL passes the test, a Compliance Certificate will be issued by EBRACD to prove that the pipe is free of leaks. Compliance Certificates are required for the property owner to transfer title, obtain final building permit sign-off, or have an EBRACD work order processed for a change in water meter size. Property owners will need to work with a contractor to have any required repair work done and to prepare the PSL for the air or water verification that will be witnessed by an EBRACD inspector.

Who is affected?

The program applies to residential, commercial and industrial property owners in EBRACD's wastewater service area in Emeryville, Oakland, Piedmont, and the large Sanitary District which serves Kensington, B. Carrizo and the Richmond Annex.

When does the Regional PSL Program take effect?

The Regional PSL Program begins in August 2011 and will be phased in through January 2012. Effective dates for each community are posted at www.ebracd.com.

When will a Compliance Certificate expire?

PSLs that are completely repaired and that successfully pass testing requirements will receive a Compliance Certificate that is valid for 10 years from the date of issue. PSLs that are repaired and that successfully pass testing requirements will receive a Compliance Certificate that is valid for 7 years from the date of issue.

What do "repair" and "replacement" mean?

A repair is a correction of an isolated defect of the PSL. A replacement is installation of a new pipe along the entire length of the PSL, and includes laying of the entire length of the PSL.

Guidelines

Step 1: Check Lateral Condition

Check the lateral for leaks or other defects and advise the property owner if work is needed. If no work is required, proceed to Step 2.

NOTE: During the installation of new gas lines by Pacific Gas and Electric Company (PG&E), some private sewer laterals may have been placed or completely buried through "trench" as a cross-bore. Underground Service Alert does not typically mark private sewer laterals and as a result, cross-bore may go undetected, and if damaged, create a potentially hazardous situation. For gas line cross-bore information, visit PG&E's website at <http://www.sds.com/70/home/dundertrench/crossbore/crossboreinfo.aspx>. If you suspect a gas

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Guidelines for Condominiums and Other Common Interest Developments

These guidelines explain when the owners of a responsible party for multi-unit structures such as condominiums, townhouses and other common interest developments are required to do to comply with the East Bay Regional Private Sewer Lateral (PSL) Program.

The Regional PSL Program requires property owners to obtain compliance certificates from EBRACD affirming that their PSLs are free of leaks. Each PSL must be assessed to determine if work is required, and faulty PSLs must be repaired or replaced. Each lateral must pass a verification test to prove that the pipe is free of leaks. When the PSL passes the test, EBRACD will issue a compliance certificate.

The program protects San Francisco Bay from sewage overflow and is a joint effort of federal, state, and local agencies. Repairing and replacing sewer pipes ensures that during storms, wastewater does not enter sanitary sewer lines. You must however, can over-ride the sanitary sewer system allowing partially treated sewage to flow into the Bay. Visit www.ebracd.com or call 1-800-451-EBRACD for more information.

Who is affected?

The program applies to properties in Emeryville, Oakland, Piedmont, and the large Sanitary District which serves Kensington, B. Carrizo and the Richmond Annex. For multi-unit property developments, the Regional PSL Program defines a sewer lateral as a sewer pipe coming from a private development with connections to the public sewer at one or more locations. All sewer pipes located on a private development are treated, regardless of their size.

What is the Deadline for Completing PSL Work?

The deadline depends on who is responsible for lateral work. In common interest developments, the responsible party is typically stated in the Covenants, Conditions and Restrictions (CCRs) document for the property. While the Homeowner's Association (HOA) is usually responsible, in some cases the responsibility for lateral work rests with the property owners of the individual units.

- If the HOA is responsible for the sewer lateral per the CCRs, then the HOA must bring all of the laterals on the property into compliance. The HOA or other responsible party must ensure that any necessary work is completed so that their PSLs are free of leaks and in compliance by July 12, 2012.
- If the property owner of the individual unit is responsible for the lateral associated with their unit per the CCRs, then a compliance certificate must be obtained by the unit owner 1) prior to title transfer, 2) when more than \$100,000 of construction or remodeling is performed, or 3) if there is an increase or decrease in the size of the water meter. Once these three events trigger the requirements, there is no date by which all work must be completed within a common interest development when the individual unit owners are responsible for completing PSL work.
- In some cases, homeowners may be responsible for the individual laterals associated with their units, but the HOA may still be responsible for shared laterals on the property. In these cases, the HOA or other responsible party must bring the common laterals into compliance by July 12, 2012. Individual homeowners would bring their laterals into compliance when holding one of the three triggers described above.

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PSL Program Staffing

- Administrative/Customer Outreach
 - 2 Wastewater Control Representatives
 - 1 Admin Clerk
- Field Inspection
 - 1 Senior Inspector
 - 5 FTE Inspectors
 - 1 Admin Clerk

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A Note on What Didn't Work As Well - EBMUD PSL Incentive Program

- Under Stipulated Order, EBMUD was also required to implement a PSL Incentive Program:
 - Grants/rebates intended to incentivize property owners not hitting ordinance triggers to voluntarily replace PSLs
 - \$2M/year (not including program admin)
 - No existing project of similar scope or complexity
 - Geographically diverse service area
 - Portions of service area owned and operated by others
 - Uncertainty regarding optimum rebate amount for influencing participation levels
- *Pilot project approach*



Incentive Program Pilot

- Goals:
 - Test and refine processes for implementing rebate program
 - Vary rebate amounts
 - Acquire necessary information for the implementation of a long-term program
- Piloted multiple approaches:
 - Rebate covering partial cost
 - Rebate covering full cost
 - EBMUD contractors perform work



Incentive Program Results: Overall

Case Study	Approach	# Props Eligible	# Properties Certified	% Completed	Total Funding Provided	% Costs Covered
1	Partial Rebate - Lowers done previously	51	1	2%	\$2,225	50%
2	Partial Rebate - Lowers done concurrently	103	18	17%	\$38,400	49%
3	"Full" Rebate - Lowers done concurrently	1746	578	33%	\$1,679,479	80%
4	EBMUD Performs Work	818	351	43%	\$2,071,519	100%
Total		2718	948	35%	\$3,791,623	89%



Incentive Program Conclusions

- Duplicative with Ordinance
- Challenging to get meaningful participation
- Rebates more cost-effective than agency-hired contractors



Next Steps

- Continue ordinance implementation, including outreach to HOAs and parcel groups with >1,000 feet PSL
- Evaluate effectiveness in reducing wet weather flows through annual modeling



Questions?

Jackie (Kepke) Zipkin, P.E.

EBMUD

jzipkin@ebmud.com

510-287-1608

www.EastBayPSL.com



Magnum PPII - Investigating Private Property Infrastructure to Determine the Potential for Infiltration and Inflow Abatement

March 30, 2016

Phil Hubbard, Hampton Roads Sanitation District



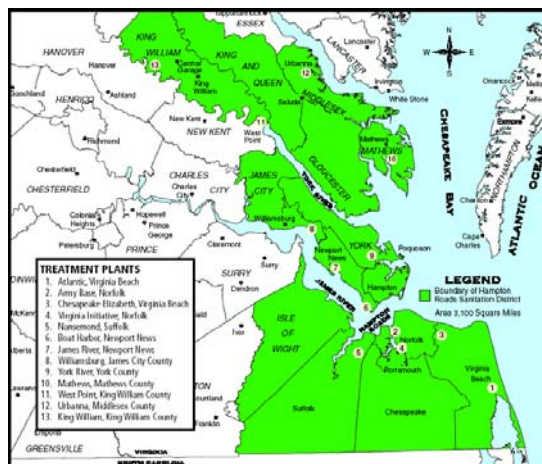
Why is Private Property I/I a Problem?

*"The results of the analyses of these projects, supported by the literature survey, strongly indicate that **ignoring the private sewers puts utilities at risk of not reducing peak I/I flows to any significant degree.**" (Water Environment Research Foundation WEF 99-WWF-8)*



Private/Regional/HRSD Sanitary Sewer System

- Private Property:
 - 3,600 miles of private gravity sewer
 - Ranging from 4-inch to 24-inch diameters
- Regional Network:
 - 1.6 million population served
 - 5,800 miles of public gravity sewer
 - 1,500 PS
 - 1,200 miles FM
- HRSD System:
 - 430 miles large diameter FM
 - 50 miles gravity
 - 81 PS
 - 13 STPs

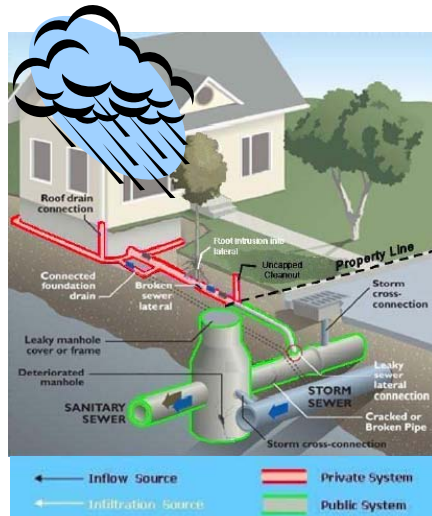


Multiple Consent Orders

- DEQ/Norfolk/HRSD - March 2005
- DEQ/HRSD/12 Localities - Sept. 26, 2007
- USEPA/DEQ/HRSD - Feb. 23, 2010
- Hybrid Regionalization - Feb. 2014
- Memorandum of Agreement - March 10, 2014

What is SLIP?

Sewer Lateral Investigation Program



Sanitary Sewer Overflow



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What Will Happen During SLIP?

Step 1: Test



Step 2: Analyze

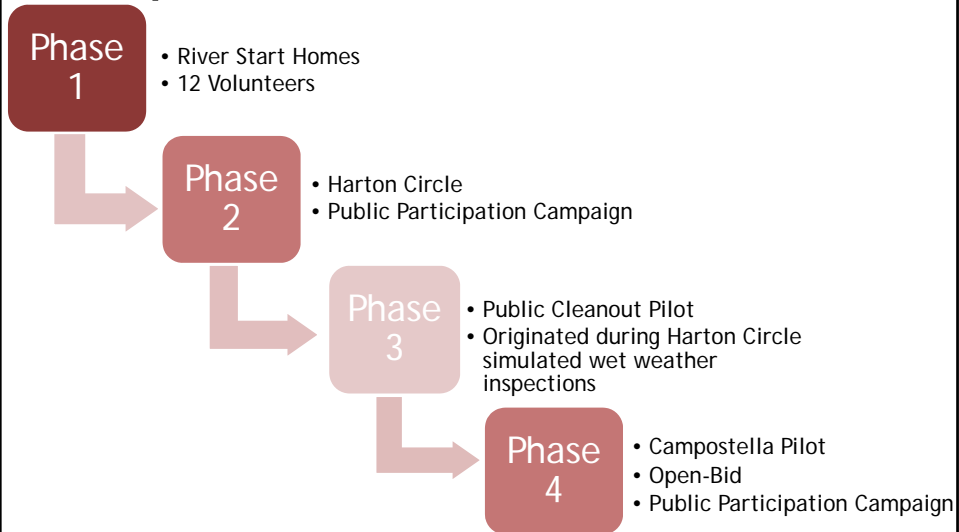


Step 3: Repair

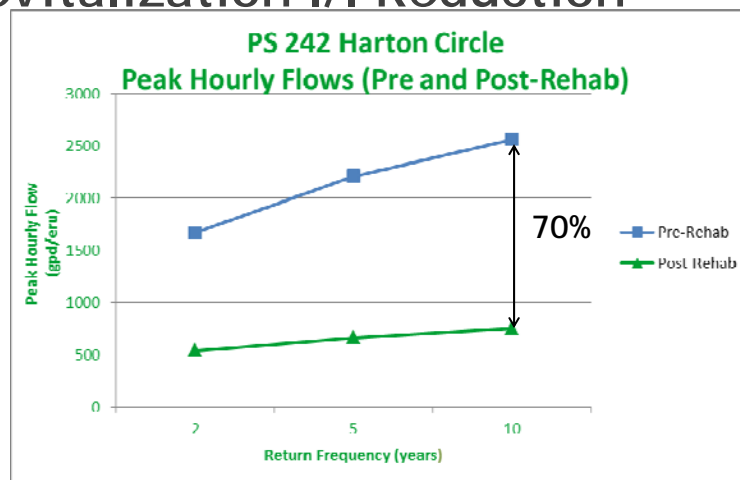


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Completed Phases of SLIP



Harton Circle Public Asset Revitalization I/I Reduction



Harton Circle Pilot



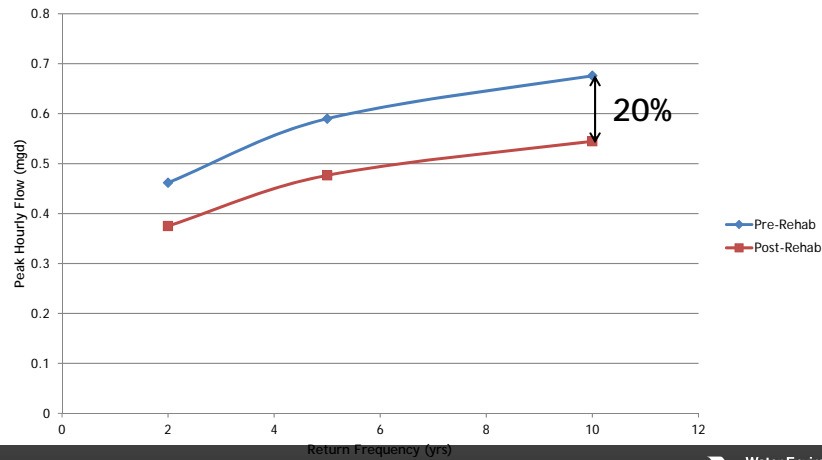
Harton Circle Investigation Consent		
Response	Total	Percent
Participant	165	71.1%
No Response	63	27.2%
Declined	4	1.7%
Total Consent Forms Requested		232
Harton Circle Repairs		
Laterals Identified for Repair	18	10.9%
ROE Agreement and Lateral Repair	18	100%

Simulated Wet Weather Event



Harton Circle Private Asset Revitalization I/I Reduction

PS- 242 Harton Circle
Peak Hourly Flow (Pre and Post Rehab)

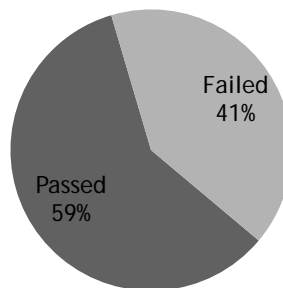


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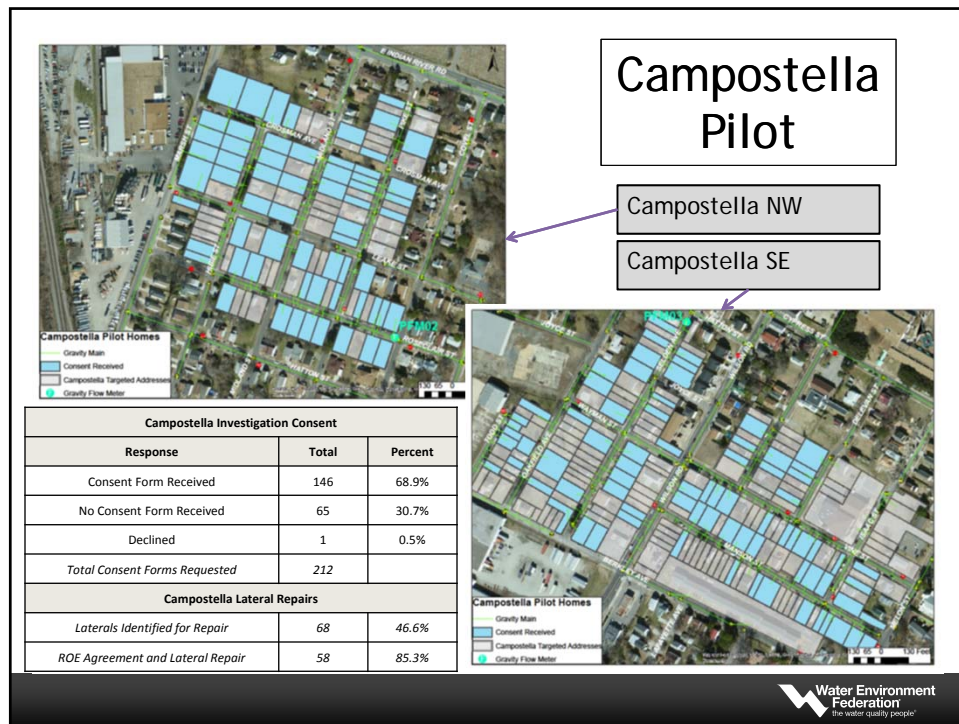
Phase III Public Cleanout

- 1261 Cleanouts Targeted
- 654 in Campostella and 607 in Harton Circle
- Inspected 1141 cleanouts, could not locate 120
- Majority of Failed tests due to non-functioning cap

Cleanout Test



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Campostella : CCTV 3-Tiered Approach

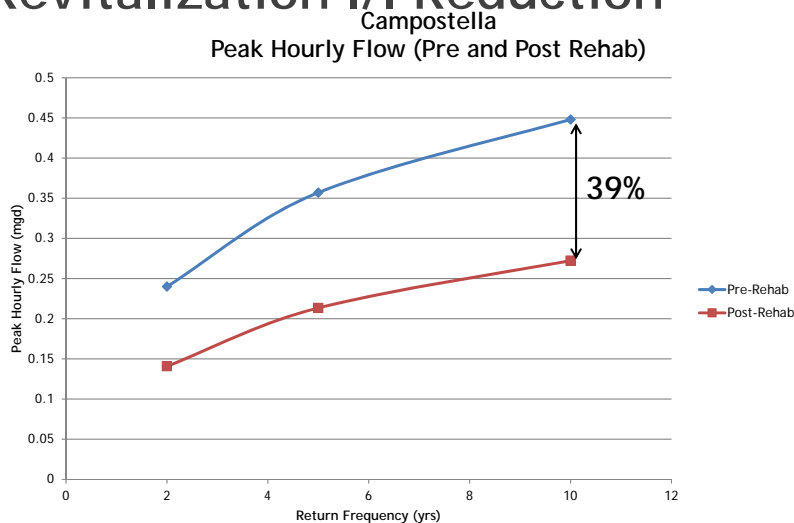
Level 1 - Identify the physical properties of all laterals, locate the lateral if the homeowner has signed up to participate.

Level 2 - During the wet weather simulation the operator will observe the lateral tap into the main for any flow. If flow is observed, proceed to Level 3.

Level 3 - Perform a NASSCO compliant LACP inspection of the private lateral paying special attention to I/I defects. Determine if rehab is required.



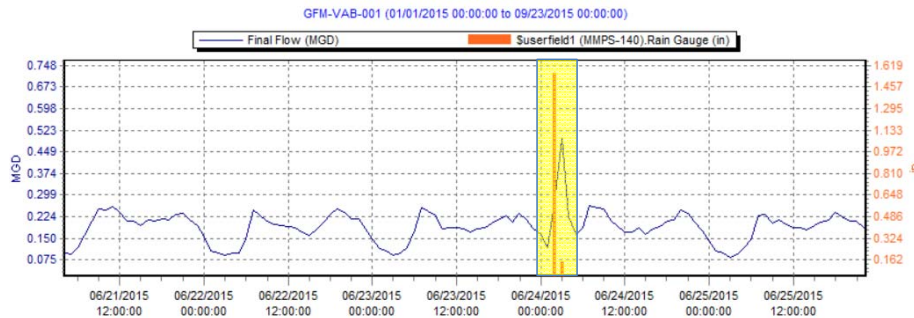
Campostella Private Asset Revitalization I/I Reduction



Takeaways from Single-Family SLIP

- Simulated wet weather testing is an effective tool for identifying leaking laterals
- The percentage of laterals that have required rehabilitation in each phase has varied
 - River Star - 4 out of 12 laterals inspected were replaced (approx. 33%)
 - Harton Circle - 18 out of 165 participants required rehabilitation work (approx. 11%)
 - Campostella - 68 out of 146 participants required rehabilitation work (approx. 47%)
- The applied rehabilitation methodologies were effective in reducing the peak I/I
 - Approximately 20% in Harton Circle
 - Approximately 39% in Campostella
- Public cleanouts are a significant source of inflow and considered "low hanging fruit"

VAB-111 Pre-Construction Flow



- Over 5x the normal flow for the time of day
- Estimated 70% I/I removal after construction

Catchment Based Non-Single Family Private Property Pilot

- Catchment identified as “leaky” from observed flow data during wet weather
- Sanitary Sewer Evaluation Study (SSES) Data Sources
 - Historical Data
 - New Data
- Public Outreach
- Rehabilitation and Replacement Design
 - Dig and Replace VS Cured In Place Pipe

SSES Data Sources

- Investigative methods include;
 - NASSCO compliant CCTV inspections
 - Smoke Testing
 - Manhole Inspections
- Historical condition assessment data from 2009
 - Publicly owned pipe **only**
 - No privately owned pipe data was available
- New data not always consistent with the 2009 data
 - Private mapping of sewers were unreliable
 - Some observed defects from 2009 had gotten worse in the last 6 years
 - Changes in condition lead to changes in design decisions (i.e. Digging VS Lining)
- Flow Data was used to determine the “leakiness” of the catchment



Public Outreach and Coordination

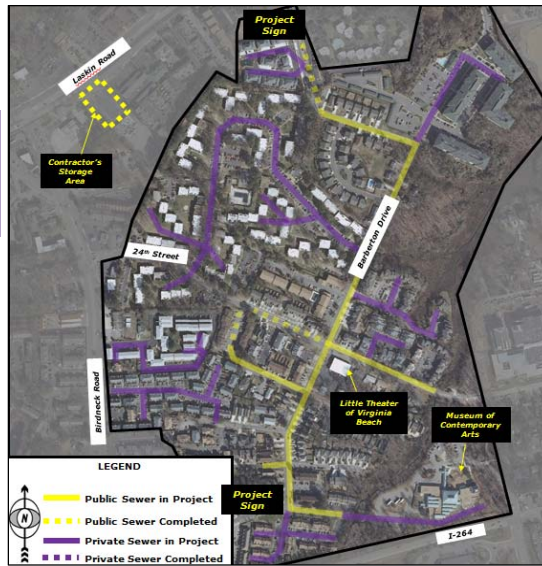
- Coordination with the City is key!
- Door hanger campaign to begin public side work
- Getting Right-of-Entry agreement from Non-Single Family Private Property
 - Property Managers and/or Owners
 - Property Association Meetings
 - 9 Right-of-Entry Agreements out of 11 major properties within the catchment
- Final Notice Letters
 - Great way to get the manager/owner's attention!



Catchment VAB-111

- ~13,000 LF of Private Sewer
- 66 Private MHs

- ~9,000 LF of Public Sewer
- 47 Public MHs



Birdneck Village



Mayfair Mews



Pavilion Condos



Rehabilitate or Replace?

- Where it was feasible to install a CIPP liner that was the method chosen. Where CIPP could not be used pipelines were replaced.
- Results similar with decisions on both public and private sewers within the catchment
- Some key factors in deciding which method was most suitable include;
 - Pipe in extremely poor condition (i.e. collapsed)
 - Pipe had severe or too many sags
 - Too many intersecting utilities
 - Offset joints and/or lateral connections

Conclusions and Predictions

- Investigative methods have proven to be helpful for both private and public pipe
- Design of the private work was more difficult due to the unknowns that were discovered in the field
- Based on the success of the previous pilots we hope to meet or exceed our goal of 70% I/I reduction with both public and private improvements
- Work was completed in December 2015
- Flow monitoring was continued throughout the project. Still gathering data to determine the effectiveness I/I removal.
- Will have results for the WEF Collections Workshop in Atlanta. Stay tuned!

QUESTIONS?

Phil Hubbard, P.E.
Special Assistant For Compliance Assurance
HRSD
(757) 460-7049
phubbard@hrsd.com



Continue the Conversation at Collection Systems 2016



- Registration for Collection Systems 2016 in Atlanta, Georgia is OPEN!
 - Super Saver ends **April 1, 2016**
- Want more?!
 - Workshop A - *Private Property I/I Reduction – Challenges, Solutions, and Vision Forward* on Sunday, May 1 from 8:30 am - 5:00 pm

