

# Peters Township Sanitary Authority

Friar Lane Sewershed  
Resident Meeting  
June 22, 2011

- ## Agenda
- What is the Goal of the program?
  - Why Friar Lane?
  - Proposed Pilot Program
  - Next Steps
  - Conclusion
  - Questions

### GOAL:

To identify and remove sources of groundwater infiltration into the sanitary sewer system


Goals:

- Reduce Inflow & Infiltration (I&I) into the sewer system
- Reduce the need to expand treatment facilities
- Reduce the need to expand sewer interceptors
- Reduce the need to increase user fees
- Help to keep sewage from exfiltrating
- Reduce and eliminate SSO's




### What is Inflow & Infiltration?

Inflow is groundwater that is directly connected to the sanitary sewer system.



### Infiltration

...is ground water that indirectly enters the sanitary sewer through defects in the sewer pipe.



### Authority Wet Weather Improvements

02/1/2011	DC Wet Weather Improvements	\$1,800,000			
<b>DC Treatment Plant</b>					
1999	Phase I Improvements	\$630,000	1999	Flow meter Purchase	\$19,000
2004	Wet Sewer Improvements by Staff	\$25,000	2000	Stonbrook Groud Point Repair	\$89,300
			2001	Brush Run II Storm by S&S	\$100,000
			2001	Gatestead Drive Lining (2 projects)	\$40,000
	<b>Subtotal Plant Capacity Expansions</b>	<b>\$2,317,000</b>	2003	General Wet Weather Investigations	\$4,700
			2004	Upper Valleybrook Groud Point Repair	\$52,000
<b>Brush Run Interceptor/Trunk Sewer Augmentations</b>					
1998	VB Midway West PennDOT Interceptor Aug	\$60,000	2004	Stonherenge Grouding	\$73,300
1997	Stonbrook Trunk Augmentation Phase A	\$106,000	2004	Friar Lane CIP Lining	\$277,000
1997	VB Old Interceptor Repairs/Augmentations	\$62,400	2004	Marble Drive E- Replacement	\$10,000
2000	Stonbrook Trunk Augmentation Phase B	\$30,000	2005	Crossgates Trunk Replacement	\$316,300
2002	VB Augmentation Opoka to Stonherenge	\$297,000	2006	Onsleywood Acres Phase 2 Lifting	\$14,300
2005	VB PennDOT Slide Interceptor Augmentation	\$135,000	2007	Crossgates CRPP Lining 1st year	\$389,000
2006	VB Sewer Capacity Augmentation by Staff	\$5,300	2007	Marble Road 3-year project	\$170,000
2006	VB Augmentation with Gabion Baskets	\$100,000	2008	Crossgates CIP Lining 2nd year	\$166,000
2008	BR Field Flow Alternative Project	\$12,363	2010	Rutledge Drive Groud Point Repair	\$58,000
2008	Lipser VB Augmentation 2008 Cost to Date	\$307,700		<b>Subtotal Brush Run Rehabilitation</b>	<b>\$1,926,700</b>
2009	Wiloughby Woods Interceptor Augmentation	\$248,000			
2009	VB Inletted Drive Augmentation	\$4,000			
	<b>Brush Run Subtotal Augmentations</b>	<b>\$1,389,363</b>		<b>DC Collector/Trunk Sewer Rehabilitation</b>	
			2001	East Highland Resepect Lining	\$600,000
			2002	Hedbrook/Michary Groud Point Repair	\$113,000
				<b>Subtotal DC Rehabilitation</b>	<b>\$713,000</b>
<b>DC Interceptor and Trunk Sewer Augmentations</b>					
2000	Cheswood Road Interceptor Augmentation	\$200,000			
2000	Giant Oaks Interceptor Modeling	\$1,300			
2001	Giant Oaks Pipe Burst Waterdam Road	\$158,000		<b>Misc. Staff Time and Materials to remove I/I</b>	
2003	Cheswood/Chesford Grinder Pumps	\$39,700		\$50,000/year for 10 years	\$500,000
2005	Waterdam Grinder Pump	\$9,500			
2009	McCowell Lane	\$15,000			
2010	USSE Interceptor Flow Monitoring and Modeling	\$38,100			
	<b>DC Subtotal Interceptor/Trunk Augmentations</b>	<b>\$462,600</b>			
	<b>Subtotal ALL Sewer Augmentations</b>	<b>\$1,851,963</b>			
	<b>TOTAL CAPACITY EXPANSIONS</b>	<b>\$4,168,963</b>		<b>TOTAL REHABILITATION</b>	<b>\$3,189,700</b>
				<b>GRAND TOTAL ALL I/I PROJECTS</b>	<b>\$7,358,663</b>

### Why Friar Lane?

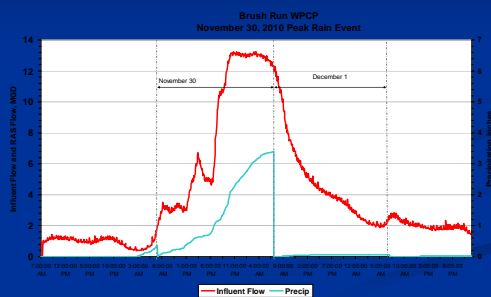
- Engineering studies show the Friar Lane Sewershed ranks high for inflow & infiltration
- Infrastructure Investment by the Authority
  - Relined 7,268 LF of collector sewer pipe at a cost of \$277,000
- Wet Weather Investigation and data review
  - Inspections on eight separate occasions by the Authority and contracted services

### Reference Sewershed Concept

Friar Lane  
E. Edgewood  
Meadow Ridge



### The Affect of Precipitation on the Sewer System



### Friar Lane Reaction to Rainfall

During Peak Rain Events (24-Hour Volume)

- Newer PVC Sewer Systems <100 GPD/EDU
- Brush Run System Overall 1,600 GPD/EDU
- Friar Lane Sewershed **13,000 GPD/EDU**

### Friar Lane Wet Weather Inspections

After Rehabilitation. Conducted when BR Plant was at 5 MGD

- Very little infiltration from the public sewer
- 39% of dwellings discharge <1 GPM. No repairs required.
- 61% discharge >1 GPM. Repairs needed.
- 18% of total inspected discharge >3 GPM
- 8% of total inspected discharge >8 GPM

### Extrapolating Friar Lane Results to BR System-Wide

- 70% of the customers have Non-PVC sewers
- 4,200 customers X 0.70=2,900 customers considered similar to Friar Lane.
- 18% of 2,900 customers=520 customers may discharge > 3GPM @ 5 MGD
- Could discharge >6 GPM @10 MGD
- Say 8 GPM average at 10 MGD
- 8 GPM/EDU X 520 customers = 4,160 GPM
- = 6 MGD peak flow may come from these 520 customers or...
  - 60% of the problem comes from
  - 12% of the customers!

## Proposed Pilot Program

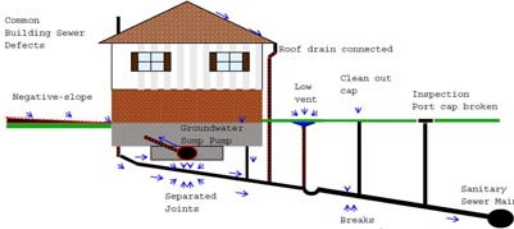
Rainfall Simulation Testing:

- C & K Industrial Services: Professional, uniform and proven testing method.
- Testing is not dependent on natural rainfall.





## What Will be Tested

- Building Drain
- Building Sewer




## Vent Stack Deficiency

Inflow due to improper material and connection.



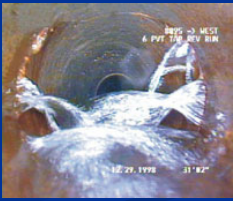
## Root Infiltration

Roots entering from a defective joint.




## Infiltration

Multiple points of inflow from a defective pipe joint



## Closed Circuit Television Inspection

Closed Circuit Television (CCTV) utilizes special video cameras that are inserted into the sewer to observe pipe conditions and to document defects that lead to Inflow and Infiltration (I&I).



### Authority Funded Repairs, if needed:

- The Authority will determine the extent and type of repair necessary
- Authority will pay for repairs to a cumulative maximum of \$3,000 per participant.
- If repairs are required, the owner will not receive the \$200 payment for participation.
- Repairs made by the Authority will be warranted for one year.
- Authority will pay for all testing done in-house or contracted.
- Authority will pay for any driveway restoration, if needed.

### Homeowner Responsibility, if needed:

- Homeowner will pay to have illegal direct connections such as downspouts, area drains, or sump pumps and sump pump overflows connected to the sanitary system disconnected.
- Homeowner will pay for any final lawn restoration, if needed.



### Other Benefits to the Homeowner:

- If the property passes testing, and repairs are not required, the owner will receive a minimum payment of \$200 for participation.
- If your home passes the test, or repairs are made to correct deficiencies, the Time of Sale Dye Test, and its \$150 fee, will be waived for one year.



### Items to Consider

- The Authority will make multiple visits to your property over a long period, even if you home passes initial testing.
- Repairs may identify other deficiencies due to water migration.
- If trees and other plantings must be removed, the Authority will not replace them.

### Benefits to the Community at Large

- The pilot program will help the Authority to develop a program to address the issue of groundwater infiltration.
- Once implemented, this program may help us avoid large capital expenses in unnecessarily treating fresh water.
- Possibly avoid "Tap Bans", EPA Enforcement Actions
- Help to keep sewer fees low for all residents of the service area.
- Protect the environment.



### Next Steps

- Obtain participation from the majority of the 83 property owners in the Friar Lane Sewershed.
- Property owners sign Right of Entry Agreements with the Authority
- Test and inspect all participating properties.
- Work with property owners to correct building sewer deficiencies
- Document post-rehabilitation flow results
- Replicate the process throughout our service area

## Conclusion

- Wet weather flows need to be reduced by correcting defects in private building sewers
- We need the cooperation of the residents in the Friar Lane sewershed in this Pilot Project
- This project will be valuable to you as homeowners
- The results of this program will benefit the Authority and all it's customers

## Questions?

- Please reply no later than July 8th