

Reducing Sewer Related Claims From Homeowners

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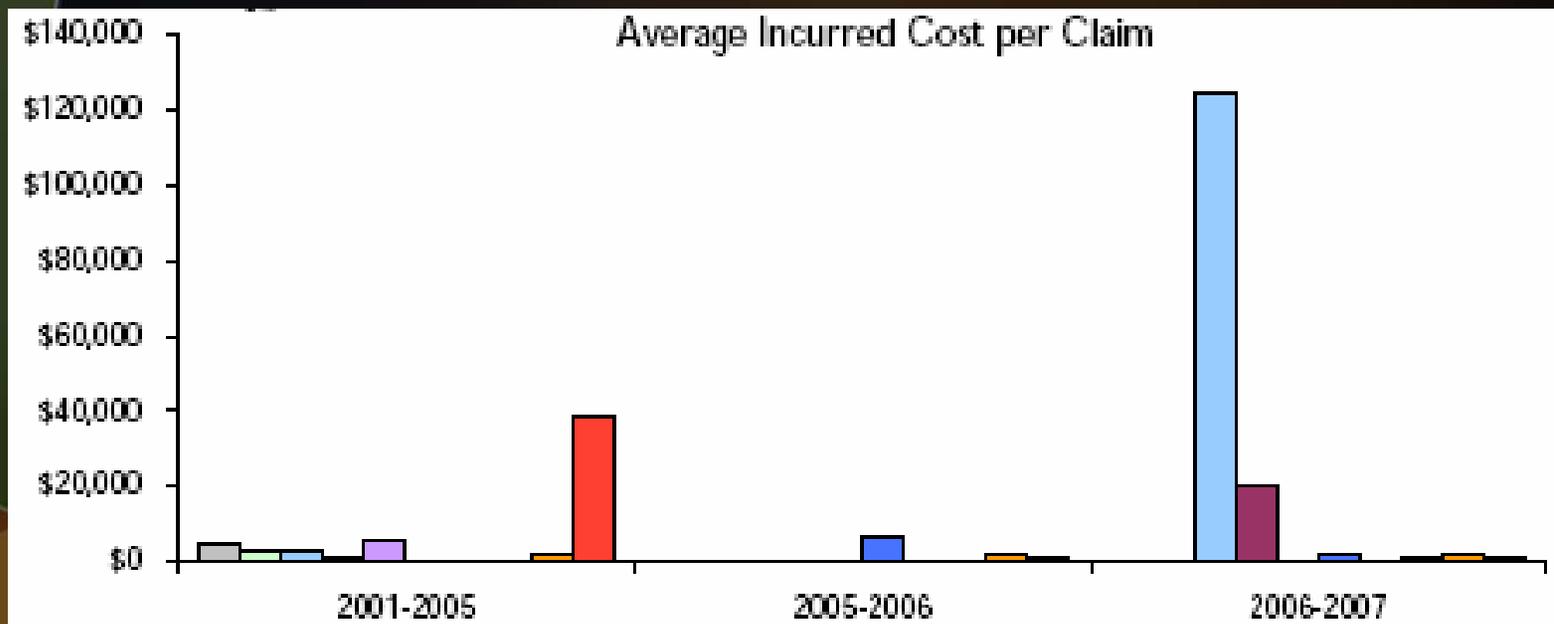
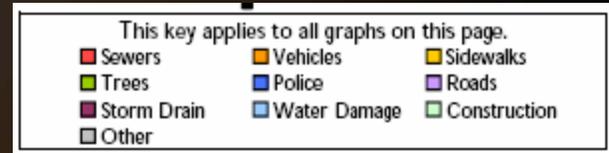
Hillsborough

- Incorporated 1910
- All residential (no commercial)
- 3,800 custom homes
- Most growth occurred 1940's-1970's
- Operate sewer collection system with 94 miles of mains

Claims

- Late 1990's steady increase in severity and frequency of claims for damage caused by sanitary sewer overflows in homes
- Worst claim exceeded \$400,000

Claim Severity

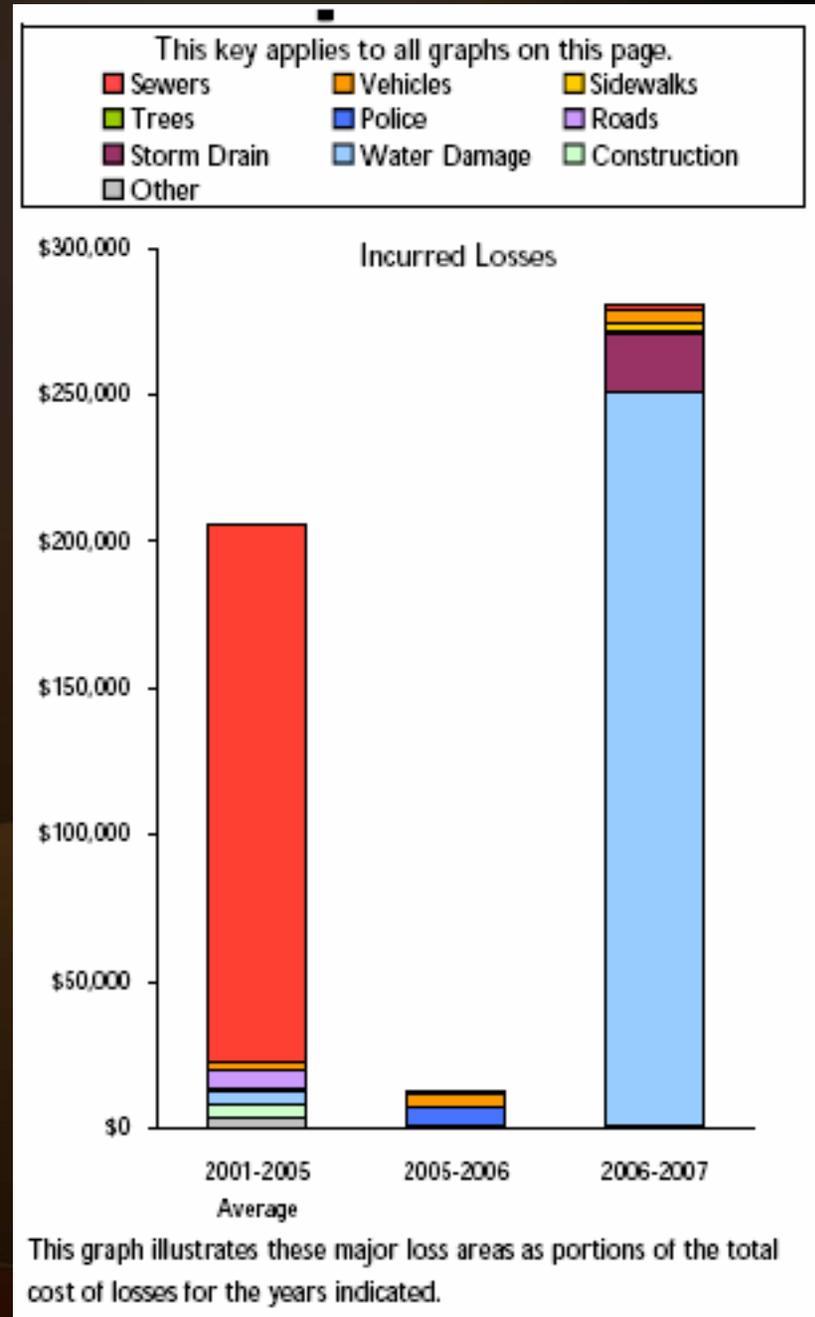


This graph illustrates the average cost of a claim in each major loss area for the years indicated.

All data is valued as of June 2007.
Individual losses are limited to \$250,000.

Claims

- Recognized sewer risks
- Address risk
 - At Mains
 - At Residences



First Steps

- 2000 Amended municipal code to require working backwater devices at time of sale
 - 80 houses/year
- Investment in Capital Improvements
 - \$20,000,000 since 1996 (4 bonds)
 - SSO prevention (not claim reduction)

Reimbursement Program

- 2003 Council funded 50% reimbursement for backwater valve installation
 - \$500 any residence
 - \$1,000 for "higher risk" addresses
 - Installations verified through building permit process
 - Recorded agreement
 - Administered in-house
 - 509 reimbursements made over 4 years

Reimbursement Program

- Most residents were replacing whole laterals not just backwater devices
 - Root intrusion common in laterals
 - Some saw value in eliminating annual maintenance
- 2nd units evaluated

Outreach

- Aggressive outreach about reimbursement program and need for backwater devices
 - Water bill inserts
 - Newsletters
 - Direct mail to higher risk properties

Joining Public Works

- Are we doing everything to reduce claims?
 - Maintenance Practices
 - Why do we have backups?
 - What are we doing?
 - How effective are we?
 - Focus of CIP
 - Cleaning, video and lining projects to address problem areas.

Maintenance Equipment



- Manual Rodder
- Automatic Rodder
- Vacuum/Jet
- Supervisor's pickup (not pictured)

Public Works Changes

- **Maintenance Productivity**
 - Goal: Keep 3 cleaning vehicles operating daily
 - Added automatic rodding machine
 - 1 additional staff

Root Foaming

- Crews identified root intrusion major cause of backups
- Contractor injects herbicide foam in pipe
- Pipe should be maintenance free for 2 years
- \$1.30/ft



Root Foaming

Expanded Program

- 2000 approximately 5,000 ft
- 2007 approximately 29,000 ft
- 11% of system chemically controlled
- Changing philosophy: Foam newly lined pipes where roots may originate from laterals

Code Change

- In 2005, amended code to require backwater protection in January, 2007
 - Requires 2 elements of backwater protection such as cleanout, backwater device, ejector pump
 - Must be maintained by resident
 - Residents may file exemption

More Outreach

- Inspect all properties (1,800+ inspections requested by residents)
- 1,100 exemptions on file
- Still conducting inspections (400+ outstanding requests)
- Annual mailings coordinated with Sewer Smart month

Effectiveness

- Acquired ICOMM software to quantify performance
 - Work orders automatically generated
 - Laptops in vehicles downloaded daily
 - Logs crew productivity
 - History of segments building
 - Sets schedules
 - Note problems and defects

What we are doing

Frequency (months)	Main Segments	Segment Length (lineal feet)	Percent of Maintenance	Lineal Feet/Year
1 Month	156	67,892	26.3%	814,701
3 Month	16	4,397	1.7%	17,587
4 Month	40	9,131	3.5%	27,392
6 Month	392	110,547	42.8%	221,094
9 Month	163	42,724	16.6%	56,951
12 Month	107	23,101	9.0%	23,101
18 Month	1	202	0.1%	134
Totals	875	257,993		1,160,960

Average annual lineal footage per vehicle (3) 386,987

Average per working day (247) / vehicle 1,567

Total miles maintained by hand rodding, mechanical rodding or jetting 48.86

Percentage of sanitary sewer system 52.10%

What we are doing

Foam Treatment	Line Segments	Segment Lengths (lineal feet)
Even Years	121	29628
Odd Years	78	24212
Totals	199	53840

Total miles maintained by foaming 10.2
Percentage of sanitary sewer system* 10.87%

** A problem with line ID's prevents counting of some segments. Estimate approximately 2 more miles foamed.*

What we are not doing

- 34.73 miles unknown condition (37% of system)
 - 2006 Contract with City of Burlingame for video inspection (30,000-50,000 ft/yr)
 - Helps comply with Region Water Quality Control Board's SSO Plan requirements
 - Verifies effectiveness of maintenance
 - Inspecting lines without known problems and believed to be good
 - \$1.30/ft

Net Effect

- Backups into homes are very rare events
- Emphasis on backwater devices focused residents on replacement of laterals reducing root intrusion
- Transferred liability for absence of backwater protection
- Compliance with RWQCB SSO Plan