Town of Falmouth, Maine

Wastewater System Status and Needs Update

Presented by:
Chris Dwinal, PE

WRIGHT-PIERCE
Engineering a Better Environment

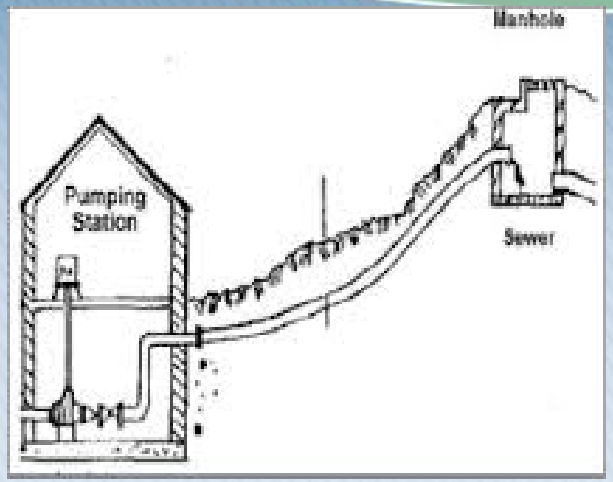
Presentation Overview

- Falmouth's Wastewater Infrastructure
- Recent Studies/Upgrades
- Future Needs
- Impact to Sewer Rates

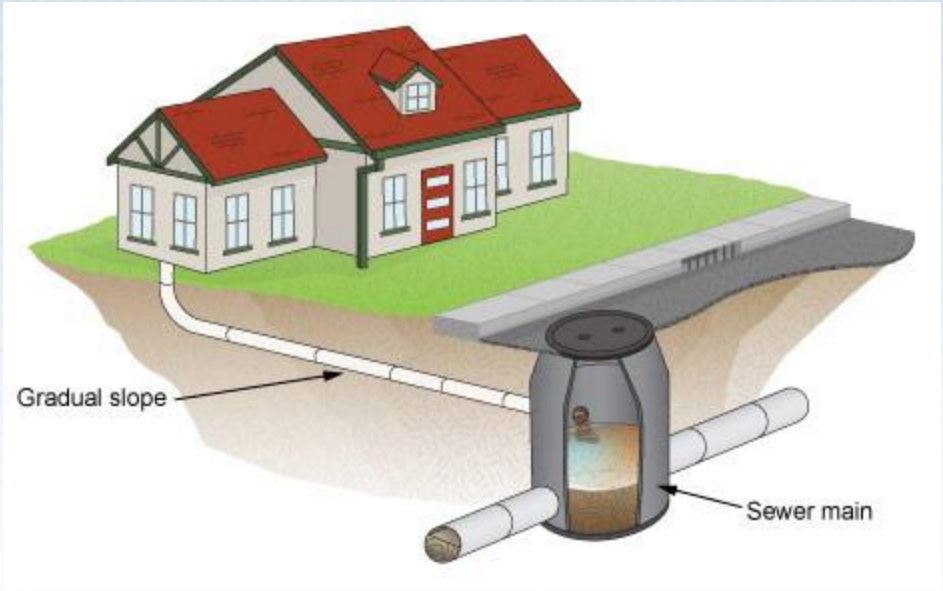
Wastewater Infrastructure

	Falmouth Wastewater Assets, 2013 Replacement Value				
	Plant / Pump Station Equipment	Vehicles / Mobile Equipment	Buildings and Pump Station Structures	Sewer Lines	TOTAL
Original value	$3,490,734	$196,188	$11,357,331	$10,992,316	**$26,036,569**
2013 Replacement	$4,428,779	$297,617	$29,097,292	$36,697,834	**$70,521,522**

- Well maintained system in great condition
  - Strong record of permit compliance
- Consists of
  - Wastewater treatment facility on Clearwater Drive
  - 28 pump stations
  - 41 miles of underground gravity sewers and force mains



Pump Stations and Force Mains



Gravity Sewers

Wastewater Treatment Facility

Wastewater Treatment Facility

Wastewater Treatment Facility

- Original construction in 1971
- Upgrade completed in 2008
- Serves Falmouth and Cumberland

Wastewater Treatment Facility Flows

- Normal day → 1 million gallons treated
- Permitted daily flow → 1.56 million gallons (monthly average)
- Peak day → 4.25 million gallons treated
- Plant has never exceeded monthly average limit

Pump Stations

Pump Stations

- 28 total
- Many different types and sizes
- 100 to 1,800 gallon per minute capacity
- Oldest 1971, newest 2007

Gravity Sewer and Force Mains

- 41 miles total
- 4-inch to 24-inch diameter
- Some dates back to early 1970's
- Different types
  - Asbestos cement
  - Vitrified clay
  - Ductile iron
  - PVC
- Some challenging locations for access and maintenance
- Just like roads, in need of constant repair

Recent Studies/Upgrades/Updates

- Wastewater Treatment Facility
- Pump Stations
- Gravity Sewer and Force Mains

Wastewater Treatment Facility

- 2001 - Facilities Plan
  - Led to 2008 upgrade
- 2003 - Outfall Extension Alternatives
- 2004/2008 - Upgrade Design and Construction
- 2013 - Capacity Evaluation

Pump Stations

- 2009 - Comprehensive Evaluation
- 2010 - Town acquired 5 new pump stations from Falmouth on the Green
- 2012/2013 - Telemetry Upgrade
- 2013/2014 - Mill Creek Pump Station Preliminary Design
- 2014 - Town to acquire ownership of 3 new pump stations from the Woodlands Villas

Gravity Sewers and Force Mains

- 2009 - Capacity Assessment of Select Large Gravity Sewers
- 2013 - Flow Monitoring for Infiltration and Inflow
- 2014 - Mill Creek Pump Station Force Main Study

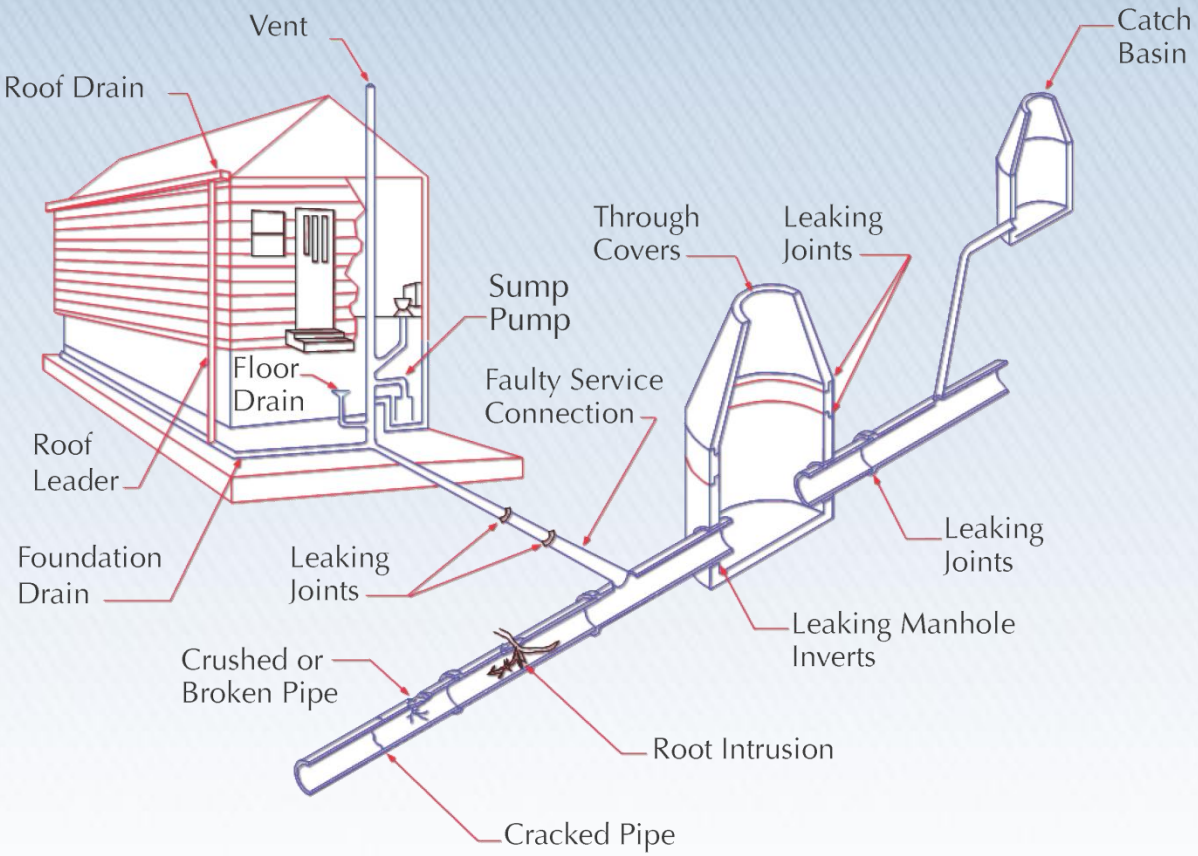
Key Findings - Studies

- 2013 Capacity Evaluation
- 2013 Flow Monitoring for Infiltration and Inflow

2013 Capacity Evaluation

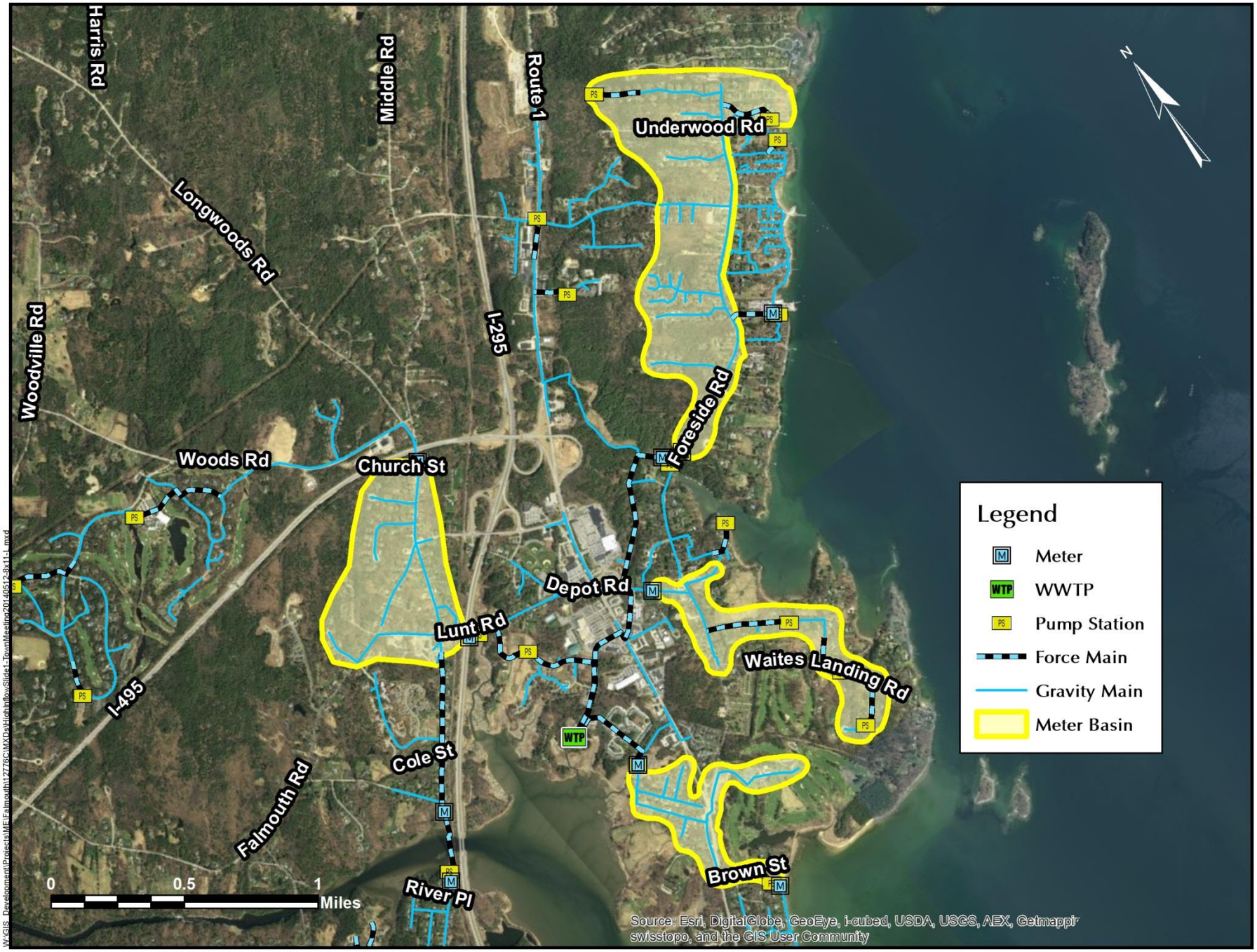
- 925 new homes could be added OR 11 developments like West Falmouth Crossing/TD Bank
- Cumberland owns 250,000 gpd of additional capacity
- Rainfall has large impact on flows
- Removal of infiltration and inflow to reduce wet weather peaks

Infiltration-Inflow Sources



2013 Flow Monitoring for Infiltration and Inflow

- Four areas targeted for add'l investigations
- Smoke testing, dye testing, flow metering
- Additional studies help focus efforts on possible infiltration/inflow removal projects


Harris Rd
Middle Rd
Route 1
Underwood Rd
Longwoods Rd
I-295
Woodville Rd
Foreside Rd
Woods Rd
Church St
Depot Rd
Lunt Rd
Waites Landing Rd
I-495
WTP
Cole St
Falmouth Rd
River Pl
Brown St
N
Legend
Meter
WWTP
Pump Station
Force Main
Gravity Main
Meter Basin
0
0.5
1
Miles
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmappir
swisstopo, and the GIS User Community

Future Needs

- 2014 - Sewer Master Plan for W. Falmouth - $90k to $100k
  - Planning to accommodate expected growth and Comprehensive Plan Vision
- 2014-2016 Mill Creek Pump Station and Force Main Upgrade - $6.1 million
  - Old, undersized pump station
  - Upgrade will serve Falmouth and Cumberland's growth
  - Proposed Cumberland share – 44.5%
- Ongoing - Infiltration and inflow study and removal
  - Reduces peak flows and allows for growth

Future Needs, cont'd

- Ongoing - Collection System Cleaning, TV Inspection, and Asset Management
  - Schedule in CIP
- Pump Station Improvements
  - Per 2009 plan
  - Scheduled in CIP
- Phase 2 WWTF Upgrade – Timeline TBD
  - Possible 3rd aeration basin
  - Possible outfall extension

Impact to Sewer Rates

- Current residential rate
  - $447/year
  - Below the state average of $482/year
  - Lower than all bordering communities

- Projected Future Rates
  - 7% to 8% increase to fund Mill Creek pump station and force main upgrade work
  - Puts rate at state average

Questions / Discussions