

City of Taunton, MA CSO Abatement Past, Present, and Future

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Taunton, MA

Population: 58,000

Sewered: 22,000

Sewer System:

- **Oldest Pipes 1870s**
- **177 Miles of Sewers (16,000 lf brick)**
- **39 Pump Stations**
- **1 CSO**
- **8.4 MGD WWTF (Taunton River)**



Approximate Year of Construction

- Unknown
- 1895 - 1920
- 1920 - 1945
- 1945 - 1970
- 1970 - 1995
- 1995 - 2008

Norton

Raynham

Middleborough

Rehoboth

Lakeville

Dighton

WWTF

The Problem(s)

Combined Sewer Overflows

1. **Excessive I/I – flows range from 4 MGD to 22 MGD**

**2005 – 11 overflows totaling over 15 MG,
triggered by as little as 0.5” of rainfall**

2. **Main Lift Pump Station - Insufficient and Unreliable Pumping**
3. **WWTF Capacity (8.4 MGD)**

The Driver



The Driver

Government Orders

- **2005 – MassDEP Administrative Consent Order**
 - CWMP, O&M \$\$\$, Remove cost-effective I/I
- **2008 – USEPA Order for Compliance**
 - Separate sewer, Eliminate the CSO
- **NPDES Permit (2006-2015)**
 - 8.4 MGD average daily flow
 - Total Nitrogen Removal

The Solution - Past

First Solution – Remove the I/I

- **Find the Problems**
- **Investigation**
 - Previous Reports
 - Clean and CCTV entire sewer system
 - Manholes – locate and classify all combined manholes
 - Dual Invert, Drain Pipe, Underdrain
 - Map the System (GIS)

Sometimes you don't have to find the problems...

Sometimes The Problems Find You

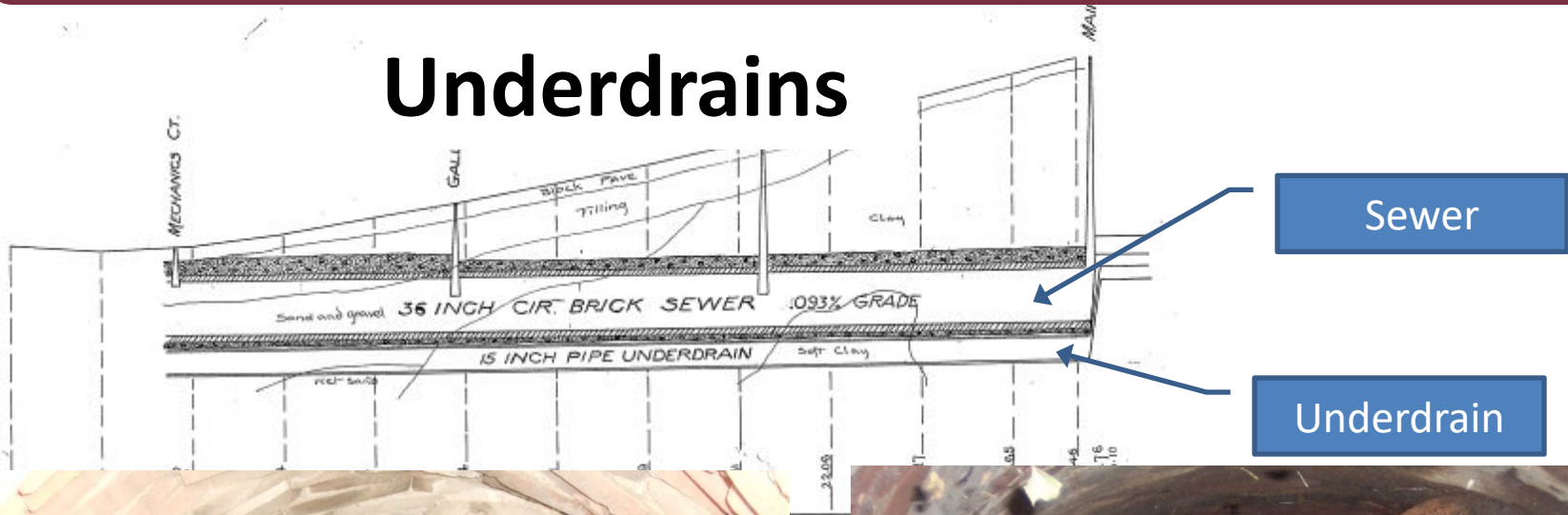


And Sometimes You Don't Have To Look too Hard



The Solution - Past

Underdrains





The Solution - Past

I/I Removal

- **Starting in 2007, Annual I/I Removal Projects**
- **To Date:**
 - **CIPP Lined/Replaced 35+ miles of sewer**
 - **Rehabbed/Replaced over 800 sewer manholes**
 - **Removed 50 catch basins from sewer system**
 - **125 Combined Manholes Separated**
 - **\$70 Million spent (thank you CWSRF!)**
 - **5-6 Million gallons of I/I removed (1 year storm)**

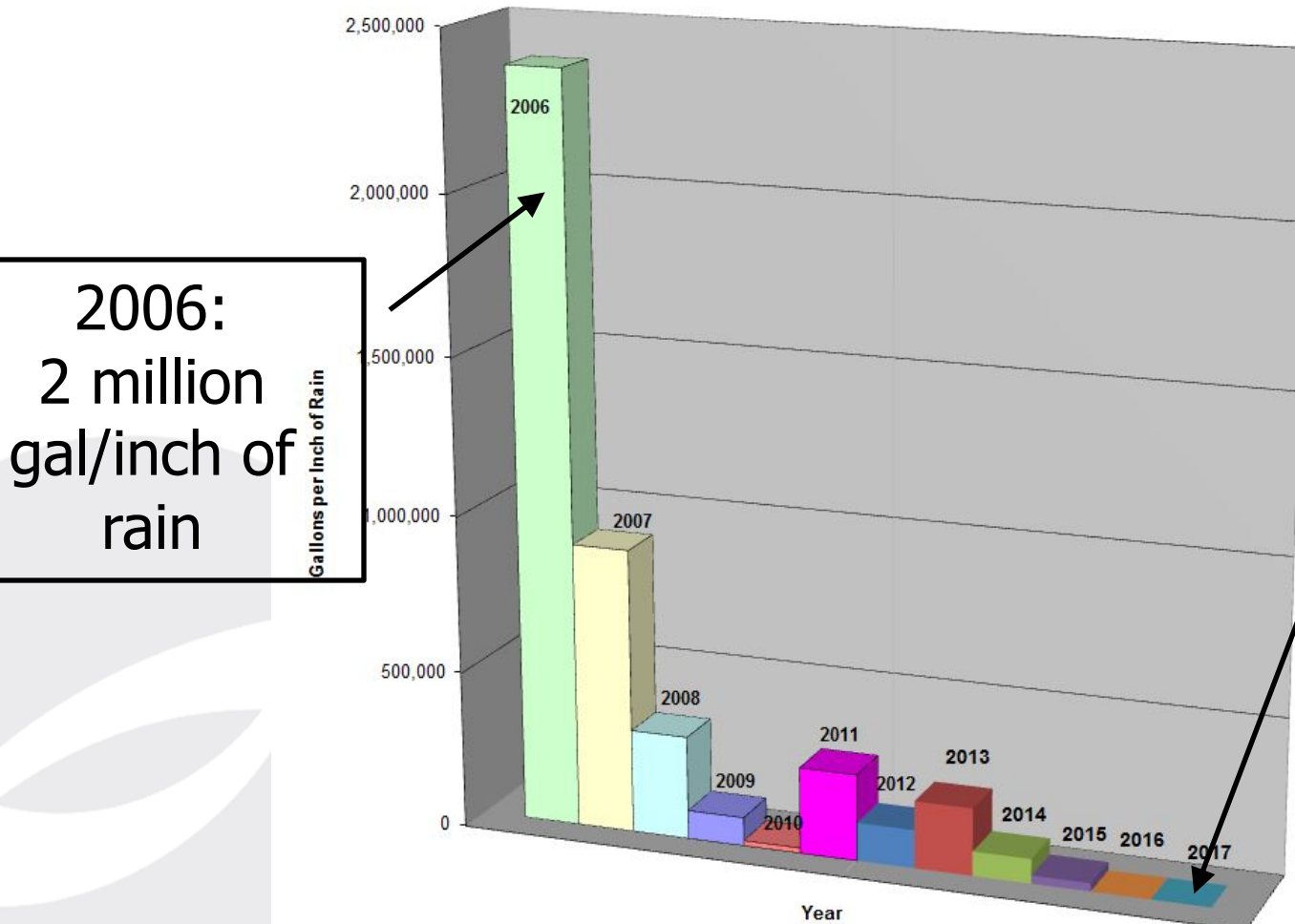
The Solution - Past



The Solution - Past



Combined Sewer Overflow Reduction



2006:
2 million
gal/inch of
rain

2017:
<10,000
gal/inch of
rain

The Solution - Present

Main Lift Pumping Station

- I/I Removal not done, but it only goes so far
- Existing Main Lift Pump Station dates to 1950
- Current capacity = 20 MGD
- Overflows happen when Main Lift Station is overwhelmed

Main Lift Pump Station



The Solution - Present

Main Lift Pumping Station

- **Construction begins late 2018/early 2019**
- **Mechanical Upgrade - Improve Reliability**
- **Pumping Capacity will increase to 25 MGD**
- **Old Station will be retrofit – peak flows**
- **Overflows happen when station is overwhelmed, so:**

MORE PUMP CAPACITY = LESS OVERFLOWS

The Solution - Present



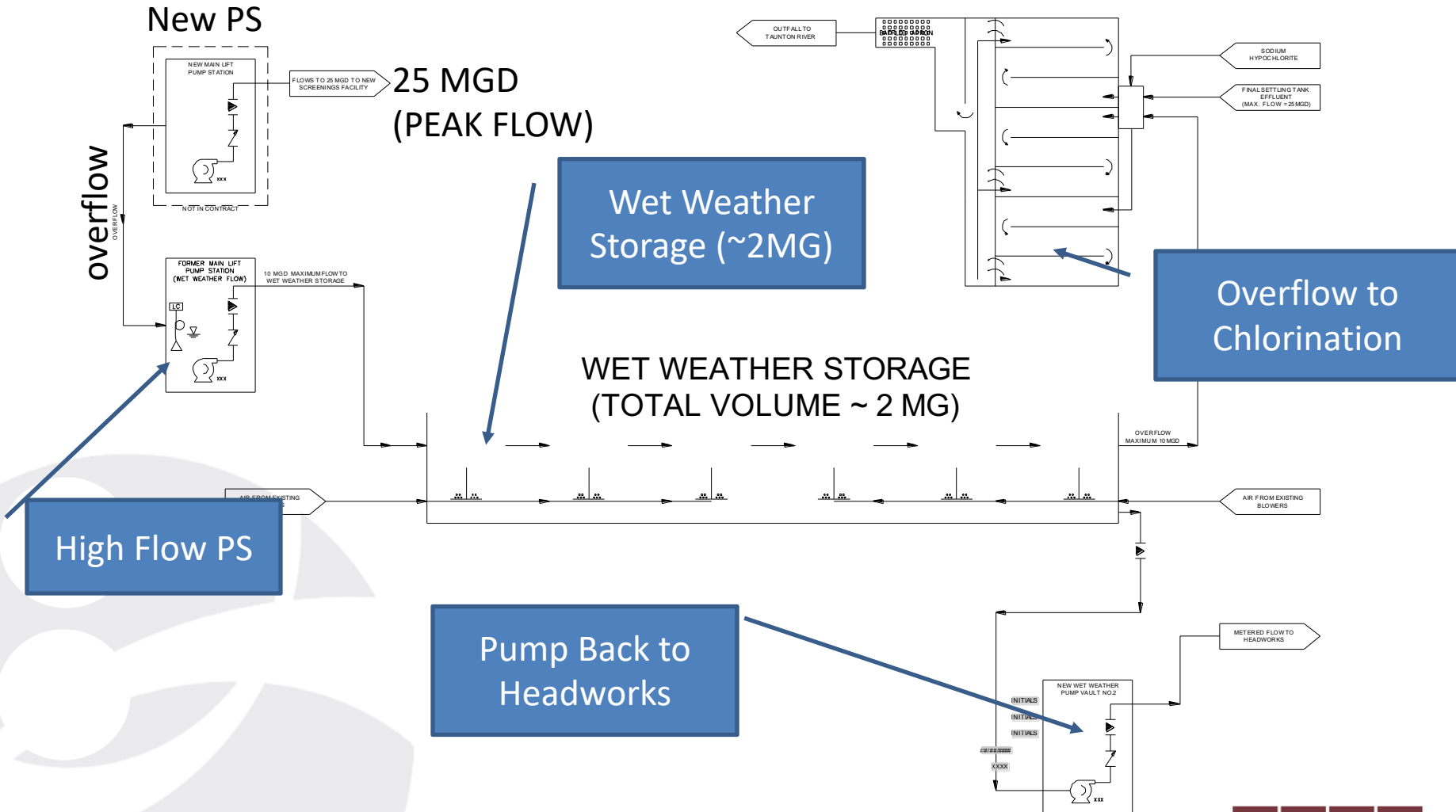
The Solution - Future

Where is the Flow Going to Go?

WWTF Being Upgraded for multiple reasons:

- Total Nitrogen Removal – NPDES Permit
- Expansion of treatment capacity for higher peak and average flows (Wet weather storage)
- New solids handling scheme
- Repair/replace old and outdated equipment, structures, electrical, etc.

The Solution - Future



The Solution - Future

Where is the Flow Going to Go?

NPDES Permit:	8.4 MGD
Current Average Daily Flow:	7.4 MGD
Commitments to other Towns:	<u>1.0 MGD</u>
Total Committed Flow:	8.4 MGD
Future Design Flow (2037):	10.0 MGD

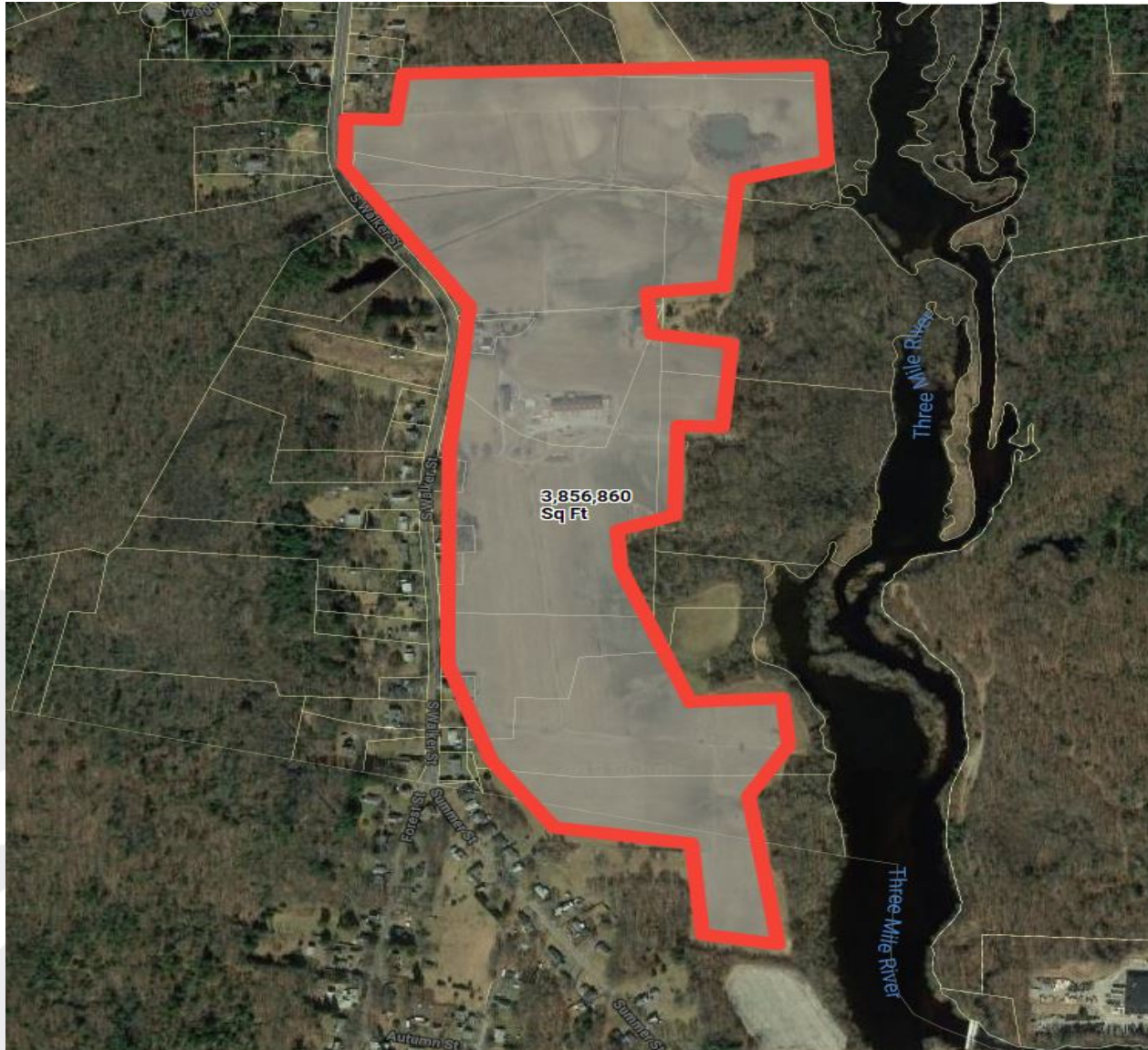
The Future

Where is the Flow Going to Go?

Exploring Options:

- **Off-Site Effluent Disposal Sites**
 - Open Sand Beds
 - Subsurface Infiltration Chambers
- **Water Reuse**
 - Tree Farm (Poplar Trees)

The Future



Conclusion

- **Lots of Work Done, Lots Still to Do.**
- **CSO will probably never be “eliminated”**
- **Reduce Frequency and Size of CSO Events**

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Questions?

