PUBLIC SEWER SERVICE, CAPACITY MANAGEMENT & MUNICIPAL PLANNING

Our shared role in protecting local water resources

Goals for this presentation:

- Water Environment Protection?
- Clean Water - What is it worth?
- Legacy Planning Issues
- Aging Infrastructure Issues
- System Status Report – Constrained Assets
- Planning Opportunities and working together!

Water Environment Protection – What Is That?

- **What we do:**

Water Environment Protection – What Is That?

- **What we do:**

Water Environment Protection – actually we make dirty water clean!

Performance indicators for WEP

- Wastewater Conveyed and Treated: 29 billion gallons
- % Compliance of SPDES permits (all six plants): >99%

- Number of Permitted Industries: 69
- Number of Industrial User Inspections: 100
- Number of Industrial User Permits Issued: 19

- Number of Samples Collected: 13,148
- Number of Analyses performed: 94,399

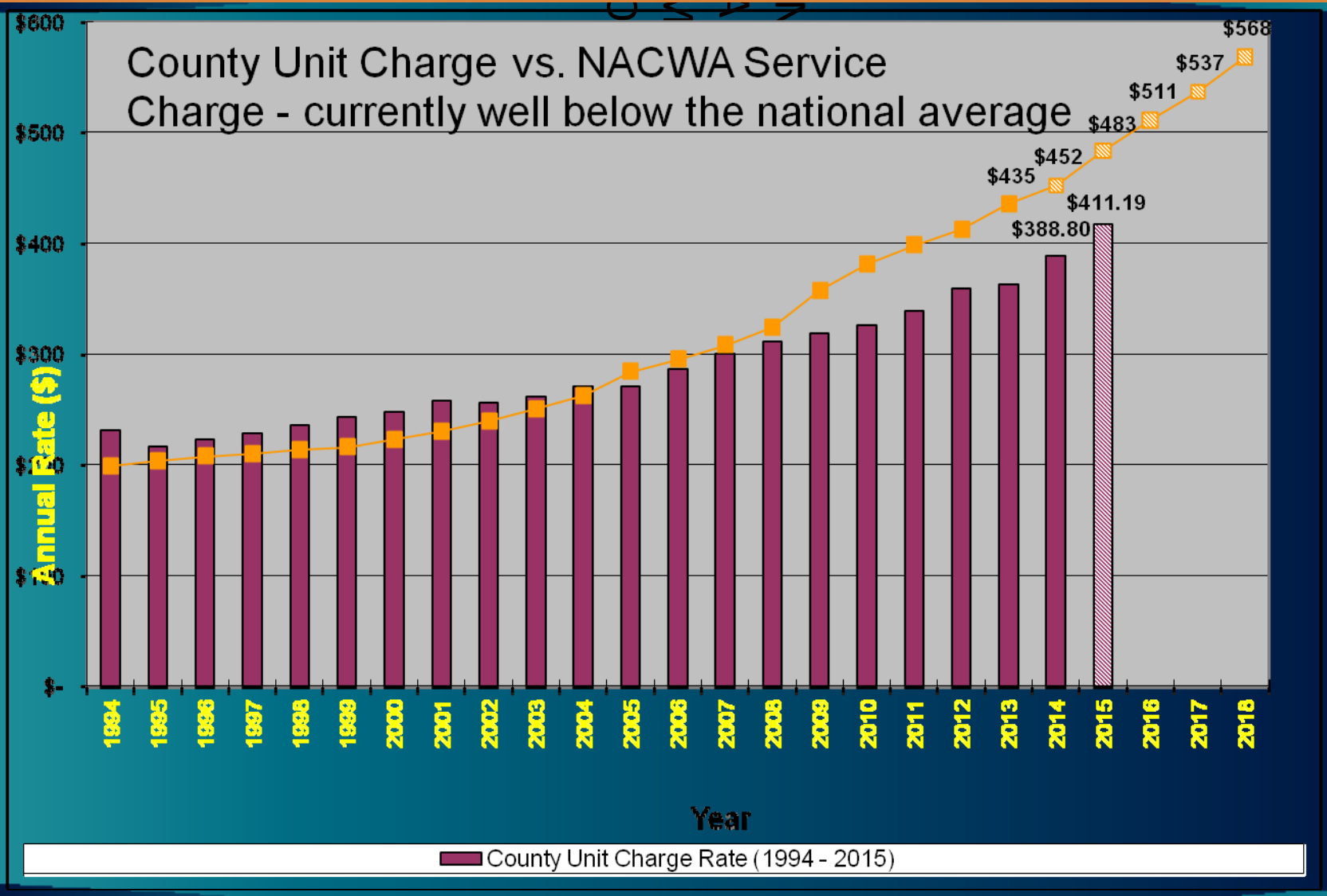
Clean Water – What Is It Worth?

- **Clean Water is vital for life! Human life, plant life, and animal life. Your sewer system protects life.**
- **Clean Water is vital for our economy: farming, industry, and commerce.**
- **Clean Water adds to our property value, to our recreational opportunity, and to the quality of our life.**

IMAGE BY PETER PARKS

Sea water with mixed zooplankton and needle eye (20x)

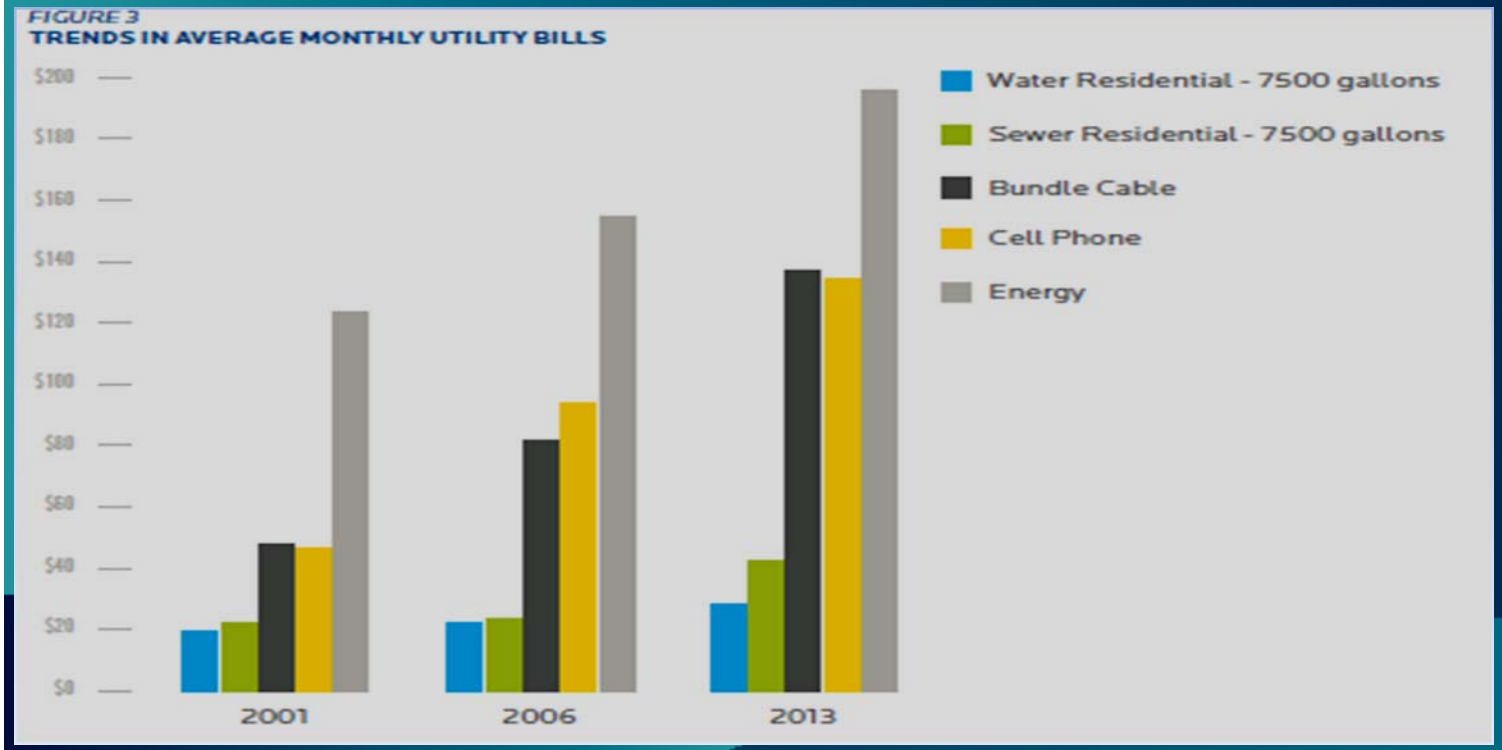
Clean Water – What Is It Worth?- and WEP Sewer Unit Charges



What is Clean Water Worth - and WEP Sewer Unit Charges

We are the County's Clean Water Utility – and *not a general fund expense.* WEP's 'utility costs' are **$34.27 per month**. Is clean water worth more than a cell phone, cable, or internet? WEP's monthly charge compares favorably to the gas bill, electric bill, cell phone or cable TV. **WEP's fee is well below national averages.**

Utility graph national data from http://bv.com/docs/management-consulting-brochures/50-largest-cities-brochure-water-wastewater-rate-survey



Save the Rain
www.savetherain.us

What is the County doing to keep our water clean?

- **Save the Rain** projects are dramatically improving local receiving waters including Onondaga Lake and its tributaries.
- WEP owns and operates six wastewater treatment plants. They operate with >99% compliance with all permit parameters.
- WEP operates and maintains over 150 pump stations; some County owned, some municipal.

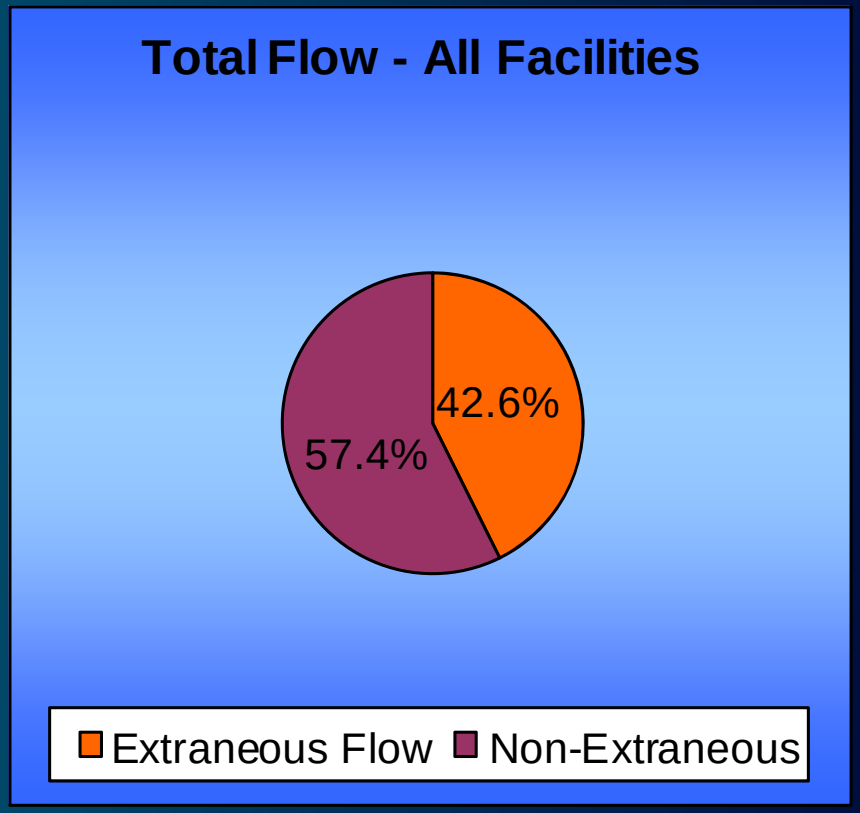
Save The Rain

Save The Rain = Green, Innovative, Sustainable award winning solutions to stormwater and wastewater issues.

Save The Rain

We must continue to ***Save The Rain***. Over **40%** of the water we treated in 2013 was clean rain water or groundwater!

Extraneous flow costs us all more for overtime, chemicals, energy and robs capacity.



What is the County doing to keep our water clean?

Save the Rain

- Award winning Save the Rain projects are dramatically improving local receiving waters including Onondaga Lake and its tributaries.

Pass Arboretum, Syracuse

What is the County doing to keep our water clean?

<u>Clinton Storage Facility 6.5 million gallons of storage</u>

Over three city blocks long and five stories deep - great project came into service on 12/31/2013

Save the Rain
www.savetherain.us

What is the County doing to keep our water clean?

Clinton Storage Facility - not a treatment plant!

What is the County doing to keep our water clean?

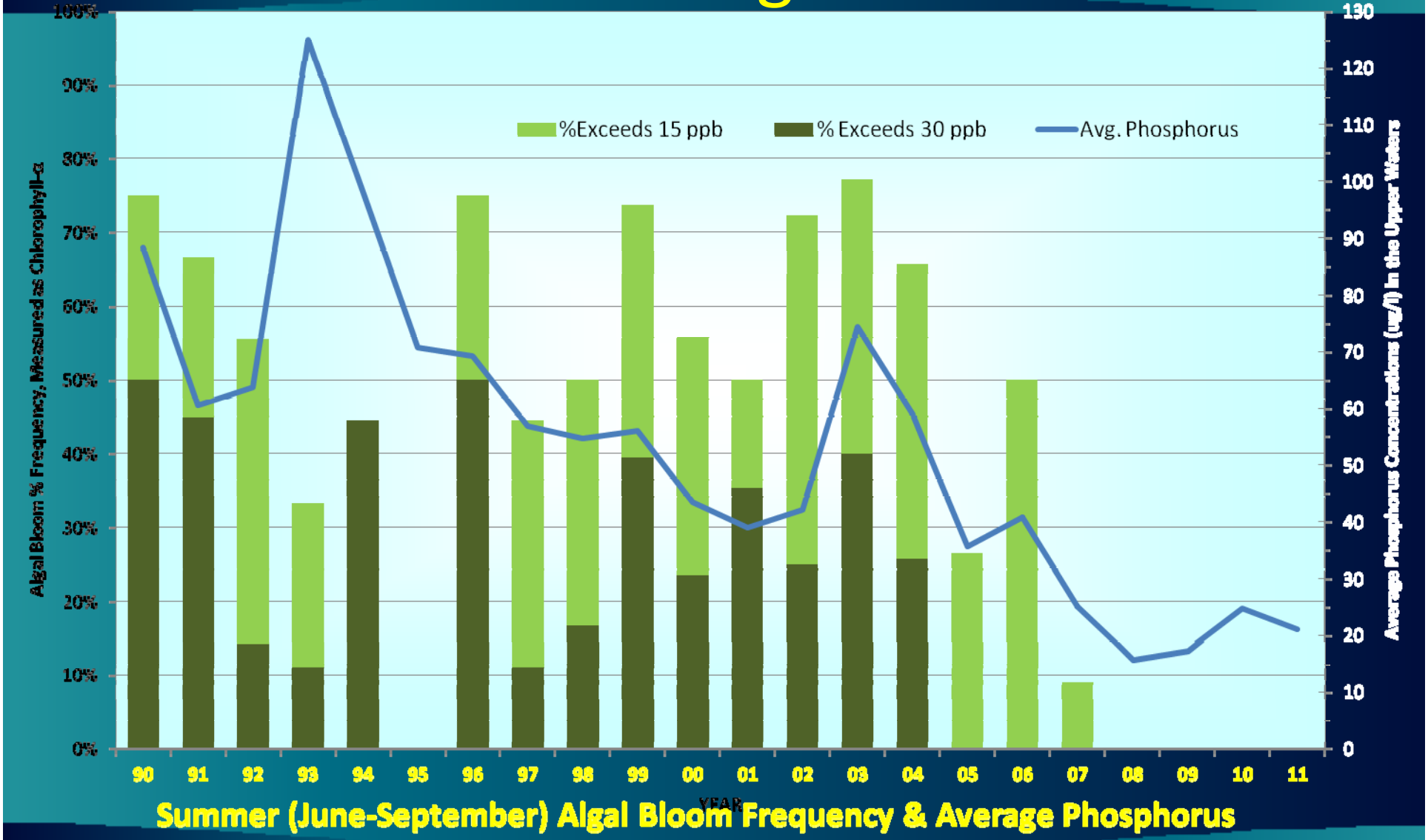
- WEP owns and operates six wastewater treatment plants: Baldwinsville, Meadowbrook, Oak Orchard, Metro, Wetzel and Brewerton.

What is the County doing to keep our water clean?

- WEP operates and maintains over 150 pump stations; some County owned, some municipal.
- We maintain 2100 miles of sewers that we own and through Intermunicipal Agreements with Towns.

Onondaga Lake Before

During…

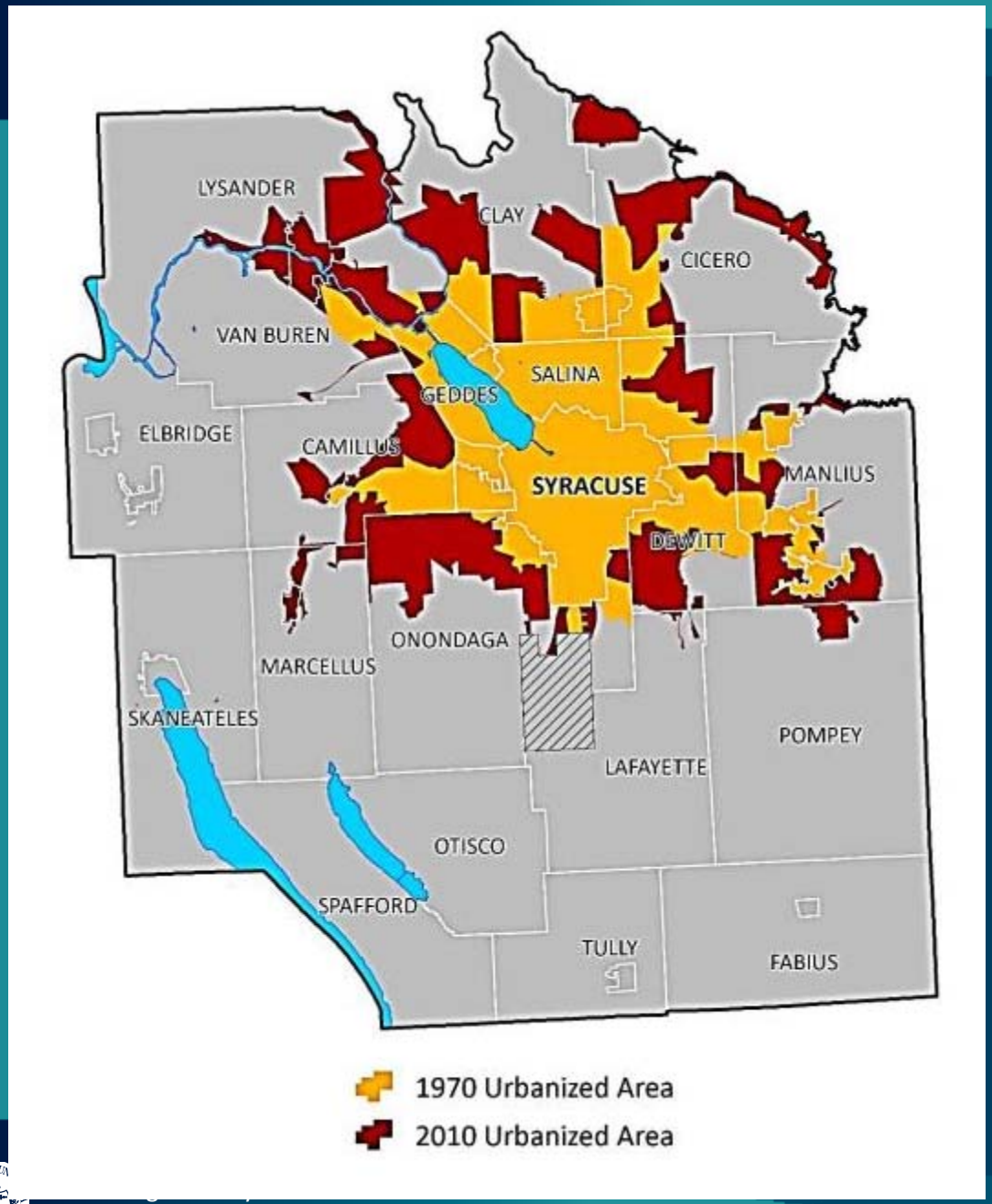


Summer (June-September) Algal Bloom Frequency & Average Phosphorus

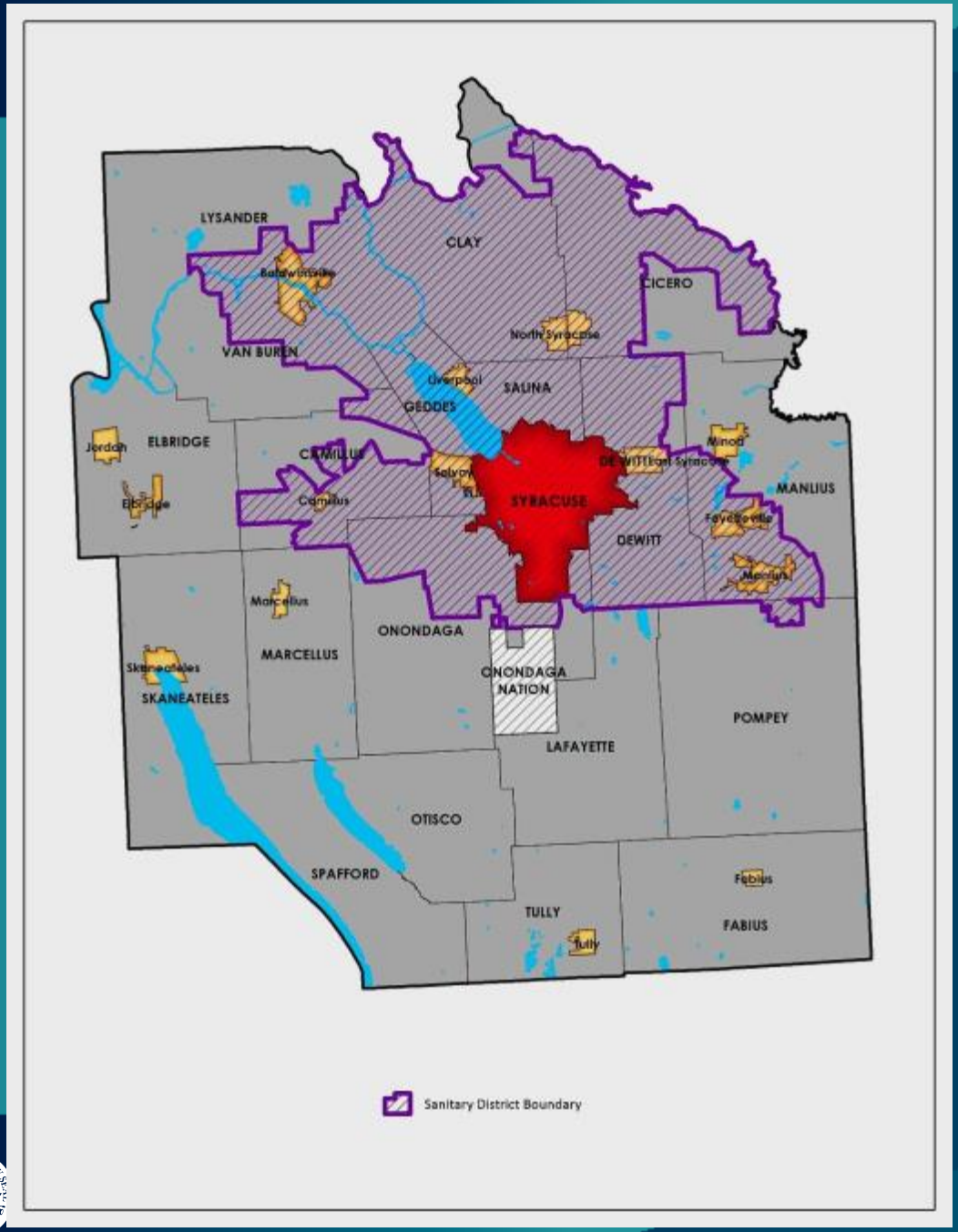
Onondaga Lake After

Let's transition to some legacy planning issues

- If we spread our infrastructure but don't add population, full time jobs, and enlarge the rate base, is that sustainable?
- More infrastructure + same population served = strained budgets and rate increases.
- We are adding new infrastructure, but Towns and Villages are not always fixing the old. Shouldn't we fix it first before we add more?



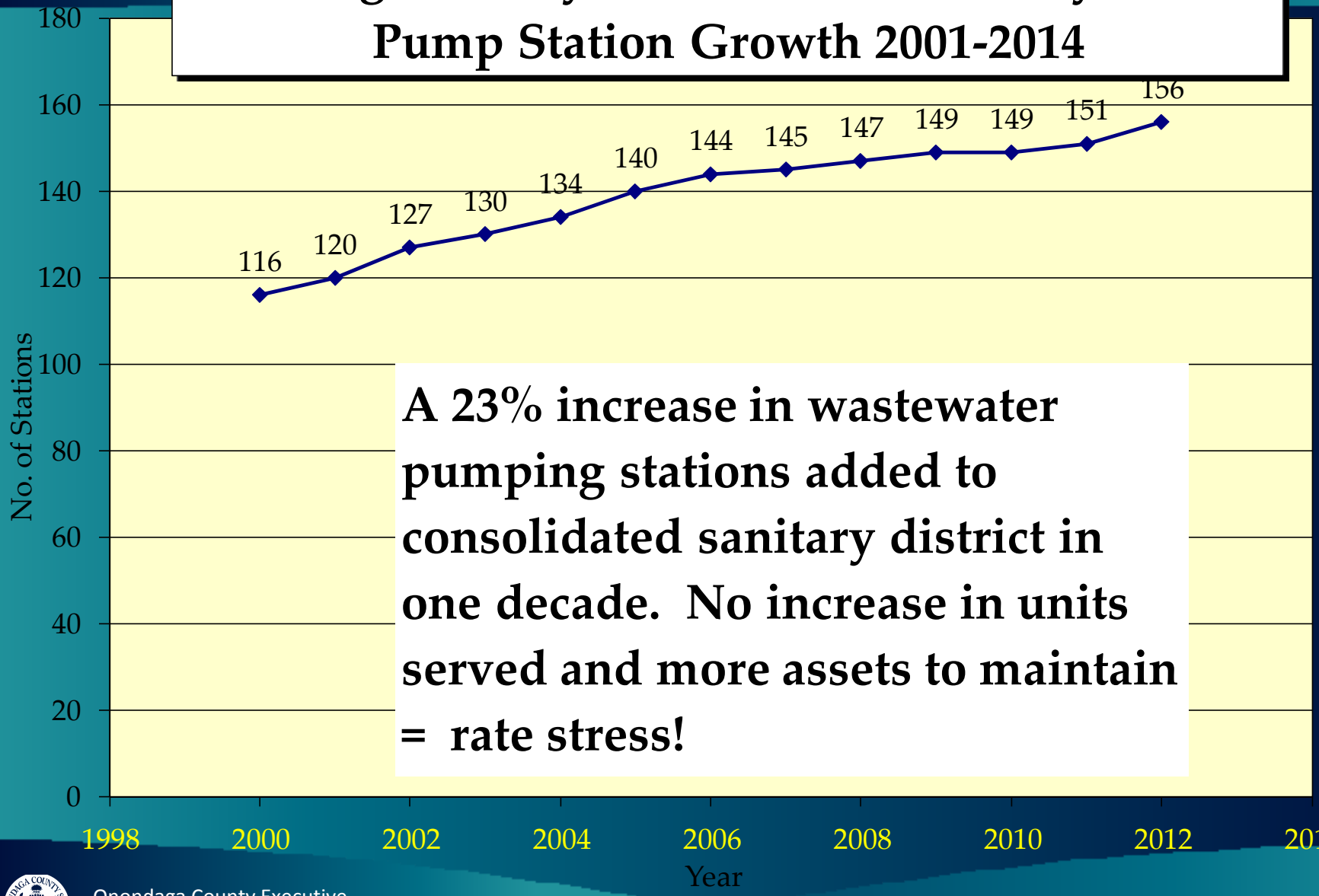
- **The areas in red were all urbanized after 1970.**
- **The population has spread out since 1970; it has not grown.**



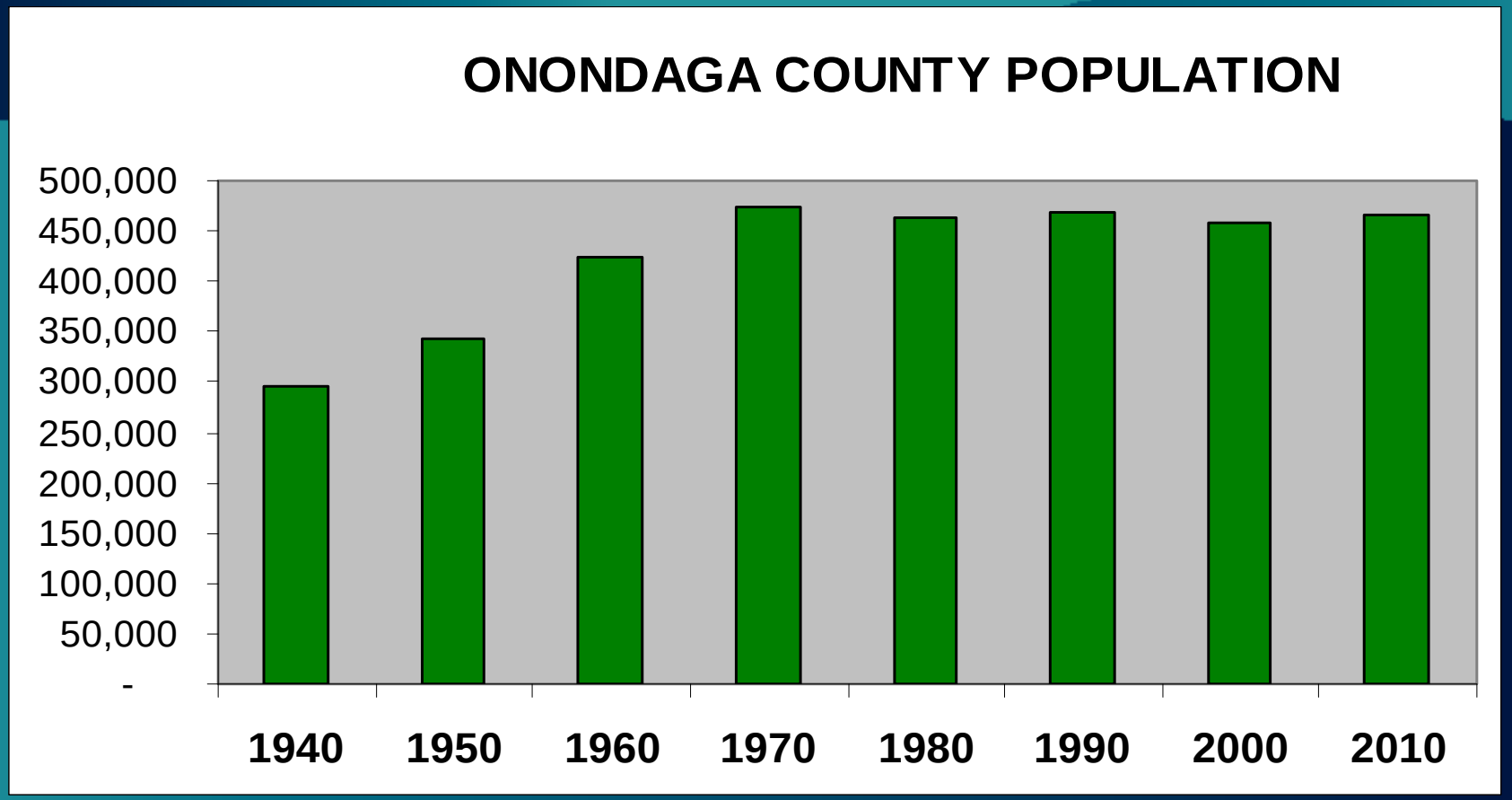
- **The spreading urbanized area matches the changing spread of the combined sanitary district.**

- ***More sewers & more pump stations, same population served.***

Onondaga County Consolidated Sanitary District Pump Station Growth 2001-2014



A 23% increase in wastewater pumping stations added to consolidated sanitary district in one decade. No increase in units served and more assets to maintain = rate stress!

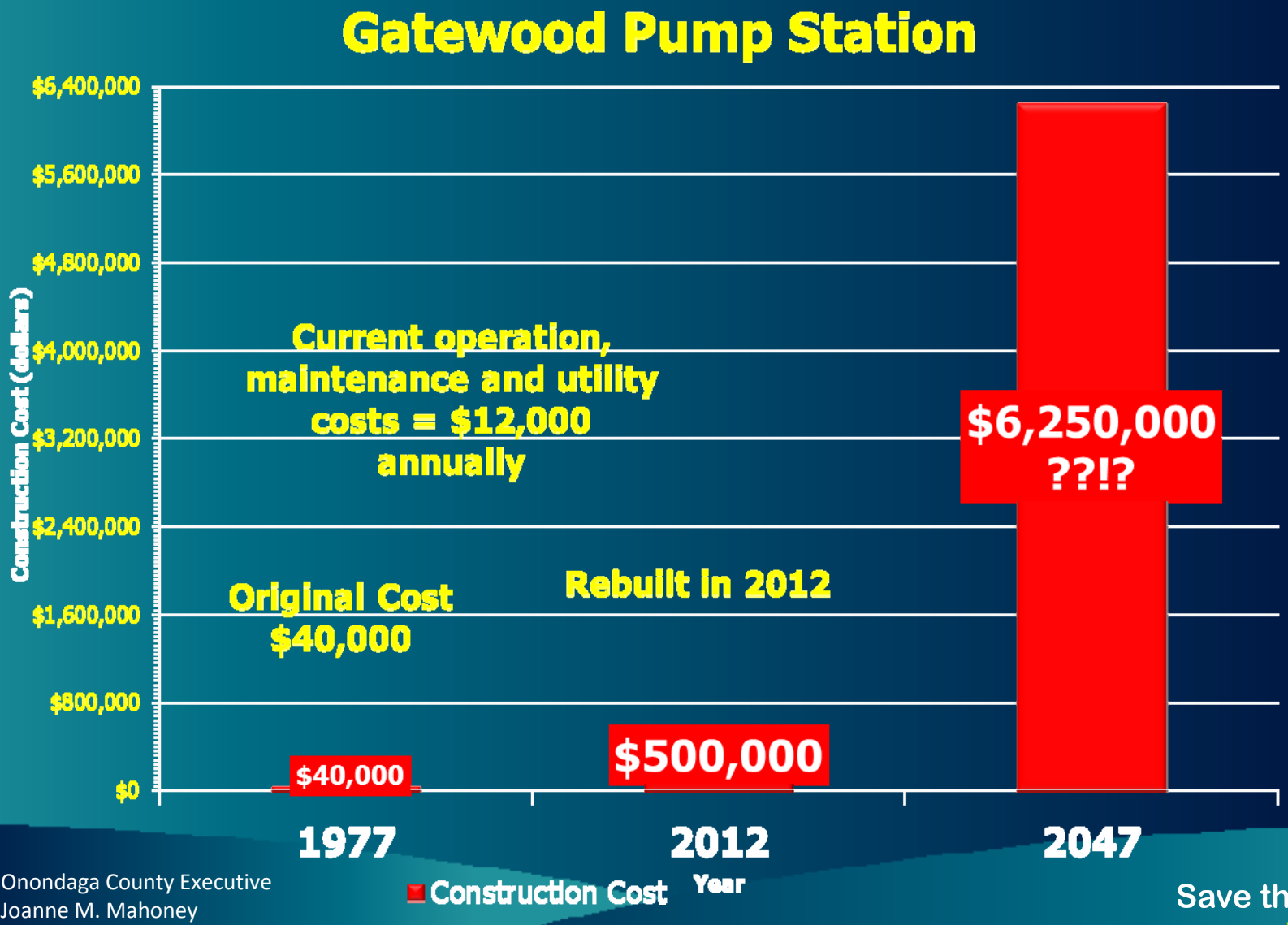


- **Population is flat since 1970. We spread out; we did not grow.**
- **Result: More sewer infrastructure to serve the same population. Rate stress!**

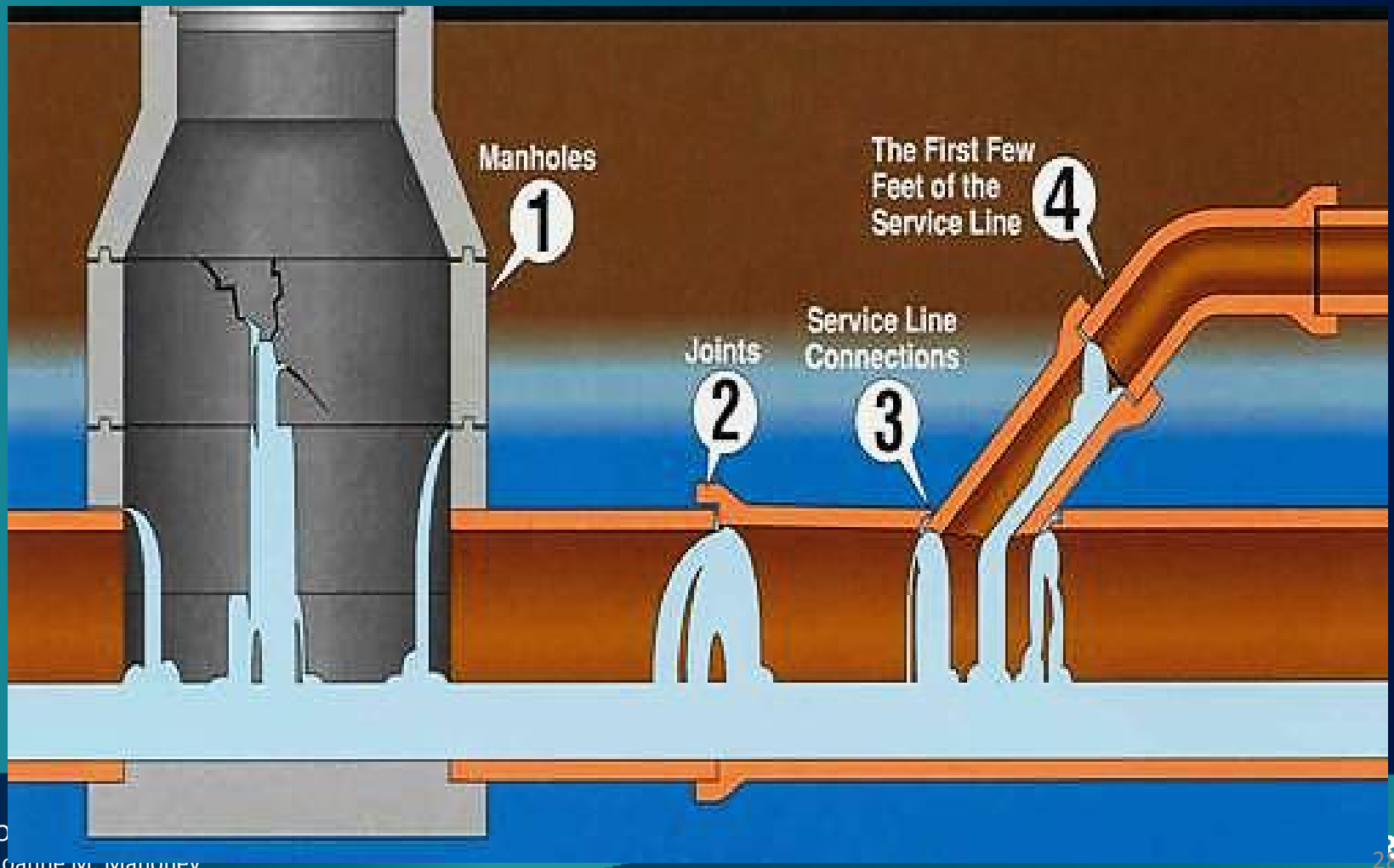
Cost Impacts?

- It costs about $10,000 to $12,000 per year to maintain a ‘small’ pump station.
- The typical pump station lasts about 45 years, versus 75 to 100 for gravity sewers.
- The pumps typically last only a decade or two.
- Whenever the pumps clog or during power outages, emergency service is necessary.

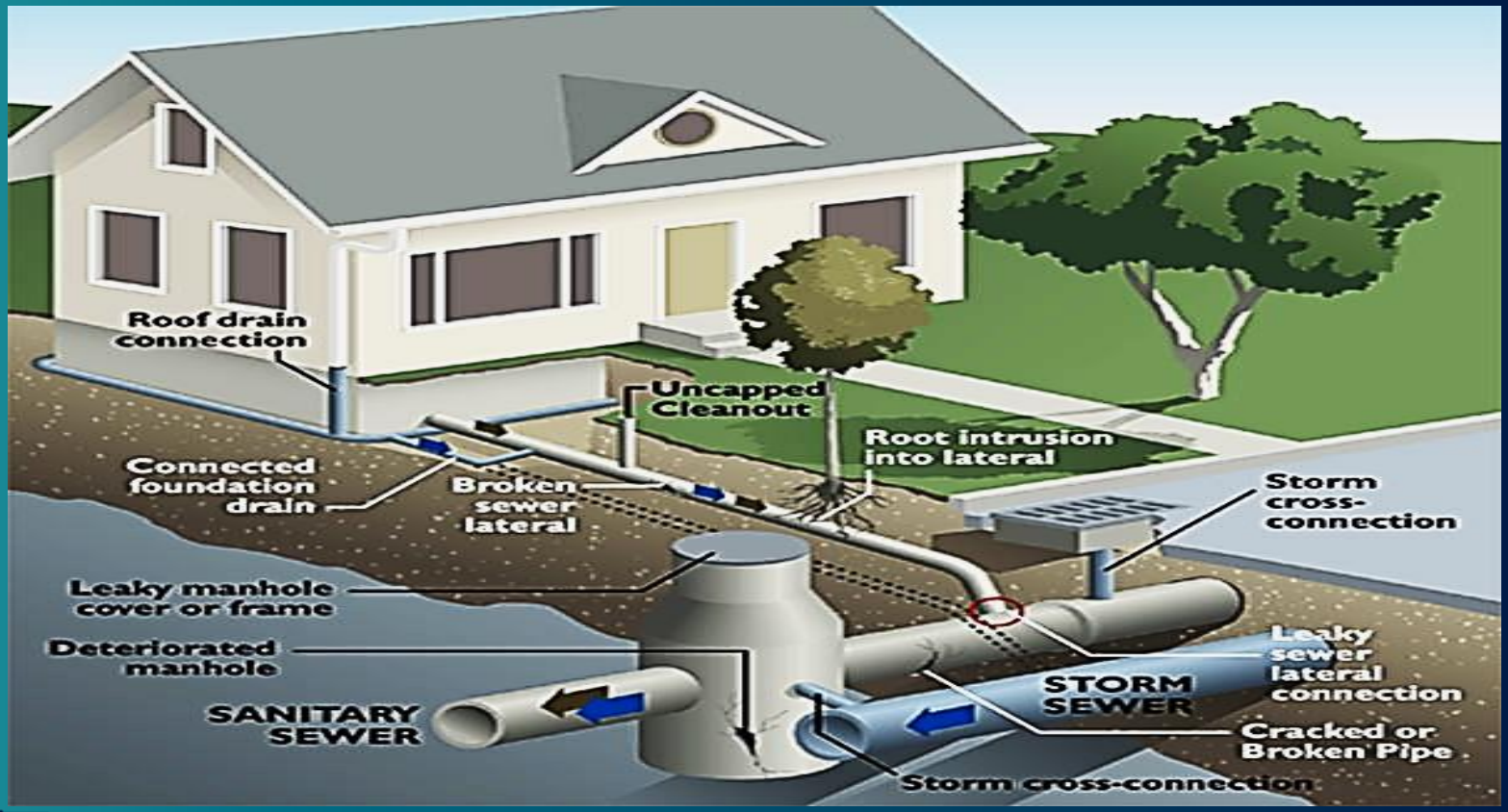
Cost Impacts?



Our fix it first issue: Aging Infrastructure - Prone to Inflow and Infiltration



Sources of Inflow and Infiltration
Extraneous Flow



Issues Created by Inflow/Infiltration

- **Triggers prohibited sanitary sewer overflows; results in fines and penalties**
- **Uses capacity within the sewer system that should be used for economic growth**
- **Results in the unnecessary conveyance and treatment of clean groundwater**

Issues Created by Inflow/Infiltration

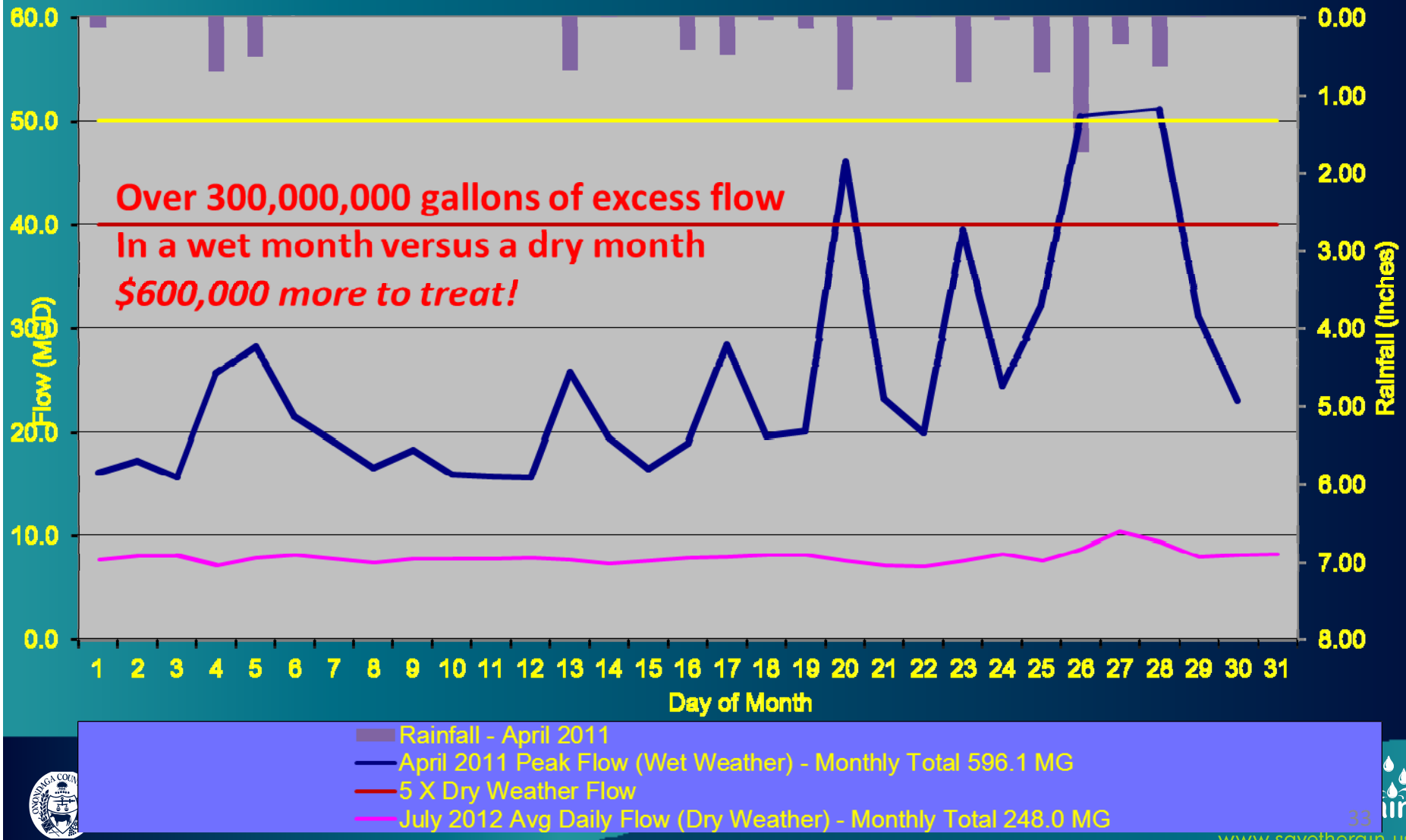
- **Overflows may also back up into basements, causing extensive property damage and potential public health concerns.**

Eroding System Capacity – capacity constraints at Meadowbrook Limestone WWTP due to extraneous flow

- **Extraneous flow due to I&I. In April 2012 the DEC required us to implement flow limits in the Meadowbrook service area. No new development approval with sanitary connections without flow offset.**

Impacts of Inflow/Infiltration

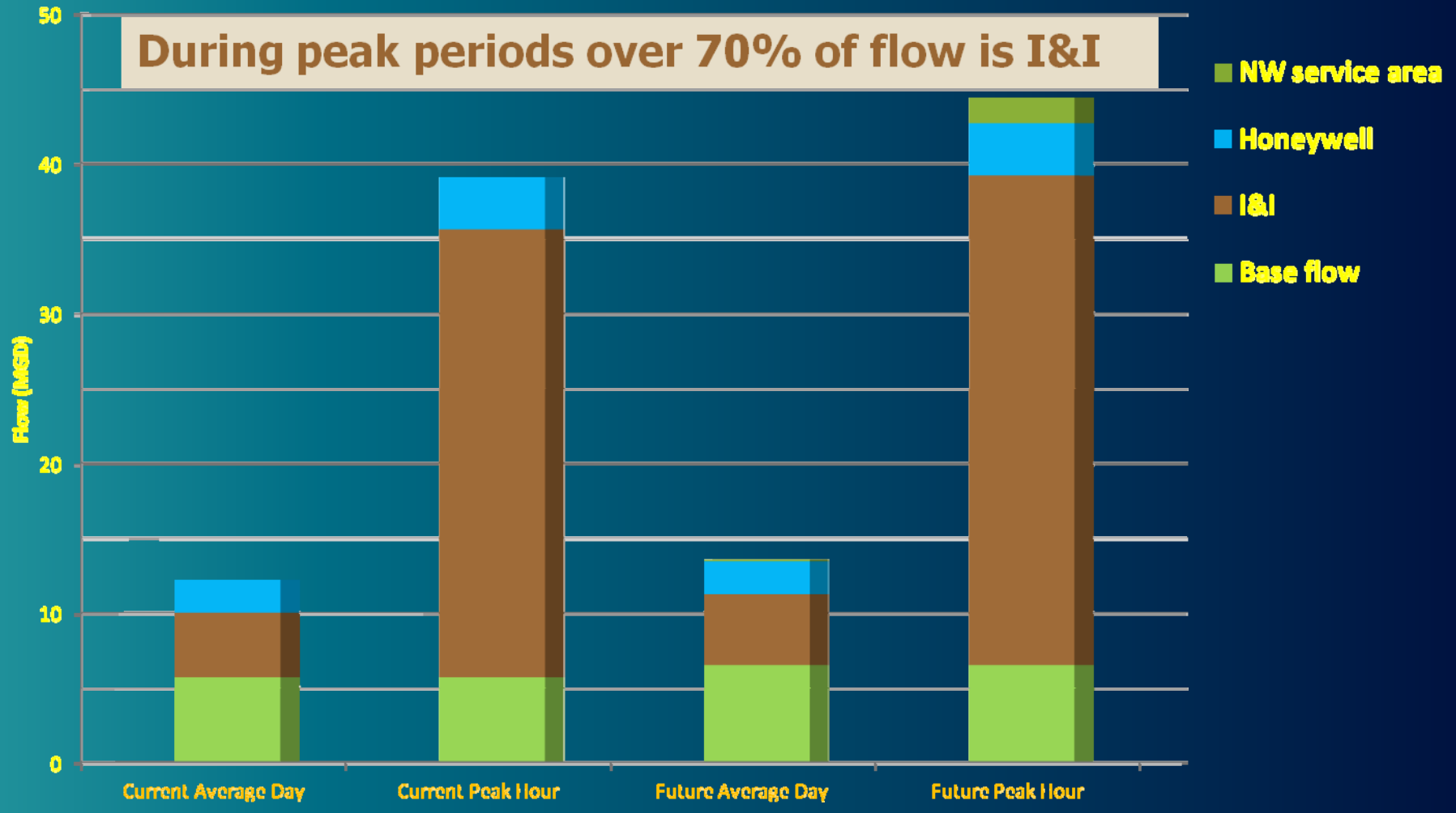
Ley Creek Pump Station Average Daily / Peak Flow



Issues Created by Inflow/Infiltration

Instead of an efficient little car we need the wet weather capacity of a double decker bus to manage extraneous flow. *And sometimes not all the riders can make it on the bus!*

Westside Pump station – Capacity Analysis



Eroding System Capacity – serious capacity constraints caused by extraneous flow

Due to sanitary sewer overflows caused by persistent inflow and infiltration offset related constraints are required for:

- Westside Pump Station service area
- Ley Creek Pumping Station service area
- Davis Road Pumping Station service area
- Liverpool Pumping Station service area

Eroding System Capacity – capacity constraints due to load

- **By DEC regulation the Oak Orchard Treatment Plant very recently reached its 95% limit for treatment capacity of BOD load. No new development approvals with sanitary connections while we study the issue.**

Progress and Success to date to manage Oak Orchard BOD load

- Gaskin Road diversion to Wetzel WWTP (August 2013)
- Clinton's Ditch average load reductions from greater than 5,000 lbs/d to 3,781 lbs/day in past 15 months.
- Grease interceptor enforcement
- Engineering studies to rerate the facility's State SPDES permit limit for BOD.

New Oak Orchard DEC Permit Limit

- Conditional approval to increase BOD limit from 14,200 to 17,100 lbs per day (lbs/d) - 2,900 lbs/d of new capacity.
- A huge **WIN!** (Wetzel WWTP cost about $3,700 per pound of installed BOD capacity) 2,900 lbs/d of new capacity = **$10,700,000**
- DEC approval contingent upon four conditions
  - First two conditions are operational, third is related to facility capital contingencies; all readily feasible.
  - **Fourth condition: requires a plan for future growth and responsible allocation of capacity to avoid future capacity constraints.**

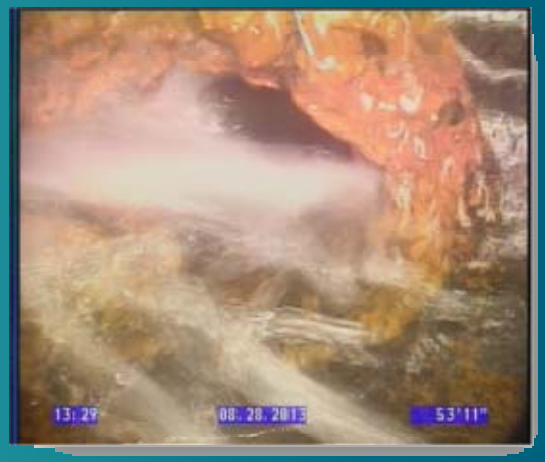
Shared Goals

- **Protect public health – clean water is worth it.**
- **Ensure that current and future development is not impeded by capacity constraints , through the reduction of inflow and infiltration (I & I).**
- **Preventing overflows via proper maintenance of wastewater infrastructure throughout the Sanitary District .**
- **Reduce rate stress from excess use of energy and chemicals to treat groundwater and stormwater (I & I).**
- **Use green infrastructure solutions to make water a resource not a waste. View our details at www.savetherain.us**

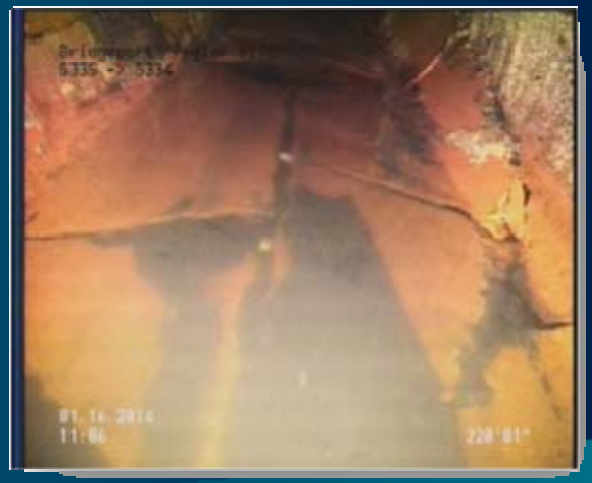
Teamwork with Municipalities

- **Green infrastructure works; stormwater source control works. Save the Rain!**
- **Reducing I&I creates capacity for growth and reduces costs to ratepayers.**
- **Expanding service infrastructure with the same rate base only drives up costs. Let's maximize the use of existing infrastructure.**
- **Reasonable offsets are better than moratoriums, penalties, and consent orders. We require roads to be upgraded for new development, shouldn't our sewer upgrades be a planning matter as well?**

Extraneous Flow from Broken Pipes



Our fix it first issue: Aging Infrastructure - prone to Inflow and Infiltration (I&I)



Pipe and Conveyance Repairs

- **Cured in-place pipe** – County has a cost effective procurement in place. This works extremely well to line old sewer pipes.
- Eliminates significant I&I.
- Restore up up to 70+ years of life to old sewer pipes. Restore infrastructure and capacity for growth!

Together we can resolve the impacts of inflow & infiltration

Extraneous flows before

Much less flow after repair

Manhole Repairs

Please use Onondaga County's manhole repair contract.
Restores old leaking and broken manholes.
Cost effective reduction of I&I. Restore capacity for growth!

Simple Manhole Repairs – Rain Dish for Submerged Manholes

Please install ‘rain dishes’ in low lying manholes prone to flooding. A very cost effective reduction of I&I.

Submerged manhole - inflow source

Cured with a rain dish

Conclusions:

- Clean Water - It is worth our investment.
- Legacy planning issues don't need to be repeated.
- Aging infrastructure issues don't go away, and we have great tools to implement repairs. Take small bites and make a dent in the problem.
- Constrained assets limit our opportunity for economic growth. We must ease those constraints.
- Planning and working together we can restore our infrastructure and grow our economy.

Questions? Please visit:

www.savetherain.us

Tom Rhoads
435-2260 ext. 312
tomrhoads@ongov.net