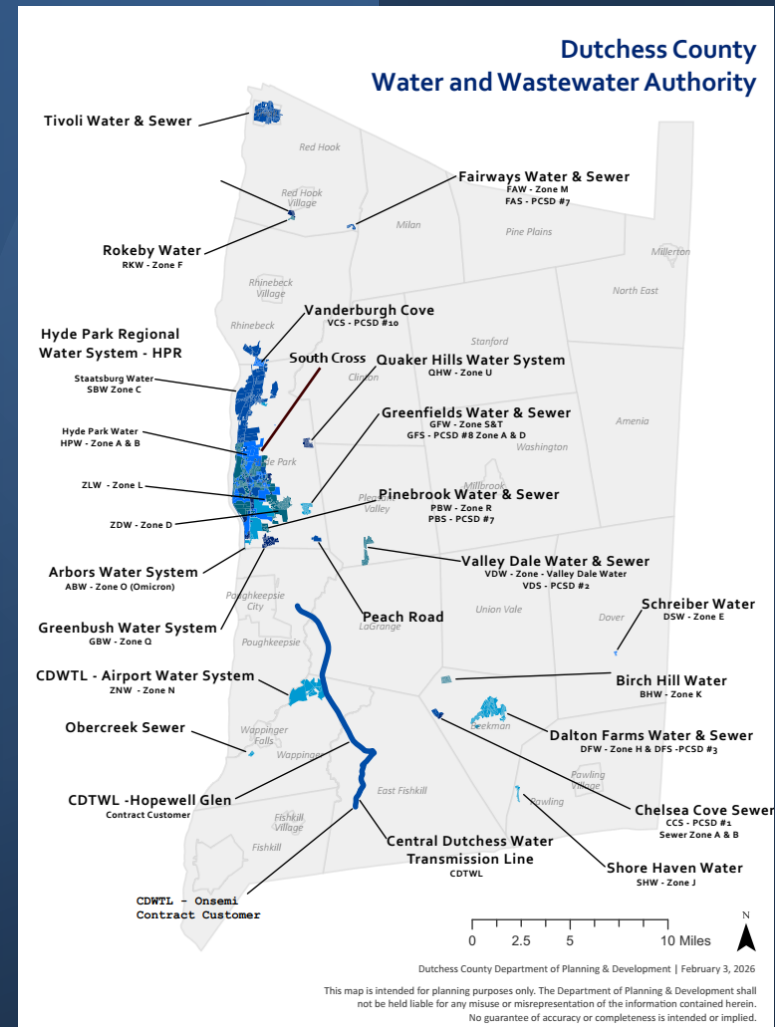


Building Sustainable Water and Sewer Infrastructure

Moving Beyond Construction to Lifecycle Affordability

Presentation before
Dutchess County Government
Planning Board
Wednesday – June 10, 2026, 3:30 pm



Jonathan Churins Executive Director, DCWWA

Agenda

Why This Discussion Matters

Models

Understanding the Lifecycle of Water and Sewer Infrastructure

The Small System Challenge

Common Failure Points

Hyde Park Regional Water System Case Study

Planning for the Next 50 Years

Discussion

Questions and opportunities for future collaboration

Models

Model 1: Private Wells and Septic Systems

- Rural development
- Low-density residential areas
- Large lot subdivisions
- Areas with suitable groundwater and soils

Model 2: Small Independent Utility Systems

- Moderate-density developments
- Projects exceeding private system thresholds
- Areas distant from existing utility infrastructure

Model 3: Regional Water and Sewer Systems

- Existing growth corridors
- Hamlet centers
- Areas with planned development
- Communities located near existing utility infrastructure

The Current Development Model

Public Policy Goals

- Protect public health
- Support housing growth
- Protect groundwater and surface water
- Enable economic development

Common Outcome

- Creation of many small independent utility systems
- Long-Term Question
- Are these systems financially sustainable over multiple generations?

Infrastructure Lifecycle

Public Policy Goals

- Design
- Permitting
- Construction
- Initial rates

Less Attention

- Asset replacement
- Capital reserves
- Aging infrastructure
- Regulatory evolution
- Future affordability

Reality

Infrastructure costs continue long after construction ends.

The Small System Challenge

Fixed Costs Exist Regardless of Size

Every system requires:

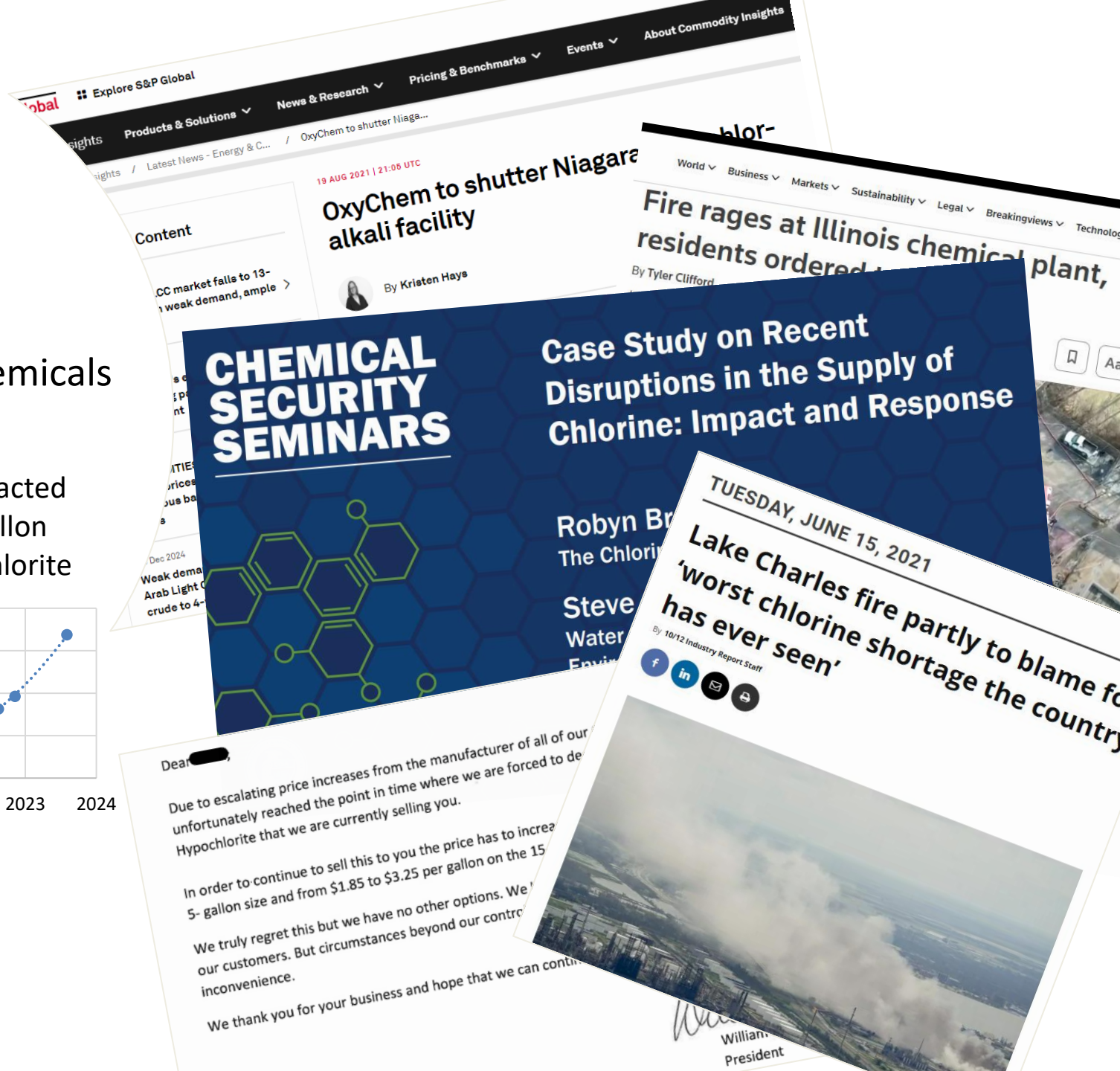
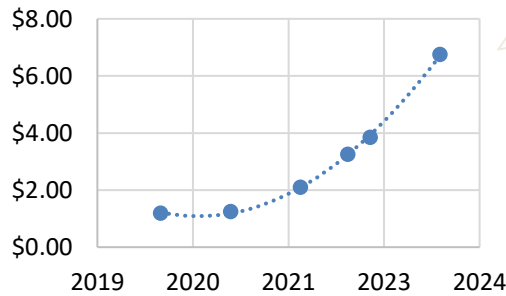
- Operators
- Laboratory testing
- SCADA systems
- Emergency response
- Asset management
- Regulatory compliance

Key Observation

Many standalone systems below 500–600 dwelling units struggle to generate sufficient revenue for long-term capital replacement.

Treatment chemicals

DCWWA Contracted
Price for 1 Gallon
Sodium Hypochlorite



Electrical service

- Pumping water
- Heat to prevent freezing
- Disinfection

Why your NYSEG bill is so high, and what you can do about it

Many NYSEG customers were surprised by the rate increase this month. Here's what's behind it.

BY SARAH GAYDEN • NEWS • FEBRUARY 11, 2022



Public Service Commission approves 3-year rate increase for NYSEG, RG&E

COST OF ELECTRIC IN HUDSON VALLEY, NEW YORK IS QUADRUPLING

Bobby Welber | Published: October 20, 2022

SHARE ON

The price to power your home

Central Hudson has not raised rates in months ago.

LOCAL NEWS

NYSEG president explains reasons for proposed price hike to be considered by

NYSEG, RG&E rate hikes approved. Here's what it means for customers



Emily Barnes

New York State Team

Published 3:05 a.m. ET Oct. 13, 2023 | Updated 3:05 a.m. ET Oct. 13, 2023



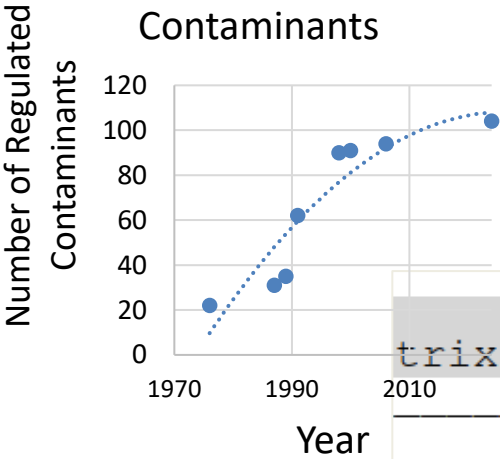
Key Points

- NYSEG's approved rate increases include 22.1% for electric use and 6.1% for gas over three years
- RG&E customers will see rate increases of 16% for electric and 10.9% for gas over three years.

mission is expected

Laboratory testing

Regulated Drinking Water Contaminants



E.P.A. Says ‘Forever Chemicals’ Must Be Removed From Tap Water

The rule applies to a family of chemicals known as PFAS, which are linked to serious health effects. The rule is the most significant step yet to protect drinking water from these chemicals.

April 11, 2024, 5:30 AM EDT

Utilities Brace for Costs of Compliance With New PFAS Water Rule



Bobby Magill
Reporter

- All sides are bracing for court challenges to the rule
- Additional money for compliance needed

Water utilities will face costly challenges meeting the new rule, making litigation nearly inevitable, some industry groups say.

The standards will effectively require drinking water providers to detect in their drinking water levels of PFAS that the Environmental Protection Agency has set at 10 parts per trillion.

NY implements strict drinking water regulations; providers worried about cost



By Kristin Thorne
Thursday, July 30, 2020

New EPA limits on ‘forever chemicals’ in drinking water cost \$1.5 billion per year to implement

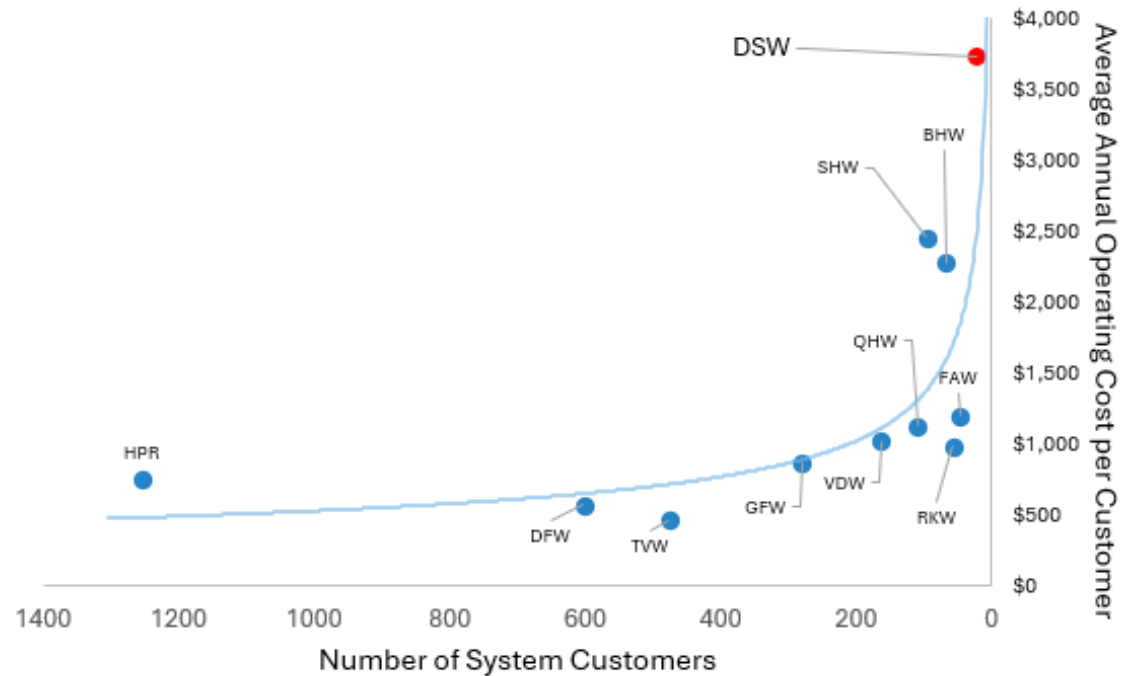
By Lindsey Jacobson, CNBC • Published April 10, 2024 • Updated on April 12, 2024 at 12:03 pm

Index	Description	Unit Price
SC	Energy & Inflation Surcharge Fee	27.00
	PFAAs via EPA 537.1	180.00

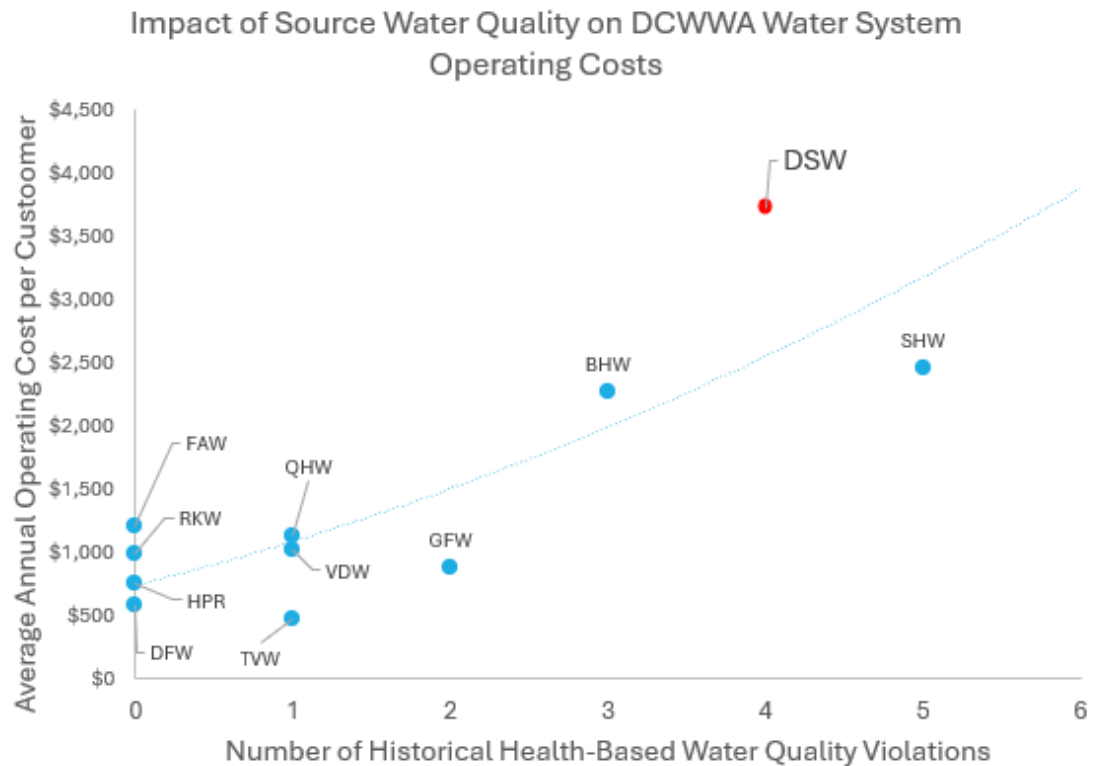
The Small System Challenge

“Size”

Impact of System Size on DCWWA Operating Costs



The Small System Challenge “Quality”





Failure Point #1

No Room for Future Replacement

Common Scenario:

- Site sized only for original facility
- Facility reaches end of life
- Existing plant must remain operational
- No room to build replacement

Result:

- Temporary treatment facilities
- Wastewater hauling
- Extended construction
- Significantly higher costs

Failure Point #2

Ownership Transitions

Early Years

- Developer involvement
- Subsidized operations
- Limited capital needs

Result:

- Residents assume responsibility
- Full operating costs emerge
- Capital obligations begin

Challenge

Financial sustainability often starts after the developer exits.





Failure Point #3

Inadequate Capital Reserves

Many systems collect enough revenue for:

- ✓ Profit (Private Systems Only)
- ✓ Operations
- ✓ Maintenance
- ✓ Utilities
- ✓ Routine repairs

But not enough for:

- X Major equipment replacement
- X Tank rehabilitation
- X Treatment upgrades
- X Plant replacement



Lifecycle

The Replacement Reality

Asset Typical Life

Pumps	08–20 years
Controls/SCADA	10–15 years
Generators	20–25 years
Water Tanks	20–50 years
Treatment Equipment	20–30 years
Treatment Plant Structures	20–60 years

Failure Point #4

Fragmentation

Multiple Small Systems Mean:

Multiple boards

Multiple operators

Multiple reserve funds

Multiple emergency response plans

Multiple compliance programs

Result

Higher costs and lower resilience.



Scale

The Cost Curve of Scale

Small Systems

Higher rates
Limited reserves
Greater risk

Larger Systems

Shared costs
Greater purchasing power
Greater redundancy
Professional management
Stronger capital planning

Principle

Scale creates affordability



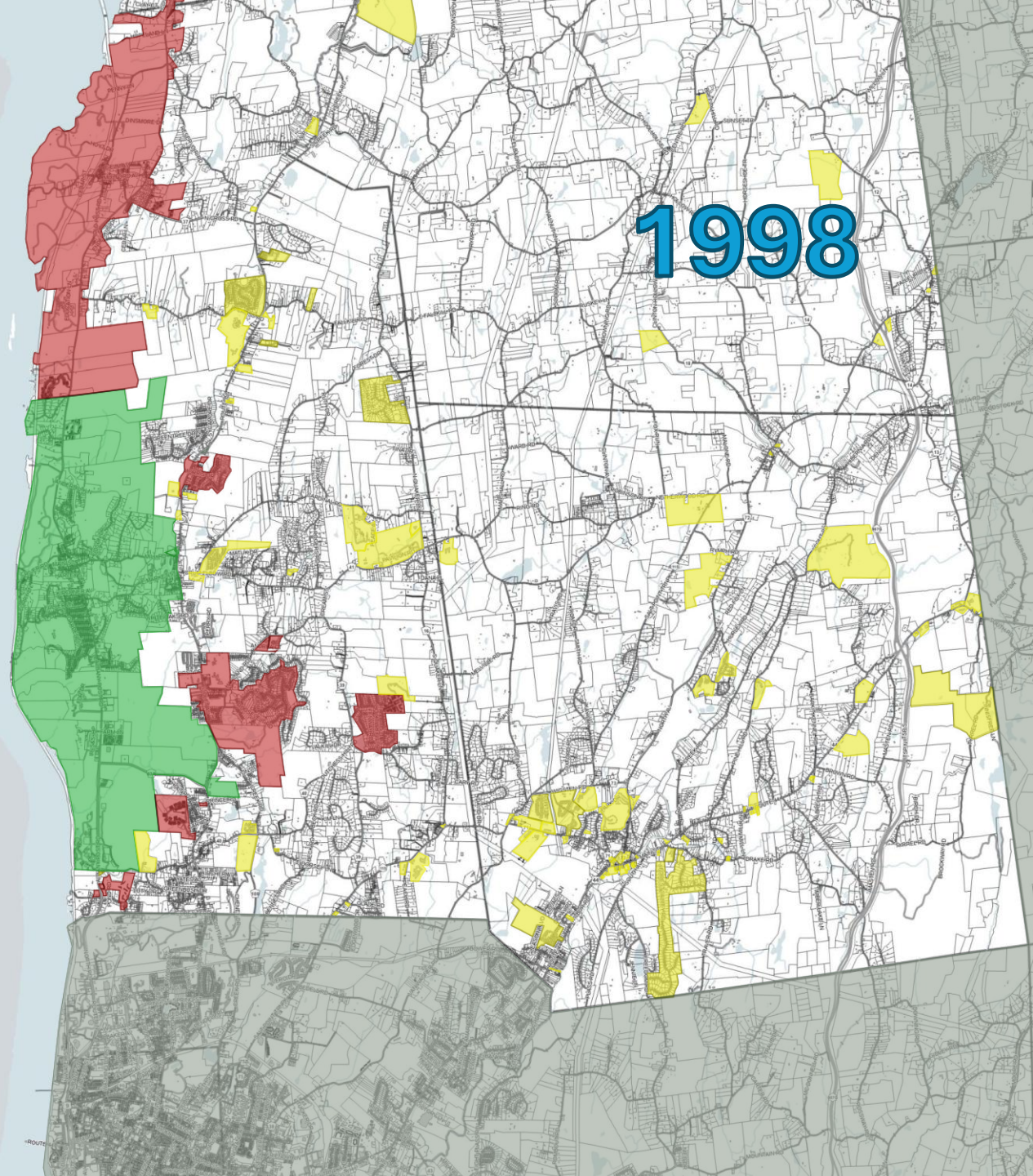
One Solution



The Hyde Park Regional Water System demonstrates several principles:

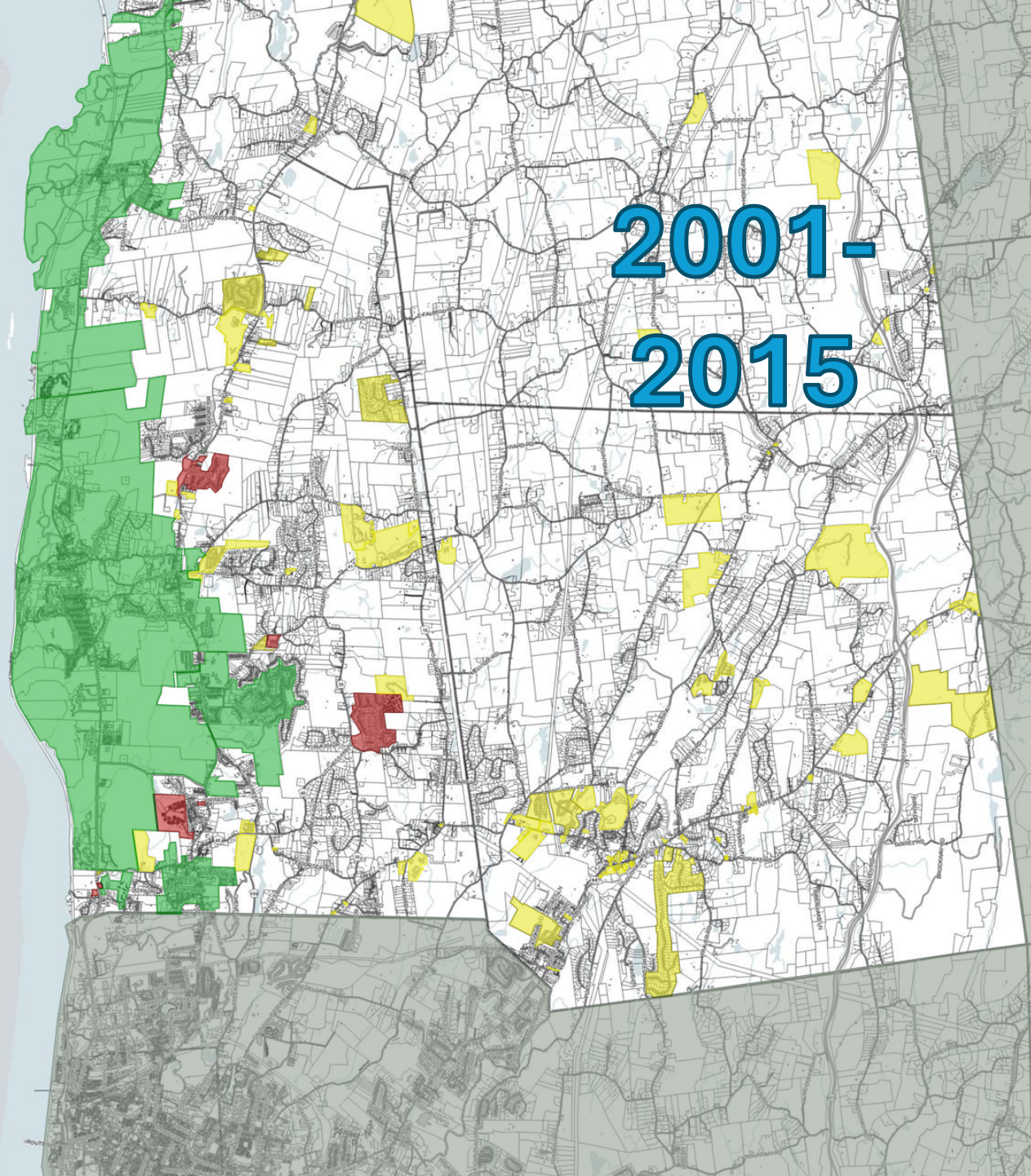
- Planned reserve capacity
- Long-term expansion capability
- Regionalization
- Elimination of fragmented systems
- Lower lifecycle costs
- Support for economic development
- Preservation of groundwater resources through reduced well withdrawals

The Evolution of Hyde Park Regional



Staatsburg Interconnection
Harbour Hills Interconnection
Route 9G (Zone L) Expansion
Arbors Acquisition
Greenbush Acquisition
Greenfields Acquisition
Pinebrook Acquisition
Quaker Hill Acquisition

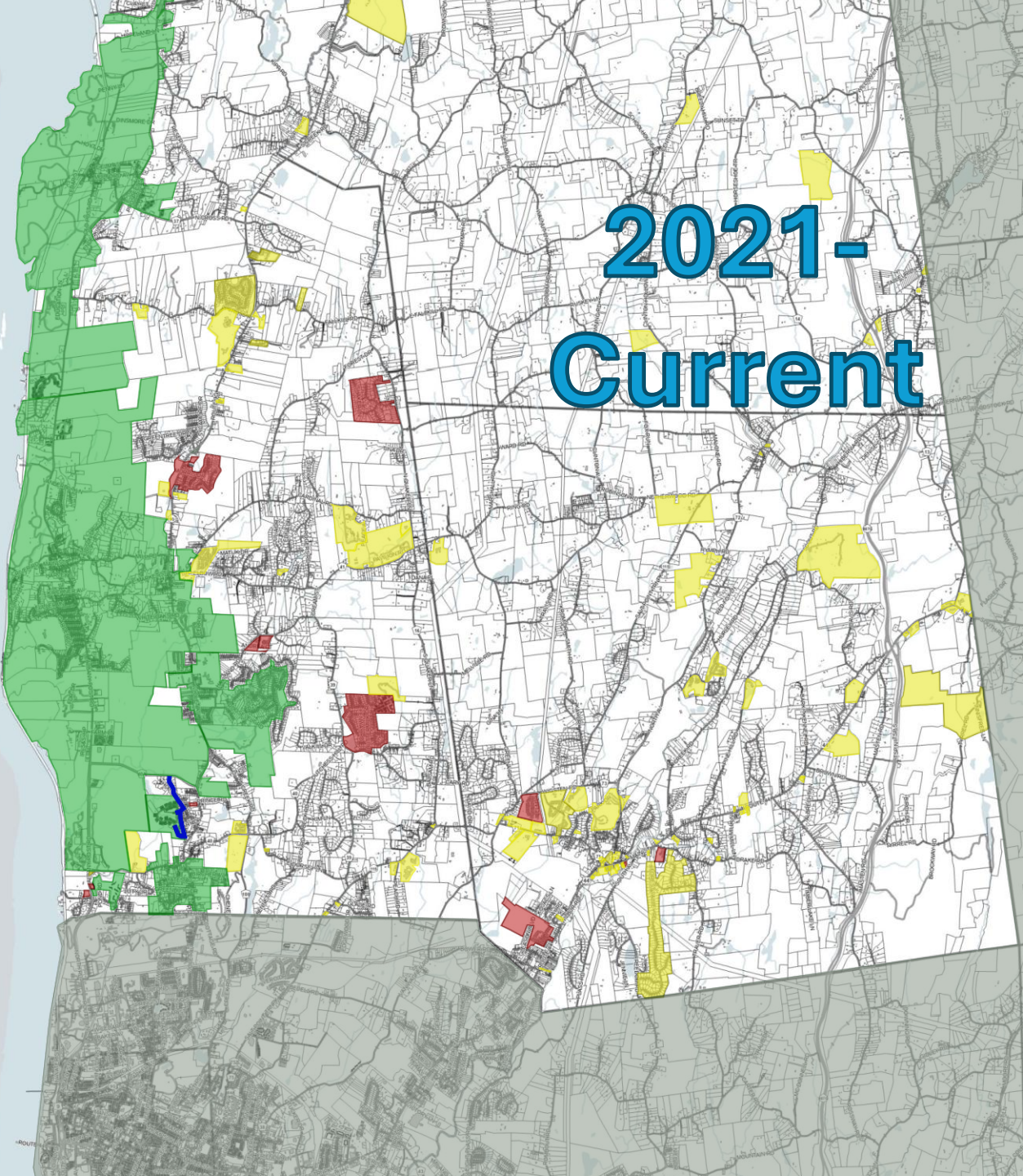
**2001-
2015**



Staatsburg Interconnection
Harbour Hills Interconnection
Route 9G (Zone L) Expansion
Arbors Acquisition
Greenbush Acquisition
Greenfields Acquisition
Pinebrook Acquisition
Quaker Hill Acquisition

Pinebrook Interconnection

2021- Current

A map showing land acquisition areas in 2021 and current status. The map is divided into several colored regions: green, yellow, red, and blue. The green regions are located on the left side of the map, along the coastline. The yellow regions are scattered across the central and right portions of the map. The red regions are located in the central and lower central portions of the map. The blue region is a small area in the lower left portion of the map. The map also shows a network of roads and a coastline on the left side.

Current- 2030

**Staatsburg Interconnection
Harbour Hills Interconnection
Route 9G (Zone L) Expansion
Arbors Acquisition
Greenbush Acquisition
Greenfields Acquisition
Pinebrook Acquisition
Quaker Hill Acquisition
Pinebrook Interconnection**

West Dorsey (Route 9) Extension

South Cross Acquisition

Greenfields Interconnection

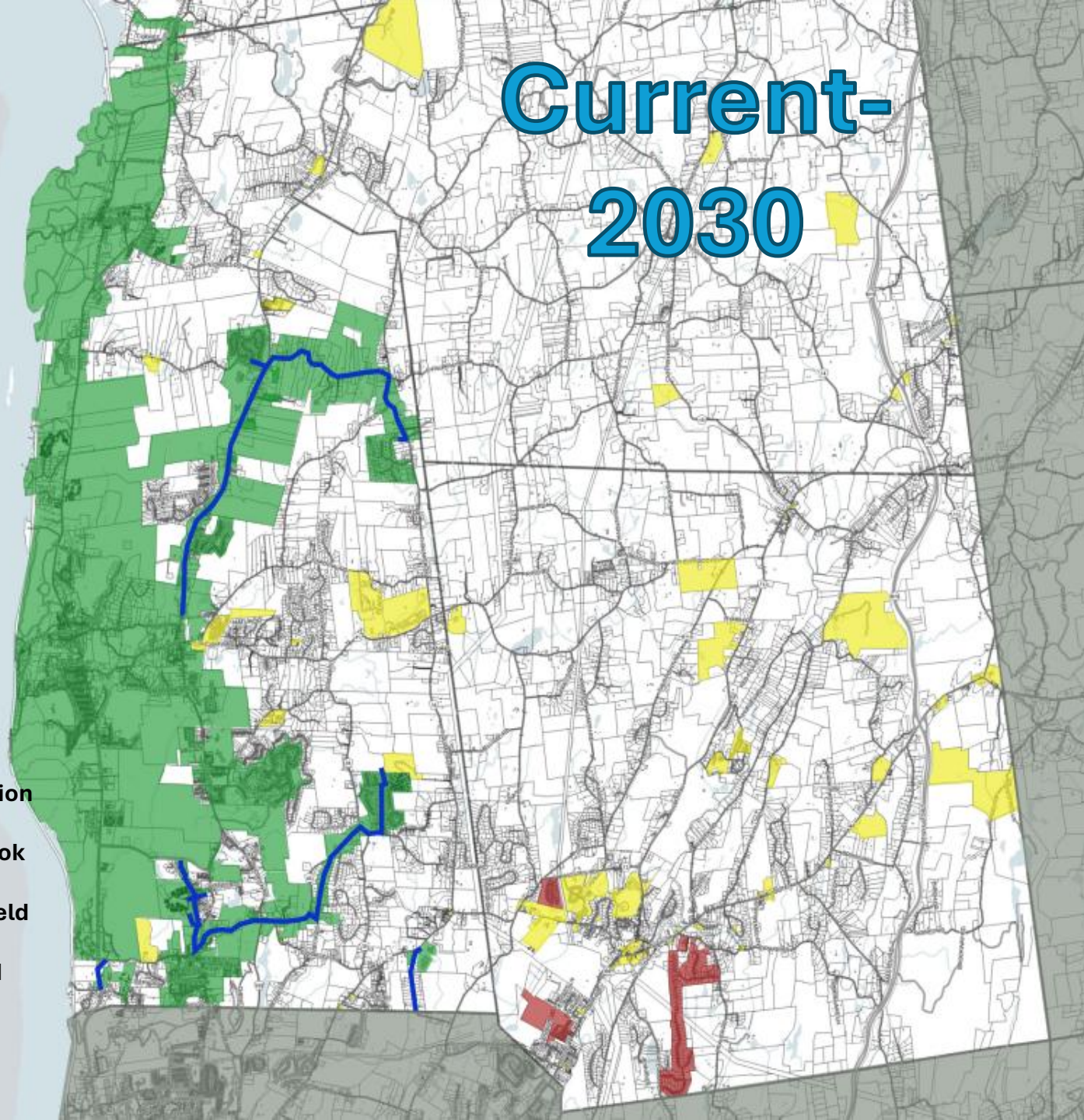
Dutchess Estates Acquisition

Quaker Hill Estates Interconnection

Service Expansion along Pinebrook

Service Expansion along Greenfield

**Greenbush/Violet Ave Mutual Aid
Connection**



A County-Wide Opportunity

Key Question

How can Dutchess County encourage infrastructure decisions that remain affordable, resilient, and sustainable across generations?

Potential Actions

Regional planning initiatives
Utility sustainability criteria
Infrastructure replacement planning
Intermunicipal partnerships
Shared service models

Planning for the Next 50 Years

Considerations for Future Development

Regional solutions first

Reserve land for replacement facilities

Require lifecycle financial analysis

Encourage utility consolidation

Establish reserve funding expectations

Evaluate long-term affordability

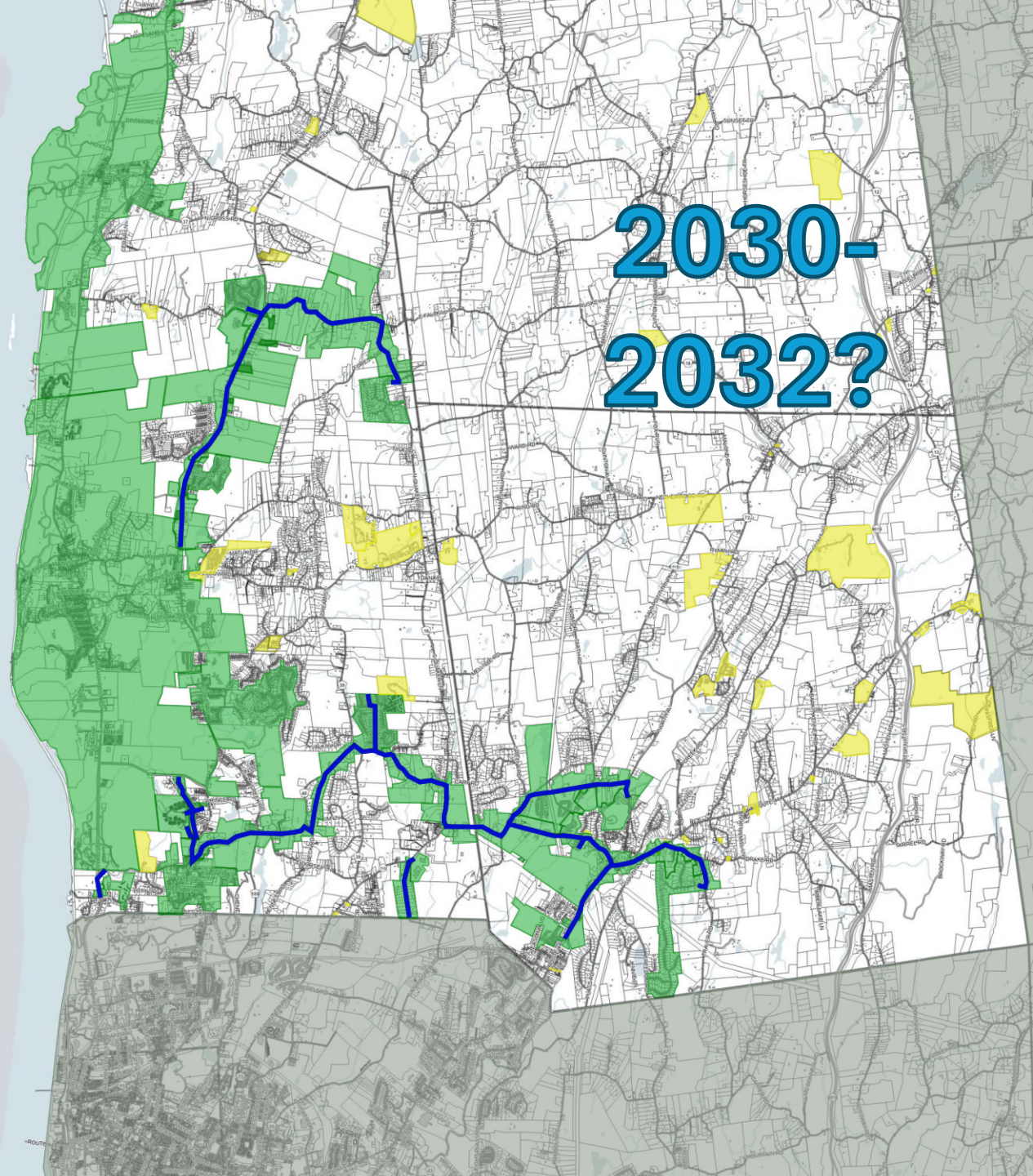
Develop and adopt protections

for farmland and open space

**Staatsburg Interconnection
Harbour Hills Interconnection
Route 9G (Zone L) Expansion
Arbors Acquisition
Greenbush Acquisition
Greenfields Acquisition
Pinebrook Acquisition
Quaker Hill Acquisition
Pinebrook Interconnection
West Dorsey (Route 9) Extension
Greenfields Interconnection
Peach Road Extension
South Cross Acquisition
Quaker Hill Interconnection
Dutchess Estates Acquisition
Service Expansion along Pinebrook
Service Expansion along Greenfield
Greenbush/Violet Ave Mutual Aid
Connection**

Valley Dale Interconnection

**2030-
2032?**



Closing Thought

Every Utility Approved Today Becomes Someone's Responsibility Tomorrow

The question is not:

“Can we build it?”

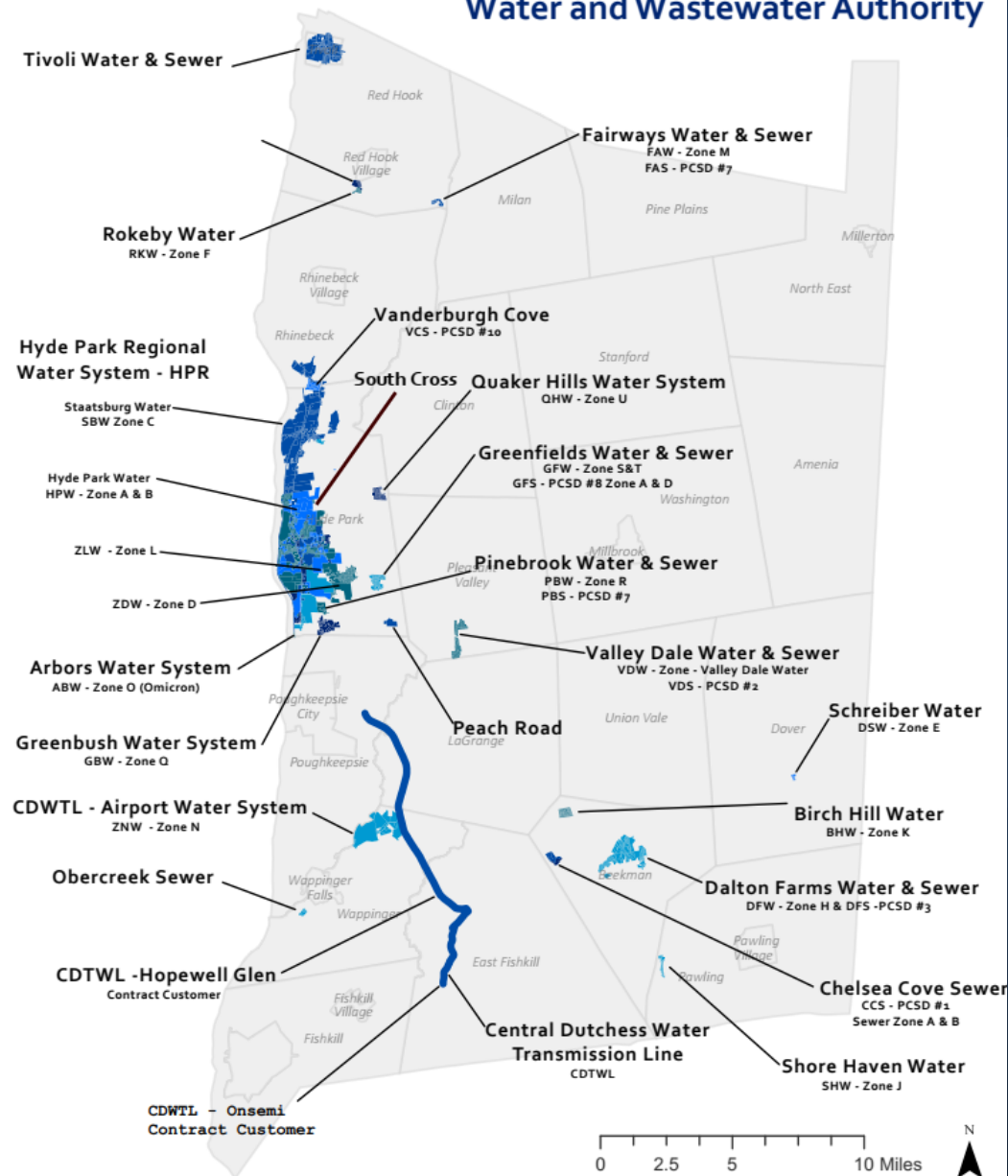
The question is:

“Can future generations afford to own,
operate, maintain, and replace it?”

Thank You
Questions?

Jonathan Churins Executive Director, DCWWA

Dutchess County Water and Wastewater Authority



Dutchess County Department of Planning & Development | February 3, 2026

This map is intended for planning purposes only. The Department of Planning & Development shall not be held liable for any misuse or misrepresentation of the information contained herein. No guarantee of accuracy or completeness is intended or implied.