



# North Castle SCADA

Westchester Water Works Conference Fall Meeting October 12, 2022



# NORTH CASTLE SCADA SYSTEM

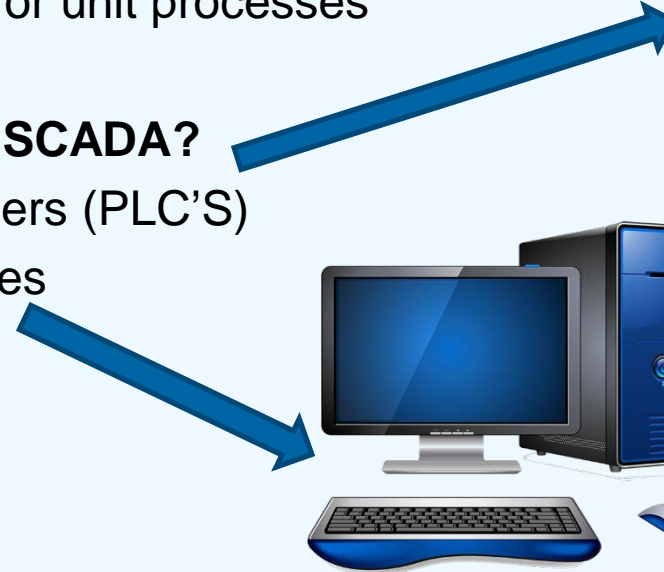
## What is SCADA?

- Supervisory Control & Data Acquisition
- The ability to monitor, remotely supervise and collect data from automated remote sites or unit processes



## What are the Components of SCADA?

- Programmable Logic Controllers (PLC'S)
- Computers and Mobile Devices
- Applications Software
- Communications
- Instruments
- Driven Equipment
- Alarming
- Reporting



# SCADA System Inception Overview

SCADA TIMELINE	
5/25/2016	Town Board authorized study and Town wide survey of SCADA Concept
3/22/2017	Town Board received survey report
5/10/2017	Work Session for Introduction of SCADA Concept
8/9/2017	Town Board authorized the design phase
9/12/2018	Town Board authorized bidding construction
3/13/2019	Bid was awarded
9/2/2020	Notice of Substantial Completion was issued to the contractor
11/17/2021	1 year maintenance bond and warranty period ended

SCADA has been functioning for over 18 months, and has proved to be vital tool in managing our sites and operations throughout town.

# SCADA System Inception Overview

Description	Cost
Initial Engineering Study	\$14,590
Engineering-Design, Radio Path Study, Bid Documents & assistance	\$120,000
Engineering Construction management & implementation	\$289,740
Subtotal Engineering	\$424,330
Construction Bid	\$698,725
Change Order#1	\$1,256
Construction Subtotal	\$699,981
Grand Total	\$1,124,311

**Cost:** Conceptual Plan/Study, Design, & Construction was approximately 1.1M

The investment was fully funded with various district fund balance---there is no debt!

This asset was built for tomorrow with today's dollars!

# North Castle SCADA SYSTEM

## SCADA Equipment

### WWTP

- 2 – SCADA Workstations w/ Software
- SCADA Cybersecurity Appliances
- 2 – PLC-based Control Panels
- 4 – Ethernet Switches
- Misc. I/O and Communications Equipment

### Remote Sites

- 19 - Remote Sites (Tanks/Wells/Pump Stations)
- 29 - PLC's
- 17 - Operator Interface Terminals (OIT's)
- 19 – Ethernet Switches
- 19 - Licensed Radios w/ Antenna Installations
- Misc. Instrumentation for Monitoring & Control

### SCADA Software Licenses

- 8 – Various Software Licenses

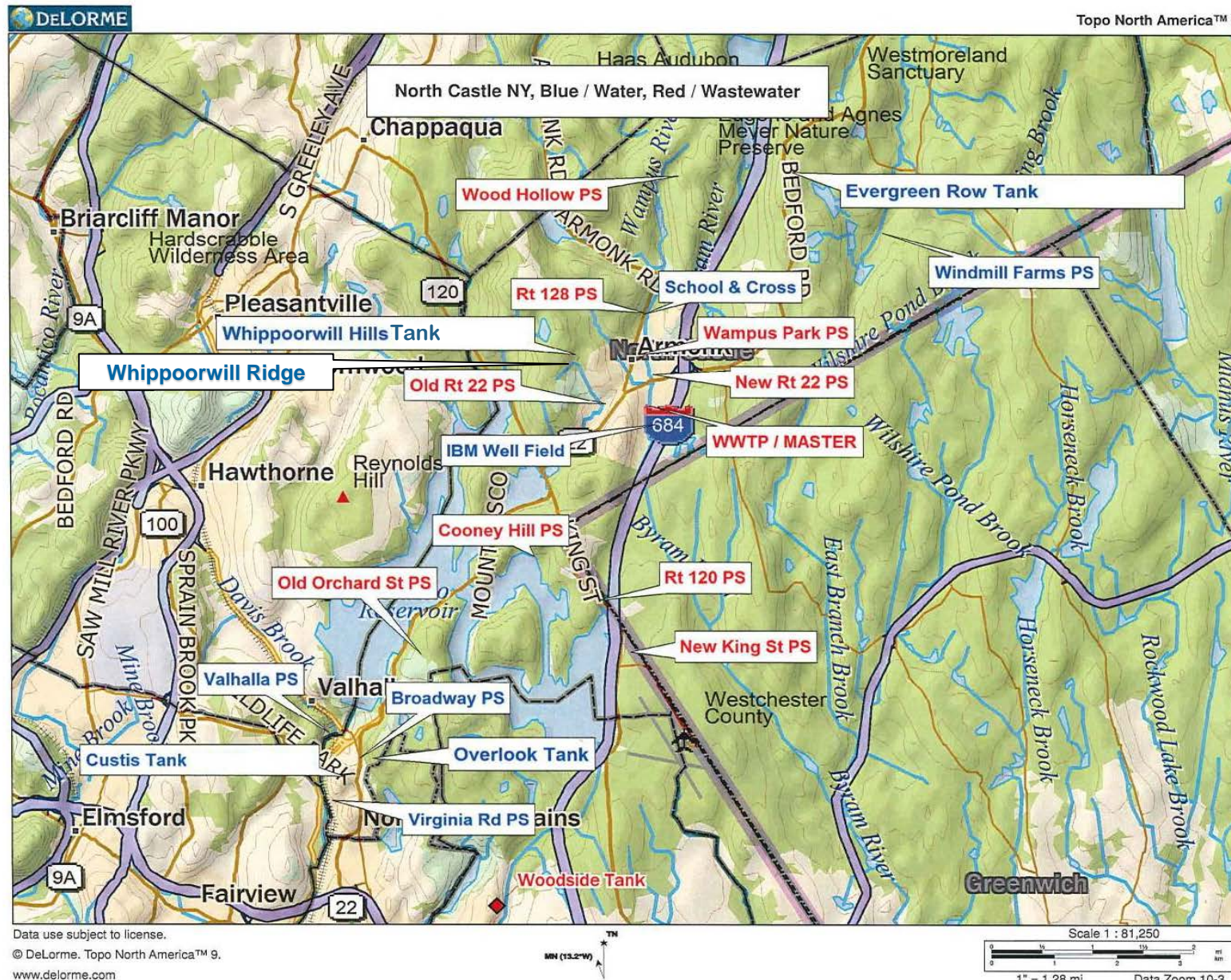
### Computer Equipment

- 2- Work Stations (sourced through Logically, the Town's IT consultant)
- 2- Galaxy Tablets

	SCADA PC	SCADA HMI	PLC	OIT	Radio	Enet Switch	Firewall
<b>Wastewater Treatment Plant (WWTP)</b>							
Lab SCADA PC Workstation	X	X					
Office SCADA PC Workstation	X	X					
Main Panel Polling Station PLC			X	X		X	
Filter Building PLC			X	X		X	
UV and Miscellaneous I/O Modules			X		X	X	
Cybersecurity Equipment for Remote Access						X	X
<b>Remote Sites</b>							
Evergreen Tank			X		X	X	
Overlook Tank			X		X	X	
North Broadway Pump Station	X	X	X	X	X	X	X
Valhalla Pump Station			X	X	X	X	
Route 128 WWPS			X	X	X	X	
Virginia Road / Custis Ave Tank			X		X	X	
Windmill Farms			X	X	X	X	
New Route 22 WW Pump Station			X	X	X	X	
Wood Hollow WW Pump Station			X	X	X	X	
Quarry WW Pump Station			X	X	X	X	
New King Street WW Pump Station			X	X	X	X	
Cooney Hill WWPS			X	X	X	X	
IBM Wells			X	X	X	X	
Whippoorwill Ridge			X	X	X	X	
Whippoorwill Hills Tank and Booster Station			X	X	X	X	
Old Route 22 WWPS			X	X	X	X	
Wampus WWPS			X	X	X	X	
School Street Wells & Booster Station			X	X	X	X	
Route 120 WWPS			X	X	X	X	



# NORTH CASTLE SCADA SYSTEM





# NORTH CASTLE SCADA SYSTEM

11:57:25 AM 11/17/2020

Current User: SAL

**LOGIN**

**LOGOUT**



**TOWN OF NORTH CASTLE, NY  
WATER & SEWER DEPARTMENT  
TOPOGRAPHIC MAP**

## REMOTE POLLING

## WATER OVERVIEW

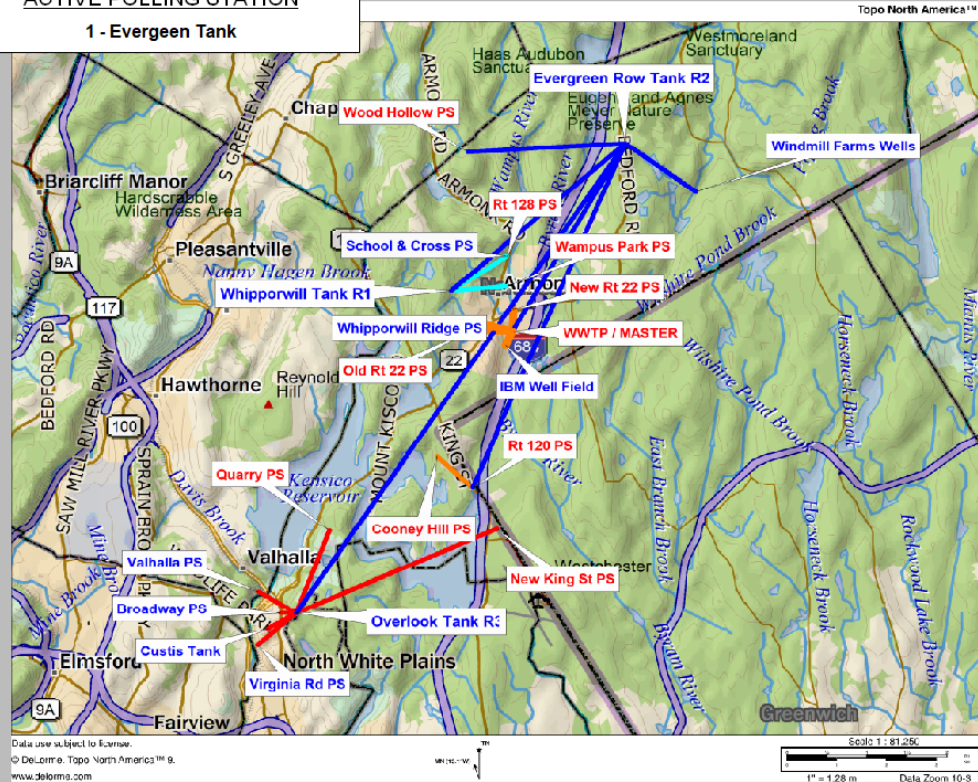
## WASTEWATER OVERVIEW

**MENU**

## ALARM SUMMARY

ACTIVE POLLING STATION

### 1 - Evergeen Tank



**NORTH CASTLE REMOTE RADIO ROUTES\_9.10.20**

SITE NAME	IP ADDRESS	1ST HOP	2ND HOP	3RD HOP
WWTP (MASTER)		-	-	-
Evergreen Tank		WWTP	-	-
Overlook Tank		EVERGREEN TANK	WWTP	
Broadway Booster Station		OVERLOOK TANK	EVERGREEN TANK	WWTP
Valhalla Booster Station		OVERLOOK TANK	EVERGREEN TANK	WWTP
Virginia Road & Tank		OVERLOOK TANK	EVERGREEN TANK	WWTP
Windmill Farms		EVERGREEN TANK	WWTP	-
New Route 22 WWPS		WWTP	-	-
Wood Hollow WWPS		EVERGREEN TANK	WWTP	-
Quarry (Old Orchard) WWPS		OVERLOOK TANK	EVERGREEN TANK	WWTP
New King Street WWPS		OVERLOOK TANK	EVERGREEN TANK	WWTP
Cooney Hill WWPS		ROUTE 120 PS	EVERGREEN TANK	WWTP
IBM Wells		WWTP	-	-
Whipporwill Ridge (Alder Way) PS		WWTP	-	-
Whipporwill Hills Tank & BS		EVERGREEN TANK	WWTP	-
Old Route 22 WWPS		WWTP	-	-
Wampus WWPS		WHIPPORWILL TANK	EVERGREEN TANK	WWTP
School Street + Rt 128 WWPS	WHIPPORWILL TANK	EVERGREEN TANK	WWTP	
Route 120 WWPS	EVERGREEN TANK	WWTP	-	

Ack	Date In	Time In	Description	Value	Tagname
	11/17/2020	01:06:45.953	Filter 3 in Backwash	NORMAL	FILTER_ALM98







# NORTH CASTLE SCADA SYSTEM

2:19:00 PM 11/17/2020

Current User: SAL

**LOGIN**

**LOGOUT**



# TOWN OF NORTH CASTLE, NY WATER & SEWER DEPARTMENT WASTEWATER OVERVIEW

## REMOTE POLLING

## WWTP OVERVIEW

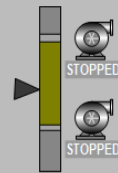
## WATER OVERVIEW

**MENU**

## ALARM SUMMARY

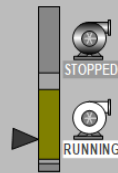
## DISTRICT 2

WOOD  
HOLLOW



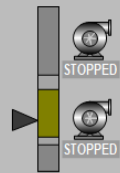
## 2.9

## ROUTE 128



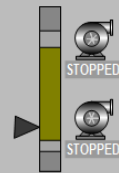
## 1.9

## WAMPUS



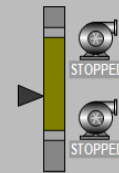
### 3.6

OLD ROUTE 22



## 2.1

## NEW ROUTE 22



### 3.6

### WWTP INFLUENT FLOW

255.0

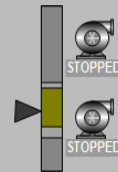
**Flow Total (Gallons)**

Today: 188,929

Yesterday: 313,289

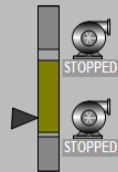
### DISTRICT 3

COONEY HILL



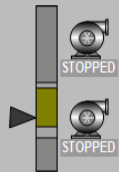
## 5.3

## ROUTE 120



## 4.7

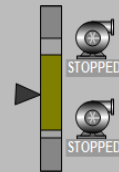
NEW KING ST



## 4.7

## DISTRICT 4

QUARRY



## 4.5

To Westchester County

[illegible]





# NORTH CASTLE SCADA SYSTEM

## SYSTEM BENEFITS !!!


Just to name a few

- A highly automated plant yields better, more consistent process control and results
- Command and control for more effective use of resources
- Always aware of the status of our multiple locations from anywhere
- Fully expandable for future growth





# SCADA = Reduced pressure of daily operations

- 
- 1 Versatility of operational controls
  - 2 Control conditions at a glance
  - 3 Automated consistent operation
  - 4 Data consolidation for Regulatory Reporting
  - 5 Reduced OT costs, system control from anywhere

# Acknowledgements



## Westchester Water Works Conference

### NORTH CASTLE TOWN BOARD

#### SUPERVISOR

**Michael J. Schiliro**

#### COUNCILMEN

Saleem Hussain

Barbara DiGiacinto

Matt Milim

José L. Berra

#### TOWN ADMINISTRATOR

**Kevin Hay**

### DESIGN ENGINEERS

#### **Woodard & Curran Engineering**

Anthony C. Catalano, P.E., BCEE, Senior Principal

Paul G. Couture, PMP. Sr. Project Manager

Adam DeFranco Project Manager I | Associate Principal



### CONTRACTOR

#### **Pat Kearns Electric, LTD**

Pat Kearns, Project Manager

### **NORTH CASTLE WATER & SEWER DEPARTMENT**

Sal Misiti, Director of Water & Sewer

Sharon Reiner, Senior Office Assistant





**Thank You!**



**Westchester Water Works Conference**