

## **SCADA System Serviceable Life and Replacement Prioritization with Water and Wastewater Plants in Seminole County, Florida**

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### **FORMAT:**

30 minute presentation

### **KEYWORDS**

Automation, SCADA, Life Expectancy, Serviceable Life, Replacement, Annual Budget, Prioritization, CIP

### **ABSTRACT**

One of the many challenges faced by municipalities in regards to their SCADA System is determining the serviceable life for all the various components in the system and setting a prioritization sequence for the replacement of outdated and non-serviceable equipment. Compounding the challenge is estimation of the replacement costs and how to budget for equipment and labor.

This presentation will explore how Seminole County (Florida) built a project team to review eighteen (18) of their water and wastewater treatment plants to determine the priorities for replacement of outdated SCADA hardware over the next five years. With this prioritization an estimation of the annual budget required for each of the upcoming years was submitted to upper management to assist them in identifying future Capital Improvement Projects (CIP). The development of this tool can also assist in the planning and scheduling of needed personnel and software or hardware tools.

We will review the various elements that were used to calculate a 'Risk Factor' for each piece of SCADA equipment that led to replacement prioritization. Three categories of SCADA equipment were created for review and assessment:

- Computers (Servers and Workstations)
- Network Equipment (Ethernet Switches and Media Converters)
- Programmable Logic Controllers and Operator Interface Terminals

Risk Factor Calculation elements were determined by site visits, data research, and overall system knowledge. Elements included:

- Equipment Life Expectancy (data from manufacturers, MS Product LifeCycle, industry best practices, location, etc.)
- Equipment Condition
- End of Life Expectancy Date
- Hardware/Software Support (Availability, Manufacturer Support, support upgrade of OS and other software)
- Equipment Failure Consequence
- Replacement Cost Estimates; per category and per site

**About the Authors:**



**Jonathan Mitchell, PE**, is an Automation Engineer working out of CDM Smith's Southeast Regional Design Center in Maitland, Florida. He graduated with a BSEET from the Southern Polytechnic State University in Marietta, GA and is a licensed Control Systems Engineer (CSE). He has 14 years of experience in the design, construction, and integration of automation systems in water/wastewater and airport fueling markets. He is a 4-year member of ISA.



**Tom Owens** is the Maintenance-Technologies Supervisor in the Environmental Services Department, Water and Waste Water Division for Seminole County, Florida. He was hired by Seminole County in 1982 as a journeyman maintenance electrician and is a dual licensed water and wastewater plant operator. He has 32 years of experience in the maintenance, design, construction, and integration of process control and SCADA systems in water/wastewater field.