



MEMO TO: Mayor Vandernail and the Board of Trustees
FROM: Adam Cwiklin, Water and Wastewater Superintendent and
Russell Pennington, P.E., Public Works Director
DATE: March 2, 2022
SUBJECT: Cloud Hosted SCADA System

SUBJECT: SCADA System Upgrades
DEPARTMENT: Public Works
PRESENTER/PREPARER: Russell Pennington, Public Works Director
Adam Cwiklin, Water and Wastewater Superintendent

FISCAL INFORMATION:
Cost as Recommended: \$13,550
Balance Available: \$30,000
Fund: Water
Budget Line-Item Number: 50-40-330 Engineering
New Appropriation Required: No

REQUESTED ACTION:
Approve the **Resolution 2022-03-02** to appropriate funding to execute priorities 21 of the SCADA Master Plan and authorize the appropriate Town officer to expend said funds.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
SCADA stands for System Control and Data Acquisition. It ultimately controls water system automation and maintains operating records for the Town. Upgrades to the system started in 2014 when the PLCs and touchscreens were replaced at the water treatment plants, pump stations and storage tanks. The Fraser well field wells and were upgraded in 2019 and Town Hall hardware and software in 2021.

To date, The Town has completed 20 of 21 priorities listed in the SCADA master plan (attached). Number 21, the final priority, is to relocate SCADA system from a desktop server to the Cloud. The SCADA system is more robust than it was a few years ago, but there is still potential for a single point of failure.

The SCADA CPU is currently a desktop server computer located in Town Hall. If there were an event that Fraser Town Hall is compromised, Fraser would operate its water system in hand or

manually until the situation is remedied. Moving the SCADA system software client to the cloud and utilizing the desktop server as the backup would eliminate a single point of failure situation and allow Fraser to operate via direct connection to the software in the cloud from any Microsoft device.

Moving from a desktop to the cloud requires two annual expenses and hardware changes. The annual expenses are the cloud hosting service and a corresponding server maintenance service. The hardware changes are due to proprietary compatibility issues. Apple vs Microsoft.

Currently, Utility operators use Ipads for remote desktop connection to a desktop server, the primary SCADA computer. The cloud server cannot support Remote Desktop Connections. Remote Desktop services require Active Directory (AD) and a cloud-based Windows OS server cannot provide AD. The iPads cannot go directly to the cloud server. They are limited to connect to the desktop server. Surface tablets are made by Microsoft and use Windows 10 OS. The Ignition client can be installed on the Surface Tablets and then the Surface can connect directly to the cloud server. To function in the cloud, Utilities needs to replace the iPads with Surface Tablets.

SCOPE OF WORK:

There are three components need to complete the transfer to the cloud and maintain full operations.

1. Azure services. This is an annual subscription for cloud hosted SCADA system.
2. Annual SCADA Server Maintenance Plan
3. Change from iPad to Surface Tablet. Replace the iPads with Surface Tablets. Surface tablets are made by Microsoft and use Windows 10 OS. We can install the Ignition client on the Surface Tablets and then the Surface can connect directly to the cloud server. The Surface tablets are similar in cost to an iPad. They can also be purchase with a built-in LTE cellular card for internet access.

Annual Azure Services		Browns Hill	\$4,650.00
Annual SCADA server maintenance		Browns Hill	\$1,700.00
Microsoft Tablets (4 at \$1500)		Executec	\$6,000.00
Subtotal			\$12,350.00
Contingency (20%on hardware)			\$1,200.00
Total			\$13,550.00

The engineer’s estimate for the project is \$12,350.00. The project funding includes contingency amounts for a total of \$13,550.00 which can be used towards unforeseen changes during installation and programing.

PROJECT SCHEDULE

Notice of Award		March 3, 2022
Notice to Proceed		March 3, 2022
Improvements complete		May 1, 2022

ATTACHMENTS:

SCADA Master Plan

Job# 21-754 SQ01

Job#22-023 SQ02 REV 1

Email, Cloud SCADA access JWalker

Resolution No. 2022-03-02

STAFF RECOMMENDATION:

Motion to approve **Resolution No. 2022-03-02** authorizing the Staff to complete SCADA Master Plan priority number 21 using the Engineering Account (50-40-330) of the 2022 Water Fund in an amount not to exceed \$13,550.