Aged Infrastructure – Part 2: Assessments, Preventative, and Proactive Maintenance

Last month, I discussed the first part of the Aged Infrastructure series of Tech Tips. If you have not already, I strongly encourage you to read it prior to reading Part 2. [link to Part 1].

Assessments and SCADA Master Planning

Now that we have an inventory of our equipment and have prioritized the items that need attention, we need a way to incorporate our plan to tackle our aged technology infrastructure. This is where facilities planning, or master planning is important. A facility or master plan is typically a "master list" of improvements and preliminary designs for future expansions of civil infrastructure. This can include roadways, water mains, building projects, electrical improvements, etc. As important as planning for roadway improvements or water main replacements, is your technology infrastructure. Adding a section specifically for the prioritized assets, discovered in Part 1, is a great place to start. Capital improvement planning periods are typically for at least five years although some master plans are more extensive. Ideally, each year of the master plan should have a list of assets to be updated as well as the assets respective budgetary cost. These detailed costs provide benefits during the annual budget process.

Once a facility, or master plan is created, all that remains is to execute the plan. As the plan is executed, year by year, it is a good idea to also update the plan annually. It is surprising how much can change after the first year of the plan is complete, especially if there are major technological "jumps" year to year. You may find that one set of improvements has a trickle-down effect on the remainder of the proposed plans and can change the outcome work processes in the master plan. Be ready to adjust the plan, as needed.

Preventative and Proactive Maintenance

Fast-forward a year into the plan and now your first years' improvements have been completed and the "aged infrastructure" is no longer in place, now what? Be prepared for preventative and proactive maintenance!

While replacing unsupported technologies is important , maintaining the current technologies should also be a high priority. Preventative maintenance is similar to performing oil changes on your car. If you keep up with maintenance items as described in your maintenance manual, your car will last longer and be more efficient. With technology, the same principles apply. If you own a smartphone, chances are, your apps update frequently. Sometimes an app update will add new features, but most of the time updates fix bugs and address security . issues with the respective app. The same can be said with technology assets at your facilities only the consequences are much higher if something breaks-down or is technologically compromised. A bug on your smartphone app may prevent you from "liking" your friend's picture of their dog but a bug in your communities' SCADA software my prevent you from

adjusting your tower level set-points, which keeps the pumps on longer than you planned and cause an overflow of your utilities water tower.

Proactive maintenance of technology assets is similar to PMs for pumps, motors valves and other utility assets. Thankfully, if you have already performed the inventory step discussed during Part 1, all you need to do is take that list of equipment and start developing a preventative and proactive maintenance plan for those assets. If you are unsure of what maintenance is required, I would encourage you to reach out to the equipment manufacturers, vendors, your engineering team, or your system integrator to assist in developing your preventative maintenance plan.

At the end of the day, it comes down to taking pride in running an organized and "well oiled" system. Your community relies on your expertise and hard work to ensure the water they drink is safe to drink and can be provided in a reliable way. Don't assume you can ignore these Tech Tips and manufacturers recommendations for proper maintenance of your utility assets. You may get lucky and your system could run for years without needing any maintenance, planning, or upgrades, but without a master plan and proper maintenance schedule you are more likely to encounter an unexpected failure of a system component. Unlike our cars and our personal assets, water and wastewater utilities are typically publicly owned and you are responsible to your customers for properly maintaining this critical infrastructure. Our communities trust that we do everything in our power to keep our water running and wastewater flowing. Let's reduce our infrastructure failure-risk and replace our aged infrastructure, plan our capital improvement projects, and maintain our communities' water and wastewater infrastructure!

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