

Luis Menchaca
Parks Maintenance Coordinator
Olivehurst Public Utility District
1970 9th Ave
Olivehurst, CA 95961

August 24, 2020

Re: Rain Master Laguna/DX3 communication options

Dear Luis,

Jim Weller with SiteOne Green Tech asked for a letter clarifying communication options for the Laguna/DX3 Central Control System at the Olivehurst PUD. While Laguna software and DX3 controllers are completely backwards compatible with your existing inventory of DX2 controllers, there are a couple different options for communication. We recommend Ethernet or Cellular communication for DX3 controllers over UHF radio communication. Please consider the following:

Ethernet – All DX3 controllers are Ethernet compatible out-of-the-box. If an Ethernet connection is available at a given location, this would be the preferred method of communication. Pros and cons of Ethernet on DX3:

- Pro – no direct cost for Ethernet communication except any third party Ethernet access fees.
- Pro - all future development of features that require internet access will be available to these controllers. Most recent example is the new ProMax Connect phone app.
- Pro – Communication speed is much faster and troubleshooting usually easier than comparable UHF radio.
- Con – requires a hardwire ethernet connection and static IP address.

Cellular – DX3 controllers offer the new feature of an integrated cellular modem. Cellular communication uses the internet and existing cell towers for communication to the DX3 controllers. The DX3 cell modem is approximately \$1,950 more than the comparable bare/Ethernet controller at 2020 list price. Pros and cons of Cellular communication on DX3:

- Pro – like UHF radio, cellular communication is over the air and doesn't require a physical connection to a communication path. This makes cell communication appropriate for most remote sites.
- Pro – like Ethernet, cellular communication is basically an internet communication path. All future development of features that require internet access will be available to these controllers
- Pro – 10 years of cellular service is included in the price of the DX3 cellular modem. Cell service is provided through Rain Master and doesn't require any third-party contracts or services.
- Pro – additional equipment like high-gain antennas are not usually required.
- Pro – Communication speed is much faster and troubleshooting usually easier than comparable UHF radio.
- Con – After the 10 years of included service expires an annual cell service bundle purchase will be required. While actual cost of cell data service in 10 years is not known, additional pre-paid service is available at \$120 per year per controller.

UHF Radio – your existing DX2 controllers use an *analog* UHF radio communication system. DX3 controllers also have a UHF radio communication option that can use your existing FCC licensed frequency, *however* the radios used in the DX3 controllers are high-speed digital radios and require a high-speed digital base radio or repeater. The DX3 Digital UHF radio modem is approximately \$2,200 more than the comparable bare/Ethernet controller at list price. Pros and cons of UHF communication on DX3:

- Pro – no cost for UHF communication other than the cost of equipment and the cost of maintenance of the equipment and FCC License.
- Con – the DX3 UHF radio network will require a duplicate high-speed digital base radio and/or repeater. List price of a DX3 base radio is \$3,000 and a DX3 Ethernet repeater (if needed) is \$3,550.
- Con – the DX3 controller with UHF radio is approximately \$250 *more expensive* than the equivalent cellular. Over \$1,000 *more expensive* than cellular if a high-gain antenna is required.
- Con –Features that require internet access will not be available on UHF communicating controllers. This includes the new ProMax Connect app and the future ability to host and manage controllers on the internet.

There are probably more pros and cons of each that can be discussed, but these are the main points. Again, the development path of the DX3 and Laguna software is focused on products that have internet connectivity. This *excludes* UHF radio communication in most instances.

We haven't had a chance to meet directly, but I hope to do so soon. Please feel free to reach out to me with any questions or to discuss communication options in more depth. Thank you again for your support.

Sincerely,



Michael Smith
Specification Sales Manager
Rain Master/The Toro Company