

Irrigation upgrades that power performance

By Luke Frank

Let's pretend, because it's always more fun, that we just received a budget windfall, say a 5-percent goose in capital funds over last year without any foreseeable increase in expenses. It's not a huge chunk, but an opportunity for upgrades.

Your mowers, topdressers, aerifiers, trucksters and tractors are in pretty good shape, so you've elected to dedicate the entire lump to irrigation upgrades. Finally, that recurring hotspot in deep left field can be addressed. Where to begin?

Irrigation consultants worth their salt will suggest that you begin . . . well . . . at the beginning. Where can you make the most effective and logical upgrades that will affect the long-term performance of your irrigation system, and therefore your athletic field? What single irrigation system component can yield the greatest results for your turf management program?

Evaluate and pontificate

You may already know exactly where to go based on system age, wear and overall performance. Perhaps that's the launch point; evaluating system performance and making simple adjustments to sprinkler head tilt and grade, head spacing, nozzle checks and replacement, valve checks and replacement and so forth.

Once you've made those adjustments and everything is operating relatively smoothly, hydraulically speaking, there are opportunities to shorten your overall irrigation regimen, relieve any water hammer issues in the piping system and improve coverage that will reduce overall resource consumption by your system.

When considering new features for your antiquated irrigation system to make things more efficient, look toward your control systems first. Pump controls and irrigation timers can offer new heights of system control that affect delivery efficiencies from the piping system to the heads.

Upgraded pump controls can enable you to use your entire system more efficiently by maximizing your pump curves through the activation



of more zones in each irrigation set while keeping your main and laterals filled and pressurized more consistently. This is a significant move, so unless you're adept at reading pump curves and familiar with the technology, bringing in an outside professional might be in order.

Pump controls also should be considered if you plan to add a fertilizer injection system to your irrigation set-up. Wouldn't it be nice to apply gypsum, wetting agents or nitrogen through your irrigation system in small, digestible increments zone by zone? Sports parks and athletic fields take tremendous abuse with the frequency of a bar's bathroom. Strong root and chute growth is important to turf's durability and resilience, so by applying nutrients in smaller amounts more regularly you can quickly rehabilitate stressed turf areas without worrying about granular fertilizers lingering atop the surface. Moreover, if you're dealing with water or soil pH problems, fertigating can help to establish and maintain the desired balance.

Since we're talking about controls, it may be time to graduate from an old electro-mechanical timer to a new, digital, solid-state irrigation

control system. Newer commercial digital controllers are affordable and offer more features than most water managers are willing to use. Many also are “networkable,” meaning they can be configured as a central control system if you have big clusters of ball fields.

However, the key is that they are considerably more accurate minute-to-minute in programming and activating watering times, more flexible with multi-program, multi-cycle capabilities, and wired for more retrofits like weather stations, rain, wind and/or flow sensors, as the budget allows.

There's a pretty wide selection of control systems available to you, so consider all of your site's needs before you start looking at features. Remember, if you upgrade your controller, select a model that offers more stations than you currently need. For many projects, future system expansion is inevitable.

Minimizing geography

Some sites might lend themselves to remote-control capabilities. Activating and programming irrigation from most any point on the site can save a lot of time, manpower and grief when troubleshooting system problems, particularly for large facilities with multiple functions.

Charging a trouble turf head while standing next to it identifies the problem a lot faster and makes it considerably more likely the repairs or adjustment will be refined and confirmed.

There are both universal and brand-specific remote control products out there that put the power in your palm. Remote control capabilities are in fact one of the more fun upgrades, but at the same time they're amazing time savers. Those who have them vow never to go without again.

Sticking with the control system, rain and wind sensors are simple, affordable retrofits that improve your water use and turf health. The concept is pretty straightforward; they operate by interrupting the signal that activates the valves. Many of these products automatically reactivate the irrigation system when conditions have improved below your desired threshold, so your turfgrass gets what it needs, but at a time when it can better use it.

Buy a proven product from a respectable manufacturer, mount it in an appropriate spot, run a couple of wires and you're good to go with the only tasks left being simple adjustments and routine inspections. Nobody wants to see, or be seen, irrigating during a downpour. Your employer(s), their customers and in some cases public authority take

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IRRIGATION & DRAINAGE

great offense at such a visible waste of resources. Sensors can be a simple solution.

Many irrigation consultants will tell you that the future of turf irrigation management is low-volume, low-pressure delivery. It's more accurate, less susceptible to the elements, more compatible for even soil absorption, and frankly easier on system components in the field.

Ideally, irrigation systems are designed to perform with static and dynamic pressure available at the site. If pressure is too high, sprinkler water atomizes and drifts away—commonly toward all the vehicles in the parking lot. If adjustments at the valve or the sprinkler(s) don't sufficiently reduce pressure to create larger droplets and a more uniform pattern, regulate main and/or zone pressure(s).

While you're down there splicing in pressure regulation around the valves, make sure your valves are protected by solid, clean, accessible enclosures. Valve enclosures come in numerous colors, shapes and sizes, and you should house all irrigation components you think might need to be accessible, from quick couplers to relief valves.

Back to pressure regulation, the key is ensuring that your system is operating within designed flow and pressure specifications. A solid irrigation design by an independent consultant will integrate the most appropriate products for the site in harmony, regardless of product manufacturer. There is significant value in outlaying a good chunk of budget for system components that operate in unison in the protection,

treatment, delivery and dispersal of irrigation water. Moreover, there's certainly value in guaranteed system operating performance beyond product failure.

A couple of side notes: any zone on your current system that can be converted to low-volume irrigation should be. Turf heads blowing three gallons per minute over annuals or perennials near the box office or in entrance/parking lot medians can create more problems than they solve.

Finally, turf facilities tend to feature a lot of medium to heavy equipment operating from time-to-time across the playing surface. Ensure that all heads are supported by some manner of flexible riser. Swing joints, whether you assemble your own or buy them prefabricated, provide nice shock absorbers for mowers, trucksters, tractors, aerifiers, whatever.

These are but a few of the mountainous opportunities to improve irrigation performance. Some are simple tune-up tasks, while others may require some outside expertise. Any upgrade that significantly affects system flow and pressure, e.g., adding or changing sprinkler heads, zones, pump controls, etc., needs to be more carefully evaluated and accurately specified. It might be well worth it to contact an irrigation consultant in your area and pick his or her brain.

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