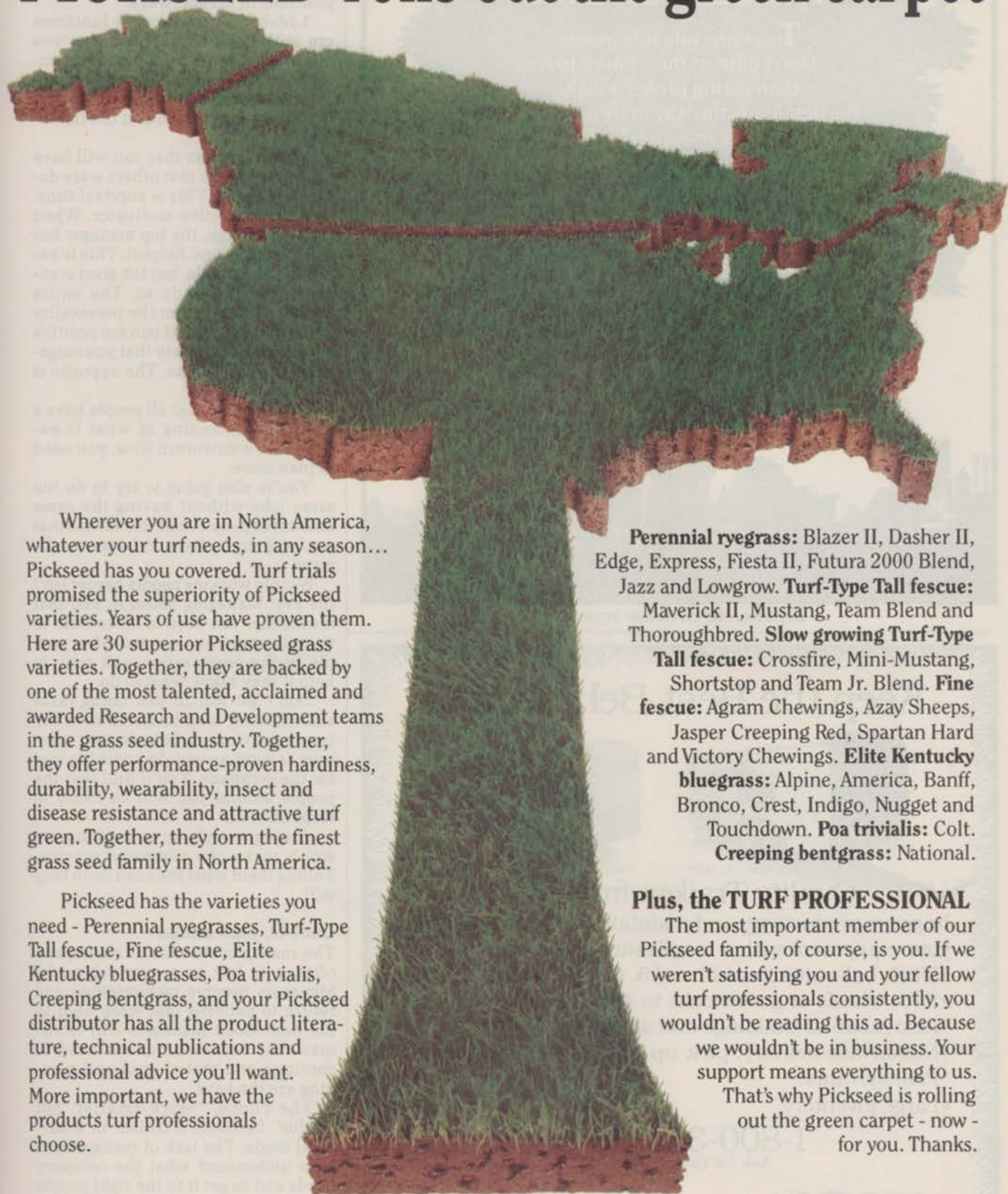


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CHALLENGE

make the adjustment to their "new"
positions in several ways:

1. Make sure that the key functions
are still in place. For instance, you
might take on the function of inven-
tory control to allow a manager to sell
or work with the crews. But no matter
what, someone has to run the inven-
tory.

This may mean that you will have
to be doing tasks that others were do-
ing in the past. This is survival time.

2. Be a positive motivator. When
times are tough, the top manager has
to be positive and helpful. This is ex-
tremely hard to do, but the good man-
agers are able to do so. The entire
organization takes on the personality
of the top manager. If you are positive
and upbeat, it is likely that your orga-
nization will be also. The opposite is
also true.

3. Make sure that all people have a
basic understanding of what is ex-
pected. In a downturn time, you need
to plan more.

You're also going to try to do the
same jobs without having the same
amount of people, and that means that
you're going to have to be more effi-
cient.

Simply working people harder isn't
the key. Managing better is, and that
means that you need to make clear to
everyone what is expected. Most peo-
ple in the organization will rally to
help if they know what to do.

Don't get lost in just doing tasks
and working long hours to save the
company. Work on being a good man-
ager as hard as you do anything else
for the company. You'll find that the
people around you will be likely to
respond well.

Asking everybody to work harder
won't make the company survive.
Telling them what they can do to help
will.

Control, plan ahead

The management side of a company
often gets lost in a survival mode.
Managers become task-oriented and
return to patterns that were used in
the past. Good managers will recog-
nize that certain functions need to
continue and that control and plan-
ning are the keys.

The cliché, "work smarter, not
harder" becomes a truism in a sur-
vival mode. The task of management
is to understand what the company
needs and to get it to the right people
and places on time. Easier said than
done, but still possible. And for good
managers, the ultimate challenge. **LM**

Rudd McGary, Ph.D., is a senior consultant with
All-Green Management Associates in Columbus,
Ohio

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WHAT'S GOOD FOR THE SYSTEM?

...As in irrigation system. Water management is more sophisticated. Money and water savings can be yours with troubleshooting, auditing and monitors.

by Jack Simonds, contributing editor

An irrigation system serves its purpose when the results are seen and the system's not heard.

When problems arise, grounds superintendents find themselves on the business end of troubleshooting.

As a green industry "major appliance," underground irrigation systems are only as good as their last season of service; and no one knows this better than irrigation designers and installers.

Water management is taking a front-and-center position in the 1990s, believes John Elliot of Irrigation Technologies in Temecula, Calif.

Irrigation Technologies, which concentrates on corporate landscaping irrigation, can analyze watering systems for weaknesses such as uneven water distribution because of improper head spacing, broken heads and underground water line breaks.

Is an audit an answer?

"Water management" is an industry buzzword. The term takes in irrigation design, water scheduling and systems maintenance. A system analysis, or audit, is the first action one should take if a problem is suspected, Elliot maintains. Other firms around the U.S. agree.

Emerging from such an analysis can be one of those good news/bad news set-ups; but the punchline may not get a laugh. The good news might be that a thorough systems check finds a simple mechanical problem which can be overcome by replacing a widget. Life goes on and all is well with the world.

The bad news? The original irriga-



Lesco's John Dunlap: "New water distribution designs require less water pressure and electricity."

'Our opinion is that people over-water by 100 percent.'

—John Elliot
Irrigation Technologies
Temecula, Calif.

tion system has significant design problems. Corrections will carry a heavier price tag.

"If you've got wet spots, dry spots, brown-outs, water bills that seem exceedingly high, you've got a real problem," Elliot says. "Audits like the ones we do are not real expensive and they can tell you where your problems are."

Using catch-can and other monitoring techniques, Irrigation Technologies auditors are able to de-

termine the effectiveness of a system. Elliot says soil types and the kinds of plantings being watered also factor into the equation.

Sensors reduce waste

Regardless, Elliot has found one recurring error:

"Our opinion is that most people over-water by 100 percent or more."

Elliot's firm, like others in varying degrees of endorsement, recommends rain sensors. A \$20 investment, he says, can go a long way, if the device is installed and used correctly. But the science can be a sensitive topic within the industry.

"We recommend rain sensors," says Elliot, adding Irrigation Technologies is now in the process of testing different models.

"Trying to guess where to put them is a really sensitive subject. With rain sensors, you get credit for rain; the system shuts down automatically," Elliot offers; adding this caveat: "It gets very complicated very quickly."

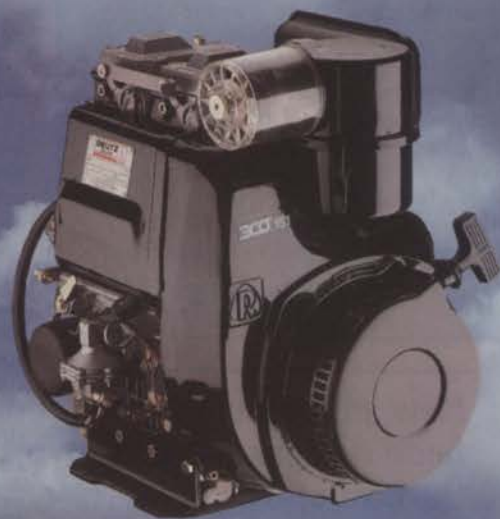
Add, too, irrigation scheduling, which is dependent on the "W" word: weather.

Trouble down below

John Dunlap, an irrigation specialist with Lesco, Inc. in Rocky River, Ohio, says common telltale signs—surface puddles and extraordinarily high water bills—usually mean the underground piping system is deteriorating.

"If water coverage is inadequate during long dry spells," advises Dunlap, "changes and upgradings in systems are likely needed. New sprinkler designs and layout configurations giving maximum coverage are now available."

continued on page 66



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All systems go

- If you suspect you're wasting water, have a water audit done ASAP.
- Wet spots, dry spots, brown-outs and astronomical water bills mean something's up down under.
- If water coverage is inadequate during long dry spells, changes and upgrades are likely needed.
- New sprinkler designs and configurations give maximum coverage using less electricity.
- Weather stations and moisture sensors can be retrofitted to older, still-servicable irrigation systems. □

ditions," Robbies says. He prefers weather stations and computerized watering controls, particularly when building a new system.

Too many moisture sensors would be needed on courses where terrain varies from shady to sunny, grassy to sandy, he says.

Robbies, who says 80 percent of his business is in golf course irrigation design or troubleshooting, points to some general guidelines course superintendents may use to find out if it's time to call in a systems analyst.

"The first thing to do is keep a record on the number of man-hours spent on repairs. How much time is spent dragging hoses around to dry spots?" he says. If these and other operating costs recur—particularly curiously high water bills—upgrading and renovating is in order.

His analysis includes seeking out and isolating underground water breaks.

"Is any of the existing pipe usable?" Robbies first asks.

Likewise, David Dynan, head of American Lawn Sprinkler in Norwood, Mass., looks to signs of stress in plant material, lowered or inadequate water pressure or sprinkler heads which simply and obviously are working.

Plug it up early

Sometimes, Dynan says, small underground leaks build up over time, adding up to a major retooling job.

"From an analysis we may have recommendations of specifically what must be replaced," says Dynan.

Weather stations and moisture sensors can be installed where conditions dictate. He has retrofitted the monitoring devices to older, still-servicable irrigation systems.

"With the price of water so essential, it makes good common sense to use these simple devices," says Dynan.

He says golf course owners at times opt to make repairs piecemeal, blunting and spreading out costs; making upgrades where needed most and the capital improvement budget permits.

Like other irrigation consultants and installers, Dynan notes drought-resistant plantings are more a function of landscape designers.

Dynan also says some golf course work can be done during the season.

"Depending on the upgrading needed, you plan the logistics for major repairs so you obviously don't get in the golfers' way," says Dynan. Fall and early spring are ideal times, but other repairs along the periphery of the playing area may be made during peak season. **LM**

IRRIG. from page 64

With new distribution designs requiring less water pressure, golf course superintendents and other landscape managers can look forward to significant electricity savings from the pumping station as well.

Newer head designs, grouped in clusters and emphasizing energy efficiency, may also help ease the cost of upgrading, industry specialists agree.

With an average golf course irrigation system running from \$300,000 and up and a typical 7,000 square foot

New, energy efficient head designs may ease the cost of irrigation system upgrades

residential system hovering between \$2,000 and \$3,000, design and installation costs weigh heavily on the man holding the purse strings.

"All of those (factors) can be major considerations," says Dunlap, adding that computer controls and local weather stations and moisture sensors, where applicable, can only assist in maintenance ease.

Keep play going

And what of making repairs or installations during the season?

Dunlap has seen two plans work: "either close the hole to play (with golfers taking a score based on par and handicap) or work around golfers by having repair crews effect repairs, stopping as foursomes pass through."

Dunlap says Lesco has offered training sessions for crews to efficiently work even as golfers play through a hole under repair. The trick is to be as unobtrusive as possible, and such plans of attack can only be used when conditions for the job permit.

Weather stations for golf

Rick Robbies, an Englewood, Colo. landscape irrigation designer and installer, also uses rain or moisture sensors on some contracts, but generally doesn't include them on golf course irrigation plans.

"You'd have to have so many out there on the course to do an effective job," Robbies maintains.

"They (moisture sensors) work well in a commercial setting where you have the same contours and con-

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PROJECT PROFILE



The bike path near I-90. Maintenance schedules must consider the presence of heavy traffic in the area.

KEEPING RIGHT-OF-WAY MAINTENANCE DOWN

Washington state's I-90 project is designed to require a minimum of landscape maintenance.

by Leslee Jaquette

The seven mile stretch of Interstate 90, recently completed between Bellevue and Seattle, Wash., is touted as the most expensive strip of highway in the country. The landscape treatment alone will cost taxpayers \$25 million.

The 200-acre landscape area includes 12 miles of trails, three multi-use lids and seven structures widened to support landscaping. Only one-third complete, the project will use 775,000 cubic yards of soil and nearly one million plants.

To establish and promote thousands of trees, shrubs and ground-cover plants, the Department of Transportation landscape team designed each of the 20 projects with

practical maintenance in mind. A computer controlled irrigation system in tandem with value engineering and other common sense maintenance decisions should prove the landscape design a success for generations.

"Considering the scope of the entire project, the DOT has done an excellent job," says Rich Osaka, owner of Fuji Industries of Tacoma. "They have used great forethought in creating a variety of aesthetic and functional environments that are maintenance friendly."

Plants establishing

One of the first contractors to work on the I-90 bike path across Mercer Island, Osaka's project is in the

second year of plant establishment. It simulates an orchard, using snowberries, Rugosa roses, ivy and flowering pear trees. After the third year of maintenance, as with all the projects, maintenance reverts from the contractor back to either the DOT or the local municipality. Osaka says by the time his contract ends, most of the plants will have filled in to the point that very little weeding or pruning will be necessary.

Local engineers agree with Osaka that the I-90 project has been well conceived and carefully negotiated to the point that there should be few surprises at turn-over time. Director of Maintenance for the City of Mercer Island, Dick Williams, says

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he is just starting to look at potential staff increases and equipment needs for next year. For now, he plans to use the city's Ransome's five-gang mower on the additional flat areas, including play fields and parks.

His main concern is that care be taken when it comes time to fertilize the lids. These large cement structures are covered with a thin layer of soil only 18 to 24 inches deep.

Reducing maintenance

Early on, the DOT conducted extensive value engineering studies to develop a plant palette of about 80 different visually attractive and functional species. The palette allows for about a dozen species of evergreen shrubs, deciduous shrubs, large deciduous trees, small to medium deciduous trees, coniferous evergreen trees and groundcovers. Five primary plants were used extensively in each category.

In conjunction with the careful selection of trees and plants, large expanses were planted with a single species. Architect Don Howe says the design calls for acres of ivy. In fact, in one area alone, 620 gallon-size plants were used for underplanting. Each ivy plant cost around \$5 and had four 10-inch runners. They were planted three feet on center.

Howe believes the extra cost for bigger plants is worth it. The larger plants insure the roots can get below bark mulch within the three-year establishment period. Erosion control is expedited and maintenance decreased due to their quick spread.

Cliff Cooper, I-90 engineer on Mercer Island, says tree size was a critical issue from the beginning. Citizens were concerned the DOT would plant six-inch high trees. Since then, the planting of 3 1/2-inch caliper, 18-foot high cedars and maples has obviated most anxieties.

Cost-effective soil mix

The trees and other plants grow in a value-engineered soil composed of 75 percent sand and 25 percent bark plus nutrients. Howe says this soil mix was cost-effective. It was also easier to make mountains of the mix than it was to find enough native soil for the project. Around 130,000 cubic yards of the sand/bark mix was used on the Seattle and Mercer Island lids. An additional 625,000 cubic yards was used elsewhere in the linear park areas, medians and trails.

To insure that the trees and shrubs don't drown in the soil, the

projects provide for positive drainage. In an environment that sees months of steady and sometimes heavy rain, it was imperative that each project use lots of conduits and free-draining material. Howe explains that great masses of unsuitable drainage material such as clay had to be excavated and hauled away, substituted by tons of gravel.

Choosing irrigation

One of the most unique aspects of the I-90 landscape design is the irrigation system. According to DOT landscape designer Raymond Willard, the basic purpose of the irrigation system is to establish the plants. Despite that initial goal, and the system's temporary status, it is designed to be activated during droughts.

Willard says that although the plants were selected for their tenacity, the irrigation system has the capability to provide permanent irrigation if needed. This feature enables the DOT or municipalities to irrigate areas with landscaping over the freeway, widened crossings, lids and play fields. Turf areas with only 18 inches of subsoil and structures with up to only six feet of soil for trees will require regular irrigation.

This computer controlled irrigation system is the wonder child of the DOT landscape design. The RainBird Maxi ET program controls the irrigation system as well as monitoring the system for problems. The RainBird software and flow sensors by Data Industrial Manufacturing were selected after extensive comparative research on five major systems.

Willard says RainBird was chosen after the DOT matrixed all the capabilities, costs, company reliability and user-friendly features of all contenders. Three computers will be installed for each of the different government agencies that will eventually take over maintenance of the landscaping: City of Seattle, City of Mercer Island, and the DOT.

All 20 landscape projects require irrigation systems. Willard notes some of the projects involve skirting 30-foot walls and canyon-like sections of highway. Contractors used ductal iron pipe for these areas to carry water up to 80-feet in elevation around barriers. The computer system is partially justified as a safety measure because of its ability to monitor water application and guard against leaks and broken heads in these difficult areas. The RainBird-controlled system's ability to automatically shut-off irrigation could help avoid wall failure or washouts.

The computer program is linked to weather station information. Using the latest weather data, the software automatically adjusts irrigation according to the temperature, rainfall and humidity. Maintenance is also enhanced by its ability to be customized to irrigate specific zones and not others.

The DOT selected three main sprinkler heads to provide continuity throughout the projects: RainBird, Toro and Hunter. In another move to decrease maintenance DOT designers opted for ground-level couplers and thousands of pop-up heads that retract when not in operation. The landscape team also requires metal detector tape be placed above laterals and valve boxes so they can be easily located with a metal detector.

In an additional effort to minimize maintenance, the design calls for 12-inch mowing strips between ground cover and lawn areas. Howe notes the Seattle lid alone uses more than 5700 feet of the cement stripping, to expedite mowing.

Maintenance issues

There are numerous long-term maintenance issues yet to be finalized, says Howe, but as the first contracts approach turn-over, individual management plans will be developed.

General guidelines do exist, however. For example, only licensed pesticide applicators will be approved and each project will be individually evaluated.

Howe says the biggest challenge continues to be dealing with the populace. It is difficult to develop "extensive landscaping" that meets both the DOT's needs and the needs of the community.

"Each individual has his own view of what it should look like," says Howe with a shake of the head. "Some see it as a forest, others want a 180-degree view."

The I-90 landscape design will require very little maintenance because of careful planning and progressive systems. Still, considering erosion control is the main justification for planting, Howe admits a certain amazement at the whole project. "With less than two percent of the total highway budget," says Howe, "the landscape effort will enhance the project for decades." **LM**

Leslee Jacuett is a freelance writer based in Edmonds, WA.