So, You Want To Renovate Your Golf Course?

There are hundreds of ways for course renovation programs to go awry. Here are a few tips to make your project a success.

by DAVID A. OATIS

A small tee with poor traffic flow is good reason to renovate!

MOST golf course superintendents eventually face course improvement projects of one type or another at some point in their careers. The proposal might be to rebuild a green or a tee or a bunker, or perhaps to add or expand a water feature. Regardless of the project, it is important to first examine the course in its entirety and to identify its strengths and weaknesses before proceeding. Course improvement projects tend to have a domino effect, and a project that improves one area of the course can easily cause problems in other areas. Projects often require considerable expense to complete and they can have a major impact on how the course looks and plays, and on the maintenance budget as well. Course improvement projects should be undertaken only after careful thought and much planning. Unfortunately, many renovation projects turn out poorly due to insufficient planning and preparation, poor design, or poor execution. The purpose of this article is to identify some of the common mistakes associated with course improvement projects and to provide concrete suggestions for avoiding them.

DEVELOPING THE PLAN

Defining the Objective

The first step is to define what you wish to accomplish through a renovation or course improvement project. *Monuments* to individuals or committees should be avoided like the plague. Frequently, projects that have been observed at other courses are suggested, but this amounts to little more than *keeping up with the Joneses*. Proposals should have a specific goal in order to avoid making change for the sake of making change. The goals may be to improve aesthetics or definition. You may want the course to play harder or easier, or perhaps more fairly or more safely. *There may be some confusion as to what the course needs, and it is quite possible that your ideas are inappropriate for your golf course or financially not feasible.*

Research Your Course

It is vital to research your own course as thoroughly as possible so that you are in possession of all of the facts when it comes time to decide on plans and projects. In the case of old, classic golf courses, it must be determined whether renovation or restoration is most appropriate. Too often, fine old designs have been ruined through well-intentioned but thoughtless renovation. A distinction must be made between good old architecture and bad, and time and research are required to make an informed decision. Much information can be obtained from golf course architects, but it is also wise to do your own independent research. You might just discover exciting new information regarding the origin of your course!

The attic is a great place to start looking for old records, pictures, plans, and documents that could provide clues to the history of the course. It may take weeks to thoroughly examine all of the old files, and you never know what you might find. Aerial photos from the early days of the golf course can provide invaluable evidence. Aerial photos dating back to the '20s and '30s exist for many areas of the United States, so check with county and local municipalities, planning/engineering departments, libraries, etc., to see if they can be located. Also, be sure to check with the National Archives, Records Administration, Cartographic Branch, 8601 Adelphi Road, College Park, MD 20720-6001. Many old photographs exist in the USGA Golf House Museum, so be sure to give that a try, too. Other methods of researching your course include interviewing longtime members and former staff regarding the history of the golf course.

A soil probe and perhaps even a shovel are some of the most important investigative tools available. Probing and digging in and around greens and bunkers can provide insight as to what has occurred over time. Through edging, mechanical raking, and wind and water erosion, bunkers generally tend to get larger. Sand blown and blasted out of bunkers over many years can completely change bunker mounding and even putting green contours. In some cases the changes can be so dramatic that traffic or surface drainage problems are created and usable cupping area is lost, leading to severe turf problems.

Special care should be taken to disregard the current mowing patterns, since these can change dramatically over time. In general, putting greens usually shrink in size and become more rounded. If the greens at your course are oval or circular in shape, there is a better than average chance that the mowing patterns have been altered over the years. Examining topography and comparing putting green soil profiles to those from the green surrounds can help determine the original putting green shapes.

The amount of usable teeing area often decreases as a result of trees and vegetation encroaching along the line of play, and often this can be corrected more easily through tree and brush removal than reconstruction. Mowing patterns on tees also can change over time, and expansion sometimes can be accomplished easily through adjustments in mowing patterns.

In the last 10 to 15 years, fairway acreage has intentionally been reduced at many courses to facilitate lightweight mowing programs. Years ago, fairway acreage commonly ranged from 40 to 50 acres, while today they more typically range from 23 to 28 acres. If the reduction is not done properly, prime landing areas may be lost, and alignment and playability may suffer. Since many older courses were designed without fairway irrigation, the increased roll prompted architects to place bunkers further from the center point of the fairways. With the addition of irrigation and improved turfgrass quality, some of these bunkers may need to be repositioned, and/or fairways may require recontouring and alignment. Indeed, most old courses can be improved by adjusting mowing contours.

Selection of Architects and Contractors

Choosing the right golf course architect and contractor for your course and project is extremely important, and time and research are required to do it properly. The most important advice is to thoroughly check the references of all potential candidates. Be sure to speak with the golf course superintendent, green chairman, and other course officials at courses where the prospective architects and contractors have worked. Obtain a variety of perspectives and ask tough, direct questions such as: "Would you hire them again? Were the promises made delivered on? Was the work completed on time and on budget; if not, who was to blame?" Delays are common and not necessarily the fault of the architect or contractor, but this is something to check.

Be sure to ask how much the architect was on site during the project and whether he/she was accessible when not on site. It is imperative to visit the courses where the candidates have worked so their results can be observed firsthand. In the case of renovation, decide whether the work blends in well with the rest of the course, basing your judgements on the stated desires of the respective course committees. Determine whether the renovated areas require additional labor for maintenance. In the case of restoration, compare the work to old photographs and maps.

IMPLEMENTATION

The planning process can be very exciting and it is easy to become enamored with grandiose proposals, but this is something to be especially wary of. The infrastructure of the entire facility must be carefully considered before deciding how quickly to implement the program. Too often the money needed for a new maintenance facility, equipment replacement, or irrigation or drainage systems is used to finance the renovation program, and this can have disastrous and long-term effects on the financial state of the course.

In the case of multi-year programs, it is usually advisable to begin the implementation phase slowly to aid in golfer acceptance. "Don't bite off more than you can chew" is sound advice. Similarly, choose the easiest and least controversial projects for the initial phase in order to get the clientele excited about the program and to garner their support. Success breeds success, and a failure in the initial phase can compromise future projects.

In cases where the plan is not controversial and the need for the work is well understood, the best course of action often is to implement the plan more quickly. *Biting the bullet* and performing the work in one or two phases causes more disruption in the short term, but far less in the long term. It is best to perform all putting green construction and/or regrassing work in the same season so that all of the new turf is at the same stage. Building or regrassing greens piecemeal complicates the maintenance program because different sets of greens are at different stages of development and require different maintenance programs. This also causes greater inconsistencies in playability.

Sloppy construction — even the best contractor can have a bad day!

Furthermore, putting green construction work tends to be more controversial in nature and few courses ever complete a putting green reconstruction project on a piecemeal basis. Generally, it is far more economical to do all putting green construction work at the same time.

CLASSIC MISTAKES

Certain mistakes seem to be repeated consistently and deserve special mention. The following are some of the most common:

Not Knowing What You Have to Start With

This problem can be prevented by doing extensive research and getting opinions from a variety of sources. Much can be learned through interviewing golf course architects, but it is also worthwhile to discuss the various issues with your Green Section agronomist. Seek out and visit other courses designed by the original architect of your own course. Also, be sure to consult with other superintendents and course officials who have undertaken projects similar to the one you are considering.

Trying to Be Something You Are Not

Every spring, Green Section agronomists meet course officials who want to plant azaleas and rhododendrons so they can be *just like Augusta.* Similarly, I have visited several courses whose natural features happened to be natural rock outcroppings, yet the course officials wanted to remove or cover them up. Conversely, some courses in the southwest have actually constructed rocks and waterfalls from fiberglass and concrete! The point is, each course must be allowed to develop its own character. Trying to imitate other courses rarely works well. More often than not, imitators come off looking like cheap imitations. No two courses are alike, nor should they be.

Mixing in Too Many Materials and Design Themes

Tree plantings on links golf courses are simply not appropriate. There are countless bunker designs and styles, but including many varying styles on the same course, and especially on the same hole, would be considered inappropriate by most knowledgeable golfers. Similarly, the features for each hole and course must be appropriate for that geographic region. Exposed, high-sand faces on a windy site can lead to more sand being blown out of the bunkers, with the ultimate results being playability problems and increased maintenance costs.

Some consistency in design is also suggested. For instance, rectilinear tee shapes should not be mixed with free-form amoeba-like shapes. When renovating a portion of the golf course, the work should blend in with the remaining features and not look out of character. Taking the concept one step further, be sure not to include too many different hardscape materials in the landscape. It is best to choose a few materials and use them throughout the course for the sake of consistency. For instance, choose one type of signage, curbing, cart path material, steps, etc., and try to carry it through the entire course. At all costs, avoid including too many different types, colors, and textures of materials because they distract the golfers and draw unwanted attention.

Failure to Plan (Ahead)

Just as the title implies, poor or inadequate planning is the root cause of

many renovation snafus, and rushing into a construction project is a recipe for disaster. Educating the golfers regarding the need for the project and the rationale behind the decisions being made is essential. They deserve to be kept informed, and open forums with question-and-answer periods are good means of accomplishing this.

Research is required to identify the most appropriate grasses and materials for tee or green construction, but this is sometimes overlooked due to time constraints. Superintendents sometimes are forced to rely on old test data from another project at a different course. Also, consider individual motives when evaluating agronomic advice. If the materials and grasses chosen don't work well, it could mean your job!

The scope of the work must be clearly stated, and areas of responsibility for the staff and outside contractors must be established and communicated in no uncertain terms. Rushing into a construction project without doing your homework can result in disastrous consequences.

Lack of Continuity in Leadership

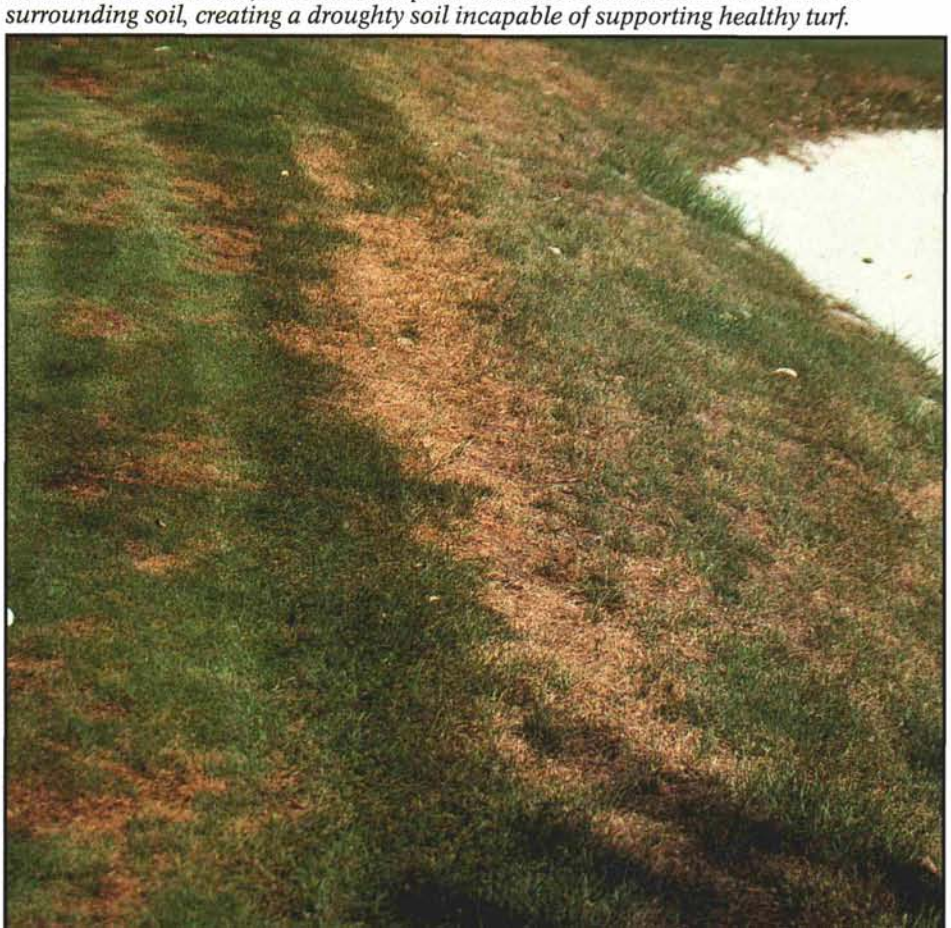
Renovation projects and maintenance programs often suffer due to rapid turnover of committee members. Alister Mackenzie put it accurately in his book *The Spirit of St. Andrews* when he wrote: "The history of most golf clubs is that a committee is appointed, they make mistakes, and just as they are beginning to learn by these mistakes they resign office and are replaced by others who make still greater mistakes, and so it goes on."

Reconstruction of Tees and Greens for the Wrong Reasons

More than one course has rebuilt the same green or tee multiple times, only to experience equally poor performance with each new version. The problem often is more related to the grass-growing environment the green or tee occupies than to the method of construction that was actually used. A favorite adage is that "even good construction cannot compensate for a poor grass-growing environment." Thus, if you are considering reconstruction of a green or tee because of poor turf performance, be certain to carefully identify the correct reasons for the problems before embarking on a reconstruction project. Above all, consider the grass-growing environment, and make improvements there before getting out the heavy equipment. Trees and underbrush that block sunlight and air circulation should be removed before considering reconstruction. In especially difficult environments, installing electric fans for the existing turf may produce adequate improvement.

In some cases, greens are rebuilt because they won't hold a shot. This goes back to knowing what you have to start with. Some holes, particularly those on older courses, were never designed for the aerial style of play that is now in vogue. If you have a green that won't hold a shot, consider the architecture of the hole. A downhill shot played to an elevated green, or one that falls away, is better suited for a bump-and-run type of shot.

The sand not removed from a bunker prior to reconstruction was mixed in with surrounding soil, creating a droughty soil incapable of supporting healthy turf.



Poor Performance of New Greens

There are many reasons for poor performance of new greens, but perhaps the most common is unrealistic golfer expectations. New greens require several years to mature and stabilize, and they generally cannot withstand the same amount of traffic and stress as older, established greens. Rushing them into play too quickly and/or expecting too much too soon can result in years of poor performance. New greens almost always play differently from older, mature greens, and they usually require a very different maintenance program. For these reasons, reconstruction of a few greens on an old course generally is best left as a last resort.

New green designs should be checked carefully to insure that adequate cupping area exists along with adequate surface drainage and traffic flow. Again, areas of surface drainage should not be located in high-traffic areas. The impact of the grass-growing environment on the performance of the putting greens cannot be overstated! Any proposed new green or tee should be located so that it receives adequate sunlight penetration and air circulation. Orienting greens towards the south as opposed to the north makes a tremendous difference climatically, and generally produces healthier, more vigorous turf.

Insufficient Tee Space

The following rule of thumb provides a simple and effective means of just how large tees should be: "One hundred square feet of *usable* teeing area is necessary for every 1,000 rounds of golf played annually for par 4s and par 5s. Double this figure for par 3s, the first and 10th tees, and any other holes from which irons are regularly struck." It should be noted that the

back two club-lengths, approximately one club length in the front and on the sides of the tee should not be considered usable for the sake of the formula. Areas blocked by vegetation also fall into the *unusable* category.

What the rule of thumb does not indicate is how the teeing area should be divided between forward, regular, and championship tees. This must be determined for each individual course, based on golfer tendencies. However, the forward tees generally should be the smallest since they usually receive the least amount of wear. Championship tees at some courses receive little play, and it is generally the regular tees that should have the greatest amount of teeing area.

The multiple tee concept is quite popular and can add interest and flexibility to course setup. However, each additional tee increases the percentage of unusable teeing area, and this can elevate the cost of maintenance dramatically. It is not uncommon to see four to five or more different tees for a given hole, but if they are small, the percentage of usable area actually may be quite low.

Poor Performance of New Bunkers

Bunker sand selection is of critical importance, and too often the choice is made based more on color than actual performance. There are no clearly defined specifications for bunker sand because choice is extremely subjective. Bunker sand performance is largely dependent on the shape of the particles and the size range of the particles included in the sand. The best method of selecting bunker sand is to install several sands side-by-side in a bunker a year or more before the project begins. This type of comparative study gives the golfers the opportunity to make the choice.

Shortcuts during reconstruction often result in major problems, and this is especially true with bunkers. A favorite trick is to not remove the existing sand but simply to blend it with the surrounding soil and use the mixture to reshape the mounding. This practice generally produces a droughty, inconsistent soil with poor structure that is incapable of supporting healthy turfgrass. Another common problem is failure to provide supplemental irrigation for the bunkers' banks. The turfgrass surrounding the greens typically is longer and has a higher water requirement than the putting surfaces, yet with conventional irrigation systems, the banks often receive less. Supplemental irrigation systems designed to water the banks independently of the greens will cure the problem.

Sand buildup from golfers blasting out of bunkers can change topography and even cause surface drainage problems.

Failure to Make Adequate Allowances for Traffic

At most courses, traffic is one of the most difficult problems superintendents deal with, and traffic problems are often created by poor design. Traffic problems are especially common on older courses since most were never designed for the level of play they currently receive.

There are many different ways to deal effectively with traffic, and the following involve a few design considerations:

1. Avoid placing immovable obstructions in high-traffic areas. Trees, shrubs, mounding, bunkers, etc., funnel traffic when located in high-traffic areas, and this can result in impossible-to-manage wear problems. It is best to keep the walk-on/walk-off areas around greens and tees as wide and as free of obstructions as possible.

2. The same comments can be made for the entrances and exits of cart paths. Creating as many points as possible for carts to enter and exit paths is critical for spreading wear.

3. Make sure that adequate surface drainage exists in all new green designs, and that the main areas of surface drainage are not also the highest traffic areas.

Remember, it doesn't matter how innovative or unique a design feature is; it won't play well if the turfgrass can't be maintained successfully.

CONCLUSION

In this age of heightened environmental awareness, we must be especially careful not to build environmental liabilities into our courses. For instance, drain lines must be routed carefully so that pesticides and nutrient leachate and runoff is not emptied directly into a body of water. Buffer strips are effective filters of surface water runoff and should be planted around water bodies wherever possible to help stabilize banks and preserve water quality.

More often than not, taking a critical, common-sense approach to golf course renovation will help you achieve satisfactory results. The process can be as simple as evaluating the strengths and weaknesses of the existing course and assessing whether or not the proposed changes solve the existing problems or create different ones. Granted, it requires some imagination to envision what the proposed changes will actually look like, but taking the plan out into the field and installing a few stakes and painting a few lines to outline the proposed work can help provide a clearer image of the proposal. Finally, taking care of obvious traffic and grass growing-environment problems will go a long way towards making your project a success.

DAVID OATIS *is the director of the USGA Green Section's Northeastern Region.*