When to Resurface and When to Rebuild

by Boyd Montgomery CSFM

This article will discuss the options to look at when faced with the issue of either renovation or rebuilding. With the help of the Field Improvement Data Sheet, readers will learn how to use the information collected on this form to decide if renovation or rebuilding is what is needed. I will discuss what is involved with field renovation in order to be successful, as well as what types of field construction methods are on the market today.

What is the Field Data Survey?
The Field Data Survey is designed to help groundskeepers better understand the fields that he or she is in charge of. It details specific areas, such as existing cultural practices, construction, fertility programs, chemical applications and field use. Once all this data has been collected, the groundskeeper can make informed decisions toward renovation or rebuilding.

This tool can be looked at in the same light as the “as built” drawings for the fields.

Field Data Survey Breakdown
Following is a list of the sections in the survey, as well as a brief explanation of each:

Information Section
Includes the names of groundskeeper, contractor, maintenance company and project supervisor

Mowing
Height, type of grass and equipment used

Fertility
Includes the types used, methods, product names and application techniques. Aspects of field maintenance performed
Aeration, overseeding, soil analysis, topdressing equipment, seed type, sod, weed control, fungicide, insecticide and application techniques.

Description of overall appearance

Activity schedule
Number of games, who schedules the games, policies to protect fields from misuse and field use breakdown.

Site Plan
Includes plans for drainage, irrigation, graded elevations and sub-soil.

Defining your team
List key contacts of individuals that should give input to any changes on that field.

Estimated budget
Amount of money set aside for capital expenses.

What’s Next?
After compiling all the data on the Field Data Survey form, a groundskeeper can meet with his or her board, supervisors, management or assembled team to make a decision based on the data collected to either renovate or rebuild.

Also, the groundskeeper can use the field data information collected to make a presentation to the above mentioned members as to the direction he or she feels the group should head-resurfacing or rebuilding.

Resurfacing
One means of resurfacing is through any of several aeration techniques, which include hollow or solid tine equipment, shatter tine equipment and verti-drain equipment.

Circle 115 on Inquiry Card.
When aerating, be sure to wait until the end of the field's heavy use season. Flag all underground utilities, irrigation systems and heating systems. Make several passes, between four and eight, and cover the field in varying directions. If using a hollow tine unit, be sure to collect the cores when completed.

Some benefits of aeration include: the release of toxic gasses, a decrease in wilting and isolated dry spots, increased water penetration, improved root growth in the hole areas, control of thatch, preparation of a seedbed for overseeding and improve turfgrass response to fertilizer.

Another form of resurfacing is through topdressing. When using this method, managers must first get a soil analysis test to determine the topdressing compatibility with the existing root zone mix. Remember, topdressing with sand on native soil fields will not improve the soils structure and drainage. You must reach 60 to 70 percent in the top three to four inches before topdressing with sand will help drainage and infiltration characteristics.

Layering of different soil textures within the root zone will be extremely detrimental. To eliminate the possibility of layering, make a constant supply of your topdressing material available.

Aeration cores of native soil fields make the best topdressing material when you drag the material back into the field. Diatomaceous earth or calcined clay products can also be used as alternatives for native fields, although this is a costly process.

In today's athletic fields, the pre-dominant material used for topdressing is sand. Sand particles vary and a USGA recommendation sheet must be used. Uniformity of particle size is the key.

Reseeding is another means of resurfacing sports fields. There are three forms of reseeding: Dormant seeding, drop or broadcast seeding and pregerminated seeding.

When reseeding, always remember to create a good seed-soil contact on the seedbed, with an appropriate level of soil surface moisture and a generous amount of seed. Overseeding during the playing season will allow players to cleat the seed into the surface. A drag mat pulled behind a utility vehicle is another good way to work the seed into the seed bed.

For a faster solution, sod can be installed on your fields, either in big rolls or slabs (or small rolls). When applying sod, there are several key factors to consider. Make sure the sod is mature, around 12 to 18 months old. Before laying the sod, the soil needs to be prepared. This is done by performing a soil test and...
loosening the soil to at least 6 inches. Remember, excessive tilling will destroy the soil structure.

Select a sod that has been grown on the same soil as the existing field. Layering effects will be caused by not following this rule. Washed sod can be purchased, but generally is quite expensive. Water the sod liberally for the first two weeks, and be sure to periodically check for gaps. If gaps are found, fill them with matching soil or plugs.

However you decide to resurface your field, there are two key factors in making the renovation project a success: Timing and communication. For the timing aspect, coordination with the users of the field and the renovation project is a key. The extent of your renovation project will depend on the window in which the work will be preformed. For good communication, make sure that all parties involved-users, the boss, board, contractors and yourself-have an open line of communication.

Rebuild
There are three main types of field construction: Natural soil (native soil), modified soil and non-soil medium/perched water table (essentially 100 percent sand). Each of these methods have their own advantages and disadvantages, as described below.

Natural or native soil construction uses the existing soil on site or topsoil hauled in from the area. These fields hold adequate nutrients and have a high water-holding capacity. They are generally crowned, which can be a disadvantage for some sports, and compact easily. Perimeter drain tile lines are generally used to move water runoff-internal drainage within the playing area generally is not recommended. The cost of this type of rebuilding can range from $3,000 to $20,000.

Modified soil fields generally have a coarse physical amendment, such as sand, mixed uniformly with the existing site soil. This allows better infiltration rates to the internal drainage. Internal drainage is used to move water to the perimeter tile lines. The fields will need internal irrigation and a semi-aggressive fertilization program. The cost of this procedure can range from $70,000 to $400,000.

The non-soil medium/perched water table method of rebuilding is the most expensive, initially. This method relies on a nearly 100 percent sand profile. Selecting the proper, uniform sand particle size is key. These fields are essentially flat, not crowned, and feature very high infiltration rates. Due to high percolation rates, internal drainage needs to be designed to move large amounts of water away quickly. Irrigation and high fertility programs are needed. The cost for this type of field can range anywhere from $600,000 to $1 million.

With a soilless medium construction many new fields are installing new stabilizing technologies that give the athletes better traction by producing a stronger knitting of the root structure with the stabilizing mats or fiber. These products reduce shearing and tearing and allow for better grass growth, recuperation and percentage of ground cover. Examples include mats, carpets, fabrics, fragments of interlocking mesh, fibers and fibers sown into the root zone.

There are several key factors to remember when rebuilding. Budgets will drive the project; communications between groundskeeper, your boss, the user groups and board is essential. Check all references on contractors, and be specific when writing the bid for the project.

Do your homework! Research different types of construction alternatives on the Web and by talking with fellow STMA members who have been through the process. Make sure that once the project is started that a timeline is followed by the contractor. Hold weekly or daily meetings with the contractor, and do not pay them until the work has been inspected and signed off on by you or a project supervisor.
Field Improvement Data Sheet
Sylvania Recreation

Facility Name: ___________________________ Date: ___________________________
Field: ___________________________
Type: [Baseball/Softball] [Football] [Soccer] [Lacrosse] [Other] [Facilities Manager/Director]
Address: ___________________________
City: ___________________________
State: ___________________________
Zip: ___________________________
Phone: ___________________________
Fax: ___________________________
E-mail: ___________________________

A. If you do not perform the maintenance please list the name of the company, address, and contact name and numbers.

Company Name: ___________________________
Name: ___________________________
Address: ___________________________
City: ___________________________
State: ___________________________
Zip: ___________________________
Phone: ___________________________
Fax: ___________________________
E-mail: ___________________________

B. Contractor Information
If you have the information of the company(s) that constructed this field please include it below.

Company Name: ___________________________
Name: ___________________________
Address: ___________________________
City: ___________________________
State: ___________________________
Zip: ___________________________
Phone: ___________________________
Fax: ___________________________
E-mail: ___________________________
Project Supervisor: ___________________________

1. Is there any maintenance done on this field currently? [Yes] or [No]

2. Do you have a soil analysis done for this field? Yes or No—If yes, please include.

3. Do you have a tissue analysis done for the stand? Yes or No—If yes, please include.

4. What word best describes the maintenance done to this field? Daily/Monthly/Whenever we get time

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I. Briefly describe the type of mowing that is done on this field:
1. What is the cutting height?
2. What is the type of grass?
3. What type of equipment is used to cut this field?

II. Briefly describe the fertility program for this field.
1. What type of fertilizer is used? [Slow-release] [Fast-release] [I don't know]
2. What is your method of delivery? [Liquid] [Granular]
3. What are the product names/company names used?
4. How is the fertilizer applied?

III. Briefly describe any other aspect of field maintenance performed.
1. Do you have an aeration program? [Yes] or [No]
1a. If yes, what type of equipment is used? [Hollow] [Slicing] [Deep Tine] [Verti-Drain] [Water Injection] [Deep Drilling]
2. Do you have a topdressing program? [Yes] or [No]
2a. If yes, what type of material is used?
2b. Do you have an analysis of this material? Yes or No-If yes, please include.
2c. Explain how and when you apply the topdressing.
3. Do you have an overseeding program? [Yes] or [No]
3a. If yes, what type of seed is used and at what rate?
3b. If you have a seed tag, please include it.
3c. What type of equipment is used? [Slit-Seeder] [Broadcast]
3d. Do you use pre-germinated seed? [Yes] or [No]
3e. If yes, please explain how you pre-germinate and spread:
4. Have you ever used sod before? [Yes] or [No]
4a. If yes, did you use a sod that was grown on the same profile as your field? Yes or No
5. Do you have a weed control program? [Yes] or [No]
5a. What products are used and what time of the year are they applied?
5b. If you have the label of the products you use on file please include it. Also, please include the application record of the products put on this field.
6. Do you have a fungicide or insecticide control program? [Yes] or [No]
6a. What products are used and what time of the year are they applied?
6b. If you have the label of the products you use on file please include it. Also, please include the application record of the products put on this field.

IV. Describe the overall appearance of the field.

V. Activity Schedule
1. How many games are played on this field a year?
2. Who schedules events on this facility?
3. Is there any type of a break between seasons? [Yes] or [No]
3a. If yes, please list the specific months that the fields are in use.
4. Are there policies set forth to protect the fields when conditions warrant? Yes or No
4a. If yes, please list the policy below or attach.
4b. Who enforces the policies?
5. Is the field used for other non-game activities?
5a. If yes, please list events and approximately how many participants.
6. Is the field used for another sport activity?
6a. If yes, please explain.

VI. Site Plans
1. Is the field irrigated? [Yes] or [No]
1a. If yes, what type of system?
2. Does the field have existing drainage? [Yes] or [No]
2a. If yes, what is the depth, spacing, size, backfill and sleeved?
3. Please include a copy of the site plans that list the following: [Irrigation plan] [Drainage plan] [Grades & elevations] [Sub-soil]
4. Any other engineering information you can provide? (Boring tests, etc.)
5. Is there a master plan for the site? [Yes] or [No]
6. Is there any other special feature to this field? Yes or No-If yes, please list:

VII. Please list key contacts and phone numbers for those individuals that should be part of the team in either rebuilding this field or resurfacing (i.e. user-group key members, board members, staff, community leaders).

Name Group Phone E-mail
Name Group Phone E-mail
Name Group Phone E-mail

VII. Estimated Budget
1. What type of dollars are set aside for either new construction/complete rebuild or refurbishing the field?
2. If this is for construction, what is the breakdown for the project (i.e. design, construction, consultant, supervisor, etc.).
3. Does the project need to be bid out? Yes or No-If yes, please list the criteria: