

PARK MAINTENANCE PLANNING BEGINS WITH GOOD DESIGN

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Heavily used picnic area (above). Note compaction and loss of ground cover and small trees. Stationary tables (below) and concrete pad make high use area easier to maintain and less damaging to nearby vegetation.



Whether we need a park bench or a park system, we must design for maintenance and then, maintain the design. Far too often new park and recreation areas are developed without adequate understanding of future maintenance costs, and often the potential of a good design is not realized because of lack of appreciation and enthusiasm in the maintenance crews.

Design and maintenance are both tools used to meet the needs of the public. These tools are so closely related that each is only marginally effective without the other.

The key to effective use of these tools is human use. Human use justifies designs and determines the level of maintenance. At the "wilderness" end of the management yardstick we may have an area like Isle Royale National Park. There is a little civilization at boat landings and miles of ecologically balanced forest trees, moose, wolves and beavers in between. This sort of facility has a very low level of development, relatively few visitors, and simple sorts of maintenance operations. At the other end we find the "formal gardens," at Niagara Falls, Golden Gate Park in San Francisco, or a theme park like Disneyland. These are highly developed, serve many visitors, and utilize a complicated system of maintenance planning that has virtually every blade of grass under the eye of a trained gardner. All the other recreation and leisure facilities will fall somewhere in between.

As the human use increases we must increase the level of maintenance or "human erosion" will destroy the very qualities that gave it value in the beginning.

Park operators today are trying to achieve two goals:

1. Provide a safe and satisfying recreational experience, and
2. Protect the resource.

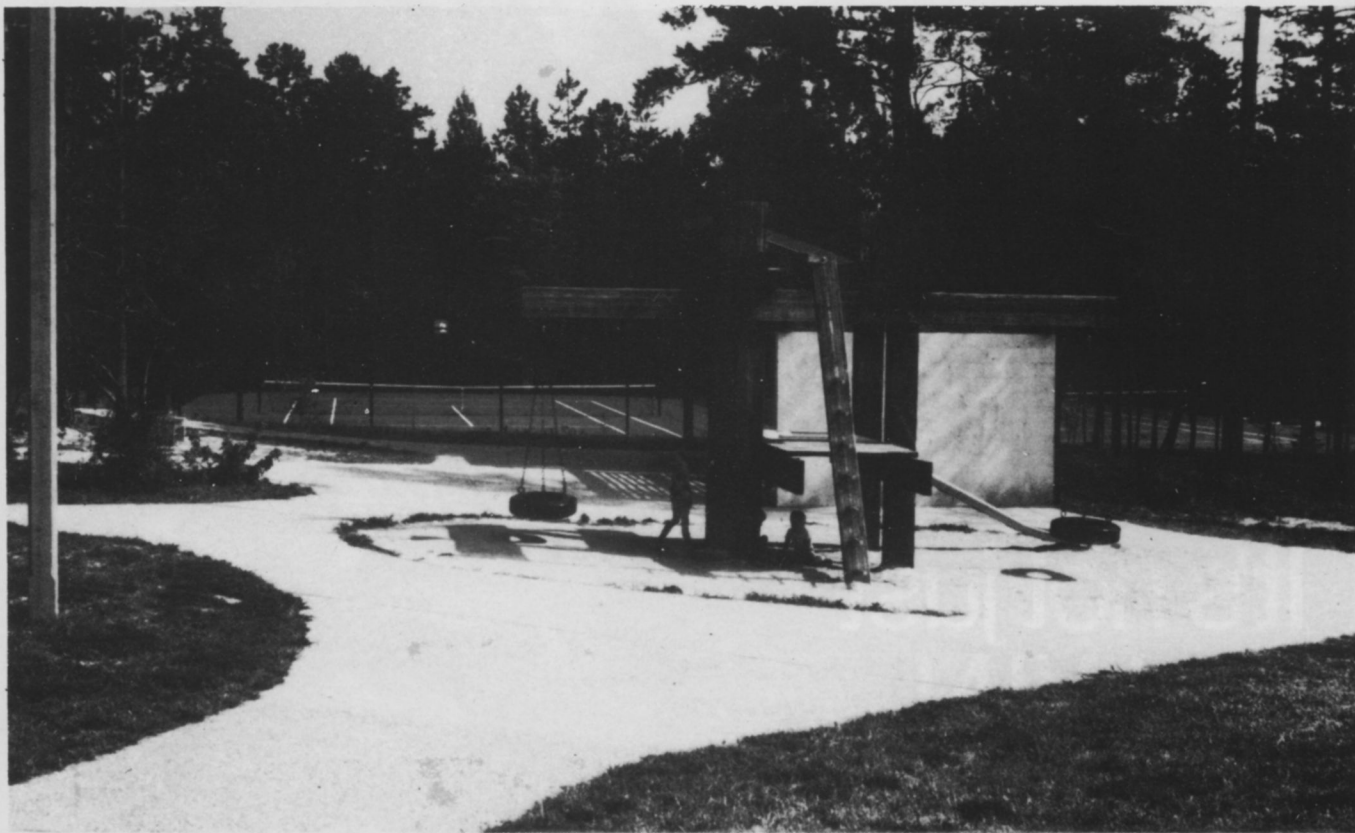
While these may seem almost contradictory, we can achieve substantial progress through consideration of two questions: the design question, "how do we predict use?", and the maintenance question, "what does use imply?"

The design question

How do we predict use? The answer always starts with some concept of need, some general statement of policy or set of standards, and then becomes a more specific application as we apply it to concrete situations.

Harold Horowitz, an architect, defines a successful design as "one that translates the needs of the user, as expressed in the program, into a significant physical form."

Dan Kiley, landscape architect, warns that we tend to design in only two dimensions, without concern for the human values of the people who must use the area. C. M. Deasey stresses that design goals should improve personal relationships and ease strain. He suggests that the design of an area



Path from community center to tennis courts is free flowing but direct and hard surfaced to take wear. Note play equipment island with sand. Park is located in Fort Mill, South Carolina.

should (1) maintain the value of the product, (2) maintain control, (3) function efficiently, that is, allow everyone to adapt their individual goals to those of the group.

Our designs must function. They must do what they are supposed to do. We must design for use and for the maintenance that use implies. For example, there must be paths where many people will wish to walk and these paths must be kept clear of litter, mud, ice and snow, fallen tree limbs, **and** there must be access for maintenance crews and equipment to get in and out in an efficient and economical manner.

How well do our current designs measure up? Not too well in many cases. Some cities have newly constructed facilities that are beautiful, creative, and imaginative; facilities that win awards for the designers, and give the maintenance men grey hair and ulcers.

We find that expensive hand maintenance is often the only answer. Usually the problems of steps, narrow openings, high maintenance plant materials, exposed plumbing and lighting fixtures, and wall surfaces that invite graffiti, do not **individually** create much delay or extra maintenance work, but the **collective** time required each year, year after year, can be frightening to an administrator trying to stretch a budget in inflationary times.

When we plan a building or outdoor facility we tend to think of the initial costs, often making the decision to use a cheaper material to reduce the initial investment. However, a Pennsylvania planner estimated the initial construction costs of a facility

may represent only 5% or 10% of the funds spent over the life of the facility to operate and maintain it.

"People-use" is the desired result. If we don't trim, paint, light, heat, cool, oil, clean, and so on the people won't use the facility. Poor maintenance is a powerful dissatisfier.

At the other extreme we have designs that are little more than "rubber-stamp" solutions. Monuments to yesterday's successful designs. Minimum budget answers that offer a cafeteria of facilities instead of getting community input.

Impact of Change And Growth

Even if a park design does fit the precise needs of its community when it is first developed, we must allow for growth and change of the community around it. Designers should remember the advice of a famous planner who said, "It is better to be approximately right than exactly wrong, since the future will never develop precisely as we expect."

A park design must be defensible in the face of change or capable of modification. The extent to which a park will be defended, kept stable or modified through redesign, will be a policy decision, but the designers and maintenance planners must be aware of the implications for design as the use-patterns change over time.

One of the most common of these changes is crowding. As more and more people wish to use the park the relationships between "community" (being with others) and "privacy" (being alone) change. Researchers and other thoughtful people

are concerned with a thing called "carrying capacity". That is, how many people can use a picnic area, beach, nature trail, canoe, water-ski, etc. before the activity is spoiled?

There are some who say "No problem." When it's too crowded for family A they'll leave. But the B's will come and probably the C's after them. Each group in turn establishes a higher norm.

Perhaps it can work this way for people but one of our most critical problems is the subtle but often devastating effect of crowds on the vegetation of outdoor areas.

The sequence of uncontrolled and intensifying use goes like this: (1) compaction begins to change the soil. This is worse on heavier clay soils. (2) The small plants that make up the erosion-fighting groundcover go, (3) shrubs and reproduction trees go, (4) older trees "stag-head" (tops die back and die), (5) finally, the area becomes so shabby that it is either abandoned or partially restored at great expense. Popular wooded picnic areas are particularly vulnerable to this.

Planning for Protection

Planning for protection, of both the people and the natural resource, must start with the designers, but they must communicate the intent of the plans to the experienced maintenance people and put their feed-back into the system.

In critiquing designs we must try to visualize the crowds of people coming to use our facility and say to ourselves, "What else will they want to do?" As we identify and list each element of undesirable use we modify the plans in two ways. First, make adverse use so inconvenient, using barriers, thorny plants etc., that the user's self-interest prevails. Second, be prepared to make some management compromises between what the public might want and a practical use that they might accept.

In one large park visitors were carving name and initials into the huge posts supporting the roof of the main shelter. Realizing that expensive repairs would soon be needed the park officials considered signs and security officers to confiscate knives, but fortunately tried a little creative thinking and realized that the motive of the carvers was not vandalism, but recognition. A set of similar posts were set up in a half circle in the area. They were labeled for regional groupings of states. The carvers, as predicted, switched to the "regional" posts. When a post filled up with initials it was easily replaced with a fresh one.

A National Park Service author wrote suggesting that you place yourself as a park user, doing things they might want to do, yet in a way to minimize damage:

1. Put paths and walks in lines of natural circulation. Some have even suggested it would be good to wait until the second year before putting in permanent walks. Put them in where the paths were worn during the first year.
2. Keep your rest rooms and other service buildings and parking lots related to the principal activity areas of the park.
3. Use low barriers to control traffic.
4. Where possible, use vegetation to replace fences. If proper plant materials are chosen

you eliminate the cost of painting fence and add to the attractiveness of the area. If shrubs must be kept low for security, then make the barrier wide and prickly.

5. Fixed tables and stoves will concentrate use and reduce "human erosion" of surrounding vegetation.
6. Limited capacity parking lots tied in with the traffic patterns and good transfer-points will help protect sensitive areas from overloading.

As the designers and maintenance planners do their creative reviewing of park areas, they must remember that protection planning requires not only design skills on the drawing boards, but also psychology and observation of human nature in the field. People will move tables to get out of sun or smoke. People will park in the shade. People will slide down or run down a hill if it looks shorter.

Management is the key word. Park and recreation landscape use implies interaction between people and the resources. From the wilderness to the garden land-managers have a job of developing designs that can be maintained.

There Is a Choice

We can meet the high operating costs of poorly designed facilities or learn to be more critical of original designs.

Costly features in a proposed design include awkwardly shaped areas of turf or paving that require extra maneuvering to mow, fertilize, sweep or snowplow. Designs that do not allow for traffic circulation and easy access to activity areas for service and maintenance vehicles take more time to maintain.

Other time-wasters include poor access to utilities and lack of hook-ups for light and water. Poor design increases costs of snow removal if hand shoveling is required to move or load snow and ice. In fact, any designs that require hand work because power tools and large equipment cannot reach the area should be closely reviewed.

A more practical alternative to hand work is to be more critical of the designs when they are still on paper. Don't let architects preconceive a design until the intended use is clear. Work with them and learn to visualize the people using the facility. In absorbing data in preparation it is important to consider the activity not a structure. Henry Elder said "... to present a problem as "church", "school", or "house" is to accept a problem with a previous solution for minor improvement." Instead, focus on "worship" rather than church, "learning" rather than school, and "living" rather than house." It follows then that we must also consider "play" rather than playground. We must also try to provide ways in which the designers extend their contacts with the project through the construction phases into the actual operation and maintenance.

This overall concern and supervision, including a few trips to see the people using (or misusing) the completed facilities, is much easier when the designers are "in-house" as compared to consultants.

Follow-up inspections take time and consultants must be paid if we expect the service. Too often the important evaluation phase is eliminated

to reduce project costs. This supervisory role is also critical in the choice of materials for the construction.

The design concepts must be translated from blueprints into specifications and finally into materials of many kinds. The control of high maintenance costs may begin with design concepts, but it becomes more critical as materials are chosen. We must decide on the size of trees to plant, whether to seed or sod, what sort of paving for paths, walks, roads, and parking areas, and whether to paint the walls or to use natural materials. Do some designs and materials seem to "attract" vandalism? While a mistake can always be corrected by rebuilding, the subsequent costs are usually higher.

Choice of materials goes beyond varieties of trees and shrubs to include a bewildering range of lumber, tile, concrete and glass. We must make realistic estimates and balance initial costs with projected annual maintenance. We must steer equally between the fragile structure that collapses regularly from over use and must be rebuilt or replaced, and the slick white elephant facility that interests no one but "is so easy to maintain".

It is the use by the people that is the payoff. We must design facilities that can and will be used and then develop them with the most durable and appropriate materials that we can afford.

The maintenance question

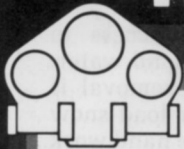
What does use imply? When we design a park facility we attempt to predict the ways in which people will want to use it. When we come to maintain it, we are concerned with the ways they actually do use it.

Maintenance is routine recurring work which must be done to keep a park and recreation facility in such a condition that it can be used at its original or designed capacity or capability. When damage occurs, repairs restore the facility to its original capacity. Many agencies also include small additions, changes, expansion and remodeling in this category. In this way small changes in the way people use the areas can be accommodated without complete redesign. It's almost like changing a tire without stopping the car.

Preventive Maintenance

As people begin to use the newly developed area, we must shift more and more toward preventive maintenance. This relates to protection planning in the design process. Both involve study of the user-patterns that develop and planning appropriate modifications as time goes by.

1. As the use builds up increase the frequency of litter pickup. If the park is clean in the morning more people use the trash cans. When ethnic festivals, holiday weekends and



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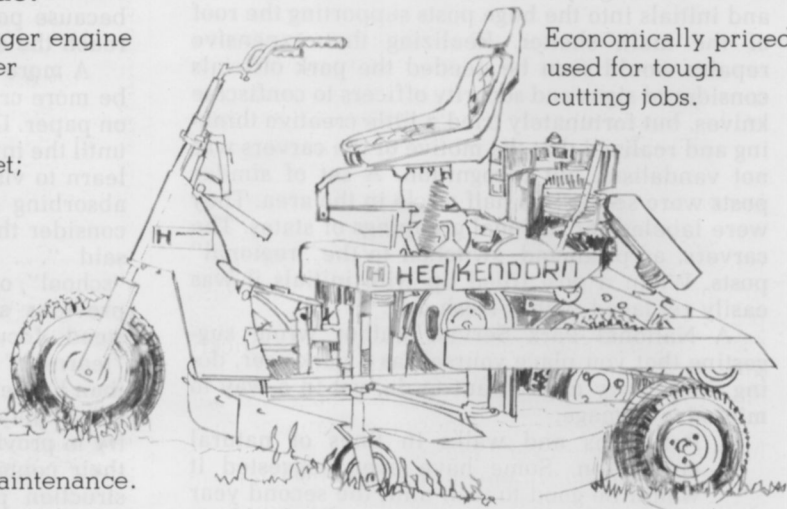
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other heavy litter is forecast many agencies send crews and trucks in at midnight after the first day or early the next morning. Heavy use areas like Disney-World keep trash-collectors, (neatly uniformed and radio-dispatched) on the move among the visitors so that litter never accumulates.

2. *Make repairs quickly.* Add the "three R's" to your maintenance plan: *Repaint* splashes, splatters, and graffiti. Creative comments on our walls invite others to comment. *Repair* minor damage quickly. Hard use results in wear and breakage. Prompt repair protects you from liability and eliminates more damage from vandals. Finally, *Replace* things that break too often. This is where your record keeping pays off and can justify replacing window glass with one of the more expensive, but break-resistant plastics.
3. *As the traffic gets heavier go to harder surfaces:* When the path gets too dusty and/or muddy, add wood chips. When the feet pound the chips to sawdust, put in gravel. If the use still increases or if the elderly or handicapped have problems, go to asphalt (in various colors) or concrete. Each surface requires different consideration for the most efficient maintenance.

Management tools for maintenance

To meet the challenges of this more systematic correlation of design and maintenance a number of management tools are being developed by concerned administrators and tested in park systems across the country.

These management tools adapt procedures developed in business and industry to our problems of balancing park use and protection of the resource. They include:

1. Maintenance standards: What is the desired result?
2. Maintenance plans: Written and graphic application of the standards to specific activity areas.
3. Job schedules, work programs and budgets: Implementing the maintenance plans.

Importance of good supervision

Less obvious than these techniques are the powers of maintenance procedures to affect designs. Good landscape design whether gardens, playing fields, or support areas, may be continued for a long time under good maintenance, or quickly lost without it. The shift from hand labor to the use of skilled workers and specialized machines has brought the art of the landscape manager to a higher level than ever before.

Since the effect of the design is rarely complete when the construction is finished it is essential to have a good supervisor to guide the maintenance for the five or ten years until it can be fully realized. It is vitally important that the man in charge of maintaining the area have the esthetic ability to appreciate the design and the enthusiasm to maintain it.

This point emphasizes the need for care in selecting and developing maintenance super-

visors. Try to select people with as much technical and management know-how as you can. Then help them gain an appreciation for the rest of it by encouraging them to talk with people who have the ability and enthusiasm. Designers and maintenance people should meet together, talk together and share their insights. It pays off in park and recreation facilities that do what they are supposed to do and keep on doing it.

In summary, park and recreation facilities are designed to be used in certain ways. Maintaining them implies that they are used. The more they are used, the more maintenance will be needed to keep them functioning in the way that they were designed. Designers should work with maintenance people and maintenance supervisors must develop the ability to appreciate the design and the enthusiasm to maintain it. We must design for maintenance and maintain the design. **WTT**

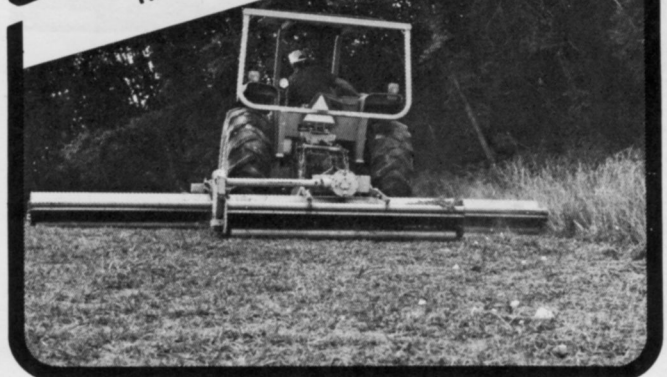
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