

A Gower Book

*Landscape
Management and
Maintenance*

A Guide to its Costing and Organization

JOHN PARKER
and
PETER BRYAN

LANDSCAPE MANAGEMENT AND MAINTENANCE



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Landscape Management and Maintenance

A Guide to its Costing and Organization

**John Parker
and
Peter Bryan**

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CONTENTS

Introduction	vii
1 Landscape maintenance and management	1
The process of management – setting the objectives – costs and style of maintenance – value for money – value for money on playing fields and sports grounds – the effect of intensity of use of grass pitches – school playing fields and dual use – biological/physical limitations on playing field use – synthetic surfaces – revenue and capital costs of synthetic surfaces – redevelopment of existing playing fields – maintenance and management plans – Appendix I: Cost-benefit implications of playing field drainage	
2 Routine maintenance and site husbandry	33
Grassland – shrub borders – ground cover – rose borders – herbaceous borders – annual bedding – hedges – care of newly planted trees – regular maintenance of paved areas – litter clearance – Appendix I: Average seasonal work-hours for routine maintenance	
3 Arranging the works by contract	63
Management of competition – length of contracts – size of contract – selection of contractors – forms of contract for landscape maintenance – general conditions of contract – preliminary items – specifications clauses – bill of quantities and schedule of rates – payment	

vi *Landscape Management and Maintenance*

systems – quality control – Appendix I: Application for inclusion on approved list of contractors.

4	Staffing levels and working hours	87
	Seasonal factors – calculation of workloads – calculation of labour needs – seasonal variations in working hours – overtime – temporary staff – seasonal working hours – flexitime arrangements – other working patterns.	
5	Staff organization and motivation	100
	Use of skills and team working – supervision – bonus incentive schemes – work study – standard times – making a standard time – transplanting of standard times and using estimates – incentive and productivity schemes – tender-led and total target incentive schemes – sickness, unmeasured work, etc. – Appendix I: Computer-printed work schedule – Appendix II: Bonus scheme agreement	
6	Staff welfare and safety	129
7	Machinery and equipment	135
	The scale and impact of mechanization – machinery requirements and capital costs – the choice of equipment – selection of mowing equipment – choice of machinery in relation to area – economic machine lives and replacement policies – renewal funds – leasing and hire arrangements – servicing and overhaul policies – reserve equipment	
8	Budget and cost control	157
	Annual budgets – calculation of charges – seasonal variation of charges – estimation of productive man-hours – cost control	
9	A postscript on some future trends of landscape management	168
	Index	175

INTRODUCTION

Doing anything in public, from acting on the stage to mending the road, takes a certain amount of courage. Gardening in public is no exception and has the added risk that the English are a nation of self-professed gardening experts. Thus municipal gardeners have to do their work in the public gaze and whatever they actually do, there is bound to be someone looking on who thinks he or she knows better. After several years of serving the public we have grown to accept this as a fact of life, a fact which we even enjoy – most of the time at least! However, relatively few people have an understanding, or even an interest, in the art or science of managing public parks or open spaces as attractive areas of landscape that are growing, developing and constantly changing.

This book is not about how to tend the trees and shrubs or how to cut the grass, although it will mention these by way of illustration. It is not a guide to horticultural excellence, but it does try to set horticultural principles into an economic framework. It will, we hope, help the reader to put a cost against various levels and methods of landscape husbandry and tackle the questions of what labour and equipment is needed and how they should be organized and managed.

Finally, it examines how the manager must always have a broader view and be looking ahead at how landscapes will be changing and what our needs and uses of open spaces will be in the future. Social habits are constantly changing and population movements also mean that the use of almost any park or open space is in a constant state of flux. Detecting the moves

viii *Landscape Management and Maintenance*

and responding to them is just as much part of the art of the landscape manager as the husbandry of the landscape itself, but is perhaps the more important if our green spaces are to play their full part in the quality of English national life.

Chapter 1

LANDSCAPE MAINTENANCE AND MANAGEMENT

The Process of Management

In almost any area of human endeavour, the process of management can be distilled down to:

- setting the objectives
- planning the operation
- putting it into action
- monitoring the action and replanning as necessary.

In landscape, the process of putting the plan into action, the work of the day-to-day maintenance, is the part that takes the most time and energy as well as cost. It is also the part that is the most obvious sign of any management at all and so it is not surprising that it tends to dominate our attention, sometimes to the extent that the overall objective, the whole purpose of the exercise, can become obscured or even forgotten.

The efficiency of the day-to-day maintenance is obviously important in terms of cost, but this can be to little real effect if it produces the wrong or undesirable results. Setting the objectives is therefore an essential first step if the manager is going to steer the ship of maintenance in the right course.

2 Landscape Management and Maintenance

Setting the Objectives

The aims of landscape are many and varied, and gardens and open space seldom serve a single purpose. Thus any area of amenity land may be managed to provide:

- pleasant views or appearance
- screening or shelter
- nature conservation
- horticultural excellence
- botanical variety and education
- space for sport or recreation
- job-creation or leisure gardening

Many of these purposes will be immediately self-evident from the layout or use of the land but, in many others, the circumstances may have changed since the site was first laid out and so obscured the original purpose. Therefore, whenever the maintenance is being planned or reviewed, it is essential to have a clear idea of the use and functions of the land.

The private landowner will probably have no particular difficulty in deciding what he or she wishes to achieve but, even so, writing down the objectives as a form of maintenance brief will often help to highlight the essentials of the routine work. For public open space the process is rather more complicated. Different individuals or groups will have different ideas and aspirations for the land and these have to be offset against the limitations of funds and even the political aspirations of the local authority – some may favour nature conservation and others seek relative formality or horticultural perfection.

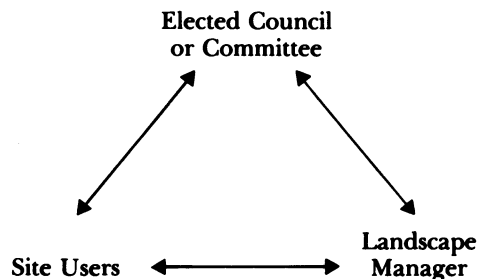
With the potential for a wide range of views, the landscape manager may be tempted merely to fall back on his personal preferences or simply persist with the past and established regimes. However, it is important to try to assess clients' wishes, even if they are difficult to determine, and so have a firmer base on which to allocate or seek resources. This can be done in a number of ways including:

- surveys of the numbers using a park and the ways in which they use it
- questionnaires or opinion surveys

meetings with community groups or leaders.

These methods of canvassing users' opinions all tend to suffer from the disadvantage that the public at large is strongly influenced by what already exists and is unable to envisage any alternative. To some extent this difficulty can be overcome by carefully designing the questionnaire, but there is also advantage in developing experimental areas as public demonstrations.

Although a well-designed survey can give a good indication of public preferences, these preferences may not be those of the client who will have to make the final decision. In the case of most public open space this will normally be an elected council or committee who, while they represent the public, are under a wide range of different pressures for the allocation of resources. One of these pressures may be the professional landscape manager, so there may be a triangle of forces and influences as shown below.



In practice this diagram is a simplification and there are likely to be a number of other interconnecting strands of influence involving local user groups, political associations, trade unions and the many others on the stage of democratic life. These influences can be very frustrating to the landscape manager particularly if he is too committed to imposing his own aspirations onto the landscape. However, the true landscape manager must learn to work just as much, if not more, with people as with plants, and recognize the vital role of educating people's perceptions of landscape as well as just managing it. This process of education has many facets but the manager

4 *Landscape Management and Maintenance*

Table 1.1 *Approximate annual labour inputs for landscape types*

	Man-days per year/hectare
Amenity woodland	0 – 5
Extensive parkland	10 – 20
Sports and recreation grounds	30 – 50
Flowering shrubs	100 – 200
Annual bedding	1000 +

should try to present the options as clearly as possible so that the decision-makers can make their judgements on the basis of the best available information. Costs are likely to be foremost in many people's minds and means of considering value for money are suggested later in this chapter.

Costs and Style of Maintenance

The style and intensity of maintenance will sometimes have a much greater effect on the cost of upkeep than the organization or efficiency of carrying it out. In general terms, the more natural or informal the layout and maintenance, the lower the cost. Conversely the more formal, or removed from nature, the more expensive will be the result. For instance, from the figures shown in Table 1.1 the choice of summer bedding instead of flowering shrubs could increase the costs more than threefold.

The detail or complexity of a site's layout will also influence its maintenance cost, quite apart from the type of landscape and its degree of formality. Simple layouts are much more easily maintained by powerful machinery with considerably less labour requirements for a given area. More complex layouts, with relatively small spaces, require a much greater use of small equipment and manual labour and are consequently much more expensive to maintain. For example, broad open sweeps of gang-mown grass will require approximately 10–20 man-hours/year/hectare, but if the area is divided up into small parts, perhaps including numerous obstructions, and has to be mown with a 'ride-on' triple mower, the man-hours per year will be doubled at least.

While they are easier to maintain, the broad simple layouts of gang-mown grass are generally less interesting and attractive

and, in particular, have been criticized for providing little in the way of nature conservation. They have aptly been described as 'green deserts' and different mowing techniques have been adopted to provide variation in the sward and encourage the establishment of wildflowers. These techniques, which can vary from hay sward management to suspending routine mowing at certain times of the year, have the potential to save time on overall maintenance. However, when compared with the simplicity of regular mowing, they tend to complicate the operations with additional and special machines having to be brought in. As a result the apparent potential for savings are not always achieved and the advantages are a more interesting variation in the swards, seasonal as well as biological, rather than any significant cost saving in terms of total labour inputs (see Table 1.2).

Some economic advantage may arise through the redistribution of the workload throughout the year, particularly if the mowing regime reduces the volume of mowing at the peak of the season. Thus in the example in Table 1.2, the peak summer workload for gang-mowing is reduced by approximately 14 per cent in the second alternative, even though the total work-hours are only slightly reduced.

Much more significant savings could be achieved simply by reducing the total number of cuts, but this would alter the overall character of the site and perhaps not make it suitable for the original use. More 'natural' approaches of grazing or hay cropping can also be very cost-effective, and indeed may be more appropriate in rural or informal situations. Unfortunately, the practical difficulties can be significant and include:

- modern agricultural sward management, for high productivity, will not usually provide the diverse swards that are sought for amenity 'meadows'
- livestock in public areas can frighten the public (e.g. young bullocks); or can be worried by them and, particularly, dogs
- the costs of providing fencing and water can be considerable
- litter and other rubbish in a hay crop can harm cattle and damage machinery.

For these reasons 'agricultural' maintenance is sometimes quite

6 Landscape Management and Maintenance

Table 1.2 *Simple mowing or variation?*

	Machine and labour hours per year
<i>Alternative A. The 'green desert'</i>	
1 hectare of clear gangmowing	
Mowing 20 cuts @ .4 hours	8
Travel and set up 20 @ .3 hours	6
Total	14 hrs/yr
<i>Alternative B. Gangmowing and hay meadow</i>	
.75 hectare of clear gangmowing	
Mowing 20 cuts @ .3 hours	6
Travel and set up 20 @ .3 hours	6
sub-total	12
.25 hectare of meadow culture	
Mowing 3 cuts with tractor mounted flail @ .3 hours	.9
Travel and set up 3 @ .3 hours	.9
sub-total	1.8
Total	13.8 hrs/yr

Note:

Extra cost may be involved in raking off grass cuttings in the hay meadow.

difficult to arrange and is often only practised as a means of bringing livestock into country parks and the like for the interest of visitors.

Value for Money

Value for money is something that we frequently search for but is very difficult to define in precise terms. More often than not it depends a great deal on personal tastes or attitudes so that universal approval is rare. For instance, relatively few of us can afford or wish to pay the premium for a first-class rail ticket and therefore it could be assumed that, for most of us, the ordinary fare gives the best return for the money. Some, however, have different views and are able to convince themselves – if they

need convincing – that the extra comforts for the extra fare are indeed value for money.

In landscape maintenance there is a similar range of attitudes so that making the best value-judgement is a very subjective exercise. Often in the absence of any established framework for this subjectivity, it is easier merely to base the decisions on cost and assume that low cost is the only desirable objective.

This particular attitude is all the more easily sustained because the costs are relatively simple to define, but the outputs or benefits are often nearly impossible to put in such precise terms. Thus it is easy to establish the cost of planting and subsequently maintaining a well-designed strip of roadside verge but it is very difficult indeed to put a value on the pleasure it might give to road users or people living in the vicinity (see Figure 1.1).

Various attempts have been made to assess the value of landscape by indirect means, such as the value of houses in a tree-lined avenue compared with those where there are no trees. The number of people visiting different parks could give an indication of how much it is valued, and surveys of how far people are prepared to travel to reach a park or piece of countryside have been used as well. Unfortunately all these methods take a good deal of time and can be unsatisfactory because of other more dominant factors (e.g. the tree-lined avenue may be nearer to shops or schools).

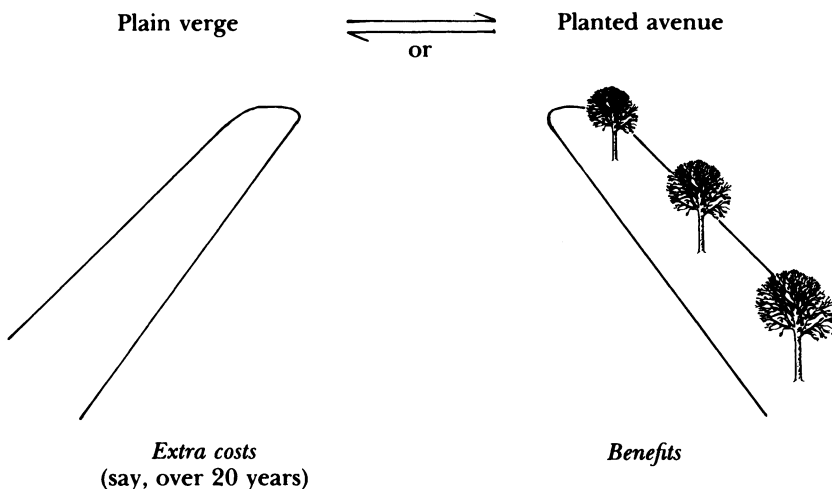
Much more frequently the choice concerns how to care for an established landscape and a practical approach for day-to-day use is to list and compare the benefits, or otherwise, of different levels of maintenance. The starting point for this would normally be the existing levels of upkeep and this, in turn, is likely to be heavily influenced by the layout of the site and the type and intensity of use. As an example, the lawns in a formal quadrangle of a school or college might presently be mown and boxed off at least once a week. This would give an annual cost in man-hours of:

24 mowings @ 2 hours = 48 hours

Alternatives of around ± 20 per cent might have the following effects:

8 *Landscape Management and Maintenance*

Planting a road verge with standard trees.



Supply, planting and caring for the trees.

Trimming or spraying the base.

(Mowing round the obstacles compensated by less grass growth).

Total probably equivalent to the cost of 4 to 5 man hours per tree.

Extra costs might arise from leaf fall problems, damage to paving, drains and underground services.

Visual more pleasant scene, screening of houses, variation in shade.

Physical CO₂ and dust extraction, shelter, shade, etc.

Others Wildlife habitat, educational value, sense of place etc.

For a 100-metre stretch of verge (trees spaced at 5-metre intervals) the annual cost would be equivalent to:

$$\frac{4 \text{ to } 5 \times 20}{20 \text{ years}} = 4 \text{ or } 5 \text{ man-hours per year}$$

Subsequent costs unlikely to fall because of the need for safety inspections, possible pruning or even felling and replacing.

Figure 1.1 *Value for money?*

29 mowings @ 2 hours = 58 hours
'smarter', more formal lawn
'stripes' obvious for more of the time

or: 19 mowings @ 2 hours = 38 hours

longer grass but still with an even finish
'stripes' less obvious between mowings

Many people would probably feel that the lower mowing frequency was adequate and most visitors might not notice the difference without their attention being drawn to it. Thus if the 'saved' hours could truly be saved and used profitably elsewhere, the 19 cuts per year would be better value for money than the other alternatives. Reducing the inputs still further might give:

14 mowings @ 2.3* hours = 30.8 hours
slightly longer grass
heavier layer of cuttings after each mowing

or: 8 mowings @ 2.4* hours = 19.2 hours

longer grass between mowings
need to use a rotary of flail mower to cope with the growth
grass cuttings a distinct problem, blocking drains, etc.

*increased mowing time to account for extra vegetation.

Thus, although the lower mowing frequency might save 20 per cent or so on the cost, the 'product' would be much less acceptable, or not fit for the purpose, and therefore unlikely to be value for money.

This same approach to maintenance standards can be applied to other features like hedges and shrub borders. Applying less or more attention to a hedge will tend to give it a slightly neater, or more ragged, or natural appearance, and judgements can be made on how important this is in any given situation.

On shrub borders the cost variations will tend to centre on the amount of time that is spent on weed control or clearing accumulated rubbish or (non-biological) litter. Perfection can be extremely expensive and something falling short of ideal is more likely to be a sensible compromise. For instance, the weed

10 *Landscape Management and Maintenance*

and litter may be able to be kept at acceptable levels by spending an hour once in four weeks in clearing it up. To reduce the weed and litter presence significantly would almost certainly need attention once every two weeks and the job would still take almost as long, i.e. the cost would be doubled for relatively little advantage. Even worse, to keep the border completely litter-free might need twice weekly or even daily attention with costs increased ten-fold or more.

In some situations (near open air markets, next to school tuckshops, etc.) these levels of attention are essential to achieve a reasonable standard, but the open space manager will obviously look to other means of trying to discourage the littering or altering the planting and layout so that it is less of a problem.

Value for Money on Playing Fields and Sports Grounds

In maintaining sports fields and playing surfaces for outdoor sport it is relatively easy to ascertain the costs to the users and therefore have a firmer base on which to judge value for money. However, for those sports that require very precise and accurate playing surfaces, the choice in levels of upkeep is somewhat restricted. For sports such as:

- Bowls
- Lawn tennis
- Golf and putting
- Cricket
- Hockey

the maintenance must be at an adequate minimum to provide a smooth and even surface. There is, of course, a difference in standard between Wimbledon Centre Court and the local tennis club but both must be weed-free, smooth and firm if there is to be any chance of playing a reasonable game of tennis. In addition, the Wimbledon courts must retain these qualities, as close as possible to perfection, but also sustain the tremendous wear of many first-class matches in a short period of time.

Even at club level the cost of maintaining a grass tennis court