A Preliminary Report
Multipurpose Reservoirs
and
Urban Development Project

THE ROLE OF RESERVOIR OWNER POLICIES
IN
GUIDING RESERVOIR LAND DEVELOPMENT

By
Raymond J. Burby, III
Assistant Professor of Planning and Research Associate
Center for Urban and Regional Studies
Institute for Research in Social Science
University of North Carolina at Chapel Hill

Water Resources Research Institute
OF THE UNIVERSITY OF NORTH CAROLINA

North Carolina State University at Raleigh • University of North Carolina at Chapel Hill
A Preliminary Report of the
Multipurpose Reservoirs and Urban Development Project

THE ROLE OF RESERVOIR OWNER POLICIES
IN
GUIDING RESERVOIR LAND DEVELOPMENT

by

Raymond J. Burby, III
Assistant Professor of Planning and Research Associate
Center for Urban and Regional Studies
Institute for Research in Social Science
University of North Carolina at Chapel Hill

The research on which this publication is based was supported in part by funds provided by the Office of Water Resources Research, U. S. Department of the Interior, through the Water Resources Research Institute of the University of North Carolina, as authorized under the Water Resources Research Act of 1964, with matching funds provided by the State of North Carolina.

Project No. B-012-NC
Matching Grant Agreement No. 14-01-0001-1935

November 1969
ACKNOWLEDGMENTS

This investigation is based on research performed as part of the Multipurpose Reservoirs and Urban Development Project (OWRR Project No. B-012-NC), supported in part by funds provided by the Office of Water Resources Research, U. S. Department of the Interior, through the Water Resources Research Institute of the University of North Carolina, as authorized under the Water Resources Research Act of 1964, with matching funds provided by the State of North Carolina. A note of thanks is due Professor David H. Howells, Director of the Water Resources Research Institute, for his interest in and encouragement of our research on reservoir-oriented land development. I would like to thank Professor Shirley F. Weiss, Associate Research Director of the Center for Urban and Regional Studies and Principal Investigator of the Multipurpose Reservoirs and Urban Development Project, for her knowledgeable advice throughout this research. Finally, I am especially grateful to the personnel of the many power companies, the Corps of Engineers, and Tennessee Valley Authority who provided the basic information necessary for this report.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>II. Land Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>III. Land Utilization Policies</td>
<td>10</td>
</tr>
<tr>
<td>Residential Use of Reservoir Owner Land</td>
<td>10</td>
</tr>
<tr>
<td>Commercial Use of Reservoir Owner Land</td>
<td>15</td>
</tr>
<tr>
<td>Industrial Use of Reservoir Owner Land</td>
<td>19</td>
</tr>
<tr>
<td>Recreational Use of Reservoir Owner Land</td>
<td>21</td>
</tr>
<tr>
<td>Forestry Use of Reservoir Owner Land</td>
<td>24</td>
</tr>
<tr>
<td>IV. Land Sales Policies</td>
<td>25</td>
</tr>
<tr>
<td>V. Land Management Policies</td>
<td>27</td>
</tr>
<tr>
<td>VI. Coordination and Cooperation with Other Agencies</td>
<td>32</td>
</tr>
<tr>
<td>VII. Conclusion</td>
<td>36</td>
</tr>
<tr>
<td>Appendix I. Reservoir Owner Personnel Interviewed</td>
<td>36</td>
</tr>
<tr>
<td>Appendix II. Southeast Reservoir Owner Survey Questionnaire and Interview Agenda</td>
<td>43</td>
</tr>
</tbody>
</table>
I. Introduction

Water is now recognized as an important factor in the satisfaction of our national outdoor recreation needs. Equally important are the land areas which adjoin water bodies with recreational potential. A recent survey of 105 large multipurpose reservoirs in the Southeast conducted by the author revealed that these reservoirs have attracted over 60,000 homes and summer cottages, 1,000 commercial establishments, and are experiencing an annual visitation of over 100 million persons. Well over half of this development has occurred since 1960. This rapid exploitation is occurring in a governmental vacuum. Under ten percent of the reservoirs surveyed had land use plans, zoning, or subdivision regulations to guide the development of adjacent non-public land. Even rarer in Southeastern reservoir areas are such public services as water and sewer connections, garbage collection, and adequate police and fire protection.

About twenty percent of the currently available reservoir shoreline in the Southeast has been developed under these conditions. Eighty percent remains. The quality and public usefulness of this remaining land is highly dependent on our ability to bring public-minded objectives to bear on the reservoir land development process. Public efforts to influence reservoir land development can operate through various state and local governmental policies and ordinances, through the actions and policies of reservoir owners, or through both. In this paper an attempt is made to assess the potential role of reservoir owners in guiding the development of non-public reservoir shorelands. Subsequent papers will
examine the roles of local, state, and federal policies in guiding reservoir land development.

The data reported were derived from interviews with twenty-five reservoir owner-operators in ten Southeastern states. The interviews were open-ended, but guided, discussions with key agency personnel. (See Appendix I.) In addition certain data were derived from a questionnaire which asked these reservoir owners for specific information on each reservoir under their control. (See Appendix II.) The interviews and questionnaires focused on four types of reservoir owner policies which appear to have some potential in influencing reservoir land development patterns.

These are: (1) land acquisition and sales policies, (2) land utilization policies, (3) land management policies, and (4) policies relating to interagency coordination and cooperation.

In the analysis which follows, the general manner in which these policies influence development patterns will be identified, variations in their current application among reservoir owners will be described, and their potential value in guiding the reservoir area land development process will be evaluated. This analysis is expected to be useful in selecting variables for possible inclusion in the Center's reservoir land development forecast model. If the model is to prove valuable to public officials in evaluating policy mixes to guide reservoir development, variables selected for testing in the model must influence reservoir development patterns and, as important, they must be subject to control by either reservoir owners or local public agencies. In addition, the

1 The states covered in this survey were: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.
analysis should provide one basis for evaluating recommendations for innovative reservoir owner-public agency policy mixes to create a high quality environment in reservoir areas.

II. Land Acquisition Policies

Reservoir owners acquire vast tracts of land in the process of developing large multipurpose reservoirs. The policies pursued in the acquisition process can influence subsequent land development in at least three ways. First, acquisition policies determine both the amount and desirability of land available to other agents in the reservoir area land development process. The reservoir owner has first choice or option on all land in the reservoir area and the policies he pursues determine what is available to others. Second, acquisition policies determine to a large extent the initial array of actors or agents involved in the land development process. This is especially true of shoreline predevelopment landowners, who owe their very existence in the reservoir area to reservoir owner acquisition policies. Finally, initial owner acquisition policies appear to shape a number of other land-related policies pursued by reservoir owners during subsequent stages of reservoir development and operation. For instance, policies relating to alternative land utilization schemes appear to hinge on the amount of "excess" land a reservoir owner has acquired.

Every reservoir owner must make some determination concerning the amount of land which will be acquired for a reservoir project. This consists of two basic determinations: (1) the type of rights which will be acquired on land subject to flooding because of the project; and (2) the
amount of land above and beyond that which is subject to flooding which will be acquired. In the former case, most reservoir owners have followed a fairly standard policy of acquiring fee simple title to all land which is "normally" inundated and flowage easements on all land up to the spillway crest elevation. Reservoir owners have varied considerably, however, in policies concerning the acquisition of land which is not subject to flooding. These policies are most important in terms of their influence on subsequent shoreline development.

Prior to World War II private power companies pursued very liberal acquisition policies. The policies of the Alabama Power Company were typical. Alabama Power would acquire an entire quarter section if any portion was subject to inundation by a proposed reservoir. In addition, the company would acquire entire farm operating units if any portion were acquired and the owners wished to sell. Two factors encouraged most owners to take advantage of this opportunity to sell their entire holdings. Power companies tended to acquire rich bottom lands for reservoir flood pools, leaving only rocky hillsides which could not be profitably farmed. In addition, many rural people feared that power companies were creating vast swamps and marshes which would breed hordes of mosquitoes and cause malaria and other diseases. As a result of these factors, approximately thirty-five percent of the land acquired in the course of reservoir development by private power companies before World War II was not subject to flooding. Further, most of this land was not acquired for power production or related company needs.

If this situation had continued after the War, private power company land acquisition policies might provide an important means of influencing
the reservoir area land development process. Since World War II, however, private power companies have become much more conservative in their land acquisition policies. Companies now generally make an effort to predict their future land requirements and land acquisition is generally limited to land which will satisfy projected needs. This land consciousness is the result of two interrelated post war trends. There has been a steadily increasing awareness by reservoir area landowners of the future value of land with recreational potential. They are reluctant to sell any land which will not be inundated or cannot be condemned. As a result, there has been a continuing escalation in land prices on and around potential reservoir sites. Primarily because of this cost factor, private power companies have been reluctant to acquire any more land than absolutely necessary when developing new reservoirs or to extend their holdings at existing reservoirs.

In the early 1960's the Federal Power Commission began to take an active interest in the utilization of licensed reservoir projects for recreation. Private power companies are now required to inventory and annually report on the recreational facilities and use of their reservoirs. They must prepare a plan (Exhibit R) which includes projections of future recreation demand at their reservoirs and an indication of the manner in which this demand will be satisfied. Unfortunately, most Southeastern reservoir owners are no longer willing to act as land banks and have resisted acquiring land specifically for recreation. Given this resistance, it is very unlikely that these reservoir owners would willingly acquire land to influence adjacent development patterns. It is conceivable, however, that the FPC could require a local land use plan for areas
surrounding new reservoirs and insist that reservoir owner land acquisition be coordinated with such a plan.

The Corps of Engineers has pursued three distinctive acquisition policies, each with different implications for the ability of the Corps to guide reservoir land development. Prior to the Eisenhower Administration, each Corps district was given a considerable degree of autonomy in determination of the amount of land to be acquired at new reservoirs. The most important factor in Corps land policies during this early period was evidently the attitude of the district engineer and chief civilian engineer in each district toward secondary project purposes such as recreation and wildlife preservation. For example, on Clark Hill Reservoir in the Savannah District land was acquired to satisfy all recreation needs for fifty years. Since it was never determined what recreation land needs for fifty years would be, an extremely liberal acquisition policy was pursued. Fifty-eight percent of the land acquired for the project, over 90,000 acres, was above the maximum shoreline contour. On the other hand, for the Tygert Reservoir project in the Pittsburgh District, recreation was viewed as less important, and only thirty-two percent of the lands acquired for this project were above the maximum shoreline contour.

Regardless of local district attitudes toward recreation, however, several factors operated during the pre-Eisenhower period to increase Corps land acquisition. Probably the most important of these was the policy of blocking out the taking area on a new reservoir on aerial photographs or photogrammetric maps and using very long tangents along a taking elevation, as opposed to the later policy of surveying and monumenting the land and following relatively short tangents along a given elevation.
This "blocking out" policy served to lessen the costs of administering land acquisition programs, but increased the amount of land acquired. This policy was considered to be reasonable since, like private power companies during the same period, the Corps conducted very few surveys to determine future land requirements. In addition, Corps districts often purchased entire tracts of land to which access had been severed rather than provide replacement access, acquired entire tracts rather than pay excessive severance damages, and, occasionally, acquired entire farms if a farmer wished to liquidate his operation. As a result of all of these factors, between forty and fifty percent of the land acquired by Southeastern Corps districts in new reservoir construction prior to the Eisenhower Administration was above the maximum shoreline contour.

During the Eisenhower Administration, however, Corps of Engineers acquisition policies came to parallel the post-war conservatism of the private power companies. Standardized Corps-wide acquisition policies were put into effect for the first time. Project design memoranda were initiated which detailed land use requirements and land capabilities at each project and served to guide real estate personnel in the field. A policy of acquiring land in fee only to a five-year flood frequency (ten and twenty-five years in some districts) elevation with flowage easements to the spillway crest elevation tended to standardize and generally reduce the amount of land acquired by Corps districts in the Southeast.

One factor tending to mitigate the decline in Corps controlled reservoir land during the Eisenhower period was the tendency of other agencies (both federal and state) to become interested in Corps reservoir projects and actively attempt to influence project land acquisition. This was
especially true of departments of recreation and fish and wildlife in a number of states, who intervened in normal Corps acquisition policies to secure lands for recreation and conservation. Thus, even though the percentage of project lands acquired above the maximum shoreline contour of reservoirs dropped from between forty and fifty percent to between twenty and thirty percent during this period, more attention was paid by the Corps and other agencies to the quality and usefulness of the land that was acquired.

The Eisenhower policy of conservative land acquisition was sharply reversed by the 1962 Army-Interior Joint Policy on Land Acquisition. This policy contemplates government ownership of all land within either a guide acquisition line five vertical feet above the full flood elevation or a line three hundred feet horizontally from the full flood pool, whichever is greater. In addition, the Corps still acquires land in lieu of providing uneconomic replacement access, where severance damages would be excessive, and for recreation areas and other uses indicated by the project land use plan. The effect of this policy has been an increase in the typical amount of land acquired above the maximum shoreline contour by Corps districts to between fifty and sixty percent of total project area. The broad and liberal character of current Corps of Engineers acquisition policies suggests that guidance of adjacent land development could become an objective in Corps acquisition policy without a radical change in philosophy.

Tennessee Valley Authority land acquisition objectives have been considerably broader than those of either private power companies or the Corps of Engineers. TVA has sought to acquire all land adjacent to its
reservoirs which it deemed essential to the overall development of the Tennessee Valley. In addition, TVA followed Corps and private power company practices of acquiring an entire parcel in lieu of providing uneconomic replacement access, paying excessive severance damages, and so on. As a result of these polices, TVA acquired vast tracts of land above the maximum shoreline contour of its reservoirs. Currently, TVA is acquiring land adjacent to Tellico Reservoir for the new town of Timberlake. The acquisition policies of the Tennessee Valley Authority, in sum, could probably easily comprehend the objective of guiding reservoir shoreline development.

Reservoir owners in the Southeast have proceeded from an early policy of extensive but undirected reservoir land acquisition to their current stress on rather carefully planned and considered acquisition programs. Although once close, the land acquisition philosophies of private power companies and the Corps of Engineers and Tennessee Valley Authority have become widely divergent. Private power companies are adverse to acquiring land for any purpose other than the production of power. The Corps of Engineers and TVA, on the other hand, are increasingly willing to serve a broad range of public purposes through land acquisition.

If we knew how to guide adjacent land development through the manipulation of acquisition policies, this could probably be accomplished with very little dislocation of current Corps and TVA policies. Even through the influence of FPC regulations, however, it is unlikely that private power companies, who are resisting acquiring land specifically for recreation, would consider the guidance of reservoir land development a valid objective for company acquisition policies. On the other hand, it is very
likely that private power companies would cooperate with a public agency interested in acquiring land to guide private development in a reservoir area.

III. Land Utilization Policies

Reservoir owners may be more willing to acquire land which can serve to guide reservoir development if they can put this land to some beneficial use. At the same time, reservoir land utilization policies can also serve to guide the reservoir land development process. For instance, reservoir owners can prevent development in an area by holding land with development potential or, conversely, promote development by selling land to private developers at market or below market rates. Or, reservoir owners can compete directly with private developers in the construction of residential and commercial facilities and in this way influence both the pace and quality of private development in reservoir areas. Finally, reservoir owners may be able to influence the location decisions of private developers through the location and quality of various recreation and commercial facilities, such as marinas, launch ramps, parks, and the like. The realization of this type of leverage is highly dependent upon the manner in which shoreland retained by reservoir owners is currently utilized and reservoir owner satisfaction with various forms of land utilization.

Residential Use of Reservoir Owner Land

About one half of the private power companies, one quarter of the Corps of Engineers districts and the Tennessee Valley Authority currently have or once had recreational cottage site programs.
These programs originated with the private power companies during the first quarter of the century. It was noted earlier that private power companies had a tendency to acquire vast tracts of shoreline land during the prewar period. The first recreational cottage site programs were initiated as a means of utilizing some of this land while satisfying a growing public demand for water-oriented recreation facilities. The development of recreational cottage sites for lease to the public has since served several company purposes. Income from cottage sites covers the carrying costs (primarily county ad valorem taxes) of the land. Encroachment and squatter problems are mitigated when a party occupies the land and recognizes the superior title of the power company. Tenants tend to maintain the shoreline and prevent indiscriminant public access to the reservoir, thus easing the companies' surveillance task. Finally, the cottage site programs improve company public and customer relations.

Despite these apparent benefits, recreational cottage site programs have been almost entirely limited to reservoirs on which land was acquired prior to World War II. Power companies view the programs as beneficial means of utilizing "excess" land. No power company has acquired land expressly for residential use. Nor do power companies claim to make a profit on cottage site programs. Since power companies have acquired very little "excess" land on reservoirs acquired and developed after the War, they have ceased initiating cottage site programs.

Of all of the power companies in the Southeastern region, only the Appalachian Power and Light Company admits to viewing residential land development as a potentially profitable company enterprise. This company
is currently evaluating the economic feasibility of a land development pro-
gram on lands acquired adjacent to Smith Mountain Reservoir. Other companies,
however, stress that they are not in the residential development business.
Reasons cited for this aversion to profit-oriented land development range
from worries over the effect of land development revenues on the company's
rate base to concern over the reaction of the Federal Power Commission.

Although they have an aversion to "profit-oriented" as opposed to
"public relations-oriented" residential development, power companies have
made available a significant proportion of the residential building sites
on Southeastern reservoirs. As of the summer of 1969, private power
companies have developed over 14,000 one-half to one acre residential sites.
The market value of these sites is now between twenty-five and fifty million
dollars. The amount of private cottage and home development occurring on
this land is not precisely known. Duke Power Company surveys of its lot
tenants indicate that over sixty percent have built summer cottages or
permanent residences.

Prior to the Eisenhower Administration, both the Tennessee Valley
Authority and Corps of Engineers pursued fairly vigorous cottage site
programs. Although over 6,000 cottage sites were developed and leased,
this "private" use of public land became unpopular with the Government
during the 1950's and these lots were sold. The Corps still has the
authority to develop and lease cottage sites, but both Corps-wide policy
and sentiment at the district level are against reviving cottage site
programs. Most Corps districts are strongly committed to public as opposed
to private use of shoreline land. In addition, Corps attempts to maintain
close supervision and control over reservoir shoreland tends to be impaired
by private shoreline development. TVA, on the other hand, views residential and other land development as beneficial uses of shoreline land. It is currently considering the development of Timberlake new town on its new Tellico Reservoir, and in the recent past has encouraged residential development programs on reservoirs constructed under its Tributary Area Program.

The influence of residential land development programs on the pace and quality of development on private land in a reservoir area is highly dependent on the manner in which these programs are operated. Leases are typically for one or fifteen years. The shorter leases offered by some companies may not inhibit building on these lots, since most companies guarantee (either explicitly or implicitly) that they will purchase any improvements if the leases are ever cancelled. Cottage site lots are generally leased for much less than the current market rate and may be transferred by the lessee with the approval of the power company. For instance, Duke Power leases with an annual rent of $120 currently sell for $2,000 to $8,000. Guaranteed tenure, the right to transfer the lease, and below market rates all tend to make lots developed by private power companies as attractive, if not more attractive, than lots which can be offered for sale by private developers.

In addition, lots in power company subdivisions usually have a number of restrictions which make them desirable for cottage and home investments. A number of companies require that any cottage built in their subdivision be a minimum size. In one case a power company has established "exclusive" subdivisions where no home under 1500 square feet may be built. Companies often require that local zoning and subdivision regulations, and, more
importantly, local or state septic tank regulations be met. Finally, a few companies have a policy of reviewing the plans for any building to be constructed in their subdivisions. Thus, a combination of company cottage site policies usually assure a basic standard of quality in company subdivisions which keeps them competitive with the private market.

Thus, the influence of a company cottage site program on the residential development process in a reservoir area may be considerable. Since company cottage sites are evidently as attractive or more attractive than those offered by other developers and are offered at below market rates, a company cottage site program should tend to depress the amount of development occurring on private land. And since private developers must to some extent compete with power company subdivisions, these subdivisions should tend to upgrade the overall quality of development in a reservoir area.

The extent to which power company cottage site development policies may be manipulated to serve public land use objectives, though, is presently limited. These programs are primarily restricted to and most fully developed on older reservoirs. Even on these reservoirs, most of the land power companies are willing to devote to cottage site use has already been developed. Companies have developed sites sequentially in response to public demand and, in fact, are generally unwilling to develop master plans for the ultimate utilization of company property. Finally, both the Federal Power Commission and Bureau of Outdoor Recreation are opposed to future private cottage site development on power company land until adequate land has been reserved for future public recreation. Thus, while considerable leverage on private development through company, TVA,
and Corps of Engineers cottage site programs was once possible, this potential is now considerably diminished in the case of private power companies and not at all possible in the case of the Corps of Engineers.

Commercial Use of Reservoir Owner Land

The commercial use of reservoir owner land may have several influences on the reservoir land development process. The number and quality of shoreline commercial facilities may affect the perceived attractiveness of the reservoir area to potential residential and recreation consumers. The location of commercial facilities may increase the attractiveness of nearby land to residential developers and consumers. Both of these potential influences are to some extent mediated by the commercial land use policies of reservoir owners.

Five of the private power companies in the region have what might be termed commercial land use policies. The sophistication of these policies, though, is quite varied. The Alabama Power Company probably has the strongest interest in the commercial development of reservoir shoreline land and has developed policies which appear to be representative of where other power companies may be heading.

As with other companies, Alabama Power does not set aside land specifically for commercial use. Both the timing and location of new commercial facilities are dependent on private initiative. When a private entrepreneur is interested in establishing a marina or other commercial facility on Alabama Power land, he brings his proposal into the company. Alabama Power will then negotiate with him on the facilities to be provided, the location of the development, and terms of the lease. By utilizing
Alabama Department of Conservation projections on user days at its reservoir, the Company attempts to attain both adequate commercial facilities at its reservoirs and a balance of facilities which will keep commercial establishments operating profitably. In addition, the company tries to screen out operators with poor management ability.

Alabama Power Company commercial leases are for ten years, provide for compensation for improvements if the lease is cancelled, and are transferable with company approval. Rental begins at $300 annually and can run to $600 depending on the facilities to be provided. Alabama Power estimates that the average investment required to establish a commercial facility (marina) generally runs from $15,000 to $25,000.

Of the other power companies in the region, only Georgia Power has developed policies in this detail. The other three companies who devote some of their land to commercial use merely license commercial operators at an annual fee of from $1 to $10. The majority of the private power companies, however, do not allow any of their land to be used for commercial purposes and have little interest in commercial development.

The Corps of Engineers, on the other hand, is highly interested in commercial development on its reservoirs and has established fairly uniform commercial land use policies. The goal of the Corps in planning commercial facilities is to maximize the number and quality of facilities available to the public. On the basis of visitation estimates, the Corps determines the type of commercial facilities which can be supported at a reservoir. Land for commercial areas is then located and reserved during the design memorandum and acquisition phases of reservoir planning and development.
Like private power companies, however, the Corps does not construct or operate commercial facilities. Advertisements which state the minimum facilities which are desired for the areas reserved are sent out and private entrepreneurs are invited to submit proposals spelling out to the Corps what they will provide. The Corps then negotiates with potential commercial concessionaires to secure the maximum possible facility development by an entrepreneur with a reasonable amount of experience and adequate financing.

The Corps has two types of commercial concession arrangements. Minor concessions are those requiring a private investment of $25,000 or less and are let for a fixed annual rental for fifteen year terms. Major concessions require a private investment of over $25,000 and are let for a fixed annual rental and a percentage of the gross (usually between 2½% and 5%) for fifteen year terms, but are renegotiable after five years. In both major and minor concessions, the concessionaire retains title to the improvements he has made and can sell the improvements and transfer the lease with the Corps' approval.

No Corps district was entirely satisfied with the operation of its commercial facilities. Two problems appear to be universal. One, individuals with sufficient managerial ability are difficult to attract, primarily because, two, reservoir commercial operations are generally not very profitable in terms of the investment and labor required. As a result of these factors, Corps concessionaires often do not live up to their proposed investment programs and facilities provided to the public are usually less than were initially anticipated.
The Tennessee Valley Authority began with a policy similar to that of the Corps, but has abandoned this in favor of a policy based on private initiative. Thus, TVA usually does not predetermine commercial locations, but relies on the judgment of potential commercial operators. Contrary to both Corps and private power company policies, TVA does not lease commercial sites but prefers to sell land for commercial use when and if the demand arises. The rationale for this policy is that investment in facilities is encouraged when an entrepreneur has chosen the location and owns the land on which his facilities are based. Relying on the business judgment of its commercial operators, TVA's primary concern in commercial location has been that docks and other water based facilities do not interfere with navigation.

As with residential land policies, the extent to which commercial policies may currently be manipulated to achieve public land use objectives is very limited. Only on Corps reservoirs are commercial locations determined by the reservoir owner, and even here the timing of development is largely a matter of private initiative. Nevertheless, almost all shoreline commercial operations on reservoirs require access to the water over reservoir owner land and are subject to some degree of control by the reservoir owner. There is probably a strong potential for policy coordination between reservoir owners and public agencies. Realization of the full leverage of commercial facilities on the land development process, however, would require reservoir owners to provide the improvements as well as the land for commercial facilities, although they might still continue the present policy of contracting out the operation of these facilities.
Industrial Use of Reservoir Owner Land

Industrial land development may influence the reservoir land development process by providing employment opportunities in the reservoir area and by influencing the desirability of adjacent lands for non-industrial use.

Current industrial land use on private power reservoirs is extremely limited. The most frequent industrial uses found on these reservoirs are steam plants and municipal water works. This situation would seem to be the result of two factors. First, most water-oriented industrial establishments seek river as opposed to reservoir sites. Water pollution problems are evidently one of the prime considerations in this locational choice. Second, and probably most importantly, most private power companies do not actively promote the industrial use of their reservoirs. The most frequently cited reason for this policy is the problem of getting FPC approval for any type of industrial shoreline use. Another factor may be a desire by power companies to avoid additional competition for reservoir water. Those power companies with industrial or area development departments generally look for river sites with good rail and road access for new industrial locations rather than reservoir sites. While power companies are very interested in steam power facilities, the inflexible location requirements of these plants considerably limit their value as a means of influencing the reservoir area development process in a controlled manner.

The Corps of Engineers is legally authorized to make shoreline land available for industrial use. However, in most Corps districts this land use alternative is rarely given much attention. Exceptions to this generalization include the occasional use of Corps land for steam plants,
municipal and industrial water supply intake facilities, and freight terminals on navigable waterways. Also, at least one Corps district has sold land with industrial potential to a local industrial development authority (which has yet to find an occupant for the site). It should be noted, however, that in most of the above cases the initiative for the industrial use of Corps land did not originate with the Corps. Like private power companies, the apparent lack of interest in shoreline land by various water-oriented industries is reflected in a lack of Corps interest or enthusiasm in this type of land use.

Of the reservoir owners in the Southeast, the Tennessee Valley Authority has pursued the most active policy of identifying and reserving land with industrial potential. This usually comes about as a result of cooperative industrial development activities with local chambers of commerce, industrial development districts, and the like. As a result, there has been a considerable amount of industrial development on TVA reservoirs. It should be noted, however, that most of this development has been by transportation-oriented rather than water-oriented industry.

For the most part, then, reservoir owner manipulation of industrial locations or employment opportunities in reservoir areas does not appear to be a feasible means of controlling the reservoir land development process. In this regard, industrial land use policy will only be important in those cases where reservoir and community development objectives are merged. This has occurred on Tennessee Valley Authority reservoirs, most notably the current Tellico project. Wider application would depend, however, on rather large changes in the attitudes toward reservoir development and utilization by both federal agencies and private power companies.
The primary public utilization of reservoir shorelands, either at private residential sites or in public areas, is for recreation. The extent of recreation development at a reservoir influences its overall attractiveness to potential consumers. The concentration of recreational facilities at given sites affects private residential shoreline location decisions and undoubtedly has a crucial influence on the location of reservoir-oriented residential development occurring away from the shoreline. Control of the location and quality of recreational facilities offers one important means of influencing the reservoir area development process.

Private power companies appear to be generally uninterested in the development of public recreation areas. Past policy has been to make tracts of land available to almost any public or quasi-public body willing to invest in recreation facilities. However, local governmental units, especially in the rural areas where most large multipurpose reservoirs are constructed, generally do not have the inclination or funds for this type of investment. Most state recreation departments are only interested in very large tracts of land and, although some very large state parks are located on private power reservoirs, they cannot develop many reservoir-oriented facilities and areas. State fish and game departments have been active in taking over access sites from power companies (usually abandoned road ends), but generally lack the funds for more than cursory facility development and maintenance. As a result of these factors, there is likely to be a grave and continuing problem in just getting facilities constructed, much less controlling their location and character, on private power reservoirs.
This situation has been recognized by the Federal Power Commission. Current FPC policy requires that private power companies file recreation plans (Exhibit R) for licensed reservoir shoreline areas, which demonstrate that present and future recreational demands are being or will be satisfied. Unfortunately, these documents are often devoted to elaborate demonstrations that all future recreation requirements can be met by the "underutilized" recreation facilities which are currently available. Despite FPC intentions or hopes, most private power companies in the Southeast appear to have little intention of acquiring additional land for recreational purposes at existing reservoirs or investing company funds in the development and operation of recreation areas.

This situation is not as bleak on new reservoirs built for hydroelectric purposes. Here the new FPC recreation policy can assure that lands adequate to meet future recreational needs are acquired by power companies and reserved pending some governmental initiative to utilize them. Again, however, two factors limit the effectiveness of this policy. Most important is the lack of local funds or widespread state interest in reservoir recreational development. Of greater future import may be the fact that many new reservoirs are for cooling atomic or fossil fuel generating systems and are not regulated by the Federal Power Commission. In sum, the potential for influencing the land development process on private power company reservoirs through recreation facility policies is not very bright.

This is definitely not the case on Corps of Engineers reservoirs. Since World War II the Corps has paid an increasing amount of attention to public recreation. During the initial phases of project design the
Corps secures estimates of future recreation demand, translates these estimates into area and facility terms, and devises a program of recreation development. This program or plan serves as a guide in land acquisition and guarantees that adequate land resources are acquired and reserved for future public recreational use. In addition to acquiring adequate lands for public recreation, the Corps has invested heavily in recent years in the construction and maintenance of recreation areas and facilities. It is very likely that local land use objectives for the reservoir area could be considered in the planning and development of these Corps recreation areas.

The Tennessee Valley Authority has followed a recreation policy closer to that of private power companies than the Corps of Engineers. TVA generally does not develop and maintain recreation areas (except at dam sites), but prefers to make land available to state and local governmental units for this purpose. However, the amount of recreational planning and coordination with local government which preceded land acquisition on most TVA reservoirs was very limited. Although TVA now provides local governmental units with technical assistance for recreation facility site design, the factors noted above which generally limit local governmental reservoir recreational investments have also operated on TVA reservoirs. So, like the private power case, since the initiative for facility location and, most importantly, the timing of facility development generally comes from state or local governmental units, the use of recreational policy to guide land development on existing TVA reservoirs probably has limited potential.
Forest Use of Reservoir Owner Land

A very high proportion of both private power company and Corps of Engineers reservoir land holdings are currently in forest and agricultural use. For private power companies, timber operations provide a revenue producing use of land which also facilitates company watershed protection and surveillance objectives. Most importantly, however, forestry operations cover the holding costs of land pending company decisions on a higher use for its property. For the Corps of Engineers, forestry operations are a means of both watershed protection and landscape enhancement. The Corps does not manage its lands to produce a monetary return, so timber cutting is limited to that required to maintain healthy timber stands. Like private power companies, the Corps views forestry operations as a useful "holding status" for land pending the demand for uses such as public recreation.

The Tennessee Valley Authority's emphasis on identifying a future use for all lands it retains and consequent tendency to dispose of large tracts of "surplus" land has left it without the resources to pursue a well developed forestry program. Rather than manage timber lands itself, TVA has transferred vast tracts of timberland to the U. S. Forest Service and National Park Service. What forest lands TVA retains are in a transitional use or are kept for experimental purposes.

The value of forest land uses in guiding reservoir land development lies in the provision of a means by which land can "pay its way" pending development in an urban or recreation use. Successful timber operations have relieved much of the pressure for power companies to sell land in order to escape high holding costs. They have facilitated maintenance
of unified shoreland ownership and control and allowed power companies, in particular, to indefinitely postpone land utilization decisions. The options which remain available for guiding development on existing reservoirs through land utilization policies are kept open by forest uses on remaining uncommitted reservoir owner lands.

IV. Land Sales Policies

While a majority of the reservoir owners in the Southeast have chosen to retain "excess" land acquired during reservoir construction in one of the uses discussed above, a number of reservoir owners have sold various landholdings. Reservoir owner land sales policies have a great potential for use in influencing reservoir land development. For instance, rather than create its own residential subdivisions, reservoir owners could encourage residential and other types of development at various locations by selling land at market or below market rates. At the present time, though, the sales policies of Southeastern reservoir owners vary considerably both in the amount and type of land holdings agencies are willing to sell.

Two subsidiaries of ALCOA, Yadkin Incorporated and Nantahalla Power and Light Company, have had the policy of selling all of their land not actually used for power production purposes. Nantahalla Power has now sold almost all of the shoreline land it originally acquired. Yadkin Incorporated sold much of its landholdings around two reservoirs developed in the 1930's. This policy is now defunct and the company is considering active development of its extensive landholdings around two newer reservoirs. Both companies' liberal land sales policies were pursued in an effort to
reduce taxes and stimulate the local economy by putting agricultural land back into production.

Two other companies, Virginia Electric and Power and South Carolina Electric and Gas, have policies of selling all of their shoreline land holdings not being used for power production and reservoir maintenance, or held for future public recreation. SCEGS will only sell shoreline land to adjacent landowners, while VEPCO will sell to anyone who will use the land in a manner which is not harmful to the primary purpose (power production) of its reservoir. Alabama Power Company subdivided and sold lots off several isolated parcels of company land on a recently developed reservoir. In each of the above cases the company sold land which it could not clearly identify with the company's primary objective of producing electricity.

Most reservoir owners, however, do not or only sparingly sell reservoir shorelands. Several reasons can be cited for this policy. Inertia is probably a major factor. Once land has been acquired, it is easier to retain than sell. Control is another major factor. Most reservoir owners desire to control activities on and surrounding their reservoirs, at least to the extent of sidetracking any activity which may prove detrimental to the purposes of the project. This is much easier when land is owned. A third factor is that most reservoir owners do not let their land stand idle. Uses are found which either increase the benefits of the project to the owner or public, or at least balance the costs of holding the land pending later decisions. Finally, the Federal Power Commission has now concerned itself with power company land sales and will not approve land transfers which would threaten the integrity of a reservoir owner's recreation land use plan.
In the case of the Corps of Engineers, there has been little incentive for the Corps to sell land and it generally has not. During the Eisenhower Administration some land was 'surplussed,' such as most cottage sites, but this was but a small fraction of Corps held shoreline land. Current Corps policies which stress the public use of reservoir lands mediate against the sale of land to private individuals or entrepreneurs.

The Tennessee Valley Authority has followed a policy of selling or transferring to other agencies all lands not identified with a specific project purpose. This policy was accelerated during the Eisenhower Administration so that, although its definition of project purposes is rather broad, TVA actually sold over 150,000 acres and transferred over 170,000 acres of land to other agencies. This policy was so vigorous that land sales are not likely to be an effective policy in guiding growth on existing TVA reservoirs.

In sum, land sales policies do not appear to have much potential as a reservoir land development guidance tool. Private power companies are increasingly wary of selling land and are not acquiring much excess land to sell on new reservoirs; the Corps' philosophy of public use mediates against land sales; and TVA does not have much uncommitted land left to sell in this manner.

V. Land Management Policies

In addition to land acquisition, utilization, and sales policies, another means by which reservoir owners can potentially influence the reservoir area land development process is through regulations governing the use of their lands by adjacent landowners. This comprehends such land
management policies as those regulating access to a reservoir over reservoir owner lands, clearing lines of sight from adjacent private property to a reservoir, use of reservoir owner lands as extensions of adjacent residential properties (including clearing of underbrush, construction of steps, outdoor lights, barbecues, and the like), and the construction of boat docks and ramps. These policies should influence the relative desirability of adjacent land and in this way may offer another means of controlling the probability that various tracts of land will be developed.

Private power company policies in this area vary considerably. No company totally prevents adjacent owners from gaining access to their reservoirs over company lands. Where policies vary most widely is in the exclusiveness of the rights to company land that are granted to these adjacent owners. At one extreme, a number of power companies allow indiscriminant access over their lands by adjacent landowners and the public at large. This policy has produced two problems which have induced a number of other companies to regulate access. One is the complaints of adjacent landowners who dislike the public using company land between their property and the reservoir. Second, and most important, is encroachment of adjacent landowners on reservoir owner land and the subsequent loss of company lands through adverse possession suits.

Because the cost of constant surveillance of their vast landholdings is prohibitive, several companies have developed policies which provide adjacent owners the right to access over company lands providing the company is either compensated or its superior claim to the land is recognized through a lease or easement agreement. For instance, the Virginia Electric and
Power Company has granted an easement to adjacent landowners for exclusive use of the shoreline of Lake Gaston on the North Carolina-Virginia border. This policy reduced the price of shoreline land acquired by VEPCO and served company public relations by assuring adjacent landowners that "strangers" would not be picnicking or camping on their doorstep. The Alabama Power Company and the Georgia Power Company lease land strips between adjacent property and their reservoirs to adjacent owners for a nominal fee. This serves to maintain the superior claim of the company to the land while granting adjacent landowners its exclusive use. Finally, the South Carolina Electric and Gas Company has a policy of selling rather than leasing shoreline "strip" holdings to adjacent landowners. Each of these latter policies gives shoreline landowners certain exclusive rights to company owned shoreline land -- most importantly, the right to exclude the general public from this land. This right should serve to make these properties more desirable than shoreline land which is subject to public use or which is neither available to adjacent landowners nor the public at large.

Private power companies in the Southeast region are becoming increasingly concerned about the regulation of boat docks and boat houses on their reservoirs. While at present a majority of these companies do not control the construction of docks by adjacent owners, several persistent problems are leading them in this direction. Unregulated private dock construction often results in the erection of substandard docks and boathouses which rapidly deteriorate and break up, resulting in floating debris which are hazardous to boaters and water skiers. Docks occasionally contain human habitations with inadequate sanitary facilities, thus creating a serious health hazard.
A more common problem, however, is the location of docks in such a manner as to obstruct the water access of adjacent lots. Combined with the general unsightliness of numerous docks and boathouses on a reservoir, these types of problems have produced a number of complaints from lakeshore landowners and the general public which both damage company public relations and are costly in terms of the personnel time occupied in investigation and resolution of individual problem situations.

Private power company policies which have been developed in this area generally hinge on the licensing of private docks and boat houses. These licenses are freely granted for a nominal fee (usually just adequate to cover the costs of administering the licensing program) and allow companies to correct problems in construction and location of docks before they arise. No companies, however, have attempted to restrict the number of docks on their reservoirs.

Corps of Engineers policies on access and use of public shorelands by adjacent property owners have been clearcut and fairly consistent over Corps districts in the Southeast. With few exceptions, these policies specify that the entire shoreline of a reservoir is available for public use without charge. Adjacent property owners are never given exclusive rights to the use of shoreline land. However, most Corps districts once pursued related policies which may have had the net effect of allowing private shoreline use. For instance, the Corps usually granted permits to adjacent owners to clear underbrush, thin trees, terrace hillsides, construct paths and steps, and build boat ramps, docks, and houses on public land. Each of these private improvements of public land connoted private property and probably discouraged public use of this land. This effect
has occurred in other cases where the boundary of public property was never surveyed and monumented, so that encroachment on and use of public lands by adjacent private landowners was fairly common.

The Corps is aware of the effects of the above practices and has been taking vigorous steps to assure that all public lands are equally available to the entire public. It is now a common policy among Corps districts to discourage all private modification of public lands, such as clearing, terracing, and the like. When these practices are allowed, property owners are warned that they cannot discourage use of adjacent shorelands by the general public. The Corps is surveying and monumenting the boundaries of public lands on all new reservoir projects and is systematically surveying, monumenting, and removing encroachments on a number of older reservoirs. The only remaining "private" use of public land which will continue to be boat docks. Here Corps districts are often prohibiting new private docks within three to five miles of marinas and encouraging group rather than individual docks elsewhere. All Corps districts now license docks and require that specific material, design, and locational standards are met.

The Tennessee Valley Authority policy in this area is one of free public use of land access over all Authority lands for reservoir-oriented recreation. However, TVA is very lenient toward the use of its shoreline land to enhance the residential use of adjacent properties, allowing clearing, terracing, and other practices which were once common on Corps reservoirs. TVA licenses boat docks and will require styrofoam construction on all docks by 1972, but does not try to limit the number of docks constructed or their location except where conflicts with navigation would occur.
Utilization of land management policies to guide reservoir development, then, appears to have some considerable promise on private power and Tennessee Valley Authority reservoirs, where adjacent landowners are commonly given privileges in the use of shoreline land; but, is not likely to be used on Corps of Engineers reservoirs, where these privileges are not allowed. In the former case, reservoir owners could establish "residential use" and "public use" zones of shoreline land. In residential use zones adjacent landowners would be allowed to make free use of shoreline land owned by the reservoir owner, treating reservoir owner land as an extension of their own property. In public use zones, however, adjacent landowners would have no exclusive rights to the shoreline and, in fact, might be kept from direct access to the reservoir by fences. In this or some like manner, land management policies could exert a considerable amount of leverage on reservoir land development patterns.

VI. Coordination and Cooperation with Other Agencies

Most of the reservoir owner policies discussed above could conceivably be applied unilaterally by reservoir owners. To be most effective, however, they should be pursued coordinately with local or state governmental land use regulations and policies. Thus, an important variable in any land development guidance program which in part relies on reservoir owner policies is the owner's attitudes and experience in working with local government.

In general, private power companies are very active in seeking out local officials and establishing working relationships with local governmental agencies. This policy stems in part from the fact that power companies
conduct business in these communities. They have a stake in the attractiveness and economic prosperity of their service areas. Also, to satisfy the growing FPC concern with recreation, private power companies are very interested in persuading municipal and county officials to utilize company land in constructing and operating public recreation facilities.

Power company success in generating local interest in the utilization of their reservoirs, however, has been quite varied. Usually, these companies have found that they cannot achieve their objectives by sitting back and waiting for local officials to act. Rather they must sell jurisdictions on the necessity of land use regulations and public recreational facilities and then show local officials how to proceed in achieving these objectives.

Even with a hard sales job, however, local officials in jurisdictions around Alabama Power Company reservoirs have generally ignored company overtures. APC, as a result, has established a program of seminars which educate landowners and land developers in reservoir areas on the financial advantages and technical means of creating well planned and soundly conceived residential recreation communities. The company reports a considerable degree of success in this program, with results similar to those that would have been accomplished by local zoning and subdivision regulations. Several other power companies, however, have been instrumental in the establishment of planning agencies with the authority to administer zoning and subdivision regulations. For instance, the Appalachian Power Company promoted the establishment of the Reservoirs Regional Planning Commission by the counties around Smith Mountain Reservoir in Virginia. Carolina Power and Light Company devised the idea of the
Person-Caswell County Lake Authority, which is a special district established for the specific purpose of regulating land use and operating recreation facilities on Carolina Power Lake (Hyco Reservoir). Further, the company assured the financial viability of the Authority by giving it the right to collect access and dock fees from adjacent landowners who wish to use a company-owned strip of land around the periphery of the reservoir. Almost all power companies encourage their employees to take an active role in local affairs and power company personnel can be found on many planning boards in the region. In sum, private power companies have had the economic motivation and local interest and contacts to achieve a considerable amount of success working with local communities and their governments.

Corps district offices report considerably less success in their dealings with local governmental officials. In comparison with private power company reservoirs, fewer Corps reservoirs have had land use plans or zoning and subdivision regulations applied to adjacent lands. Corps experience with local operation of recreation facilities has been so bad that several districts now refuse to allow counties to operate recreation facilities on Corps land. Several reasons can be cited for this situation. Most importantly, perhaps, is the communication gap existing between professional personnel on Corps staffs and nonprofessional local governmental personnel. In addition, the Corps has often taken the attitude that local officials should come to the Corps rather than the Corps "selling" local officials on the need for land use regulations. The Corps has traditionally limited its efforts in this regard to advice given at public hearings. After a reservoir is completed, the Corps is usually represented in the local area by the reservoir manager. However, he is instructed to perform a purely service function and does not try to influence local policy.
The Corps has had more success in its dealings with state agencies. State park facilities have been established on several Corps reservoirs in the Southeast. In many cases the Corps has leased almost all of its landholdings around a reservoir to state recreation departments for development. State conservation and fish and game departments have been very active in working with the Corps to protect wildlife on recently developed reservoirs, and large tracts of land have been turned over to these departments for wildlife management areas.

With state, and to a greater extent local governments, Corps cooperation is probably directly related to the professionalism and fiscal capacity of the governmental unit. Where these governmental units have the funds and technical capacity to take over complex recreational facilities, such as is the case in most metropolitan areas and urban states, excellent Corps-local government relations have been developed. However, in the case of poorer, less developed, less professional governmental units, where Corps initiative in fostering and maintaining working relationships is required, Corps-local government relations have not been developed to any great extent.

The Tennessee Valley Authority is internationally renowned for its record of close cooperation with local governmental units. It has not only actively pursued policies which rely on local governmental cooperation for their success, but has supplied technical assistance in planning and development to assure such cooperation.

In sum, both the Tennessee Valley Authority and private power companies appear to have the tradition, experience, and flexibility to work closely with local governmental units in a joint effort to guide development in
reservoir areas. The Corps of Engineers has experience in working with local officials prior to construction of a public work, but has had a "come to me" attitude regarding further contact with local government. Although relations with state governments have been better, before a joint Corps-local government approach to guiding reservoir development could be initiated, this Corps attitude must be revised. 

VII. Conclusion

Potentially, an entire reservoir area could be developed by a reservoir owner, acting alone or in cooperation with other agencies. Complete control of a reservoir recreation environment could be achieved. The Tennessee Valley Authority is approaching this end in the joint development of the Tellico Reservoir and new town of Timberlake. Recreation "new towns" could be developed on a number of new reservoirs. Reservoir owners and the public could effectively capture the enhanced land value and use potential created in the process of reservoir development. To move in this direction, however, the Corps of Engineers, Federal Power Commission, and Bureau of Outdoor Recreation will have to become convinced that recreation may mean more than open space and parks, and power companies would have to be convinced that land development is both a natural and profitable extension of their business.

For the present, it is evident from the preceding discussion that none of the reservoir owner policies considered will be universally applicable to all reservoir owners or even all reservoirs of any given owner in a system of policies for guiding the land development process in reservoir areas. Table 1 presents a set of estimates of the applicability
Table 1. Assessment of the Role of Selected Reservoir Owner Policies in Guiding Land Development on Existing and Proposed Reservoirs in the Southeast

<table>
<thead>
<tr>
<th>Policies</th>
<th>Private Power Companies</th>
<th>Corps of Engineers</th>
<th>Tennessee Valley Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing Reservoirs</td>
<td>New Reservoirs</td>
<td>Existing Reservoirs</td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>POOR</td>
<td>POOR</td>
<td>FAIR</td>
</tr>
<tr>
<td>Residential Utilization</td>
<td>FAIR</td>
<td>POOR</td>
<td>POOR</td>
</tr>
<tr>
<td>Commercial Utilization</td>
<td>POOR</td>
<td>POOR</td>
<td>FAIR</td>
</tr>
<tr>
<td>Industrial Utilization</td>
<td>POOR</td>
<td>POOR</td>
<td>POOR</td>
</tr>
<tr>
<td>Recreation Utilization</td>
<td>POOR</td>
<td>FAIR</td>
<td>GOOD</td>
</tr>
<tr>
<td>Forest Utilization</td>
<td>FAIR</td>
<td>FAIR</td>
<td>FAIR</td>
</tr>
<tr>
<td>Land Sales</td>
<td>FAIR</td>
<td>POOR</td>
<td>POOR</td>
</tr>
<tr>
<td>Land Management</td>
<td>FAIR</td>
<td>GOOD</td>
<td>POOR</td>
</tr>
<tr>
<td>Local Government Coordination</td>
<td>FAIR</td>
<td>FAIR</td>
<td>POOR</td>
</tr>
</tbody>
</table>
of various policy types to various reservoir and reservoir owner situations. The table suggests, for instance, that on new private power reservoirs land management policies which differentiate the access rights of adjacent property owners may be a possible means of influencing private development. This type of policy, however, is not as feasible on Corps of Engineers' reservoirs where private rights to public shoreline land are not considered legitimate. Rather, on these latter reservoirs the quality and location of commercial and recreational facilities might be more easily manipulated to influence reservoir development patterns. Or, land with development potential could be either acquired and frozen or left in the private market as an easily adaptable aspect of Corps land acquisition policy. Each of the above policies and industrial location policy as well may have some potential in guiding development on new Tennessee Valley Authority reservoirs. It should be stressed, however, that these are estimates concerning the general applicability of various policy areas, and are not meant to apply to any particular case. For, in fact, each of these policies has the potential to influence reservoir land development patterns and could conceivably be utilized by any reservoir owner under certain circumstances.

Because of the possibility that each of the policy areas discussed might prove useful in a mix of reservoir owner and public policies for guiding reservoir land development, each policy area should be statistically evaluated for inclusion as a predictor variable in the Center's reservoir land development forecast model. Further, the analysis presented here suggests that several versions of such a forecast model should probably be developed, each keyed to a potential reservoir owner - local policy situation.
Appendix I

Reservoir Owner Personnel Interviewed

Spring 1969
<table>
<thead>
<tr>
<th>Company</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama Electric Cooperative, Inc.</td>
<td>L. A. Beers, Director, Legal Division</td>
</tr>
<tr>
<td>P. O. Box 550</td>
<td></td>
</tr>
<tr>
<td>Andalusia, Alabama</td>
<td></td>
</tr>
<tr>
<td>Alabama Power Company</td>
<td>Homer Turner, Executive Assistant to the President</td>
</tr>
<tr>
<td>600 North 18th Street</td>
<td>Oliver D. Smith, Manager, Land Department</td>
</tr>
<tr>
<td>Birmingham, Alabama</td>
<td>William G. Vail, Land Department</td>
</tr>
<tr>
<td>Appalachian Power Company</td>
<td>Edward C. Bradley, Administrative Assistant, Area Development Department</td>
</tr>
<tr>
<td>40 Franklin Road</td>
<td></td>
</tr>
<tr>
<td>Roanoke, Virginia</td>
<td></td>
</tr>
<tr>
<td>Carolina Power and Light Company</td>
<td>Henry G. Dallas, Manager, Land and Right of Way Acquisition</td>
</tr>
<tr>
<td>306 Fayetteville Street</td>
<td></td>
</tr>
<tr>
<td>Raleigh, North Carolina 27602</td>
<td></td>
</tr>
<tr>
<td>Duke Power Company</td>
<td>C. J. Blades, Assistant Vice-President, Real Estate</td>
</tr>
<tr>
<td>422 South Church Street</td>
<td>Reuben Tomberlin, Supervisor, Forest Operations</td>
</tr>
<tr>
<td>Charlotte, North Carolina 28201</td>
<td></td>
</tr>
<tr>
<td>Florida Power Corporation</td>
<td>N. H. Heindel, Director, Real Estate and Tax Department</td>
</tr>
<tr>
<td>101 Fifth Street South</td>
<td></td>
</tr>
<tr>
<td>St. Petersburg, Florida 33733</td>
<td></td>
</tr>
<tr>
<td>Georgia Power Company</td>
<td>C. R. Minors, Executive Assistant to the President</td>
</tr>
<tr>
<td>270 Peachtree Street</td>
<td>W. S. Manning, Assistant Manager, Land Department</td>
</tr>
<tr>
<td>Atlanta, Georgia</td>
<td>D. N. Maclemore, Assistant Chief Civil Engineer</td>
</tr>
<tr>
<td></td>
<td>C. R. Thrasher, Civil Engineer</td>
</tr>
<tr>
<td>Nantahalla Power and Light Company</td>
<td>W. T. Walker, Vice President</td>
</tr>
<tr>
<td>Franklin, North Carolina 28734</td>
<td></td>
</tr>
<tr>
<td>South Carolina Electric and Gas Company</td>
<td>Robert L. Castles, Director of Land and Public Facilities</td>
</tr>
<tr>
<td>321 Main Street</td>
<td></td>
</tr>
<tr>
<td>Columbia, South Carolina</td>
<td></td>
</tr>
</tbody>
</table>
Virginia Electric and Power Corporation  
7th and Franklin Streets  
Richmond, Virginia

C. M. Stallings, Manager, Power  
Supply Division  
J. M. Hagood, Power Supply Division

Yadkin Incorporated  
P. O. Box 576  
Badin, North Carolina

Wayne Mabry, Director of Public  
Relations and Property Manager

Corps of Engineers Districts

Baltimore District  
P. O. Box 1715  
Baltimore, Maryland 21203

Theodore S. Toppen, Chief, Project  
Management Branch  
Michael Kolessar, Chief, Project  
Planning Branch  
Frank Walter, Assistant Chief,  
Project Planning Branch  
Karl F. Kauffman, Recreation  
Specialist

Charleston District  
P. O. Box 919  
Charleston, South Carolina 29402

Jack Lesseman, Chief, Engineering  
Division  
Mace A. Gay, Chief, Special Projects  
Section

Huntington District  
P. O. Box 2127  
Huntington, West Virginia 25721

M. W. Wood, Chief, Operations  
Division  
E. J. Cogil, Chief, Office  
Operations Branch, Operations  
Division

Jacksonville District  
P. O. Box 4970  
Jacksonville, Florida 32201

George Marsh, Assistant to the  
Chief, Engineering Division  
W. S. Eisenberg, Chief, Navigation  
Section  
Edward Miller, Chief, Technical  
Services Section  
Ard L. Eulenfeld, Natural Resources  
Planner

Louisville District  
P. O. Box 59  
Louisville, Kentucky 40201

Colonel R. R. Wessels, District  
Engineer  
Robert Hayes, Chief, Engineering  
Division  
W. E. Leegan, Chief, Planning and  
Reports Branch  
Max Bohrer, Assistant Chief, Real  
Estate Division  
Charles E. Rager, Chief, Reservoir  
Branch  
Neal E. Jenkins, Acting Chief,  
General Planning Section
Mobile District
P. O. Box 2288
Mobile, Alabama 36601

Ralph Muir, Assistant Chief, Planning and Reports Branch
Thomas Horne, Chief, Reservoir Planning Section
Melvin W. Dovith, Chief, Real Estate Division
Joe B. Graham, Chief, Planning and Contracts Branch, Real Estate Division
F. L. Currie, Reservoir Branch, Operations Division

Nashville District
P. O. Box 1070
Nashville, Tennessee 37202

Reed Bethurum, Assistant to the Chief, Engineering Division
C. C. Crossman, Chief, Reservoir Management Division
A. S. Overton, Assistant Chief, Planning and Reports Branch
Gerald Purvis, Reservoir Manager

Norfolk District
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510

C. J. Robin, Chief, Engineering Division
Hyman J. Fine, Chief, Water Resources Planning Branch

Pittsburgh District
2032 Federal Bldg., 1000 Liberty Ave.
Pittsburgh, Pennsylvania

Colonel W. S. Nichols, District Engineer
J. S. Minotte, Chief, Engineering Division
E. N. Cole, Chief, Planning and Reports Branch
B. E. McLean, Chief, Land Use Planning Section
Wes Burke, Chief, Planning and Control Branch, Real Estate Division
Richard Nugent, Chief, Management and Disposal Branch, Real Estate Division
Peter Coangelo, Civil Engineer
James F. Mershimer, Civil Engineer
Savannah District
P. O. Box 889
Savannah, Georgia

C. C. Brown, Chief, Planning Branch, Engineering Division
Harry F. Johnson, Chief, Public Use Planning Section
Earl Brannen, Chief, Management and Disposal Section, Real Estate Division
William Clarkison, Chief, Project Operations Branch, Operations Division
Hubert C. Miller, Economist

Vicksburg District
P. O. Box 80
Vicksburg, Mississippi

Hal Muir, Chief, Project Operations
B. J. Woods, Engineer

Wilmington District
P. O. Box 1890
Wilmington, North Carolina 28401

E. G. Long, Jr., Chief, Engineering Division
A. B. Moore, Chief, Master Plan Section

Tennessee Valley Authority
Tennessee Valley Authority
Knoxville, Tennessee 37902

Oscar Beaver, Chief, Property Administration Branch, Division of Reservoir Properties
John Rozek, Assistant to the Director, Division of Reservoir Properties
Jesse Harris, Assistant Chief, Property Administration Branch, Division of Reservoir Properties
John L. Needy, Supervisor, Research Section, Recreation Resources Branch, Division of Reservoir Properties

1 Data on Kentucky Utilities Company were secured through an exchange of correspondence with W. A. Duncan, President, rather than personal interviews with company personnel.
Appendix II

Southeastern Reservoir Owner Survey

Questionnaire

Interview Agenda
MULTIPURPOSE RESERVOIRS AND URBAN DEVELOPMENT PROJECT

SOUTHEAST RESERVOIR OWNER SURVEY

Reservoir

Owner-Operator

Center for Urban and Regional Studies
University of North Carolina
Evergreen House
Chapel Hill, N. C. 27514
March 1969
Reservoir Characteristics

1. Date reservoir completed: 19___
2. Area of reservoir: _______ acres
3. Length of shoreline: _______ miles
4. Full pool elevation contour: _______ feet
5. Maximum shoreline contour: _______ feet
6. Normal maximum fluctuation (12 months): _______ feet
7. Normal maximum fluctuation (June to September): _______ feet
8. Uses of Reservoir: Rank from 1 to 7 in order of importance using 1 as most important, 2 as next important and so on. DO NOT RANK USES WHICH DO NOT APPLY.

_____ Flood Control
_____ Industrial Water Supply
_____ Municipal Water Supply
_____ Navigation
_____ Power
_____ Recreation
_____ Low Flow Augmentation
_____ Other (Please Specify)

9. Briefly describe conflicts or disputes, if any, which have developed or are anticipated among competing uses.
10. Water quality: In general, water quality is suitable for the following uses (check all that apply).

- Drinking, culinary, or food processing purposes without treatment
- Recreation, water-contact (swimming)
- Recreation, other than water contact (boating, etc.)
- Warm water fish propagation
- Cold water fish propagation
- Municipal water supply
- Industrial water supply
- Agricultural water supply

11. Reservoir amenity value: In general, reservoir has (check one)

- Very low amenity value: desirable conditions for very few recreation and residential purposes, few positive characteristics (clear, clean water, impressive, varied vistas, etc.); many detracting characteristics (cloudy or polluted water, unimpressive surroundings, extreme water level fluctuation, etc.)
- Fairly low amenity value: desirable for few recreation and residential purposes; positive characteristics outweighed by detracting characteristics in overall image which reservoir presents to its users
- Moderate amenity value: desirable for some recreation and residential purposes; positive and detracting characteristics balance each other
- Fairly high amenity value: desirable for most recreation and residential purposes; positive characteristics outweigh detracting characteristics
- Very high amenity value: very desirable characteristics for almost all recreation and residential purposes; high number of positive characteristics, few detracting characteristics

12. Topography of shoreline: (estimate percent of shoreline in each category)

- Slope under five percent
- Slope between five and fifteen percent
13. Soil characteristics of shoreline: (estimate percent of shoreline with soil suitable for each use)

- General agricultural use percent
- Woodland percent
- Residential septic tanks percent
- Developed recreation use areas percent
- Natural beach areas percent

NOTE: Total percent estimated may exceed 100.

14. Accessibility of shoreline: (estimate percent of shoreline in each category)

- Within one mile of paved road percent
- Within five miles of state or U.S. highway percent
- Within five miles of Interstate highway percent
- Adjacent to railroad percent

NOTE: Total percent estimated may exceed 100.

Land Acquisition Policies

15. Dates of land acquisition: 19____ to 19____

16. Amount of land acquired:

Below Maximum Shoreline Contour

- Fee simple acres
Easements and other acres

Above Maximum Shoreline Contour

Fee simple acres

Easements and other acres

17. Disposition of land acquired above maximum shoreline contour:

Land currently held for agency purposes acres

Land sold or transferred acres

18. Percent of shoreline acquired: ______ percent

19. Acquisition Costs: (Best available estimates)

$_________ Land purchase price without interest costs

$_________ Interest payments

$_________ Administration

$_________ Other (please specify) ________________

$_________ Total

20. Briefly describe land acquisition policies which accounted for agency land holdings above maximum shoreline contour.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

21. General attitude of affected landowners toward reservoir: (check one)

_____ Very much in favor of project

_____ Somewhat in favor of project

_____ Somewhat opposed to project

_____ Very much opposed to project
22. Did the nature of affected landowners' attitudes toward the project influence acquisition policies in any way? If so, please briefly explain.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

23. Briefly explain the influence, if any, of the following agencies on your land acquisition policies.

Adjacent Municipalities: ____________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Adjacent Counties: __________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

State Agencies (please specify agency and division)

Highways: ________________________________________________________________

__________________________________________________________________________

Parks and Forests: __________________________________________________________

__________________________________________________________________________

Fish and Wildlife: __________________________________________________________

__________________________________________________________________________

Water Pollution Control: ____________________________________________________

__________________________________________________________________________

Health: __________________________________________________________________

__________________________________________________________________________

Other: ____________________________________________________________________

__________________________________________________________________________
## Federal Agencies

**Federal Power Commission:**

______________________________

______________________________

______________________________

**Other (please specify agencies):**

______________________________

______________________________

### Land Utilization Policies

24. **Utilization of land held above maximum shoreline contour:** (estimate percent of land or acres in each category)

<table>
<thead>
<tr>
<th>Percent or Acres</th>
<th>Utilization (or expected use)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dam and related hydro-electric facilities</td>
</tr>
<tr>
<td></td>
<td>Steam-generating facilities</td>
</tr>
<tr>
<td></td>
<td>Other industrial facilities (please specify)</td>
</tr>
<tr>
<td></td>
<td>Commercial facilities (e.g., access sites leased for marinas, etc.)</td>
</tr>
<tr>
<td></td>
<td>Private residential (e.g., sites leased for summer cottages, etc.)</td>
</tr>
<tr>
<td></td>
<td>Semi-public recreation (e.g., sites leased for institutional camps, etc.)</td>
</tr>
<tr>
<td></td>
<td>Public recreation (e.g., agency owned and/or operated access areas, parks, or sites leased to public agencies for recreational use, etc.)</td>
</tr>
<tr>
<td></td>
<td>Forestry and watershed protection</td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
</tr>
</tbody>
</table>
25. Have policies been developed by your organization for any of the following uses of land acquired above the maximum shoreline contour? If so, briefly explain the policy in each case.

Industrial Use:  

Commercial Use:  

Residential Use:  

Recreational Use:  

26. What factors do you believe have tended to promote the overall development of the land contiguous to this reservoir?

1. ____________________________  4. ____________________________

2. ____________________________  5. ____________________________

3. ____________________________  6. ____________________________

27. What factors do you believe have tended to inhibit the overall development of the land contiguous to this reservoir?

1. ____________________________  4. ____________________________

2. ____________________________  5. ____________________________

3. ____________________________  6. ____________________________

28. What controls, if any, do you maintain over access to and utilization of this reservoir by adjacent landowners and the public?

_________________________________________________________________

_________________________________________________________________
29. Has a land use plan been developed for areas adjacent to this reservoir? If so, what agencies participated in its preparation?

30. To what extent do local governments regulate the use of land adjacent to this reservoir?

Adjacent Land in Private Ownership

31. Estimated private shoreline land committed to residential use:
   a. Total miles: ________
   b. Total number of lots: ________
   c. Total acres of shoreline in lots: ________
   d. Total number of subdivisions: ________
   e. Percent of total lots in subdivisions: ________
   f. Total number of "year-round" trailer parks: ________

32. Estimated private shoreline land currently in residential use:
   a. Total acres: ________
   b. Number of permanent residences: ________
   c. Number of summer residences: ________
   d. Number of "permanent" trailers: ________

33. Estimated private shoreline land currently in commercial use:
   a. Total acres: ________
   b. Number of shoreline commercial establishments: ________

34. Estimated private shoreline land currently in industrial use:
   a. Total acres: ________
   b. Number of industrial establishments: ________
35. Estimated private shoreline land currently in institutional or public recreational use:
   a. Acres in national park: ________
   b. Acres in national forest: ________
   c. Acres in state parks: ________
   d. Acres in county or municipal parks: ________
   e. Acres in state or national wildlife areas: ________
   f. Acres in public access areas: ________
   g. Acres in other public recreation areas: ________

36. Estimated private shoreline land currently in agricultural or forest use:
   a. Total acres: ________

37. Estimated number of recreation visits to reservoir during last year of record:
    ____________ (Year:  )

38. Estimated percent of total development of land adjacent to this reservoir occurring since 1960:
    ________ percent

Summary

39. We would appreciate any additional comments you would care to make about the development or development potential of land adjacent to this reservoir.
40. Questionnaire completed by:

Name ________________________________________________________________

Title _________________________________________________________________

Firm or Agency _________________________________________________________

Address ______________________________________________________________

41. May we quote your observations in published reports of this research? (check)

_____ Yes, you may quote me with my name.

_____ Yes, you may quote me but without my name.

_____ No, please do not quote me.

42. Check here _____ if you wish to receive a summary report of the study results.

THANK YOU FOR YOUR TIME AND COOPERATION

Please return your completed questionnaire as soon as possible to the following address:

Multipurpose Reservoir and Urban Development Study
Center for Urban and Regional Studies
University of North Carolina
Evergreen House
Chapel Hill, North Carolina 27514
1. Multipurpose Reservoirs and Urban Development Project

2. Southeastern Reservoir Owner Questionnaire

3. Reservoir Land Acquisition and Management: Experience
   a. Land Acquisition Policies
      1) purposes of land acquisition
      2) changes over time
      3) factors affecting acquisition policies
   b. Extent of Landholdings
   c. Land Disposition Policies
   d. Land Management Policies
      1) current land use: industrial, commercial, residential, recreation, forestry and conservation
      2) factors influencing land use decisions:
         a) company-related goals, plans, and interests
         b) government-related regulations, taxes, etc.
         c) customer-related and public relations
   e. Assessment of Present Situation
      1) problems in land management
      2) potential opportunities in land utilization

4. Reservoir Land Acquisition and Management: Expectations
   a. Future Plans for Reservoir Construction
   b. Land Acquisition Policies or Intentions
   c. Land Management Goals and Plans
      1) industrial
      2) commercial
      3) residential
      4) recreation
      5) forestry and conservation
   d. Factors Influencing Expectations and Intentions

5. Coordination and Cooperation with Other Agencies: Local, State, and Federal

6. Participation in Public Decisions Affecting Reservoir Land Utilization
   a. Local and Regional Planning
   b. Land Use Regulation
   c. Services and Facilities

7. Industry-wide Prospects and Concerns in Reservoir Land Utilization and Management