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ASSESSING THE LOCAL ECONOMIC IMPACTS OF PARK ACQUISITION AND DEVELOPMENT

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The California Coastal Zone Conservation Commission in February 1975 requested a study be made of the effects of park acquisition on local governments. One reason for their interest in such information was the proposed extensive acquisition of land for preservation and recreational use along the California coast. The Commission staff members believed that the planned acquisition policies would meet with opposition from local governments. Thus, as a response to possible objections to park acquisition, a framework was needed for pinpointing possible benefits and costs. Our research task was to develop and outline methods for assessing the impacts of acquisition and development, and we believe our study lays the basis for such an assessment by different levels of government.

Rationales for Park Acquisition

Park acquisition and development have had three types of rationale-economic, social, and environmental. The economic rationale has been advanced in asserting that parks provide some kind of dollar impact to an area. The reasoning is that parks create a stimulus to tourism leading to more spending and other benefits in the form of new jobs, increased income for local areas, and more tax revenue for government. The social justification of park development invokes the value of recreational activities to citizens. With the trend towards a greater amount of leisure time in this country, one increasingly hears the argument that more parks are needed for outdoor recreation. Finally, the environmental rationale for more parkland entails the argument of preserving scarce natural resources.

Loss in Tax Revenue

Despite the positive effects of parks underscored by the three areas of impact, there has been opposition to increased conversion of private land into public parks. Most County tax assessors' offices would point to the loss in tax revenue to counties from removal of land. This opposition on fiscal grounds is within the general context of limited revenues to local governments. Thus, when state governments support further acquisition of parks, local jurisdictions perceive state policies as being against their interests. In a sense, local governments act to maximize their revenues, while state agencies recommending park acquisitions have different aims.

The disparity in aims between local and state levels makes it difficult to assess the impacts of park acquisition and development in a way where all parties involved can use a common impact measure.

In other words, it makes little sense to local officials for park studies to measure the tourist dollars created by parks when the relevant boundary for assessing impacts is the tax districts affected by acquisitions. Indeed, there might be a basic disagreement as to relevant boundary for analyzing impacts. The state and those groups advocating parks on environmental and social grounds have as their clients not the people of the local community affected, but the entire state or region. This problem of a common framework for analysis is an enduring one.

However, the value of knowing the pattern of impacts of park acquisition and development on local communities remains great. Determining those impacts which are beneficial and those which are detrimental to local interests can improve the allocation of open space in the state. Information on the costs to local governments of park acquisition make possible policies that seek to reduce the costs or provide offsetting benefits. In other words, measuring the economic and fiscal impacts of park acquisition on local regions allows the state and local governments to accommodate both positive and negative impacts. With the local boundary as the relevant base for assessing impacts, the ability of both state and locals to improve their situation increases.

If our assertion that the proper basis for park impact assessment includes local regions is obvious, it nevertheless has been largely ignored throughout the country. Numerous studies of park impacts have been made, but few address the effects at the local level. Still, those that we have seen that have been locally oriented do not employ a comprehensive method for evaluating impacts. A selected review of the park impact literature demonstrates the absence of an economic impact framework.

For the purpose of setting out a comprehensive framework of park impacts, we have classified effects into several broad categories of activities. Based upon this classification, an assessment of park impact to local governments can be developed. They are:

Park-related activities and land use:
: The impacts that can be readily attributed to park development and acquisition at the site itself. They include changes in the use of the land, effects on demand, visitor expenditure, and employment.

Changes in surrounding activities:
: The impacts not as visible and often not discussed in the literature. These are effects on land use activity surrounding parks, changes in demand at other recreational sites, and changes in property values.

Local revenues and costs:
The fiscal consequences of changes resulting from park acquisition and development.

Regional economic effect:
Included here are the indirect effects of introducing a change in the local economy. The impact of park acquisition and development affect primarily the flow of spending in the local area and region. In turn, there are multiplier effects on local income and jobs.

Differences between Urban and Rural Sites

In our Study we applied our framework to proposed park acquisition plans at two California sites; Lake Earl in Del Norte County, and Laguna Beach in Orange County. Del Norte is a rural remote area on the north coast, while Laguna Beach is a suburban beach community between Los Angeles and San Diego.

We found that differences in geographic and economic setting are relevant in determining the likely impacts resulting from park acquisition. Generally, remote rural areas cannot expect new tourist dollars to offset losses in property tax revenues. Sites such as Lake Earl are already within a recreation neighborhood. The marginal impact of a new park on bringing tourists to the area is negligible. A result of this setting is the larger than usual impact of park acquisiton on local government revenues. When the proportion of private/public land is low, the new revenue impact of acquisition will be high. We found that for Del Norte County, state action in the form of in-lieu payments and park facility development is the most likely method of offsetting local losses.

In Laguna Beach, however, the loss of local tax revenue due to park acquisition can be largely offset by facility development attracting tourist spending. The acquisition site, unlike Del Norte is within a developed tourist area where there is a substantial flow of tourists. Acquisition and development of a park would attract tourists and raise revenue through spending on user fees and shopping. Generally, where facility development is possible, there is increased ability to offsetting the revenue losses attributable to park acquisition. Additionally, when the private land values surrounding a park site are high, the relative impact on local government revenues is low. In Laguna Beach the loss of property taxes ($38,000) from park acquisition represents less than 1% of the city's revenue, whereas in Del Norte County a loss of $19,000 in property tax revenue represents 4% of total tax revenue.

Conducting Park Acquisition Impact Studies

We found that a broad range of information is needed to assess the full impacts to local governments of converting open space land into parkland. At a minimum, the following information is needed: (1) a defined acquisition boundary; (2) a detailed land use plan; (3) a clear time frame of development; and (4) data on tourist spending. We have found that often such information is not available when an assessment of park acquisition impacts is undertaken.

Illustrating the information problems were the cases of Del Norte County and the City of Laguna Beach. Both governments face a lack of data on important economic events in their region. We found little reliable information on tourist spending or local employment. Thus impact assessments in practice often cannot be complete with the technical and econometric methods cited in the literature.

Given the limited funds and information, impact assessment at the local level will need to rely heavily on local knowledge and estimates. This can be done by understanding the dynamics of park acquisition costs and benefits. The examination of the different kinds of impacts and levels of effect surrounding park acquisition and development, discussed in this paper, sets the framework for a site analysis. At the least, local officials gain an understanding of what impacts need to be measured, and at best the likely outcome in net costs or benefits can be established using available quantitative data combined with reasonable assumptions and guesswork.

Use of Analysis

We hope that the information provided will be useful in a decision-making context at both the county and state levels. In particular, advocates of acquiring more parkland can utilize this analysis to lay down policies that reduce local costs where they cannot be avoided. This can be done only by understanding the underlying economic causes of negative effects and the most effective sources of compensations. For county officials and others opposed to further park development, our results could be of use in initiating a process of negotiation and debate based on sound economic grounds.

INTRODUCTION

Parkland acquisition and development is a popular program. Most people want natural vegetation and landforms preserved and wish to see recreational opportunities expanded. Public action at the Federal, state, and local level is responding to voter preference for more parks. But acquisition and development of a specific park appears to impose more costs and bestows more benefits on the local citizens than upon the voting population.

Too often, due to lack of attention to local impact issues, the costs and benefits of park acquisition accruing to local governments are ignored. Anticipation and evaluation of these impacts can stimulate project designs to offset costs and enhance benefits.

The California Coastal Zone Conservation Commission recommended nearly 200 sites to be considered for acquisition for preservation and recreational development. Local governments have become worried about the increasing public ownership of land. This report is a response to the staff of the Coastal Commission, who expressed concern about this issue.

In this analysis we reviewed the literature on local impact assessment for techniques which had been used successfully. We designed a framework addressing the major issues in order to guide the use of these techniques in an actual evaluation of impacts. Finally, we applied the framework and appropriate techniques in two case studies of proposed park projects.

It is our hope that the framework developed here can be used by any local government or interested party to better anticipate the costs and benefits of a proposed park development. With this understanding, projects can be modified so as to reduce or offset costs and enhance benefits.

Part One, Chapters I through IV, describes the framework we developed. Part Two consists of Chapters V and VI and presents two case studies using the framework.

In our research on impact studies we found three major policy issues implicit in all cases: effects on the local private economy; effects on the local public economy; and effects on the amenities of the local area for residents.

Three sources of impact stemming from park projects cause these effects: pre-emption of existing use, site development and related activities, and the results of visitors coming to the park and the area.

PART ONE: ANALYTIC FRAMEWORK AND MEASUREMENT

CHAPTER I. A FRAMEWORK FOR ANALYSIS

1.1 State of the art

The range of studies we reviewed consistently lacked systematic consideration of the costs and benefits to local governments from park development. Our findings suggest that inattentiveness to the issues, rather than a want of techniques for measuring impacts, was the reason for ignoring these costs and benefits.

In order to assess the current state of the art, we gathered park impact studies from the California Department of Parks and Recreation and the National Park Service. We conducted a literature search using the University of California at Berkeley library system, and contacted fifty state park and recreation departments. The studies we selected for review all addressed economic impacts through the use of techniques, and did not rely solely on personal judgments. An annotated bibliography of the twenty studies that were selected for review is contained in Appendix B: "Annotated Bibliography of Park Impact Studies."

Table 1. presents a summary of the techniques employed in studies selected for review. A few studies used more than one technique.

In our research in impact studies we found three major policy issues implicit in all cases: Effects on the local private economy, effects on the public economy, and effects on the amenities of the local area for residents. Three sources of impact stemming from park projects cause these effects: pre-emption of existing use, site development and related activities and the results of visitors coming to the park and the area.

Table 1: Techniques Used in Park Impact Studies

	Survey	Extrapolation of Existing Trends	Comparison with Other Area	Regional Economic Models
Number of Studies Using Technique	6	9	5	4

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Within each *issue area* each *source of impact* has direct local effects and indirect (sometimes regional) effects. Figure 1 describes this conceptual framework in terms of the following discussion.

We specifically mention amenity changes throughout this paper to assure that this important aspect of park development is not forgotten. We will, however, concentrate our efforts on estimating the economic effects of park development -- effects upon the local public and private economies.

1.2 Sources of Impact

The importance of each source of impact will depend upon considerations briefly discussed here.

a. Pre-Emption of Existing Land Uses: This source represents changes brought about by the interruption of activity that occurred at the site prior to park development, such as open space activity, commercial, or industrial development. The relationship between parks and geographical conditions is important in determining the opportunity costs attributable to the development and acquisition of public parks. Alternative uses -- such as private recreational development, fisheries, agricultural activity, mining and forestry -- are likely to compete with the government's desire to develop a park.

The conversion of an economic activity to park activity may not always mean that it is lost to the local private economy. Forgone activities might be displaced to another site within the region. Nevertheless, where the activity moves to another region, or where the local business cannot afford moving and new start-up costs, the activity can be lost to the local community. For example, in Del Norte County, a meat processing business was completely lost due to park acquisition when the proprietor could not afford to move to another location.* In such cases there will be (1) a direct effect (the loss of income and jobs from the pre-empted use), and (2) indirect effects on the private economy (i.e. loss of other activities that served or were stimulated by the pre-empted land use), and (3) effects on the local public economy (loss of tax revenue).

There will be effects on the amenity of the area due to removal of unsightly activities or beautification of open space land.

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*Information gained through interview with Assistant County Planner, Del Norte County, May 6, 1975.

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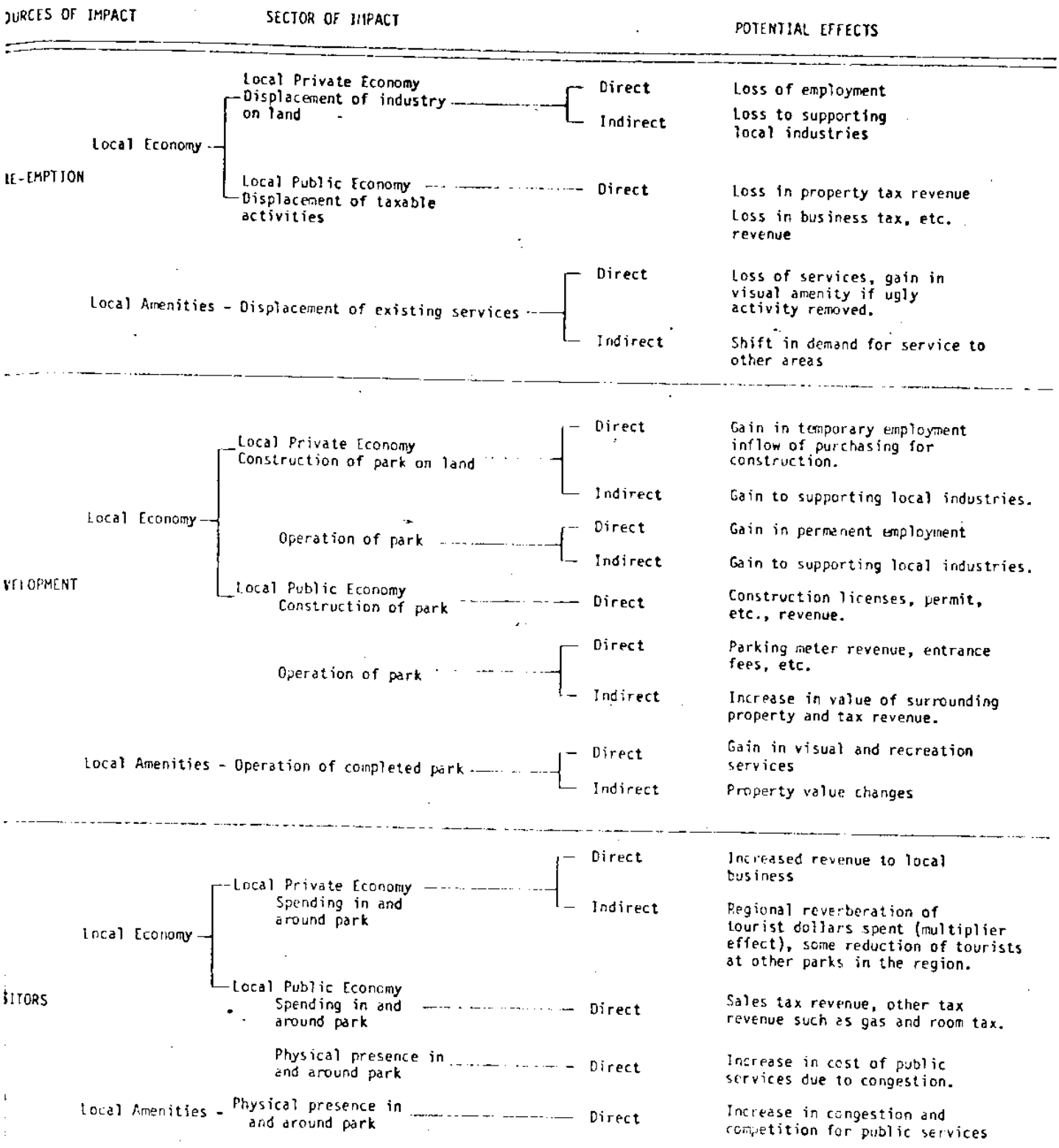
FIGURE 1: ANALYSIS FRAMEWORK



b. Site Development and Related Activities: The opening of the park itself and the development of any park-related facilities such as concession stands, motels, and boat ramps (both within the park and in the surrounding area), affects the local public and private economy. The development of a park and support facilities are important sources of regional impact, because they directly affect incomes, employment, and government revenues. The extent of this impact depends on the type and level of park use.

The quality of a park, as well as the demand for its use, is affected by the nature of the support facilities. Often the availability of external support facilities influences visitor use; gas stations, motels, access routes, restaurants, entertainment opportunities, and other facilities outside the park site all play a part. The development of new support facilities due to park site activities will in turn depend upon the existing supply of such activities and upon the expected level of park use.

It is difficult to identify the demand for a particular facility prior to park development. That being the case, external facility development is not likely, at least until after the park's initial construction.

This situation amounts to a reciprocal relationship in which demand for parks depends in part upon the external facilities, and development of these facilities depends on park attractiveness and level of use.

The development of internal and external facilities affects the local public and private economy through construction expenditures, employment increases, licenses, and the like. Operation of these facilities also affects employment and spending in the area.

c. Visitors Impacts: This source represents changes brought about by the drawing of visitors to the new area. The number of new visitors, as opposed to transfers from existing parks, will depend upon the differences in distance from urban areas, the congestion levels at the parks, the quality of the facilities, and the type of activities offered in each park. Generally, a new park built closer to an urban area will be more appealing than older parks in poorer locations. Shifts in demand to the new site will eventually create enough congestion to offset the advantage. It is important to distinguish transfers of visitors within the same region from new visitors so that these will not be counted as a new source of income. Any losses that may result at old sites within the region due to transfers must also be considered.

New visitors spend money. This affects the local private economy by increasing revenues. It affects the local public economy by generating sales tax, property tax and service fees revenues. New visitors also take up space on roads and at public facilities, imposing costs on local residents.

1.3 Effects of Acquisition and Development

The sources of impact discussed above create *direct* and *indirect* effects on the local private economy, local public economy, and the amenity of the area for residents.

a. Direct Effects: Direct effects are changes in employment levels and revenues to the local public and private economy and changes in amenity directly attributed to park development and acquisition. Indirect effects are brought about in a region due to the respending of tourist dollars and the incomes earned as a result of changes in employment.

b. Indirect Effects: Indirect effects also include changes in amenity resulting from changes brought about by park development, i.e., more commercial activity near the park.

In order to assess the economic impacts resulting from park development and acquisition, quantitative and qualitative measures of each source of impact must be developed. The resulting effects are then estimated. First the direct effects on the public and private economies are estimated, and then through the use of multipliers indirect effects and the reverberations on the regional economies are developed.

Changes in amenity, while not measured, will be discussed on a case-by-case basis. Such changes must be considered when assessing the costs and benefits of park acquisition and development to local residents.

In Chapters II and III we suggest methods that measure different park impacts. These methods range in complexity and accuracy. A full impact analysis measuring the economic effects often requires more information than is available at the local levels of government. Given the limited funds and time available at local levels, some of these measures cannot be taken. Usually, local governments have no data with which to assess regional reverberations, and no information on property value changes in surrounding areas. Situations may arise where the park is not yet acquired and the acquisition boundary or the type and level of activity is undefined. At best, an assessment of the *direction* and *range* of impacts of park acquisition and development can be developed. The techniques involved in a limited impact assessment require on-site visits, a detailed land use plan, data on tourist spending and local employment, and a specified time frame.

CHAPTER II. MEASURING DIRECT ECONOMIC IMPACTS

The techniques used to measure the direct effects of park acquisition and development are discussed in this chapter. The effects include: impacts resulting from pre-emption of existing activities, impacts resulting from development of the park area itself, and impacts resulting both from new visitors to the area and from visitor transfers.

2.1 Pre-emption

a. Displacement of private use

Determining the impact due to pre-emption for the actual acquisition site requires knowledge of the local area, i.e., whether the previous use was actually pre-empted or simply displaced to another location in the vicinity, the value of the existing uses of the acquisition site, etc.

It is also important to measure employment displaced by the park acquisition. This impact will depend on current uses of proposed park lands and the possibility of transferring the economic activities to other areas in the region.

b. Displacement of taxable use

The local jurisdiction loses property tax revenue when a site is acquired for park development. Losses are incurred when the lands are purchased by the state or federal government, because publicly-owned land is tax exempt. The amount of this loss will depend upon the types of uses or potential uses the park displaces. Grazing land is less valuable than commercially zoned land. The true value of the losses is the land's taxable value in its best alternative uses. Thus, depending upon the land's present use or possible uses, the losses can vary greatly. Park conversions have generally followed three patterns: forestry to park (Redwood National Park), agriculture, ranchland, and crop to park (Point Reyes); public use, military to park (San Onofre).

The property tax loss as a direct result of park acquisition is generally a permanent loss of annual tax revenues. The gross cost (excluding other benefits) to the jurisdiction is the present value, over some years, of the annual tax loss. However, it should also be noted that, although the lands are tax exempt, some state and federal agencies provide in-lieu payments to compensate for this tax loss to the local governments.

2.2 Development

a. Changes in property value

Development of a park can increase the value of neighboring property due to increased demand for aesthetic or tourist business uses. This can in turn affect the public economy through increased property tax revenues. Determining the effect that park development is likely to have on surrounding property values can be complicated. Many of the studies reviewed show an increase in overall property values due to the development of nearby parks.*

Several variables influence such property value changes, such as the size of the park, demand for park use, and distance from urban areas. In order to alleviate the problems created by the interplay of the variables, a regression technique has been developed by Knetsch.** This procedure is used to determine the general pattern of expected land values if the anticipated park is constructed. A similar technique is used to determine the expected land values if the project is not completed. The difference between the two aggregate values is the park's economic impact.

Specifically, regressions are computed for two geographic areas similar to that of the proposed park: one with and one without a park. The regressions express the value of land as a function of distance from the park, the property's topography, amount of leisure time, nearness to urban centers, type of improvements, and other variables incorporating local characteristics that are thought to influence property values. A regression is then computed for the similar area without an existing park with similar predictor variables but without, of course, distances from the park. The difference in property values represents the expected impact of the proposed park.

b. Changes in employment levels

When a park is constructed it will have three employment effects: (a) employment of local and nonlocal construction workers, (b) employment of local and nonlocal park employees, and (c) indirect employment effect throughout the local community through spending and re-spending of tourist dollars.

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*A Cape Cod study found a 20% increase in property value due to park development. See Appendix.

**The measurement technique developed in this section is derived primarily from Jack L. Knetsch, "The Influence of Reservoir Projects on Land Values," Journal of Farm Economics, Vol. 46, No. 1, February 1964.

Employment of local construction workers will depend upon the policies of the park's funding agency. It is reasonable to expect that construction funded by a local agency will employ primarily local personnel, assuming that the local labor market can provide the necessary skilled labor. For parks funded by federal and state monies the situation may be different. Often these agencies determine contracts based on competitive bidding from contractors within and outside the local region. If the proposed park is relatively large, these contracts are likely to be awarded to larger nonlocal contractors because no pool of large construction firms exists in most rural areas. Direct employment of park employees, such as gate keepers, attendants, and maintenance personnel, is dependent on the policies of the funding agency.

When estimating employment, it is useful to compare employment in similar parks. As plans for the proposed park become more developed it will be easier to predict employment levels.

As should be expected, it is difficult to predict these direct employment effects without having detailed knowledge of the local employment market, of state, federal and local policies and of the size of the park. Employment estimates may best be made by informed local sources such as chambers of commerce or county planning departments.

c. Changes in services and fees

Other fiscal mechanisms must be considered in addition to tax revenues and losses attributable to park acquisition or development. Internal and external park facilities require utilities and other support services, including sewage, garbage, utilities, water, roads, fire, police, and general administration, many of which are provided by local government or other public agencies. Hook-up fees and monthly service charges for these services will in some cases be greater than the costs, resulting in a net increase in local governmental income. In other cases, it will cost the local agencies more to provide the services than they receive in income, resulting in a net loss.

There may also be local fees generated by the park, such as admission fees, business licenses, building permits, boat licenses, vehicle fines, parking meter collections, and other court fines. It is not clear whether, on balance, revenues will be increased as a result of these collections. Often the revenue resulting from charges for current services, fines, and forfeits depends not only upon the number of people visiting a site, but upon the enforcement level of the agency as well. Additional costs to local governments include the loss of sources of revenue such as removal of metered parking spaces or loss of building permits since sites for construction may become park lands.

2.3 Visitor Impacts

Visitor expenditures attributable to parks have an important direct impact on the local economy. We will later see how these expenditures also have important additional indirect effects. In order to calculate these effects, the total expected visitation for a park must be determined, and estimates of expenditures per visitor must then be made.

a. Estimating total visitation

It is difficult to measure the demand for park use prior to development. A number of interrelated factors are involved, including the population surrounding the park, the types of recreational experiences available within the park, the quality of the facilities, the availability of other recreational sites, area socio-economic factors, availability of external support facilities, and the amount of congestion created within the park. Techniques used to estimate demand include: (1) use of data from parks with similar attributes, (2) various forecasting models, and (3) surveys of expected use. In any event, adjustment must be made for possible transfer of visitation from other existing parks. Estimates should also be made into the future.

"Similar Parks" Method. The Corps of Engineers has used a "similar park" method to estimate the level of recreational use for reservoir developments.* In so doing, the Corps avoids the difficulty of determining the relationship among factors discussed above. Its method of estimation entails finding an area with attributes similar to the proposed area, measuring its range, and adjusting the use figures to reflect differences between the area used and the proposed park.** The weakness of this technique is that the researcher must find a similar park and determine which adjustments reflect park differences.

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*U.S. Army Corps of Engineers, "Estimating Initial Reservoir Recreation Use," Plan Formulation and Evaluation Studies, Recreation, October 1969.

**For example, a coastal day-use-only facility may be proposed in an area to provide 50 picnic sites. To estimate demand, a similar area is found (say, 10 miles up the coast with 100 picnic tables) and a survey is taken of its use. With the results of the survey showing an average of 1000 visitor hours per week, and the knowledge that the proposed facility will only have 50 tables, use of the new facility is estimated to be 500 visitor hours per week.

Forecasting Models. Modeling techniques have relied upon empirical estimates of the interrelationship of factors influencing recreation for a given area, along with supply and demand models for the region. Various statistical models using linear regression, such as those used by Brewer et al. (1968), have been developed to measure the importance of factors influencing recreation.* The usefulness of the statistical techniques is limited, however, by the mechanics of performing the regression. The researcher must find quantifiable measures of use, socioeconomic factors, and other factors and must determine which mathematical form best represents the relationships.

Attempts to design models of recreation systems have centered on the use of existing visitation patterns to predict future trends. Such models are developed in terms of travel time to recreation sites from urban population centers and frequency of out-of-state visitors. One such system is the Parks and Recreation Information System (PARIS) used by the California Department of Parks and Recreation.** This system includes travel times to various regions, a breakdown of geographic types for regions (geo-pieces), and the supply of recreation facilities for each region or geo-piece.

Such systems are limited by their failure to include measures of congestion and quality of the facilities. As a result, they may provide accurate relative rankings of hypothetical demand but inaccurate measures of absolute levels of use.

Surveys of Expected Use. Survey methods have been suggested to determine the demand for recreation in a given area. When using such techniques, care should be taken to include an understanding of the "costs" of recreation use. A survey participant may state that he would attend a new facility without fully considering how long it will take him to travel to the park, or without considering how crowded the park will be, etc. We feel that survey methods, used in this context, will only provide rough estimates of use. Examples of studies that used survey techniques are the Tuolumne County Case Study, the Mt. Rainier and Olympic National Park study (See Appendix A).

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*Brewer, Durwood, and Gilespie, "Effects of Nonpark Variables upon Participation in Water-Oriented Outdoor Recreation," American Journal of Agricultural Economics, Vol. 50, No. 2, May 1968.

**California Department of Parks and Recreation. Interview with William Emrie, April 1975.

Adjusting for Visitor Transfers. The process of estimating the numbers of visitors that would have attended parks within the region but instead use the new facility, involves the same predictive techniques as used in estimating total demand. Three different procedures are: find a similar park development and survey the visitors to determine preferences; attempt to build models to simulate such transfers; and survey visitors at existing parks in the region to determine their expected use of the new facility.

The difficulty of finding a similar park in a region with the same supply of recreational activities often makes this approach impractical. Modeling techniques are complicated by the difficulty of determining what the relevant factors are and how they are related to each other. Surveys of existing visitors may provide accurate indications, assuming no large-scale changes are involved. This is so because the survey population is a contained population--visitors are already in the area and "costs" are imputed by their current park attendance (unlike the case of surveying total expected use).

Estimating Growth of Demand. Estimates of growth in park use are again subject to the interplay of factors found in demand projections. The traditional approach has used broader-based socio-economic variables such as median income, median age, and the amount of leisure time available for individuals to estimate trends in park use. Yet, attempts to develop more specific measures or to use the "similar park" measure may prove misleading false accuracy, since longer-term rates of growth are not reasonably extrapolated from short-term experience. As an alternative to using one growth rate estimate, we recommend that a range of growth rates be applied to current levels to gain a bounded analysis. Such a technique will provide a basis for the development of scenarios, as was done in the Cape Cod 1969 study (see Appendix B).

b. Estimating Visitor Expenditure

Once the increase in the number of visitors attributable to the new park has been determined, the "new dollars" being brought into the economy can be calculated based on per-visitor average expenditures.

Per-visitor average expenditures can be estimated by using either regression or survey techniques. The survey method involves either surveys in existing similar parks or of potential visitors who would estimate their future expenditures at the site. The regression method entails explaining changes in park visitor expenditures in terms of predictor variables such as travel distance and socio-economic characteristics of the potential visitor pool.

The survey of visitors in existing similar parks is a commonly used technique in the literature surveyed (see Chapter 1). Although it may sometimes be difficult to find an existing "similar park," this technique is usually the easiest and least expensive method if a recently completed expenditure study can be found.

c. Changes in the private economy

The impacts attributable to park development depend on the total level of use at the new facility and the transfer of use from previously existing facilities in the area. By employing estimates of use, transfer of use, and visitor expenditures, we can calculate local income impacts. The direct income impact of a new development is less than the total spending by those visiting the new facility since some of the spending (and use) would have occurred elsewhere in the area had the new park not been developed. This is a transfer in demand and does not represent new income; such transfer amounts need to be subtracted from the total projected income. To do so, additional estimates of park use and expenditures for the area are necessary before the new facility is developed.

The estimation process is summarized as a series of steps:

1. Estimate use of the new facility and transfer of use from old facilities.

2. Estimate visitor expenditures for the new facility as well as average visitor expenditures prior to park development.

3. Calculate the increase in regional income attributable to the new park as: (total predicted use x predicted expenditure level) - (previous expenditure level x number of transfers).

For example, prior to a new park's development, use and spending are found to be 1000 visitor days per year averaging $2.50 per visitor day. Use and expenditures at the new facility are estimated to be 250 visitor days per year averaging $5.00 per visitor day. Of the 250 visitor days, 100 visitor days are estimated to have been counted in the original 1000 visitor day use estimates; these represent transfers in demand. Park impact is estimated to be:

Total predicted use:	250 visitor days
Predicted expenditures:	$5.00 per visitor day
Previous expenditure level:	$2.50 per visitor day
Number of transfers:	100 visitor days

Direct Impact = (250 visitor days x $5.00 per visitor day) -
($2.50 per visitor day x 100 visitor days)
= $1250 - $250
= $1000

This is the direct impact on the local private economy.

d. Changes in the Public Economy

With an influx of tourist dollars spent by park visitors, public revenues will increase in proportion to the local share or percentage of the sales tax. Increases in revenues will depend upon the types of goods and services that visitors purchase. Some products are not taxed (e.g., groceries) and other items are subject to other taxes (e.g., gasoline tax). The local share of these taxes varies by area.

Lodging taxes and gasoline taxes can become substantial local revenue generators. Many local regions levy an ad valorem tax on motel and hotel guests. This tax is technically known as a transient occupancy tax, but is more commonly called a hotel room tax. Total increases in income will be equal to the number of hotel and motel guests multiplied by the tax rate.

Gasoline or fuel tax revenues are generally divided between state, local, and federal levels. These tax revenues are often confined to highway trust funds earmarked for maintenance and construction of new roads. Since fuel use is proportional to additional road use, these taxes can compensate for increased road maintenance costs attributable to park use. Nevertheless, it is difficult to determine whether this additional revenue will balance additional local costs without a thorough study of local highway maintenance and the gas taxes received by the local area.

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CHAPTER III. MEASURING INDIRECT ECONOMIC IMPACTS

In two steps, one can estimate the magnitude of benefits in terms of taxes, income, and employment. First, the direct benefits of recreational development are quantified as discussed in the previous chapter. Then, indirect benefits are calculated by multiplying the direct income attributed to the park by an appropriate multiplier. The multiplier concept is developed in this chapter. This concept provides the groundwork for three types of economic models that have often been used in empirical park impact studies: economic base models, input-output models, and from-to models.

3.1 Multipliers--Economic theory uses the regional and macroeconomic concepts of imports, exports, savings, and consumption to derive a local or community income multipier. This multipier is then used to calculate the increased income that tourist spending will create in the economy.

Whenever any part of "imported" dollar or income created from outside the region of study enters the region, its impact will be greater than the dollar itself. To see this, envision a tourist dollar entering a regional economy. Suppose the dollar first arrives at a local hotel. Part of that dollar, say, 40¢, goes to pay for items imported into the region (e.g., paint, carpeting, light bulbs, etc.), but the other 60¢ goes to pay for local employees' labor and local products (e.g., lumber, foodstuffs, etc.). The 40¢ (or 40%) does not help to increase the "local product" since that money provides for income outside of the region in question. The 40¢ portion is thus called a "leakage." But the other 60¢ is re-spent within the region, as the employees buy food, shelter, clothing, entertainment, etc. Again, some of this 60¢ is "leaked" out of the region when purchases of goods imported from outside the region are made. Suppose that of the 60¢ remaining, another 60%, or 36¢, is spent on local products, again inducing more local income. From the local income derived from that 36¢ expenditure, another 60% may be re-spent locally, that is 60% of 36¢, or 22¢. This process continues until the original dollar dissipates completely.

From this process of re-spending one can see that the original dollar has a greater indirect impact than the single dollar spent. Based on an assumption that 60% of each portion of the original dollar is re-spent on local goods and services, we can calculate the total regional impact. That is:

$1 + 60% of $1 x 60% of 60% of $1 + ...

or, rounding to the nearest penny,

100 + .60 + .36 + .22 + .13 + .08 + .05 + ...

The sum, by continuing the above process, is equal to $2.50.

This calculation can be simplified considerably by using a multiplier concept. We can call the proportion of each locally respent dollar the "marginal propensity to consume locally" or MPCL. Knowing the value of the MPCL allows us to compute the multiplier, which is defined as:

$$\frac{1}{1 - MPCL}.$$

In the above example the MPCL was 60%, or .6, so that the multiplier is:

$$\frac{1}{1 - .6} = \frac{1}{.4} = 2.5.$$

Knowing the value of the multiplier we can easily calculate the total regional impact of imported dollars by multiplying the dollars spent by the multiplier. Thus, with a knowledge of the direct income attributable to park use, we can calculate the total income effect as the total direct income multiplied by the multiplier.

But first we need a method of determining the value of the multiplier. This can be determined through the use of the three economic models described below: (1) economic base theory; (2) input-output models; and (3) from-to models.

When time constraints or data availability prevent the estimation of a multiplier specific to the recreation sector of the local economy, a range of likely effects can be developed by using multipliers found in existing studies of other areas. Those studies we reviewed (Appendix A) which estimated multipliers for recreation sectors found a range in values from 1.2 to 2.

Recreation multipliers are influenced by the availability of services within the local area (e.g. gas stations, lodging, restaurants) and the size of the area under consideration. The larger the area or the more services available to tourists and local residents, the larger the recreation multiplier is likely to be.

3.2 Economic Base Models--From the brief explanation of how the multiplier works it should be clear that calculation of the direct effect (e.g., number of tourist dollars spent) does not fully account for the economic impact of recreation on the local economy. Calculation of the secondary impact (income created from the original spending) requires the construction of income, and where needed, employment multipliers. In this section these are estimated by the use of economic base theory.

Economic base theory provides a relatively simple model of the economy. The model allows one to determine local income and employment effects created from sources of income coming from outside of the economy (e.g., tourist spending). The model is more general, and thus less costly, than the more sophisticated input-output and from-to models.

In order to compute the multiplier in the example above it was necessary to divide spending between locally produced goods and services and goods that were produced outside the region.

Similarly, an economic base model is developed by dividing the region's economic activity into basic and nonbasic sectors. The basic sector is typically defined as that which produces goods and services for export and the nonbasic sector is that which produces goods and services for local consumption. Export production includes tourist-oriented businesses, manufacturing, and other goods which are purchased by persons from outside of the region. The nonbasic sector includes production of foodstuffs, newspapers, services and other commodities that are consumed within the region. Transfer payments (such as social security, welfare, etc.) and commuters' income created by residents who commute outside of the region to other regions are generally included in the basic sector, because they represent "new" money coming into the regional economy.

3.3. Calculating Multipliers

Base model for determining the income multiplier. In order to calculate the multiplier, the region's economic activity is partitioned in terms of personal income into basic and nonbasic sectors. Once this income is partitioned the income multiplier may be calculated as the ratio of total income to basic income; that is,

$$\frac{\text{Total income } (T)}{\text{Basic income } (B)} = \text{Region's income multiplier } (K)$$

Alternatively, an incremental multiplier may be calculated. This multiplier is more accurate because it represents a "dynamic" view of the economy. It incorporates changes in the economy's structure over two periods of time. The incremental multiplier is equal to the ratio of the change in total income to the change in basic income between an initial and final period. The incremental multiplier is thus:

$$K' = \frac{T_2 - T_1}{B_2 - B_1} = \frac{\Delta T}{\Delta B} \simeq \frac{dT}{dB},$$

where the subscripts 1 and 2 represent the initial and terminal periods, respectively.

From this information on the multipliers we may calculate the total impact of recreation spending on personal income for a given year. This is done by multiplying K by the "direct income" applicable to recreation expenditures. That is,

$$T_R = K' \cdot B_R,$$

where T_R is total income generated from recreation and B_R is the basic income from recreation.

More accurately, the total increase in personal income attributable to recreation expenditures is determined by:

$$\Delta T_R = K' \cdot \Delta B_R .$$

An example of how the process works will prove useful at this point. To simplify the partitioning of basic and nonbasic income we first divide the economy into independent sectors, such as agriculture, manufacturing, retail trade, services, commuting, etc. The number of sectors will depend on the diversity of the economy. Next, we divide personal income for each sector between basic and nonbasic income. Some sectors produce goods for both local consumption (nonbasic) and exports (basic). Partitioning the income for each sector thus requires an informed observer.*

For the purposes of this simplified example, we have assumed the economy has only three sectors: agriculture, finance, and recreation, with total income divided as follows:

	Basic Income	Nonbasic Income	Total Income
Agriculture	$50,000	$0	$50,000
Finance	0	10,000	10,000
Recreation	20,000	50,000	70,000
Total	$70,000	$60,000	$130,000

With this data now partitioned we can compute the income multipliers.

$$\frac{\text{Total income}}{\text{Total basic income}} \quad \frac{\$130,000}{\$\ 70,000} = 1.86 \text{ (multiplier)}$$

This multiplier is called the "community multiplier" because it represents the community's entire economy (the agriculture sector, the finance and insurance sector, and the service sector all combined). With this multiplier we can now calculate the estimate of the total impact of recreation spending on the region's personal income.

Let's assume a new park is built and as a result, tourist spending (from outside the region) increases by $10,000. To calculate the total impact we mutiply 1.86, the multiplier, by $10,000, giving us a total impact of $18,600 on the local community.

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*The most common method for doing so relies on the use of "location quotients." These methods are developed in both Tiebout and Ganison.

3.4 Base Model and Employment Multiplier

The effect of recreation expenditures on local employment may also be calculated with the use of multipliers.* The concept behind this employment multiplier does not however, correspond exactly with the income multiplier. An extension of the income analysis would result in calculating the employment multiplier as the ratio of total employment to basic employment. Unfortunately, this will lead to an inaccurate, if conceptually correct, multiplier. A large component of basic income is property income and transfer payments (in many studies these components make up about 30% of the total basic income), but these sources of income provide for very little or no basic employment. Thus, while basic income represents a reasonable measure of the economic base of a region, basic employment does not.

To get around this problem we can calculate an employment multiplier as the ratio of basic income (export) to nonbasic (local) employment. That is,

$$E = \frac{BI}{NE}$$

or

$$\Delta E = \frac{BI_2 - BI_1}{NE_2 - NE_1} = \frac{\Delta BI}{\Delta NE} \approx \frac{dBI}{dNE} ,$$

where E is the employment multiplier, BI is basic income, NE is nonbasic employment, and ΔE is the incremental or marginal employment multiplier.

The marginal employment multiplier thus represents the impact of an additional dollar of basic income (i.e., tourist spending) on nonbasic employment. Another interpretation of the multiplier is the amount of basic income that is required to provide one nonbasic job.

The more relevant data available, the easier the study will be to complete. The information needed depends on the units of analysis, which can be in terms of employment, sales, value added, or personal income. Personal income was used in the preceding example and is recommended. The dollar units are easy to interpret, and once the data is accumulated it is easy to work with. Unfortunately, this data is sometimes hard to collect. State income tax returns would provide

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*For an example of the use of employment multipliers see the Mt. Rainier Olympic National Park Study cited in Appendix A.

excellent source, but are usually confidential. More commonly, surveys are used to determine the income levels and divide industries between the basic and nonbasic sectors.

3.5 Input-Output Models

In the development of the economic base model, economic units have been defined as either basic "exports" or nonbasic "local products." While useful, this tends to limit the model to broad classifications that provide estimates of an average multiplier. With the use of an input-output model, one can expand the analysis to several sectors, determine their interplay, and derive multiplier effects for the individual sectors (as well as the community multiplier).

These individual sector multipliers are of particular interest if one defines the sectors to meet research needs -- in this case a recreation multiplier is derived using a recreation sector. Thus, use of the input-output model provides the analyst with the ability to determine the impact of recreation development on individual industries as well as the community as a whole.

To develop an input-output model one must collect information on: those industries or sectors of interest and importance in the region (e.g., recreation, agriculture, retailing, manufacturing, local government, etc.); the interplay of their services within the community; the demand for their services from outside the community (exports); and inputs brought into the community (imports).

Once the data is obtained, a dollar-flow matrix is developed to show the interplay. The columns represent purchases between sectors and imports (inputs) while the rows represent sales between sectors and exports (outputs).

A simple illustration will clarify the method.* In this example three sectors represent the economy: agriculture, recreation, and local government. Information on sales and purchases between these sectors in the region as well as imports and exports for these sectors has been collected and compiled into the dollar-flow matrix as follows:

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* Example drawn from William A. Strang, Recreation and the Local Economy, University of Wisconsin Sea Grant Program, 1970.

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		Agri.	Recr.	Local Gvt.	Exports	Total Outputs
1. Agriculture	Purchases	50	10	--	130	190
2. Recreation		30	--	100	10	140
3. Local Government		80	40	10	--	130
Imports		30	90	20	--	140
Total Inputs		190	140	130	140	

This matrix shows that the agricultural sector sold 50 units to other agricultural industries, 10 to recreation industries, and 130 units to exports. Reading down, it purchased 50 units of agriculture inputs, 30 units of recreation inputs, 80 units of local government inputs, and 30 units of imports.

The proportion of total output for individual sectors can be derived from the dollar-flow matrix. This proportion, called a technological coefficient, is produced by dividing each sector's purchases of inputs (each cell) by the total dollar input for that sector (column total). Finally, a matrix of direct and indirect coefficients is derived mathematically by taking the inverse of the technological coefficients -- most simply done using a simple computer algorithm.

In the above simplified example, the inverse of the matrix of coefficients is:

	1	2	3
1. Agriculture	1.25	.30	.05
2. Recreation	.40	1.05	.55
3. Local Government	.65	.20	1.40
Total Multiplier	2.80	1.55	2.00

Reading the table, one sees that column totals provide estimates of multipliers for each sector. For every dollar of direct recreation sales (tourist expenditures), the recreation sector receives the original dollar plus an additional 5¢ due to direct turnover (direct benefit) while agriculture receives induced benefit of 30¢ and local government receives an induced benefit of 20¢. The total multiplier for recreation (the benefit to the local economy for each dollar spent on recreation) is $1.55, the sum of the direct and induced effects. The community gains $1.55 for each $1.00 of tourist expenditures. The community multiplier, as determined in economic base theory above, is a weighted average of the three-industry multipliers with weights being the current sales.

Employment multipliers can be developed using average monthly employment broken down by sector. It is difficult, though, to determine how many employees are required as inputs from one sector to another.

There are significant differences in the availability of data for use in the construction of input-output models. An effective model requires more detailed information than is usually available on the flow of dollars between sectors. Primary data sources (surveys) are often used to develop this information on purchases from and sales to other sectors. Yet such surveys may be confusing to those being surveyed; they often have some idea of their sales but less of a notion about their inputs. Personal interviews or follow-up phone calls are used to minimize this problem. Use of surveys then can determine fairly accurate information proportions of inputs and outputs for a sector. Even so, surveys usually give complete information on the total volume for the sector. Published information is used to develop such control totals, supplementing the survey data.

3.6 From-To Models

The from-to model is similar to the input-output model but reduces data requirements by following output flows only. It is simpler than the input-output model and has been successfully used.*

The development of the from-to model follows the input-output model closely in the transfer of dollar flows to trade production coefficients to multiplier estimates. The main difference, however, is the use of sales data alone to develop the dollar-flow matrix. That being the case, our previous example in a from-to format becomes:

Purchase Property	1	2	3	Exports	Total Output
	Sales				
1. Agriculture	50	10	--	130	190
2. Recreation	30	--	100	10	140
3. Local Government	80	40	10	--	130

Derivation of coefficients occurs as proportions to total output and direct multipliers as column totals.

Sales impact, income impact, and employment impact can be estimated using relevant data. As in the input-output model, primary data on sales is usually gained through surveys. Once again, due to

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* See Kalter, Robert J. Estimating Local Secondary Impacts of Water-Based Recreation Using Interindustry Analysis, University of Wisconsin Water Resources Center, June 1967.

incomplete information generated in the use of surveys, an estimate of the total sales for each sector is necessary. Such control totals are provided from aggregated secondary sources.

The from-to model has an advantage in that estimates of purchases are not required. The principal disadvantage of this formulation is that it eliminates a means of cross-checking row and column totals.

3.7 Summary

As methods of estimating regional impact, the economic base model, input-output, and from-to models can be compared in terms of their assumptions, relevance to particular needs, data requirements, cost of development, and technical level.

All three models are susceptible to the fundamental problem of selecting the appropriate region. Much of this determination rests upon the particular needs of the study. However, it is important to note that the multipliers estimated are sensitive to the definition of the region. It is best to seek a region that can be delineated in terms of economic flows (inputs of exports). The availability of data and cost constraints should also be considered. In addition, it is generally true that smaller regions of study will result in more accurate micro-predictions. Yet although accuracy can be gained using smaller regions of study, an increased knowledge of trade flows will be necessary to develop the model. This is due to greater frequency of leakages in a small region. That is, small regions are more likely to be open economies.

Most of the models discussed are static models. Once the base-year information is developed, multipliers are estimated assuming a stable relationship between basic and nonbasic sectors. Thus, technological changes are assumed to occur slowly over time. This provides problems in the use of such models in long-term predictions -- in cases where it is likely that the interrelationships between sectors are susceptible to change.

The dynamic model is an alternative formulation. Formulating such a model, however, involves theoretical and methodological questions in determining which changes to incorporate and how to measure the changes.

In terms of research needs, the community multiplier provides a measure of the total impact of a change in demand on the community while it does not allow for the evaluation of the character of that change. All three techniques provide estimates of total impact, while the input-output and from-to models allow estimates of specific sector impacts. The reliability of the specific estimates, however, depends heavily upon the ability to measure precisely the interrelationships

of the chosen sectors. If such data is not readily available or too costly to develop so that multipliers from other studies are used in the development of the model, the specific estimates provide false accuracy.

In terms of data requirements and costs, it is seen that the input-output model and from-to model rely extensively on survey techniques to generate the initial dollar-flow matrix and require access to computer facilities to handle the amount of data and to perform matrix transformations.

The comparisons between different techniques can be summarized as follows:

	Economic base	Input-output	From-to
Measures Community Impact	Yes	Yes	Yes
Measures Industry Impact	No	Yes	Yes
Technological Expertise Required	Moderate	High	High
Cost	Low	High	Moderate

It may often be the case that none of the models discussed can be applied to develop estimates of recreation multipliers. Practical constraints such as limited time for analysis, lack of funds, or personnel are likely to make it infeasible to apply the techniques reviewed. In such cases, the best approach is to use an estimated range of multipliers to assess the sensitivity of the results.

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CHAPTER IV COMBINING ISSUES, IMPACTS AND EFFECTS

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Returning now to our original framework, we will outline the procedure for calculating the net results of park acquisition and development. The issue areas, you will remember, are: effects on the local private economy, effects on the local public economy and effects on the amenities of the area for residents. We have discussed the sources of impact directly and indirectly affecting the issue areas. Since many of these "measures" are approximate it is important that they be listed plainly for subjective evaluation.

4.1 Local Private Economy

a. Pre-emption

Direct effects: Determine if commercial activity was displaced from the local economy. If it was merely relocated within the area, count no effect. If the activity was lost, estimate employee incomes lost. Estimate direct company expenditures in the local economy lost.

Indirect effects: Apply area multiplier for incomes and expenditures lost.

b. Development

Direct effects: Determine employment effects of construction workers, and park personnel. Determine total fees expected and total increases in cost of services.

Indirect effects: Determine property value changes using regression (see page 12). Apply multiplier to employment effects.

c. Visitors

Direct effects: Determine visitation and expenditure per visitor, adjusting for transfers.

Indirect effects: Apply area multiplier to total visitor expenditures.

4.2 Local Public Economy

a. Pre-emption:

Direct effects: Calculate losses of property tax base due to public purchase and multiply by the existing or expected tax rate.

b. Development

Direct effects: Calculate increases in service or hook-up tax revenue, revenue from construction licenses etc., increases in the cost of providing services due to park development.

Indirect effects: Calculate increases in property tax revenues from increased land values attributable to park development.

c. Visitors

Direct effects and indirect effect:

Calculate categorized regional income increases from visitor expenditures (including indirect multiplier effects) and multiply respectively by local percentage share of sales tax, gasoline tax, etc.

Calculate categorized regional income decreases from visitor loss due to transfers from already existing parks and pre-emption of existing use (including muptiplier effects) multiply by appropriate percentages of local taxes.

Calculate increased costs of police, fire, inspector, traffic and other public services.

Calculate total increases in revenues from other taxes and user fees.

Although a full assessment of park impacts on local public and private economies usually requires extensive information on local economic indicators, the framework developed here does allow a useful and effective assessment of likely impacts when information is limited. Such an analysis requires: 1. identifying local costs of park acquisition, 2. identifying local benefits of park acquisition. The case studies illustrate two additional steps: 3. determine policies that can reduce costs or create offsetting benefits, 4. identify intagible costs and benefits.

4.3 Amenities for Residents

The costs and benefits are relatively easy to identify once park acquisition plans are precise with a boundary and time period for development. Nevertheless, other effects may offset the economic costs and benefits to the area. This is the issue of amenity for local residents discussed earlier. The visual quality of the site

may affect the community character in positive as well as negative ways. Crowding and congestion attributable to a park can also be a factor in losses of revenue. These effects are less tangible and require rigorous analytic techniques that are usually not accessible to the analyzer. If these factors are not analyzed, at least they should be noted.

a. Pre-emption:

Direct effects: Subtract for development of open space if local opinion dictates. Add for removal of commercial activity which is visually displeasing.

b. Development

Direct effects: Subtract for construction noise. Add for beauty of the finished park and for use gained by local residents.

Indirect effects: Add for increased property value due to park development.

c. Visitors

Direct effects: Subtract for congestion, noise, etc.

The total impact of park acquisition and development must take into account all three sources of impact and all levels of impact, as they affect local revenues and costs.

PART TWO: SITE ANALYSIS OF PARK ACQUISITION IMPACTS

The four chapters of the first section have reviewed in a general way the impacts of park acquisition and development. In this section, we illustrate the benefits and costs of park acquisition at the local level. The two sites studied are Lakes Earl and Talawa (Del Norte County) and Central Bluff, Laguna Beach (Orange County). Del Norte County is a rural, remote area on the north coast, while Laguna Beach is a suburban beach community between Los Angeles and San Diego. Map 1 indicates their location in California.

The differences in geographic and economic setting are relevant in assessing the impacts of park acquisition because of the different levels of tourist potential. Generally, remote rural areas cannot expect new tourist dollars to offset losses in property tax revenues. The result is that state action, in the form of in-lieu payments and park facility development is emphasized as the most likely method of offsetting local economic losses in Del Norte. In Laguna Beach, however, the loss of local revenue due to park acquisition can be largely (though not entirely) offset by new tourist spending, after facility development.

But the ability to offset loss of revenue from park acquisition is not only related to the urban-rural nature of a site, or its future tourist potential. Another key factor is the private alternative land use at the site. In Del Norte, the hypothetical acquisition of the Lakes is not likely to result in development. On the other hand, the Central Bluff at Laguna Beach is an attractive site for residential and commercial development. At both sites the present land use is expected to remain the same in the near future.

The site analysis that follows applies the methodology developed in Part I. We found, however, that there are severe constraints on information about the local private and public economy that prohibit a thorough economic impact analysis. Thus, the site studies presented here illustrate the application of a unified framework for comparing likely effects of park acquisition. We believe that such a framework is useful for other sites across the country. But firm conclusions about the likely net benefits or costs of park acquisition to local economies cannot be made. Instead each case must be individually assessed.

MAP 1: LOCATION OF LAKE EARL and LAGUNA BEACH CASE STUDIES

CHAPTER V: LAKE EARL SITE ANALYSIS

The California Coastal Commission's Plan proposed that Lakes Earl and Talawa in Del Norte County be acquired as a wetlands wildlife refuge site. The area for acquisition contains 4,500 acres. The Lake Earl area currently is open space, marshland with farming and agricultural activity occurring in the adjacent north and northeast areas. To the west of the lake is a large undeveloped subdivision called Pacific Shores. Although there have been many plans for development since the Pacific Shores subdivision, the area is unlikely to be completely built-out. Future land use at the site depends upon the status of the lake and the economy of the area. Map 1 shows the Lake site and the surrounding area. Map 2 shows the boundary of the proposed acquisition.

5.1 The Economic Setting of Del Norte County

Two aspects of Del Norte County's economic situation are important in assessing the impact of further park acquisition. 1) The limited acreage of private lands and 2) the importance of tourism. At present, 75% of the total acreage of the county is in public land under Federal and State jurisdiction. This means that the conversion of more private land into public ownership will reduce the tax base of the county without greatly altering the recreational attractiveness of the area. In short, Del Norte County already has many parks, but lacks a large amount of private land.

The county's remoteness from metropolitan areas and its limited private land use combine to produce a regional economy characterized by a declining population and a limited industrial mix. Table 2 illustrates the components of the Del Norte County Economy. The two major sources of employment are wood products and tourism.

MAP 2: PROPOSED ACQUISITION BOUNDARY, LAKES EARL and TALAWA

Table 2: Sources of Employment in Del Norte County

Category	1940	1950	1960	1970
Basic Industries				
Wood Products	155	907	2295	1770
Fisheries	68	220	272	360
Tourism	201	380	459	400
Agriculture	230	237	215	200
Other Manufacturing	18	35	115	100
Mining	26	7	25	25
Subtotals	672	1786	3379	2855
All Other Industries	714	1280	2841	2431
Total Employment	1386	3066	6220	5286

Source: Del Norte County water supply and wastewater proposal comprehensive plan.

Another factor affecting the economy of the area is the role of Crescent City. Crescent City, with a population of 3000 (covering 22 square miles), is the only incorporated area in Del Norte.* The city is at sea level and borders on the ocean. Its climate is cool (52 degrees mean temperature) and moist. The weather bureau reports that Del Norte (and Northern California in general) is relatively more rainy and cloudy than Southern California. For instance, while the normal precipitation in Eureka is 39.58 inches, Los Angeles receives 12.04 inches of rain. Also, Northern California averages six clear days in July, while Los Angeles averages twelve.

The physical setting has certain economic implications. The climate, for instance, does not provide a strong incentive for second home or retirement home development. The population level has remained low because of the city's isolation and its location in a remote county. Further, the risks of floods and tsunami events would be expected to deflate interest in living there. Crescent City was devastated by a tsunami following the Alaskan earthquake in 1969. Lack of migration to the area does appear to be closely tied to employment opportunities.

*Because Crescent City is the only incorporated jurisdiction in Del Norte County, most shopping and employment occurs within its boundaries. The county government therefore loses taxable sales that tourists may generate while visiting a new park site. Any increase in tourism in the area due to a new site would therefore tend to benefit the city more than the county.

Table 3 shows the demographic trend of a declining population of the city and county.

Table 3: Population of Crescent City, Del Norte County and California, 1940-1976

	Crescent City	Del Norte County	California
1940	1,363	4,745	6,907,387
1950	1,706	8,076	10,536,223
1960	2,958	17,771	15,717,204
1976	2,610	15,550	21,133,000

Source: California Statistical Abstract, 1970.
California County Fact Book, 1976-77

5.2 Local Private Economy

Although it is possible to quantify the effect on the private economy of the area, the data is hard to evaluate. Citizens are affected differentially by tourist dollars, etc., counted in the private sector. We assume that effects in the public sector are everyone's concern. Effects of acquisition and development of Lake Earl on the private economy of Del Norte are far less significant than the effects on the public sector.

a. Preemption: The Lake Earl site is zoned exclusive agricultural and would probably remain that way if acquisition did not take place. Part of the land is already used for recreation and nature appreciation. The remaining area is largely marshland threatened by frequent flooding. The agricultural use displaced by park development will not have any significant effect.

b. Development: The lake site is now managed by the Del Norte County Parks Department. One boat ramp and few facilities exist. There is limited road access. Potential changes include new road access, more boat ramps, water-fowl nesting sites, and concessions.

Direct effects: After acquisition, the construction, maintenance and supervision of the site will require personnel such as rangers, naturalists, etc. These people will probably not be local residents, although they may bring some trade to merchants in Crescent City. Little effect.

Indirect effects: Surrounding land may increase in assessed value due to presence of wildlife preserve or park. This will occur over several years. The adjacent Pacific Shores subdivision may increase in assessed value. The build-out rate may be increased due to the recreational potential of the lake sites.

c. Visitors: Current visits to the area are limited to nature viewing, fishing, and hunting. There are an estimated 3900 hunter days per season. Visitation would be likely to increase only with hunting facility development.

Direct effects of tourist spending due to new visits are not expected to be a significant factor. The local multiplier is low and respending of tourist dollars is therefore not large. The regional income increases due to new tourism will likely be small. (See discussion on page 43.)

In general, any development which will bring visitors and money into the area will be a more economically advantageous use of the land than the status quo.

5.3 Local Public Economy

Limited industry and population results in a weak local economy for providing public revenues. The county government relies primarily on property, sales, and use taxes for local revenue. Outside the resources of the city, the sources of revenue are grants-in-aid from the state and federal governments. Del Norte County's no growth background and limited revenues make the issue of further park acquisition particularly important. Table 4 shows the County's revenue sources.

a. Preemption: The additional reduction of private land reduces the capability of the county to raise revenues if there are no offsetting benefits.

The acquisition of Lakes Earl and Talawa will remove approximately 4,500 acres and $4,000 to $10,000 per year from the county property tax base. This estimate is based on the County Assessor's judgment as to the property tax revenue of the area. In our analysis we use the potential property tax revenue of $10,000, if the current land use continued. Thus, using both the county assessor's estimates and our own, we can illustrate the likely sensitivity of different policies to changes in the environment which can offset the losses in revenues.

Table 4
County of Del Norte
Analysis of Revenues by Source
(Other than current property taxes)

Budget for the fiscal year 1974-75

Revenue classification	Actual revenues 1972-73	Actual revenues 1973-74	Revenue estimates requested 1974-75	Approved/ adopted by Bd/Supervrs 1974-75	Fund (general unless otherwise indicated)
Taxes					
3. Property taxes-prior secured	51,361.74	52,068.40	38,000.00	38,000.00	
	578.59	2,104.97	1,150.00	1,150.00	Airport Indemnity
		301.17	201.00	201.00	Livestock indemnity
4. Property taxes-prior unsecured	6,538.59	10,530.85	10,000.00	10,000.00	
	109.13	122.90	150.00	150.00	Airport aviation
			5.00	5.00	Livestock indemnity
6. Penalties & Costs-delinquent taxes	14,162.12	19,433.38	12,000.00	12,000.00	
7. Sales & Use tax	140,973.95	153,126.06	145,252.00	150,464.00	
8. Franchises	3,322.28	8,970.94	9,025.00	9,025.00	
	4,312.14	4,173.92	4,500.00	4,500.00	Airport aviation
9. Other taxes (transient lodging)	26,996.58	27,208.56	27,500.00	27,500.00	
(property transfer taxes)	8,377.53	10,012.09	11,000.00	11,000.00	
(livestock head day tax)	2,528.30	2,195.50	1,500.00	1,500.00	
(race horse tax)	111.00	70.00	100.00	100.00	
TOTAL TAXES	264,370.95	290,318.74	260,383.00	265,595.00	

Source: Final County Budget, Del Norte County, California, Fiscal Year Ending June 30,1976

Direct effects: The estimated amount of $10,000 in property tax revenue lost represents a significant percentage of the total county property tax base. Of the total taxes collected by the county government, property taxes represent 19% of the total revenues. The expected revenue loss of $4,000 will reduce the property revenues by 8%. A larger reduction of 20% would accompany a loss of $10,000 due to acquisition.

For Del Norte County, the implementation of the Coastal Commission's acquisition plans is an important economic event. Given the depressed economy of the area, there is likely to be resistance to further reductions in the public/private land mix in the county, and possible reduction in the County tax base.

Given the possible costs of acquiring Lake Earl and Talawa, it would benefit both the state and local officials to pinpoint where costs are likely to occur and ways of minimizing their effects upon the county tax base. The essential question in Del Norte County centers upon how to offset the reduction of revenue resulting from the removal of property tax revenue which is certain to occur and which may require either increases in county taxes or in-lieu payments by the state government.

A combination of policies in managing and developing the park after acquisition could reduce the above costs of acquisition to the local government. Three scenarios below depict the type of policies that tend to offset park acquisition costs.

Scenario One - Expanded facility development leads to greater offsetting effects.

With the addition of more boat ramps and new access routes, built by state funds, the lakes become more attractive for visitation. In turn, the effect on surrounding land use, especially in Pacific Shores, is improved.

Scenario Two - Full facility development.

With full facility development, the lake site can cause a significant increase in visitation to make private investment in the lake area more likely. Increased visitation will in turn yield more hunting and other user fees. Concessions might become economically attractive and surrounding property value would increase. Full facility development stimulates cost-reducing effects in the long run.

Scenario Three - Visitation as the key component of offsetting costs.

In this case, facility development at the lake site is limited to the current state of minor access routes and on-site boat ramps. Visitors will be attracted to the lakes only if they are interested in nature viewing and limited fishing. Presently, the use of the lake is primarily local, and tourists are not familiar with the site. Thus, the offsetting effects to costs are small when visitation is the main source of reducing costs.

b. Development: If facility development at the lake site is limited to the current state of minor access routes and on-site boat ramps, visitors will be attracted to the lakes only if they are interested in nature viewing and limited fishing. Presently, the use of the lake is primarily local, and tourists are not familiar with the site. The effects would be small.

Expanded facility development would lead to greater visitation and therefore more effect on the local public economy. With the addition of more boat ramps and new access routes built by state funds, the lakes would become more attractive to tourists, making private investment in the lake area more likely.

Direct effects: More hunting and other user fee revenue. Possible revenue from concession leases.

Indirect effects: Increased property tax revenue resulting from the rise in surrounding property value, especially in Pacific Shores.

c. Visitors: Tourist spending generally helps to compensate for the revenues lost by the county. Usually tourist dollars spent in the county are respent by local citizens on local goods. This cycle of spending and respending is known as the multiplier effect. In the case of Lakes Earl and Talawa an analysis of the indirect effects of spending is precluded due to limited time and data. It is, however, reasonable to assume that in Del Norte County the indirect effects of tourism dollars spent due to the presence of Lakes Earl and Talawa will be low.

The reason for the low visitation potential of the lakes is the wildlife preservation character of current planning. The lake site is thought to be more of a nature preserve than a recreational area. Thus even if recreation is possible it may result in unwanted consequences on the biological qualities of the site. This means

that facility development is not likely to occur at the intensity necessary to bring many new visitors to the area. The number of tourists needed to offset the tax base losses of $4,000 to $10,000 is very difficult to achieve given the large number of substitutes in the area for recreation.

Also, most of the recreational uses at the site (nature viewing and camping) do not involve much visitor expenditure. Any dollars likely to be spent in relation to visiting Lake Earl will probably occur in the home area of tourists. Except for food and gas, tourists attracted to Lakes Earl and Talawa do not have many opportunities to buy goods. In addition, if any shopping activity related to visiting Lakes Earl and Talawa does occur, it will probably be in Crescent City.

An example of the limitation of tourism as a source of offsetting revenue can be seen in the following estimate. Let us assume that the property tax loss is $10,000. The county sales tax rate is 1.5%. This means that the amount of taxable tourist spending necessary to offset the property tax revenues lost must be the following:

County Sales Tax Rate	New Tourist Spending		Property Tax Revenue Lost
1.5%	$666,000	=	$10,000

If we take into account the indirect effects of local respending or the multiplier,* the amount that needs to be spent by tourists is reduced slightly to:

$475,000 for a property tax loss of $10,000 per year.

If we assume further that the average expenditures on taxable goods is $10 per tourist, the following number of tourists need to be attracted to the Lake Earl and Talawa sites per year:

*The multiplier used here is 1.4. This is a reasonable estimate based on the general characteristics of the county's low economic activity. Assuming a higher multiplier effect would still leave a large amount of tourist spending necessary to offset the losses in revenue.

Estimated Property Tax Revenue Lost	Number of New Tourists Needed
$ 4,000	19,600
$10,000	47,500

It would be quite difficult for Del Norte County to generate such an increase in tourists. In part this is due to the numerous recreation sites in the county. Other tourist spending benefits might result, however, if Lakes Earl and Talawa become more attractive to tourists.

In short, the general conditions of the area, its economic structure, and its numerous recreational facilities make a new park in the county unlikely to attract enough new visitors to offset property tax losses.

5.4 Amenities for Residents

Since, as we have seen, it is unlikely that visitation will be sufficient to compensate local residents for their loss in tax revenue, it is important to consider other ways they may be compensated. The increase in amenity of an area caused by park development is a form of compensation. The cost of this amenity can be calculated (the monetarily uncompensated loss in tax revenue, etc.) but its value is much harder to determine.

a. Preemption: The area being considered for acquisition is now practically unimproved. Major recreational development would preempt the wildlife-refuge service the area now provides. Nevertheless, some improvement, such as blinds for better wildlife observation, could enhance this aspect of the area. The level of development will determine whether there is a loss to residents of the existing amenities of the site.

b. Development:

Direct effects: Those people who live near the park may experience gains or losses in personal amenity from the park depending on their attachment to the area as it exists today.

Indirect effects: Property owners around the park will probably experience an economic gain as property values rise due to park development.

c. Visitors:

Direct effects: It is unlikely, as we have discussed, that visitation would increase to the point of reducing amenity for residents. But the more development occurring at the park, the more likely is such a decrease in amenity.

Indirect effects: It is possible that local residents may benefit from road improvements, etc. intended to encourage visitation.

5.5 Summary of Potential Costs and Benefits of Park Acquisition in Norte County

Del Norte County presents a case where the costs of park acquisition are difficult to offset without state aid. The remoteness of the region, its rural character, and low visitation make additional revenue from visitation unlikely. Facility development and upgraded hunting opportunities would improve the prospects of an economic return from visitors. In lieu payments by the state would probably be necessary to offset the loss of property tax revenues. Table 5 depicts the impacts of park acquisition in the Lake Earl area.

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Table 5: The Impacts of Park Acquisition in Lake Earl

Acquisition Impacts	Estimated Effects of Acquisiton Alternatives	
	Acquisition and no development	Acquisition and facility development
On Site Changes		
Development and support facilities	No change in present status of lake	Introduction of boat-ramps and hunting aids
Visitor Demand	Visitation to site unlikely to increase	Visitation likely to increase only after improved hunting opportunities
Employment	None	Small changes in employment at site due to new supervisory personnel
Impacts in Surrounding Areas		
Visitation and tourist spending	Visitation to lake area and spending unlikely to increase	Visitation to lake area and spending unlikely to increase - shopping and spending are usually home based for hunting and nature viewing activities
Property value changes	No significant change, slight increase in assessed value of land with view of lake or direct access to park.	
Indirect Economic Reverberations	(Data not available on spending)	
Local Revenue Expenditures Changes		
New Revenue Sources	State in-lieu assistance.	
New Revenue Losses	$10,000 in annual property tax losses.	

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CHAPTER VI: LAGUNA BEACH SITE ANALYSIS

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6.1 The Economic Setting of Laguna Beach

Laguna Beach is an urban beach area 45 miles south of Los Angeles. The Pacific Coast Highway traverses the length of the city. In the main beach area of the City of Laguna Beach is a site containing 5 acres of privately-owned land adjacent to the beach. Generally known as the Beach Bluff, the site is recommended for possible acquisition.* Map 3 illustrates the Beach Bluff acquisition site relation to the City of Laguna Beach. The parcels to be acquired are depicted in Map 4.

Laguna Beach is an attraction for tourists. A recent study of tourist use of Laguna Beach notes that:

> Laguna Beach is highly patronized during the warm summer months by persons utilizing the new beach recreational facilities. The close proximity of downtown shopping areas to the beach make the entire downtown area completely accessible to beach users.**

The same study indicates that 3,800 to 4,200 persons used the beachfront during a peak weekend.

Three important annual events attract additional tourists to Laguna Beach. These are (1) the Festival of the Arts, (2) the Saw Dust Festival and (3) the Art Fair. The Festival of Arts has an attendance of 250,000 persons per year with average daily attendance of 5,500 persons. 10,000 persons were recorded on the peak day. The total attendance at the Sawdust Festival reaches 297,000 persons, and the Art Fair attracts 60,000 persons.

Although tourism is important to Laguna Beach, its precise impact in costs and benefits cannot be ascertained with the limited data available at the city offices or the Laguna Beach Chamber of Commerce. Only a general characterization of the importance of tourism is available.

The popularity of Laguna Beach contributes to local revenues while imposing costs of congestion on residents. A recent survey in Laguna Beach indicated that a large proportion of tourists shop rather than just play while in Laguna, contributing to local public and private economies. Sixty percent of local parking was found to be of non-resident origin.

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*From California Coastal Zone Conservation Commission, "Recommended Coastal Properties for public recreation." (1976)

** Laguna Beach Parking Study, Wilbur Smith & Associates, 1975.

MAP 3: BEACH BLUFF ACQUISITION IN LAGUNA BEACH

MAP 4: PARCELS CONSIDERED FOR ACQUISITION IN LAGUNA BEACH

Revenue data does show a seasonal variation. Three revenue sources--sales tax, transient occupancy tax, and parking meter revenues--show large seasonal variation in receipts, as shown in Table 6.

Table 6: Seasonality in Laguna Beach Revenues

Quarters 1975-76	Seasonality		
	Sales Tax	Transient Occupancy Tax	Parking Meter Revenue
April 1 to June 30	24%	21.3%	24%
July 1 to Sept 30	28	44	37
Oct 1 to Dec 31	26	16	18
Jan 1 to March 31	25	18	20
TOTAL REVENUES	$633,537	$210,161	$187,605

(Source: Finances Office, City of Laguna Beach.)

The table illustrates that the July to September quarter has the greatest amount of seasonality for the three tax sources listed. The difference between peak periods and off-peak periods represents approximately the degree of impact tourists have on that revenue source. Based on this method, tourists contribute 17% of the sales tax revenues, 64% of the Transient Occupancy Tax and 46% of the parking meter tax revenues.

The analysis of the parking in Laguna Beach also found that a deficiency of almost 100 spaces exists within the 5 commercial blocks fronting Pacific Coast Highway (zones 5, 6, 9, 10).* This lack of space causes traffic buildup, congestion, and other disadvantages such as the loss of tourism and revenues. The loss of spending results from the inability of a percentage of travelers passing through Laguna Beach to stop, park, and shop, It is significant that the proposed park acquisition site is located adjacent to the congested area.

*William Smith and Associates, page 31.

In contrast to the Lake Earl site in Del Norte County, the acquisition process in Laguna Beach involves several acquisition and development alternatives. Based on interviews with local government officials in the Laguna Beach area and our own evaluation of the site, the most likely acquisition alternatives appear to be: (1) park acquisition with no development and (2) park acquisition with commercial-recreation development.

Alternative (1) involves acquiring the area and converting the bluff into an open space site with little development. The goals of such an alternative would be to preserve the natural vegetation and extend the visual and pedestrian access of the Laguna Coast.

Alternative (2) entails public acquisition followed by small commercial shops operating on public land through lease back arrangements. An important limitation to commercial development is the local zoning law prohibiting structures higher than 36 feet.

If acquisition does not occur, the most likely direction of private land use at this site is either (a) status quo private housing or (b) commercialization (e.g., small shops, restaurants, mixed with private housing). This analysis uses the status quo as the basis of measuring the opportunity cost of park acquisition, (i.e., the income the local government would be giving up to have a park at the site). The effect of this method is probably to underestimate the revenues the City of Laguna Beach could be receiving in the future if no park acquisition occurred. Such underestimation is due to the tendency of assessed value of homes to increase over time.

The categories and range of impacts likely to result from the acquisition alternatives will be further discussed in the two following sections.

6.2 Local Private Economy

a. Preemption: The current use of the acquisition site is residential. Public purchase would reduce the housing stock of the area by several units. There would be no employment or expenditure effects on the local economy.

b. Development: The impact of park development and operation on the private economy depends on which design alternative is selected.

Direct effects: It is possible that open space use will require demolition of structures by a local contractor. No other investment and little maintenance would be required. Commercial recreation development would have a slight impact on the area, but in light of the shopping activity already occurring there, it is not very significant.

Indirect effects: Open space use would probably cause surrounding residential property values to rise while commercial development may cause them to fall slightly (or rise more slowly).

c. Visitors: Given the general attractiveness of the Laguna Beach area, it is unlikely that many new visitors would result from development of this site. The impact on the local private economy attributable to visitors to this site would be insignificant.

6.3 Local Public Economy

a. Preemption: The property tax revenue lost due to the removal of private property from the tax base is the major cost attributable to park acquisition. The Beach Bluff in Laguna Beach currently has an assessed value of $394,080. Acquisition of the five-acre bluff would result in an annual loss of $38,000 to the City of Laguna Beach. (The costs to the state of acquiring the land will be substantially greater. This analysis, however, strictly focuses on local costs and methods of offsetting revenue losses.) Table 7 shows the assessed value of the Beach Bluff by individual owners.

Table 7: Assessed Value of Beach Bluffs

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Address	User Code	Owner	Land Value	Improvements
507	16-3	Curtis, H.	$12,500	$14,240
513	16-4	Curtis, H.	9,440	550
521	16-4	Upland Corp.	25,010	---
535	16-6	Upland Corp.	25,010	21,250
541	16-7	Adams, M.	25,010	500
551	16-9	Brown, M.	12,500	---
563	16-10	Upland Corp.	25,010	---
577	16-11	Upland Corp.	25,010	---
583	16-12	Upland Corp.	25,010	---
595	16-13	Upland Corp.	25,010	---
603	16-14	Gregory, R.	22,500	9,750
611	16-17	Arp, J.	25,010	750
617	16-18	Arp, J.	25,010	---
623	16-19	Upland Corp.	25,010	---
627	16-20	Arp, J.	28,750	11,250
			$335,790	$58,290

Total Assessed Value = $394,080
Street Addresses 507-627 Coastal Highway

Source: M & M Realty Firm, Laguna Beach

b. Development: An offsetting effect of introducing the park will be an increase in the assessed value of property surrounding the park. Conversations with local real estate personnel indicate that rents are usually higher with units having a beach view. The number of units that will increase in value due to a new view of the beach, however, is likely to be small. If we assume that 50 units will have a 10% increase in assessed value due to the new view of the beach bluff, at a current average assessed value per unit of $25,000 (1/4 of the market value), the increase attributable to the park will be (50 X .10 X $25,000) or $125,000 in assessed value. With the tax rate of Laguna Beach of $19,470 per $100 of assessed value, this would yield $2,500 in new revenue attributable to increases in surrounding land value. While this impact is not large, it should not be discounted entirely. A site analysis can provide estimates of likely increases in surrounding land value and revenues.

The problem of traffic congestion in the downtown area points to the need for an increase in parking spaces. The introduction of parking meters at the beach bluff would help serve this need and would also be a promising revenue source. For each meter, a net revenue of $308 per year can be expected.* In addition, there will be an average of $50 in fines per meter per year.** The total parking meter revenues and fines by introducing 50 parking metered spaces as part of the beach bluff park development would therefore be $17,900. The cost of installation of parking meters varies with the nature of the surface to be paved and the design of the parking spaces. Roughly, the cost of installing 50 new meters would be $25,000 to $50,000.*** This initial investment would be paid back in 1 1/2 years to 3 years from the revenue. The addition of 50 parking meters in the Beach Bluff site therefore appears to be feasible and a good revenue recovery alternative.

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*In 1974 the average revenue per city meter per year was $134, while in the Central Business District (CBD) the range was closer to $154. This difference is attributable to the attractiveness of the Central Business District for tourist shopping and the proximity of the beach. City officials have increased the charge for meters from 10 cents to 20 cents. This doubling of meter rates will most likely double the revenues. The doubling of revenue here is based on the assumption that demand for parking meter spaces is inelastic to price. This is reasonable to expect, given the shortage of parking spaces in the CBD. Thus, we can expect approximately $303 per year for every new meter at the park site. Our inspection of the site indicated that 50 spaces was a feasible number for the bluff area. At 50 spaces the expected new revenues would be $15,400.

**The City of Laguna Beach Does not have data on the share that meter violations have in total city fine revenues. In 1973-74 traffic fine revenue totaled $77,948. There are 1400 meters in the city. If all fine revenue came from parking meter violations that year, $2,500 is the upper limit of revenue expected from 50 new meters.

***Based on "Estimated Development Costs, Laguna Beach Parking Study," by Wilbur Smith and Associates, June 1965, Table 25, and estimates of Craig Springs, Engineering Technician Municipal Services, City of Laguna Beach. This range is derived from the current fixed costs of parking meters and the variable costs of paving the surface. Previous costs of installing parking spaces in sites similar to the central bluff in Laguna were $989, $492, $968 per space. Thus, $50,000 is an upper range for 50 new parking meters.

c. Visitors: A major source of revenue (for offsetting the costs of park acquisition) could also be derived from increased visitor spending due to the park development. Although there is currently little reliable data on local residents vs. tourist in the area, a rough estimate of the probable visitor revenues attributable to converting the beach bluff site into a park is possible using several working assumptions: (1) 60% of users at the bluff will be tourists; (2) there will be 6-10 visitors per parking space per day; and (3) visitors will spend an average of $3-5 per day staying at Laguna Beach.

The first assumption of 60% tourist use of the beach bluff is based on data showing 60% non-resident origin of parking in Laguna Beach.

Also, although parking meter revenues during 1975 attributable to tourism were 46% for the entire city (according to our previous analysis of seasonality in revenues) the transient occupancy tax showed 64% attributable to tourists. Thus 60% seems a reasonable estimate of the tourist use at the beach bluff.

An additional assumption of 2 persons per car, with an estimated average stay of 30 minutes, results in a range of 6-10 visitors per day for each available new parking space developed at the bluff park. And, if each visitor spends $3-5 on taxable items, 6-10 visitors per day spend $18-$50. With an estimated local multiplier of 2, $36-$100 per day is the likely range of taxable spending attributable to tourists for each parking space at the beach bluff.

The development of 50 parking spaces as part of the park will thus result in substantial additional spending and revenues to the city. Table 8 indicates that the expected revenues attributable to tourist use of the beach bluff with parking facilities at full capacity would be $6,500-$10,950 annually (direct and indirect, generated by tourists).

This range needs to be adjusted for less than full capacity because of seasonal variation in use of the meters. Data on parking volume in 1974 show the average parking capacity for the CBD area was 47%.* The 100% capacity estimate above, therefore, is the maximum expected new sales tax revenue resulting from the addition of 50 new parking spaces.

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*The formula deriving parking capacity is:

$$\frac{\text{Revenues/Days/Meter Hours}}{\text{10 cents per meter}} = \frac{15{,}400/365/9}{10} = 47\% \text{ of Parking Capacity}$$

Table 8: Total Revenues From Parking Opportunities at Beach Bluff

	1 meter	50 meters
Parking Meter Revenues	$308/year	$15,400/year
Parking Meter Fines	$50/year	$2,500/year
Visitor Spending	$130-260/year	$6,507-$10,950/year at average capacity
TOTAL	$438-$640 per space	$24,500-$29,000/year at full capacity

In addition to the revenues generated solely by the provision of parking, the park facilities themselves (or open space) could introduce new tourist visitation and spending. The proximity of different sites for tourist use in Laguna Beach, however, makes it difficult to determine the marginal impact of introducing a new park in the area. Estimating the economic benefits of new visitors to the beach bluff remains at the level of guessing. How many visitors will attend the beach bluff and how much will visitors spend? Even if we could estimate the number of new visitors to the site, there may be reduced income at other sites. In such cases, the spending of tourists at the bluff cannot be included as a recovery of costs. We are left with the intangibles of new spending due to tourists who will visit the bluff because of (1) amenities of having open space in a congested beach front area, or (2) the attraction that new facility development might entail.

6.4 Amenities for Residents

a. Preemption: The existing residential use at the acquisition site remains attractive to residents. Current zoning, which limits building height to 36 feet, assures some visual access to the beach. Such visual access has a positive effect on surrounding land values, since the value of housing increases with visual access. If acquisition of the site improves visual access, the amenities to local residents derived from viewing the ocean counts as a benefit.

b. Development: Essentially, the open space alternative amounts to no development. It would, as discussed above, improve the amenity of the area. The commercial recreation development would decrease visual amenity for residents and could cause a slight increase in congestion. The parking meter alternative discussed under local public economy would not be as attractive as open space, but may reduce congestion slightly in the area.

c. Visitors: Since no new visitors are likely to be drawn to the area as a result of this park, there would be no effect on current congestion levels.

6.5 Summary of Potential Costs and Benefits

Laguna Beach regresents a case where the offsetting factors of park development can reduce greatly or even balance the losses in local public revenue due to acquisition. Simply through the introduction of metered parking spaces, a large percentage of the property tax revenue loss can be recovered (about $24,500 - $29,000 or 70% of the $38,000 in lost revenue). Further facility development in the form of shops and restaurants might increase the net revenues recovered from new visitors. Table 9 summarizes the impacts of acquisition.

During the first year of implementing the parking meter alternative, the costs of installations are high. After completion, however, the benefits of park acquistion approach a range of $27-31,350 while the losses will be about $38,000 per year. These projections are limited by several lacunae in data. We noted that spending levels, and the local multiplier, are not known. The rough estimates used in this report should be replaced with more precise information. The analysis also has assumed full capacity of parking meters (an overestimation), while the opportunity costs of the park are probably underestimated by using current property tax values. Potential increases in assessed value overtime and possible private commercial use of the site could not be accurately determined within this study.

In sum, park acquisition and development of the beach bluff presents a net cost to the city of Laguna Beach in the range of $10,000 per year. This represents 4/10 of 1% of the City's yearly revenues. Table 10 highlights the cost and benefits.

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Table 9: The Impacts of Park Acquisition in Laguna Beach

Acquisition Impacts	Estimated Effects of Acquisition Alternatives	
	Acquisition and no development	Acquisition and commercial recreation development
On Site Changes		
Development and support facilities	Removal of present structures. Facility development limited to park benches, etc.	Removal of present structures, introduction of shops, parking facilities.
Visitor Demand	Visitation to site unlikely to increase.	Visitation likely to increase due to new opportunities to shop.
Employment Impacts	None.	Small changes in employment at site due to new shops.
Impacts in Surrounding Areas		
Visitation and tourist spending	Visitation to main beach area and spending unlikely to increase.	Visitation to main beach area and spending likely to increase due to new shopping and spending opportunities.
Property value changes	Increase in assessed value of land that gains a view of the beach	
Indirect Economic Reverberations	Estimated new spending $3-5 per visitor. The local multiplier is estimated to be 2.0.	
Local Revenue Expenditures Changes		
New Revenue Sources	Increases in property tax revenue due to increases in surrounding land value increment. Revenue from new tourist spending in the form of sales tax receipt. (Possible hotel, new meters)	
New Revenue Losses	$38,000 in annual property tax losses. Possible new services to the site. Facility development costs of $25-50,000.	

Table 10: Summary of Potential Costs and Benefits of Park Acquisition and Development

Potential Costs	Potential Benefits
Tax Revenue Loss $38,000	
Construction Costs of Facility Developments (Optional) $25-50,000	Revenues from increases in surrounding property values - $2,500
Total Costs $63,000-$88,000	New sales tax revenues from 50 additional parking spaces - $6,507 - $10,950
	New parking meter revenue - $17,900
	Total Benefits - $27,000 - 31,350

Appendix A

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A SELECTED REVIEW OF ECONOMIC IMPACT STUDIES

Introduction

This material review concentrates on those parks that have been the subject of economic impact studies. The materials were gathered from contact with the California Department of Parks and Recreation, the National Park Service, a literary search of the University of California library system, and a 50-state survey of parks and recreation and conservation departments. Although numerous planning studies have been conducted, we feel that those reviewed here represent the current state of economic impact studies for park acquisition and development. The studies here provide a sense of park development effects that have been measured, those measures that have been used and the effects that have been found to date.

The studies reviewed are economic impact statements for King Range, Redwood National Park, and Point Reyes in Coastal California; Cape Hatteras and Cape Cod National Seashore representing large acquisitions in developed areas; York River State Park in Virginia representing small acquisitions in a developed area; Olympic National Park, Sleeping Bear National Park, Teton County and Oregon Dunes National Seashores, as studies of large acquisitions in rural areas; and Tuolumne River Project, Tuolumne, California, Pawtuckaway State Park, Nottingham, New Hampshire as representing small acquisitions in rural areas. An annotated bibliography (Appendix B) describes each study.

Also included in the annotated bibliography are the studies that states sent us in response to our survey of the available literature in state governments. Of the 50 states 15 did not respond and only 11 out of the remaining states had replied with a study on local impacts. It can be correctly asserted that little is done at state levels in assessing the impact of park acquisition policies on local communities.

General Findings of the Studies

Each study reviewed has addressed the economic impact of parks in terms of one or more of the following areas.

Change in property value Changes in property values of lands adjacent to parks were often not discussed. The 1969 Cape Cod study found evidence of a 20% increase in nearby property values. The Pawtuckaway study, however, found no positive effect on property values of adjacent land and hypothesized that the zero net effect was a result of the park's rural location.

Change in tax base Changes in local and educational property tax bases as a result of acquisition of private lands for park development were seen as significant factors in those studies that quantified the change. This change is typically measured by a survey of current assessments. Only one study reviewed, the Sleeping Bear study, addressed offsetting federal and state programs to compensate the areas for decreases in the tax base.

Direct and indirect employment As would be expected, the larger parks created larger employment impacts than did the smaller parks. More interesting was the generally larger employment impacts of rural parks relative to those near urban areas. This might be explained by already existing tourist facilities in or near urban areas. Additionally, employment impacts are less discernible in developed areas.

Employment impact was generally tourist-oriented, including gas stations, restaurants, motels, and shops. Multipliers were used in several studies to measure indirect employment impacts (e.g., an increase in logging employment as a result of increased lumber use for construction of tourist-oriented facilities). Park personnel were generally employed from outside of the local area, although initial construction often required employment of local residents on a temporary basis.

Visitor expenditures Estimates of visitor expenditures varied with the facilities available in and around the park. In those areas with overnight facilities (Cape Cod, Cape Hatteras) expenditures were estimated to be approximately $17 (1975 dollars). In day-use areas expenditures per person were estimated to be approximately $12 (1975 dollars).

Park-induced local government costs Most of the studies reviewed either did not discuss or left vague the added costs to local government units. It appears that most or all internal park expenses, including garbage disposal, patrols, and improvements are borne by state and/or federal park authorities with the exception of increased police costs in the King Range area. The most noted expense to local government was increased road maintenance costs. This is due to the predicted increase in use of locally maintained park access roads.

Summary of methodologies used in the studies

The methodologies used to gain estimates of the economic effects of park development centered on the use of one or more techniques broadly classified as: projections based upon surveys of the current park use, extrapolation of past trends, and broader-based impact measurements using regional models of the area in question. These techniques are summarized as follows.

Surveys of park activities Using surveys of current park users (concerning spending habits and distance traveled to the park), estimates were derived that measure tourist expenditures on various classes of industries in the park region (c.f. Pawtuckaway State Park, Dare County). For the areas in which parks were yet to be developed, data from similar parks were used to provide estimates of expected impacts (c.f. York River State Park).

Extrapolation of past trends In the Cape Cod study (1960) broad-based indicators of the region's economy, such as population trends, assessed valuation trends, and tourist levels were derived to provide a setting for measuring park impacts. Park development impacts were projected as changes in these trends.

Regional economic models Regional economic models, such as those discussed in Chapter III, were developed in several of the studies (c.f. Olyapic National Park, Teton County) to measure the area's dependence on recreation. It is important to note that the size of the region varied in the studies that used regional models. For example, the Olyapic National Park study used the State of Washington as a region, while the Teton County study concentrated on a single county.

Comprehensive Economic and Fiscal Methods

The use of cost-benefit analysis or fiscal analysis of park impacts to determine whether local communities are better off was employed seriously in two studies: Wisconsin, Kentucky, and Modoc, California. The Wisconsin study offered an analysis of the effects of past acquisitions, while the Modoc study forecasted future effects on local areas. They are examples of the use of comprehensive models for impact assessment.

Appendix B

ANNOTATED BIBLIOGRAPHY OF PARK IMPACT STUDIES

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1. Allen, G.H. and R.W. Becking, Some Relationships Between Redwood Parks and the Humboldt Economy, mimeograph, March 1966.

Discusses the qualitative effects of the then-proposed Redwood National Park on Humboldt County's economy. Includes background on timber and employment trends. Finds that losses in property rolls due to park should be valued by comparison to areas with equivalent stands of timber (maturation and percentage cut). At present cut rates, depleted timber land values should be used.

2. Beyers, William, An Economic Impact Study of Mt. Rainier and Olympic National Parks, prepared for the National Park Service, February 1970.

Using survey data for expenditures and demand calculation and input-output model for the state park impacts on Washington are discussed. No attention is given to impact on localities.

3. Blome, A. Donald, The Proposed Sleeping Bear Dunes National Lakeshore, An Assessment of the Economic Impact, prepared for National Park Service, 1967.

Assesses pre-park economic structure of the area through survey of land uses and develops projections of population growth. Only input discussed for localities is loss of property tax base.

4. California National Forest Service, Final Environment Statement, Triangle Ranch Wetlands Land Exchange, USDA-FS-FES (75-03), 50 pages, June 1975.

This study entails an extensive use of economic analysis. The effects of the proposed land exchange are evaluated in terms of expected revenue streams of different alternatives, to the counties affected. The study uses benefit-cost methods and employs the principles of opportunity costs. The analysis presents advantages and disadvantages of each alternative and includes the reports of the county assessors in the area.

5. Ching, C.T.K. and G.E. Frick, Economic Effects of Pawtuckaway State Park: Part I: Problem, Objectives, Methodology, and Scope of Study, N.H. Agricultural Experiment Station, Research Report #9, January 1970.

Describes a rural acquisition of park land next to a lake. Proposes comparing private development on one side with public development on the other side of the lake.

Part III: Impact on Property Values in the Surrounding Area, N.H. Agricultural Experiment Station, Research Report #31, July 1973. Unable to identify any "property-enhancing" effects and suggest the zero net effect on property values as a result of the park's location in a relatively rural area. The park creation did not create a "massive upward shift" in demand for summer homes. Residents in the area felt the park tended to improve property value. Authors suggest a longer period of analysis--10 to 15 years--might be required before a measurable impact could be identified.

Part IV: Effect on Municipal Expenditures and Revenues, N.H. Agricultural Station, Research Report #34, April 1974. Found grounds for accepting the hypothesis that the park had a positive impact on town expenditures, although it is not conclusively established. Towns which contain the access roads exhibited significantly higher annual rates of expenditure. Other regional towns either exhibited a relative decrease or showed no significant different trend. Conclude that the town would have been better off in its fiscal situation without the park--private development of seasonal homes would significantly increase the tax base.

6. Department of Interior, Bureau of Land Management, California State Office, King Range National Conservation Area Proposed Management Program: Economic Impact Analysis, May 1974.

   Measures economic impact of conservation lands for multiple usage and sustained timber yield. Estimates costs to local government units through loss of property tax revenues and the effects of logging employment in the area. Based upon 5% and 10% annual rates of tourism increase, estimates effects. Rough estimates of employment effects.

7. Department of Interior, National Park Service, Report on the Economic Feasibility of the Proposed Point Reyes National Seashore, February 1961.

   Using a survey of pre-park development land uses, park impacts are discussed. Attention is drawn to multiple use and payments of grazing fees. Broad projections of attendance are estimated from travel trend studies.

8. Drake, Ronald, Selected Economic Consequences of Recreation Development: Tuolumne County, Case Study, University of California, Agricultural Extension Service, #68-4, June 1968.

A description of the use of survey data to assess expenditure levels of visitors. Explains derivation of county expenditure multipliers for use in measuring secondary impact of park employees and visitors. Analysis relies on survey results.

9. Economic Development Associates, Inc., An Economic Study Relating to the Proposed Cape Cod National Seashore Park, prepared for the National Park Service, 1960.

Analyzes broad-based indicators of the region's economy: population trends, assessed valuation trends, present tourist levels . . . makes general recommendations: property tax effects will be immediate, thus, phase in buying of property; tourist effects longer range, etc.

10. Florida State Department of Natural Resources, Division of Recreation and Parks. Project-Florida Caverns, State Park Addition, 5 pages.

This report evaluates the addition of 58 acres of idle land adjacent to Florida Caverns State Park. The acquisition is sought as a buffer to the park. No widespread economic analysis is employed. The report is a general description of the environmental and geographical aspects of the site.

11. Hayes, D.R., An Economic Study of Dare County, North Carolina, prepared for National Park Service, April 1967.

Using census data and surveys of visitors, the impact of recreation and, in particular, Cape Hatteras, is measured. Attempts to place values on sources of income for the county--commercial fishing, tourist industry, federal and state governments. Finds that the park had significant impact in generating tourist demand, increasing property values due to dune stabilizations, etc.

12. Hern, B. Phillip and Associates, Cape Cod National Seashore Economic Impact Study - 1969, prepared for the National Park Service, September 1969.

Using three techniques--an extrapolation of past trends, comparison with the "lower Cape," and comparison with a control area--the impact of the park is calculated. Findings include a 20% increase in nearby property values and a range

of losses of 6% to 95%, of tax income for localities. Approach based upon broad indicators--assessment levels, per capita tax, census data.

13. Kentucky Development Cabinet, Impact of Kentucky State Resort Parks on Local and State Economies, prepared by Melville H. Cohee, 1975, 70 pages.

The range of impacts evaluated covers seven major categories: taxation, land-use, business trade, county services, new spending, labor, and environmental impacts. The analysis attempted to measure the "foregone" income that would have been incurred without acquisition. The study found the tax loss to counties to be very small due to offsetting effects of increased assessment of businesses in the area benefiting from the parks. The study measures the level of tourist spending attributable to the parks but does not attempt to assess how much of the spending would have occurred at other sites in the area, without the park.

14. Minnesota Resources Commission, Sibley State Park Study, Bernard Harney, Ph.D., Southwest Minnesota State College, 16 pages, June 1974.

This study focuses on visitor spending as a measure of the economic impact of a park. The method used is projected visitor attendance and inflation, to generate revenue streams to the area.

15. Nebraska Department of Economic Development, State Recreation Area Master Plan, Lake McConaughy, prepared by INC/NADO, Inc., Architects, Engineers, Planners, Colorado.

The treatment of economic impacts of the lake is very general. Reference is made to the role of multipliers, but no methodology on how the multipliers were estimated is cited. A crude employment multiplier is used to project future jobs generated by volume of sales in the area.

16. Ohio Department of Natural Resources, Division of Planning, Cuyahoga Valley Property Tax Study: Implications of Park Acquisition, and Syrakes Ltd., 16 pages, January 1975.

The analysis estimates extent of tax losses in each community and school district affected. Study projects "little" tax impact of Cuyahoga Valley National Recreation Area, because of current low assessments on land. The analysis does not look at possible offsetting factors of tourism or changing property value in surrounding areas.

17. Oregon State Highway Division, State Recreation Director, The Economic Effects of the Development of Fort Stevens State Park on the Adjacent Communities of Warrenton and Hammond.

    This study uses recreational expenditures as a measure of impacts.

18. Rajender, G.R., K. Harmston, Dwight M. Blood, A Study of the Resources, People, and Economy of Teton County, University of Wyoming, College of Commerce and Industry, February 1966.

    Develops background information on tourism and an input-output model of the county's economy. Finds heavy dependence on recreation and room for year-round expansion. They suggest this will help to alleviate seasonal employment which results in the low multiplier effect that was found.

19. U.S. Senate Committee on Interior and Insular Affairs, Oregon Dunes National Seashore: Hearing Before the Subcommittee on Public Lands, 6th Congress, October 5, 7, 8, 1959.

    Series of hearings held by Senate on proposed park centered on economic questions of what federal agency could best handle the proposed park and what effects various federal policies would have on use.

20. Virginia, Division of State Planning and Community Affairs, Projected Tax Revenues Accruing to James City County as a Result of the Development of York River State Park, October 1971.

    Projects revenues from proposed park using assumptions relating to number of visitors, cost of facilities, future tax rates, and appreciation of land values--"based upon the professional judgment of the author and staff members . . ."

21. Wisconsin Department of Natural Resources, Impact of State Land Ownership in Local Economy in Wisconsin, prepared by Melville H. Cohee, Technical Bulletin No. 80, 1973.

    This study focuses on the impact of state land ownership on local communities. It employs a methodology using the local tax district as the boundary for analysis of impacts. A comprehensive range of impacts is measured including costs to different levels of government. The study covers six areas that parks have had impacts. It concludes that state acquisition policies have had minimal tax losses to local areas.