

LONG-TERM PINELANDS ECONOMIC MONITORING PROGRAM



**NEW JERSEY PINELANDS COMMISSION
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I. Introduction

The Pinelands is an area of over one million acres located in the heart of southern New Jersey. A blend of federal, state and local programs is responsible for safeguarding the environmental and cultural resources of the region. Of particular importance to the regional economy are land use regulations adopted by municipalities and approved by the Pinelands Commission, which significantly limit development in designated Preservation, Forest, and Agricultural Areas. At the same time, growth is permitted and even encouraged in other districts, particularly Regional Growth Areas. These growth areas tend to be located in and around already developed areas, many of which have access to central sewer systems and other urban infrastructure.

Of major concern to landowners, residents and businesses in the region are the effects of these regulations on real estate markets, economic growth, and local government finances. A number of studies have been conducted since the inception of the Pinelands Commission which have addressed these issues (see Section II below). However, these efforts have to date measured only the short-term impacts of the Pinelands Plan, and they have recognized the importance of monitoring economic and fiscal impacts over the long term. In response to this need, several technical panels were convened in 1992 to address the status of the Pinelands economy and how to gauge its health.

Drawing on the experience of the previous studies and the recommendations of the technical panels, this proposal outlines the major components of an ongoing economic monitoring program for the Pinelands. In addition to evaluating impacts through 1995, critical parameters will be measured over the long term, with special studies and updates to be conducted at periodic intervals. The focus of these analyses will be land markets, regional economic growth, and the fiscal health of municipalities. Other topics, such as impacts on housing prices and resource-related industries, will be addressed but not analyzed in detail, due to the difficulty of compiling accurate and comprehensive data.

II. Review of Previous Studies

Land Markets

Three major studies thus far have sought to quantify the effects of the Pinelands Comprehensive Management Plan on land values. Hedonic price theory provides the theoretical underpinnings of these analyses. This theory states that the price of a parcel of land reflects the sum of its attributes which are of interest to potential consumers. These attributes include: the physical characteristics of the site; location with respect to employment, retail, and recreational centers; the availability and quality of public services and facilities; the environmental amenities of the site; and the legal constraints on use of the land. The selling price of a property reflects the value of its full set of attributes. The statistical models employed in these studies attempt to isolate the effect of development restrictions imposed under the Pinelands Plan from other factors affecting the value of land.

The first of these studies was carried out by the Pinelands Commission staff (1983 and 1985). Multivariate regression analysis was used to control for the effect of variables other than Pinelands regulations on price per acre. The findings of these analyses, which looked at nearly 2500 land sales in and around the Pinelands Area from 1976 through 1984, indicate that there was little if any effect on land prices in the Protection Area during this period. A significant drop, however, was observed in the number of sales occurring in the Preservation Area after the adoption of the Comprehensive Management Plan (CMP). Due to the limited amount of data, the analysis of prices in this area did not produce statistically significant results.

Using the same data base, Neumann (September 1987) conducted a similar analysis and reached like conclusions, which were supplemented by an analysis of changes in sales volume and a survey of buyers and sellers. He found that while long-term land speculation had been dampened by the imposition of development controls, there was no discernible loss in existing land values for properties sold in the Pinelands.

Patrick Beaton, in his study of real estate sales in the Pinelands from 1966 through 1986, used a cross sectional-times series model to develop price indexes for both vacant and residential properties in the Pinelands and designated "control" areas outside the Pinelands (Beaton 1988 and 1991).

He reported that vacant land values in the restricted areas increased rapidly during the 1970s, reflecting a spurt in land speculation, and then declined in the 1980s. Land values in the development areas continued to grow following a levelling off in the early 1980s. No evidence of economic "wipeouts" was found; in fact, 1986 vacant land price indexes in both restricted and development areas exceeded those of the control areas. Beaton's results do, however, support the conclusion that land speculation in the Pinelands has been curtailed with the enactment of comprehensive development controls.

Housing Markets

Studies conducted to date suggest that Pinelands housing prices may have increased as a result of the adoption of Pinelands regulations. Beaton (1991) reported that the value of residential properties in both the Preservation and Protection Areas increased by more than 10% in comparison to control areas in the rural portions of Salem and Gloucester Counties and suburban Burlington County. The Pinelands Commission's First Biennial Update found no evidence of a major impact of Pinelands regulations on average housing values in the Pinelands municipalities.

Pinelands staff have conducted shift-share analyses of residential building permit statistics since 1972 (data are published for municipalities by the New Jersey Department of Labor). The Pinelands municipalities' shares of statewide building permits dropped in 1979 and 1980, remained relatively stable through the mid 1980s and increased through the late 1980s. Their shares of the seven-county region's permits follow the same general trend but the rates of change are more pronounced. These trends suggest that housing markets in the Pinelands are more sensitive to general economic conditions than elsewhere in the region. Such volatility may be due to the Pineland's location on the rural fringe of major housing markets rather than to any direct impact of the CMP.

The Regional Economy

The Pinelands Commission has monitored covered employment in the seven-county region since 1972, and has summarized observed trends in various status reports. The Commission's Second Progress Report on Plan Implementation (December 1991) found that total employment in the region increased at a

faster rate than employment throughout New Jersey from 1972 to 1990. Pinelands regulations have apparently had no adverse impact on the general level of economic activity and associated employment opportunities in the region as a whole.

Little work has been done to try to ascertain the impact of the CMP on specific industries in the Pinelands, due mainly to a lack of reliable information at the industry level. The Pineland Commission's 1983 report did look at resource extraction and agriculture in the Pinelands during its first two years of the Plan's implementation, but found no observable short-term effects. Two studies (Coughlin 1984; Rose and Derr 1984) have been conducted which conclude that a decrease in land values would not adversely affect farmers' borrowing capacity nor the industry's economic viability. Members of the Pinelands Commission's Technical Panel on Agriculture expressed a variety of opinions about the health of the agricultural industry but there was a general consensus that the Plan has had little, if any, negative impact.

Fiscal Impacts

One of the first issues to confront the Pinelands Commission during and after the adoption of the CMP was its perceived impact on municipal finances. It was felt by some municipal officials that assessments of vacant land would have to be dramatically lowered to reflect the effects of the land use regulations on land values, and that residential tax bills would skyrocket as a result. There was also a concern that large-scale acquisitions of land in the Preservation Area would have an adverse effect on tax revenues.

To address these concerns, the Pinelands Commission in 1982 commissioned an independent consultant to analyze the fiscal impacts of the CMP on selected municipalities (Government Finance Associates 1982). The study was intended to quantify the possible negative effects of the CMP under the most extreme conditions; therefore, those municipalities which had the highest tax rate increases or the largest drop in ratables in 1981 and 1982 were selected for analysis. It was found that in all but one of these municipalities, the primary factors responsible for increased taxes or lost ratables were unrelated to Pinelands regulations.

The Commission's studies of the fiscal impacts of the CMP (Pinelands Commission 1983 and 1985) reinforced this conclusion, finding that while many municipalities reported

minor reductions in vacant land assessments, only one suffered a major decline in ratables due to tax appeals. In addition, several townships were adversely affected by the State's land purchases. These short-term impacts were largely mitigated through two programs: payments in lieu of taxes for acquisitions made under the Green Acres program, and the Pinelands Municipal Property Tax Stabilization program, which provided for temporary reimbursement of losses due to reductions in vacant land assessments.

III. Objectives & Methodology

The purpose of the long term economic monitoring program will be to create databases which can be maintained and analyzed on a continuing basis. The focus will be on monitoring trends in land values, growth in residential and commercial development of the region, and rates of local property taxation. In general, data will be collected from secondary sources and then compiled in a manner which conforms to the requirements of the economic analysis. Patterns of growth or decline will be analyzed in relation to statewide or regional trends over the same time period in order to control for exogenous influences such as national business cycles or shifts in competitive advantage.

The initial data collection effort will focus on establishing an historical base against which current and future trends can be modeled. Because of the difficulty in obtaining historical data, and because pre-CMP trends in land prices have been well documented (see Section II. above), the base for the land study will begin in 1981. Most other databases will reach into the past before the implementation of the Plan and extend through the most recent year for which data are available. An analysis of trends to date will be conducted at the conclusion of the initial phase of data collection. Recommendations for continuing monitoring and periodic updates of the analyses will also be presented.

IV. Study Parameters

Land Values

At the heart of many of the controversies generated by the enactment of the Pinelands land use regulations is the issue of land values. A number of studies have been conducted since the advent of hedonic price theory which have found that regional land use programs can affect real estate values (Frech and Lafferty (1976); Nelson (1988); Vaillancourt and

Monty (1985); Knaap (1985); Manning and Eddy (1978); Anderson and Dower (1980). To the extent that development controls affect the value of land, current and prospective landowners will be affected, as will tax ratables associated with vacant land. The value of property depends in part on the permitted use which yields the highest rate of return to the owner, often called "the highest and best use". Permitted uses on vacant and farm lands in many parts of the Pinelands have been limited significantly and therefore land prices may be adversely affected. To the extent that the CMP reinforces previously existing development patterns, however, the actual impact on prices will be limited to a reduction in the speculative value of land.

The long-term monitoring program for land values will build upon the work done in the Pinelands by Patrick Beaton (1988 and 1991). Sales will be compiled from the Usable Sales Files maintained by the New Jersey Department of the Taxation, starting in 1981. These sales are used to compute equalization (sales/assessment) ratios, which are applied to the aggregate assessed valuation in each taxing district in order to compute the "true", or market value of taxable property. The data have been screened by the Division of Taxation to remove all non-market transactions, as well as sales involving parcels which have experienced zoning or subdivision changes not reflected in the assessments, or which have been reassessed since the date of the sale. The latter deletions will necessarily result in the omission of some valid market transactions from the database.

Sales data will be collected for all Class 1 (vacant) and 3b (farm assessed) properties which were sold more than once during the period from 1981 to the present. The location of each property will then be identified with respect to Pinelands Management Areas (i.e. Preservation, Special Agricultural, Forest, Agricultural, Rural Development, Regional Growth, or Pinelands Town/Village). In the initial phase of the analysis, which will extend through 1995, this task will be implemented using the Pinelands Commission's paper tax maps. If feasible, over the long run the management area and zoning information on these maps will be geocoded by block and lot so that they can be easily cross-referenced with the data on land transactions.

Real estate price indexes will be developed which measure the price of a given property at one point in time to its corresponding price in an earlier period. Indexes will be estimated using weighted least squares regression analysis. Changes in land prices over time can then be measured for

each area (it may be necessary to combine observations for two or more management areas in order to achieve statistically significant results). These indices can then be compared to changes in land prices in one or more "control areas", which will consist either of a sample of municipalities outside the Pinelands Area or an average price index computed at the county or regional level.

One factor which should be accounted for in the land price studies is the effect of the removal of Pinelands Development Credits (PDCs) from properties. Pinelands Development Credits are assigned to landowners in the Preservation and Agricultural Areas of the Pinelands on the basis of acreage and land use. PDCs can be sold by landowners to developers, who can use them to increase allowable densities in Regional Growth Areas. When PDCs are severed from a property, a deed restriction must be put into place which permanently restricts the property from most development. Sales of properties which contain such a deed restriction should be identified, using data files maintained by the State PDC Bank. The selling prices of these properties can then be compared statistically to other similar properties from which PDCs have not been sold, in order to determine what effect the removal of PDCs has on land value.

Residential Development

As noted earlier, the Pinelands Commission staff has kept records of the number of building permits issued in the 53 Pinelands municipalities, starting in 1972 and extending through the present. These data can be used to conduct shift-share analyses, whereby trends in the 53 municipalities are compared to trends in the seven counties and the State as a whole. These analyses give a good indication of whether regional development opportunities have been limited by the implementation of the CMP. As part of the long-term monitoring program, this database will be maintained as new data become available on an annual basis, and an updated share analysis will be conducted in 1995 and every year thereafter.

As an extension of this analysis, individual municipalities will be sorted on the basis of their growth in residential building permits from 1985 to 1995. Municipalities will then be grouped according to their rates of development, i.e. high, moderate, and low growth municipalities. Shift-share analyses can then be performed for each of these three groups, to help determine the extent to which growth is concentrated in certain municipalities.

These groupings can also be used in the analysis of fiscal impacts discussed below.

Average selling prices of houses in Pinelands municipalities can also be measured in relation to regional and state trends using sales data collected by the New Jersey Division of Taxation, from 1972 to the present. The implementation of the CMP has the potential to inflate housing prices, both through a reduction in supply in certain areas and by providing a permanent amenity to residents of the region. These effects may be somewhat localized; however, the collection and analysis of data for individual Pinelands Management Areas is a colossal undertaking in the absence of an automated geographic system which includes tax map information. It is also not likely that such a study would have significant public policy ramifications.

Economic Growth

In order to assess whether the Pinelands Plan has affected the prosperity of the region, growth in employment can be measured over time in relation to statewide growth patterns. Information on wages and income can also shed light on this issue. To the extent that the CMP has had an effect on the regional economy, there will be both direct and indirect (multiplier) impacts on employment and wages. It is not, however, possible to separate these impacts in the analysis of aggregate employment and income.

Several approaches will be taken in the monitoring of economic trends. First, as discussed in Section II. above, Pinelands Commission staff have collected and analyzed data on total "covered employment" (jobs covered under the New Jersey Unemployment Compensation Law) for the 53 Pinelands municipalities, using shift-share analysis. This database will be updated and analyzed on an annual basis in order to assess employment trends in the immediate area of the Pinelands.

Municipal data are generally not available for individual industries. Furthermore, since most workers are able to commute some distance, the economic health of the larger region is of perhaps greater interest. County and state data on employment by SIC (Standard Industrial Classification) are available from several sources. The most reliable and comprehensive data are collected for the Census of Business, published every five years by the U.S. Department of Commerce. Information on number of establishments,

employment, wages and value of sales is presented by county and by 4-digit SIC code where possible (in cases where there are relatively few firms reporting, the data are less detailed). Census of Business data are available for 1982 (the first full year of the CMP's implementation), 1987, and 1992 (data for 1992 will become available over the next year or so), and can be compiled for the seven-county region. Industry-specific trends can then be analyzed in relation to statewide trends where possible.

Of particular interest are resource-related industries, i.e. agriculture, forestry, recreation and mining; and real estate and construction, which may have been affected by development controls imposed under the CMP. To the extent that reliable data are available from secondary sources, trends in each of these sectors will be documented for Pinelands counties. These databases and analyses will be updated every five years as new information is published.

If possible, agriculture will be studied in more detail, relying upon information collected by the New Jersey Department of Agriculture. Acres harvested and production of selected crops will be monitored for the seven counties. Of particular interest is cranberry and blueberry production. Since almost all berry farming in the State takes place in Pinelands counties, changes in output and income for the region can be monitored using statewide totals.

Municipal Finances

Municipal finances is one area of concern for which there is no dearth of information. The New Jersey Division of Taxation issues an Annual Report as well as several other publications which describe assessments, equalization ratios, and rates of taxation for each municipal jurisdiction. In addition, the Department of Community Affairs, Division of Local Government Services publishes municipal budgets, including expenditures by line item, and breakdowns of assessed valuation for various property classes.

The long-term monitoring of fiscal trends is of interest for several reasons. As discussed in Section II. above, Pinelands regulations have affected vacant land assessments in some municipalities. In all but one case, however, the short-term impact on tax rates was relatively minor. Public acquisitions of land in a few townships have also resulted in a loss of ratables. However, these problems were mitigated in the short term by state reimbursement programs.

The level of development in a municipality also affects both municipal ratable bases and expenditures for public services and facilities. Growth in ratables is associated with development, although capital and operating costs for schools, roads, and other public facilities will also increase. Whether development results in a net fiscal benefit or cost to the community depends in large part on the type of development (i.e. commercial, industrial, apartments, single family houses, retirement communities, etc.). Density may also have an effect; it has been shown that for a given number of households, a "sprawl" pattern of growth is typically the most costly (Real Estate Research Corporation, 1974). Since the Pinelands Plan promotes a more concentrated pattern of growth than would otherwise occur, it may have a long-term beneficial effect on public finances.

The long term monitoring program for municipal finances can be undertaken at three levels. First, trends in the 53 municipalities as a whole can be examined in relation to trends for the seven-county region and the State as a whole. Extending the analysis conducted by the Pinelands Commission's fiscal impact studies of 1983 and 1985, the following parameters can be measured from 1972 to the present:

- Average equalized vacant land assessments
- Average residential property tax bills
- Residential property tax bills in relation to average family income and average housing prices
- Municipal expenditures per capita
- Municipal expenditures by type (i.e., line item)

In order to shed more light on the possible impacts of the Pinelands Plan, these statistics can also be compiled for subgroups of Pinelands municipalities. These subgroups will be identified on the basis of population density and recent rates of growth as measured by the number of residential building permits issued in the past ten years. Each Pinelands subgroup will be paired with a group of similar municipalities located outside the Pinelands (but within the seven-county region). Analyses of trends will be done in relation to these "control" groups, as well as to state averages. In compiling the data, it is important to examine the types of services provided to ensure that rates of taxation and expenditures reflect like service levels in each subgroup and its corresponding "control". The extent to which differences in tax rates can be attributed to variation in service levels will be identified for each subgroup, as will any observable effects of the Pinelands Plan.

In addition to the aggregate fiscal analyses described above, Pinelands municipalities will also be monitored individually on an annual basis. If a municipality is showing signs of fiscal stress as evidenced by a significantly larger increase in taxes compared to other municipalities, then its budget will be thoroughly analyzed to determine the underlying cause(s) of the increase. The extent to which any of these causes can be traced directly or indirectly to the CMP will be ascertained.

V. Program Implementation

It is anticipated that the first phase of data collection and analysis can be completed over a period of two years from the initiation of the long term monitoring program. Data collection can then be continued on an annual basis, with periodic updates of the statistical analyses. For the land value study, these updates will occur every five years starting with the year 2000 (the results will be published about one year later, since the data are not available from the Division of Taxation for several months following the end of the fiscal year). For the economic studies, these updates will follow publication of the Census of Business every five years.

Residential and employment share analyses will be conducted annually, as will most fiscal studies. Detailed financial analyses will be undertaken as needed for municipalities showing signs of fiscal stress. If it is found that the Pinelands Plan has contributed to the fiscal woes of one or more towns, then remedial public policy measures will be investigated.

NATIONAL PARK SERVICE FUNDING PROPOSAL

We request \$150,000 in National Park Service funds to establish a comprehensive economic monitoring program. As this program is intended to become an on-going effort, it will require annual funding after the initial funds have been utilized. Personnel, budget, and scheduling details are given in the accompanying tables.

We will use the funds to expand upon the data and studies we have previously done by building a data base for measuring the economic impacts of the Comprehensive Management Plan's regulations upon the landowners, residents, businesses, and local governments of the Pinelands Area. The largest funding component will be \$85,838 to develop an information system for evaluating the impacts upon land values. This will build upon previous work and will be contracted to the New Jersey Institute of Technology. Dr. Patrick Beaton, who has conducted similar studies, will be the principal investigator.

Residential development (\$19,834) will be monitored by Commission staff through examination of building permits and housing sales prices. Comparisons between various areas and controls will be conducted.

Economic growth (\$22,164) will be evaluated through staff analyses of employment, number of business establishments, wages, and value of sales. Again, various comparisons will be conducted. Agriculture and, to the extent feasible, other Pinelands business, will also be monitored.

The fiscal health of municipalities (\$22,164) will be tracked through various expenditure and revenue accounts. Relative tax burdens will also be evaluated.

Larry L. Liggett, Manager of Planning and Research, will be responsible for providing oversight for the program. The data collection and analyses will be conducted by a resource planner, Lois Cristarella, and by a planner/economist, to be hired. The projects will be coordinated with various state governmental agencies who gather data, including the Departments of Commerce and Economic Development, Community Affairs, Agriculture, and Labor. It is also our intention to have the National Park Service play a role in coordinating the program.

The program will represent a major enhancement of the Commission's ability to evaluate the impacts of the Comprehensive Management Plan. It will provide information to quantify what, if any, impacts exist and will be the basis for taking additional steps to mitigate any negative impacts and to capitalize on any positive impacts.

PINELANDS ECONOMIC MONITORING PROGRAM BUDGET SUMMARY

Project	Pinelands Commission Personnel	Commission Supplies/ Equipment	Contracted Services	PROJECT TOTALS
Land Values	\$6,338	\$500	\$79,000	\$85,838
Residential Development	\$19,334	\$500	\$0	\$19,834
Economic Growth	\$21,664	\$500	\$0	\$22,164
Public Finances	\$21,664	\$500	\$0	\$22,164
	\$69,000	\$2,000	\$79,000	\$150,000

PINELANDS COMMISSION ECONOMIC MONITORING PROGRAM BUDGET DETAILS

Project	Personnel Time Assigned/Cost (1) for 2-yr Period			Resource Planner III	Planner/ Economist	Books, Supplies Misc.	Support Services	Contracted Services NJIT	
	Planning Manager								
Land Values	1%	\$1,805	2%	\$1,886	3%	\$2,647	\$500	-	\$79,000
Residential Development	1%	\$1,805	0%	\$0	19%	\$16,529	\$500	\$1,000	
Economic Growth	1%	\$1,805	2%	\$2,330	19%	\$16,529	\$500	\$1,000	
Public Finance	1%	\$1,805	2%	\$2,330	19%	\$16,529	\$500	\$1,000	

(1) Average Annual Salary
and Fringe for 2-yr Period

Planning Manager	Resource Planner III (Planner)	Planner/ Economist
\$68,237	\$39,478	\$33,216
\$22,075	\$12,771	\$10,745

PROGRAM SCHEDULE

PROJECT/TASK

YEAR/MONTH

1994 1995 1996
 O N D J F M A M J J A S O N D J F M A M J J A S

Land Values

Baseline Data

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First Annual Update

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Residential Development

Building Permits

| | | | | | | |

Housing Sales

| | | | | | | | | | | |

Economic Growth

Shift/Share Analysis

| | | | | | | | | | | |

Agricultural Segment

| | | | | | | | | |

Other Business Segments

| | | | | | | | | |

Public Finance

Expenditures & Revenues

| | | | | | | | | | | |

Tax Burden & Level of Service

| | | | | | | | | | | |

Ad Hoc Analyses

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