LONG-TERM PINELANDS ECONOMIC MONITORING PROGRAM

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INTRODUCTION

The Pinelands is an area of over nine hundred thousand 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 interest to landowners, residents and businesses in the region is the economic impact of the regulations on land values, real estate markets, local government finances, and farm and business economic viability. A number of studies have been conducted since the inception of the Pinelands Comprehensive Management Plan (CMP) which have addressed these issues. These efforts have measured only the short-term impacts of the Pinelands Plan but have recognized the importance of monitoring economic and fiscal impacts over the long term. The purpose of this report is to describe the goals and objectives for a long term, continuing economic monitoring program and its design.

PROGRAM GOAL AND OBJECTIVES

The fundamental goal of a long term economic monitoring program for the Pinelands is **to continually evaluate the health of the economy of the Pinelands region in an objective and reliable way.** The economic monitoring program, along with the environmental monitoring program, will provide essential information that the Pinelands Commission needs to consider as it seeks to meet the mandates set forth in the federal and state Pinelands legislation.

There are several principal objectives which such a program must be designed to address. The program must:

1. Address key segments of the region's economy while being flexible enough to allow the analysis of special topics which arise periodically;

2. Establish a means for comparing Pinelands economic segments with similar areas not affected by the Comprehensive Management Plan;

3. Establish a means for evaluating economic segments over time so that Pinelands related trends can be distinguished from general trends;

4. Provide for analyses to be conducted in an impartial and objective manner; and

5. Be designed and implemented in a cost effective manner so that the program's financial requirements can be sustained over time.

ACTIVITIES TO DATE

1979 - 1993

Since 1979, when the Pinelands Commission first began to develop the Pinelands Comprehensive Management Plan, many analyses of the region's economy have been undertaken. The most notable of these are identified on the attached list of references and are available from the commission.

These analyses have addressed, for example, land markets, residential markets, business sectors and municipal finances. However, many of these studies have been conducted on an ad-hoc basis and do not provide current information. Although the Pinelands Commission periodically evaluates limited economic data, as described in the Commission's Second Progress Report on Plan Implementation (1991), no in-depth analyses of the region's economy have been undertaken for almost a decade.

As part of its second full review of the Pinelands Plan, the Commission convened a panel of economic experts in 1992 to review these prior studies and make recommendations regarding future Commission efforts. Later that year, the Commission formally endorsed the panel's recommendation to monitor the region's economy on a continuing basis.

1994 - 1996

In Fiscal Year 1994, the New Jersey Agricultural Experiment Station/Cook College began a three year assessment of the economic effects of the Pinelands Comprehensive Management Plan. Although this is a limited duration project, the methodologies employed as well as its findings will undoubtedly be instructive as the Pinelands Commission designs and implements its program for long term monitoring of the region's economy.

Also beginning in Fiscal Year 1994, the Pinelands Commission prepared a proposal (July, 1994) to the National Park Service to institute a long term economic monitoring program. That proposal was incorporated into the September, 1994 Cooperative Agreement (No. CA4000-4-3016) between the National Park Service and the Pinelands Commission.

Since then, the Pinelands Commission has undertaken several initiatives pursuant to that Cooperative Agreement. A public meeting of parties interested in various segments of the region's economy was held on October 24, 1994. This generated some additional questions for staff to consider. The first meeting of the National Park Service Technical Advisory Committee was held on January 18, 1995. It reviewed the design, the public's questions, and offered guidance. Lastly, and

perhaps most importantly, the Pinelands Commission decided to re-evaluate the methodologies in the July, 1994 proposal to ensure that the program is optimally structured to meet its goals and objectives. Toward that end, during the summer of 1995, the Commission contracted with independent experts to advise it on the design and implementation of the long term economic monitoring program.

Based upon the work of the independent experts, the Commission authorized work on the detailed design to commence, focusing on continual monitoring of key economic indicators, supplemented by occasional special studies when trends seem to be out of the ordinary. To assist in this, a staff economist was also authorized to design the program with the help of a group of experts and to handle the day to day management of the monitoring program once the design is completed.

Beginning in February of 1996, Pinelands Commission staff began a process of identifying the precise datasets to be collected, identifying sources for these datasets, and developing methods for their collection, management, and analysis. This process began by deriving a preliminary variable list from the earlier design work, and the recommendations of the independent experts. In addition to the two independent experts already under contract to advise the Commission on the development of the monitoring program, the Pinelands Commission requested that Rutgers University supply additional experts to serve on an "expert committee." (Experts are listed in Appendix A.) This committee was intended to advise the Commission staff in its work and to review the detailed design to guarantee that it met the appropriate technical standards. Through a process of investigation of variables, consultation with the expert committee and other outside experts, revision of the variable list in accordance with the recommendations of the committee, and further investigation based on the committee's recommendations, a variable list and a structure for the monitoring program was developed. These recent efforts have led to the program structure set forth herein.

The program structure described here identifies the data which will be collected and the means by which data which will be analyzed and presented. (An overview of the data sets is provided below in the section "Variables Selected for Long Term Monitoring." A detailed description of the data sets is provided in the Variable List, Appendix B.) Once approved, this document will serve as a blueprint for the implementation of the economic monitoring program.

STRUCTURE OF THE MONITORING PROGRAM

The monitoring program contains two basic parts: an ongoing data collection and analysis component and a special studies component.

The ongoing data collection and analysis component focuses on continual long term monitoring of key economic indicators. This will not only establish an historical database against which current and future trends can be compared, it will also allow patterns of growth or decline in the Pinelands to be analyzed in relation to regional (and in some cases, statewide) trends over the same time periods. This should help to control for macroeconomic influences and provide a context in which Pinelands economic trends can be evaluated.

This type of ongoing data program ensures continuity, measurability and transparency of results over the long term. As such, it will illustrate overall economic change, provide a sense of the pace and direction of change and identify unusual economic trends which may be peculiar to the Pinelands. It will not explain why changes are occurring or whether unusual trends (whether they indicate opportunities or problems) are caused by Pinelands protection policies; however, it will allow policy-makers to target in-depth research on key questions to determine cause and effect relationships. (The special studies described below would be an example of such in-depth research.)

The ongoing data program will be divided into two phases. The core data group represents those variables which the expert committee believes will provide information essential to an understanding of the character of the Pinelands economy and which are practical to collect at this time. Data in the core group will be collected for the year currently available and for preceding years, as is practical to discern trends. The supplementary data group consists of data which will be added to the core data as a greater appreciation of the nature of the Pinelands economy is gained. Several examples of supplementary datasets have already been identified, but these may change as our understanding increases. In addition, some of the core data sets may be augmented with more historical information to provide a better sense of economic change over time, before and after the advent of the Comprehensive Management Plan.

Analysis refers to the presentation formats which will be used to provide context to the data. Analysis of the core variables will consist of graphic presentation of variables over time to establish trend behavior, derivation of univariate summary statistics (i.e., mean, median, standard deviation), shift-share analyses where appropriate, and other basic techniques which are intended to summarize the information provided by the variable and to demonstrate changes over time. The Variable List (Appendix B) provides more specific information regarding intended methods of analysis.

Special studies represent the second major component of the monitoring program. The ongoing data program will be highly instructive in selecting targeted research questions aimed at giving policy-makers in-depth information on apparent differences between Pinelands and non-Pinelands economic trends. It will also provide an opportunity to augment the data program should a need be identified for primary (rather than secondary) data or for more geographically specific data. Topics for special studies will be approved by the Pinelands Commission before the study is undertaken.

VARIABLES SELECTED FOR LONG TERM MONITORING

The goals and objectives for the economic monitoring program establish the basic framework around which the specific data collection and analytical methods will be designed and implemented. During Fiscal Year 1996, these methods were detailed and are included herein; monitoring activities will begin in Fiscal Year 1997.

Three primary areas of inquiry have been selected for monitoring: land and housing values and residential development, the business climate and commerce of the region, and the fiscal health of municipalities. These areas are summarized below and described in more detail in the Variable List (Appendix B). In general, data will be collected from secondary sources and then compiled for analysis. Intended methods for conducting analysis are described below and in the Variable List. These analytical techniques have been chosen to summarize the data in a format which is easily accessible to non-technical audiences and which provides a context within which the results and trends demonstrated by the data may be examined.

A. PROPERTY VALUES AND RESIDENTIAL DEVELOPMENT

At the heart of many of the controversies generated by the enactment of the Pinelands land use regulations is the issue of land values. 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 may be limited to a reduction in the speculative value of land.

In addition, land use regulation may also affect the value, type and supply of housing and other development activities. For example, 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. Conversely, other factors, such as declining job markets, if they exist, may have a deflationary effect.

Description of Monitoring to be Implemented

One possible means of monitoring land and housing prices would be to use the hedonic and repeat-sales methodologies which have been used in past studies. These approaches, however, are very costly and of limited value for geographic areas with few sales and cannot adequately address the change in values that occurs when property is subdivided or developed. Instead, the expert advisory group recommended the use of a "Delphic" Methodology as a more appropriate means of conducting long-term monitoring. A Delphic Methodology employs the opinions of suitable experts to estimate prices that the market would choose, but which are difficult to observe due to the nature of that market. The approach described here is patterned after the experience of setting bond market prices/values by experts and is a well proven technique to reflect expert opinion. Unfortunately, it is difficult to back cast too far as the memory of the experts cannot be counted upon. For the purposes of our program, a group of property value experts (e.g. real estate appraisers) will be convened to estimate prices for various situations and locales from the early 1990s onward.

The group of experts will be asked to estimate land and housing prices for properties with different attributes (physical characteristics, location, public services, site amenities and legal

constraints), both inside and outside the Pinelands. Insofar as possible, these inside/outside price estimates will be structured so that it is possible to compare Pinelands and non-Pinelands trends.

In contrast to most other data which will be collected annually, the use of the Delphic Method will be employed on a four-year cycle. In the second year of program implementation (FY1998), estimates will be collected on both housing and land values. Housing values estimates will be collected again two years later (FY2000) and land values in FY2002. Following this pattern, the method will be employed every other year, alternating between housing and land values with each occurrence. It is possible that the frequency may be increased. A determination to increase the frequency of this data collection will depend upon its benefits and the amount of resources, including time, required to accomplish data collection, and the resources absorbed by other program components. This information will become evident as implementation progresses.

Median selling prices of houses and the number of such transactions for each municipality can also be measured in relation to regional and state trends using sales data collected by the New Jersey Department of Treasury. This sales data does not provide enough information to isolate price differences which result from differences in property type, however, it does have some value in revealing actual market behavior. Thus, trends derived will be useful to supplement the information gathered via the Delphic Methodology. Data will also be collected on the building permits issued by municipalities, which would measure the amount of development activity.

Besides the five variables of the core group outlined above, examples of supplemental data and special studies that may be explored are outlined in the Variable List (see Appendix B).

B. ECONOMIC GROWTH

The observation of trends in such indicators which are directly tied to the prosperity of a region's residents is central to the measurement of the economic well-being of the region. As such, monitoring of employment, income, and the business climate is essential to this program. In order to judge whether the Pinelands Plan may be having an effect, growth in employment can be measured over time in relation to regional and 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. Further, impacts (positive or negative) may be substantially different for different business sectors.

Description of Monitoring to be Implemented

Municipal level 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. As a result, analysis of general economic data (employment, unemployment, number of establishments, retail sales, and payrolls) will compare the area of each county which is in the Pinelands to that which is outside. These variables measure the prosperity and viability of business in the region. Payroll, number of establishments and employment data will also be broken

down to the first ("Major Industry Division") Standard Industrial Classification Code (SIC) level, to track the shifting of activity between major economic components. Industry-specific trends for areas in the Pinelands will be compared to areas outside.

Unemployment and income data are also important indicators of regional economic health as they provide information regarding the ability of the region's residents to make purchases and pay taxes, as well as providing a measure of the economic well-being of individuals. New car registrations, a leading indicator, will be tracked to ensure that any early indications of regional change outside of national trends can be observed.

Agriculture is recognized in federal and state Pinelands legislation as an industry of special significance to the Pinelands, and thus, deserves special attention. Included in the basic data set are three agricultural variables: net farm income, a measure of the profitability of farms; cranberry and blueberry production as these two berry crops are critical components of Pinelands agriculture; and the acreage dedicated to agricultural and horticultural production. It is anticipated that several additional variables addressing the economic well-being of farming will be added in the future. These will most likely include data on agricultural lending, off-farm income, and value of farm assets.

Population growth drives both consumer demand and labor supply, and therefore is an extremely important indicator of economic growth. Population factors are considered with the municipal finance variables (below).

Besides the 10 variables of the core group outlined above, examples of supplemental data and special studies that may be pursued are outlined in the Variable List (see Appendix B). In addition, other resource-related industries (e.g. forestry, recreation and mining; and real estate and construction, which may have been affected by development controls imposed under the CMP) are of additional interest. One special study anticipated for this area would address how key data and trends for each of these sectors may be collected.

C. MUNICIPAL FINANCES

The long-term monitoring of municipal fiscal trends is of interest for several reasons. As discussed in previous studies, 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. While these problems were mitigated in the short term by state reimbursement programs, their longer range impacts should be evaluated.

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 (e.g. commercial, industrial, apartments, single family houses, retirement communities). Density may also have an effect; there is some evidence to support the hypothesis that more compact growth reduces the costs of infrastructure (a summary of research on this topic can be found in "The Impact Assessment of the New Jersey Interim State Development and Redevelopment Plan, Report I," Center for Urban Policy Research, Rutgers University, 1992). Since the Pinelands Plan promotes a more concentrated pattern of growth than might otherwise occur, it may have a long-term beneficial effect on public finances.

Description of Monitoring to be Implemented

Municipal finances is one area of concern for which there is no dearth of information. The New Jersey Department of Treasury 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 monitoring of municipal finance will involve the collection of data for each of the 202 municipalities of the eight counties of southern New Jersey. This data will include information on the tax collection rate, the weight of revenues by source, and trends in equalized property value, which provide information on the strength of municipal finances in terms of available revenues. Data on municipal expenditures, by type, and in relation to household income, provide information on the other side of municipal finances, that is the expenditure side and the demand for local services. Finally, the average residential tax bill and the effective property tax rate measure the burden that taxes place on residents.

In conducting the analysis of the municipal finance indicators, data will be compiled for subgroups of Pinelands municipalities. These subgroups will be identified on the basis of population density, amount of vacant land, proximity to transportation networks (as measured by either distance to major roads or to employment centers), and the income of residents. Qualitative factors which directly contribute to the character of a community (i.e. the presence of an amenity, or a unique characteristic of the population) will also be considered to guarantee that communities which are statistically similar but have essentially different characters are not considered as entirely similar. Each Pinelands subgroup will be paired with a group of similar municipalities located outside the Pinelands (but within the eight-county region). Analyses of trends will be 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.

Population size and characteristics are the most important determinant of demand for municipal services. Data regarding population size is useful both as an indicator of demand for housing and for private and public goods and services, as well as for various per capita and per

household calculations. Age distribution data can explain some of the differences that may be found between different areas both in demand for municipal services, and in employment. The vast majority of working people tend to be between the ages of 18 and 65, while people over 65 are usually retired and children below 18 are attending school; these last two groups have a greater demand for municipal services. Population-size data is needed for the derivation of several other variables and to classify and select jurisdictions inside and outside the Pinelands for the purpose of making comparisons.

Besides the nine variables of the core group outlined above, examples of supplemental data and special studies that may be pursued are outlined in the Variable List (see Appendix B). Pinelands municipalities will also be monitored individually on an annual basis. If a municipality is showing signs of fiscal stress such as a significantly large increase in taxes as compared to other municipalities, a special study may be undertaken to evaluate its cause and opportunities to lessen its effect.

PRODUCTS

Initial Report

A report will be issued at the end of the first year of program implementation (FY 1997) which will summarize the core data which has been collected, both for the historical time series and for the current year available. Basic analysis involving derivation of univariate summary statistics, trends evaluation, and shift-share analysis will be conducted as appropriate to individual variables and presented in this report. Summary of the data will consist of graphs and charts. Analysis will be based on the comparison techniques outlined for the monitoring program.

Annual Report

A report will be issued annually, at the end of the fiscal year, which will summarize the core data which has been collected and analyzed during that year. This report will follow the same layout as the initial report, described above. In the years in which the Delphic Method will be employed, housing and land price data will also be reported.

Summary Report

Five years after the monitoring program is implemented, a summary report will be issued which reviews the data that has been collected over the past five years. Thus, a view of the larger picture than is available annually will be offered. Summary reports will continue on a five-year cycle.

PROGRAM ADMINISTRATION

Larry L. Liggett, Manager for Planning and Research for the New Jersey Pinelands Commission, will be directly responsible for implementing the program. Day to day project management will be the responsibility of Mark L. Goldhammer, the Pinelands Commission's Staff Economist. Support will be provided by other members of the Pinelands Commission staff as required, including members of the planning staff and the cartography office.

The Expert Advisory Committee (Appendix A) will continue to be consulted to provide advice and guidance as needed as the program is implemented; membership of this group may change or grow over time. As was the case during design of the program, the committee will continue to offer its advice in an independent and objective fashion.

Pinelands Commission staff will coordinate and cooperate with the National Park Service's Technical Advisory Group on Pinelands Economic Monitoring. Additional contact with other experts will be sought as needed. Special studies will, in many cases, be conducted under contract with experts in specific fields.

Actual data collection and analysis will be an ongoing function; however, cycles are established wherein collection and analysis of certain data sets are staggered so as to maintain a relatively stable activity level. A detailed "Projected Schedule of Activities" for the first five years of the long-term monitoring program is shown in Table 1, and a similar schedule for the second five years is shown in Table 2. Projected costs for the first five years are shown in Table 3. As analyses are completed, assessments will be made to determine if refinements or improvements of analytical methods are warranted.

It is anticipated that the first phase of "core" data collection and analysis can be completed during the first year of implementation of the long term monitoring program (FY1997). Data collection can then be continued on an annual basis, with periodic updates of the statistical analyses. For the land value and housing price data to be collected via the Delphic Method, these updates will occur on a four-year cycle starting with FY 1998, as described above. Updating of some economic growth variables will follow publication of the Census of Business and the Census of Agriculture every five years.

Supplementation of the core data set and the conduct of special studies are also described in the schedule, and occur annually, beginning in the second year of program implementation (FY 1998). The special studies are expected to be designed and conducted over a three-year period, thus, the completion of the first special study is expected in the fourth year of implementation (FY 2000). However, design and initial work will also begin on additional studies during this time, so it is anticipated that one study per year will be completed in each subsequent year.

Table 1: Pinelands Economic Monitoring Program: Projected Schedule of Activities for First Five Years

	7/1995-6/1996	7/1996-6/1997	7/1997-6/1998	7/1998-61999	7/1999-6/2000
Municipal Finance		1) Collect, Organize and Analyze Core Historical Data 2) Select Pairings Using Data 3) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis
Economic Growth		1) Collect, Organize and Analyze Core Historical Data 2) Select Pairings Using Data 3) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2)Collect, Organize and Analyze Five-Year Census Data 3) Explanation and Publication of Data and Analysis
Property Values & Residential Develop-ment		1) Collect, Organize and Analyze Core Historical Data 2) Select Pairings Using Data 3) Explanation and Publication of Data and Analysis 4) Preparation of Del-phic Methodology 5) Begin Implementation of Delphic Methodology	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Complete Implementation of Delphic Methodology 4) Analysis of Delphic Data on Land and Housing Values 5) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Collect and Analyze Housing Value Data using Delphic Methodology 3) Explanation and Publication of Data and Analysis 4) Supplement Core Data Base
Special Studies			1) Design Special Study #1	1) Begin Special Study #1 2) Design Special Study #2	1) Complete Special Study #1 2) Begin Special Study #2 3) Design Special Study #3
Program Planning and Design/ Program Reporting (in addition to annual reports)	1) Expert Consultants Prepare Design Recommendations 2) Commission Establishes Design Principles 3) Complete Program Design				

Table 2: Pinelands Economic Monitoring Program: Projected Schedule of Activities for Second Five Years

	7/2000-6/2001	7/2001-6/2002	7/2002-6/2003	7/2003-6/2004	7/2004-6/2005
Municipal Finance	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3)Collect, Organize and Analyze Ten-Year Census Data	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis
Economic Growth	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2)Collect, Organize and Analyze Five-Year Census Data 3) Explanation and Publication of Data and Analysis
Property Values & Residential Develop-ment	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Collect and Analyze Land Value Data using Delphic Methodology 3) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 3) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base	1) Collect, Organize and Analyze Annual Data 2) Collect and Analyze Housing Value Data using Delphic Methodology 3) Explanation and Publication of Data and Analysis	1) Collect, Organize and Analyze Annual Data 2) Explanation and Publication of Data and Analysis 3) Supplement Core Data Base
Special Studies	1) Complete Special Study #2 2) Begin Special Study #3 3) Design Special Study #4	1) Complete Special Study #3 2) Begin Special Study #4 3) Design Special Study #5	1) Complete Special Study #4 2) Begin Special Study #5 3) Design Special Study #6	1) Complete Special Study #5 2) Begin Special Study #6 3) Design Special Study #7	1) Complete Special Study #6 2) Begin Special Study #7 3) Design Special Study #8
Program Planning and Design/ Program Reporting (in addition to annual reports)	1) Prepare and Issue First Summary Report 2) Adjust Program if Necessary				

Table 3: Pinelands Economic Monitoring Program Costs

	7/94-6/95	7/95-6/96	7/96-6/97	7/97-6/98	7/98-6/99	7/99-6/2000
Personnel	$4,700	$26,600	$66,000	$66,000	$65,000	$68,500
Supplies&Equipment	$100	$5,100	$32,500	$27,500	$32,000	$11,500
Professional Services	$10,900	$8,000	$65,000	$65,000	$60,000	$110,000
Other	$500	$1,500	$4,500	$5,500	$6,000	$6,500
Total	$16,200	$41,200	$168,000	$164,000	$163,000	$196,500

Note: FY95 Actual, FY96 Projected, FY97-01 Estimated

1) 7/94-6/95 costs are based upon a preliminary accounting of expenses incurred between September 14, 1994 (when the NPS Cooperative Agreement was executed) and June 30, 1995.

2) 7/95-6/96 costs represent projected expenses.

3) 7/96-6/2000 costs are estimated.

4) Personnel costs include data collection and entry, program administration, data analysis, direct project supervision and direct project support services. Benefit costs are estimated at 24.25% of salary costs.

5) Professional services reflect land and housing price indices utilizing the Delphic technique, continuing expert advice on program management, and consultant services to conduct special studies.

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Appendix A

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Appendix B: Variable List for Long Term Economic Monitoring Program

The Long Term Economic Monitoring Program develops and maintains a database designed to provide the Pinelands Commission and interested members of the public with information regarding the economic health of the Pinelands. This database will specifically focus on markets for real estate, the business climate, and municipal health. It is expected to provide information as to how the economy of the Pinelands region has changed over time. It can also inform the refinement of public policies regarding the Pinelands with respect to economic impacts.

The variables specified below will be the indices which form the database. The variables have been grouped into three broad issue areas: Property Values and Residential Development, Economic Growth, and Municipal Finance. These variables represent the "core" group of variables. Supplemental variable groups and special studies which are anticipated, are listed separately for each variable group (see below).

Descriptions of the variables below provide pertinent details regarding the acquisition, management and analysis of data for each variable. The chronological range, that is the time frame which the data collected will cover, will be different for different variables. For each of the three major groups of variables, an ideal chronological range is indicated. For each variable, a chronological range is indicated which describes the time frame for which the data can be practically collected as part of the initial data collection. The actual chronological range collected will, in all cases, be sufficient to discern trends. Additional historical data collection for the core variables may be included as supplementary data in the future, as determined by program needs and available resources.

In most cases, the analysis is oriented towards comparisons of the areas inside the Pinelands (the state regulated area) to areas outside of the Pinelands. The method by which this comparison will be made is described with each individual variable, or variable group.

Variable Name	**Description**
<u>Property Values and Residential Development</u> Property Values and Residential Development variables will be collected, where possible, 1972 through the most recent available. This group of variables measures the differences in values of housing and land in different areas of the region, as well as identifying trends in development pressures. (Real estate price indices will be 1991-present.)	
Building Permit Data	Building Permits measure the amount of pressure which exists to develop land. This data is collected by the New Jersey Department of Labor and available by municipality for 1980-1995 through the New Jersey State Data Center (SDC). Analysis will be based on the grouping methodology described for the Municipal Finance variables (below) and will be conducted for different types of buildings where available. Comparisons to the entire state will also be made.

Appendix B: Variable List

Variable Name	Description
Median Selling Prices of Homes	The New Jersey Department of Treasury collects data on home sales which is compiled into the "Usable Sales File." While this data does not contain any detail about the property sold, it does contain sufficient information to derive a median price for homes sold in each municipality in a given year. Data will be collected annually for the 202 municipalities of southern New Jersey and will be analyzed via the grouping methodology (described in the Municipal Finance section, below.
Volume of Real Estate Transactions	Based on the same data for deriving the median selling price of homes, the number of homes sold per municipality will also be collected. The method of collection and analysis which is described above will also be applied to this data.
Housing Price Indices	The monitoring of trends in housing prices is of primary interest. Price indices for housing will be generated by the use of a "Delphic Committee." The committee will consist of a team of expert appraisers familiar with the southern New Jersey region. A group of situations (e.g. three-bedroom house on a one acre lot in a low density area) will be identified within the Pinelands. For each situation, a comparable property outside the Pinelands will also be identified. The committee will be asked to appraise each of the situations. The committee's estimated values for each situation will be compiled to comprise a price index for housing inside and outside the Pinelands. The committee will be convened to derive a housing price index in FY 1998, and then every fourth year beginning in FY 2000. If possible, as determined by time and other resource requirements, the data collection cycle will be reduced to allow for more frequent data collection.
Land Price Indices	The Delphic method described above will be applied in a similar manner to establish price indices for land. The committee will be convened to derive a land price index in every fourth year, beginning in FY 1998. The frequency of data collection will be increased if possible, as described above.
Supplemental Data:	Based upon new information, evaluation of collected data, and special needs, as well as Commission resources, updated data regarding the percentage of vacant land in each municipality, and other variables as determined by need may be included in the future.

Appendix B: Variable List

Variable Name	Description
Special Studies:	Where data indicates divergence between trends in and outside the Pinelands, special studies will be conducted to help determine why. In addition, some areas have little data available and these may necessitate special studies. For example, an analysis of land and housing markets using actual sales data might be conducted, and others as determined by future needs

Appendix B: Variable List

Variable Name	Description
	Economic Growth
	Variables in the Economic Growth group are intended to address general economic trends and the health of business in the region. Economic Growth Variables will be collected, where possible and practical, 1970 through the most recent available. Results will be reported on an annual basis where possible. Method of analysis for these variables, in large part, is determined by data availability. For economic growth variables, the area of interest tends to be larger than individual municipalities (e.g. labor markets). Thus, a more appropriate method of comparison may be the portion of the county inside the Pinelands as opposed to the portion outside. Retail Sales, Number of Establishments, Employment, Employment by Major Sector, and Payroll data are available from the U.S. Bureau of the Census's Standard Statistical Establishment List[1] (SSEL) separately for the portions of the seven Pinelands counties which are inside the Pinelands and those which are outside, thus providing numbers for 15 separate "regions" (seven Pinelands counties in and out + Salem County). In this case, analysis will be the area of each county inside compared to that which is outside; this method is referred to below as "county in/out." For other variables, data is only available at the county level, and thus, only trends for each county may be examined; in this case, analysis is referred to below as being "by county." As noted below, two variables, Farmland Assessed Acreage and New Car Registrations, are available at the municipality level, and receive different treatment. In some cases, statewide comparisons are also useful.
Retail Sales	Gross Retail sales measures the amount of consumer activity in an area, thus trends for this variable contribute much information on the area's economic health. Data is expected to be acquired on a county in/out basis from the SSEL for 1991-1993. Data on this variable is also available from several other sources, and may be collected for earlier years at a later date.
Net Cash Return per Farm	This variable measures the net income of farmers from sale of crops. It is available by county from the Census of Agriculture, every five years. Data will initially be collected for the seven Pinelands counties for 1982, 1987, and 1992; data will be collected again when the 1997 Census of Agriculture becomes available, and subsequently, every five years. Comparisons among counties will take into account the percentage of each county's agricultural land which is inside the Pinelands.

[1] Standard Statistical Establishment List data will cost $2,000 for the initial data collection. Subsequent data collection will cost $1,500 per year.

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Variable Name	Description
Blueberry and Cranberry Production	The production of cranberries and blueberries is a critical component of Pinelands agriculture. Production of these crops in New Jersey is almost exclusively within the Pinelands. As a result, analysis can be restricted to statewide trends. Annual data on the value of utilized production for cranberries and blueberries will be obtained from N.J. Agricultural Statistics Service for 1972-1995.
Farmland Assessed Acreage by Municipality	This variable measures the amount of each municipality's area which is devoted to agricultural and horticultural use (this is composed of cropland harvested, cropland pastured, permanent pasture, appurtenant and non-appurtenant woodland). Thus, it provides a measure of agricultural activity at the municipality level. Data is compiled annually by New Jersey Department of Treasury. The report is available in paper form only (and thus requires data entry). 1986-1993 are available from the New Jersey Agricultural Statistics Service. Analysis will be conducted by aggregating municipality data up to provide county in/out trends.
Number of Establishments	The "Number of Establishments" refers to the number of places which have employees, and thus provides a measure of the stability of demand for labor. This data is expected to be acquired from the SSEL for 1989-1993 and analyzed on a county in/out basis. In the future, data for 1981-1988 may be acquired from a different Census Bureau database, Current Business Patterns.[2]
Payroll by Major Industry Sector	Payroll measures the total amount of wages paid, and thus is a measure of economic activity which compliments Employment and Number of Establishments. This data is expected to be acquired for 1989-1993 from the SSEL.
Employment	Employment is a basic measure of economic health. Employment data will be analyzed on a county in/out basis for total employment and employment broken down by major sector. Performing analysis at the major sector provides information regarding trends in the relative importance of each type of industry to the economic health of the area. Data is expected to be acquired for 1989-1993 from the SSEL. In the future, data for earlier years may be acquired from the New Jersey Department of Labor's Covered Employment database.

[2] Data from Current Business Patterns may be acquired at a cost of $300 for one year, $150 for each additional year.

Appendix B: Variable List

Variable Name	Description
Unemployment	Unemployment is the converse to employment, and provides a measure of the number of people out of work. Unemployment data has been acquired from the SDC for 1990-1995, and will be acquired for 1980-1989. SDC data is based on Current Population Survey (U.S. Bureau of the Census) estimates. Data will be aggregated so that it may be analyzed using the same county in/out basis applied to other Economic Growth Variables.
Income	Commission staff has acquired per capita personal income data by municipality for 1989 for use in calculating the comparison groups for the Municipal Finance variables. For observing trends, county level data for 1972-1993 will be acquired from the New Jersey Department of Labor. Analysis will be by county.
New Car Registrations	New Car Registrations provides a measure of consumer confidence and behaves as a leading indicator (a leading indictor is a variable whose behavior provides a good prediction of future behavior of other variables, such as more general economic indicators). R.L. Polk, Inc. can provide data at the municipality level. Analysis will be conducted using the same grouping methodology employed for Municipal Finance variables (below). Data will be acquired for seven counties, for 1991-1995[3]. Based upon our satisfaction with the usefulness of this data, a determination will be made whether to continue acquiring this data.
Supplemental Data:	Based upon new information, evaluation of collected data, and special needs, as well as available resources, the following variables may be included in the future: New Business Formation/Failures; and other Utility Hookup Data. Additional Agricultural Data is of particular interest, including Agricultural Acreage by Municipality, Non Farm Income, and possibly Agricultural Lending data. Other variables as determined by future needs.

[3] Acquisition of this data set will cost $2,390. Subsequent data collection will cost $1,125 per year.

Appendix B: Variable List

Variable Name	Description
Special Studies:	Where data indicates divergence between trends in and outside the Pinelands, special studies will be conducted to help determine why. In addition, some areas have little data available and these may necessitate special studies. Examples include: • Sand and Gravel Reserves • Specific Business Sector Surveys (e.g. location decisions) • The cost of development inside and outside Others as determined by future needs

Appendix B: Variable List

Variable Name	Description
	Municipal Finance As the economic well-being of local governments is of considerable public policy interest, this database will include data oriented towards deriving trends in the fiscal health of municipalities. Municipal Finance Variables will be collected, where possible and practical, from 1980 through the most recent available. (In some cases, this will require significant data entry.) Data from 1972-1980 may be collected later, where possible. Cook College has constructed a database in electronic form which contains many of our Municipal Finance variables for 1980 and 1990, to which access has been requested. Data will be collected annually at the municipality level for 202 municipalities of the eight southern New Jersey counties. Analysis of the Municipal Finance variables will be conducted on several groups of "comparable municipalities" inside and outside of the Pinelands Area. These groups will be constructed following data collection, and, for example, may be comprised of five or ten municipalities inside and a similar number outside. Municipalities will be grouped on the basis of population density, per capita income, percentage of land vacant, and a measure of proximity to transportation networks (which will be measured either by distance to major roads or to employment centers); other criteria, such as management area designation (and similar environment for outside municipalities), and other pertinent variables will be taken into consideration in grouping municipalities, as well. The variables necessary to grouping of municipalities will be collected as part of the regular data collection process. For the purpose of consistency of analysis, these groupings will be maintained in future analyses. Additional groupings may also be constructed in the future as municipalities diverge from the criteria which set the original groupings.
Tax Collection Rate	Tax Collection Rate is the ratio of the taxes actually collected to the taxes billed. It provides a measure of the municipality's ability to collect the revenues it anticipates and the financial well-being of its citizens. Tax Collection Rates for municipalities are available from New Jersey Department of Community Affairs (DCA) for 1980-1992 in paper form (which requires data entry) and for 1993 and 1994 in electronic form. Tax Collection Rate is in the Cook College database.
Assessment Class Weights in Municipal Tax Revenues	The relative percentage of the different assessment classes (e.g. commercial, residential, vacant land, etc.) in the tax revenue of each municipality provides measurement of the reliance of the municipality on different types of land use for tax revenues. This data is compiled in paper form by the New Jersey Department of Treasury from 1984-1994. It is also in the Cook College database.

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Variable Name	Description
Municipal Expenditures by Type Per Capita	Total municipal expenditures, and breakdowns of the total by major expenditure categories, measure the levels of services provided by the municipality (e.g. public safety, public works, recreation). Measurement on a per capita basis allows comparisons between municipalities of different population size. This data is compiled by DCA and available in paper form from 1980-1986 and electronic form from 1986-1993. It is also in the Cook College database.
Municipal Expenditures per Household and relative to Household Income.	Measurement of the municipality's expenditures relative to the number of households and the income of each household provides an alternative view of municipal expenditures. This variable is derived from other variables in this database.
Average Residential Property Tax Bill	The average residential property tax bill measures the impact of property taxes on residents of the municipality. Analysis of this variable will consider it both as an absolute number, and relative to the median family income of the municipality. The variable is available from the New Jersey Department of Treasury in paper form from 1984-1994. It is also in the Cook College database. Earlier years will be acquired as available.
Equalized Property Value	Equalized property value is the total assessed value of all property in the municipality (equalized to adjust for different assessment bias of each municipality, so that all the municipalities in New Jersey are comparable to each other). It is valuable as a measurement of the wealth of a municipality relative to other municipalities. This data is compiled in paper form by the NJ Department of Treasury for 1984-1994. It is also in the Cook College database. Earlier years will be acquired as available.
Effective Tax Rate	The effective tax rate is the rate at which the municipality taxes the (equalized) assessed value of property. (It is the general property tax rate adjusted by the state's equalization ratio.) Each specific purpose tax rate (local purpose, schools, county, special district, etc.), will also be included. These are available from DCA in electronic form for 1987-1991, and in paper 1969-1986. Collection range will include 1980-1991. It is also included in the Cook College database.

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Variable Name	Description
Demographics: Age Distribution	The age distribution of the population within each municipality provides some determination of the demand for services and the ability of the population to withstand changes in tax rates. (The elderly and the young tend to demand more services than the working-age population cohort. The elderly are particularly sensitive to property tax increases because they tend to rely on fixed income sources, such as pensions, and their income is often much smaller relative to their property wealth than for working age people.) This data is available from the U.S. Census of Housing and Population on a decennial basis. 1980 and 1990 data will be collected for each of the 202 municipalities of southern New Jersey. Data from the 2000 Census will be added when it becomes available. The analysis will note geographical concentrations of age cohorts. The stability of this variable over time makes more frequent data collection unnecessary.
Population	The most important measure of demand for municipal services is population size. The size of the population of each municipality in southern New Jersey will be collected for 1980 and 1990 from the U.S. Census of Housing and Population. Commission staff has already acquired SDC estimates for each municipality for 1991-1994 based on the 1990 Census. SDC population estimates will be collected on an annual basis, and will be updated by data from the 2000 Census when it becomes available.
Supplemental Data:	Based upon new information, evaluation of collected data, and special needs, as well as Commission resources, the following variables may be included in the future: Average Equalized Vacant Land Assessments; other sources of local government revenues; and others as determined by future needs.

Appendix B: Variable List

Variable Name	Description
Special Studies:	Where data indicates divergence between trends in and outside the Pinelands, special studies will be conducted to help determine why. In addition, some areas have little data available and these may necessitate special studies. Examples include: • Average Cost of Public Services in Growth Areas • Education Data (school enrollments, expenditure per pupil), which is important to understanding of municipal expenditure behavior, but is difficult to evaluate on a municipal level as a result of regionalization. A special study of education data is, thus, a more appropriate approach. Others as determined by future needs