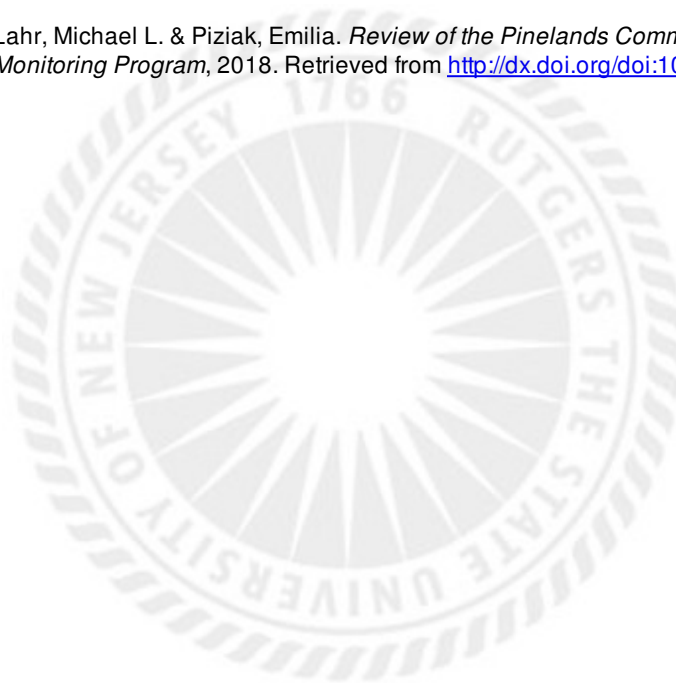


Review of the Pinelands Commission's Long-term Economic Monitoring Program

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Review of the Pinelands Commission's Long-term Economic Monitoring Program

Presented to

The New Jersey Pinelands Commission

15 Springfield Rd
Pemberton, NJ 08068

May 4, 2018

by

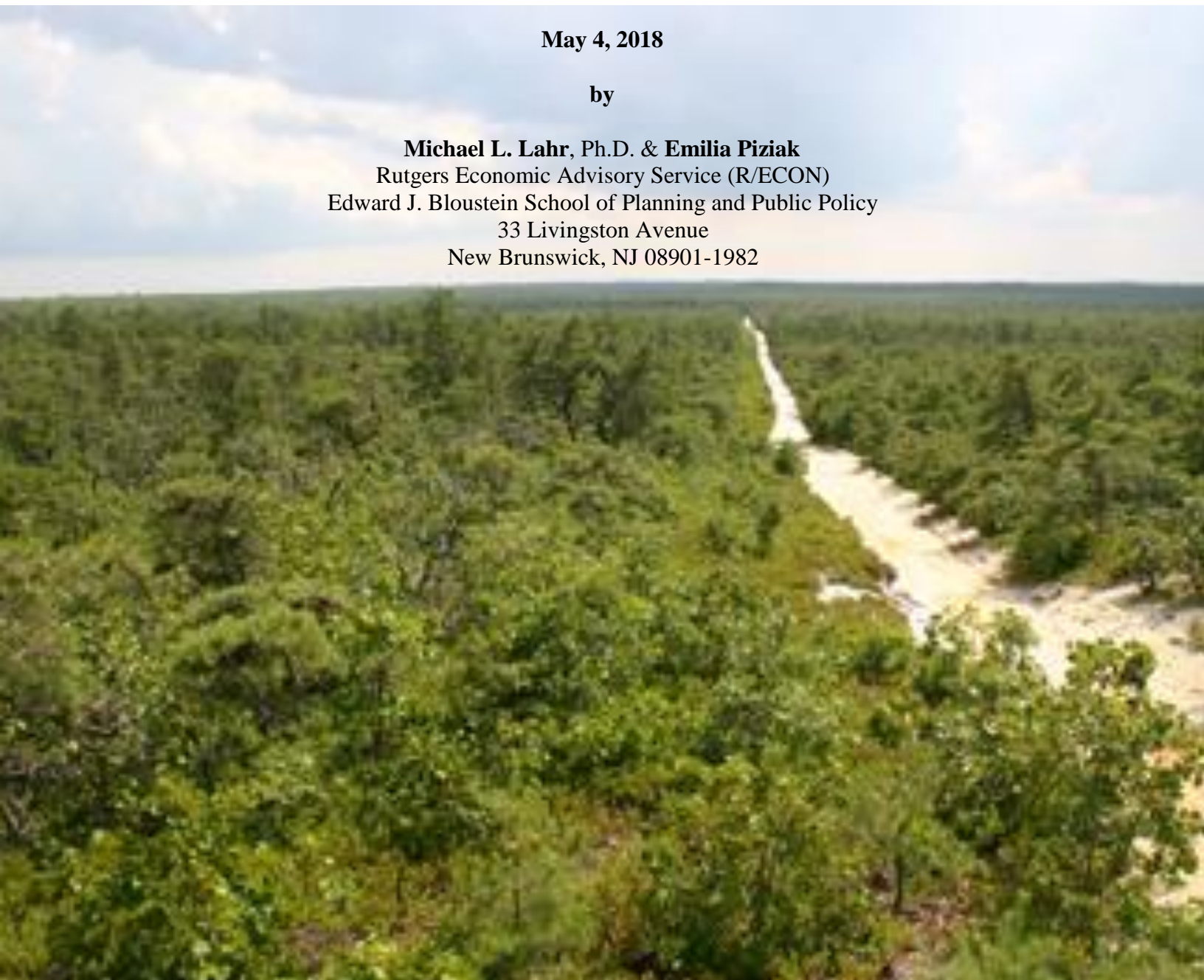
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EXECUTIVE SUMMARY

This study evaluates the Pinelands Commission's Long-Term Economic Monitoring Program (LTEM). Discussions by two *ad hoc* groups—one of users of the LTEM reports and another of potential data providers—inform it. The agenda of the evaluation is four-pronged:

- 1) to examine the suitability of the current set of LTEM indicators;
- 2) to appraise the existing LTEM approach;
- 3) to recommend changes in LTEM reporting; and
- 4) to identify future special study topics.

Indicator Selection

In addition to the 22 indicators now included as part of the LTEM, more than 40 other indicators are suggested as worth including as part of the program. Each has an economics rationale vis-a-vis development in the Pinelands tied to it. Given the cacophony of indicators now available and the ease of accessing them from public and private data providers, however, other criteria are also important. One is the time lag between the valid date of the indicators and the date they are released. Another is the frequency of the release of the data—some are released monthly, some quarterly, some annually, some every five years, and some only every ten years. The thought is that some priority should be given to indicators that more immediately describe aspects of development in the Pinelands, even if they are not ideal.

Indicator Evaluation

The comparative geography used in the LTEM passed muster. In essence, while imperfect, no better comparative geography exists. This is because it has no true peer. Nearly all other public land reserves, preserves, conservation areas, wildernesses, and wild lands of even a quarter the size of the Pinelands Reserve are somewhat more remote from concentrations of population and, hence, pressures of urbanization. Even development pressures in the New Jersey Highlands are shown to be substantially different.

Based on the objectives of the LTEM, its indicators should focus on detection of (a) land use changes in either a more- or a less-intensive direction, (b) changes in property prices and property tax rates, and (c) changes in governmental charge/tax rates. Given this backdrop, a key study finding is that the LTEM should focus on the following ten indicators:

Ten Focal Indicators

Certificates of occupancy;
Average home price;
Ratio of land to improvement value
Volume of real estate transactions;
Permits issued for alterations/additions;
Effective property tax
Equalized property value per acre;
Per capita spending by municipalities;
Residential housing permits; and
Value of construction permitted

This means that indicators long reported by the LTEM—e.g., population, poverty rates, household size, school quality, unemployment rate, and employment by industry—are not so important. Rather,

they inform underlying causes of changes in property prices, property tax rates, and land use intensity not due to interventions by the Pinelands Commission.

Indicator Reporting

Generally speaking the LTEM *Annual Report* and *Municipal Fact Book* have been well received by users. They particularly liked the visuals and tables, insofar as they valued the particular indicators. With improved internet access, some of the historic numbers need not be repeated in each issue, however. But improvements could be made via changes in reporting frequency, added indicators, and some minor tweaks to some of the metrics by indicator.

In terms of reporting, four separate reports are suggested. They are largely based on the periodicity of the indicators. The most frequent of them, which could be released monthly or quarterly, would strictly be made available online, would include just six indicators: Certificates of occupancy, Residential mortgage foreclosures, permits issued for alterations/additions, Residential housing permits, Value of construction permitted, and Demolition permits. It could also be readily accompanied by results of Delphi investigations with local real estate professionals and government officials.

The second would be a revised version of the current annual report, with a much-expanded *Municipal Fact Book*. A ranked list of the pertinent measures is presented in Table 4 in the main body of the text.

The other two recommended reports would separately include key indicators published in the quinquennial *Economic Census* and the decennial *Census of Population and Housing*. The thought here is that, once posted online or made available at key public points like libraries and town halls, the material therein need no longer be reported annually.

In summary, the availability and accessibility of data have changed markedly since the LTEM started. Not only has the number of state-based sources sky-rocketed, but some federal sources have changed as well, most notably the *American Community Survey*. A main implication to LTEM is that more data on property values, municipal finances, and permit issuance are readily available and other indicators on municipalities are available annually. So, while the geographies at which evaluations should take place need not change, the focus of the analysis of indicators should.

Special Studies

Finally, the LTEM users identified seven core topics of special study on which they would like more information. The contents of them as well as the advantages and disadvantages of each are described in the main body of the report. In ranked order they are:

1. Tourism (ecotourism/agrotourism);
2. Spending patterns in the Pinelands;
3. Relative costs of doing business;
4. Natural capital;
5. Value/feasibility of fast passenger rail service;
6. Municipal fiscal stress index & public services; and
7. Quality of life (QOL) comparative study.

REVIEW OF THE PINELANDS COMMISSION'S LONG-TERM ECONOMIC MONITORING PROGRAM

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BACKGROUND

The overriding goals of the Pinelands Commission are to preserve, protect, and enhance land and water resources of the Pinelands. A contiguous tract of land in its natural state has been deemed critical to safeguarding the character of the region as well as for protecting the quality of the surface and ground water. In this vein the Commission is to promote compatible agricultural and recreational uses and to encourage appropriate residential, commercial, and industrial patterns of development.

From the outset, it was a purpose of the Pinelands Commission to keep landowners, residents and businesses in the Pinelands region engaged. Thus, to encourage “appropriate development” the Commission was to monitor local regulations on land values and real estate markets, as well as track local government finances and the viability of area businesses, including farms. A number of studies by the Pinelands Commission have addressed these issues, most recently the *1996 Long-Term Economic Monitoring Program (Prospectus)*. It is the purpose of this report to revisit the design of the economic monitoring program and the manner in which it is reported.

Specifically, the Pinelands Commission engaged Rutgers University in mid-September 2017 to evaluate the Long-Term Economic Monitoring Program (LTEM). The process was informed by two *ad hoc* meetings—one of users of the LTEM reports and another of potential data providers. Based on the outcomes of those meetings the Pinelands Commission asked the Rutgers team to:

- A. Assess the suitability of the current set of LTEM indicators and recommend modifications;
- B. Evaluate the existing approach used in the course of the LTEM in meeting Commission objectives and recommend modifications;
- C. Recommend changes in LTEM reporting, including reporting frequency and means of accessing the reports. Such recommendations are to be couched assuming that at least some aspects of the report will be transitioned to an interactive, online format and with an eye toward making information in the reports more accessible and practical to users; and
- D. Identify future special study topics.

The following reports the findings of that evaluation and investigation.

A. CORE ECONOMIC INDICATOR SELECTION

At a meeting on August 9, 2017, there was general agreement among LTEM report users attending that the core set of indicators used by the Long-Term Economic Monitoring (LTEM) Program remained quite informative. Given improved data availability and the general decrease in access costs to datasets, however, the consensus was that the set of indicators for the LTEM could be improved through selected modifications. They suggested that the objectives of the program could be better served by

- 1) broadening the set of indicators included in the LTEM,
- 2) making the indicators available online as a database via something like a spreadsheet, and
- 3) increasing the frequency with which the indicators are updated and made publicly available.

The following is an overview of the recommended changes. They are accompanied by reasons for the suggested modifications. In charts that follow, Table 1 identifies the sources and geography for the current set of LTEM indicators. Table 2 shows similar information on those mentioned in the course of the two meetings that supported the findings of this report—one of LTEM report users and the other of public data providers.

Population

The set of variables on population is designed to help users get a sense of the character of the inhabitants of the municipalities in the Pinelands. Of course, it is also meant to be used for tracking the population growth within the Pinelands and for contrasting the character of that growth against that of nearby municipalities. This battery of indicators is not strictly population-based, however. In fact, they are perhaps better described as a set of *socio-demographic* variables. The core variables used to date are population, population change, median age, and the poverty rate. Population has been provided at both municipal and census block levels. Most of the indicators have been available only through the U.S. decennial census, although population and population change exist and have been published by the LTEM on an annual basis as well.

The main modifications suggested in this topical area include the addition of several indicators that have become available only within the last ten years and that capture economically significant characteristics of population. In particular, the availability of five-year estimates of the U.S. Census Bureau's *American Community Survey* (ACS) now makes many indicators—both

those currently in the LTEM as well as those suggested in the course of this study—available on an annual basis. The five-year estimates enable large sample sizes to provide counts of populations and other socio-demographic characteristics for most New Jersey municipalities.

The Public Users suggested the removal of one variable, median age. While median age has value, the group determined that it could be replaced by more useful alternatives. In particular, they contended that it would be more useful to track three different groups of, so-called, “**dependent populations:**” *preschoolers*, i.e., children less than 6 years old; *school-aged students*, i.e., children between 6 and 18 years old; and *retirees*, i.e. people over 65 years old. These groups along with the *working-age population*—over 18 years old and up to 65-years old—define populations by the types of demands they place on local government services. These could be collected annually for municipalities from the 5-year ACS.

Median household size. ACS data divides population data into family and nonfamily person-per-household counts. Related to household size, ACS measures of *housing occupants per room* and *children in poverty* would provide an understanding of household struggles with crowding and fiscal stress.

Education. The Public Users also suggested that indicators of the education of inhabitants would be useful. *School enrollment*, which can be obtained from either the state’s Department of Education or directly from school district records, would signify trends of growth or decline within Pinelands municipalities. Level of *educational attainment* from the ACS would provide a sense of labor capacity. In the ACS survey participants with more than an associate’s degree also report their *field of study*—an indicator suggested by one Public User for getting a sense of the peculiar character of college graduates living within the Pinelands. However, it is not clear that this ACS variable is available by municipality.

Real Estate

The body of suggested expansions for real estate indicators concentrate on data associated with changes in land use and property values. The suggested data are available from a variety of state-based sources: New Jersey’s Department of Community Affairs (DCA) and Department of the Treasury, Department Banking & Insurance (DBI), and State Agriculture Development Committee (SADC), as well as from the Pinelands Development Credit Rights Bank.

Presently the set of indicators pertaining to real estate and land use—without direct bearing on fiscal revenues—includes the number of residential units for which building permits were issued, number of homes sold, the average value of homes sold, assessed farmland acreage, acres of land in farming, and number of farms. Granted, residential and farm uses are primary uses within the Pinelands. Still, the structure of land use is much more complex than this and the wealth of data on this subject is much richer. In fact, the most vocal members of the Public Users group were individuals with strong interests in Pinelands real estate and any costs related to its further development.

New Jersey DCA uploads reports of *monthly building permit issuance* by municipality and permit type. It reports both square feet and dollars of construction permits authorized for both residential and nonresidential properties. Residential is broken out into (1) one- and two-family and (2) multifamily. Nonresidential has ten subcategories: (1) hotels, motels, and guest houses; (2) commercial assembly; (3) business/office; (4) education; (5) hazardous uses; (6) industrial; (7) institutional; (8) retail; (9) storage; and (10) signs, fences, and miscellaneous. Alone, these give a more complete sense of the character of prospective land use change. But they can be combined at the municipal level to construct a ratio of land value to improvements that is essentially a land utilization intensity index. All of this would be helpful in assessing real estate change.

The N.J. Department of the Treasury allows public access to various assessment datasets. Among them *property sales* by use, *net property value added*, *vacant lots*, and *tax liens*. These indicators, along with *residential mortgage foreclosure* figures from the N.J. Department Banking & Insurance, allow a broader understanding of municipal fiscal stress.

At some cost (although other state offices like New Jersey Economic Development Authority may have access), data on commercial sales and rental rates are available from CoStar, a firm that provides information, analytics and marketing services to the multifamily and commercial real estate industry. Just tracking the number of existing building sales available, rental rates and sales prices per square foot by class of property would be of prime interest, but such data as the space embodied in construction starts, sales volumes, annual amount of space absorbed, and changes in the vacancy rate also can be extracted from a CoStar's database for a specified area.

Land use changes, particularly in regard to farmland preservation, can be monitored using the annual reports by the Pinelands Development Credit Rights Bank and the N.J. SADC. The

breakdowns of the data by municipality and management area make it possible to mark where transfers of development rights signal stable future environmental health within the Pinelands.

Economy

The core economic indicators are presently unemployment, employment, payroll, and number of establishments. Unless the Pinelands Commission can get more regular updates than they presently do from N.J. Department of Labor it is unlikely that these indicators, which are publicly available on a monthly basis for counties only, can be enhanced beyond the annual reporting now performed. Although the ACS does yield annual, rather than just decennial, data on per capita income. Still, some other data sources have become available in recent years, and it would be good for the Pinelands Commission to exploit them if they can yield worthwhile indicators.

In particular, there are indicators that describe local employment dynamics and finer details on private-sector employment. Both could make sound additions to this topical area. Commuting characteristics and employment type are helpful in establishing trends and in marking key employment centers.

The ACS provides data on *journey-to-work* commutes that include *aggregate travel times*, *means of transport*, and within-county versus out-of-county categories. Employment figures are also available via the ACS that can make distinctions of *full- or part-time employment*, *self-employment*, and *home-based businesses*. The self-employed are also identified annually more officially as “proprietors” through county-level data made available only by the U.S. Bureau of Economic Analysis (BEA).

Given that the Pinelands are home to many Atlantic City casino workers, it is probably worthwhile to monitor *casino revenues*, which are publicly available from the NJ Division of Gaming Enforcement. *Casino employment by municipality* of residence, while potentially sensitive, could be requested by the Pinelands Commission and made available from the New Jersey Casino Control Commission.

LEHD Origin-Destination Employment Statistics (LODES) datasets can deliver longitudinal estimates down to the census block level for New Jersey that include origin-destination, residence area, and workplace area characteristics data that can assist in developing a better understanding of local employment trends. Like some of the other data already discussed above, a special request would be required from the Pinelands Commission as was the case for similar information released in a recent report performed for the New Jersey Highlands Council.

Beyond the core, indicators of the Pinelands economy currently used pertain to retail trade and farming. Many of them—retail sales, land in farming, number of farms, average farm size, agricultural sales, net cash income for farms, net cash income per farm, and number of farms with losses—tend to be available only through the quinquennial U.S. Economic Census as collected by the U.S. Department of Agriculture (USDA). In fact, in most cases, the data can be collected only at the county level, disabling direct contrasts of areas inside of the Pinelands to those outside. Presently an exception remains in the case of retail sales, for which information is available for “economic places”—recognized geographic localities with more than 2,500 inhabitants and more than 2,500 jobs. In addition to these indicators from the Economic Census, annual municipal-level data are available from the N.J. Department of the Treasury on the assessed acreage of farmland, and state-level data are available from the USDA’s National Agricultural Statistical Service (NASS) on cranberry and blueberry production. While the NASS data appears to be problematic due to their geographic focus, the fact of the matter is that nearly all of the state’s blueberry and cranberry production occurs in the Pinelands.

Only one other available indicator of this sort was believed to be of value—*farm-related forest product income*. This is a line item in NASS’s census of farms, and possibly readily available only by county. But indications were, during the conduct of the Expert Panel meeting at NJ DEP building in Trenton on October 30, 2017, that NASS could provide these as well as other NASS provided indicators (essentially all of those on farms and farming in the Economic Census) with aggregations that at least enable contrasts of trends within the Pinelands to goings on outside of them. Similarly, inquiries to the State and U.S. Forest Service, from which no representatives were present at the Expert Panel meeting, could yield periodic information on the volumes of forestry and forestry management plans. A request from the Pinelands Commission would be needed.

The Expert Panel identified two other indicators hotel/motel occupancy tax and visitation to state parks and forests. Both were suggested as ways to tap into a sense of tourism trends within the Pinelands. The prior are published online for counties on a monthly basis by the N.J. Department of Treasury’s Division of Taxation. The set of establishments making such remittances are listed at <http://www.state.nj.us/treasury/taxation/hotelfeeinfo.shtml>. A representative of NJ’s Treasury suggested that such data likely could be made available to enable contrasts of trends between the Pinelands and non-Pinelands establishments within the study area, if not at the municipal level. Obtaining information on visitation to state park and forests would be less easy, however, as it is

based on scant survey data. Still, an Expert Panel representative from NJ DEP, which collects the data on parks and forests within the state, thought it would be worth a try. A request from the Pinelands Commission would be needed, however.

Municipal Finance

As with real estate in the case of the core indicators on the economy, a set of indicators on public services expands, and provides some balance to, the set of indicators on municipal finance. That is, higher-than-average taxes can be a good thing if the set of services enable a relatively better residential quality of life and/or business environment within the local area. Further, such indicators can help to identify municipalities that may be struggling with infrastructure and service capacity issues.

Service provision adds dimension to information on property taxes and state aid, which have traditionally been reported through the LTEM. The current set of indicators include the average residential property tax bill, state equalized valuation, effective tax rates, land use shares (vacant land, residential, farmland, commercial, industrial, and apartment), municipal revenues by source (own, miscellaneous, state aid), municipal budget, municipal spending per capita, and state aid per capita.

The N.J. Department of Environmental Protection (DEP) reports current data on both *water systems and treatment plant capacities*. These figures measure water pumping deficits and surpluses in addition to sewerage processing scales. Spotting municipalities with apparent under- and over-utilization can help to identify outliers that could be having trouble supplying adequate service to area households.

Transportation infrastructure improvements are another important economic indicator for regional investments: the Delaware Valley Regional Planning Commission (DVRPC) provides information on county-level improvements through its Transportation Improvement Program. These items are geocoded, so without too much trouble these investments could be allocated to area municipalities. In the cases of Atlantic, Cape May, Salem and Cumberland counties, the South Jersey Transportation Planning Organization (SJTPO) annually publishes data for municipalities. Both institutions undoubtedly maintain their databases on a continual basis.

School quality data are available annually through the NJ Department of Education School Performance Reports. Among these data, *share of students taking the SAT*, *SAT scores*, and *graduation rates* are likely of particular interest.

Table 1: Core Indicators Currently Collected by the LTEM Program

Topic	Indicator Name	Data Source	Availability	Level of Geography
Population	Municipal Populations	US Census	Decennial	Municipality
	Census Block Population	US Census	Decennial	Census Block
	Median Age	U.S. Census/ESRI	Decennial/Annual	Municipality/ Block Group
	Population Estimates	NJ Dept. Labor	Annual	Municipality
Real Estate	Res. Units Permits	NJ Dept. Labor	Annual	Municipality
	Average Home Price	NJ Dept. Treasury	Annual	Municipality/ Block-Lot
	Volume of Real Estate Transactions	NJ Dept. Treasury	Annual	Municipality Point
Economy	Per Capita Income	NJ Dept. of Labor/ESRI	Decennial/Annual	Municipality/ Block Group
	Unemployment Rate	NJ Dept. Labor	Annual	Municipality
	Private Sector Employment	NJ Dept. Labor	Annual	Municipality
	Private Sector Establishments	NJ Dept. Labor	Annual	Municipality
	Private Sector Wages	NJ Dept. Labor	Annual	Municipality
	Retail Estabs. & Per Capita Sales	US Economic Census	Quinquennial	Municipality
	Farmland Assessed Acreage	NJ Dept. Treasury	Annual	Municipality
	Land in Farming, Number of Farms, Avg. Farming Size	USDA – Agricultural Census	Quinquennial	County
	Avg. Sales, Net Cash Income, Net Cash Income per Farm	USDA – Agricultural Census	Quinquennial	County
	Blueberry Volume, Value & Prices	USDA NASS	Annual	State
	Cranberry Volume, Value, and Prices	USDA NASS	Annual	State
Municipal Finance	Average Residential Property Tax Bill	NJ DCA	Annual	Municipality
	Equalized Property Value	NJ DCA	Annual	Municipality
	Effective Tax Rate	NJ Dept. Treasury	Annual	Municipality
	Assessment Class Proportions	NJ DCA	Annual	Municipality
	Municipal Budget, Revenues, State Aid	NJ DCA	Annual	Municipality

Table 2: Recommendations for LTEM Program Indicators

Topic	Indicator Name	Data Source	Addition/ Removal	Availability	Level of Geography	Economic Significance
Population	Municipal Populations	ACS	Addition	Annual (5-year est)	Municipality	Dependent populations (children less than 6, school-aged children, retirees) define the demand for public services
	Block Group Population	ACS	Addition	Annual (5-year est)	Block group	
	Population Estimates	ACS	Addition	Annual (5-year est)	Block group	
	Median Age	U.S. Census/ESRI	Removal	Decennial/Annual	Municipality	Not as informative or valuable as alternative measures
	Median Household Size	ACS	Addition	Annual (5-year est)	Block group	Family & non-family person-per-household counts contribute to the stress marker of crowded housing
	Crowded housing	ACS	Addition	Annual (5-year est)	Block group	
	Children in Poverty	ACS	Addition	Annual (5-year est)	Block group	Related to the measure of household fiscal stress
	Educational Attainment	ACS	Addition	Annual (5-year est)	Block group	District growth/decline; signals labor capacity; occup. potential of the college grad pool
Real Estate	Permits for Housing	NJ DCA	Addition	Monthly	Municipality	Indicate prospective development & land use change
	Value of Construction Permits, includes Additions&Alterations	NJ DCA	Addition	Monthly	Municipality	
	Certs of Occupancy	NJ DCA	Addition	Monthly	Municipality	
	Demolition permits	NJ DCA	Addition	Monthly	Municipality	
	Sales Categorized by Use	NJ Division of Taxation	Addition	Annual	Block group/Lot	Measures linked to indicators of municipal fiscal stress
	Value Added	NJ Treasury	Addition	Annual	Municipality/Block Group/Lot	
	Vacant Lots	NJ Division of Taxation	Addition	Monthly	Block group/Lot	
	Tax Sales	NJ Treasury	Addition	Annual	Block group/Lot	
	Residential Mortgage Foreclosures	NJ Dept. Banking & Insurance	Addition	Monthly (~ 9 month lag)	Municipality	Measures linked to indicators of municipal fiscal stress
	Ratio of land value to improvements	NJ DCA	Addition	Annual	Municipality	Assesses development pressures
	Pinelands Dev. Credits	Pinelands DCB	Addition	Annual	Municipality/Management Area	A mark of development pressures and environmental stability
	Farmland Preserved	NJ SADC	Addition	Annual	Municipality	

Topic	Indicator Name	Data Source	Addition/ Removal	Availability	Level of Geography	Economic Significance
Economy	Per Capita Income	ACS	Addition	Annual (5-year est)	Block group	Tracks spending power or residents
	Self-Employment	ACS	Addition	Annual (5-year est)	Block group	Job information on residents
	Local Employment Dynamics	US Census LHED OnTheMap	Addition	Longitudinal estimates	Census block	Indicate area employment patterns
	Wages by Industry	NJ Dept. Labor	Addition	Annual	Municipality	
	Full- /Part-time emp	ACS	Addition	Annual (5-year est)	Block group	
	Journey-to-Work	ACS	Addition	Annual (5-year est)	Census tract	Shows where residents work; changes in congestion.
	Casino Revenue Casino Employment	NJ Div. of Gaming Enforce.	Addition	Monthly	Establishment	Indicates trends of major employer for Pinelands residents
<i>Tourism-related</i>	County Hotel/Motel Occupancy Tax	NJ Dept. Treasury	Addition	Monthly	County	Occupancy taxes are an indication of the status of the tourism in the Pinelands
	Visitation Rates to State Parks & Forests	NJ DEP, Div. of Parks & Forestry	Addition	Annual	Park & Forest	Visitation rates mark the level of tourism attraction for the Pinelands
<i>Farming-Related</i>	Total Assessed Value of Farmland	NJ Dept. Taxation, Statistical Data Farmland/FEC	Addition	Annual	Municipality	Aggregations can enable contrasts of trends inside and outside of the Pinelands
	Farm-related Forest Product Income	USDA NASS	Addition	Quinquennial	County	
Municipal Finance	Per Capita Spending	NJ DCA	Addition	Annual	Municipality	Indicates municipal fiscal stress
	Water System Deficit/Surplus	NJ DEP, Div. of Water Supply & Geoscience	Addition	Monthly	Municipality	Indicates when use of municipal infrastructure is near capacity
	Treatment Plant Capacity	NJ DEP (Capacity Assurance Prog)	Addition	12-consecutive month data	County Treatment Plant	
	Transportation Improvements	DVRPC TIP/ SJTPO TIP	Addition	Annual	County/Municipality	Measure of regional investment & development
	School Quality	NJ Dept. of Educ: School Perform. Reports	Addition	Annual	School district	An alternative reason for why property values might rise

B. CORE ECONOMIC INDICATOR EVALUATION

Background and Context

The last section detailed the 22 existing indicators, critiqued them where pertinent, and identified others that could be useful. Here we examine the nature of the method that the Pinelands Commission employs in the course of LTEM reporting, specifically reserving a discussion of the frequency of reporting for a later section. This section will also not elaborate on a transition to interactive reporting, although the methods discussed keep that in mind.

The goals and principal objectives of the LTEM have been laid out in the first couple of pages of what has become known as the *1996 Long-Term Economic Monitoring Program (Prospectus)* (NJ Pinelands Commission, 1996). Its fundamental goal is (p. 1) “*to continually evaluate the health of the economy of the Pinelands region in an objective and reliable way.*” In achieving this goal the LTEM should (p. 2):

- Support analysis that is impartial and objective;
- Be cost-effective so that it can be sustained over the long haul;
- Address key segments of the economy;
- Enable comparisons of those segments with other “similar” N.J.-based areas;
- Facilitate comparisons of the segments over time so that Pinelands trends can be distinguished from state and national trends; and
- Assure that special topics are identified and analyzed periodically.

An objective of the federal legislation that set up the Pinelands and, hence, the Commission is to direct new development into environmentally suitable areas within or near the Pinelands. That is, it is the purview of the Commission to discourage haphazard, uncoordinated development activities that could threaten the ecosystem of the Pinelands. It is also clear that it is to encourage growth nodes with higher development densities with a broad range of housing types, strong construction economies, and mass transit. But all of this is to be done while respecting existing local goals of residents and the ever-changing business environment. Development areas are, nonetheless, to be limited spatially to avoid detrimental ecological impacts.

Geographically limited development has drawbacks. It can force rises in costs of housing and of doing business. Part of this is due to some elaborate process for obtaining permission to further develop a property that is necessarily tagged on to the usual process—at least the addition

of a review by a representative of the Pinelands Commission. But preservation of the Pinelands can force the addition of other costs, such as added private and public infrastructure for transportation, waste management, waste-water treatment, and storm-water run-off; public monitoring of air and water quality; and inspections to assure compliance with any permitted land-use variances.

By virtue of disabling the supply of developable land, establishment of a land preserve can also cause prices of developable plots to rise. But the *1996 Prospectus* admits that insofar as the Pinelands *Comprehensive Master Plan* reinforces previously existing development patterns, price effects are likely to be limited to speculative value ventures. The *1996 Prospectus* further recognizes that through allocation of land-use preservation, residential land values within or close to the Pinelands could rise through the addition of that amenity. The *1996 Prospectus* also acknowledges that owing to assured isolation and the higher costs of development deflationary effects on property value could also adhere, due to such factors as declining job markets.

Although it was not explicitly made evident in the content of the report, the *Prospectus* essentially followed the above logic to support a suggested set of indicators (in its Appendix B) to collect on a regular basis. It should be noted, however, the *Prospectus* advises monitoring property prices via a Delphi approach—essentially by being informed by key members of the local real estate industry.

Evaluation of comparative geography

Any geography is necessarily imperfect for the comparative purposes of the LTEM. That is, the geographies that currently are used within the LTEM are the best available for comparing simple indicators of development in and around the Pinelands. This is particularly the case given that the New Jersey Pinelands Reserve is not only ecologically unique but is also an elder statesman among preserved lands and is couched within highly developed regions. That is, it truly has no peer. Nearly all other public land reserves, preserves, conservation areas, wildernesses, and wild lands of even a quarter their size are somewhat more remote from concentrations of population and, hence, pressures of urbanization.

Let us examine the case for the New Jersey's Highlands, which at first blush appears to be a relevant comparison. They too are adjacent to a highly developed region—northern New Jersey, which lies to their east. Indeed, an argument could be made that northern New Jersey is a more-

intense equivalent of the developments adjacent to the west of the Pinelands, which emanate from urbanized areas of the Philadelphia metropolitan area. But the lands on western and northern borders of the Highlands are almost equally as undeveloped as the Highlands themselves. That is, the New Jersey Highlands have no equivalent source of development pressure from other directions like the Pinelands receive from coastal developments of New Jersey. In terms of acreage, the Highlands also do not dominate northern New Jersey as do the Pinelands in the state's south.

Evaluation of indicators

So how good is the LTEM at achieving the goals of the Pinelands? The sets of LTEM indicators, both those originally suggested and currently used, give a broad perspective of the relative status of land use and economic development within the Pinelands. Some of the indicators do not directly measure development at all, however. Part of the reason for this is due to the LTEM objective that the monitoring be cost-effective: *The Prospectus* does this from a perspective of the year 1996. Most federal data then were available online, but only some data items could be extracted from online sources from offices of the State of New Jersey. Moreover, new techniques, such as application programming interfaces (APIs), are now available that make some information retrieval almost effortless, once routinized. In addition, some data in current LTEM reports are available with a greater than annual frequency. The point being made here is that more can be done with less effort than was estimated in the 1996 *Prospectus*.

Issues of data recency and of leading indicators

Different data sources release their data at different points in a year and at different frequencies. Older data on a topic have less value than do equivalent data that are more recent. For example, data from the latest decennial census are dated from 2010. And the latest indicators from quinquennial economic census are from 2012, with data from 2017 for municipalities unlikely to be released until 2020 or so. Thus, while data of better quality—particularly for agricultural production—and finer geographic grain are likely available from these sources, they are also of a vintage that makes them less useful a year or more after they are published.

The same can be said about indicators from the U.S. Census Bureau's *American Community Survey* (ACS), which publishes estimated updates of the decennial census. In early March 2018, the most recent ACS data available with sufficient spatial detail are those for the five-year period 2012-2016. This is similarly true for the indicators derived from the U.S. Bureau of

Labor Statistics, which in March 2018 has released monthly data on nonfarm private employment, establishments, and total payroll by industry through the third quarter of 2017.

In this vein, data that are published with less lag time are naturally better for monitoring recent development. In fact, some data are even published about planned future development activity. These are data on building permit issued. Indeed, permits are perhaps the lone valid set of leading indicators of land use change within New Jersey municipalities. That is, permits are necessarily issued before land development gets underway, and they are typically published monthly. In early March 2018, data for November 2017 were published online by NJ DCA. As part of permit issuance rough values of the cost of the structures are attached to them, so some idea of price (of space or of a unit) can be obtained from the permits issued as well. This goes for new structures as well as the alteration, remodeling, and additions to existing ones. Moreover they are available for a number of uses: single-family residential, multifamily residential, dormitories, education, retail and entertainment, hotel/motel, office, industrial, hazardous, institutional, and storage. Once a permit is issued, it can take a year or more for the relevant structure to be built or the pertinent remodeling/renovation to take place. Of course, the possibility exists that the permitted activity will never be put in place. Still, such indicators give some sense of the magnitude of likely new development pressures going on in a municipality. Note that the issuance of permits for remodeling and renovation is typically counter-cyclic with permits issued for new structures.

In summary, some of the value of measures of land development is embedded in how quickly they are released as well as the periodicity in which their release is accomplished. This also means that data that are released quinquennially or decennially yield less value as they age. Of course, in either case the data should also be able to distinguish the planning geography within the Pinelands region as established by the Commission.

Priorities in indication

Based on the objectives of the LTEM, the set of indicators used by it should focus on assuring the detection of (1) land use changes in either a more- or a less-intensive direction, (2) changes in property prices and property tax rates, and (3) changes in governmental charge/tax rates. The first assures that any spatial change in development is known or at least knowable. The second makes sure, even if land uses do not change, that the Commission is keeping tabs on core private consequences of land development change within or adjacent to the Pinelands. And the

third assures that public costs are also being monitored. Of course, it should do all of this to gain insight into planned or recent activity; so very recent indicators are paramount.

In essence, constantly updated maps of land cover change that display land-use intensity accompanied by information on the development and operation costs of those uses would be sufficient and ideal. Unfortunately, data on land use cover alone are available only once every five years. Those on the development and operation costs of using land for a given purpose presently do not exist and are, perhaps, the focus of a special study.

So the key to the LTEM are those indicators that lie within the purview of *Real Estate* and *Municipal Finance*. In particular, the ten (10) central indicators for the LTEM among those listed in Tables 1 and 2 should be (in no particular order):

- 1) *certificates of occupancy (by structure type)*: shows recent intensity and location of new developments.
- 2) *average home price*: higher prices indicate a more desirable location for development (Wingo, 1961; Alonso, 1964; Mills, 1967; Muth, 1969);
- 3) *ratio of land to improvement value*: lower values of this ratio tend to associate with increasing land-use intensity;
- 4) *volume of real estate transactions*: independent of other indicators, higher volumes identify shifts in the local land market;
- 5) *permits issued for alterations/additions*: reveals intensification of land use;
- 6) *effective property tax*: yields comparable tax rate across jurisdictions;
- 7) *equalized property value per acre*: enables comparisons of assessed values across jurisdictions;
- 8) *per capita spending by municipalities*: enables a basic comparison of the provision of local public services across jurisdictions;
- 9) *residential housing permits (# of units)*: shows level of likely future residential growth;
- 10) *value of construction authorized by building permits (by structure type)*: shows levels of future commercial, industrial, and institutional growth;

All of these indicators are released by municipalities at least annually, and most are released monthly. Other indicators in Tables 1 and 2 support deeper probes that explain fluctuations in the above measures.

Thus, the above does suggest that indicators like population (even by age cohort), poverty rates, household size, school quality, unemployment rate, and even total employment (also by industry) are not so critical. That is, independently none of them indicate land use change or intensity nor do any of them inform us much about property prices or tax rates due to changes in development pressures. In fact, they are not so important in meeting the goals of the LTEM. Still, that does not mean they are valueless. Most of them can inform underlying causes of changes in property prices, property tax rates, and land use intensity not due to interventions by the Pinelands Commission.

For example, if a municipality experiences a rising share of senior citizens, who tend to demand smaller-sized, lower-priced homes, it would likely need to increase its supply of public emergency and transit services and, thereby, increase its tax rates. Thus, unless the cohort of senior citizens is attracted to amenities in the Pinelands, it would be difficult to attribute a decline in average home prices and a rise in tax rates to regulatory issues inherent to the Pinelands.

To facilitate such analysis, in addition to the variables listed above, indicators were also added for municipal public services, transportation infrastructure improvements, commuting patterns, casino revenues, and residential locations of casino-based workers. That is, these variables can describe external pressures that might influence key indicators.

C. CORE ECONOMIC INDICATOR REPORTING

In light of the above, it then seems reasonable to expand and adjust the set of 22 indicators currently monitored in the LTEM. That is, to answer the question put at the start of this section, the LTEM has been helpful to the Pinelands community and, as a result, has been useful in monitoring for potential conflicts, travails, and fortunes within the Pinelands area. But this does not mean it would not also be useful for the **annual** LTEM report to include information **beyond that embodied in indicators** alone. That is, for example, it certainly seems worthwhile to latch on to the advice in the 1996 *Prospectus* of obtaining expert opinion on the state of activity in the real estate markets in and surrounding the Pinelands. It would also be worthwhile to update the data, if not parts of the report, more frequently than once a year. This combination of subjects suggests separating some of the data monitoring from a reporting of critical changes embodied in those data. In fact, many aspects of the monitoring change little from year to year within most municipalities. This further suggest distinguishing between a report on the state of the Pinelands

economy in some base year—say the year of the release of pertinent data from the quinquennial economic census—and a more frequent set of reports that focus on recent changes/deviations from that base state. These latter could report the information in the so-called *Municipal Fact Book* (c.f. *LTEM 2015 Annual Report*, Appendix H), which has been quite well received. The data from both sets of reports could be made available online. Moreover, noting that the *LTEM 2015 Annual Report* was released in June 2016 and contained information in its Municipal Fact Book uniformly for 2014, more recently released of indicators could be made available with relevant documentation via spreadsheets available on a web page. Depending on the frequency of release, say quarterly, this last could be accompanied with a land-use news brief of sorts that highlights key changes in established trends.

In light of the above, Tables 3 and 4 present ranked lists of the indicators for four distinctly different published reports for the LTEM. Each report is associated with a different frequency of publication. The contents of Table 3 would comprise material for a report to be released most frequently, on say a monthly or quarterly basis. The number of indicators included is kept to a minimum to assure that regular maintenance and reporting can be sustained. It should be noted that while the list shows only five titles, many more indicators are subsumed under that entitled *Value of construction permitted*, and *Permits for alterations/additions* comprises two: one for residential and one for nonresidential permits. Rationales for each of these indicators have been discussed in the previous section of this report. Others could be added if the Pinelands Commission is able to obtain monthly or quarterly data that are not public accessed. Examples of such indicators are those for establishments, employment, and payroll by private industry—the Quarterly Census of Employment and Wages and/or Current Employment Statistics—as collected by N.J. Department of Labor and Workforce Development in cooperation with the U.S. Bureau of Labor Statistics. Otherwise, these indicators have limited value since public releases are available quarterly and, at best, at the county level only.

Table 3: Most Frequent Indicators to Report

Indicator
Certificates of occupancy
Residential mortgage foreclosures
Permits issued for alterations/additions
Residential housing permits
Value of construction permitted
Demolition permits

Indicators in Table 4 would be reported once a year. This report would be a slightly altered version of the current *LTEM Annual Report* and *Municipal Fact Book*. It would, however, place greater emphasis on core indicators that were not listed in Table 3, but that were listed in the previous section of this report. Indicators now included in the annual reports from the Commission and released only via the quinquennial *Economic Census* and the *Decennial Census* would not be included. The median age indicator would also be dropped.

**Table 4: Annual Indicator Reporting:
Indicators by Order of Importance**

Indicator
Ratio of Land Value to Improvements
Average Home Price
Farmland Assessed Acreage
Volume of Real Estate Transactions
Average Residential Property Tax Bill
Equalized Property Value
Effective Tax Rate
Per Capita Spending by Municipality
Total Assessed Value of Farmland
Sales Categorized by Use
Unemployment Rate
Private Sector Employment
Private Sector Establishments
Private Sector Wages
School Quality
Assessment Class Proportions
Municipal Budget, Revenues, State Aid
Per Capita Income
Full- /Part-time Employment
Self-Employment
Municipal Populations
Population Estimates
Median Household Size
Crowded Housing
Children in Poverty
Population Estimates
Water System Deficit/Surplus
Treatment Plant Capacity
Blueberry Volume, Value & Prices
Cranberry Volume, Value, and Prices
Educational Attainment
Visitation Rates to State Parks & Forests
County Hotel/Motel Occupancy Tax
Value Added of Property Sales
Vacant Lots
Tax Sales
Pinelands Dev. Credits
Farmland Preserved
Local Employment Dynamics
Journey-to-Work
Casino Revenue
Casino Employment
Transportation Improvements

Note in Table 4 that selected indicators could rise up the list in terms of their importance. An example is Local Employment Dynamics. While a one-time special release of the variable might be possible with the pertinent state or federal agency, regular annual delivery of the required data could be tougher to obtain. In this vein, some possible measures are not even listed here or elsewhere, one is the possibility of getting data from the COSTAR database.

Of course, two sets of other indicators could also be published. One with each quinquennial *Economic Census* release and the other with the release of the *Decennial Census*. Both, of course, published only when relevant tables are released for the geography of New Jersey.

In so far as the content of each report is concerned, the Users of the LTEM appeared to reach consensus in the *Annual Report* and *Municipal Fact Book*. That is, outside of the set of indicators themselves, the visual displays and set of descriptive statistics provided were quite satisfactory. One item that would make things clearer would be to use average annualized rates of growth consistently across all indicators (and reports). Currently five- and ten-year changes are reported. That is, while measuring growth over five and/or ten years, it would make comparisons easier if all of them were gauged to the same level. Similarly, if dollar values are reported in a table, it would help users if historic levels of inflation, as measured by relevant components of the consumer price index for the Philadelphia CMSA, were also reported in the table. Still, the general appearance of the reports should be maintained. Users especially liked the maps and graphs.

D. SPECIAL STUDY TOPICS RECOMMENDATIONS

Pursuant to the special studies component of this report, several topics were recommended for future study by the Users Group and Expert Panel, which informed the study. Suggestions came largely during the course of the Users Group meeting, which emphasized investigations focused on the Pinelands vis-à-vis comparison areas with respect to the costs of doing business, quality of life, and the fiscal stress of municipalities. The Expert Panel focused mainly on the complexity of defining eco- and agro-tourism given presently collected data; as a result this panel also mentioned the prospect of assessing natural capital within the Pinelands. We order the following with respect to priority attention.

1. Tourism (ecotourism/agrotourism)

A number of members in the Users Group declared an interest in a study of the magnitude of tourism within the Pinelands economy. Unfortunately, no clearly defined indicators for eco-

and/or agro-tourism are presently available to measure the size and nature of the tourism industry within the Pinelands. The inclusion of such ventures as farm wedding venues, wineries, and bike tours, which capitalize on the Pinelands setting, would be a welcomed addition to usual LTEM reporting. A special study on tourism, specifically Pinelands-specific tourism, would entail defining and monitoring the growth of these types of enterprises.

Such a study has broader implications as well, although there can be no doubt that the subject matter is a core concern for the Pinelands Commission. It could be a great way to test the viability of available information on the motel/hotel occupancy tax as well as on area eating and drinking establishments. It would also require cooperation with NASS (for agro-tourism), the state's Division of Parks and Forestry and county park commissions to obtain annual park visitor count estimates, as well as for any special events within the Pinelands. Some farmer cooperation could be necessary to break down some specific subcategories of the activity. Furthermore, it is likely that other commissions (e.g., the Highlands Council) and institutes would join the Pinelands Commission in petitioning the State for a broader statewide survey on the subject. The results of this special study would be valuable as a demonstration to the public of the economic value of the Pinelands

2. Spending patterns in the Pinelands

Related to the above on tourism is the idea of a special study that characterizes the nature of spending within the Pinelands regions. The study could characterize business-to-business (B2B) spending as well as household spending. The idea is to get a handle on the extent of intersectoral interdependence within the Pinelands. Such intra-regional circulation of capital is as important to the area as the equivalent of a national "Buy American" or a Chamber of Commerce "buy local" campaign. That is, if Pinelands businesses and households have a predilection to purchase goods and services from within the Pinelands, they can improve their own welfare by raising multiplier effects within the Pinelands. This could foster a Pinelands economy that is more self-sustaining and less reliant on external affairs. Of course, this sort of purchasing behavior can have both windfalls and pitfalls, depending how the local economy fares with respect to those that surround it. Users suggested that ESRI/Claritas data could be helpful in this endeavor as can surveys of area businesses and residents. Again, both the importance of such information and the inability to readily access it suggest that a one-off study like this could be useful in guiding a "buy local" campaign, which could enable greater self-reliance of the Pinelands economy.

3. Relative costs of doing business

Second only to tourism was the verbalization of requests to study the relative cost-of-doing-business within the Pinelands. This study would entail identifying relative deterrents to businesses and residences that seek to locate in the Pinelands. The deterrents would pertain both to the relative cost of building and the relative cost of operating there. Such costs are clearly a core focus of the Pinelands Commission and would provide a baseline from which certain aspects of future LTEM Annual Reports could be compared. As in the case of the tourism study, it is likely that the jurisdictional cooperation required would foster a capability to develop a special line of indicators heretofore not mentioned due to the intensity of personal contact presently required to enable their collection.

Some sort of cross-jurisdictional structure and property standard—say, a 1,000 square foot single-storied structure on a lot of 2,500 on a tenth of an acre—would need to be identified for the analysis. In the case of construction costs, the standard property should be examined as both a brownfield and a greenfield. Key parameters to consider are the availability of public infrastructure (e.g., black-top roads, water and sewerage lines, as well as the system capacities), and the costs and expected time to obtain permits. The study would focus on how the region could overcome pre-conceived notions of potential barriers, perhaps by developing special, pre-approved development zones with the Pinelands regions. The downside of such a study is that the costs measured as a result of the study would be ephemeral—valid only for a small number of years after the study is performed. Still, as suggested earlier, this study could be a launching pad for soliciting and collecting key indicators of such costs from Pinelands municipalities and realtors on a regular basis. Besides the subject matter is core to mission of the Commission, which makes it a critical topic.

4. Natural capital

A statewide study of this nature was performed in 2007. Here we suggest a repeat that assesses only the Pinelands areas. It has been some time since a broad census of the flora and fauna in the region has been taken, and it would be good to get some sense of the value of the Pinelands as a natural resource. Moreover, it could be a great way to discover a pathway for uncovering a set of bellwether indicators on the health of the ecosystem that could become a part of LTEM's annual reporting. That is, from such a study the Commission could discover, for example, that tracking a

few key species along with wetlands acreages would be sufficient to quantify the improvement or deterioration in area ecosystem services.

Like other studies in which a dollar value is a baseline focus, the downside of such a study is that it is soon outdated so that its content is rendered almost valueless within five to ten years. This is why a core outcome of such study would need to be the identification of a fairly simple way to track the largest and most variable components of natural capital in the Pinelands. It is these components that would cause the most value change.

5. Value/feasibility of fast passenger rail service

Several individuals called for a study of possible extensions of fast passenger rail service to Cape May and to Atlantic City Airport with transit-oriented developments (TODs) in the Pinelands. It is assumed that the Cape May concept would be a potential extension of the Glassboro–Camden light rail line projected to get underway in 2019. The reference to the Atlantic City Airport presumably is a call for a new station on the present NJ Transit line between Philadelphia and Atlantic City and that presently stops in Atco, Hammonton, and Absecon. This line connects to the PATCO line at Lindenwold. A station for the airport would require shuttle service if the present rail line is used. But there is old track that drops south of the existing line toward the airport and then on to Atlantic City. This latter poses a more interesting, if not also more expensive, alternative.

Still missing, however, would be much-needed direct transit service to Atlantic City from Philadelphia International Airport. At present, visitors from outside of the area much either hire a limousine service or, alternatively, find their way into Center City from the airport and from there take scheduled bus or train service to Atlantic City. The transit alternative is quite time-consuming, especially late at night.

Insofar as a study like this focuses future development into nodes like Hammonton and the Atlantic City Airport, the eventual development would yield much value to the mission of the Pinelands Commission. That is, they could remove significant future development pressure from some of the eastern fringes of the Pinelands areas. To be sure, this would be a very forward-looking effort. The Glassboro-Camden line was first examined in 1996 and is only becoming operational 23 years later.

6. Municipal fiscal stress index & public services

In 2008 a study of Indicators of Municipal Health was completed for the LTEM and a 2015 update to the Municipal Distress Index (MDI) Ranking, an indicator suitable for LTEM reporting was also released. But the ranking is not very informative in stand-alone fashion. That is, a special study that creates a suitable index that enables assessment of a municipality's divergence from general fiscal trends would be far more useful. This could be accompanied by an index that assesses the breadth and capacity of each municipality's public services. That is the quality, frequency, and capacity of specific municipal services such as trash pickups, sewage treatment, water availability, safety services, and busing, that naturally affect the costs or service provision, which are paid for via tax revenues. Given the state legislature's present focus on remedying the state's reliance on property taxes, it may be that the Pinelands Commission can piggyback on some statewide effort that seems to be on the horizon.

7. Quality of life (QOL) comparative study

Of the various studies mentioned at the Users Meeting, this one on a comparison of quality of life between South Jersey residents in the Pinelands versus those living outside of it was the least defined. In this vein, it would require more probing for exactly what should be done before it could be undertaken. Part of the reason for this is that quality of life itself has different meanings to different people. To those in the medical profession it pertains only to the ability of a person to function independently, without assistance or oversight. Social scientists let the term take on a broader meaning—something more akin to happiness. One's happiness can account for an individual's health and ability to meet basic needs, plus ready accessibility to amenities (both urban and natural) and other life accoutrements. In this regard, a special study on the quality of life in the Pinelands contrasted against that of communities immediately outside its boundaries would align fittingly within the public services context.

This study is listed last in part because of its lack of definition. But also due to the complexity and cost of the work that would be required. At a minimum, a survey of residents would be required. It would focus on their costs of living (i.e., mostly housing and food consumption); the environmental amenities they enjoy (e.g., movie theaters, live events, and ecological tourism) where they enjoy them; and their wealth and annual income as well as the sources of that income. Needless to say, the rather invasive nature of this line of questioning could ward off potential survey participants. The result would likely be some sort of relative macro-

indicator by LTEM geography (and perhaps even Pinelands municipality). Nonetheless because the outcome is based only upon participants' values and health quality at a single point in time, it would soon be outdated: this is despite the huge effort that would be required to perform a thorough analysis. Of course, simpler versions of such a study could be envisioned.

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