Discussion Topic:

FULL-COST ACCOUNTING FOR FLORIDA

How to calculate the economic impacts
of community programs and facilities,
not simply in terms of immediate outlays,
but in terms of TOTAL costs and benefits

December, 2000

Prepared by:
Craig Evans, President, Florida Stewardship Foundation, One Park Place, Suite 240, 621 N.W. 53rd Street, Boca Raton, Florida 33487. Email craig@fl-stewardship.com

Full-Cost Accounting for Florida

The decisions made today will shape the appearance, environmental quality and economy of our communities tomorrow. Once these decisions are made, their consequences cannot be undone.

This is one of the conclusions drawn by Florida Stewardship Foundation from the economic impact studies it has conducted in five Florida counties – Collier, Hillsborough, Lake, Palm Beach and Polk.

As a result of these studies, Florida Stewardship Foundation recommends that each incorporated community and county in the State of Florida adopt a *full cost-accounting* system to inform and guide decisions. This would involve calculating the economic impacts of programs and facilities, not simply in terms of immediate outlays, but in terms of TOTAL costs and benefits.

These calculations would show the costs and benefits that are generated over time as a result of each public action, including the additional costs of public obligations that are created by the initial expenditure. It also would plot the *economic flows* that radiate out from each public action, and show how these actions affect jobs, tourism, land value, the availability of water, etc.

Full-cost accounting system could be developed and implemented in Florida through a ten-step process:

1. Determine what data needs to be gathered to implement "activity-based cost (or ABC) accounting" in all communities and counties.

2. Assist communities and counties in gathering necessary data for ABC accounting.

3. Provide software to communities and counties to generate ABC accounting reports in addition existing financial reports. Include a program that will calculate estimates of "opportunity cost," or value over time to the economy that is gained or foregone when an acre of land is converted from one use to another

This "first step" would allow communities and counties to make decisions with a more complete financial picture, would build on existing budgeting and reporting systems, without supplanting or replacing them, and would "open the door" to the introduction of more complete accounting systems by showing the benefit of this type of analysis.

Next:

4. Identify critical social and environmental factors – historic sites, acquifer recharge areas, habitats for listed species, known brownfields, economically depressed neighborhoods, etc.

5. Determine what data needs to be gathered to provide GIS map overlays showing all existing land uses, infrastructure and key features of the critical social and environmental factors. Be sure to include food and fiber production – from agriculture and forestry – as an essential part of the state's infrastructure.

6. Assist communities and counties in gathering this data and generating the appropriate GIS maps.

Next:

7. Retain a team of *ecological* and *social economists* to conduct Contingent Value (or CV) analyses to determine the values of specific social and environmental factors. CV analyses are used to measure how much people are willing to pay for clean air, clean water, wetlands, open space and other natural resources and, thus, provide a representative dollar measure of the value placed on these resources by a statistically valid sample of the public for the purpose of comparing these values with the values of traditional market activities (such as building houses or expanding a manufacturing plant) in the economy.

8. Provide software to communities and counties so they can add this data to their activity-based cost accounting systems and tie each data set in the accounting system to a specific GIS map.

Next:

9. Choose a standard "visioning" software for statewide use – such as the GIS-based INDEX community indicators software produced by Criterion Planners/Engineers of Portland Oregon (http://www.crit.com), or the "Sim City" software developed by the Environmental Simulation Center (see description at http://cpcug.org/user/dcf/esc.html and http://www.wenet.net/~shprice/Kwart1.htm) that combines 3D modeling with GIS, so communities can experiment with urban designs and see quantified environmental and fiscal impacts

10. Provide communities with the economic research and analysis, data gathering tools, software, instructions and technical support that is necessary to tie these steps together to implement full-cost accounting.

Activity Based Cost Accounting: The First Step Toward Full-Cost Accounting

Florida Stewardship Foundation's studies show that some land uses pay their own way and some don't. In each case, however, the results span only one year. They provide a single snap shot in time, rather than a more complete picture over, say, a decade, where trends from year to year might be seen.

County and school finances are dynamic. They change every year. New construction, new businesses and new school-age children come into the community. This changes the mix of revenues generated and services required. Hence, the differences between revenues and expenses for each land use in next year's finances will be different from the numbers reported in the studies of previous years' finances.

For this reason, county planners and decision makers might want to know *on an ongoing basis* which land uses, or activities, pay their way, which do not, and to what degree.

Obviously, land use decisions cannot be based solely on their anticipated revenue generation or cost of services. However, to make land use decisions without this type of "numbers" information is to miss understanding a large part of what impacts and consequences will result from a particular decision.

It is for this reason that Florida Stewardship Foundation recommends developing and implementing a computer based method of tracking revenues and expenses by "activity." Based on the types of information used in its studies, as well as other data that would be deemed necessary, an "activity-based cost accounting" program could be developed by a team of county employees with input as necessary by individuals or firms that have experience with developing and implementing activity based cost accounting systems. (One individual in Florida who has experience in this area is Virginia Orenstein, of Sarasota, Florida, a CPA and former chief financial officer for several subsidiaries of the multinational corporation Trelleborg, AB, of Sweden; she can be reached through Florida Stewardship Foundation or at 941-907-9670.)

Such a computer based tracking system could be used to estimate the impact on county and school finances of proposed changes in land uses or activities. This system could provide critical information so appropriate measures can be taken to avoid future deficits, either by attracting and expanding land uses that produce a surplus, seeking other sources of revenue, or by revising rates for existing revenue sources to ensure that surpluses offset deficits and the total mix of the county's land uses always results in a balanced budget.

This, in turn, could be combined with "visioning" software which has been developed by groups such as Criterion Planners/Engineers of Portland, Oregon (http://www.crit.com) and is being used by in the Florida Sustainable Communities program. (A description of

the firm's GIS-based INDEX community indicators software can be viewed at http://www.state.fl.us/fdi/fscc/news/state/9804/indicatr.htm.) Other innovative software has been developed by the Environmental Simulation Center (see description at http://cpcug.org/user/dcf/esc.html and http://www.wenet.net/~shprice/Kwart1.htm). This "Sim City" software combines 3D modeling with GIS, so communities can experiment with urban designs and see quantified environmental and fiscal impacts.

Activity-based cost accounting (also known as ABC accounting and "Activity-Based Resource Management") is commonly used by many businesses. Some government agencies — such as the 82nd Airborne Division of the U.S. Army — also have used activity-based cost accounting to streamline operations and promote more cost-effective decision-making.

Activity-based cost accounting is an accounting method for tracing the true cost of resources within an agency or organization. For example, instead of looking just at *line items* in a budget — such as all expenses related to street maintenance — activity-based cost accounting looks at the revenues and expenses that are generated by individual *activities,* such as a specific commercial use — say, restaurants. This information can be broken out by acre, F.A.R. or any other unit of measurement. This, in turn, makes comparisons between different activities and land uses possible.

Activity-based cost accounting links final products or services to the actual cost of resources consumed by the activities required to produce them. In the process, it provides valuable information for budgeting and resource allocation and makes the budgeting process more predictable. It allows county staff to clearly track what resources are being expended by the county, where these resources are going and how each land use, business activity and/or constituent group is benefitting.

It gives decision makers and planners critical information to analyze the community services that are provided to each land use, business activity and constituent group and to compare the benefits derived from these services versus their consumption of resources.

It also allows everyone in the community to see the trade offs in costs and benefits that are delivered to each activity and constituent group, and provides invaluable information to help in evaluating whether adjustments should be made in the current or proposed allocation of resources.

The bottom line is a clear vision of the real cost of getting a service to the public -- and to a particular constituent group, such as a specific group of homeowners or retail stores -- and the ability to defend specific activities, programs and decisions by the outcomes and numbers.

Florida Stewardship Foundation's studies indicate that, with a few minor policy changes -- such as the way in which information is gathered and reported -- it may be possible to *better understand the impacts and consequences* of all future land use options by using

activity-based cost accounting: so deficits created by a change in one land use can be identified and balanced by surpluses generated through an accompanying adjustment in another land use. For example, if a community decides to build 100 affordable housing units, it is possible to calculate fairly accurately how much of a deficit will be created by this land use for county and school finances over time. It also is possible to calculate which other land uses and business activities can be encouraged at the same time to completely offset this deficit.

This will allow local decision makers to look at land use planning with an eye to how new land use plans will affect not only the economy, but also the fiscal health of county government and schools. This is already being done in a general manner through such concepts as impact fees, but by adding the data collection mentioned below, county planners could establish a fiscal computer model that could be used to provide information on how both the economic and fiscal impacts of different types of land use can be balanced. These fiscally balanced results could then be taken into consideration, along with social issues, such as availability of housing for people at all economic levels, economic development goals and environmental concerns to create a more holistic land use plan.

Here's how this could be done:

Procedures could be put into place to capture the data upon which a land use decision computer model could be based. Readily available data such as taxable value and total number of housing units could be supplemented with information that is not normally tracked or kept up to date, such as:

Type of land use (4 digit DOR code with full description)
Market value of property broken down by land/buildings
Location in county (census tract)
Number of acres in each parcel of land
Number of units per acre (if applicable)
F.A.R. (if applicable)
Number of units in structure (if applicable)
Type of housing (single family, multi family, mobile home on own land, mobile home on rented lot, etc.)
    Number and age of occupants
    Number of school age children (K-6, 7-9, 10-12)
    Homestead exemption or not
    Occupied or vacant, and if vacant, indicate if held for occasional use, migrant use or other reason
    Owner occupied or rental
Type of commercial use (by SIC code)
Type of industrial use (by SIC code)
Type of agricultural use (by commodity or crop)
Type of leisure/recreation use (by SIC code)
    Privately owned or publicly owned and, if publicly owned, which division of government
Type of institutional use (hospital, school, water treatment facility, etc.)
    Privately owned or publicly owned
    If publicly owned, which division of government

If privately owned, whether owner is tax-exempt
Type of open space
Privately owned or publicly owned
If publicly owned, which division of government
If privately owned, whether owner is tax-exempt
Type of vacant land (current DOR code)
Privately owned or publicly owned and, if publicly owned, which division of government
Potential number of units per acre (if applicable)
Potential F.A.R. (if applicable)

Some of this information already is available, but in scattered databases such as the tax rolls and the census bureau.

This supplemental, "activity-based cost accounting" component could be added to county and school budgets. The standard accounting reports would remain the same. In addition, reports could be generated that break out the sources of revenue and the recipients of expenses based on each type of land use and the demographic data mentioned above. If procedures were in place to capture this data on an on-going basis, it would be obvious that the costs of services delivered to certain residential land uses exceed the revenues received, and appropriate measures could be taken to adjust this imbalance. Thus, planning decisions and projections could be supplemented by the fiscal and economic results of land uses obtained from the computer model. This would make it much easier to obtain a fiscally balanced mix of land uses -- a mix that would be economically sustainable for the long term. As a result, decisions would be less likely to be driven primarily by revenue issues, such as increasing the tax base, without a corresponding look at the cost of services involved, or by market pressures to convert lands that presently create a surplus into developments that may appear attractive in the short term, but which can create large deficits over the long term. Rather, a continuing fiscal balance could be achieved.

Local decision makers could then use this economic and fiscal planning computer model to guide their economic development program by identifying which types of land uses, residents and industries should be recruited and/or encouraged through economic incentives.

Incentives

Obviously, growth will continue, and the housing needs of people of all income levels need to be met. The key is to not lose land uses such as agriculture and open land that contribute to the economy *and* create a revenue surplus for the county.

One way to do this is to create incentives ... through tax credits, impact fee offsets, density bonuses, simplified permitting, land swaps, tax-deferred land exchanges, subsidized property purchases and economic incentive packages for open land and agricultural activities ... to maintain a balance among different types of housing, different types of commercial uses, different types of open land.

One goal of this "balanced mix of land uses" would be to maintain a balanced budget by retaining and attracting land uses that create a surplus in order to offset land uses that create a deficit ... and, thus, avoid excessive (and unpopular) property tax increases that may be required to pay for services for land uses that do not pay their way.

A mix of land uses that includes open land and agricultural activities also is desirable for environmental reasons, because these activities provide diversity, visual and spatial relief, and help protect the county's natural resources, including its water, green spaces and wildlife habitat.

The state may wish to work with the Florida State Legislature to create tax credits for private landowners who provide beneficial uses on their land for environmental restoration or enhancement, for areas that are left in a natural or undisturbed state, such as habitat that harbors threatened or endangered species, and for aquifer recharge. Agricultural and forestry uses often accommodate these natural uses as an accessory to their principal business activities. Incentives to continue these uses might include some form of *direct* or *indirect* compensation, such as:

- a cash payment on an annual basis
- an inheritance, state sales or property tax credit
- guaranteed loans to lower interest rates and/or expand an operation's borrowing power with commercial lenders
- or funds for capital improvements and/or implementation of Best Management Practices (BMPs)

A property tax credit for maintaining beneficial environmental uses on private lands may provide incentives to encourage private stewardship efforts ... and continue land uses that can sustain economic growth while ensuring a healthy environment. Such a credit also might provide a means of providing a higher tangible, economic value for lands where natural resources are well managed, as opposed to lands where natural resources have not been well managed, or have been degraded.

This recommendation also provides a means of assigning economic values to open space, clean water, wildlife habitats and areas of high ecological value, so they can compete effectively in the market place with houses, shopping centers and other developed uses.

Consequently, this recommendation also offers a means of pursuing environmental protection, not by rule and regulation and private property “takings,” but by increasing a landowner’s equity in his or her land. This will allow social and environmental efforts to stop working in opposition to the market economy (as they often do now) and, instead, to harness and respond to the market by providing an economically solid rationale for offering incentives and “givings” to encourage land uses that will create surpluses instead of deficits, and be environmentally sustainable.

Common Land Unit

The state also may want to think about adopting the U.S. Department of Agriculture's definition of the Common Land Unit (CLU) for conservation activities and as the structure to track revenues and expenses for each land use category. This form of accounting ties existing information on earth cover, land use, land category, ownership and revenues and expenses to specific locations. This spatially related data could be the basis for quantifying economic activities associated with land use categories and identifying uses that are creating deficits and surpluses. This would allow decision makers, both in government and private business, to make more informed decisions about land uses. Here's how:

A Common Land Unit is the smallest unit on the ground which has:

- A permanent contiguous boundary
- A common management or treatment
- A common owner
- A common client association[i]

The Common Land Unit uses Geographic Information System (GIS) technology to capture, store, manage, analyze and display geographic data such as maps and photographs. It can automate business and government activities that currently are performed manually. It also offers the opportunity to meet the more complex needs of the future for data retrieval and comparison.[ii]

The Common Land Unit is built on digital ortho-photography as the geographic base map. This base map has overlaying maps showing other data such as roads, census, land uses, land categories and earth covers. Overlaying maps displaying financial or other information also can be added.[iii]

Delineating a Common Land Unit involves three steps:

- Earth cover and physical boundaries visible on aerial photographs are analyzed to determine the boundaries for a land unit.
- Land use is utilized, according to the delineation rules for the land category, to further divide the area according to land management and land treatment differences. Management/treatment boundaries not visible on aerial photographs are supplied by land managing agencies, planning departments and other information sources.
- Finally, the area is divided into common land units based on ownership lines delineated according to the land category (such as agriculture, forest, industrial, etc.).[iv]

The result is a data base that can display a variety of information and relationships between data. For example, a Common Land Unit can be viewed to see its earth cover, its land use, its land category, or the revenues and costs generated according to land use or land category. A comparison also can be displayed between two or

more land uses or categories. In addition, different scenarios can be tested to answer the question "what if" the current mix of land uses is changed to emphasize one type of land use over another. In this way, the system is able to show the financial implications of different land use decisions before they are made.[v]

Natural Values

Economic Benefits of Open Space and Recreation

> *"The natural environment (air, water, open land, biota) provides 'goods' and 'services' that generate economic benefits. Numerous 'owners' have equal rights to use common property resources such as the oceans, air, fisheries, groundwater aquifers, scenic views, and so forth. Federal, state and municipal governments, either consciously or by default, must assume the responsibility for keeping track of who is placing stress on the environment and who is enhancing environmental quality. Protection of common property resources is a municipal service (right along with fire protection).* ***To the extent that private conservation efforts contribute to the maintenance of adequate levels of ambient environmental quality and the common property resources which follow, those private efforts are lessening a burden on government."*** [emphasis added]
>
> --Stephen Miller, Executive Director
> Islesboro Islands Trust, Maine[vi]

In a 1992 study on "The Economic Benefits of Open Space," Stephen Miller points out that "some of the measurable attributes of open space considered in a cost-benefit analysis [include]:

- "♦ food supply [and]
- "♦ agricultural opportunity"[vii]

Other measurable attributes of open space include:

- ♦ marine and freshwater fisheries protection
- ♦ wildlife habitat
- ♦ clean drinking water
- ♦ clean air
- ♦ biological diversity
- ♦ soil conservation
- ♦ soil creation
- ♦ genetic diversity
- ♦ scenic views and other aesthetic values
- ♦ forests and woodlands
- ♦ recreation

- purification of air and water
- traditional rural character
- amenities like hiking, canoeing and boating
- quality of life
- ambient healthful living conditions
- biological, botanical and scientific opportunity
- flood control
- decomposition of wastes
- climate control[viii]

Measurements of the economic value of these attributes -- and the tradeoffs gained or foregone through alternative economic activities that diminish or remove the benefits derived from these from these attributes -- can be calculated through a 12-step process:

1. **Inventory and analysis** to identify the environmental attributes of value in a particular case. "If a scenic view is lost," Miller writes, "or a wilderness experience, ... or fishing capability, or any other amenity flowing from open space, and this loss is due to development, then the value of what has been lost must be considered. It is, in such instances a *cost* of development."

2. **Public demand**. "In general," Miller says, "the total social benefit of a well defined environmental service or group of services is a reflection of the number of individuals who actually enjoy the particular social benefits under analysis. Individual demands together equal total social demand."

   For example, "In a Worcester, MA study it was determined that if parks visitors were willing to pay one dollar per visit, this would result in a total annual value of almost $450,000; substantially greater than the annual $125,000 cost to the city of maintaining the parks (Park Service, 1990)."[ix]

3. **Preservation benefits over time**. "Total social benefit will increase over time ... since the supply remains constant as demand increases ... Increasing public demand for the social benefits of open space represents an annual appreciation rate."

4. **Recreational values**. "Cost-benefit analysis of recreational values has been extensive," Miller states. "Willingness-to-pay surveys have determined the `unit day values' or the average value per person/per day for a variety of activities (Park Service, 1991)." These include:

ACTIVITY	VALUE
Swimming	$24.02
Hiking & Horseback Riding	28.49
Warmwater Fishing	29.25
Non-motorized boating	48.68[x]

"If we knew from an inventory that 1,000 people used a private

beach for swimming on different days each summer and use of row boats and canoes occurred 50 times, then the annual estimated recreational value of the site would be $26,454, subject to some incremental annual increases over time, for as long as the site remains available for such use."

5. **Market and surrogate-market price valuation methods**. This approach is used "where a change in environmental quality will lead to a change in the productivity of the environment ... Because the effects of changes in the environment can be expressed in terms of changes in the quantity of a marketable good, the value of the marketable goods can be taken as a measure of the benefit or loss from the change (Hufschmidt, 1983)."[xi]

   For example, the cost of "bottled water has been used as a substitute for individual wells and individual wells have substituted for municipal water to estimate the value of clean drinking water. Other market price valuation applications have used admission fees elsewhere to price free access. Hunting or fishing fees charged at one location can substitute for implicit sportsmen privileges at another location."

6. **Property value technique**. This is used to measure "property value differences at a [given] point in time." The complete value of a house and its site, for example, includes "the physical characteristics of the structure and site, location, and a host of physical, social and economic characteristics such as presence of pleasant views, quality of local education, air quality, proximity to recreational opportunities, and so on. Since these factors are deemed important in choosing a house and since the mix of factors varies significantly across the spectrum of choices actually available to the home buyer, the values of these factors can be extracted from the housing price (Freeman, 1979).[xii]

   "The complete value of any unit of housing, then, can be described as a function of the various values of its characteristics. A mathematical formula is then devised to express this function and, with sufficient data input, solving for any one of the various characteristics becomes possible.

   For example, "an analysis by Gupt and Foster (Hufschmidt, 1983) used market prices to determine the net social benefits of preserving wetlands ... Market prices were obtained for wetlands sold for development ... [and] Wetland benefits were identified and divided into four groups:

   - "• wildlife production;
   - "• visual/cultural effects (i.e. recreation, education, aesthetics);
   - "• water supply; and
   - "• flood control/sediment & nutrient trap potential

"Using purchases made by public agencies during the same period for properties having wildlife and open space characteristics, [for] differences in cost between individual wells and municipal supply, and costs avoided by flood control measures, the following values were obtained:

Annual Value Per Acre of Wetlands

Type of Benefit	*Annual Value Per Acre Based on Productivity*		
	High	*Medium*	*Low*
Wildlife	70	35	10
Visual/Cultural	270	135	20
Water Supply	2800	1400	400
Flood Control	80	40	10
Totals	3220	1610	440[xiii]

7. **Travel-cost approach**. In this analysis, travel expenditures to and from a recreational resource are used as a measure of the recreational benefits of the open space. "Since demand for the otherwise `free good' is not infinite because there is a cost involved in getting to and from the site, determining level of public demand and costs of transportation will provide a measure of the public value of the environmental benefit."

   The further people will travel to visit a natural resource, the more valuable it is. Hence, the Everglades scores high, since it attracts tourists from all over the world.

8. **Survey-based technique**. For this analysis, a statistically viable number of people benefitting from an environmental service at a specific location are interviewed to determine their willingness to pay for the service, or their willingness to be compensated for the loss of the service.

   Miller notes that this "procedure measures a hypothetical choice rather than actual behavior and costs (as in the Travel-Cost Method) but has successfully been applied to common property resources such as air and water quality; scenic resources; unique cultural, ecological and historical characteristics; and other situations in which market price data is simply unavailable."

   For example, "a California survey determined that households were willing to pay between $42 and $94 annually to preserve water in a nearby lake threatened by hydro-electric and water company development. Development of the site would produce electrical and drinking water advantages of only $2.64 per household annually. The obvious conclusion was that the value of the lake as a natural resource far outweighed the development value of the water. (Loomis, 1987)"[xiv]

9. **Enhancement**. Several studies have shown that proximity to natural areas, particularly areas that have been "protected in perpetuity by virtue of conservation easements," greatly increases property value ... and the value of property tax revenues collected.

   This analysis compares recent sale prices of -- and tax revenues collected from -- properties that are similar in all respects, except for their proximity to natural areas or environmental services.

   "Proximity to parks in urban areas has been shown to account for up to 15 - 20% of a property's value, according to the National Association of Homebuilders (Caputo). In California, it was estimated that $100 million annually in the form of increased property values was the result of a park bond one-time investment of $330 million (Park Service, 1990). Enhancement values appear to more than compensate for any losses due to [reduced] taxation for the open space."[xv]

10. **Tourism and sports activities**. Travel and tourism is Florida's leading industry. It also is projected to be "the leading industry in the United States and world by 2000." A poll conducted by the President's Commission on Americans Outdoors in 1986 found that natural beauty was the single most important criterion for attracting tourists.[xvi]

    Hence, as Charles Lee points out, "you need the natural resources that make people want to come to South Florida."[xvii]

11. **Option value**. "Retaining choices is another public welfare benefit," Miller says. "Expansion of choices or options represents a welfare gain; reduction of options, a welfare loss.

    "Although not traded on Wall Street, environmental options are of measurable value just as stock market options convey value ...

    "Not only is there an option value at the point in time when a decision is made to preserve a property's open space rather than develop it. That value will increase over time ... until the preservation technique dissolves (as in current use tax [valuation, such as provided to agricultural operations under Florida Statutes, Chapter 193]) or until all other property is either built-out or protected as open space, thereby essentially closing `trading' on that commodity."[xviii]

12. **Contributions by and benefits to private landowners**. Finally, Miller points out that "natural resource based economic benefits are often achieved by the private property owner, independent of common property benefits. Timber management is an investment resulting in greater return from timber harvest." This, in turn, creates jobs and benefits local and state economies.

> Agricultural production follows this principle. A cost-benefit analysis of agricultural management practices to determine economic values received by private landowners ... and created for society by these landowners ... follows the same basic principles of investigation as the analysis of common property resources outlined above.
>
> As Miller states: *"To the extent that private conservation efforts contribute to the maintenance of adequate levels of ambient environmental quality and the common property resources which follow, those private efforts are lessening a burden on government."*[xix]

A cost-benefit analysis following these 12 steps would likely show that a healthy, productive environment represents a significant economic advantage to Florida.

At the same time, such an analysis is likely to show that:

- Removing agriculture lands from production would have a significant adverse economic impact on Florida[xx];
- Agriculture has the potential to *increase* the economic value of the states natural resources[xxi]; and
- The major threat to the economic value of the state's environmental areas is not the encroachment of any one industry, but continued urban development[xxii].

A January 17, 1995 article in the *Sun-Sentinel* indicates that "studies have officials fearing the state is becoming a turnoff to tourists, retirees" because of runaway growth.[xxiii]

> "In the minds of many would-be visitors and resident's Florida's Sunshine, beaches, golf courses and orange groves have been replaced with other images: crowds, crime, hurricanes and even tackiness."

The Boca Raton News elaborated:

> "A new report on Florida's disturbing decline in tourism suggests that crime may not be having as much of an impact among domestic travelers as costs, crowds and commercialism. Preliminary results of surveys in several major cities show a reluctance by some travelers to return for visits because of those and other reasons -- including the idea that the state is too urbanized and doesn't offer the quiet, unspoiled, sun-drenched images of the ads."[xxiv]

That's just one indication that growth may ultimately have negative economic consequences. State officials were less worried in 1996 about the health of the tourist industry, since the number of visitors to the state was again on the upward curve ... thanks to an unusually cold winter throughout the rest of the U.S.

But there are other indications. For example, the headline on a December 26, 1995 *Palm Beach Post* article read: "Natives getting fed up, so they're fleeing South Fla."[xxv]

> "It seems a growing number of South Floridians are fleeing a generation after their parents were lured here by promises of paradise.
>
> "Although no statistical records are kept specifically, the *Sun-Sentinel* of Fort Lauderdale found considerable anecdotal evidence that many people between 18 and 35 years of age are moving rather than raising their children in the community where they grew up.
>
> "And many of those who are staying seem frustrated, angry and wary of their future in the area.
> "`I've noticed dissatisfaction,' said Doug McLaughen, field director of the Institute for Public Opinion Research at Florida International University. `We've noticed steady declines in the quality-of-life measures.'
>
> "... Cullen, a former Miami resident who now lives in Hypoluxo [said] ... The economic haven it offers isn't enough anymore to make up for everything he hates -- traffic, competition for jobs, the destruction of the environment."[xxvi]

As Miller writes: "Some development projects so alter the natural ecosystem of the site as to render it essentially destroyed. In such cases, since the two alternatives (preservation and development) are mutually exclusive, the economically efficient choice is the one that maximizes the value of benefits ...

"A residential or commercial development may sacrifice some or all of those particular social values in return for other, either social or (more likely) individual, rewards. This kind of trading has created an environmental deficit in many parts of the world ... because the `other rewards' have not compensated for the costs. Put differently, such an environmental deficit exists `because the longer-term ecological, social, and economic costs to human welfare are greater than the shorter-term benefits flowing from [various manipulations of land].' (Bormann, 1991)[xxvii] Herbert F. Bormann and Stephen R. Keller, ed., *Ecology, Economics, Ethics: The Broken Circle* (New Haven, Connecticut: Yale University Press, 1991).

"If tax [or other public] policies compel the owner of a given property to interrupt the flow of social benefits from that open space by selling to a developer or otherwise alter the ecological integrity of the site, then the policy itself must be examined. This examination would take into account competing values [e.g. wetland value lost to development versus wetland values improved through agricultural Best Management Practices], to determine how to maximize the net social return."[xxviii]

Endnotes

[i]. From information provided about the Common Land Unit through InfoShare, U.S. Department of Agriculture, Office of Information Resources Management, May 25, 1994.
[ii]. Ibid.
[iii]. Ibid.
[iv]. Ibid.
[v]. Ibid.
[vi]. Stephen Miller, "The Economic Benefits of Open Space" (Islesboro, Maine: Islesboro Islands Trust, May 11, 1992), p. 22, reprinted in *Economic Benefits of Land Protection* (Washington, D.C.: Land Trust Alliance InfoPak Series, April 1994).
[vii]. Stephen Miller, p. 3.
[viii]. Ibid.
[ix]. Stephen Miller, p. 24. The study cited is: *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors* (Washington, D.C.: National Park Service; Rivers, Trails & Conservation Assistance Program, 1990).
[x]. Miller, p. 26.
[xi]. Miller, p. 27. The source cited is: M.M. Hufschmidt, David E. James, Anton D. Meister, Blair T. Bower and John A. Dixon, *Environment, Natural Systems, and Development: An Economic Valuation Guide* (Baltimore, Maryland: The John Hopkins University Press, 1983).
[xii]. Miller, p. 28. The source cited is: A.M. Freeman, III, "The Hedonic Price Approach to Measuring Demand for Neighborhood" included in *The Economics of Neighborhood*, D. Segal, ed., (New York, N.Y.: Academic Press, 1979).
[xiii]. Miller, p. 29, citing M.M. Hufschmidt et al.
[xiv]. Miller, p. 33. The source cited was not listed in Miller's bibliography.
[xv]. Miller, p. 33. The sources cited include: National Park Service, *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors*.

Darryl F. Caputo, *Open space Pays: The Scioenvironomics of Open Space Preservation* (Morristown, New Jersey: New Jersey Conservation Foundation, 1979).
[xvi]. Miller, p. 33. Also: *The Report of The President's Commission Americans Outdoors: The Legacy, The Challenge* (Washington, D.C.: Island Press, 1987).
[xvii]. Denise Zoldan, "Experts disagree about Everglades cleanup."
[xviii]. Miller, p. 34.
[xix]. Stephen Miller, p. 22.
[xx]. See pages 1-18 of this study.
[xxi]. See pages 20 and top of 21, bottom of 25, top of 34, and 36-37. Also, see Endnotes 60-73. The economic values of both the food supply and agricultural opportunity provided by the Everglades Agricultural Area will increase *in conjunction with the increase in the value of the Everglade's natural resources and open space* as public demand for food increases over time (see measurements of economic value for "public demand," page 21; "preservation benefits over time" and "market and surrogate-market price valuation methods," page 22; and "option value" and "contributions by and benefits to private landowners," page 25).
[xxii]. See valuation methods for "Economic Benefits of Open Space and Recreation," pages 20 through 25, and sources cited in quotations on pages 26 and 27.
[xxiii]. Tracy Kolody, "Visitors taking vacation from Florida: Studies have officials fearing that state is becoming turnoff to tourists, retirees" (Fort Lauderdale, Florida: *Sun-*

Sentinel, January 17, 1995), p. 1A and 5A.

[xxiv]. Associated Press, "Report: Florida tourism slide not due solely to crime" (Boca Raton, Florida: *The Boca News*, January 17, 1995), p. 4B.

[xxv]. Associated Press, "Natives getting fed up, so they're fleeing South Fla." (West Palm Beach, Florida: *The Palm Beach Post*, December 26, 1995), p. 6B.

[xxvi]. Ibid.

[xxvii]. Miller, p. 22. The source cited is:

[xxviii]. Stephen Miller, p. 22.