THE TRANSFER OF DEVELOPMENT RIGHTS

Preserving Rural Land and Promoting Urban Renewal

Strategies for Implementation in Rhode Island

by

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ABSTRACT

The impact of urban sprawl is being felt in Rhode Island. The State's urban population has been declining, while the non-urban areas' population and land development are increasing. This trend will continue in Rhode Island through the end of the century according to the U.S. Census Bureau. As these shifts in population occur, development becomes more pervasive in non-urban areas, and urban areas are decaying. State and local planners are in need of a growth management mechanism that will address both of these issues, so that the natural environment of the State can be protected and urban areas renewed.

The Transfer of Development Rights (TDR) mechanism does just this, by transferring residential, commercial and/or industrial development from rural areas into cities and towns. This transfer of development into areas better suited for growth, for example, areas with the existing infrastructure, protects natural areas. This is done by having conservation easements set upon the rural parcel of land as soon as development rights are severed.

Two particular TDR programs, the Montgomery County, Maryland Transfer of Development Rights Program and the New Jersey Pinelands Development Credit Program, have been successful in arriving at their goals of preserving farmland, forestland or open space, as well as redirecting development into already developed areas. Through detailed analysis of these two programs, this thesis has found that there are elements that contribute to successful implementation and operation of a TDR program. These are: having the enabling legislation to create a TDR program; careful administration of the program; and setting a TDR bank at the outset of TDR implementation. Other elements include planning comprehensively for both "sending" and "receiving" areas (by setting

incentives and disincentives for landowners and developers), developing a market for TDRs and designing a simple and flexible program which can be subject to change over time to meet new political or other structures.

Rhode Island could benefit from a TDR program to control sprawl. This thesis concludes by recommending that the State, which currently has the enabling legislation for establishing a TDR program, adopt specific legislation which would allow for transfers of development rights from one municipality to another (the current legislation allows only for transfers within one municipality). Sources for start-up funds are also recommended; as are starting an educational effort; designating areas to be protected and areas where development should be transferred to; choosing between a voluntary or mandatory TDR program structure; promoting "urban renewal"; hiring a TDR facilitator; receiving technical assistance from the State government; starting a pilot project in the State; and designing a simple and flexible ordinance.

INTRODUCTION

This thesis focuses on the possible development and implementation of Transfer of Development Rights (TDR) as a growth management tool in Rhode Island to help preserve rural land and renew existing developed areas. As documented in this study, urban sprawl is occurring in Rhode Island. The State therefore needs a growth management technique that will not only protect its rural land, but also promote urban renewal. Other growth management tools focus largely on preservation of rural areas alone. The TDR mechanism addresses both of Rhode Island's needs, by transferring development from non-urban to urban areas, and therefore sparing natural areas from development and, at the same time, bringing people back into cities and towns. More specifically, by using TDR "the right to develop is severed from a 'sending' property, where development is then permanently restricted, and sold for use on a 'receiving' property, where the amount of development is then increased."[1] This system permits municipalities to choose certain areas for development and designate other areas for preservation. Through this arrangement, the landowner's land equity is preserved in his or her *development rights*, usually classified as "development credits."[2] Developers then purchase these credits to increase density in areas of the community better suited for growth, in other words, areas with existing infrastructure.

And so, "Who Cares?" about urban sprawl, its effects, and implementing TDR in Rhode Island? This growing concern about new development in Rhode Island is expressed in a letter concerning land use

[1] *from* New Jersey Pinelands Commission. "TDR Basics" (factsheet)

[2] Delaware Valley Regional Planning Commission. "Regionwide Assessment of Farmland Preservation Programs." June 1990.

written by the Rhode Island Foundation and the Rhode Island Community Foundation, which was forwarded to all of its participants in April, 1988 (Appendix B). In this letter, several salient issues pertaining to land use in Rhode Island were raised: Should the state establish statewide land use controls to "preserve character?" Should industrial development be encouraged primarily in urban areas? Or, should Rhode Islanders just "leave things the way they are?"[3] The "Pros" and "Cons" were examined for each of these questions; by looking at these, one becomes aware of the concern of Rhode Islanders regarding new and future development. Rhode Island citizens realize that not all sensitive lands can be purchased because it is too costly, and that land use controls should be created and implemented. However, these controls could make projects even more expensive, and may infuriate private property owners. The second issue expresses the need to relocate industrial development into urban areas to revitalize them.[4] Finally, Rhode Islanders cannot *leave things the way they are* because "[Rhode Island's] natural resources - forests, drinking water, open space, parks and wetlands - are limited."[5] Through the work documented in this thesis, Rhode Island planners will see that TDR addresses these concerns, and can remedy the problems associated with sprawl..

The Rhode Island Department of Environmental Management (RIDEM) is concerned since poorly planned, uncontrolled new growth is the source for many of the State's environmental problems. Some of these include the loss of farmland and forest lands, surface and groundwater contamination, and the destruction of wildlife habitat. Rhode Island city officials should care as well. The Rhode Island Public Expenditure Council's *Urban Strategy Project* report "Strengthening Cities" (January 1998), indicates that populations in the State's urban areas are moving out into non-urban areas.[6]

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[3] The Rhode Island Foundation and the Rhode Island Community Foundation. (Letter) April 7, 1988. (see Appendix B)

[4] Ibid.

[5] Ibid.

[6] Rhode Island Public Expenditure Council. “Strengthening Cities: a Report for the Urban Strategy Project.” January 1998.

This exodus can alter the city and state's general economy; and the tax-paying capacity of central cities and inner-suburbs can be dissolved. Cities can also experience difficulty in the maintenance of public service systems. TDRs can be used to bring people back into the city and promote its renewal. However, incentives or disincentives must be found and created to do this. Discouraging development of rural areas by making that development seem less attractive, financially or otherwise, is one way. For instance, educating developers about the more cost-effective opportunities for maintaining sewage and drinking water systems, will perhaps make clear that development in areas where infrastructure already exists is less expensive, as well as less damaging to the non-urban area. Choosing "receiving areas" wisely, where the necessary infrastructure is already present — e.g., a receiving area where sewage systems are close enough to tap into — is a key part in a TDR system. This may justify the mechanism of TDR to developed areas by exposing the ecological, cultural, educational and overall economic benefits to society, as well as the direct financial benefits to the developer to implementing such a system.

Chapter I describes the pattern of sprawl in Rhode Island, then discusses the consequences of sprawl on rural lands, natural resources and public infrastructure in cities and towns. Chapter II introduces the TDR concept; discusses the advantages and disadvantages of TDR over other growth management techniques; explains how TDRs have been used; and describes several examples of TDR programs in place today. Chapter III defines a "successful TDR program"; lists some of the barriers to TDR implementation; examines successful and unsuccessful factors of the New Jersey Pinelands Development Credit program and the Montgomery County, Maryland TDR program; and provides a list of conditions for the successful operation of a TDR program. Finally, Chapter IV offers recommendations for implementing a TDR program in Rhode Island based on political, legal, institutional, economic and natural resource conditions in Rhode Island.

CHAPTER I
Urban Sprawl in Rhode Island?
The Need to Preserve the State's Rural Land

"What benefit is derived from more urban flight, more rural roads, overcrowded rural schools, and thousands more families living on little, isolated islands in the woods where nearly all the amenities of life are accessible only by car? It's crazy!"

--William Eccleston
Co-chairman of the Burrillville Comprehensive Plan Committee.

Introduction

This chapter describes land use conditions in Rhode Island that justify the use of Transfer of Development Rights. This is done by first introducing "urban sprawl" and then providing evidence that sprawl is in fact occurring in Rhode Island. The consequences of sprawl on urban areas, as well as the environmental and social consequences of sprawl are also described in this chapter.

An Introduction to Urban Sprawl

The President of the National Trust for Historic Preservation defines sprawl as "low-density development on the edges of cities and towns that is poorly planned, land-consumptive, automobile-dependent [and] designed without regard to its surroundings."[7] Urban sprawl, or the insidious growth of population and development into non-urban areas, has become an unfortunate reality throughout the country. Rural lands are being turned into residential and commercial areas. Because public transportation is less available in these areas of low density population, there is increased use of automobiles. This chapter will briefly describe the population exodus from urban to suburban/rural towns that is occurring in Rhode Island and identify some of the consequences, especially environmental consequences, of this out-migration.

Indicators of Sprawl in Rhode Island

[7] Stokes, Samuel N. et al. Saving America's Countryside: A Guide to Rural Conservation. National Trust for Historic Preservation in the United States. Johns Hopkins University Press: Baltimore, Maryland, 1989.

Loss of urban population

In 1996, the R.I.P.E.C. - assembled representatives from the non-profit, private and public sectors in Rhode Island came together to form the Urban Strategy Project. This Rhode Island-specific project identified "urban" communities according to six factors representing the "essentials" of urban communities:

- *Population Density*: 2,000 or more persons per square mile
- *Population Stability*: population growth that is less than the state average of 5.9 percent during the last census decade, or loss of population.
- *Ethnic Diversity*: the percentage of 1990 nonwhite population that is at or above the statewide average (8.6 percent)
- *Economic Activity*: the municipality is an employment center, in that the number of occupied jobs in the municipality exceed the state average.
- *Urban Land Uses*: more than 45.0 percent of land area is used for urban purposes.
- *Mixed Housing Types*: the percentage of housing units in multifamily buildings exceeds the state average of 42.4 percent.[8]

Ten Rhode Island communities meet most of these criteria: Central Falls, Cranston, East Providence, Newport, North Providence, Pawtucket, Providence, Warwick, West Warwick and Woonsocket.

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[8] Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project." January 1998.

Table 1 - Urban Indicators: Rhode Island[9]

Community	Population Per Square Mile 1990	Change in Population 1980-1990	Percent Population Non-Caucasian	Percent Land Use Urban	Percent Housing Multi-family	Change in Population Night/Day
Newport	**3,573**	**-3.5%**	**11.4%**	**46.8%**	**57.8%**	**23.6%**
Pawtucket	**8,350**	**2.0%**	**10.7%**	**82.6%**	**65.4%**	**-2.1%**
Providence	**8,688**	**2.5%**	**30.1%**	**74.8%**	**74.4%**	**30.8%**
Central Falls	**14,698**	**3.8%**	**22.6%**	**79.5%**	**90.7%**	-8.6%
East Providence	**3,760**	**-1.2%**	7.9%	**60.4%**	**42.6%**	**-0.8%**
Warwick	**2,406**	**-1.9%**	2.0%	**57.9%**	23.6%	**4.5%**
Woonsocket	**5,698**	**-4.4%**	6.7%	**65.6%**	**74.2%**	-5.4%
Cranston	**2,659**	**5.7%**	4.9%	**46.3%**	37.8%	-6.1%
North Providence	**5,630**	9.9%	2.9%	**78.0%**	**45.7%**	19.5%
West Warwick	**3,705**	8.3%	2.4%	**63.4%**	**51.8%**	-23.7%
State	**968**	**5.9 %**	**8.6 %**	**21.4 %**	**42.4 %**	**-2.3 %**

Indicators	**Thresholds**
Population Per Square Mile:	2,000 Per Square Mile or More
Population Stability:	At or Below State average increase in population of 5.9 percent
Percent Population Nonwhite:	At or more than the State average of 8.6 Percent
Percent of Land Use - Urban:	At or Above 45 percent
Percent of Housing Multifamily:	At or above State Average of 42.4 percent
Change in Day/Night Population:	At or above the State average of -2.3 percent

(Note: percentages in **bold** indicate that they are above the state level for that particular criterion)

Source: Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project"[10]

The population of several Rhode Island urban areas is declining. As one can see in Table 2, in 1970, the ten urban communities (Central Falls, Cranston, East Providence, Newport, North Providence, Pawtucket, Providence, Warwick, West Warwick and Woonsocket) had 64.3 percent (610,140 persons) of the state's total population (948,817 persons). The 35.7 percent balance or 338,677 persons lived in the state's twenty nine non-urban communities.[11] Between 1970 and 1990, the total population in these Rhode Island cities declined by 2.3 percent: from 64.3 percent (1970) to 59.4 percent (1990).[12] Five of the ten urban

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[9] Ibid.

[10] Ibid.

[11] The twenty-nine non-urban communities are: Barrington, Bristol, Burrillville, Charlestown, Coventry, Cumberland, East Greenwich, Exeter, Foster, Glocester, Hopkinton, Jamestown, Johnston, Lincoln, Little Compton, Middletown, Narragansett, New Shoreham, North Kingstown, North Smithfield, Portsmouth, Richmond, Scituate, Smithfield, South Kingstown, Tiverton, Warren, Westerly and West Greenwich.

communities had a decreased population, ranging from a decline of 4.4 percent in Woonsocket to a decline of 18.3 percent in Newport.[13] The state's non-urban communities saw a 20.2 percent increase during this same period, and represented 40.6 percent of the state's total population in 1990.[14]

Table 2 - Rhode Island Population

	1970	*1980*	*1990*	*2000*	*Projected Change 1970-2000*	*Projected Change 1990-2000*
Urban	610,140	586,485	596,338	590,712	- 3.2%	- 0.9%
Non-Urban	338,677	360,669	407,126	421,248	24.4%	3.5%
State	948,817	947,154	1,003,464	1,011,960	6.7%	0.8%

Source: R.I. Public Expenditure Counil. "Strengthening Cities: a Report of the Urban Strategy Project" (1998)

The Bureau of the Census predicts that there will be approximately a 0.8 percent increase in Rhode Island's total population from 1990 to 2000. Nonetheless, the urban population is expected to continue decreasing, by 1.0 percent from 1990 to 2000: both Providence and Central Falls are expected to decrease by 2.5% each.[15] As noted in Table 2, the non-urban population of the State is expected to increase by 3.5 percent during this same decade. The urban communities in Rhode Island that are not expected to experience decline in population during this period are North Providence and West Warwick.[16]

The state's total population has been projected to increase by 6.7 percent from 1970 to 2000.[17] More specifically, over this thirty-year period, the Census estimates that the **urban** communities' population will

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[12] Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project." January 1998.

[13] Ibid.

[14] Ibid.

[15] Rhode Island Department of Administration Statewide Planning Program. "Rhode Island Population Projections By Age, Sex, and Race 1995-2020." May 1997. Page iii.

[16] Ibid.

[17] Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project." January 1998. 40. *[Note: Prior to 1970, an exodus from cities occurred in Rhode Island: it should therefore de recognized that this outward move from urban areas in Rhode Island is a continuing trend].*

decline by 3.2 percent and that the **non-urban** communities' population will ***increase by 24.4 percent***.[18] This distinctly illustrates a shift in population from urban to non-urban communities in Rhode Island, which would place a significant demand on presently undeveloped land and the natural environment, the provision of services, and even possibly lead to urban decay.

Land Use Patterns in Rhode Island

There are 689,426 acres of land in Rhode Island. The ten urban communities occupy only 13 percent of the total state land area; and the twenty-nine non-urban communities cover 87 percent.[19] The difference in population density between the urban and non-urban areas is evident. The ten urban communities have 6.77 persons per acre, or 4,414 persons per square mile, whereas the twenty-nine non-urban communities have approximately 0.68 persons per acre, or 452 persons per square mile.[20]

Table 3 - Rhode Island Land Use

	Total Acres	***Percent of State***	***Industrial***	***Percent Industrial***	***Open Space***	***Percent Open Space***
Urban	88,051	12.8 %	4,368	5.0 %	22,305	25.3 %
Non-Urban	601,375	87.2 %	2,860	0.5 %	450,818	75.0 %
State	689,375	---	7,228	1.0 %	473,123	68.6 %

Source: R.I. Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project" (1998)

Ninety-five percent of the 473,123 acres of open space in the State (including agricultural land, forest brush land, barren land and wetlands) is located in the non-urban communities (450,818 acres.) While some of this land is not suitable for development because of steep slopes, unsuitable soil conditions and flood plains, there is still strong potential for new residential development.[21] The 22,305 acres of open space in the urban communities represents 25.3 percent of the total urban area; whereas the 450,818 acres of open space in the non-urban communities represents 75 percent of the total non-urban land area. This

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[18] Ibid.

[19] Ibid.

[20] Ibid.

[21] U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census. 1990 Census of Population, General Population Characteristics: Rhode Island. Issued June 1992.

demonstrates a noteworthy perspective on the amount of land available for future growth in Rhode Island's non-urban centers.[22]

Housing Starts/Building Permits

Sprawl in Rhode Island can also be evident in the number of permits for the building of single family homes. Around 2,800 permits were given out annually between 1970 to 1995. It is interesting to note that cities released roughly 740 single-family permits each year and that non-urban communities gave out 2,060 each year.[23] Twenty-nine non-urban communities were responsible for 73.5 percent of the total building permits issued between 1970-1995.[24] This statewide figure does not show the greatly increased numbers of single family permits in individual rural communities. For instance, there were high increases between 1970 and 1980: Exeter experienced a 74.8 % increase in numbers of permits issued; Richmond a 66.8% increase; Glocester a 67.9 % increase; Charlestown a 55.5% increase; Coventry a 36.3 % increase; South Kingstown a 35.2 % increase; Hopkinton a 33.7 % increase; and Foster a 29.5 % increase.[25] In 1995, Councilman Peter Pastore (D, Cranston) proposed that housing construction be limited to control the cost of police and fire protection, as well as education. "Housing starts and new homes actually place a greater demand on services," says Pastore. "Eventually you get to the point of needing new fire stations and schools."[26]

School Construction

"*New schools are being built almost to the exclusion of other capital expenses*"

--Anthony Lachowicz

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[22] Ibid.

[23] Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project." January 1998. 41

[24] Ibid.

[25] Salit, Richard. "Cranston Officials Considering Setting Limit on Housing Starts." The Providence Journal-Bulletin. June 13, 1996. News Section, Pg. 3D.

[26] Ibid.

Daniel Varin, former Director of the State's Division of Planning, believes that the search for good schools is one of the prime motivators for people to leave the urban areas.[27] Rhode Island schools have been and are currently being expanded for the incoming new students in Westerly, South Kingstown, Narragansett, and Scituate, as these towns are experiencing significant population growth.[28] Celeste Bilotti, Educational Finance Officer with the Rhode Island Department of Education, noted that there has been an increase in the number of schools built since the 1970s. But between the late 1980s and mid 1990s, thirteen new schools were built in the State.[29] There are ten new elementary schools in Central Falls, Cranston, East Providence, Glocester, Jamestown, Narragansett, North Smithfield, South Kingstown and West Warwick; two new middle schools in Burrillville and Chariho; and one new regional high school for both Exeter and West Greenwich.[30] The South Kingstown Newsletter has indicated that urban sprawl has placed stress on this public service without generating sufficient taxes to pay for it.[31] Not only do the numbers of new schools and additions to existing schools in rural and suburban areas suggest sprawl, but also enrollment numbers in these schools truly indicate a pattern of growth. South Kingstown expects to need a new elementary school in the next couple of years: the town had 85 new elementary students enrolled in 1995.[32] And the Exeter-Greenwich district reports approximately 100 additional students each year.[33] Paul Rennick, North Kingstown's superintendent indicates that although demographic studies show a flat growth rate for North Kingstown's schools, enrollment numbers verify otherwise: one year's enrollment increased by 87 students. "We don't quarrel with the statistical analysis, but our gut feeling all along is: North Kingstown is going to grow. If gradually, it's still going to grow," he said.[34]

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[27] Ibid.

[28] Ibid.

[29] Personal communication with Celeste Bilotti, July 31, 1997.

[30] Ibid.

[31] Town of South Kingstown Growth Management Newsletter. South Kingstown Planning Department. 1997.

[32] Frank, Thomas. "Schools Struggling to Meet Demand for All-day Kindergarten." The Providence Journal-Bulletin. August 22, 1994. News Section, Pg. 1C.

[33] Ibid.

Consequences of Sprawl

There is evidence that sprawl affects rural and suburban communities. Sprawl has diminished our numbers of acres of open space. Daniel Varin, former Director of the RI Division of Planning, notes that there is constant pressure on farms, forests and wetlands due to the population migration patterns. Citizens are also concerned about the fiscal and social impacts of growth since they do not want to see any more tax hikes, which occur to pay for the increase in service costs. "The fact that this is such a dispersed pattern means it's affecting virtually every community," says Varin. "When people move from cities and older suburbs to newer suburbs and rural communities, they tend to want the same services they've been used to. So they are spending more to catch up. At the same time, the cities' costs tend to be fixed, so as they lose population, they have fewer people to help pay the costs."[35] James Dodge, president and CEO of the Providence Energy Corporation, wrote in an editorial in the Providence Journal Bulletin that the Providence Energy Corp. has spent about $18 million over the last three years to add pipes and equipment to serve new customers in Rhode Island. "These pipes are often located on the periphery of Providence Gas Company's service area, following the tracks of new housing subdivisions and industrial parks into the suburbs and rural areas." Derwent Riding, a Principal Planner in Community Planning with the Office of Municipal Affairs in the Rhode Island Department of Administration, explains that says that this Providence Journal Bulletin article's point is to show that the "expansion of the service area is not to serve an expanded customer base. The customer base has stayed relatively static.."[36] From this urban outward migration, "explosive" growth occurs in small towns where neither the local staff nor the funding exists to take in such an influx. [37]

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[34] Ibid.

[35] Salit, Richard. "Cranston Officials Considering Setting Limit on Housing Starts." The Providence Journal-Bulletin. June 13, 1996. News Section, Pg. 3D

[36] Personal communication with Derwent Riding, September 23, 1998

[37] Dodge, James. "Prevent Urban Sprawl by Promoting Smart Growth." The Providence Journal Bulletin. Commentary. July 1, 1997.

There is evidence of consequences of sprawl on Rhode Island cities. One is the increase in numbers of vacant lots and abandoned properties.[38] Urban sprawl leads to traffic congestion, which results in pollution, higher energy costs, lower economic productivity and a "general decline in citizens' quality of life."[39] Part of the diminished quality of life comes from the waste of personal time because of the increase in driving time. With population, employment, recreational facilities farther apart, more cars are used.[40] Sprawl also adversely affects municipal fiscal health: when taxpaying citizens leave and taxable properties are abandoned, the tax income of inner cities and suburbs is lowered.[41]

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[38] Personal communication with Thomas Rossi with the City of Providence Tax Assessor's Office. March 1999.

[39] Robert H. Freilich and S. Mark White. "Transportation Congestion and Growth Management: Comprehensive Approach to resolving America's Major Quality of Life Crisis." 24 LOY.L.A. L. Rev. 915, 919-920 (1991); [in Anthony Downs, The Need for a New Vision for the Development of Large U.S. Metropolitan Areas.]

[40] Senate Office of Research, Report on Urban Growth Policy Project 24-25. 1989.(*reporting that the sprawl pattern of low-density residential development induces automobile reliance by consuming land n the urban fringe and minimizing the density necessary to make public transit financially feasible.*)

[41] Kenneth T. Jackson. "The Effect of Suburbanization on the Cities." Suburbia: The American Dream and Dilemma. P.Dolce (ed.) 1976.

Environmental Consequences

"These are places that are invested with rich symbolic importance that contributes to our identity and sense of belonging in a way - no less fundamental than religion, language or culture. The public realm is the physical manifestation of the public good. When you neglect the public realm, you neglect the public good."

Edward T. McMahon,
Director of The Conservation Fund's American Greenways Program

Open Space

Some of Rhode Island's strongest environmentalists were brought together in April 1990 to discuss how Rhode Island could become a "green state." This assembly, appropriately called "Green Rhode Island" (GRI), included Harold Ward and Robert Kates from Brown University, Caroline Karp, Director of the State's Narragansett Bay Project, Robert Bendick, Director of DEM, Sean Coffey, attorney and State Senator, Mary Kilmarx, Director of Energy Policy at the Public Utilities Commission, and Curt Spalding, Acting Director of Save The Bay. One can learn how important it is to protect open areas in Rhode Island from the GRI group's discussions. The GRI concluded that there is a need for protection and linkages of greenspaces, and offered several suggestions why. In 1988, 135 sites in Rhode Island were recognized by the Scenic Landscape Survey of Rhode Island and deemed as "distinctive and noteworthy" landscapes; the total area of these sites put together is approximately 100,000 acres, many of which are in need of protection.[42] The Natural Heritage Program of Rhode Island conducted a study and found 302 plant and animal species that were either "endangered," "threatened," or of "special interest or concern." Forty percent of Rhode Island's rare species' habitats are presently under protection.[43] The GRI group also concluded that open areas are not only needed to protect habitats, but also to link "existing and public land holdings" and to "provide equity for all state residents in gaining access to the state's scenic, recreational, and natural areas."[44]

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[42] Ward, Harold and Robert W. Kates. "Will Rhode Island be the First Green State." Environment. Vol.32, No.8, October 1990.

[43] Ibid.

[44] Ibid.

The health of Rhode Island's natural environment has been and is still of great concern to the state's citizens for obvious reasons. Firstly, Rhode Island is approximately 60 percent forested.[45] It has a high proportion of inland waters - 13 percent including Narragansett Bay. Rhode Island has 100,000 acres of its approximate total 689,000 acres protected: 56,000 acres are owned by the state, 1000 acres are federally owned, 31,000 acres are devoted to open space, local parks and water supply areas, and 10,000 acres are owned by private conservation organizations.[46] Since sprawl is one of the greatest causes for the loss of prime agricultural land and open space (estimated to be as much as 1.5 percent per year in the US[47]), some of Rhode Island's farmland has been protected by a Purchase of Development Rights, or PDR, program.[48] By 1990, the state had protected 1,500 acres of farmland with its PDR program.[49] Rhode Island, through its environmental efforts, either by State agency or non-profit initiatives, has demonstrated an interest in protecting its wetlands, forests, groundwater recharge areas, drinking water supplies, wildlife habitats and greenways.

Farmland

From 1980 to 1997, over 20 percent of Rhode Island's farmland has been lost to development.[50] The agricultural community in the State has been touched by the effects of sprawl, as many Rhode Island residents prefer to live in rural areas and commute to urban areas. With this, the pressure for farmers to sell their land to developers for housing projects increases more and more.[51] Kathryn Ruhf of the New England Small Farm

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[45] United States Department of Agriculture Forest Service Survey. From *Highlights: Forest Area*. Resource Bulletin NE-104. May 1990

[46] Ward, Harold and Robert W. Kates. "Will Rhode Island be the First Green State." Environment. Vol.32, No.8, October 1990. [approximate State total 689,000 acres taken from Rhode Island Public Expenditure Council. "Strengthening Cities: a Report of the Urban Strategy Project." January 1998.]

[47] Freilich, Robert H. and Bruce G. Peshoff. "The Social Costs of Sprawl." The Urban Lawyer. Spring 1997.

[48] Ibid. and personal communication with Lisa Pointek. September, 1997.

[49] Ibid.

[50] *Information is from the* Natural Resource Conservation Service in Warwick, Rhode Island.

Institute, has been meeting with farmers and non-farmers to discuss the "Foster Farming Initiative," which aims to preserve towns' rural characters by keeping farms in use and getting more people involved with agriculture. "We don't have the problem of consolidation of farms like they do in the Midwest," Ruhf said, "we lose our farms to non-farm uses."[52] Aquidneck Island used to hold some of the most splendid panoramic views of Narragansett Bay and vegetable farms: but rampant development has overtaken more than half its land. Now, 12,755 acres of the 20,012 total acres are occupied by residential, commercial and industrial uses.[53]

Forested land

Rhode Island has 404,800 acres of forested land, representing 60% of the State's land area.[54] The timberland areas cover 371,700 acres, representing 92% of the State's forest land, 88% of which is privately owned: but there has been a 7% decrease of this area between 1972 and 1985.[55] In April 1984, the Rhode Island Division of Planning published the Forest Resources Management Plan, in which fourteen valuable resources provided by forests are described: wood products, game and non-game wildlife habitat, recreation, watershed protection, erosion prevention, groundwater recharge areas, local climate stabilization, education and research, atmospheric equilibrium (carbon dioxide absorption), air and water pollution abatement, aesthetic quality, stabilization of the State ecology, rural home sites and open space.[56]

Forests in Rhode Island are vital to the well being of both the State's citizens, ecology and its economy. Along with agricultural practices, the shifting of the population from urban to non-urban areas of Rhode Island is one of the causes for the decrease in the amount of forested areas and size of forest tracts since the 1960s.

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[51] Mockenhaupt, Brian D. "Brainstorming session builds ideas to boost farming; About 60 people discussed the 'Foster Farming Initiative' Friday night." The Providence Journal-Bulletin. November 12, 1996. North West Edition. News Section, Pg.3C

[52] Ibid.

[53] Personal communication with RIDOP representative (name unavailable). October 1997.

[54] United States Department of Agriculture Forest Service Survey. From *Highlights: Forest Area*. Resource Bulletin NE-104. May 1990.

[55] Ibid.

[56] Rhode Island Office of State Planning and the Rhode Island Division of Forest Environment. Rhode Island Forest Resources Management Plan. (State Guide Plan Element 161). April 1984.

The forest economy provides 22 percent of the state's total agricultural economy.[57] For instance, the state's 33 sawmills produce 25 million board feet of lumber each year, which have an approximate value of $7.5 million.[58] There are other forest products that contribute to the forest economy, these are: pallet wood, plywood, Christmas trees, maple syrup and bark mulch.[59] Diminishing Rhode Island's forests would be detrimental to the state's agricultural economy and environmental health.

Drinking Water/Aquifers

Ninety percent of Rhode Island State residents obtain water from a public water supply system.[60] Of all the drinking water in the State, 75 percent is stored in surface water reservoirs and groundwater aquifers.[61] The State's watershed land must be protected to guarantee the State's high quality of its drinking water. However, local communities do not have much control over their watersheds. Twenty-five percent of the 93 square mile Scituate reservoir watershed is owned and protected by the City of Providence Water Supply Board.[62] The watershed is approximately 91% undeveloped, but most of the watershed land privately owned and therefore not protected from possible pollution. The other public drinking water supply systems in Rhode Island are similar to the Providence system just described.[63]

When watershed land is developed, there is diminished quality of the State's water. The primary cause of Rhode Island's diminished water quality has been increased development and urbanization of the state's watershed land.[64] And much of the residential and commercial development in Rhode Island is located near

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[57] Ibid.

[58] Ibid.

[59] Ibid.

[60] Ibid.

[61] Ibid.

[62] RI Department of Environmental Management. "Scituate Reservoir Watershed Zoning Project." Technical Planning Assistance Project No.97. 1996.

[63] Rhode Island Department of Environmental Management and the Division of Planning and Development. "Protecting our Land Resources." May 1996.

water sources. Forested land in Rhode Island, as well as open spaces in general, provides a natural filter system for water. This natural form of water cleansing actually saves communities money; without it, there would need to be additional water treatment facilities_constructed costing millions of dollars to build and maintain. As it is less expensive than building these new facilities, relying on forested land and open space to filter water, and therefore protecting the land surrounding watersheds, is becoming more and more important to Rhode Island cities and towns.[65]

Wildlife Habitat/Endangered Species/Biodiversity

In Rhode Island there are 1,500 species of native plants and 278 vertebrate animals (including 168 nesting birds).[66] The Rhode Island Department of Environmental Management's Natural Heritage Program (NHP) has identified over 400 species considered to be the most vulnerable to decline in the state. This number represents less than 5% of the state's actual total biotic diversity.[67] In the last one hundred years, more than 44 species of plants and at least 9 species of animals have been annihilated due to natural habitat destruction from development. Evidence exists that the loss of species from Rhode Island continues due to habitat conversion: migratory corridors for birds and other wildlife found in Rhode Island's open space, where food, water and shelter are provided, have been interrupted or blocked by development.[68] These endangered and threatened species can only be safeguarded if their habitats are protected.

Habitat degradation many times results when human development patterns cause **fragmentation** of habitats. Fragmentation is when large natural landscapes are separated into smaller patches, which are even further separated by patches of developed land. This can disrupt the migratory corridors of many species. If, for instance, the forest tract is split by the construction of a new road, neither one of the two tracts will provide the spatial needs for those species. Fragmentation does not only occur in forested areas but also

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[64] Ibid.

[65] Ibid.

[66] Ibid.

[67] Rhode Island Natural Heritage Program, Rhode Island Department of Environmental Management. *Rhode Island Biodiversity Conservation Plan.* 1997. (unpublished draft)

coastal beaches, grasslands, wetlands, etc.; no matter the land type, the impact on wildlife and plant species is the same: ecosystems that have been fragmented experience a loss in biodiversity and can threaten more species.[69]

[68] Ibid.

[69] Ibid.

Social Consequences

Decreased "Quality of Life"

As sprawl diminishes the rural land area, there are fewer recreational areas for outdoor activities for the Rhode Island population to enjoy. The forested and rural landscapes provide an escape the cities' noise and congestion; Rhode Islanders enjoy fishing, swimming, camping, cross-country skiing, and other activities associated with undeveloped space. Therefore general "quality of life" is improved from having protected areas. As development continues to expand, the rural qualities that attracted people to the area in the first place slowly erode. Rhode Island's open spaces and forests are vital in assuring the continued quality of Narragansett Bay, rivers and their watersheds.

Fiscal Consequences/Impacts of Sprawl

Sprawl requires new or additional infrastructure in less developed areas. Especially with large-lot single-family zoning, sprawl creates large public *infrastructure and operating costs* and increased *housing purchasing prices* and *occupancy costs*.[70] It requires elongating service routes for fire, police, emergency, and road maintenance, and leaves older city and town centers with a declining population and an underused infrastructure.[71] However, this only describes some of the financial cost. The environmental cost from the impact of sprawl, seen in the additional air pollution from automobiles, stream and lake degradation from development runoff and increased fragmentation of wildlife habitats, is not only an ethical cost but a fiscal one as well. The disruption of traditional farming and forestry activities in rural areas also becomes an economic cost. As routes become longer and new infrastructure is added, various other costs for basic services arise, for instance, electricity, drinking water supply, transportation, waste water treatment, heating oil and natural gas.

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[70] Gordon, Peter and Harry W. Richardson, "Cities in Competition: The Emergence of Productive and Sustainable Cities for the 21rst Century." 1994.

[71] Maine State Planning Office. "The Cost of Sprawl." Executive Department Report. May 1997.

Tax Rate Increase

Local government officials, faced with the problem of generating new revenues to pay for needed town services, often look to increased development as a source of new income. But research has shown that the long term costs of providing services to residential areas far outweighs the income received in property taxes. Building new homes almost always results in higher taxes. Deb Brighton, a Tax Policy Analyst with the Ad Hoc Associates in Vermont, states that "many people believe that bringing in commercial development will swell the tax base and therefore lower taxes."[72] In her Massachusetts tax study, Brighton found that increasing non-residential development can heighten tax rates rather than lower them.[73] Open spaces, forest and farmland provide more income from taxes than they require in expenses. Generally, these forest and farmlands generate revenue for a neighboring community which can help pay for services like schools and parks.

The Southern New England Forest Consortium Inc. (SNEFCI) performed a study on the Cost of Community Services (COCS) in Connecticut, Massachusetts and Rhode Island.[74] The study demonstrated that residential developments cost more in services than they paid in taxes. On the contrary forest and farmland contribute to city budgets. The towns in Southern New England spent approximately $1.14 for every dollar the residents paid in taxes.[75] This is compared to about 42 cents on public services for every farm, open space and forest dollar. The COCS study convincingly shows that residential development does not improve the tax base and that forests, farmland and open space provide a high yield investment.[76] When development encroaches on open spaces, the entire community will suffer from increased property taxes as well as from the loss of rural lands.

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[72] Personal communication with Deb Brighton. March 1999.

[73] Brighton, Deb. Community Choices: Thinking Through Land Conservation Development and Property Taxes in Massachusetts. Press for Public Land, 1988.

[74] Southern New England Forest Consortium Inc. "The Cost of Community Services for Southern New England." 1995

[75] Ibid.

Addressing Sprawl

Land Use Planning in Rhode Island: Sustainability, Capability and Livability

In June 1989, the Rhode Island State Planning Council approved the document *Land Use 2010: State Land Use Policies and Plan* as element 121 of the State Guide Plan. This replaced the 1975 State Guide Plan Element 120, *State Land Use Policies and Plan.*[77] Sustainability, capability and livability in Rhode Island are issues greatly touched upon in the report. Management ***Sustainability*** demonstrates the notion that the "way land is developed (or left undeveloped) should reflect both projected needs of the state and the long-term impacts on our natural resources, so that we can sustain a healthful and economically sound society." ***Capability*** represents the notion where land areas "can be assessed in terms of their physical and cultural qualities and that these qualities make the land less or more capable of accommodating development." And according to the report, ***livability*** is "that responsibility to foster community well-being and attractiveness [which] occupies an essential place in land use and development."[78] These three elements, as implied in the plan, lead to a healthy, organized way of planning for future growth in Rhode Island. In the 1989 *Land Use 2010* plan, under the "Recommendations" section 121-9, the State Planning Council strongly encourages the preservation of open land and farm land, as well as preservation of historic structures and landscapes, "through carefully constructed Transfer of Development Rights programs."[79]

Conclusions

As urban sprawl is affecting the lifestyle and land use of Rhode Island's more rural communities, State and local planners have been examining methods for controlling sprawl and preserving rural land. The State has seen a need for action to be taken to prevent sprawl and/or encourage proper growth management for the health of its land, its resources and its people. The Transfer of Development Rights program has been operated in

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[76] Ibid.

[77] Rhode Island Department of Administration Division of Planning. *Land Use 2010: State Land Use Policies and Plan.* State Guide Plan Element 121, June 1989.

[78] Ibid.

[79] Ibid. Section 9-7, "Recreation and Open Space."

other states to specifically address these issues Rhode Island is confronted with; this thesis recommends that the TDR system be used in Rhode Island. First, there are issues concerning the structure and operation of a program that need to be addressed prior to initiating and implementing TDR; this will aid in providing specific recommendations for the best approach in Rhode Island. The following chapters will introduce the concept of transferring development rights in order to preserve Rhode Island's pristine areas, conserve greenspace, wildlife habitat, water systems, as well as to promote urban renewal and incite economic growth by bringing people back into the State's cities and towns.

CHAPTER II

The Transfer of Development Rights Mechanism: How Has It Been Used in Other Jurisdictions?

"Our purpose, then, is, not to create new luxuries, but to preserve old necessities; not to add new outlets for public expenditure, but to save untold financial burdens. It is to develop the places most valueless, commercially, so that they may be most valuable for the cause of humanity. It is to stimulate growth along proper lines."

Metropolitan Park Commission of Providence Plantations
Fifth Annual Report to the General Assembly of Rhode Island, 1909

Introduction

In addressing urban sprawl, the planner, governmental official, or preservationist must consider the environmental issues associated with it. A variety of planning strategies have been used to contain urban sprawl, protect environmentally-sensitive areas and prime agricultural land, and to direct future urban development. The Transfer of Development Rights system considers both the preservation and urban growth goals by displacing development from an area of preservation to an area which has the existing infrastructure to accommodate new development, i.e., an urban or suburban area. TDRs for preservation became a topic of research and study in the mid-seventies, after a strong concern grew from published reports of the loss of farmland from increased development. In 1975, *US News and World Report* published an article that stated that each year since World War II, an average of 1.4 million acres of farmland, an area larger than Delaware, had been converted by development.[80] Concern grew in the west, when the San Francisco Bay area noticed that 21 square miles of agricultural land were developed each year[81], as well as in the east when New Jersey calculated that the State lost 650,000 acres of farmland between 1950-1975.[82] During that same time period, Connecticut's farmland was reduced from 1.6 million

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[80] U.S. News and World Report. "Suddenly, An Alarm Over Vanishing Farms." September 15, 1975. 67.

[81] Smith, E. and D Riggs eds. Land Use, Open Space and the Government Process. 1974.

[82] "State Pushing to Save Open Spaces; Zoning, Tax Cuts and Development Rights Used." The New York Times. May 25, 1975. P.41, col.1.

acres to less than .5 million.[83] The TDR approach guides development back into urban and suburban areas, and aids preservationists in the protection of rural and open spaces. There are 107 TDR programs in the United States today; a list of them can be found in Appendix C: "TDR Programs By Location." This chapter will define the TDR mechanism, and explain how TDRs have been used. The following sections will review six existing TDR programs used to protect natural resources. They have been chosen out of the 107 TDR programs in the nation not only because they have generated the most transfers[84], but also because they have a variety of goals. These six programs have therefore been chosen to demonstrate some of the possible uses and structures of TDR.

Definition of Transfer of Development Rights

The Transfer of Development Rights system permits development rights to be transferred from one area to another. "Development rights" are defined as the difference between the existing use of the parcel and its potential use as permitted by existing law.[85] TDR can be used as a growth management tool to pro the development rights are usually transferred from a rural protection area or "sending zone" to an urban or suburban "receiving area," i.e., with adequate public services or fewer resources to be preserved.[86] In most cases, the formula for allocating of development rights is calculated by a local community in rights per acre. Development rights, or *credits*, are then allotted to the developer in the receiving area. The incentive for the developer of the receiving area to use development rights is the "density bonus" he/she receives; the developer can then build on his/her property beyond the limits that the zoning in that area permits.[87] Landowners of "sending areas" are able to cash in on the monetary value of the development rights as well as preserve the resources of their land. Once sending property owners sell their development rights, they may still continue to use other rights on their land, e.g. farming, and retain the underlying property for

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83 Ibid.

84 *only 46 programs of the 107 total programs have actually had transfers occur*

85 Pizor, Peter J. "Making TDR Work: A Study of Program Implementation" Planner's Notebook, American Planning Association Journal. Spring, 1986.

86 Stokes, Samuel. Saving America's Countryside: A Guide to Rural Conservation. Johns Hopkins University Press: London, 1989. P.153

beneficial use (other than on-site development.) In the minds of many, as Professor James Nicholas notes, a TDR program is simply a means of compensating property owners for the loss of their development rights.[88] However, Joel Russell, a land planning consultant, offers another view: that TDRs make developers pay the cost of preserving rural land – in the same way of having a polluter pay for polluting.[89] The TDR mechanism should not be confused with the Purchase of Development Rights, or PDR system, where the government only ***purchases*** development rights; the TDR system organizes ***transfers*** of rights to an urban growth area identified by a community.[90]

History

The Transfer of Development Rights concept originated in 1961 through the work of a planner named Gerald Lloyd.[91] Lloyd, in his technical bulletin for the Urban Land Institute, discussed transferring development from one property to another. After the Lloyd publication, others ensued in the 1970s discussing development rights transfers. These include works most notably by Budd Chavooshian and John Costonis.[92] TDR was first used in New York City in 1968, under the city's Landmarks Preservation Law, and development rights were transferred between adjacent properties to protect historic landmarks. In the 1970's, 21 TDR programs were created (most to preserve rural land), and another 56 were created in the 1980's; from 1990 to 1996, one can count the adoption of 29 TDR systems.[93] This amounts to a total of 107 TDR programs in place today in the United States, and more and more TDR ordinances continue to be

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87 Schiff, Stanley D. "Real World Experience with TDRs" -- An Update". Piedmont Environmental Council.

88 James Nicholas, RPA Conference material

89 personal communication with Joel Russell, October 21, 1997.

90 Schiff, Stanley D. "Real World Experience with TDRs -- An Update". Piedmont Environmental Council.

91 Lloyd, Gerald. "Transferable Density in Connection with Zoning". Technical bulletin no.40. Washington: Urban Land Institute. 1961.

92 Chavooshian, Budd B, Thomas Norton and George Nieswand. "Transfer of Development Rights: A New Concept in Land Use Management." Urban Land. Vol. 32. (973. Costonis, John. Space Adrift: Landmark Preservation and the Marketplace. Urbana, Illinois: University of Illinois Press for the National Trust for Historic Preservation. 1974.

93 Pruetz, Rick. Saved by Development: Preserving Environmental Areas, Farmland and Historic Landmarks with Transfer of Development Rights. Burbank, California: Arje Press, 1997. P.10.

adopted.[94] Over the last thirty years, since the first New York City TDR program, sending and receiving areas became two geographically separate areas, or non-adjacent parcels of land; the TDR concept therefore became more complex, but able to be more widely used for a spectrum of different goals. By looking at the TDR programs over time, those that were developed in the 1970s did not generate many transfers, if at all. By observing TDR programs of the 1980s, one can learn that serious efforts were taken to insure that TDRs would take place and that the programs' goals were met. A description of various TDR program goals is found in the section below.

Goals of TDR Programs

The TDR concept has been chosen as a planning mechanism for a host of land-use problems. TDRs have been used to preserve rural land, wildlife habitats, historic landmarks, to protect agricultural and forested lands, to control development densities in areas with limited infrastructure or public services and redirect growth back into cities and towns.[95] Examples include protecting historic landmarks in New York City, cypress swamps in Florida, mountainous areas in California, pine barrens in New Jersey and flood plains near Chicago.[96]

Advantages and disadvantages of TDR

TDR programs, depending on their design, are advantageous as they can accomplish various community goals, such as the protection of rural and other environmentally sensitive areas, the development of compact urban areas, and the promotion of downtown commercial growth.[97] TDR can also be used to protect forested land, wetlands, drinking water supplies, endangered species and their habitats. A TDR program is attractive since it never ***requires*** the landowner in the **sending** area to sell his or her

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[94] *Of the TDR programs created between 1996 and 1998, this thesis only briefly discusses one in this chapter in Hebron, Connecticut, as an example of a New England TDR program. These recent programs are in their first phases of generating transfers.*

95 Pruetz, Rick. "A Transfer of Development Rights: California." Self-published Report, 1992.

[96] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

[97] American Farmland Trust. <u>Transfer of Development Rights: Saving American Farmland: What Works?</u>

development rights. It encourages orderly growth by compacting development in areas with adequate public services.[98] This growth control tool is designed to be driven by the market – developers pay to protect rural areas in exchange for density bonuses or allowances in already developed areas and, as development pressure increases, so does the capability of protecting more and more land.

What also makes TDR programs so appealing, other than being a community-based effort to manage development, is that they reveal, Charles Siemon says, "an overall sense of fairness and balance as opposed to the 'negative character' of resource protection programs which simply rely on heavy handed, strict government restrictions on the use of the land."[99] TDR programs are attractive to preservationists, for they place more permanent restrictions on future development than land acquisition programs; a TDR program also does not designate the government as permanent title holder to property interests, and allows the landowner of the sending site to keep the underlying property for use other than on-site development.[100]

Allocating Development Rights

There are several different methods of allocating development rights:

- By gross acreage owned based on the underlying zoning;
- According to the land's characteristics and its physical suitability for development; or,
- By a determination of the cash value of each eligible parcel for development[101]

In Montgomery County, Maryland, the TDR program allocated development credits through ***gross acreage***. There, landowners of sending areas were given one credit for every five acres owned. The only problem with this method is that it does not take into consideration the development potential of the property. Therefore, a landowner who owns property that is highly desirable for development would receive the same amount of credits per acre as a landowner who owns property that is not suited for development. Another technique is one that bases its allocation on the ***amount of development potential***. This method is used by

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[98] Ibid.

[99] Siemon, Charles. "Successful Growth Management Techniques: Observations from the Monkey Cage." The Urban Lawyer. Vol. 29, No.2. Spring 1997.

[100] Ibid.

[101] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

the New Jersey Pinelands program. To determine the development potential of a parcel of property, it would be necessary to use mapping techniques to discover the geographic and environmental features of the property. These features would then dictate how feasible the development of each landowner's parcel is, and it would also reveal the amount of resources that are located on the property that are sought to be preserved.[102]

Voluntary vs. Mandatory TDR Programs

"Mandatory"[103] TDR programs have separate, pre-zoned sending and receiving areas. Often, in this type of program, the sending site is down-zoned and the receiving site is rezoned for a low "base density" which forces developers who want to develop at higher density to buy development rights.[104] Some mandatory programs *require* developers to purchase development rights if they want to build outside of the sending area; this is usually the case when the receiving site in question has *not been designated* by the program.[105] "Voluntary" programs do not down-zone sending areas; credits are sold to developments that exceed the density requirements in the designated receiving areas.[106] Cheryl Inghram and Richard Roddewig, two real estate and planning consultants with Shlaes & Co. in Chicago believe that a voluntary program is ideal for where it is not necessary to entirely prohibit development.[107] The Johnston and Madison study found that voluntary programs are politically acceptable, because as they do not down-zone the sending areas,

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[102] http://www.law.pace/landuse/tdrpap.html

[103] *Although the term "mandatory" has been adopted as part of the TDR terminology, planners may choose to create their own term. A term such as "incentive-based" could be used instead of "mandatory" if planners find the latter term too strict or discouraging for landowners or developers to adopt interest in TDR.*

[104] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

105 Gottsegen, Amanda Jones. "Planning for Transfer of Development Rights: A Handbook for New Jersey Municipalities." Mount Holly, NJ: Burlington County Board of Chosen Freeholders, 1992.

[106] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

[107] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

landowners can "retain their properties' maximum value without selling development rights."[108] A TDR program can be designed to have both voluntary and mandatory characteristics if the program in question needs to tackle issues or reach its goals in a very specific way; this design may also be simply dependent on existing political support.[109]

Choosing whether or not a program has dual or single transfer zones, and choosing between prezoning and permits are also associated with whether a program is mandatory or voluntary. Mandatory programs usually zone for the sending and receiving areas. Voluntary programs usually allot permits according to an overall policy, such as limited lot coverage on steep parcels (as in the Santa Monica Mountains program) or restrictions in all areas on subdividing. Zoning-based programs have dual transfer areas, since these programs are designed to assist and augment the area's zoning. A permit-based program uses a single transfer area, since it reflects a regulatory scheme whose restrictions apply throughout the planning area.[110]

How have TDR Programs Been Designed and Implemented in Other Jurisdictions?

The different approaches to the operation and management of various programs vary according to the economy, regulations and political structure of the State, as well as geography and land use. Table 4 summarizes the attributes of six TDR programs.

[108] Ibid.

[109] Ibid.

[110] Ibid.

Table 4 - TDR Program Descriptions

	New Jersey Pinelands	*Montgomery County, MD*	*Central Pine Barrens, L.I.*	*Dade County Florida*	*New York City*	*Santa Monica Mountains, CA*
Population	450,000	781,022	1.3 million	1.9 million	8 million	11,336
Year Program Initiated	1981	1980	1995	1981	1968	1979
Administrative Agency	Pinelands Commission	Maryland-National Capital Park&Planning Commission	Central Pine Barrens Joint Planning and Policy Commission	Dade County Board of County Commissioners	City Planning Commission	California Coastal Commission and State Coastal Conservancy
Goals	Cohansey Acquifer and forest conservation	Agricultural Land Preservation	Forestland preservation endangered species and acquifer protection	Biscayne Acquifer and endangered species	Landmark preservation	Erosion and Water Quality Control, Avoid Public Service Strains
Zoning or Permit-Based	Zoning	Zoning	Zoning	Zoning	Permit	Permit
Mandatory or Voluntary	Mandatory	Mandatory	Mandatory	Mandatory	Voluntary	Voluntary
Dual or Single Zone	Dual	Dual	Dual	Dual	Single	Single
Number of TDR/TDC/ PBC/SUR Transactions	1,424 Severed Rights	4,300 Transfers	96.61 Pine Barrens Credits	Over 200 “Severable Use Rights”	12 Transfers	493.7 Transfers
Land Area Preserved	12,538 Acres Preserved	Approx. 34,000 Acres Preserved	104.22 Acres	N/A	(12 landmarks saved)	864 Lots Restricted
Current TDR/TDC/ SUR Value	$3,500 - $4,500	$10,000 - $12,000	$2,000 - $15,000	$3,000 - $5,000	N/A	$17,000 - $21,000
Processing Period	30-45 days	4 days	N/A	N/A	(varies)	2-4 Weeks

The Maryland National Capital Park and Planning Commission's Montgomery County TDR Program

The Maryland - National Capital Park and Planning TDR Program For the Preservation of Agriculture and Rural Open Space is administered and supervised a bi-county planning agency which is responsible for all planning and parks operation in both Montgomery and Prince Georges counties. Montgomery County is situated north of Washington D.C. and covers 323,000 acres. In 1973, the County saw a need to decrease the development rate and so established a five-acre minimum lot size requirement. However, this did not halt the urban sprawl that was occurring in the area.[111] In the 1970's Montgomery County lost 18% of its farmland.[112] A task force was assembled to discover the most effective way of controlling urban encroachment. It found that there were three ways for preserving diminishing farmland: down-zoning the land, buying it, or using TDRs. They decided that purchasing the land would be too expensive, that down-zoning areas would be unfair, and so the TDR mechanism was chosen. A TDR pilot program was soon put in place in Olney, in Montgomery County, Maryland. [113]

The Montgomery County Commissioners held 24 meetings with the public and community groups and decided that a successfully operating farm needed to have a minimum of 25 acres. In October, 1980, TDR was introduced into the Master Plan for the Preservation of Agriculture and Rural Open Space, and was to be used to protect the 110,000 acre Agricultural Reserve. The Commission designated a "Rural Transfer Density Zone" of 74,000 acres. The development rate was set at one dwelling unit for each five acres and the receiving areas were chosen from undeveloped sites within the "growth center areas."[114] In the Montgomery County program, zoning was used to draw distinct boundaries for growth areas. Parcels of land within the Agricultural Reserve were down-zoned from one unit per five acres to one dwelling unit per

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[111] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

112 Maryland - National Capital Park and Planning Commission 1980, 12-24

[113] Ibid.

[114] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

25 acres.[115] If a landowner in the preservation zone wants to develop, he/she must limit development to one dwelling unit per 25 acres, the housing must be on a lot no larger than 40,000 square feet per dwelling unit, and the lots must be clustered into one site of the parcel of land.[116] Montgomery County TDRs have been sold for as much as $8000 at one time, but most are sold for approximately $5000.[117]

New Jersey Pinelands Development Credit Program

The Pinelands Development Credit program is a TDR program as it shifts development away from agricultural land and environmentally sensitive areas.[118] In 1978 and 1979, Congress, the Governor, and the State Legislature acted to protect the one million acres of resources from increased development pressures. Federal and State legislation authorized the Pinelands Commission to develop a comprehensive management plan for the Pinelands. The Pinelands Commission had set several goals to their TDR program. Protecting the underlying aquifer, preserving cranberry and blueberry farms and other farmland and reducing urban sprawl were some clear cut goals of the project. The Commission's jurisdiction covered approximately one million acres, crossing county and municipal boundaries, and it included forests, wetlands, farmlands, and developed areas. Therefore, the Commission's program had to embrace a wide constituency and be equitably administered over a variety of land types.[119]

The Pinelands Commission

The Pinelands Commission was developed as an independent State agency charged under federal and state law to conduct research and create a plan to protect the Pinelands. The Pinelands Development Credit

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[115] Nicholas, James. *From* the introduction to the Regional Plan Association conference in New York City. October 1997.

[116] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[117] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

[118] The Pinelands Development Credit Program (booklet) pg. 5

Program, or PDC Program, is part of the larger protection plan called The Pinelands Comprehensive Management Plan, which went into effect in 1981. Under the PDC program, the Commission is responsible for:

- allocating PDCs to eligible properties according to a specific formula in the Pinelands Plan,
- working with municipalities to ensure that zoning ordinances permit opportunities for PDCs to be used in the Pinelands, and
- ensuring that municipal subdivision, site plan, zoning and other permits are in keeping with the Pinelands Plan's standards, including the PDC program.[120]

The Pinelands Development Credit Bank

The Pinelands Development Credit Bank is also an independent state agency, but separate from the Pinelands Commission. According to the PDC program's descriptive report, the PDC Bank is essential to the functioning of the program. The bank's responsibilities include:

- issuing PDC certificates which then enable these transferable development rights to be bought and sold
- tracking the sale and purchase of PDCs to ensure that accurate records of all transactions are maintained
- providing information to people about opportunities to buy and sell PDCs
- purchasing PDCs itself in certain cases
- periodically selling PDCs which it has purchased. [121]

Several Other TDR Programs

New York City

The New York City TDR program, which was created in 1968, was the first formal TDR program in the United States. It was implemented in part with New York City's landmark preservation program. The TDR

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[119] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[120] *from* "The Pinelands Development Credit Program" and personal communication with John Stokes, Director of the Pinelands Commission, September 10, 1997.

[121] personal communication with John T. Ross, Director of the PDC Bank, September 12, 1997.

program permitted unused air rights associated with historic landmarks to be sold, so that a third party could increase the bulk of another structure by up to 20%.[122] This, in turn would give value to the air rights, when they were not usable at the original site. Over 700 buildings have been designated as landmarks and are suitable for the use of TDR. The most well known sale of TDR in New York City is the sale by the Pennsylvania Central Transportation Company of the air rights over the landmark designated Grand Central Station.[123]

Central Pine Barrens, Long Island, New York

The Pine Barrens are an essential natural component to Long Island. The programs goals are to protect drinking water, ecological values and farmland. Long Island had an acquisition program on a county level and with State support and spent millions of dollars on acquisition. The TDR program prevents the value of land from increasing when there is an acquisition.[124] The most important feature of the Long Island TDR program is its focus on creating high value, easily accessible receiving areas. A Central Pine Barrens Joint Planning and Policy Commission was created to discover ways of preserving these environmentally sensitive areas. The Pine Barrens TDR program, adopted in June, 1995, allocates TDRs (called Pine Barrens Credits, or PBC's) to property owners within the area on the basis of the prior zoning. The program was modeled after the New Jersey Pinelands Development Credit Program.[125] In the Pine Barrens program, development rights can be transferred to increase both residential and non-residential density within "receiving areas" designed by three towns – Brookhaven, Riverhead, and Southhampton.[126] Sewage flow was also a concern that prompted the implementation for the TDR program: residential development was occurring with cesspool/septic systems. The Commission measured sewage flow and sent sewage flow

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[122] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

[123] Ibid.

[124] Personal communication with Tim Hopkins, LI Pine Barrens Commission, October 1997.

[125] Personal communication with Prof. James Nicholas (consultant for LI Pine Barrens Commission), Tim Hopkins (LI Pine Barrens Commission) and John Ross (Executive Director of the Pinelands Development Credit Bank) New York, October 21, 1997.

[126] LI Pine Barrens Commission, information booklet

from sending to receiving areas. It was calculated that 1 Pine Barrens credit would be allocated for 300 gallons of sewage flow.[127] It was originally estimated that TDRs, before the sale of Pine Barrens Credits, would be in the $12,000 price range.[128] But most properties in the Pine Barrens area were zoned from three to five acres per dwelling unit.[129] Therefore the value per acre is about $2,500 to $3,000. A Pine Barrens Credit Clearinghouse facilitates the transfer of development rights and in some cases purchases rights from property owners.[130] The Clearinghouse's responsibilities include issuing, monitoring, purchasing and selling Pine Barrens Credits. Five million dollars from the State Natural Resources Damages Account (which contains funds derived from a local natural resources damages settlement) served to initialize a revolving fund for purchases of PBCs by the Clearinghouse.[131]

Dade County, Florida

In January of 1981, it was announced by the Board of County Commissioners of Dade County, in the enacted ordinance, that the East Everglades was an Area of Critical Environmental Concern.[132] The Everglades occupy a large area of western Dade County, and are a part of the famous Florida Everglades. A component of the East Everglades Management Plan was Severable Use Rights, or SUR. The SUR program was adopted in order to 'provide a development alternative to on-site development whereby [owners of East Everglades] can secure a beneficial use of their property through off-site development….'[133] Sending sites are mostly parcels in the East Everglades and receiving sites are lands within an urban service boundary designated in the County's Comprehensive Development Master Plan.[134]

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[127] personal communication with Tim Hopkins, October, 1997.

[128] Nicholas, James. "A Report to the Pine Barrens Credit Clearinghouse on the Value of Development Rights Within the Towns of Brookhaven Riverhead and Southampton". March, 1996.

[129] Ibid., p.4

[130] "Central Pine Barrens Bulletin." March 20, 1997, pg. 1.

[131] Personal communication with Tim Hopkins, RPA Conference, October, 1997.

[132] Article II §§ 33B-11 -33B57, "East Everglades."

[133] Board of County Commissioners, Dade County, Florida. Ordinance 81-122, July 21, 1981.

[134] Pruetz, Rick. "Saved By Development." Self-published report.

The allocation of Severable Use Rights is at a ratio of one SUR per five acres to one SUR per 40 acres. However, allocation is only permitted if the property in question is located in an area that is flooded for less than three months per year. [135] By the end of 1994, over 200 SURs have been used in receiving site projects.[136]

Santa Monica Mountains, California

The California Coastal Commission was created through the California Coastal Conservancy in 1976, and since 1979, administers a TDR program to protect the fragile slopes of the Santa Monica Mountains. A landowner must obtain a Coastal permit to develop any land under Commission jurisdiction. In the beginning of this century, much of the Santa Monica Mountains land area was subdivided into small lots; these lots do not meet the current requirements for lot size, slope and environmental factors. The Coastal Commission in 1979 conducted a study that found that development of lots (in antiquated subdivisions) "would result in traffic exceeding existing road capacity and would lead to significant erosion and water quality degradation."[137] The Commission designed a pilot credit program to prevent development of "antiquated" small lots. The goal of the program, as stated in the California Coastal Commission report of 1985, was "no net increase in the number of existing lots, and the retirement of steep or sensitive lots."[138] In areas designated as "environmentally sensitive," one credit is allotted for each lot up to 20 acres in size; each additional 20 acres retired equals one credit. Credit evaluations take approximately two to four weeks; but depending on how complicated the evaluation is, it can take up to fourteen weeks.[139] This program is one of the few TDR programs which utilizes both a private non-profit and State Agency as "facilitators:" these are the California Coastal Commission and the State Coastal Conservancy. The State Coastal

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[135] Section 33B-30(A)(2) and section 33B-30 (A)(3)(a) through (c, Dade County, Florida, Code of Ordinances.

[136] Pruetz, Rick. "Saved By Development." Self-published report.

[137] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[138] Ibid.

[139] Ibid.

Conservancy acquires land in the three transfer "zones" for preservation, and also gives money and facilitates transactions. The Conservancy banks credits by purchasing credits from marginal lots in chosen subdivisions and then puts credits up for sale to developers. The price range for rights in 1995 was between $17,000 to $21,000 per right.[140]

San Luis Obispo County, California

There are two TDR programs in effect in San Luis Obispo County: the program in Cambria, a community in the Northern Coastal portion of the county, and a countywide program. The Cambria transfer of development credits is community based. Since the area is one of the few habitats of the Cambria Pine, and also contains steep, highly erodible hills, the land needed to be protected from over-building. At the end of the last century, well before the evolution of present-day development standards, 9,000 small lots were designated in the Lodge Hill area of Cambria, often on erodible slopes, on land with Cambria Pine, and in wildlife corridors. The goal here was to restrict the size of the houses being built, and to retire the lots in such an antiquated subdivision. The California Coastal Commission put up the seed money for the Cambria program, which was officially started in 1988. In ten years, this program has led, through the buying and selling of development rights, to environmentally sensitive areas being preserved, and the revolving fund has doubled.[141]

The other TDR program in San Luis Obispo County, which is countywide, began in 1996. The goal has been to protect natural resources and rural areas. The ordinance seeks to "retire" thousands of rural lots throughout the county while encouraging development in urban locations.[142]

TDR in New England

A central goal of this thesis is to provide information on TDRs to the State of Rhode Island: it is therefore helpful to look at existing TDR programs in New England, as opposed to those on the west coast, for

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[140] Mountains Restoration Trust report, 1995. (*Quote from* Peter Ireland, Executive Director)

141 Pruetz, Rick. "A Transfer of Development Rights: California." Self-published Report, 1992.

[142] Ibid.

example. Currently all the New England states allow for the establishment of TDR systems.[143] The following towns/cities in New England have adopted TDR ordinances/by-laws: Windsor, Connecticut (1976), Groton, Massachusetts (1980), Cape Elizabeth, Maine (1982), Brunswick, Maine (1986), Williston, Vermont (1990), Jericho, Vermont (1992), South Burlington, Vermont (1992), Northhampton, Massachusetts (1993), and Hebron, Connecticut (1997). However, very few transfers have occurred in these states. The towns of Williston and Jericho in Vermont have not had any transfers; South Burlington had its first transfer pass this year.[144] In the town of Windsor, Connecticut, three transfers have *almost* occurred: the first was denied because the developer in the receiving area wanted to develop in an industrial area (which the program did not allow for at that time), the second was approved but the developer decided to not take action, and the third is presently underway, as Windsor recently allowed transfers into commercial areas.[145] Windsor planners created their own version of a TDR system called the Transfer of Residential Density, or TRD. Under TRD, the land where density is transferred from is deeded to the town; in exchange, the receiving area may be developed at a higher density than the zoning allows. The TRD concept is under the Special Use section as an optional provision in the local zoning regulation. It was adopted specifically so that "development at greater residential density can occur along principal thoroughfares where mass transit and sufficient private and public community facilities, utilities and services exist, while proportional density reductions can take place in more remote sections of the town, such as agricultural areas."[146] Mario Zavarella, town planner of Windsor, says that transfers have not been

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[143] Marx, Stacey S. "Tools and Strategies. Preserving Open Space: A Guide for New England". U.S. Department of the Interior National Park Service report(joint project of the Kennedy School of Government at Harvard University and the Rivers, Trails & Conservation Programs of the National Park Service). March 1992.

[144] Personal communication with Tom Weith, Planning Director of South Burlington, Vermont. October 1997.
[A landowner transferred his development rights from a 45 acre parcel of farmland to a 170 acre adjacent area of open space close to the town border of South Burlington (with 1.1 units per acre); he has started developing in one corner of the latter property within the city's limits]

[145] Personal communication with Mario Zavarella, Town Planner, City of Windsor, Connecticut. June 1998.

[146] Zavarella, Mario. "Windsor, Connecticut: Small Town Transfers Residential Density via Zoning Credits". Practicing Planner. September 1978.

occurring as there is still a large amount of rural land left surrounding Windsor and development pressure has not increased significantly over time.[147]

Mike O'Leary, town planner of Hebron, Connecticut, stated that transfers have not occurred in Hebron because developers are discouraged by the time delays involved with the transfer process. What O'Leary suggests is that a town or county which adopts TDR into its area act as a bank. "It should set aside money to purchase rights from rural areas. But regulations have to be tight enough to make purchases - this cannot generate a profit."[148] If there is a ready reserve of development rights held in a bank, he says, developers will not have to wait to purchase rights.[149] Hebron had TDR enacted into its ordinance in 1997 to protect a lake area within the town's periphery. Developers in the already designated receiving area can only have increased density if they use TDR. For now, there is interest in TDR among developers and landowners in Hebron, but no transfers have occurred: O'Leary says that it is probably because the designated receiving area does not have a high enough market for development.[150] Many of these programs were implemented recently which might explain why so few transfers have occurred.

Conclusion

These TDR programs are designed to address specific and local community goals, whether it is to protect land or promote the development of stronger urban or suburban centers. TDR systems arrive at making actual transfers by first focusing on developing incentives or disincentives for developers to purchase development rights. The advantage to the sending area landowner of is to be able to receive monetary compensation for the land's development potential while continuing to farm or other beneficial use of his or her property. A TDR program allows a community to benefit from clustering development to areas with the existing infrastructure, instead of leaving land undeveloped site by site. The careful design of the TDR program is essential to its successful operation, addressing all of the community's goals.

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[147] Personal communication with Mario Zavarella, Town Planner, Town of Windsor Connecticut. June 1998.

[148] Personal communication with Mike O'Leary, Town Planner of Hebron, Connecticut. June 1998.

[149] Ibid.

[150] Ibid.

CHAPTER III
Conditions for Operation of a Successful Transfer of Development Rights Program

"However, all is not rosy in Montgomery County. There is still a lot of zoning that allows one housing unit on two acres. It's okay to do a little of that, but if you do a lot, it's called sprawl."

--Lee Epstein
Chesapeake Bay Foundation

Introduction

Many studies of TDR have evaluated the "success" of a program solely based on the numbers of transfers it generates. However, the "success" of a TDR program can also be judged according to the amount of land area preserved or its achieving its set goals efficiently. For the purpose of this thesis - which is to explain the TDR concept and recommend various TDR strategies for Rhode Island to preserve its rural land and renew its urban areas - two programs in particular have been chosen as case studies to demonstrate TDR program success in achieving environmental goals, as well as in transferring development to urban areas. These two programs, introduced in Chapter II, are the Montgomery County, Maryland TDR Program and the New Jersey Pinelands Development Credit Program. These programs have been chosen specifically because a) they have they had the most experience of all TDR programs in the nation in transferring rights; b) unlike many other TDR programs, these two had TDR banks established to strengthen their activity at the outset of program activity; c) they have been studied and analyzed in planning journals more than any other TDR programs in the nation, as they have been described as the two most "successful" TDR programs in generating transfers in the country today. There was a strong effort, on behalf of the planners from both Montgomery County and the Pinelands, to learning, understanding, and analyzing the TDR mechanism at the beginning of program implementation: Rhode Island planners can benefit from the information gathered and lessons learned from the planners of these two programs who observed first generation TDR programs through site visits, attendance at specialized conferences, and full literature review. With their analysis of several programs in the nation, Montgomery County and Pinelands planners became dedicated to creating stronger TDR systems to preserve rural land and strengthen urban areas.

These two TDR programs, although individually adjusted for the two different states, have quite similar structures. They are also cross-jurisdictional programs, allowing for transfers to occur from one municipality to another.[151] Rhode Island, when creating its program can use some of the lessons learned by the Montgomery County and New Jersey Pinelands programs to help avoid some of the obstacles it may encounter when introducing the TDR system to the State.[152]

Which obstacles have TDR programs encountered in other jurisdictions?

General Barriers to TDR Implementation

Implementing an active TDR program is not simply a matter of adopting a TDR ordinance. As Peter Pizor writes in his article "Making TDR Work," "the complexities of the TDR system suggest that communities considering it should pay at least as much attention to making TDR operate as they do to adopting it."[153] Some of the major obstacles in implementing and facilitating a TDR program are as follows: difficulties in designating sending and receiving areas, lack of enabling legislation, difficulties in creating a TDR commission and bank, making the program simple and flexible so that it may adjust to any political or other changes, and aiming to strike a balance between environmental goals and economic realities. These will all be discussed in detail in this chapter; as well as the conditions for successful TDR programs. Therefore, both setbacks and elements of strong TDR systems are presented below.[154]

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[151] *Note: If Rhode Island were to create a TDR program in the State, it would have to change its enabling legislation to allow cross-municipal transfers.*

[152] *Note: these two programs are also the most experienced in the Northeast of the United States. Using west coast programs as specific case studies, for example, would not be as useful to Rhode Island, as the differences between the State of Rhode Island and California, for example, are great. What is applicable in terms of a TDR program to the west coast is not comparable to what would be applicable to Rhode Island.*

[153] Pizor, Peter. "Making TDR Work: A Study of Program Implementation." <u>Journal of the American Planning Association</u>. Planner's Notebook. Spring 1986.

[154] *Much of the information for this chapter was acquired at a conference on TDR in New York City, held on October 20 and 21, 1997. This TDR conference, sponsored by the Regional Plan Association and the Lincoln Institute of Land Policy, was attended mostly by regional and urban planners and lawyers from across the nation, including the directors of both the Montgomery County, Maryland and New Jersey Pinelands TDR programs. It is important to note that there is currently a* ***very strong*** *interest in TDR programs to preserve natural areas and/or rural land; this conference is a good example of this interest. The RPA TDR Conference schedule and list of participants are attached in the Appendix.*

TDR: The Planners' Dilemma

Dennis Canavan, the Director of the Montgomery County, Maryland TDR program, believes that it is difficult for planners to create and implement TDR programs, because they focus on general problems of planning as opposed to problems with TDRs: "[Planners] should not confuse the two. It is difficult enough to implement a TDR program without having to worry about other planning issues. TDR programs get a lot of 'extra baggage.' Planners tend to weigh planning issues against each other: should they create a new TDR program or resolve lighting problems in their municipality?"[155] One can find that there are strong elements to "good" planning; planners will focus on (1) comprehensive, meaningful, and up-to date data and analysis; and (2) a series of discrete goals, policies and objectives to guide individual decisions. A strong TDR program needs to address the obstacles it may encounter early on. This is one of the purposes of this paper: to cover the conditions necessary for a successful TDR programs, to offer recommendations for strategic efforts to help create and implement a TDR program that will remain unchanged even in the face of public policy alterations and economic stress periods.

What are the major sources of opposition to TDR?

Aside from convincing landowners and developers that a TDR system should be used, convincing communities and political leaders has been difficult during the beginning stages of several TDR programs. The Regional Plan Association and Lincoln Institute of Land Policy conducted a study on proposed TDR projects (specifically West Milford, New Jersey and the Croton watershed area in New York) and how efforts have not resulted in any transactions.) [156] The study found four major reasons why a community could refuse to adopt TDR. These are:

⇒ Lack of leadership of elected representatives and TDR planning boards. Local officials may suspect that TDR program in their municipality will not generate transfers, and thus damage the official's chance for reelection.

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[155] Personal communication with Dennis Canavan, RPA TDR Conference, New York. October, 1997.

[156] Regional Plan Association and The Lincoln Institute of Land Policy. "TDR in the Tri-State Area: A Regional Workshop." From Transfer of Development Rights for Balanced Development. Section C: *Opportunities and Lessons Learned*. Regional Plan Association TDR Conference material.

⇒ Higher density unwelcome. A municipality may fear that increased density will lead to a loss of property value. There may also be concern over front-end public investments for sewage treatment infrastructure, necessary for increased density development.

⇒ Belief that the open land in the sending areas will never be developed. If there is a real lack of development potential for open land, a community may find it easier to achieve conservation goals by setting regulations rather than implementing TDR.

⇒ Developers and landowners can realize their goals through other means. If no penalties are given for TDR non-participation, or no rewards offered for TDR use, stakeholders may be directly opposed to TDR or less inclined to participate.[157]

Analysis of the Structure of the Montgomery County, Maryland and the New Jersey Pinelands Development Credit Programs

Table 5, "Comparison of Two Existing TDR Programs" is displayed on the following pages (pages 44-47) to view the similarities and differences between the Montgomery County and Pinelands programs:

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[157] Ibid.

Table 5 - Comparison of Two Existing TDR Programs (pages 46-49)

	MONTGOMERY COUNTY TDR PROGRAM	NEW JERSEY PINELANDS DEVELOPMENT CREDIT PROGRAM
Goals/ Resources Protected	Protection of agricultural lands, wetlands, forest land and general open spaces. 26,000 acres designated as Rural Open Space and 110,000 acres designated as an Agricultural Reserve (all farmland)	Preservation of agricultural and forested land. Pinelands Development Credits (PDCs) may be severed from land located in three Pinelands management areas: Pinelands Preservation Area (PA - 368,000 acres), Agricultural Production Area (AP; primarily field crops and orchards), and Special Agricultural Production Area (SAP; primarily wet crops like cranberries and blueberries.) AP and SAP represent 566,000 acres.
Background/ Enabling Legislation	• **1956**: State of Maryland adopts a preferential tax which assessed agricultural land as its value as farmland, rather than for its development potential • **1969**: Montgomery County adopts "Wedges and Corridors" land use plan[158] • **1974**: County changes the one- to two-acre residential zoning in rural wedges to a Rural Zone density of one dwelling unit per 5 acres. • **1980**[159]: Montgomery County Council adopts functional master plan "Preservation of Agricultural and Open Space" designating 26,000 acres as Rural Open Space and creating an Agricultural Reserve of 110,000 acres. Both are targeted for protection. • **1987**: County adopts a comprehensive zoning ordinance which established TDR receiving zones in those communities with TDR receiving areas in their master plans	• **1978**: U.S. Congress designates the Pinelands as the country's first National Reserve; the federal legislation authorizes the creation of a regional planning agency charged with adopting a reserve plan within 18 months. The governor establishes the Pinelands Commission, a regional agency incorporating seven counties and 53 local jurisdictions • **1979**: New Jersey state legislature passes the Pinelands Protection Act, which endorsed the Pinelands Commission and preparation of the Pinelands Comprehensive Plan • **1980**: Pinelands Commission adopts the Pinelands Comprehensive Management Plan, which separates the planning area into two parts: the inner Preservation Area, and the peripheral Protection Area. New Jersey state legislature requires all local jurisdictions within the planning area to amend their land use plans and zoning to implement the Comprehensive Plan. • **1994**: 51 of the 53 municipalities and all seven counties bring their plans and codes into conformance with the

[158] "Wedges and Corridors" plan concentrated development along spine in center of County; rural densities flanked corridor to protect the rivers that form the North and South boundaries of the County.

[159] To implement the 1980 plan, sectional map amendments rezoned 91,591 acres of land in the Agricultural Reserve from a density of one unit per five acres to a Rural Density Transfer Zone which allows on-site development of one dwelling unit per 25 acres.

		Pinelands Comprehensive Plan
	MONTGOMERY COUNTY TDR PROGRAM	**NEW JERSEY PINELANDS DEVELOPMENT CREDIT PROGRAM**
Year of program implementation	Created 1980, first transfer in 1982	Created in 1981, first transfer in 1983
Number of transfers up to present	• 6,629 TDRs • Over 400 farms protected • 38,251 acres of farmland protected (cropland, pasture, and range) ⇒ **34.77% of acres targeted**	• 130 properties protected (30 in AP and SAP areas) • Total of 13,364 acres protected. Farmland: 4,406 acres of land in AP area and 774 acres in SAP area ⇒ **3.63% of acres targeted**
Mandatory or Voluntary?[160]	Mandatory and Voluntary. All farms in the Rural Density Transfer (RDT) zone have TDRs (1 TDR per 5 acres). The program is considered "voluntary" for sending areas, because landowners can *choose* whether to sell or hold development rights. However, the program is considered "mandatory" because it downzoned sending areas to inspire TDR use. Developers are not required to use TDRs. They can get variances (permission to depart from zoning requirements) without TDR.	Mandatory and Voluntary. All Pinelands municipalities are required to permit the allocation of PDCs in sending areas and use of PDCs in receiving areas. However, there is no requirement for property owners to sever their PDCs from sending areas, nor for developers to use PDCs in receiving areas. But the program also defined itself as "mandatory" since the purchase of PDCs is required as mitigation when Waivers of Strict Compliance are approved and when municipalities grant density variances and use variances for certain residential uses on properties outside of the Pinelands Regional Growth Area (RGA.)
Valuation	Valuation is decided through zoning and not parcel assessments, so as to have lower administrative costs. Calculation of credit values: credits are available for residential building only. No criteria for terrain or soil type. One credit per five acres. To submit a parcel for evaluation, landowner brings in deed and proof of property's location; credit value is allotted in four days.	Sending area credit value depends on: where land is located, land type (wetland, adjacent to river, etc.), past and existing uses, type of past development, who previous owners were and how property was transferred. One credit issued per 39 acres left undeveloped on downzoned agricultural lands. Determination of credit value takes between 30 and 45 days.

[160] *Both programs consider themselves both mandatory and voluntary: information was received by fax questionnaires from the Montgomery County Commission and the Pinelands Commission.*

Types of transfers permitted	Development rights can be transferred between parcels of land that are owned by different people, parcels that are not adjacent as well as parcels that are in different local jurisdictions within Montgomery County	Development rights can be transferred through severance, sale and redemption of PDCs, from the PA, AP and SAP Areas to Pinelands Regional Growth Areas, Since February 1992, there have been additional opportunities for PDC use when Waivers of Strict Compliance (similar to a zoning variance) are approved, and when municipalities grant density variances for certain residential uses on properties outside of Regional Growth Areas. All transfers occur within the 53 participating municipalities.
	MONTGOMERY COUNTY TDR PROGRAM	**NEW JERSEY PINELANDS DEVELOPMENT CREDIT PROGRAM**
Development Rights Allocation Method	Sending areas • Rural Density Transfer (RDT) land has an on-site density limit of one unit per 25 acres • A TDR must be reserved for each dwelling on a lot greater than 10 acres in size recorded prior to RDT zone. • When no dwelling units exist on the sending site, the number of transferable TDRs can be as high as the total numbers of development rights allowed by zoning. Receiving areas[161] • Receiving areas in nine different communities. Since 1987, all receiving sites are zoned for receipt of transferred development. • Density limits depend on zoning: for example, one zone, the R-60/TDR Zone allows for as much as five units per gross acre as a baseline limit but up to seven units per gross acre for projects using TDR. • Other than through TDR, the only way a developer can exceed the base density of a receiving site, is by providing moderately-priced dwelling units, or MPDUs.	One transferable development right equals one quarter Pinelands Development Credit. PDCs are allocated to properties based on land characteristics: • Uplands in the Preservation Area District are allocated one credit (or 4 development rights) for every 39 acres. • In Agricultural Production and Special Agricultural Production Areas, all uplands and areas of active agriculture, including berry agricultural bogs and fields, are allocated two credits per 39 acres. • Properties approved for resource extraction, but as yet not mined, also receive two credits per 39 acres. • Wetlands not in agricultural use are generally allocated 0.2 credits per 30 acres (ratio based on the comparative sales prices of uplands and wetlands.) • Owners of lots at least 0.1 acre in size as of February 1979, are allocated at least 0.25 PDCs if the property is vacant and not in common ownership with contiguous land.
Development Permitted in	Yes Two exceptions for lots that are at least 25 acres in size: • tenant houses associated with farming activities are not included within	• In PA (1 PDC/39 acres) and SAP (2 PDC/39 acres) Areas, development is limited to very low intensity land uses • Land use in AP Area (2 PDC/39 acres) is generally restricted to agricultural

[161] For receiving areas, Montgomery County wanted to ensure that the bonus limit was high enough to justify the purchase of development rights, but not so high so as to overburden the existing infrastructure system

Sending Areas?	limit; • density may be exceeded to allow lots for offspring of sending site owners prior to TDR zoning. • Sending Area: 1 unit per 25 acres	uses, although low density residential development may be permitted under certain conditions. • Sending Area: 1 unit per 10 acres for housing for farm owners and employees; 1unit per 40 acres in the AP area for clustered non-farm dwellings.
Allowable Density in Sending and Receiving Areas	• Receiving area: varies depending on Master Plan. The zone code established two maximum densities: a lower base limit when transfers are not involved and a higher density to accommodate transfers from sending sites.	• Receiving Area: In Pinelands Regional Growth Area (RGA) permitted density varies depending on local zoning, ranging from 0.25 dwelling units (d.u.) per acre to 8.5 d.u. per acre

	MONTGOMERY COUNTY TDR PROGRAM	NEW JERSEY PINELANDS DEVELOPMENT CREDIT PROGRAM
TDR outreach in advance of program implementation	Yes	No
TDR Bank?	No. A County Development Rights Fund was created in 1982.[162] The Fund was primarily intended as buyer of last resort to buy TDRs if interested sellers could not find buyers in the private market. It was designed to bank any TDRs it acquired and resell them at auction to the highest bidder. After going unused for eight years, the Development Rights Fund was terminated in 1990.	Yes. Pinelands Development Credit Bank was established in 1987 by the State of New Jersey; it was capitalized with $5 million from the state general fund. The role of the PDC Bank is not to store credits but to facilitate PDC purchases and use in the private market. The Bank acts as a "buyer of last resort" ensuring that there will always be a market for PDCs should a PDC seller be unable or unwilling to find a buyer.
Number of Rights stored in TDR Bank	0 development rights	321 development rights
Source of start-up funds for bank	County (Burlington) bond ($1.5 million)	State funding
Average cost of development rights sold through TDR program over past 12 months	$10,000 - $11,000 / TDR	$3,500 per right for initial sales $4,000 per right for resales
Advice, recommendations from Directors of these programs?	Inform community of TDR at outset, begin program with TDR bank, avoid delays in TDR approvals; technical capability so staff can deal with planning, economic scientific and legal intricacies.	Provide staff and resources for implementation (public education and marketing of TDR system); monitor program performance (records of transfers, annual report); create TDR bank at outset; change and refine program if necessary.

Sources: Maryland - National Capital Park and Planning Commission "A Transfer of Development Rights Program for the Preservation of Agriculture and Rural Open Space"; Maryland Office of Planning. "Transferable Development Rights"(from Managing Maryland's Growth: Models and Guidelines); State of New Jersey Pinelands Development Credit Bank; New Jersey Pinelands Commission, "New Jersey Pinelands Development Credit Program"; American Farmland Trust TDR questionnaire; TDR fax questionnaire from Montgomery County.

[162] *Montgomery County intentionally used the term "fund" rather than "bank" to offset the possible impression of control.*

How Program Goals Affect Structure

In the Pinelands, the Commission was working to meet a number of goals: to protect the Pinelands forests, to reduce urban sprawl, to preserve cranberry/blueberry farms and other farms and to protect the underlying Cohansey aquifer. The one million acres of forests, wetlands, farmlands and developed areas fell into the Pinelands Commission's jurisdiction, which crossed county and municipal boundaries. Therefore, the Commission was responsible for needs of a wide variety of participants in order to achieve equity for all. In the program, dual transfer areas were needed since the allocation formula was decided through specific land designations. These include land -type and location, and past and present uses; and about six weeks are needed for evaluations. In the Montgomery County TDR program, the Planning Commission originally sought to protect large areas of agricultural land. Separate transfer zones were necessary to protect farmlands, and for growth areas, zoning was used to draw distinct boundaries. The Commission also set a simple credit-designation system; with one credit per five acres allotted for a sending zone parcel. Evaluations in Montgomery County are made quickly, sometimes in less than one week.[163]

Political Structure/ Enabling Legislation

The Pinelands program, created and administered through a single agency, has benefited from the US Congress' recognition of the Pinelands' environmental importance. State and local governments had been working against losing farmland to urban sprawl and the Cohansey Aquifer merited being a national preserve. According to the federal and state enabling statutes, the seven counties and fifty-two municipalities in the Pinelands are required by law to modify their zoning ordinances and master

[163] Pruetz, Rick. Saved by Development: Preserving Environmental Areas, Farmland and Historic Landmarks with Transfer of Development Rights. Burbank, California: Arje Press, 1997

plans to comply with the Pinelands Plan.[164] The Pinelands Commission, started in 1980, provides technical, economic, and legal expertise. The Burlington County Conservation Easement and Pinelands Development Credit Exchange was created by Burlington County, one of the Pinelands' seven counties. A $1.5 million county bond funded the Exchange. In 1987, the state founded and capitalized the Pinelands Development Credit Bank with $5 million from the state of New Jersey general fund.[165] The Pinelands Bank and Pinelands Commission work closely together to educate participants, explaining the economic advantages of using credits. The federal recognition of the Pinelands' importance combined with the strong state legislation assured that the TDR program had a powerful start.[166]

In 1980, the Montgomery County Council adopted the functional master plan "Preservation of Agricultural and Open Space" designating 26,000 acres as Rural Open Space and creating an Agricultural Reserve of 110,000 acres for protection. In 1987, the County adopted a comprehensive zoning ordinance, which established TDR receiving zones in those communities with TDR receiving areas in their master plans. In Montgomery County, a single local agency developed and administered the transfer program. The Planning Commission extensively researched the economic issues relating to farmland and held meetings throughout the county while developing the TDR program. A series of studies preceded the program's development, and thorough community education and outreach about the issues followed. The planners kept the program simple, and participants found its process easy to understand. Administrative costs were low because valuation was determined by zoning, not by individual parcel assessments. Although a land bank was established to facilitate transfers, it was never used. Political support was sought from the beginning, and the county administration sought to ensure that the transfer program was easy to use. There was no state mandate for this program, but consensus on the need to protect farmlands in the county supported it.

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[164] New Jersey Pinelands Protection Act, 13:18A-12. (West Supp. 1988)

[165] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[166] Ibid.

TDR Staff

The New Jersey Pinelands Development Credit Program is run by the Pinelands Commission and the PDC Bank. The Commission issues credit valuation and letters of interpretation and the Bank certifies deed restrictions, matches buyers and sellers of development credits and may purchase or sell PDCs as a last resort. The PDC Bank has three employees: the director, experienced in land acquisition, occupies a part-time position; a full time real estate developer, and one part-time assistant as an informative source. Within the Commission, there are 4 cartographers: 3 of which are specialized in the use of Geographic Information Systems, or GIS, a computer program which can be used to electronically map sending and receiving areas; the fourth cartographer specializes in aerial photographs. Also a part of the Commission are the Development Review Staff and the Planning and Permitting Staff. The Development Review Staff is comprised of 10 part-time employees, all with a background in environmental studies.[167] The Planning and Permitting staff develops initiatives to increase the use of PDCs: one example is that to get a waiver of strict compliance, one *must* purchase PDCs.[168] Once the PDC Bank has established contact with a buyer or seller of credits, the geographic location of the land area is described to the cartographers in the Commission, who then map the acreage electronically and submit the numbers to the Development Review Staff to calculate the value of the development potential of the land, in other words, how many PDCs will be issued to the landowner in question.

The Maryland-National Capital Park & Planning Commission is the only governing body over the Montgomery County TDR program. In 1980, at the time of the creation of the program, 10 to 12 people, some volunteers, worked on developing the first pilot project in Olney, Maryland and held over twenty informative meetings with farmers, developers and other interested parties. The county's bank was never used and therefore terminated after several years. Currently, there is only one government employee working on TDRs: Dennis Canavan, with the Development Review staff of the Planning Commission, and twenty years experience in zoning issues, makes sure that developers in receiving areas qualify for increased density. Others who work on TDRs in Montgomery county are 2 real estate agents, 1 appraiser

[167] Personal communication with Donna McBride, with Development Review staff of the Pinelands Commission, June 1998.

[168] Personal communication with Larry Liggett, with planning staff of the Pinelands Commission. June 1998.

and 1 attorney, all independent and **not** employed by the Maryland-National Capital Park & Planning Commission.[169] "It is a very free market. There is so much development pressure that the market takes over" says Sally Roman, Coordinator of the Research & Information Systems of the Commission. There are no cartographers working on TDR in Montgomery since sending and receiving areas were mapped at the outset of the program.

Successful and Unsuccessful Elements of the Montgomery County and NJ Pinelands TDR Programs

The **Montgomery County, Maryland program** has a reputation of being the most effective TDR program in the nation today. Five points have been identified as those that made the program successful.[170] These conditions are:

- Sufficient restrictions on sending areas to give rise to TDR sales;[171] e.g. downzoning
- Designation of receiving sites with infrastructure capability and sufficient (Montgomery County focused on the availability of sewer lines and public water) development demand to make additional density increases attractive to developers
- Recognition of the economic and financial conditions that underpin a TDR market and determine the value of TDRs to both sellers and buyers
- Having a TDR program that is simple and understandable and that does not require complex approvals
- A firm commitment to an educational effort to inform landowners, developers, realtors, and attorneys about the program (the Commission also held meetings relating to economic issues throughout the county while developing the TDR plan.) Town meetings were most effective for Montgomery County's educational effort.[172]

[169] Personal communication with Sally Roman, Coordinator of the Research & Information Systems of the Maryland-National Capital Park & Planning Commission. June 1998.

[170] Roddewig, Richard J. and Cheryl A. Inghram. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.

[171] More information on restriction on sending areas is found in the "Creating a Market for TDRs" section in this chapter.

The **New Jersey Pinelands Development Credit program** could have made its structure more efficient early on, by reviewing the following:

– *Simplification of the mathematics of the program*

The **Pinelands Development Credit program** uses 39-acre units of measurement and has one PDC (Pinelands Development Credit) yielding four dwelling units. These numbers confuse likely participants; educating the public about the TDR concept is complex enough (The numbers have not been changed since implementation).

– ***Pinelands*** *launched its program after achieving local zoning compliance* (As opposed to the **Montgomery County** program, where the county changed its zoning in 1974: 6 years before the Montgomery TDR program was launched.)

– *Initiated a public education effort to sell the program*

As the TDR concept is not easily understood, such an educational effort is needed to spur use. Like the **Montgomery County** program, the **Pinelands** program found that town meetings were the most effective way of educating landowners and developers and other interested parties. Staff members of the **Pinelands Development Credit Bank** were primarily responsible for the program's educational effort.[173]

– *Established a* ***Pinelands Development Credit Bank*** *at the outset*[174]

The **PDC Bank** was not operational until 1987, when it was finally authorized by the State of New Jersey. The Roddewig and Inghram study suggests that informing developers and landowners that the program and bank are supported by the government, establishes greater credibility and confidence in the program. For comparison, the **Montgomery County program** developed a County Development Rights Fund in 1982, the same year that the first transfer in the county occurred. For eight years, until 1990, the fund would monitor transfers but would neither buy nor sell TDRs. Transfers began occurring without the fund, and the market for development rights took over. The fund was therefore terminated in 1990.

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[172] Personal communication with Dennis Canavan, Montgomery County, RPA TDR Conference, October 1997.

[173] Personal communication with John T. Ross, executive director of the NJ PDC Bank, May 18, 1998.

However, there were some direct steps taken by the **Pinelands Commission** that strengthened the program. These steps were the passage of a $30 million bond act for sewer infrastructure in growth areas, the creation of the **Pinelands Development Credit Bank** for intermediary purchase of RDCs, and a notification and facilitation process carried out by the bank. [175]

Conditions for Successful Operation

The following general factors that have been found to contribute to the successful operation of a TDR program are as follows:

- Enabling legislation
- Administering the program (run by a single agency with "Task Force" with designated duties)
- Creating a TDR Bank, as buyer of last resort, and having start-up funds at outset of program
- Creating a market for TDRs: incentives and disincentives for landowners and developers
- Planning comprehensively for sending and receiving areas
- Having a simple and flexible program

Enabling legislation

"The federal recognition of the Pinelands' importance and the strong state legislation have made the program effective."
-- Johnston and Madison

In some states, local governments may only utilize powers granted to them through the state legislature; here, local governments may need enabling legislation for TDR implementation. The American Farmland Trust brochure on TDRs explains that enabling legislation is needed, because "TDR programs have ramifications for land title recording, real and personal property taxation, and security interests in restricted land, such as mortgages, judgments and liens."[176] Charles Siemon, a Florida lawyer, agrees that there is a

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[174] More information is found in the TDR Bank section of this chapter.

175 Heiberg, Dana E. "The Reality of TDR." Urban Land. September 1991

need to adopt state legislation to run a TDR program: state legislation engages people in the TDR concept and eventually the implementation of a program. [177] Siemon notes that setting up TDR programs in the Northeast of the US is more difficult, as there are many municipal systems. On the contrary, in states where there is county zoning, political institutions are large enough to govern where growth should occur and how to control that growth with a TDR system. Siemon suggests that in New Jersey and New York, where local governments operate at the town level, the TDR program can be voluntary. Planners and advocates for TDR must begin by convincing municipalities that they need a TDR program, and then “simply getting them to write it up. Then you get state legislation.”[178]

At the October 1997 Regional Plan Association conference on TDRs, planners and lawyers all agreed that state legislation should avoid intricate details so that local governments can create and operate their own programs. Robert Lane, an urban planner with the Regional Plan Association in New York, found in his studies what he deems an interesting difference between the New Jersey program and the Long Island program in New York. In New Jersey, there was federal involvement, state enabling legislation, and gubernatorial support and the regional program crossed municipalities. On Long Island, three towns were fighting against each other and came to a "grass roots" compromise. The Long Island program is “less ambitious” than the New Jersey Pinelands program, said Lane, since the latter program has state involvement. “The Governor really keyed in on the program;” but Lane noted that it is better to have a regional level power govern the program to help make it active in little towns.[179] Dennis Canavan, with the Montgomery County TDR program, also agrees that it is imperative for a TDR program to have state enabling legislation. “It is incumbent upon an environmental group or state agency to get it running because small jurisdictions do not have the political power to get one started. The state enabling legislation should be very general. You have to let the planning agency pursue the enabling legislation." Canavan

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[176] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

[177] Personal communication with Charles Siemon, RPA TDR Conference, October 21, 1997.

[178] Ibid..

[179] Personal communication with Robert Lane, October 3, 1997

used the state of Virginia as an example of failed implementation, because Virginia "tried to use TDRs, but the legislation was so detailed that a TDR program could not apply to all the different areas in the state."[180]

[180] Personal communication with Dennis Canavan, RPA TDR Conference, October 21, 1997.

Administering the Program

The manner in which a TDR program is implemented denotes the program's particularities. If state legislation creates a TDR program, a state agency may have clear zoning and regulatory authority, whereas local jurisdictions may need to focus on consensus building and education to gain community support of the program. Deciding who administers a TDR program is a significant issue: is it necessary to build new tributaries of administration to form and operate a TDR program? The Johnson and Madison study found that when *one agency* administers the program there is particular attention paid to strong consensus building. When several parties are involved in the administration of a program, negotiating transfers may become tedious with conflicting arguments from different parties, and therefore the transfer of rights may take longer than it should.[181] But being administered by one agency is just one of the common denominators for a well administered program. After speaking with directors of TDR programs, and in the section on TDR Staff on page 48, one will notice that there are at least one to three full-time staff members and the rest part-time in the more successful programs. Volunteer members have proven to be more useful in for the educational effort before program implementation; e.g. Montgomery County had a volunteer staff to inform the county's citizens of the plan to start-up a TDR program years before the program was implemented.

If a program is technically complicated, or if the developers and landowners are uneasy with the concept, facilitators are needed to hold information sessions or educate via other means (brochures, Internet postings, etc.) John Gussman, with the California Tahoe Conservancy says that facilitators can also be helpful when the TDR market is not active: they can inspire confidence in TDR exchanges and help promote the buying or selling of rights. As noted earlier, the Pinelands program was difficult to understand because of its confusing 39-acre units of measurement and one PDC yielding four dwelling units. And although this program was created and is managed by one agency (and empowered by Congress' realization that the Pinelands area was of important environmental significance), the awkward numerical schemes led the administrators to hire TDR facilitators: the Pinelands Bank and the Burlington Exchange.[182] Information was generated by the Pinelands Commission as well, with the distribution of brochures to developers in particular, that introduced the economic benefits of using PDCs.[183] The Pinelands Commssion has 15 members, including seven representatives appointed by the seven Pinelands counties, seven members appointed by the Governor of New Jersey and one member chosen by the U.S. Secretary of the Interior.[184] The New Jersey Pinelands TDR staff's members have technical, legal and economic experience and/or education.[185] Specific administrative tasks to be administered by a single agency TDR staff include: predicting the values of development rights, monitoring the transactions, drafting letters of interpretation, introducing and discussing the TDR program in public meetings, assessing any program weaknesses and establishing a TDR bank.[186]

The TDR program in Montgomery County, Maryland, is operated and was created by one single agency. The Montgomery program is often praised in planning journals or among planners and lawyers, since it conducted a thorough series of studies of the TDR concept and then followed through by continuing educational efforts in the communities of the county to assure that the transfer process continue. The county planners decided that they needed to construct a simple program. Eventually, through surveys, the planners were pleased to see that participants found the program to be understandable. Planners gained political support before the program was implemented; and a state mandate was not needed since communities and the county government reached consensus that there was a need to protect farmlands.[187]

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[181] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[182] Ibid.

[183] Personal communication with Richard Osborn, consultant to the Pinelands Development Credit Bank.

184 Pruetz, Rick. "A Transfer of Development Rights: California." Self-published Report, 1992.

[185] Tripp, James and Daniel Dudek. Institutional Guidelines for Designing Successful Transferable Rights Programs. Yale Journal on Regulation, 1989.

[186] Ibid.

And as valuation was decided through zoning and not parcel assessments, there were low administrative costs.[188]

TDR Banks: private TDR marketplace vs. Quasi-public market with TDR Bank

A TDR Bank is an establishment which serves as a reserve area for development rights, which acquires, buys and sells the rights. Administering a TDR bank, according to John Ross, Executive Director of the Pinelands Development Credit Bank, is fairly straightforward. The PDC Bank staff consists of the director (experienced in land acquisition) who occupies a part-time position, a full-time real estate developer, and one part-time assistant as an informative source.[189] The duties of a TDR bank, depending on the type of program, include the certification deed restrictions, matching buyers and sellers of development credits and possibly purchasing or selling development rights as a last resort.

It is not common for a land trust to operate the procedures of a TDR bank; but rather local land or other trusts are looked to for the initial funding for the program and/or bank. For example, San Luis Obispo County, Monterey County, and the Malibu Coastal Zone TDR programs in California obtained initial funding from the California Coastal Conservancy. Non-profit organizations may help generate transfers: the Land Conservancy of San Luis Obispo County (which is, out of all current TDR programs, the only conservancy associated with a TDR program, "*authorized* to buy and sell TDRs in the San Luis Obispo County program") has assisted in over 200 transfers.[190]

John Ross, the Executive Director of the Pinelands Development Credit Bank, believes that a bank is truly essential in the successful transferring of rights. He states that it makes it much easier for parties involved in a transfer.[191] However, a TDR program can run without a TDR bank. Peter Pizor, in his APA Journal article "Making TDR Work", notes that a well-designed TDR program will not need a TDR bank to

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[187] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.

[188] Ibid.

[189] Personal communication with John Ross, November 1997.

190 Pruetz, Rick. "A Transfer of Development Rights: California." Self-published Report, 1992.

[191] Personal communication with John Ross, October 3, 1997

purchase rights; except in the case of programs specifically designed to preserve agricultural land, where a TDR bank may help farmers stay in business. “Such a bank can serve as a buyer of last resort for development rights - a sort of insurance to landowners - by providing a market for rights even under adverse circumstances.”[192] The Montgomery County, Maryland TDR program created a TDR Bank to act as “a buyer of last resort;” however, the market for rights was so active that the program eventually decided to terminate the bank.

Finally, a TDR Bank may be established once several points have been considered. Those who plan to administer the program, or the “Commission”, must review state statutes authorizing TDR, to see if the creation of a TDR bank is permitted. If there is no reference to the establishment of a TDR bank, “general zoning and ‘police power’ case law in the State must be reviewed to determine the legal basis of a bank.”[193] What the Commission must review as well is whether or not the development rights in the TDR bank are securities; and if the creation of a TDR bank goes against antitrust laws.[194]

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[192] Pizor, Peter. “Making TDR Work: A Study of Program Implementation.” Journal of the American Planning Association. Planner’s Notebook. Spring 1986.

[193] Roddewig, Richard J. and Cheryl A. Inghram. “Transferable Development Rights Programs: TDRs and the Real Estate Marketplace.” Journal of the American Planning Association. May 1987. P.27

[194] Ibid.

Creating a Market for TDRs

Transfers of development rights are more likely to occur when a market for development rights is created. There are key elements that can increase the amount of transfer activity in a TDR program. A community can create a market for TDRs by planning comprehensively for receiving and sending areas, motivating sending site land owners to sell TDRs and receiving site developers to buy TDRs, creating a TDR bank, providing other incentives to receiving site developers, and having the TDR program “staff” for implementation. As creating a market for development rights is essential to a TDR program’s operation, each of the factors mentioned will be examined below.

- *How do you motivate sending site landowners to sell TDRs?*

One way of motivating sending site landowners to sell their development rights for transfer is to adopt restrictions that make it more desirable and/or profitable for a landowner to sell TDRs than build in the sending area. Development restrictions on sending sites in current TDR programs vary according to the goal of the program. For example, the Pine Barrens program in Long Island prohibits development in environmentally-sensitive areas; four TDR programs prohibit development on agricultural land (San Mateo County in California, and Hopewell, Shrewsbury and Chanceford in Pennsylvania); New York City prohibits the demolition or alteration of landmarks designated with or without the consent of the owners.[195] It is important to emphasize to landowners that TDR is a mechanism that enables farmers to continue farming after development rights have been severed and/or sold from their land. These incentives and disincentives motivate the sending site owners to sell their development rights instead of developing the site.[196]

- *How do you motivate receiving site developers to buy TDRs?*

Developers will buy development rights for use in receiving sites if they find that doing so is profitable. To motivate developers to buy TDRs, planners have several options: to reduce the baseline density limits on receiving sites, or allowing for additional development/or extra density on receiving sites only through the use of TDRs. To reduce baseline density limits, a TDR program can downzone the receiving area and have

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[195] Ibid.

the only way for a developer to achieve the density he/she used to be able to attain as a matter of right, be through the purchase of TDRs.[197] This method can be used in communities where the current zoning code allows for too much development (defined by the planners) and the proposed zoning code downzones both potential sending and receiving areas.[198] Examples include TDR programs in Cupertino, Irvine and Burbank, California.[199] However, a TDR program can offer density bonuses to receiving site developers by allowing additional development on the sites through TDR. By demonstrating to developers that they can make more of a profit by building higher density development, a TDR program can generate more transfers. For example, the Long Island Pine Barrens program allows for a 400 to 900 percent increase in receiving site density.[200] However, the LI Pine Barrens program has a high density bonus as compared to other programs: the Montgomery County program offers a density bonus of 40 percent and the Dade County, Florida program offers, on average, an 18 percent density bonus.[201] This difference in numbers may demonstrate that the use of density bonuses is not the only factor to be considered to motivate receiving site developers to buy development rights.

- ***Planning comprehensively for receiving areas and sending areas***

Many TDR programs have found that the greatest difficulty in setting up the program is the designation of sending and receiving sites. The American Farmland Trust says this is difficult because "farmers [or landowners] must have incentives to sell development rights instead of building lots [and] developers must benefit from buying development rights instead of building houses according to the existing zoning and subdivision standards."[202] Planners must first identify the participants in the real estate marketplace

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197 Ibid.

198 Johnson, Robert A. and Mary E. Madison. From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights. Journal of the American Planing Association, Vol.63, No.3, Summer 1997.

199 Pruetz, Rick. "A Transfer of Development Rights: California." Self-published Report, 1992.

200 Personal communication with Tim Hopkins, RPA TDR Conference, October 1997.

201 Pruetz, Rick. Saved by Development: Preserving Environmental Areas, Farmland and Historic Landmarks with Transfer of Development Rights. Burbank, California: Arje Press, 1997

202 Personal Communication with Robin Sherman (American Farmland Trust), RPA TDR Conference, New York, October 20, 1997

affected by the TDR program and the economic motivation of each one.[203] Among the first and more important issues to address, says Professor James Nicholas, is to concentrate on the receiving area side first: "you have to make the receiving area valuable; this is the only way or economic inducement to make TDR work."[204] He continues to note that many programs usually see no transactions because the receiving sites chosen have no economic worth; hence, developers are unmotivated to buy rights.[205] In his American Planning Association Journal article "Making TDR Work," Peter Pizor suggests that a program that "incorporate(s) the self-interest of all actors - landowners, facilitators, developers - would most likely result in market transfers." He states that programs should be designed to focus on the developers' interests instead of the "needs of planners."[206]

Sending areas

When examining the goals of TDR programs for sending areas, one sees that it is to aid in the retention of the privately owned property in its present use.[207] When establishing sending areas, the jurisdiction should describe the areas of non-development and provide an explanation for why it is not to be developed. Planners should carefully identify and analyze potential sending sites, balancing environmental goals against economic realities. Preparation of post-TDR regulations is also recommended, when the sending sites are designated, describing the use of that land once the development rights have been removed. Professor James Nicholas notes that this would be a sure way to provide the "basis for a developmental and non-developmental value of land."[208]

Creating Communities: Receiving areas

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[203] Ibid.

[204] Nicholas, James. From RPA TDR Conference material.

[205] Ibid.

[206] Pizor, Peter. "Making TDR Work: A Study of Program Implementation." Journal of the American Planning Association. Planner's Notebook. Spring 1986.

[207] Nicholas, James. From RPA TDR Conference material.

[208] Ibid.

Planners should also begin by identifying the potential receiving areas and thoroughly analyzing the development opportunities and profits at various densities.[209] For proper functioning of the market for transferred rights, the designated receiving sites should be those that:

(1) are growing,

(2) have market demand for development intensity greater than the existing intensity,

(3) provide a value increment so that the right to increase development intensity is profitable.

Areas that have high development pressure are ideal for accepting development rights. Transferred development rights add density in the receiving area (or intensity for non-residential development.) Traditional rezoning does this as well; and the property owner will be more likely inclined to choose the less expensive way of increasing development to the highest level. [210] This is why TDRs should be designed and promoted as the more cost-effective option to the receiving area property owner.[211]

A difficulty with receiving areas is convincing communities to accept increased intensity of development in their neighborhoods, particularly in the lower density areas. The receiving area must have the physical ability to accept new units of development; and residents of this area will need to understand the benefits of accepting new development. For instance, planners can hold information sessions to explain how a TDR program can help protect farmland in exchange for increased development in areas with existing infrastructure or services available. Planners can even encourage neighborhood associations to participate in the designation of receiving areas.[212] Richard Tustian, Professor of City and Regional Planning at Rutgers University and the University of Pennsylvania, emphasizes the need to “create communities that work.” Planners can accomplish this through zoning, infrastructure, and/or affordable housing and use

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[209] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

[210] Nicholas, James. From RPA TDR Conference material.

[211] Ibid.

[212] Nicholas, James. From RPA TDR Conference material.

these as incentives. All in all, the *public purpose* should be an indicator that planners take heed of. For example, Tustian suggests, “What is environmentally desirable? Less sprawl? Increased density? "[213]

The Long Island Pine Barrens Commission found that a difficulty in planning for the TDR program was finding the receiving areas. The Commission recommends that TDR planners find high value, easily accessible receiving areas, limit allocation occurrences and remain in a defensible legal framework.[214] The commission focused on redistribution equity, keeping transaction costs low and creating land equity by switching residential to non-residential development potential. The receiving areas in the Pine Barrens could accept double the amount of sewage flow. And the price is high: “you can net $15,000 for per-credit residential.”[215] The LI Pine Barrens TDR program was modeled after the New Jersey Pinelands Development Credit program. Only the LI Pine Barrens program set up a bank "clearinghouse" to support the market. This offers minimum value and at the same time offers cash directly for credits; and the registry buys and sells rights. The Pine Barrens program ran into some political obstacles when designating its receiving areas; these were the power of school districts and tax impact. The school districts did not want residential development, as it would be a negative economic impact on that area. However, the school districts would accept specifically non-residential development. The development community supported the LI Pine Barrens TDR program because it saw school districts dissuade residential but not non-residential development. Tim Hopkins stated that he promoted the Pine Barrens program by emphasizing that the program would neither create nor destroy anything, but redirect development to protect resources.[216]

One new idea for receiving areas is emerging in today’s TDR programs and research. It is the notion of creating a *new receiving area*: clustering development to an undeveloped area, but that has fairly easy

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[213] Personal communication with Richard Tustian, RPA TDR Conference, October 20, 1997.

[214] Personal communication with Tim Hopkins (L.I. Pine Barrens Commission), RPA TDR Conference, New York, October 21, 1997.

[215] Ibid.

[216] Ibid.

access to roads, sewage and public water. Unfortunately there are no examples of this currently in any TDR program, but several programs are considering this new maneuver. Lumberton township in Burlington County, New Jersey believes in this “new urbanist” movement, and is in the process of looking to create a new center for development.[217]

The New Jersey Pinelands Development Credit program has found that there are several steps any TDR program must consider for both receiving and sending areas. For the receiving areas, the commission running the program must locate receiving areas where growth indicators are strong; test TDR bonuses to estimate market demand and values; clearly specify TDR bonuses and the zoning limits which apply when TDRs are not used; address development proposals already in the pipeline; target public investments to support growth; and avoid re-zonings and variances which undermine TDR use.[218] A program must also clearly define the sending areas, distinguish between land uses permitted before and after TDRs are removed, and determine how many total rights should be allocated based upon a realistic assessment of their use in receiving areas. The PDC commission recommends that programs test potential returns against economic goals and to, most importantly, keep the allocation formula simple.[219]

A Simple and Flexible Program

The New Jersey Pinelands, Long Island Pine Barrens, and Montgomery County programs all have adjusted their programs since implementation. But all three programs have agreed that a TDR system needs to be simple and flexible to leave room for adjustment. Dennis Canavan, with the Montgomery County program, noted that the 43 jurisdictions that the American Farmland Trust studied that are currently run TDR programs for *agricultural land preservation* can be improved. "In Montgomery County, we have changed our zoning text countless times."[220] The New Jersey Pinelands Commission, under the "Keys to a

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[217] Personal communication with Rick Pruetz (author of “Saved by Development…” and “TDR: California”) March 1999; and Susan Craft, Principal Planner of Burlington County, N.J., October, 1997.

[218] New Jersey Pinelands Development Credit TDR Fact Sheet

[219] Ibid.

[220] Personal communication with Dennis Canavan, TDR Conference, New York City, October 20.

Successful TDR Program," lists that a TDR commission or other administrative body should periodically adjust the program to correct weaknesses and respond to changing conditions. Tim Hopkins, with the Pine Barrens Commission, notes that "it is difficult to set up a system that suits everyone's needs. The biggest danger of TDR is being too aggressive." He emphasizes that TDR is not a preservation, but land *protection* tool. The TDR mechanism should not be promoted as a means of monetary compensation for a landowner, but rather a way to reach viable use in property. "Compensation is not the purpose of TDR, 'equity mitigation' would be better [terminology]".[221] A strong TDR program uses a simple allocation formula and does not base the program on appraisals. This keeps the program simple enough for participants to be engaged. At the same time, suggests Hopkins, planners should not spoil the concept of TDR, "they must promote the protection aspect" of the program.[222] Specific examples for designing a simple and flexible program are displayed in Chapter IV, to have Rhode Island consider these when designing a program for the State.

Conclusion

Drawing examples from various planning journals, law journals as well as communication with planners, land use consultants, lawyers and TDR Commission and Bank directors, this chapter has developed a general list of essential elements to a successful TDR program. Within each of these elements, an educational effort is strongly recommended. A proactive educational effort is a component often missing in less successful programs.[223] Most articles, and TDR representatives contacted, have mentioned the importance of promoting the TDR concept early on, before implementation, by educating through informative sessions, handouts, mailings, and even Internet communication. Beginning with this effort aids developers and landowners to truly understand the program and its benefits, before the TDR option becomes available.[224] Montgomery County's planning staff's proactive effort to educating potential

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[221] Ibid.

[222] Ibid.

223 Heiberg, Dana E. "The Reality of TDR." Urban Land. September 1991.

participants demonstrated the commitment to the county's goal of protecting farmland. This generated extreme confidence in the program once it was initiated; Montgomery County's master-planning process from pre-implementation to its current functioning maintained the integrity of the program.

[224] Personal communication with Ms. Moore (PDC Commission). September 1997.

CHAPTER IV
TDR in Rhode Island Recommendations and Strategies For Implementation

"Planning for the implementation of TDR programs is vital if disruption of the private market is to be avoided and if political acceptance is to be achieved." [225]
Dwight H. Merriam

Partner, Robinson & Cole

After the exploration of several TDR systems implemented in the nation, it becomes apparent that creating a TDR program for Rhode Island would require some changes in the State. For instance, if the program were to have transfers between municipalities, the enabling legislation would need to be amended, as it currently only allows for transfers within one municipality.[226] Ideally, development rights could be transferred from the state's rural areas to cities, including even the capital, Providence. Planners in Rhode Island have discussed how they could use TDR by redirecting growth and increasing density in cities. "But conditions must be right for TDR to work," states Sally Roman, who has worked with the Montgomery County TDR program for many years.[227] Sally Roman, familiar with Rhode Island's growth patterns, and an expert on TDR says that you need enough demand for extra density; and according to the U.S. Census forecast, Providence's population has been decreasing. A more realistic approach for TDR in Rhode Island is to begin by creating pilot projects within municipalities, which would in turn make Rhode Island landowners and developers

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[225] Merriam, Dwight H. "Making TDR Work" North Carolina Law Review Volume 56, January 1978, No.1

[226] Rhode Island Department of Administration, Municipal Affairs. State Enabling Acts Relating to Land Use & Planning 1996-1997, Rhode Island Zoning Enabling Act of 1991 (Title 45, Chapter 24) R.I.G.L. 45-22-33 (B)(2).

[227] Personal communication with Sally Roman, Coordinator of the Research & Information Systems of the Maryland-National Capital Park & Planning Commission. June 1998.

more familiar with the concept. This chapter will offer recommendations to Rhode Island as it develops its TDR system, as these have been compiled from the experiences of planners and their programs in other states.

RECOMMENDATIONS AND WHAT RHODE ISLAND SHOULD CONSIDER WHEN DEVELOPING ITS TDR PROGRAM

Enabling Legislation for TDR in Rhode Island

Rhode Island already has the enabling legislation for a Transfer of Development Rights program in the state. As seen in the State Enabling Acts Relating to Land Use & Planning 1996-1997, The Rhode Island Zoning Enabling Act of 1991 (Title 45, Chapter 24) R.I.G.L. 45-24-33 (B)(2) under "Standard Provisions," states that "A zoning ordinance may include special provisions for (…) Establishing a system for transfer of development rights within or between zoning districts designated in the zoning ordinance."[228] However, the State enabling act does not provide for transfers to occur from one community to another (e.g., Exeter to Providence). Rhode Island would need specific legislation for multiple-municipality transfers of development rights. For this to happen in Rhode Island, legislation would have to be proposed for the multiple-municipality transfers. A sponsoring legislator(s) must submit such a proposal into State legislature, and this legislation would need to be supported by governing bodies of municipalities. Also, the present enabling legislation does not specify the permission to create a TDR bank. After discussion with John T. Ross, Executive Director of the NJ Pinelands PDC Bank about the RI enabling legislation for TDR, it is recommended that the creation of a TDR Bank be added into the legislation.[229]

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[228] Rhode Island Department of Administration, Municipal Affairs. State Enabling Acts Relating to Land Use & Planning 1996-1997, Rhode Island Zoning Enabling Act of 1991 (Title 45, Chapter 24) R.I.G.L. 45-22-33 (B)(2).

Which areas should be protected? Where should development be transferred?

As documented in previous chapters, the Rhode Island State Guide Plan has recommended areas to be protected from development, from open space and greenways to agricultural and forested land. However, it is not always necessary for a TDR program to have firmly designated sending areas. In fact, some jurisdictions in other states that allow TDR do not have defined sending areas at all. For example, in a program in San Luis Obispo County, California, landowners must meet one of three separate sets of criteria to be eligible to transfer development credits.[230] In Rhode Island, finding and designating desirable "receiving areas" is a concern among planners, professors and others interested in having a TDR system. The Rhode Island Resource Protection Workgroup is an interagency, inter-organizational group that was convened by the United States Environmental Protection Agency (US EPA) and the New England Interstate Water Pollution Control Commission in 1995. The goal of the workgroup was to identify high priority natural resource areas in Rhode Island, and ensure their protection through collaboration with others. The project prepared Geographic Information System (GIS) maps which show critical areas to be protected. These include: wetlands, agricultural and forestry resources, habitat resources, water supply resources, open space, recreational and cultural resources and potential threats to natural resource areas in the state.[231] It is recommended that the Rhode Island Resource Protection Project (RIRPP) be used as a starting point for designating potential sending or preservation areas. However, the scale of this project is quite broad; for example, entire watersheds/aquifers are mapped which do not watch political jurisdictions. Therefore, each community will need to decide for itself what is most important for it to protect.

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[229] Personal communication with John T. Ross, PDC Bank, May 18, 1998

[230] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

[231] Http:// www.edc.uri.edu/rirpp. May 1999.

Start-up Funds for TDR Program and TDR Bank

There are various sources of funding for the TDR program in Rhode Island. RIDEM has recently received grant funds for Sustainable Development from the Environmental Protection Agency: Some of this funding could perhaps be used to establish a TDR pilot program in Rhode Island. Another approach would be to contact state non-profit organizations interested in new techniques for preserving Rhode Island land and communities, such as the Rhode Island Foundation and the Champlin Foundation, and seek funding from such sources. The Champlin Foundation, a private foundation, provides approximately $13 million each year, mostly for efforts concerning libraries, heating and air conditioning for buildings in the state. But it has also worked with RIDEM and the Nature Conservancy to purchase properties at risk, especially when there is a time constraint and waiting for funding from the government would take too long. The Rhode Island Foundation has an interest and involvement with the State's communities, and could be looked to for funding as well. Another non-profit organization, the Dunn Foundation, which donates for "scenic" Rhode Island issues, may also participate in some funding for a TDR program. National non-profit organizations can also be approached for funds for TDR program and TDR bank start-up, such as the Rhode Island Audubon Society. Judy Benedict with the Nature Conservancy in Rhode Island has expressed interest in growth boundaries. Another national organization to be looked into include the Trust for Public Lands; and the American Farmland Trust could be asked to provide demonstrations to planners and citizens on TDR in Rhode Island. However, "there needs to be a commitment from the local level as well," states Derwent J. Riding, Principal Planner in Community Planning with the Office of Municipal Affairs in the Rhode Island Department of Administration. "Ernest money from the local level indicates that something really wants to be done. Staff as well as monetary support would be needed."[232] Ideally, a collaboration of state and national organizations would provide funding for a TDR program in Rhode Island.

Should the TDR Program be Mandatory or Voluntary?

If the Rhode Island TDR system were to be voluntary, planners would have to find very appealing incentives; some examples of incentives are found in Chapter III. University of Rhode Island Professor Rolf Pendall believes that a voluntary system in Rhode Island could work at first, but that over time interest could dwindle and people would not want to bother using the TDR system anymore.[233] Landowners in Rhode Island generally own smaller parcels of land; this inhibits the system because as soon as there is non-compliance in one small area, the larger area as a whole becomes one of isolated patchy subdivisions. Rhode Island is divided into municipalities, and is not run by county governments. By looking at current TDR systems, one notes that mandatory programs only function when they are run by a county government; this is because county government-run TDR programs often permit cross-jurisdictional transfers. For the short term, setting up a voluntary, pilot TDR program in North Kingstown would provide a good way of getting a system started in the State.[234] Voluntary systems are more flexible, easily implemented and more accepted by planners, developers and landowners at the outset of a TDR program. However, for its continued use in North Kingstown, the program would probably need to become a mandatory one, because the voluntary system does not govern which areas are to be preserved, "increases the total number of development units because more units need to be offered as inducements to participate," and as seen in most voluntary programs, the interest in transferring rights dies out due to a lack of governance of the program. Several TDR programs have switched from a voluntary system to a mandatory one. Montgomery County in Maryland found this to be a very effective way to run the program. In this

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[232] Personal communication with Derwent Riding, May, 1998.

[233] Personal communication with Professor Rolf Pendall (University of Rhode Island, Department of Community Planning and Area Development.) May 21, 1997.

[234] *Planners should look to the Olney Pilot project in Montgomery County as model.*

case, county planning officials increased the minimum lot size from 5 to 25 acres, which therefore made the TDR system mandatory.

Educational Effort: How to get around the "Not In My Back Yard!" or NIMBY reaction

Rhode Island should focus on promoting both resource protection and urban renewal to inspire citizens' interest in adopting and using a TDR program. Community groups, non-profit organizations such as Save the Bay, and State agencies, such as the Division of Planning and the Department of Environmental Management, can begin by generating information about the TDR option, even through informal means at conferences, town meetings, etc. "TDR programs are technically complicated and require a significant investment of time and staff resources to implement," states the American Farmland Trust's 1997 report on Transfer of Development programs to protect agricultural land.[235] The TDR concept is unfamiliar to many, therefore, a serious public education campaign may be needed to inspire the use of TDRs. To have a hired TDR facilitator, or TDR task force, develop TDR fact sheets, forms for recording transfers, multiple listing forms, model contracts of sale, question-and-answer brochures and make presentations will enable interested parties to strongly consider the program.[236] The "Not In My Back Yard" or NIMBY reaction of property owners in receiving areas is difficult to deal with. Public disapproval is in fact one of the stronger factors contributing to the non-implementation of TDR programs. In Collier County, for example, the sending and receiving areas were so far apart in distance that receiving area property owners were not even aware of the resources the program intended to protect. Some citizens were resentful over having to adopt new development for the sake of another area. Had they been better informed about the advantages of preserving the Cypress area, perhaps they would have been more accepting of the program.

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[235] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

[236] Pizor, Peter. "Making TDR Work: A Study of Program Implementation." Journal of the American Planning Association. Planner's Notebook. Spring 1986.

Promoting Urban Renewal

Providence is undergoing great change, with the city's new Providence Place mall being built, as well as its newly restored waterfront walkway along the Providence and Woonasquatucket Rivers. Mayor Vincent Cianci has been quoted over the past several years that Providence was in need of an urban renewal: and it clearly has begun. Providence tends to have a predominance of lower and higher socio-economic classes. The middle class has tended to drift into the suburbs to avoid city crime and to find suitable schools for its children. Charles Siemon, a Florida lawyer and expert on land-use management, states that you need to encourage the middle class to return to a city, a new design for the city needs to be created and made known.[237] "You just cannot get the lifestyle you want for free, and avoid consequences of sprawl. Not one person wants to invest 5 cents where their mouth is," says Siemon.[238] He firmly suggests advertising the city's revitalization, showing a true commitment in the new design, so that people will consider moving back into the city. Transferring development rights into Rhode Island's urban areas, especially into unused vacant lots and abandoned properties, of which there are over 2,500 in Providence alone, would certainly boost the city's renewal movement, by bringing in more people, possibly revitalizing certain neighborhoods, and in turn, boosting the city's economy.[239]

Hire a TDR Facilitator During Implementation Phase

At the outset, a TDR program should hire someone to act as an information source and problem-solver. The presence of a facilitator, like the Montgomery County planning staff, during the first transactions under a new TDR program smoothed many difficulties encountered early on in

[237] Personal communication with Charles Siemon, RPA Conference, October 20, 1997.

[238] Ibid.

[239] Personal communication with Thomas Rossi with the City of Providence Tax Assessor's Office. November 1997.

Maryland. The New Jersey Pinelands TDR program did not have such a facilitator, or task force, during its implementation phase, and this led to hesitation, poor distribution of information, and uncertainty. For Rhode Island, a facilitator should be hired through one of the organizations in the State which focuses on planning, environmental protection, and/or controlling urban sprawl. These could be the Rhode Island Division of Planning (RIDOP), the Rhode Island Department of Environmental Management (RIDEM) or the *Grow Smart* group.

Technical Assistance from the RI State Government

The State government could assist by assembling a "TDR Task Force" to monitor the first transfers. Scott Millar, with the Division of Strategic Planning and Policy in the R.I. State Department of Environmental Management, stated that an effective task force would probably be comprised of realtors, landowners, a lawyer, a land use planner, an environmental analyst, a resource economist, and local officials.[240] This task force would be responsible for conducting various impact analyses, overlaying the economic and environmental risks associated with the full integration of a TDR system in Rhode Island.[241] The New Jersey Pinelands staff has been able to "predict" the value of credits/rights, oversee transactions, moderate and answer questions at public meetings, progressively judge the "effectiveness" of the program and aid during the creation of the PDC bank.[242] Members of the Rhode Island task force would also be able to host discussion groups/information sessions about TDRs to answer any possible questions on what the impact of a TDR system in Rhode Island might be. The task force could also work with the State's Geographic Information System, or RIGIS, which could use its computer program to map relevant land criteria and for designating sending and receiving areas. This is recommended as other TDR programs in the US have found

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[240] personal communication with Scott Millar, November 1997

[241] Tripp, James and Daniel Dudek. Institutional Guidelines for Designing Successful Transferable Rights Programs. Yale Journal on Regulation, 1989.

using computer mapping programs or other electronic devices to designate land to be very efficient. For example, Jericho, Vermont used a modified Land Evaluation and Site Assessment (LESA) system to identify individual parcels to be protected through TDR. LESA is a numerical method of evaluating farmland that measures development pressure as well as soil fertility. The town used LESA to rank all parcels larger than 25 acres. The top 25 percent of parcels was designated as prime agricultural parcels, and landowners were given the option to transfer rights from these tracts.[243] Using a computer program or other tool to map out sending and receiving areas can aid developers, landowners, and local government members in understanding the TDR concept -- as it can serve as an visual tool to illustrate an actual transfer. It can identify and analyze potential sending sites, weighing environmental goals and economic realities.

Begin a TDR Pilot Project in Rhode Island

Just as the Montgomery County, Maryland, TDR program had a pilot program occur in the Olney municipality, Rhode Island could choose one particular municipality to focus TDR efforts on. North Kingston planners Marilyn Cohen and Lee Whitaker have been eager to have a TDR program running since the 1980s. Actually, TDR has been in North Kingstown's ordinance since 1986 but was just never used. The development of a TDR project is now underway in North Kingstown, thanks to a recent University of Rhode Island (URI) study.[244] This study found that TDR is a "good option" for North Kingstown, and that a TDR program could "work" in the area, as preserving farmland is one of the town's goals.[245] The URI team of graduate students led by Professor Rolf Pendall, with the Department of Community Planning and Area Development, after having reviewed and analyzed the TDR system, found that a voluntary system would be easier to implement and more accepted at the outset, but that a mandatory program would probably generate more transfers, especially with an established TDR Credit Bank monitoring the progress of each transaction.[246] The URI study even suggests several possible receiving areas; the North Kingstown TDR program could transfer development rights into the villages of Hamilton and Lafayette, as well as in the Quonset Point area.[247] With its future development focused in these designated areas, North Kingstown would be able to avoid any development occurring in its rural and agricultural areas.

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[242] Ibid.

[243] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

[244] University of Rhode Island Community Planning and Area Development. "North Kingstown Transfer of Development Rights." Fall 1997.

[245] Ibid. 64

[246] Ibid. 50 and 56

[247] Ibid. 58

Keep the R.I. TDR Program and Ordinance Simple and Flexible

Programs that are structured clearly and apply the TDR concept in a simple, straightforward way will operate better than more elaborate ones. Avoiding complex regulatory language strengthens developers' certainty in the program, and lets them understand that they can use transferred rights profitably. This is important as it increases the probability of transfers actually being made. The TDR ordinance must be made simple and flexible, so that it over time may accept effective changes, ensuring promotion and facilitation of the program once it is implemented, as well as verifying that the TDR program will continue to operate despite eventual political changes. The Pioneer Valley Transfer of Development Rights Bylaw for Farmland Preservation clearly delineates the purposes of the program, the regulations that apply to sending districts (agricultural land) and receiving districts. It sets the dimensional standards and the special permit requirements for TDR in Pioneer Valley. The ordinance also makes the Planning Board hold bi-annual reviews at advertised public meetings, to see if any changes need to be made in the structure or process of the program. This model TDR program ordinance is both simple and flexible, so that adjustments to the program can be made if necessary.

Designing a Simple and Flexible Program

After analyzing current TDR programs, the Roddewig and Inghram study produced a number of suggestions on TDRs explored several TDR programs and produced a number of suggestions for implementing a successful program, which should be flexible, promoted with the public, and responsive to the real estate market.[248] Real estate development can be greatly influenced by changing demographics, such as family size, income, and median age. The real estate development business is sensitive to such changes. Tax laws can change the type and amount of development, as seen in the Tax Reform Act of 1986. Legal aspects can affect real estate development. Examples are building codes, laws concerning tenants and landlords, ordinances for converting property into condominiums. Finally, development is also sensitive to state and local tax rates as well as changes in interest rates, utility costs, labor availability and technology changes.[249]

If TDR Marketplace Problems Rise: What To Do?

If there are problems in a TDR program after transfers have begun, planners might consider taking further steps. To publicize TDR to increase the availability of infrastructure in undeveloped receiving areas; to increase or decrease the supply of TDRs; to change the size of the receiving area; to protect the market for TDRs in the receiving area by making sure that other bonuses are not preempting the market; to set up or strengthen a TDR bank; to monitor the TDR market to make sure sellers are not lowering prices through competition.[250]

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[248] Roddewig, Richard J. and Cheryl A. Inghram. “Transferable Development Rights Programs: TDRs and the Real Estate Marketplace.” Journal of the American Planning Association. May 1987.

[249] Ibid.

[250] Ibid.

Conclusion

Focusing on the need for resource protection presents a valid argument for the adoption of a TDR program, and offers a central focal point for gaining political support and eventual consensus building. Information and educational sessions will also be necessary; and a log of effectiveness of these sessions aids in attaining political longevity and certainty in the program. It has been noted in several analyses of TDR, that focusing on the program being *durable* is important, as TDR success necessitates many years of effective operation.[251] This process aids communities in understanding sprawl and its consequences and in creating goals for the future on how to control growth and preserve rural areas. Developing a community vision may especially help the public understand the TDR system and support environmental protection of open spaces, forest or farmland. Planners must focus on what Richard Tustian, professor at the University of Pennsylvania Department of City and Regional Planning, calls the ***public purpose***, which inspires the adoption of a growth control tool, such as the TDR mechanism. "Zoning is about the public purpose … and TDR is inside the zoning envelope. What is the 'public purpose'? - It is planning; and you do this by zoning. Setting up receiving and sending areas is like a game. There are increases in density because there is [now] this movement in the US where people want more social cohesion: and this represents higher density. In receiving areas, you extend density which is set [by zoning]."[252] Tustian stresses the importance of having the planning process include the public purpose as a goal: "TDR programs are usually the result of a comprehensive planning process - this process helps a community envision its future and generally involves extensive public participation. The process of developing a community

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[251] Johnston, Robert A. and Mary E. Madison. "From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights." Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol.63, No.3, summer 1997.

[252] Personal communication with Richard Tustian, RPA conference, October 20, 1997

vision may help build understanding of TDR and support for farmland [and other rural area] protection."[253]

[253] American Farmland Trust. Transfer of Development Rights: Saving American Farmland: What Works?

CONCLUSION

"We have to create communities that work. Use zoning, infrastructure, and affordable housing as incentives. (…) What is environmentally desirable? Less sprawl? Increased density? The community is who should make that choice."

-- Richard Tustian
Professor, Rutgers University and University of Pennsylvania
RPA TDR Conference, New York City, October 1997

In conclusion, arriving at a strong and effective Transfer of Development Rights program involves more than adopting a TDR ordinance. As the TDR concept has just been brought forth into land planning, especially in this last decade, planners considering TDR must not only formulate a functioning program, but also remember to educate potential users.[254] As a fairly young concept, TDR offers a tremendous opportunity for planners to create new forms of TDR systems, e.g., discovering new allocation formulas, and helping further the concept into the planning arena. It breaks new ground not only for planners, but also for landowners, developers, bankers and attorneys. Transferring development rights has demonstrated significant success in preserving open space in Montgomery County, Maryland, and in the New Jersey Pinelands area, as well as has shown high cost-effectiveness compared to other growth control and land preservation techniques.

However, the TDR concept's complexities "suggest that communities considering it should pay at least as much attention to making TDR operate as they do to adopting it."[255] If communities, or planners, discover an area where a market exists for rights, and where all parties involved - including developers, landowners and facilitators - have been realized and communicated with, a TDR program can be used to demonstrate how private market operations can attain a public purpose.

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[254] Pizor, Peter. "Making TDR Work: A Study of Program Implementation." Journal of the American Planning Association. Planner's Notebook. Spring 1986.

[255] Ibid.

BIBLIOGRAPHY

- **American Farmland Trust**. "Transfer of Development Rights: Saving American Farmland: What Works?" 1996.
- **Board of County Commissioners, Dade County, Florida**. Ordinance 81-122.July 21, 1981.
- **Brighton, Deb**. "Community Choices: Thinking Through Land Conservation Development and Property Taxes in Massachusetts." Press for Public Land. 1988.
- **Burchell, Robert W**. "Economic and Fiscal Costs (and Benefits) of Sprawl." The Urban Lawyer. Spring 1997. Vol 29, number 2.
- **Cassinelli, Ron**. "Area House-Construction Rate Leads State" The Providence Journal-Bulletin. South County Edition. October 6, 1994. News section Pg. 1D.
- **Chavooshian, B. Budd. Thomas Norman, and George H. Niewstand**. "Transfer of Development Rights: A New Concept in Land-Use Management." Urban Land. Vol.32. 1973.
- **Costonis, John**. Space Adrift: Landmark Preservation and the Marketplace. Urbana, Illinois: University of Illinois Press for the National Trust for Historic Preservation. 1974.
- **Dade County, Florida**. Section 33B-30(A)(2) and section 33B-30 (A)(3)(a) through (c), Dade County, Florida, Code of Ordinances.
- **Delaware Valley Regional Planning Commission**. "Regionwide Assessment of Farmland Preservation Programs." June 1990.
- **Dodge, James H**. "Prevent Urban Sprawl by Promoting Smart Growth." The Providence Journal-Bulletin. July 1, 1997. Editorial Section.
- **Duncan, James et al**. "The Search for Efficient Urban Growth Patterns: A Study of the Fiscal Impacts of Development in Florida." (unknown source)
- **Frank, Thomas**. "Schools Struggling to Meet Demand for All-day Kindergarden." The Providence Journal-Bulletin. August 22, 1994. News Section.
- **Freilich Robert H. and Bruce G. Peshoff**. "The Social Costs of Sprawl." The Urban Lawyer. Spring 1997.
- **Freilich Robert H. and S. Mark White**. "Transportation Congestion and Growth Management: Comprehensive Approach to resolving America's Major Quality of Life Crisis"

24 LOY.L.A. L. Rev. 915, 919-920 (1991) [in Anthony Downs, The Need for a New Vision for the Development of Large U.S. Metropolitan Areas.]

- **Fulton, W**. “The Big Green Bazaar.” Governing Magazine. June 1996.
- **Gordon, Peter and Harry W. Richardson**. “Cities in Competition: The Emergence of Productive and Sustainable Cities for the 21rst Century.” 1994
- **Gottsegen, Amanda J**. “Planning for Transfer of Development Rights: A Handbook for New Jersey Municipalities.” Mount Holly, N.J.: Burlington County Board of Chosen Freeholders. 1992.
- **Heiberg, Dana E**. “The Reality of TDR.” Urban Land. September 1991.
- **Herbert Gans et al**. Symposium: “The State of the Nation’s Cities” (1982); Mark Baldassare, “Trouble in Paradise: The suburban Transformation of America” (1986) Lawrence J.R. Herson, “The New Suburbanization: Challenge to the Central City” Ann. Am. Acad. Pol. & Soc. Sci. 184 (1992)
- **Hockenstein, Jeremy B., Robert N. Stavins and Bradley W. Whitehead**. “Crafting the Next generation of Market-Based Environmental Tools.” Environment. May 1997.
- **Howe**. Growth Management: The planning Challenge of the 1990’s. Washington D.C.: Urban Land Institute. 1986.
- **Jackson. Kenneth T**. “The Effect of Suburbanization on the Cities.” Suburbia: The American Dream and Dilemna. P.Dolce (ed.) 1976.
- **Johnston, Robert A. and Mary E. Madison**. “From Landscapes to Landmarks: A Review of Current Practices in the Transfer of Development Rights.” Journal of the American Planning Association. American Planning Association, Chicago, Illinois. Vol. 63, No. 3, summer 1997.
- **Krueckeberg, Donald A**. "The Difficult Character of Property: To Whom Do Things Belong?" Journal of the American Planning Association. Summer 1995.
- **Lloyd, Gerald**. “Transferable Density in Connection with Zoning.” Technical bulletin no.40. Washington: Urban Land Institute. 1961.
- **Long Island Pine Barrens Commission**. information booklet.
- **Maine State Planning Office**. “The Cost of Sprawl.” Executive Department Report. May 1997.
- **Marx, Stacey S**. “Tools and Strategies. Preserving Open Space: A Guide for New England.” U.S. Department of the Interior National Park Service report (joint project of the Kennedy School of Government at Harvard University and the Rivers, Trails & Conservation Programs of the National Park Service.) March 1992.
- **Maryland - National Capital Park and Planning Commission**. Report. 1980.

- **Maryland - National Capital Park and Planning Commission**. "A Transfer of Development Rights Program for the Preservation of Agriculture and Rural Open Space."
- **Maryland Office of Planning**. "Transferable Development Rights," from the series, Managing Maryland's Growth: Models and Guidelines." Annapolis, MD.
- **Merriam, Dwight H**. "Making TDR Work." North Carolina Law Review. Volume 56, January 1978.
- **Mockenhaupt, Brian D**. "Brainstorming Session Builds Ideas to Boost Farming; About 60 People Discussed the 'Foster Farming Initiative' Friday Night." The Providence Journal-Bulletin. November 12, 1996.
- **Montgomery County Planning Commission**. *A Guidebook for Creating a Municipal TDR Program.*
- **Mountains Restoration Trust**. Report. 1995.
- **New Jersey Pinelands Commission**, "TDR Basics" (factsheet)
- **New Jersey Pinelands Commission**, "Why TDR?" (factsheet)
- **New Jersey Pinelands Development Credit Program** (booklet).
- **New Jersey Pinelands Protection Act**. West Supp. 1988.
- **New York Times**. "State Pushing to Save Open Spaces; Zoning, Tax Cuts and Development Rights Used." May 25, 1975.
- **Nicholas, James**. "A Report to the Pine Barrens Credit Clearinghouse on the Value of Development Rights within the Towns of Brookhaven Riverhead and Southampton." March 1996.
- **Nicholas, James**. Introduction to TDRs in Regional Plan Association TDR Conference materials. October 1997.
- **Pioneer Valley Planning Commission**. "Valley Vision: The Regional Land Use Plan for the Pioneer Valley." September, 1997.
- **Pizor, Peter J**. "Making TDR Work: A Study of Program Implementation." Planner's Notebook. American Planning Association Journal. Spring, 1986.
- **Pizor, Peter**. "A Review of Transfer of Development Rights." Urban Land.
- **Poole, Samuel E**. "TDRs in Practice: The New Jersey Pinelands." Urban Land.
- **Pruetz, Rick**. "A Transfer of Development Rights: California." Self-published Report, 1992.
- **Pruetz, Rick**. Saved by Development: Preserving Environmental Areas, Farmland and Historic Landmarks with Transfer of Development Rights. Burbank, California: Arje Press. 1997.

- **Regional Plan Association and The Lincoln Institute of Land Policy**. "TDR in the Tri-State Area: A Regional Workshop." Transfer of Development Rights for Balanced Development. Regional Plan Association TDR Conference material. October 1997.
- **Rhode Island Builders Association.** "Housing Units in Rhode Island." 1980.
- **Rhode Island State Department of Administration, Division of Planning**. "Land Use 2010: State Land Use Policies and Plan." State Guide Plan Element 121, June 1989.
- **Rhode Island State Department of Administration, Office of Municipal Affairs. State Enabling Acts Relating to Land Use & Planning 1996-1997.** Rhode Island Zoning Enabling Act of 1991. R.I.G.L. 45-22-33 (B)(2).
- **Rhode Island State Department of Administration Statewide Planning Program**. "Rhode Island Population Projections by Age, Sex, and Race 1995-2020." May 1997.
- **Rhode Island State Department of Environmental Management and Division of Planning and Development**. "Protecting our Land Resources." May 1996.
- **Rhode Island State Department of Environmental Management**. "Scituate Reservoir Watershed Zoning Project." Technical Planning Assistance Project. No. 97. 1996.
- **Rhode Island State Division of Planning**. Housing DataBase. Report Number 88. February, 1996.
- **Rhode Island Foundation and the Rhode Island Community Foundation**. Letter to members. April 7, 1988.
- **Rhode Island Natural Heritage Program, Department of Environmental Management**. "Rhode Island Biodiversity Conservation Plan." May 1996.
- **Rhode Island Office of State Planning and the Rhode Island Division of Forest Environment**. Rhode Island Forest Resources Management Plan. (State Guide Plan Element 161) April 1984.
- **Rhode Island Public Expenditure Council**. "Strengthening Cities: a Report of the Urban Strategy Project." 1998.
- **Rhode Island Rural Lands Coalition**. Information Booklet. 1997
- **Roddewig, Richard J. and Cheryl A. Inghram**. "Transferable Development Rights Programs: TDRs and the Real Estate Marketplace." Journal of the American Planning Association. May 1987.
- **Salit, Richard**. "Cranston Officials Considering Setting Limit on Housing Starts." The Providence Journal-Bulletin. June 13, 1996. News Section, Pg. 3D.
- **Schiff, Stanley D**. "Real World Experience with TDRs -- An Update." Piedmont Environmental Council.

- **Siemon, Charles**. "Successful Growth Management Techniques: Observations from the Monkey Cage." The Urban Lawyer. Vol. 29, No.2. Spring 1997.
- **Smith, E. and D Riggs** (eds). Land Use, Open Space and the Government Process. 1974.
- **Smith, MT**. "Evolution and Conflict in Growth Management." Growth Management: The Planning Challenge of the 1990s.
- **Southern New England Forest Consortium Inc.** "The Cost of Community Services for Southern New England." 1995.
- **New Jersey Pinelands Commission**. Comprehensive Management Plan.
- **South Kingstown Planning Department**. Town of South Kingstown Growth Management Newsletter. 1997.
- **Southern New England Forest Consortium Inc**. "The Cost of Community Services for Southern New England." 1995.
- **Stokes, Samuel N. et al**. Saving America's Countryside: A Guide to Rural Conservation. National Trust for Historic Preservation in the United States. Johns Hopkins University Press: Baltimore, Maryland. 1989.
- **Tripp, James and Daniel Dudek**. Institutional Guidelines for Designing Successful Transferable Rights Programs. Yale Journal on Regulation. 1989.
- **United States Department of Agriculture**. Forest Service Survey. Resource Bulletin NE-104. May 1990.
- **United States Department of Commerce, Economics and Statistics Administration, Bureau of the Census**. 1990 Census of Population, General Population Characteristics: Rhode Island. Issued June 1992.
- **United States Senate Office of Research**. Report on Urban Growth Policy Project. 1989.
- **University of Rhode Island Community Planning and Area Development**. "North Kingstown Transfer of Development Rights." Fall 1997.
- **United States Bureau of the Census**. "1990 Census of Population and Housing, Population and Housing Unit Counts." (CPH-2); and press release CB96-10.
- **United States Bureau of the Census**. "Rhode Island Population 1980-1992." Rhode Island Division of Planning.
- **U.S. News and World Report**. "Suddenly, An Alarm Over Vanishing Farms." September 15, 1975.
- **Ward, Harold and Robert W. Kates**. "Will Rhode Island be the First Green State." Environment. Vol.32, No.8. October 1990.

- **Wright, Marion I. and Robert Sullivan**. The Rhode Island Atlas. Rhode Island Publication Society.
- **Zavarella, Mario**. "Windsor, Connecticut: Small Town Transfers Residential Density via Zoning Credits." Practicing Planner. September 1978.
- **Ziegler, Edward H**. "The Transfer of Development Rights: Parts I and II." Zoning and Planning Law Report.