The Economics of Transferring Development in the New Jersey Highlands
ACKNOWLEDGEMENTS

This report was prepared as a joint effort of Regional Plan Association and Environmental Defense, in cooperation with New Jersey Future and Regional Planning Partnership.

Regional Plan Association and Environmental Defense would like to thank the Geraldine R. Dodge Foundation, Lincoln Institute of Land Policy, Merck Foundation, F.M. Kirby Foundation and Victoria Foundation for both their financial support and intellectual contribution.

We would like to acknowledge and thank the many individuals who have contributed to this report: Armando Carbonell, Senior Fellow and Cochairman of the Department of Planning and Development, Lincoln Institute of Land Policy, for his invaluable guidance; George Hawkins, Executive Director, and Chris Sturm, Project Director, New Jersey Future, provided valuable research and analysis; and Diane Brake, President, and James Hess, Project Manager, Regional Planning Partnership, for helpful comments and suggestions.

RPA and Environmental Defense also wish to thank the members, staff, and consultants of the Highlands Council and of the Highlands Coalition for their constructive comments on earlier drafts of this material.

Finally, we would like to thank the many state, county and local officials, and technical experts who contributed their ideas through various meetings and forums.

This report and the executive summary can downloaded from RPA’s website: www.rpa.org or Environmental Defense’s website: www.environmentaldefense.org.

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Cover photo: NYC from Ramapo Mountains, NJ, in the Highlands by George Aronson
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The Highlands Council, in accordance with the provisions of the Act, is developing a TDR program to help achieve the goal of preserving New Jersey’s Highlands.7 The Highlands Council has taken crucial steps towards understanding the dynamics of land markets in the Highlands and how a TDR program would work by seeking guidance from state and local officials, the development and conservation community, and property owners. One of the biggest challenges in enacting a TDR program is that while simple in concept, its implementation often requires the navigation of a complex set of technical, legal and institutional hurdles, which may vary between programs. All of these factors make TDR difficult to understand.

This report aims to provide a clearer understanding of TDR – citing other successful TDR programs in the Northeast – and begin the discussion about its potential role in preserving the Highlands. The research put forth here – conducted jointly by Regional Plan Association and Environmental Defense – examines the implications of recent residential and commercial real estate sales transactions for the revenue generation potential of a New Jersey Highlands Transfer of Development Rights program. The intention is to highlight the total number of conservation dollars that could be generated for land acquisition through a successful TDR program.


4 A recent examination of land acquisition cost trends conducted by the New Jersey Highlands Council estimates that $12,000-$15,000 per acre may be a more appropriate value range for use in projecting future funding needs for the Highlands Region.

5 Estimated average cost per acre to the State for open lands purchases in the Highlands in FY’05 based on historic cost data and projected spending by program in the region.  


INTRODUCTION

Stretching from northwestern Connecticut across the Lower Hudson Valley into northern New Jersey to eastern Pennsylvania, the Appalachian Highlands is a source of clean drinking water, wildlife habitat, natural recreation opportunities, and a scenic expanse rivaling the nation’s most valuable landscapes. This 3.5 million acre greenbelt serves the nations most densely populated metropolitan region, providing irreplaceable and invaluable wildlife habitat to a region where open space is increasingly subject to development pressures. A recent regional USDA Forest Service study found that 5,000 acres of forests, farmlands, wetlands, and grasslands in the Highlands of New York and New Jersey are lost to development each year.1

In 2003, the State of New Jersey moved aggressively to address the preservation of the 1,250 square mile region that makes up the New Jersey Highlands. This region lies within portions of seven New Jersey counties – Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex, and Warren – including eighty-eight municipalities that stretch from Ringwood in the northeast to Phillipsburg in the southwest. In September 2003, New Jersey’s Highlands Task Force made recommendations that led to the adoption of the Highlands Water Protection and Planning Act in 2005, which established the Highlands Water Protection and Planning Council (Highlands Council), a regional entity with state and local participation charged with "carrying out the provisions of the Act, including the development of a Regional Master Plan for the Highlands Region."2

The primary goal of the Regional Master Plan is "to protect and enhance the significant values of the resources" in the Highlands region by protecting critical environmental areas, protecting water quality, and determining appropriate land use patterns for areas within the Highlands.3 Open space acquisition – an increasingly popular tool for the outright purchase of land and development rights – cannot be the sole method for the preservation of the Highlands in their entirety as there is simply not enough money. New Jersey’s Highlands land acquisition funds through fiscal year 2009 are estimated to be $450 million. Yet with an estimated price of $6,200 per acre4 in the New Jersey Highlands, the cost to acquire the 300,000 acres identified as critical treasures by the Highlands Coalition would total nearly $2 billion5 – leaving a funding gap of $1.45 billion over the next five years.6 If we assume a comparable amount of new public acquisition funds for the 2010-2014 period, that still leaves a funding gap of almost $1 billion.

As the price of acquisition rises and as there is the need to ensure “no-build” areas without making them vulnerable to “takings” claims, the usefulness of a state mandated Transfer of Development Rights (TDR) program becomes apparent. A well-executed TDR program could potentially fill a funding gap of such magnitude, while preserving critical natural resource areas in the New Jersey Highlands and helping communities to accommodate growth where appropriate.

The Highlands Council, in accordance with the provisions of the Act, is developing a TDR program to help achieve the goal of preserving New Jersey’s Highlands.7 The Highlands Council has taken crucial steps towards understanding the dynamics of land markets in the Highlands and how a TDR program would work by seeking guidance from state and local officials, the development and conservation community, and property owners. One of the biggest challenges in enacting a TDR program is that while simple in concept, its implementation often requires the navigation of a complex set of technical, legal and institutional hurdles, which may vary between programs. All of these factors make TDR difficult to understand.

This report aims to provide a clearer understanding of TDR – citing other successful TDR programs in the Northeast – and begin the discussion about its potential role in preserving the Highlands. The research put forth here – conducted jointly by Regional Plan Association and Environmental Defense – examines the implications of recent residential and commercial real estate sales transactions for the revenue generation potential of a New Jersey Highlands Transfer of Development Rights program. The intention is to highlight the total number of conservation dollars that could be generated for land acquisition through a successful TDR program.
Transfer of Development Rights (TDR) programs allow development rights to be directed away from one parcel of land – presumably not well suited for development – to another site more appropriate for growth. The parcel of land on which development rights originate is called a “sending area,” while the parcel to which rights are transferred is called a “receiving area.” A TDR program must have some balance in sending areas and receiving areas – whereby the development rights created by the sending area would eventually be absorbed by the receiving area.

TDR programs are founded on the bundle of rights or “sticks” theory. According to the bundle of rights theory, title to real estate property ownership contains many components or “sticks” that may be individually severed and marketed, such as the right to use land, lease, sell and bequeath it, borrow money against it, or mine it. The right to develop property to its fullest potential is one of these sticks. TDR programs allow land owners to separate their development “stick” from their bundle of rights, and sell or transfer it to another site. The transferred development rights are typically transferred as credits to the receiving site, the number of credits most often determined by one or all of the following: the gross acreage, zoning, and land characteristics of the sending area.

“Receiving areas” are the areas appropriate for growth to which development rights are transferred within a TDR program – allowing for higher density or intensity on receiving areas by way of floor area ratio or dwelling units. Market demand in receiving areas informs the value of TDR credits. For instance, developers are willing to pay for TDR credits if adding density beyond current zoning allowances in receiving areas is valuable. Conversely, if there is not enough demand for additional growth in receiving areas, transfer of development rights would derive little or no value.

It is important to note that the potential for successful transfer of development rights is a function of the growth of the receiving area. If a receiving area is at developmental capacity and not growing, it might not be capable of absorbing the development transferred from sending areas.

Receiving areas should be areas that:

- Are not at capacity for growth;
- Have market demand for development intensity greater than the existing intensity, i.e. high market value land and demand for extra density;
- Are designated by municipalities and counties as appropriate for higher densities;
- Have low environmental sensitivity and impacts;
- Are located within close proximity to existing highway, transit, and water and wastewater infrastructure;
- Have in-fill and redevelopment potential;
- Are broadly allocated among Highlands municipalities.

Often, parcels designated as “sending areas” in a TDR program are unsuitable for development. These areas can include but are not limited to wetlands, endangered species habitat, historically significant property, or areas of active agricultural operations. When enacting a TDR program, local jurisdictions identify the sending areas for which they would like to transfer development rights. Once identified, regulations prescribe the uses sending areas may incorporate after development rights have been transferred. For instance, in the case of agricultural operations, residual uses like farming might still be allowed following the severance of development rights, leaving the land with a certain non-development value. In cases such as this, landowners would be compensated for the full difference between the development value of the land and the non-development value based on TDR restrictions – making clear that many land owners cannot be fully compensated within a TDR program. On that note, it is critical that TDR programs restore value to restricted parcels sufficient enough to avoid characterization as a “taking.”


After a sending parcel transfers its development rights or “stick,” the
land is restricted with a permanent conservation easement, while
the receiving parcel generally receives the rights to build at greater
density – or intensity, in the case of non-residential developments
– than allowed for by zoning.

Some of the benefits of TDR are that it makes no-build zones legally
defensible, provides landowners with another means of compensa-
tion, and preserves land with private money. To that end, TDR
programs offer an ability to accomplish complementary goals: open
space preservation and responsible development in receiving area
centers.13

The latter goal highlights the importance of good receiving area
planning – if receiving areas are chosen carefully the result could be
higher density, center-based development – effectively addressing
many concerns around sprawling low-density development by pro-
viding some or all of the following: smaller housing units, less im-
pervious surface per unit and less non-point source water pollution,
less water and wastewater treatment demand per unit, less summer
outdoor water demand per unit, and less vehicle trips per unit.14

The positive impact of many of these results could be, but are not
limited to: less consumer spending on personal vehicles, more af-
fordable living opportunities, improved quality-of-life, less air and
non-point source water pollution, and more appropriately located
rattles helping stabilize property taxes, potentially creating an en-
vironmentally friendly, socially robust, and economically efficient
place of distinction. If center-based receiving areas were designed
within walking distance of transit hubs, receiving areas might re-
alize an increasing demand for Transit-Oriented Development as
well, ultimately bolstering their growth and success.

Inadequate receiving area planning, on the other hand, might just
relocate sprawling low-density real estate development; although
preserving critical landmass in the sending area, this could nega-
tively affect the designated receiving area in an inverse relationship
to the benefits described in the center-based development above.

Shifting Development
Trends

Shifting demographics and household trends may reshape our understanding of the level of
development density communities will allow or even encourage. For instance, recent surveys
explored in Reconnecting America’s Center for Transit-Oriented Development report titled Hidden
in Plain Sight, document a change in household preferences:

- AARP reports that 71 percent of older households want to live within walking
distance of transit.
- According to the National Association of Realtors, condo sales are booming, and
for the first time, the price of midpoint of condos is higher and the sales volume
is growing faster than for detached single family homes
- Professional Builder reports that 37 per-
cent of all households want small lots
and clustered development.

Key demographic shifts may also be of signifi-
cance:

“...There’s a larger shift underlying these trends
in real estate investment and downtown
population growth...which were dramatically
illuminated in the 2000 Census, and each
has the potential to significantly increase
demand for urban-style housing near transit:
household size is shrinking, producing more
households of empty nesters, singles and
non-family residents; and baby boomers are
aging, swelling the ranks of older households
as they pass from the childrearing stage
of life to the empty-nest phase. Evidence
suggests that baby boomers are fueling
much of the growth in urban populations as
they seek smaller homes in locations with
a greater mix of amenities. The traditional
nuclear family that made up 40 percent of
households in 1970 now comprise less than
24 percent of households.”15

While the general preference of many local
officials is for less rather than more density
because of potential impacts on infrastructure
and schools, this shift in thinking about higher
density development projects may be imminent
in the face of changing demographics and new
preferences for living. To that end, comprehen-
sive and careful planning must be done at both
the state and local levels to ensure the planning
criteria of receiving areas are in tune with com-
community interests and smart growth opportunities
for the region.

*Yaro. 5.
*Reconnecting America’s Center for Transit-Oriented Development. Hidden In Plain
*Implementing the Highlands...
Types of TDR Programs

There are a variety of types of TDR programs. American Farmland Trust breaks down the more common TDR program types in the following list:

- **Cluster Zoning or same-owner/same-parcel transfers**, describes a program in which zoning ordinances allow landowners to group houses on one section of a tract on smaller lots than would ordinarily be permitted, so long as the average density for the development does not exceed the maximum allowable density permitted by zoning. The land that is saved by clustering may be restricted with an agricultural conservation easement;

- **Lot Mergers** identify a scenario in which an owner of two adjacent lots may combine them to be treated as one, allowing the density from one lot to be transferred to the other;

- **TDR between adjacent properties in the same ownership** refers to an option that allows a landowner to transfer development rights from one parcel to an adjoining parcel;

- **TDR between non-adjacent properties in the same ownership** refers to programs in which owners of tracts in rural sending areas agree to restrict their use to farming or conservation, in exchange for permission to transfer the development rights to land they own closer to urban services;

- **TDR to non-adjacent tracts in different ownership in the same local jurisdiction** involves the transfer of development rights between parcels in different ownership in the same jurisdiction – involving monetary transactions between private parties – rights which may be transferred between private parties, or purchased by a government agency and later sold to developers;

- **TDR from parcels in a designated rural sending area to non-adjacent tracts in different ownership in a designated receiving area in the same local jurisdiction** only differs from the previous example in that local government designates discrete sending and receiving areas;

- **TDR from parcels in a designated rural sending area to non-adjacent tracts in different ownership in a designated receiving area across local boundaries** is a program in which the sending and receiving areas are located in different local jurisdictions.16

The ultimate TDR program enacted by the Highlands Council could be modeled after any of the above program types or combination thereof. Indeed there are a plethora of TDR program elements that should be considered by the Highlands Council, such as whether participation in the program is mandatory or voluntary; size & scope; and if it is inter- or intra-municipal (inter-municipal means credit transfers could take place across local jurisdiction boundaries while intra-municipal refers to transfers that take place within the boundaries of the same local jurisdiction), or the Highlands Council might offer both inter- and intra-municipal components within their TDR program.

The interest in one type of TDR program over another may be informed in large part by the variability of land value within the Highlands counties; however, other issues might be of particular concern for municipalities. “Highlands townships...may be disinclined to take credits from another township, certainly one in another county, because they do not want to become sinks for growth. School costs may be a prominent factor in this thinking, affordable housing compliance another, but undoubtedly there are [more factors].”17

As the Highlands Council moves forward with its TDR program it should also ask what role a Highlands TDR Bank might play in the implementation of the Highlands TDR Program, or if credit transactions should be conducted on the open market. A TDR bank, or clearinghouse, essentially is an entity that uses a revolving fund to buy development rights from landowners in the sending area. The funding for these purchases is then replenished by selling those rights to parties in the receiving area. TDR banks offer a way to stabilize a potentially unpredictable development rights market.18 The New Jersey Pinelands and Long Island Pine Barrens Commissions emphasized the crucial role that the credit banks play in stabilizing the credit rights market and the overall functioning of the TDR programs.19 “As the purchaser of last resort, these institutions guarantee that there is a market for the rights and property owners may know that on any given day, their development rights have a specific and real value. Finally, the sense of certainty and stability created by these programs has both an economic and political or strategic value.”20 In establishing a TDR credit bank, the Highlands Council will need to explore the legal mechanisms for bank creation and work towards maintaining both the efficiency and transparency of all TDR credit transactions.21

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16American Farmland Trust. 127-128.
18American Farmland Trust. 137.
19Generally speaking, TDR banks or clearinghouses record transactions, maintain information about the status of the program, and track transactions, as well as identify potential sellers and purchasers of rights. They must also be involved in outreach and education about their TDR program.
20Yaro. 29-40.
SUCCESSFUL TDR PROGRAMS

The New York metropolitan region and Maryland have arguably some of the most successful TDR programs to date. How one identifies a successful TDR program is, of course, subject to debate – is TDR success a function of: “The amount of open space preserved,” “The total amount of acres of land kept in farming,” “The number of TDR transactions,” “The quality or quantity of development in receiving areas?” And furthermore, how does the time period for achieving these inform the success of a project? A successful program is one that: achieves preservation goals, implements regional planning and recognizes capacity constraints, treats landowners fairly by generating economic value, allows for low-cost transactions, spreads burden and impacts, achieves local support and participation, and includes a specified cap on growth in individual municipalities. The cases identified here contain many of the elements discussed in this report:

New York City, New York. New York City implemented the first formal TDR program in 1968. This program allowed site owners of historic landmarks to sell unused air rights to a third party. Generally speaking, owning or renting land or a building gives one the right to use and develop the empty space above the property; those rights are called air rights. This would give the third party the ability to increase the bulk of another structure by up to 20%. Although the air rights were not usable at the original landmark site to begin with, this program gave the air rights a value whereby buttressing the City landmarks preservation program’s success.

Long Island Pine Barrens, New York. The Long Island Pine Barrens Protection Act of 1993 put forth legislation that slated the Pine Barrens on Long Island for protection from development. The Central Pine Barrens occupies 100,000 acres in Suffolk County, Long Island. This eastern-most county on Long Island includes a portion of three towns – Brookhaven, Riverhead and Southampton. The Act contained several important legislative components: it established a five member Central Pine Barrens Joint Planning and Policy Commission to create and implement a Comprehensive Management Plan (CMP) – adopted in 1995 and updated in 2005; it divided the 100,000 acre region into a 53,000 acre Core Preservation Area permitting no new development, and a 47,000 acre Compatible Growth Area permitting limited development contingent on its environmental sustainability; and the plan suggests 75% of the core preservation area be publicly acquired. In order to preserve the remaining core area, a Long Island TDR program was put in place. This program is targeted to purchase approximately 10,000 acres of the 14,000 privately held or undeveloped acreage within the core area. Since its inception, the Pine Barrens TDR program has allocated 487 parcels in the core preservation area transferable development credits. As of January 1, 2006, out of the 10,000 acres targeted within the Core Preservation Area, the total area of the sending parcels was 1,067.43 acres, with the average value of Pine Barrens TDR Credits per acre approximately $16,500. Ray Corwin, executive director of the commission, asserts that the TDR program is a success, especially when considered as a voluntary portion of the entire Pine Barrens regulatory system.

Montgomery County, Maryland. Montgomery County enacted a TDR program in 1981 to preserve agricultural uses in the face of the rapid suburbanization and commercial development around Washington, DC. Lands within a 110,000 acre Agricultural Reserve were downzoned from one unit per five acres to one dwelling unit per 25 acres. Owners were allocated one TDR per every five acres of land. Designated receiving areas were next to highway and railway corridors connected to Washington. Montgomery County credits have sold for between $5,000 and $10,000. The fluctuation of TDR value translates to approximately $1,000 to $2,000 per acre. As of June 2005 the Montgomery County TDR program has preserved 48,584 acres of farmland.

New Jersey Pinelands. In the 1970’s, Atlantic City’s growth as well as suburban home building threatened the New Jersey Pinelands, which occupy one million acres between Philadelphia and Atlantic City. The Pinelands offer a rich and diverse ecosystem that is home to robust cranberry and blueberry industries. The New Jersey Pinelands National Reserve offered legislation towards development of a master plan. Governor Brendan Byrne created the Pinelands Commission in 1979. The Pinelands Commission developed the Pinelands Comprehensive Management Plan, which legally took effect in 1981. This Plan includes a Federally funded acquisition program which identifies 100,000 acres for outright purchase to be added to the 350,000 State-owned acres. As of October 2003, over 73,000 acres have been purchased under the Federally funded Pinelands land acquisition program. The Plan’s second and third components are: an environmental

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\[\text{Pine Barrens Credit Clarification, Easement Protected Lands and Pine Barrens Credits as of January 1, 2000. <http://www.pb.state.ny.us/chart_pbc_main_page.htm>}


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standards program that sets out performance standards for water quality, wetlands protection, animal habitat, and air quality; and a Land Use Program. At the center of the Land Use Program is a 299,000 acre preservation area comprised of pine forests and berry industries. This region produces nearly a quarter of New Jersey’s total agricultural income. The New Jersey Pinelands Commission introduced the Pinelands Development Credit Program (PDC), a TDR program, in order to lessen the impacts developmental restrictions have on property values. Since the PDC program’s inception in 1981, 10,200 transferable development rights have been formally allocated and approximately 5,200 rights have been officially severed from sending properties, permanently protecting more than 45,000 acres of land.27

The New Jersey Pinelands, Long Island Pine Barrens, and Montgomery, Maryland TDR programs offer insight into the potential advantages a TDR program could have if implemented in the New Jersey Highlands. To date, these programs have preserved tens of thousands of acres of precious land while giving value to land that falls within a preservation area.

The American Farmland Trust outlines some of the benefits of TDR programs:

- TDR protects farmland permanently, regardless of who owns it;
- Participation in TDR programs is voluntary in the sense that landowners are never required to sell their development rights;
- TDR promotes orderly growth by concentrating development in areas with adequate public services;
- TDR programs allow landowners in agricultural protection zones to retain their equity without developing land;
- TDR is a market-driven technique – private parties pay to protect farmland, and more land is protected when development pressure is high;
- TDR programs can be designed creatively to accomplish a variety of community goals in addition to farmland protection, including the protection of environmentally sensitive areas, the development of compact urban areas, the promotion of downtown commercial growth, and the development of agricultural water supplies.28

Relative to the New Jersey Pinelands, Long Island Pine Barrens or the Montgomery, Maryland, farmland protection programs, implementation of a TDR program in the New Jersey Highlands presents two potentially significant challenges. In his personal ruminations on a Highlands TDR program, James Tripp, Executive Director of Environmental Defense and Chair of the Pine Barrens Clearinghouse Board of Advisors, highlighted these potential obstacles:

“First, the value of both sending area and receiving area land varies significantly in the NJ Highlands, reflecting its location on the cusp of urban development. This was not the case in the other three programs where sending area land values were quite uniform, allowing for allocation formulas based on land type,” and “Second, in the NJ Highlands, depending on how it is designed, the TDR program and the land acquisition program could compete against each other in ways that may not serve land conservation goals. This was not a problem in the NJ Pinelands since in the early years the Commission had land acquisition funds available while its PDCs were perceived to have little value above the Commission minimum...Competition between the acquisition and PBC program in the LI Pine Barrens was also not an issue where the county and state spent substantial sums on acquisition for the first few years after plan adoption in 1995, and the credits had below property appraisal values...For these reasons, in designing its TDR program, the Council has to consider its relationship to the state acquisition program and has to think about the credit allocation and valuation issue in this context.”29

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28American Farmland Trust. 122.
29Tripp continues, “That has changed in the last few years, particularly in one of the towns, where credit values have risen to a point that eligible landowners are in some cases opting for credits rather than acquisition dollars. However, competition has recently become an issue where the state has looked at credit values to determine without plan appraisal values...For these reasons, in designing its TDR program, the Council has to consider its relationship to the state acquisition program and has to think about the credit allocation and valuation issue in this context.”
A TDR Market Assessment of the New Jersey Highlands

Market demand in receiving areas informs the valuation of transferable development rights. Developers are willing to pay for transferable development rights if adding density beyond current zoning allowances in receiving areas is valuable. In order to determine what a developer might be willing to pay for the right to add density to a potential receiving area in the NJ Highlands counties, Environmental Defense and Regional Plan Association (RPA) analyzed 10 years of residential and commercial real estate sales data collected by the New Jersey Association of County Tax Boards. The goal of this analysis was to highlight the total number of conservation dollars that could be generated for land acquisition in the NJ Highlands through the application of a TDR program.

The findings of the RPA and Environmental Defense study provide strong potential for raising significant conservation dollars through the enactment of a Highlands TDR program.

The regression analysis shows that the minimum amount a receiving area party might be expected to pay for the right to increase development density varies significantly by county. For example, one can expect – assuming the addition of one unit to land zoned at densities greater than 4 units per acre within the Highlands region – minimum willingness-to-pay values that range from $16,000 to $108,000. These results demonstrate that the highest-value growth receiving areas are located in counties to the northeast of the region. Values are highest in Bergen County, followed by Morris, Somerset, Passaic, Sussex, and Warren counties. The regression output further suggests that possibilities for TDR type transfers are greatest for those receiving area parcels zoned at densities of less than 1 unit per acre.

A related part of this research entailed identifying potential receiving areas. Receiving areas were spatially determined by overlaying biological, hydrologic and physical resource constraint layers with infrastructure capacity information to exclude those lands not suitable for development. A GIS-based application was developed to allow users to adjust the “suitability” parameters used to identify potential receiving areas both in the Highlands Region and in Highlands counties outside of the Highlands Region. Users may also designate how much additional density is to be accommodated in selected receiving areas. This tool then calculates,  

Hypothetical Willingness of Developers to Pay

<table>
<thead>
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<th>Hypothetical Willingness of Developers to Pay</th>
<th>1 Unit/acre</th>
<th>2 Unit/acre</th>
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<td>Construction, other expenses, profit</td>
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</tbody>
</table>

* Calculations are for illustration only - not a prediction of actual credit value in the NJ Highlands

Regional Plan Association and Environmental Defense analyzed residential real estate sales transactions from 1995 to 2004 for Bergen, Morris, Passaic, Somerset, Sussex, and Warren counties to highlight the regional conservation value of adding additional density to potential receiving areas throughout the Highlands counties. The purpose of this analysis was not to propose a method for allocating development rights to property owners in potential sending areas. Nor does this analysis suggest what the value of any development right in those sending areas would be. For the purposes of this report, we envisioned receiving area developers purchasing transferable development rights from a NJ Highlands credit bank, not from individual sending area property owners.

A statistical regression analysis was conducted to estimate the expected minimum value a developer would be willing to pay for the right to add density to potential residential receiving areas throughout the New Jersey Highlands counties: Bergen, Morris, Passaic, Somerset, Sussex, and Warren. When looked at over a period of ten or more years, the developer willingness-to-pay values indicate a
for any receiving area scenario to be tested, the composite willingness of developers to pay for added density in the selected receiving area, the number of acres within that receiving area, and the number of bonus units to be added.

The results of the spatial analysis show that, even under high-constraint scenarios, many potential receiving acres – with their potential revenue generation – exist throughout the Highlands. Based on the minimum developer willingness-to-pay values predicted from this research, and assuming the full utilization of receiving area bonus density potential by developers, it is possible to envision developer willingness-to-pay amounts over ten or more years generating dollars for land conservation ranging from $250 million to over $3 billion.\(^3\) The total revenue generated would obviously depend on the physical, biological, and hydrologic parameters used to delineate receiving areas, their distribution throughout Highlands counties, and the incremental density increases those areas could accommodate.

Under one scenario that applies reasonably stringent resource constraint parameters, a total of 38,000 potential receiving area acres were identified throughout the Highlands counties. Upzoning each zone class by one bonus unit – e.g. upzoning a 1 unit per acre zone class to a 2 unit per acre zone class – would enable developers to build 37,000 bonus units in this hypothetical receiving area.\(^2\) Based on the minimum developer willingness-to-pay values predicted from this research, such a scenario could generate more than $3 billion.\(^2\) Of the 37,000 potential bonus units, 22,000 would be developed on parcels in Highlands counties outside the Highlands Region. About 70% of the $3 billion would be derived from those parcels.

A second scenario that applies stringent “access to public transit” constraints resulted in 1,200 potential receiving area acres. Upzoning each class by three bonus units would enable developers to build 6,600 bonus units to these receiving area acres. Of the 6,600 potential bonus units, 3,700 would be developed on parcels in Highlands counties outside the boundaries of the Highlands Region. Under this scenario, this model predicts that $500 million could be generated through TDR transactions, of which 60% would come from receiving areas outside the Highlands Region.\(^4\)

These results demonstrate the economic value generating potential that exists in increasing real estate density in market-defined receiving areas within New Jersey’s Highlands counties. If anything, the sample revenue generating scenarios give a sense of how stringent receiving area parameter design – limiting potential receiving areas to as few as one thousand acres – still allows for potential to fill in significant portions of the land preservation funding gap.

It is apparent that density, time, and lot size are not the only variables that impact value, and as analyses such as this are advanced with the undertaking of a formal Highlands TDR program, other variables such as water and sewage constraints, should be considered within the credit value equation. Still, this regression output indicates that density, time and lot size account for about 35% of the variance in price of residential records. As residential TDR credits values are assessed for the Highlands, it would also be important to look at how market values of property on the municipal level compare within the defined receiving areas, so as not to miss out on microeconomic details.

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*Our TDR program revenue calculations assume that the receiving area bonus density potential is fully utilized by developers. In practice, some receiving area developers may not be interested in purchasing TDRs to build at densities greater than ordinarily permitted. In addition, there may exist other limits to growth in designated receiving areas – such as inadequate water supply or wastewater collection capacity – that prevent the full utilization of a NJ Highlands TDR program.

**These units are referred to as “bonus” units because they are built in addition to the number of units allowed under base zoning build-out.

\(^3\) These TDR revenue calculations assume that all receiving area bonus density is fully utilized by developers. This scenario excludes the following lands as potential receiving areas: the Highlands Preservation area, priority conservation lands in the Highlands Planning Area (identified by the NJ Highlands Coalition), developed lands, protected lands, C1 streams +300 ft buffer, slopes above 20%, water and wetlands +300 ft buffer, streams +3000 ft buffer, “State Endangered” Critical Habitat Areas, lands outside Planning Areas 1/2/3 or Centers, and lands outside the Sewer Permit Areas.

\(^4\) This scenario applied all of the exclusions listed in footnote no. 33. In addition, lands more than 1/2 mile from a passenger rail station were excluded from consideration.
COMMERCIAL MARKET ANALYSIS

Transferable Development Rights as they relate to commercial development oftentimes refers to a transaction in which a party purchases development rights from the designated sending area in order to increase intensity of components related to the party’s receiving area property: this could result in increased wastewater allowances or an increase in Floor Area Ratio (FAR).35 In the Long Island Pine Barrens, for example, transfer of commercial development rights has translated into increased wastewater discharge for certain commercial sites through the County Health Department.

Cases in which FAR has been increased for existing construction remain to be found. However, it seems intuitive that just as maximum allowable units can be increased for new residential development through a TDR program, so could maximum allowable FAR be increased in commercially or industrially zoned districts. Research should be conducted to examine actual FAR data for commercial sales records in the New Jersey Highlands counties, with which one could begin to determine the value of additional intensity of floor area within the New Jersey Highlands. As these data were not readily available, the commercial aspect of this report aims only to compare commercial sales prices in the New Jersey Highlands to those areas within the respective counties but outside of the Highlands area.

A meta-analysis of commercial data points which includes retail, office and mixed-use zoning districts indicates that of the sales within the Highlands boundaries, Somerset has the highest mean sale price per acre at $2,212,012 followed by Sussex at $381,269, then Morris at $377,772, and Warren at $169,787.36 For each of these counties, this is more than a 10% increase over average sales prices for commercial properties that were not within the Highlands boundaries.37 It is evident that, based on these sales data, commercial properties in the Highlands region have sold for more than those commercial lots in non-Highlands portions of the considered counties. These results may be an indication of how much equity will be transferred for credits purchased within commercially zoned sending areas in the Highlands if a TDR program is ultimately enacted.

Note: Dashed lines indicate values within the NJ Highlands boundaries.
**CONCLUSION**

A combination of environmental regulation, open space acquisition and a Transfer of Development Rights program – with their substantial value generating potential – offers a robust foundation towards preserving the New Jersey Highlands. It is not a question of whether it needs to be done, but when and how it will be done, in the face of the ever-present development pressures eating up thousands of acres in the New Jersey Highlands each year. Acquisition funds – as they stand by fiscal year 2009 – is an important component toward preserving critical lands; however, the remaining funding gap needs to be addressed through other preservation programs. A quick glance at the expected revenues found through spatial analyses over the New Jersey Highlands counties indicates a strong case for TDR's ability to facilitate a large portion of the preservation of the Highlands.

How much economic value does a New Jersey Highlands TDR need to generate? Generating revenue within a range of $400 to $800 million would facilitate the preservation of the highest priority lands as no-build. Expected revenues from various receiving area scenarios run as part of this research provide convincing evidence of the ability of a TDR program to facilitate a large portion of this preservation funding goal.

Ultimately, a successful TDR program should address many important technical issues including the types of transfers permitted, whether or not the program is voluntary or mandatory, which areas would be preserved and which areas should receive development and at what densities, and will transactions be made on the open market or should TDR credits be bought and sold through a TDR Bank.

In the end, it is important that the New Jersey Highlands Council develop a Highlands TDR program within the larger context of a comprehensive plan that is tailored to the specific economic, political and geographic circumstances of the New Jersey Highlands.

**SUMMARY OF FINDINGS**

1. A well-designed NJ Highlands TDR program could generate $250 million to more than $3 billion over a multi-year period to support the Highlands land conservation goal.

2. Tens of thousands of Highlands acres could be saved under a comprehensive TDR program, without acquisition dollars or new regulations.

3. The program works best by putting receiving areas in places that have high value and are currently zoned for less than one unit per acre.

4. The Highlands counties have many potential receiving areas that are reasonably proximate to infrastructure and that do not include high priority conservation lands or land with high environmental sensitivity.

5. Differences in property values across the Highlands suggest that development credits should be issued from a NJ. Highlands credit bank, not from individual sending area property owners.
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