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A Study of the Feasibility of a Transfer of Development Rights Program in Lewiston, Maine

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A Study of the Feasibility of a Transfer of Development Rights Program in Lewiston, Maine

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Community-Engaged Research in Environmental Studies (ENVR 417)
Bates College, Lewiston, Maine
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EXECUTIVE SUMMARY:

This project was conducted in collaboration with David Hedinger in Lewiston's City Planning Office in order to assess the feasibility of a Transfer of Development Rights (TDR) Program in Lewiston. The overall aim of this project was to apply scholarly literature, findings from case studies, and input from experienced professionals to determine what successful TDR programs look like, the factors they possess, and the conditions present.

The primary problem that TDR programs seek to address is urban sprawl, or the slow spread of development outside of the urban centers into the rural fringes. Urban sprawl has two chief components: 1) it leads to the loss of valuable environmental assets, open space, and potential agricultural land to development; and 2) it pulls money and investment outside of urban centers and leaves them economically depressed and sometimes even blighted (Bruegmann 2005, 160). In terms of Lewiston, while on a smaller scale than many other cities across the country, the problems of urban sprawl are still being felt. A TDR program, which allows a landowner to voluntarily relinquish their right to develop on their rural land and sell that right to a developer looking to increase density in the urban or suburban growth zones, has been a proven to be a reasonable and cost effective way to mitigate the problems of sprawl.

A successful TDR program, however, requires certain conditions and factors to be present. Many TDR programs across the country and even in Maine have failed because they were either improperly designed or under-stimulated by market conditions. The leading cause of failure in a TDR program is a lack of demand for high density development (Pruetz & Standridge 2009, 80). Without this necessary demand there is no driving force that will spur a TDR program into motion. Additionally, we found that the most effective TDR programs at preserving land are those administered at the county, regional, or state level (King County 2014; Montgomery County 2008; Pinelands 2009).

Our primary findings show that there are many factors that lead to successful TDR programs. And while Lewiston may possess the physical makeup of a successful TDR program: designated urban growth zones and large tracts of rural and agricultural land, it still lacks many factors that may be difficult to stimulate in the short term. We conclude with these remarks and offer a few alternatives to traditional TDR programs that could also be used to preserve land and promote smart growth.

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INTRODUCTION:

In the following introduction we frame Transfer of Development Rights (TDR) Programs in the context of the larger issue of urban sprawl. We discuss the merits of TDRs and how they can be used to combat this larger problem. We then address where the nation stands on TDR programs and how effectively they have been implemented. Finally, we look at the conditions in Maine and see what other TDR or similar programs exist in the state, as well as the the potential for implementation in Lewiston.

Urban Sprawl

Urban sprawl and land use have been major policy issues since the 1980s (Livanis et al. 2006, 915). Bruegmann argues that sprawling growth patterns are visible anywhere where there is a certain measure of affluence and where citizens have some choice in how they live (Bruegmann 2005, 160). According to Peiser, urban sprawl has become the catchphrase for everything that is bad about urban growth today—congestion, blight, monotony, endless development and ecological destruction. However, the biggest problem with urban sprawl is that the term has different meanings to different people (Peiser 2001, 275). According to Sultana and Weber, older and newer areas of rural and urban are converging (Sultana & Weber 2014, 564). If we do not understand sprawl, we cannot develop meaningful regulations to improve both open space and city areas.

Suburban growth has made it easier for those who can afford to move out of the city to escape from the perceived ‘push’ factors of poor schools, high crime rates, and deteriorating home values that arise from the concentration of poverty in city neighborhoods (Peiser 2001, 289). However, Downs argues that preventing sprawl alone will not cure the problems of decaying inner city landscapes and the concentration of poor populations, but it will help redirect investment into the inner city (Downs 2005, 371). One solution to redirecting attention back into the city is through education—demonstrating to local councilors and to public housing at large that higher-density housing can be just as attractive as low-density housing (Peiser 2001, 291). By the 2000s, most traditional downtowns in American cities housed fewer than 10 percent of the jobs in their respective metropolitan areas (Bruegmann 2005, 52). The businesses that would employ an inner city population simply do not exist within the city. According to Peiser in *Density and Urban Sprawl*, a policy designed to limit urban fringe growth without inhibiting higher density could lead to higher overall density but may also lead to higher prices on remaining land (Peiser 1989, 202).

Open space is another topic that is heavily discussed in regard to urban space. Residents expect the space to be provided by someone else, and homebuyers often view adjacent undeveloped parcels as open space for their enjoyment, forgetting that the parcels will eventually be developed (Peiser 2001, 291). Because of this, the primary problem of open space is who pays for it (Peiser 2001, 293). Vast amounts of acreage around most American cities have been converted from farms and forests to housing subdivisions. Reconciling the conservation of open

space with curbing urban sprawl and developing within the city is one of the issues that Transfer of Development Rights directly addresses.

What are TDRs?

Transfer of Development Rights programs seek to combat urban sprawl by severing development rights from rural or open spaces and redirecting them to urban growth zones, therefore preserving and protecting environmental assets, and promoting smart growth.

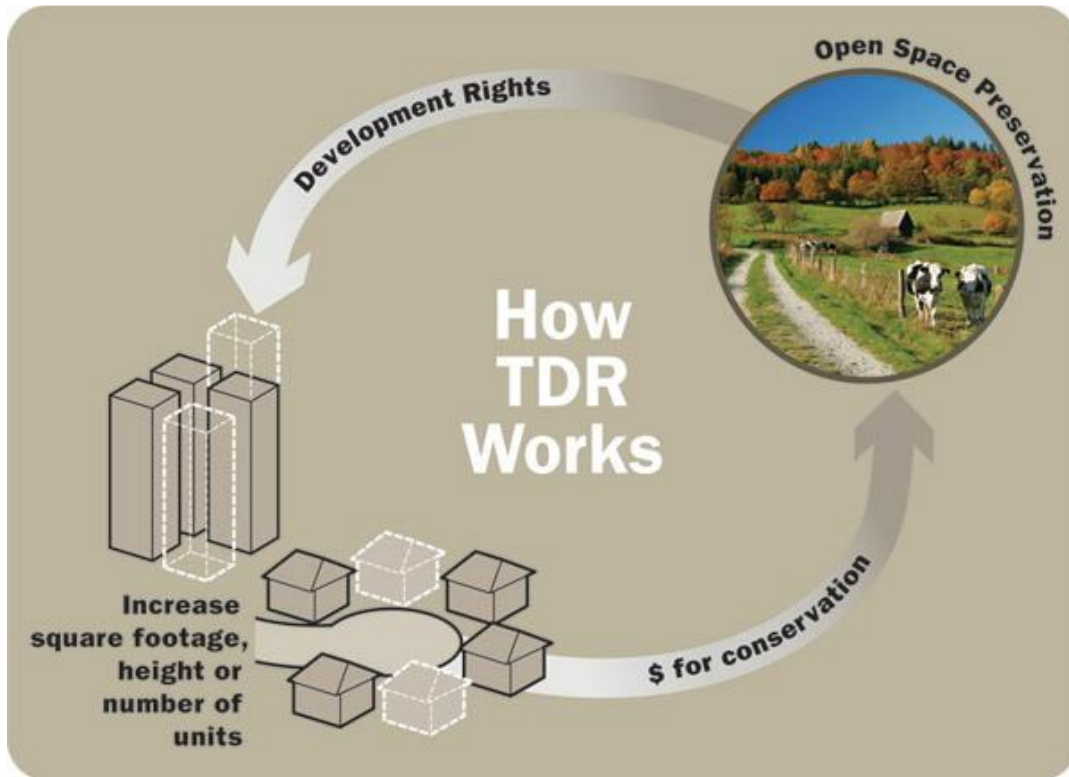


Figure 1. Diagram of How TDRs Work (King County 2014)

Strategically transferring development rights to appropriate areas is attractive because of the mutually beneficial nature of the transaction between the landowner and developer, as well as the positive externality of preserved lands and smart development falling on the public. The factors and requisites that determine successful TDR programs, however, are specific and essential. Among them are “development pressure and market demand...highly qualified consultants...political leadership...public education and community support” (Municipal Planning 2010, 2). Critical to any successful TDR, as The State of Maine Zoning Commission states, is this status as “a voluntary, market-based implementation tool”, that “promotes the conservation of high-value agricultural land, environmentally sensitive areas and strategic open space” through community-based input on development zones (Maine Zoning Commission 2006, 1). The key to TDR implementation is the concept of “sending areas” and “receiving areas” (Higgins 2004, 1). Sending areas are usually the spaces described by the Maine Zoning Commission-- that is, open

spaces with environmental value-- which “send” their land development rights to receiving areas, or community-designated areas that better accommodate growth and infrastructure.

TDRs differ from other community development strategies because they are considered voluntary, low-cost, transferable, and community-based. Programs like Purchase of Development Rights (PDRs) require much heavier funding in order to achieve the same goal of community conservation (Nelson et al. 2012, 41). Land Trusts work on a similar level, making efforts to preserve environmental spaces, but they mainly rely on grants or individual charity and do not focus on urban growth in other areas beyond the parcels of land that they are preserving which are usually on the far outskirts of towns (Nelson et al. 2012,17). TDRs also differ from cluster development strategies because TDRs mark a transfer of land from one entity to another. On the other hand, cluster development focuses on condensing housing on one part of one parcel of land.



Figure 2. A picture demonstrating what clustering looks like in practice. Tri-County Regional Planning Commission.

TDRs also reinvent the concept of development rights in their entirety. In TDRs, a landowner in a sending area owns the physical property, but also owns the rights to develop on that property. If the landowner chooses to participate in a TDR program, they can sell their right to develop their sending area property holdings while still holding onto ownership of the land itself. By selling their development rights to a landowner in a receiving area, they enable the receiving area landowner to increase developmental density rights on the receiving land. Along with this, their sending area land is allowed to remain undeveloped in perpetuity (James A. Coon Local Government Technical Series 2011, 4).

Various Purposes of TDR Programs

Research shows that 239 communities are identified as having implemented some form of TDRs (Pruetz et al 2008, 131), yet each TDR program is different in its scope and goals. 66 percent of these programs label environmental protection as their primary goals, however, there are different interpretations of what environmental protection entails. There are 5 types of TDR designation,

with a great deal of cross-listing or combining of types. Nelson et al. highlights 5 essential which are:

- Farmland Preservation
- Environmental Preservation
- Rural Character Preservation
- Historic Preservation
- Urban Design and Revitalization

(Nelson et al., 141-217).

Farmland Preservation

The goal of this type of TDR program is to maintain open and agricultural space, ensuring that farms stay working and that agricultural space is not compromised by sprawl. King County, Washington, is the most notable example of a community striving to use TDRs to preserve a rural agricultural tradition. This TDR type is also being looked at by New Gloucester, Maine in order to maintain their own working farmland.

Environmental Preservation

The goal of this type of TDR program is to preserve environmentally valuable resources such as forests, marshes, coasts, and waterways. The most notable example of environmental TDRs is the New Jersey Pinelands, which has preserved 16,000 acres of valuable and biodiverse woodland as of 1997 (Higgins and Bredin 2010, 23). In addition, this type of TDR is particularly applicable in Maine, with one of the Maine TDRs we have studied in fact seeking to preserve vernal pools.

Historic Preservation

The third-largest category of TDR goal subsets, historic preservation seeks to both restore and preserve historic or culturally valuable landmarks. New York City and San Francisco have both employed this form of TDR in order to both preserve and maintain historic buildings and streets in their downtowns districts. This type of TDR can also be applied for environmentally historical landmarks like turn of the century cemeteries, particularly those in outlying rural areas.

Rural Character Preservation

Rural character preservation differs from farmland preservation as it does not seek to maintain working farmland or open space specifically, but instead wishes to preserve the human residences that accompany them-- rural character acknowledges that people and homes also compromise a rural character. Florida's Alachua County specifically acknowledges rural character's importance in its TDR program.

Urban Design and Revitalization

The density bonuses provided by TDRs prove particularly valuable when developers are trying to revitalize a downtown area. Indeed, urban design and revitalization TDRs often attract developers to creatively designing downtown and historic areas. Cities like Los Angeles; Portland, Oregon; Seattle, Washington; and Washington, D.C. all provide density bonuses in their downtown areas to promote revitalizing TDR programs.

TDRs Nationwide

TDRs, for all their merits, still have limited use in American developmental practices, but this trend is beginning to change. While many attempts at TDRs have failed, this is mostly a product of poor planning and implementation.. The poster child for long-standing, effective TDR programs is the New Jersey Pinelands Commission, which is unique because of its statewide implementation. Other very effective TDR programs include the arrangement between King County, Washington and the city of Seattle, as well as the incredibly effective TDR program in Montgomery County, Maryland. Each of these case studies will be discussed at length in the Results and Discussion section.

TDRs in Maine

In 2001, in accordance with its efforts “to adopt land use policies and ordinances to discourage incompatible development” (Title 30-A 2001), the Maine State Legislature formally acknowledged Transfer of Development Rights programs as a viable tool for managing development densities within a given municipality. Many towns proceeded to adopt different forms of TDR programs but with largely limited success. The state’s municipal planning office has since released a clearer description of TDR programs, as well as the factors and requisites that determine their success. As they spell out, “TDR programs offer a unique balance of land preservation, financial compensation, incentives and opportunity, and regional strategic growth and developing using little or no public funding” (Municipal Planning 2010, 1).

To date, many towns in Maine have adopted some form of TDR mechanism through municipality ordinance, but they have in large part been underutilized. Gorham, Maine instituted overlaying zoning with a transfer of development fee mechanism that incentivized development in areas of the community where public sewerage was already available. Developers were permitted to increase development density in the overlay zone by purchasing a ‘development transfer fee.’ which went to a town fund “to purchase conservation land and/or easements and open space” (Maine: Town of Gorham 2014, 1). The program is clear and well devised, yet has thus far been minimally effective. Brunswick and Cape Elizabeth have demonstrated no success with their TDR programs: “Brunswick designated a single, undeveloped property as a receiving area that lacked sewer and water,” and “Cape Elizabeth did not provide adequate incentives or compensation to

induce landowners to sell development rights, compared to the profit that could otherwise be gained through subdivision and buildout” (Municipal Planning 2010, 3). Scarborough’s TDR program offers options for both transfer of development fees and transfer of development rights, therefore incentivizing initial methods of participation for both landowners and developers (Town of Scarborough). New Gloucester has a very user-friendly application with clear guidelines for sending and receiving areas (Maine: Town of New Gloucester), but it too has remained ineffective.

The underutilization of what seems to be well-conceived TDR programs in Maine begs the question whether the municipality possesses the necessary conditions for success, or that the relevant factors could be better achieved. In some cases it may be that development pressures are not enough, or, like Cape Elizabeth, the TDR incentives were outweighed by gains of subdivision. On the other hand, increased public awareness and political leadership, for instance, could help provide these programs with adequate attention necessary for success. This project aims to evaluate the potential for a successful TDR program in Lewiston, Maine based on the criteria we have gathered from academic literature and case studies of other successful TDR programs.

TDRs in Lewiston

The implementation of a TDR program in Lewiston has been discussed as one possible solution to address the need for the city to both develop and conserve land. Lewiston is the second largest city in the state of Maine. Following the industrial era Lewiston faced a devastating economic decline, as the mills that fueled much of the city’s economy were no longer a viable industry here. With the working draft of the Lewiston Comprehensive Plan, the city now strives to reinvent and rebuild itself. The Lewiston Comprehensive Plan outlines city plans for development and conservation. The plan discusses the current state of Lewiston, as well as drawing out future plans to implement these ideas (Lewiston Comprehensive Plan 2014).

This research project focuses on a comparative study of TDR programs throughout the United States, and then looks specifically at towns and cities with core similarities to Lewiston, Maine. With the use of successful TDR programs in towns and cities similar to Lewiston as our baseline we evaluate if a TDR program should be implemented in Lewiston, and outline the specifics of what factors will make a successful TDR program in Lewiston. While evaluating Lewiston’s potential for a TDR program we analyze specific development zones that show the greatest potential for increased density and growth. We look at the economic, political and social impacts of increasing density in neighborhoods in downtown Lewiston. With the use of the Lewiston Comprehensive Plan and city zoning maps, as well as community involvement, we worked with the Lewiston city planner, David Hediger, to identify areas of positive development and increased density in the downtown. Additionally, we examined different options for land preservation, both rural and urban. This process, and unique plan for Lewiston, addresses the social implications of urban revitalization and what type of positive and negative impacts a TDR program will have on different demographics and various members of the Lewiston community.

Our goal for our project is to eliminate unjust outcomes, and to provide positive economic development and land preservation, while understanding the social impacts to both urban and rural

residents of Lewiston. Through an understanding of the layout and zoning of Lewiston we developed a recommendation for important factors to consider for the implementation of a TDR program for Lewiston. We provide next steps for the city to include in the working draft of the Comprehensive Plan if the city council decides to create a TDR program. Finally, we conclude with our personal recommendation to city council on whether we feel a TDR program should be implemented in Lewiston or not.

METHODOLOGY:

Introduction of Methods

Our work on TDRs is primarily a survey of TDRs and their viability in Lewiston. Both economics and the voices of people dealing with landscape development must be considered in our ultimate goal of gaining enough knowledge of TDRs to present confidently to the Lewiston City Panel. Our scope also extends beyond the nexus of Lewiston and considers TDRs across America, past and present. This investigation of the larger United States TDR scene primarily provided background information that propelled us into our funneling down to TDRs specific to Maine and Lewiston. Due to the broadness of our research, our methodology demonstrates a large reliance on related literature, personal interviews with a wide variety of people in Maine, and a wide-spanning analysis of gathering information. Our methodology combines both a qualitative and quantitative approach, one which examines economic and environmental facts and statistics as well as in-depth interviews and reading of relevant TDR literature.

Overview of Methods

Our research methods include:

- Extensive readings of TDR-related literature, including:
 - The TDR Handbook
 - Scholarly articles on economic viability of TDRs
 - Articles and community member writings on the success or failure of TDR programs already put in place.
 - The Lewiston Comprehensive Plan
 - The Comprehensive Plans of other towns considering TDR implementation.
- Frequent meetings with David Hediger, the Lewiston City Planner, who provides advice and gives direction to further research pursuits.
- Attendance of the BuildMaine Conference
- IRB-approved interviews with important actors in the Maine TDR landscape, including:
 - Developers
 - City Planners
 - City Government Workers
 - Comprehensive Plan Writers
 - Conservation Workers

Reading of Background Literature

Our readings on TDRs began with more broad examples of TDRs nationwide and became increasingly more focused on scholarly literature and case study analysis.

Initial Reading:

The first works we looked at were informative flyers on TDR essentials provided by such state and municipal agencies as the State of Maryland (in association with the University of Maryland), the New York government, the New Jersey Pinelands Commission, and the town of Eureka, California. These groups provided a nationwide and varied explanation of TDRs. We also relied on such scholarly articles as Clinch and O’Neill’s “Assessing the Relative Merits of Development Charges and Transferable Development Rights in an Uncertain World”; and Renard’s “Property Rights and the ‘Transfer of Development Rights’: Questions of Efficiency and Equity.” The primary purpose of our initial reading was to gain both a practical and scholarly understanding of the definition of a TDR.

Focused Reading:

As we gained an understanding of TDRs in the general United States, we shifted our focus to TDR literature relating specifically to Maine. We discovered *The TDR Handbook: Designing and Implementing Transfer of Development Rights Programs*, by Pruetz, Nelson, and Woodruff. This text provided excellent perspectives on the nuances of TDRs, and aided us in our readings of Maine-related literature like The State of Maine Zoning Commission texts; the Town of Scarborough’s Codes Enforcement documents; as well as the Department of Agriculture, Conservation, and Forestry’s document on Transfer of Development Rights. These focused readings directed us toward starting the interview process, which would provide further voice on TDRs in Maine.

Lewiston Comprehensive Plan:

After reading this vast array of TDR literature in America and Maine, we turned to the Lewiston Comprehensive Draft for 2014. This plan, though encompassing many items of interest to Lewiston, also provides excellent insight on potential TDR effectiveness in Lewiston and widens the spectrum of understanding for Lewiston economic incentives. In addition, it outlines some alternatives to TDRs that could also positively affect Lewiston. In fact, The Plan asserts that “establishing a transfer of development rights (TDR) program would allow Lewiston landowners the opportunity to transfer the right to develop from one property to another in order to protect the City’s rural character and enable higher density development in the downtown and along commercial corridors (Lewiston Comprehensive Plan 2014, 204). The Comprehensive Plan directly addresses the type of TDR program it envisions as possible for the Lewiston landscape.

Meetings with Community Partner David Hediger:

Our community partner, the City Planner of Lewiston, is researching the concept of TDRs and their viability in Lewiston. In our weekly to biweekly meetings, we updated him on our reading and interviewing progress, and he provided feedback on which direction he wanted our research to turn. He provided a complete list of recommended people to contact, and gave our project direction in which avenues of TDRs to explore.

Interviews

Our interviews were approved by the Bates Institutional Review Board and were paramount in expanding our understanding of TDRs in Maine specifically, granting us multiple perspectives on the issue. We chose our interviews based on a list of names David Hediger supplied. He wanted to hear the opinions of these people in regards to a TDR program, and if the people we interviewed had more suggestions of other potential interviewees, then we interviewed those people too. A few of the suggested interviewees we reached out to were unavailable for interviews. We have provided a full list of contact information, including those unable to interview, in Appendix A. Part II for future research. The interviews were conducted between November 17th and December 4th, 2014, primarily by Email and phone. The phone calls were unrecorded, but verbatim notes were taken. The Email interviews are directly quoted in this document.

Developers:

We interviewed members of the Developer's Collaborative and the Szanton Company, two firms which have completed affordable housing projects in downtown Lewiston and have expressed interest in continuing to develop Lewiston.

City Planners:

We interviewed Maine City Planners, including planners from Orono, Gorham, and Cape Elizabeth, Maine towns which have implemented or are considering implementing different styles of TDR into their developmental practices.

City Government Workers:

We interviewed people working in the governmental offices of Lewiston and Auburn, in part because of their politically-minded ideas that they have in relation to possible TDR implementation in the Lewiston-Auburn area.

Comprehensive Plan Writers:

We interviewed the members of a firm that completes many of the Comprehensive Plans to be found in the state of Maine, including the writers of the all-encompassing Lewiston City Comprehensive Plan 2014 Draft.

Conservation Workers :

We interviewed environmental workers in Maine who provide perspective on the environmentally redeeming nature of TDR programs and the effectiveness of environmentally-minded TDRs that have been implemented in Maine in the past.

The BuildMaine Conference

The goal of the conference was to “provide a tactical approach to growing Maine towns and cities” (m4a.org). On November 5th and 6th, developers, city planners, elected officials, financial institutions, and similar actors on the Maine developmental stage gathered in a restored mill in downtown Lewiston to discuss developmental issues and strategies. Our group made an appearance and learned that the developmental world is alive and well in Maine, and very much receptive to the concept of environmentally-preserving TDR programs.

RESULTS & DISCUSSION:

In this section we will discuss our findings from scholarly literature, case study analysis, and interviews with professionals in the fields of land use planning and development. We will examine the following: 1) the important economic factors that need to be addressed when creating a TDR program; 2) the success factors that the most effective TDRs in the United States possess; 3) the three most successful TDR programs nationwide; and 4) some alternative forms of TDRs in Maine that have demonstrated success.

Creating a TDR program can be further complicated by opposing intrinsic economic and communal interests from both the sending and receiving areas. “on the one hand, communities [that] want to protect and preserve agricultural or environmentally sensitive land and prevent, or at least control, certain environmental and social costs commonly associated with land conversion. On the other hand, there are development regulatory bodies [that] face protests against any perceived diminution of property rights” (Pruetz et al 2006, 27).

Economics of TDRs

Since TDR programs are voluntary and market driven, they are almost wholly dependent on the economic conditions present. While further data will be needed regarding the valuation of real estate in the sending and receiving areas, as well the relative strength of the development market, there are few general considerations that will be integral in designing a successful TDR program in Lewiston.

1. Diminishing Returns

One of the most important factors that needs to be assessed when creating a successful TDR program is the effect of increased density, or units/acre, on value per unit and total land

value. This is the number that developers are going to need to know before they decide to purchase an incremental increase in density (ie. a TDR). Typically, when density increases the total land value (or development value) to the developer increases as well. However, the law of diminishing returns means this only occurs up to a point, then total value begins to decrease. Figure X. depicts this trend with values; Figure X. depicts this graphically. When the density increases, the value per unit decreases, yet with more units to the total value actually goes up. As we can see in this example, at 5 units/acre the total land value peaks at \$300,000. Adding another unit of density has no positive effect on total value so there is no economic incentive for the developer to purchase a TDR. In these scenarios, it would be helpful to downzone the receiving area to 3 units/acre, for example (anything less than 5). This would mean the developer could purchase two bonus units and increase the total value of the development by \$60,000.

TABLE 1.1

<i>Marginal Value of Incremental Lots</i>			
Density (Units per Acre)	Land Value per Unit	Total Land Value	Marginal Revenue
1	\$100,000	\$100,000	
2	\$90,000	\$180,000	\$80,000
3	\$80,000	\$240,000	\$60,000
4	\$70,000	\$280,000	\$40,000
5	\$60,000	\$300,000	\$20,000
6	\$50,000	\$300,000	\$0
7	\$40,000	\$280,000	(\$20,000)
8	\$30,000	\$240,000	(\$40,000)
9	\$20,000	\$180,000	(\$60,000)
10	\$10,000	\$100,000	(\$80,000)

Source: Arthur C. Nelson.

Figure 3. Table of Diminishing Marginal Value of Increased Density (Nelson 2011, 10).

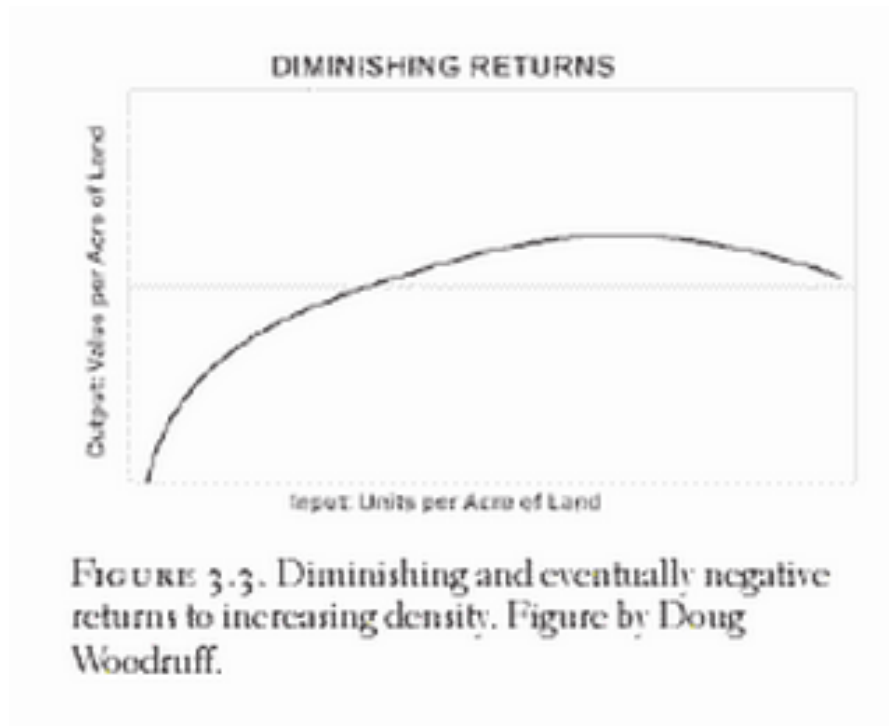


Figure 4. Graph of Diminishing Returns of Increased Density on Value (Nelson 2011, 31).

These are the decisions that planners in Lewiston are going to have to make, and it will only be possible with better information and data on real estate values and the effects of additional density on total value. Rezoning can be a politically difficult thing to do, especially if it is seen as targeting a certain population or area. Rezoning is more politically expedient when they are done across all zoning districts, generally under the pretense that the current zoning is too permissive (Pruetz 2008, 34).

2. Pricing TDRs

Using the real estate data referenced above to determine how much a developer will pay for a TDR, in conjunction with how much landowners in sending areas are willing to accept in compensation for relinquishing their right to develop their land, planners and economists need to determine an efficient and effective pricing for TDRs. The trick here is not pricing the TDR so high that the developer can't afford it, but also not so low that the landowner won't sell it. Balancing the economic needs of developers and landowners will be essential in the creation of a viable TDR program in Lewiston. This can be done by using real data about property values and total land value, as well as the average price of public easements, and overall how much a landowner values their land (both use and non-use values).

3. *Enhanced Transfer Ratio*

One way that planners and economists can create market incentives for developers and landowners alike is through the use of enhanced transfer ratio. An enhanced transfer ratio refers to any transfer of development rights that is greater than 1:1. In a 1:1 transfer ratio, every unit of preserved development in a sending area equals one bonus unit in the receiving area. Since zonings are often different in sending and receiving areas, a 1:1 ratio often does not make sense. For example, if a sending area is zoned at 1 unit/30 acres. Then preserving one unit in the sending area would mean preserving all 30 acres. With an enhanced transfer ratio you can require less acreage in the sending area per TDR granted. Thus, if it was determined that every 6 acres equaled 1 TDR, then the landowner would be able to sell 5 TDRs instead the previous 1 TDR. In this way, a single TDR is less expensive for a developer to purchase, which increases their market incentive to purchase TDRs; and in terms of the landowner, they can now sell multiple TDRs and receive fairer compensation for relinquishing their right to develop.

TDR Success Factors

As we have discussed, there are various types of TDR programs and each can be designed to achieve a variety of preservation and development goals. It is this customization that makes TDR programs very dynamic and compelling land use tools. There are general conditions that when met, however, significantly increase the likelihood of success. A 2009 study by Pruetz and Standridge looked at the twenty most successful TDR programs in the United States, in terms of total land preserved, and extrapolated the ten most important factors for success in ranked order. They note that the top ten TDR programs nationwide possess factors 1-5, indicating that “communities should focus on coordination of these five key factors to create a regulatory framework that works for the sending area landowners and receiving area developers as well as for the community as a whole” (Pruetz & Standridge 2009, 86).

1. *Demand for higher density development*

This is by far the most crucial factor for success. If there is no demand for increased density development, or if developers are satisfied with existing density regulations, then there will be no demand for TDR purchases. Some communities have been successful at stimulating demand by rezoning the receiving areas to be more restrictive, thus requiring the purchase of TDRs for increased density. Given that downzoning can be politically sensitive, however, many communities choose to undergo widespread rezoning as a part of a recognition that existing zoning codes were too permissive (Nelson et al 2011, 232). Additionally, some communities have offered other incentives like “bonus floor area, extra lot coverage, additional building height, and exemptions from building permit quotas” (Ibid).

2. *Receiving areas must be customized to the community*

This factor demands that there is thoughtful deliberation among all relevant stakeholders of where increased density development should occur. Developers must want to develop these areas and neighbors and residents must be accepting of the increased density. When NIMBY attitudes are strong some communities have chosen to designate new towns or new villages as receiving areas because they are separated from existing neighborhoods and it is more politically expedient. Many other communities choose to designate receiving areas in accordance with their comprehensive plans and their visions for development, in most cases where there is already existing infrastructure, sewage, etc.

3. Regulations in sending areas must be strict

If regulations, or perceived enforcement of these regulations, is too permissive, than landowners in these areas will have little incentive to permanently preserve their land. A common example is when a town has designated a certain area as agricultural land, but leniency in permitting allows for single family homes to be built. The landowner in the sending area then questions the benefit of preserving their land if one day it will be surrounded by residential neighbors. This adjacent development may even increase development value in the area and thus inflate TDR prices. In essence, this factor asks a community to clearly designate a low density sending area and to enforce these regulations strictly.

4. Alternative methods for achieving increased density must not exist

One thing that will certainly erode a TDR program's effectiveness is if there are other ways that developers can achieve increased density development. For example, some communities offer increased density when lots are clustered in a single area of a parcel. If these alternatives exist and there are ways for developers to achieve increased density without purchasing TDRs then the TDR program will undoubtedly be ineffective.

5. Creating market incentives through transfer ratios

It is essential to TDR success that developers be able to afford TDR prices and landowners in the sending areas are sufficiently compensated for foregone development. Often times a 1 to 1 ratio of preserved development units in the sending area to additional units allowed in the receiving area does not attract landowners. In these cases an enhanced transfer ratio is used, meaning more than one unit of increased density is allowed per unit foregone in the sending area. For example, if a sending area is zoned to 1 unit per 20 acres, and a landowner is able to sell 1 TDR per 5 acres, then the transfer ratio will be 4:1 and landowners will be more adequately compensated for the loss of development potential.

6. Developers must have certainty that purchasing TDRs will allow for increased density

TDR programs will suffer if zoning regulations in receiving areas require or allow for discretionary approvals. If there is any doubt in the developer's mind that their project might be denied even after purchasing TDRs then they will likely not participate. By eliminating or minimizing these discretionary approvals, developers will be more certain of the final outcome. Moreover, developers may endorse the adoption of a TDR program that increases certainty because it streamlines the approval process overall.

7. Community must be committed to preservation

TDR programs flourish over longer time periods, and when public support for preservation is persistent, elected officials have the mandate to enforce compliance and promote participation. This consistency over time significantly increases the likelihood for success and the overall effectiveness of TDR programs.

8. Simplicity is key

Scholars have found that simplicity in a program's requirements, application process, and overall goals helps increase participation. Moreover, this simplicity, as well as transparency about how the TDR program will work, will garner trust between all the relevant constituencies (i.e. landowners, developers, preservationists, general public) and increase the likelihood for success.

9. Public Outreach

TDR programs are significantly more successful when all the relevant actors are aware of the program, how it works, and how they might benefit from it. Barriers to success like information asymmetry should not be tolerated; that is why educating the public of the potential for TDRs and how they work is a crucial step towards success.

10. TDR Banks/Intermediaries

An intermediary who buys TDRs and holds them until developers are willing to buy them is often times called a TDR Bank. TDR Banks tend to be publically funded so there may be a burden there, but they also dramatically increase the likelihood for success. If private markets are sufficient at coordinating buyers and sellers a TDR Bank may not be necessary, but there are few examples where this coordination has been possible.

Pruetz and Standridge summarize factors 1-5 in the following table:

Table 2. Essential and important factors present in the 20 U.S. TDR programs that have preserved the largest acreage.

Program location	Essential factors			Important factors	
	Factor 1 Demand for bonus development	Factor 2 Customized receiving areas	Factor 3 Strict sending-area regulations	Factor 4 Few alternatives to TDR	Factor 5 Market incentives
King County, WA	x	x	x		x
New Jersey Pinelands, NJ	x	x	x	x	x
Montgomery County, MD	x	x	x	x	x
Palm Beach County, FL	x	x	x	x	x
Collier County, FL	x	x	x	x	x
Calvert County, MD	x	x	x	x	x
Queen Anne's County, MD	x	x	x	x	x
Sarasota County, FL	x	x	x	x	x
Pitkin County, CO	x	x	x	x	x
Boulder County, CO	x	x	x	x	x
San Luis Obispo County, CA	x	x	x	x	x
Blue Earth County, MN	x	x	x	x	
Howard County, MD	x	x		x	
Miami/Dade County, FL	x	x	x	x	x
Payette County, ID	x	x	x		
Charles County, MD	x	x		x	
Rice County, MN	x	x	x		
Douglas County, NV	x	x	x	x	x
Collier County, FL	x	x	x	x	x
Chesterfield Township, NJ	x	x	x	x	x
Total	20	20	18	17	15

Sources: Interviews with program managers; community plans/codes; Environmental Resources Management, 2005; McConnell, Walls, & Kelly, 2007;

Figure 5. Table outlining the presence of certain TDR success factors in various effective programs (Pruetz 2009, 81).

Successful TDR Programs Nationwide

Case Study: Seattle, Washington and King County

The city of Seattle, Washington has partnered with the rest of King County to create a TDR program that aims to preserve agricultural lands in the outlying regions and enable vertical building in Seattle itself-- thus, sprawl is minimized, urban areas become more liveable, and valuable farmland is preserved. The additional perks of this program include a plethora of produce that flows into the city from the farms, and a large amount of money flowing from the city that works toward improving the overall quality of the farmlands.

Thanks to the sending and receiving model, as of 2000, 141,392 acres of rural and resource lands (more than 220 square miles) have been protected from development through the TDR program. In addition, sprawl has been prevented by the creation of “relocated subdivisions for 2,467 potential dwelling units” which have been designed “out of the County’s rural landscape and

into its urban areas” (King County Washington TDR staff 2014, 2). The Seattle-King County TDR also offers a unique spin compared to the TDRs of the rest of Washington State, as “most of the Washington State programs are aimed at agricultural land preservation and/or environmental protection, but some reflect other goals, such as affordable housing (Seattle), and historic preservation (Seattle and Vancouver)” (Eckert et al 2008, 7). This TDR includes affordable housing and historic preservation in the downtown as an effort to improve downtown living conditions. It relies on a TDR banking system, and, to date, has been heavily utilized by developers and landowners in King County.

KING COUNTY – SEATTLE 2013 Transfer of Development Rights (TDR) Agreement

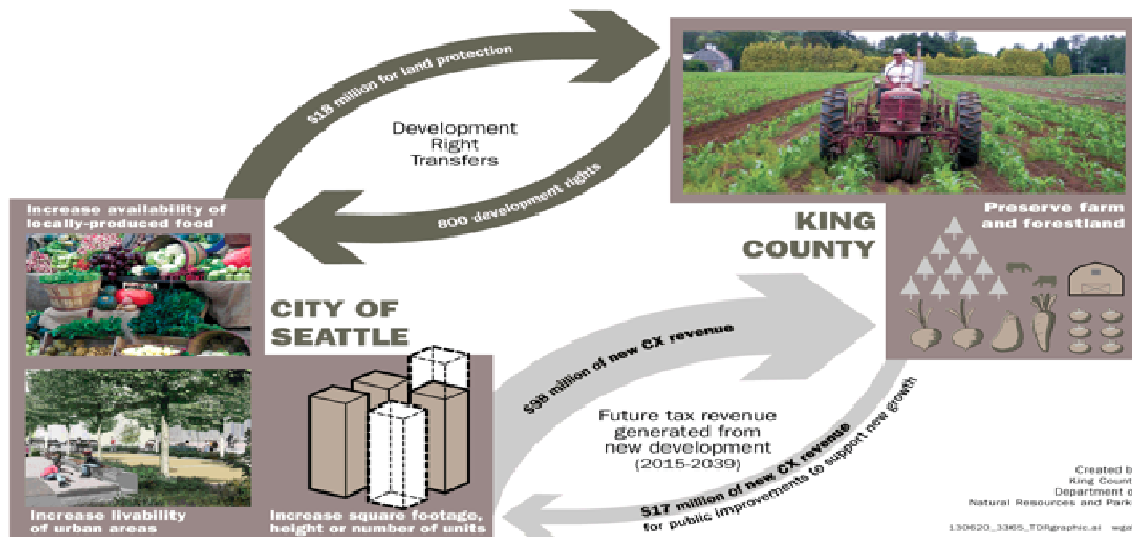
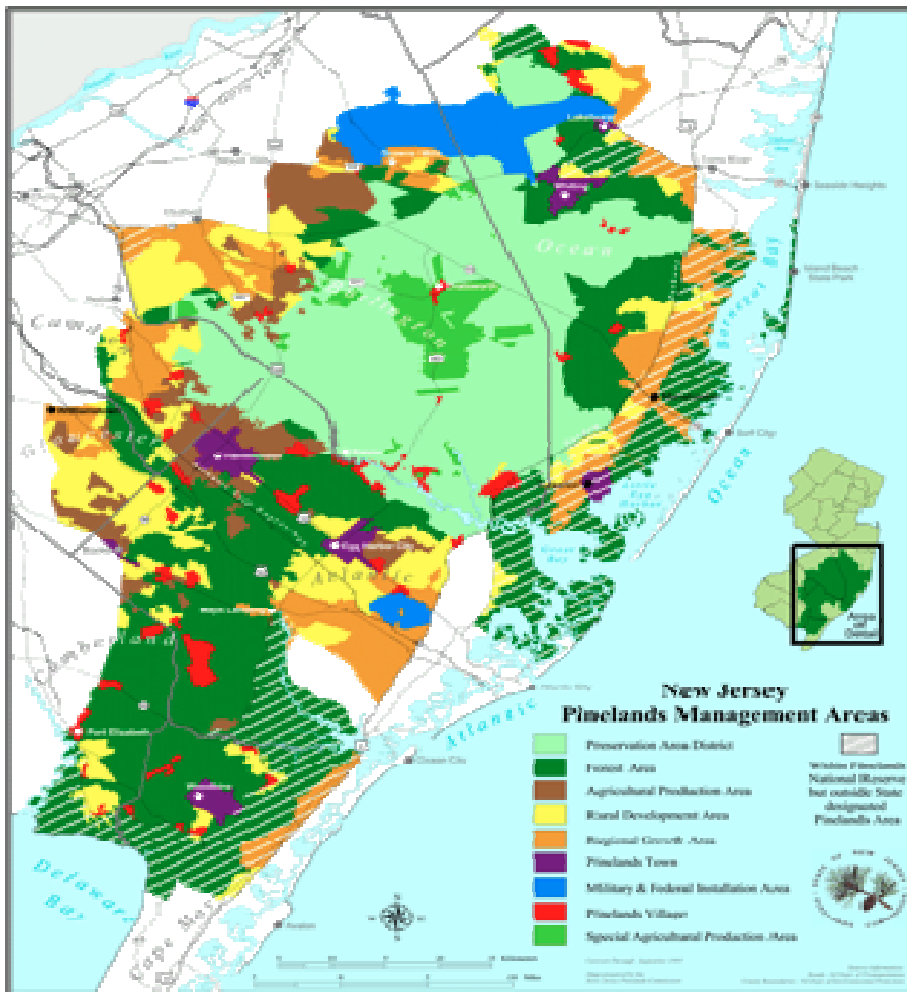


Figure 6. King County depiction of their model of a Transfer of Development Rights Program (King County Department of Natural Resources and Parks).

Case Study: The New Jersey Pinelands

The New Jersey Pinelands is an environmentally valuable region in the south of New Jersey, which is situated between many major urban areas, thus making the forests, waterways, villages, and wildlife vulnerable to urban sprawl. In 1978, the state of New Jersey, in affiliation with the National Park Service, declared the region a National Reserve, and, in 1980, named the New Jersey Pinelands Commission as land manager. The group decided to use TDRs as their key development and preservation strategy, and thus embarked on the most ambitious TDR program in the nation. The group created the Pinelands Development Credit Bank, or the PDC, which manages TDR transactions for the entire region. The New Jersey Pinelands Commission and the PDC now cover 1 million acres of land and manage 60 different participating municipalities. As of May 2014, the Commission reports that 11,117 transfer of development rights have been initiated in their region (New Jersey Pinelands Commission 2014, 4), and also reports that a minimum of 16,000 acres of land have been preserved (Higgins and Bredin 2010, 33).

TDRs are not the whole story when it comes to saving New Jersey’s Pinelands, however, as Renard notes in ‘Property Rights and the Transfer of Development Rights: Questions of Efficiency and Equity’. He states that, “preparation of the development plan came first, the transfer of development rights was merely an instrument designed to apply it” (Renard 2007, 46). The commission itself, in an explanatory bulletin describing its conservation activities, acknowledges that their TDR program “helps to redirect growth in the Pinelands from the preservation and agricultural districts to infrastructure-supported regional growth areas” (New Jersey Pinelands Commission 2014, 1), yet they also assert that they use other methods to preserve the land. However, TDRs ultimately prove to be the largest reason for, and indeed the backbone of, the Commission’s success in preserving their vulnerable land.



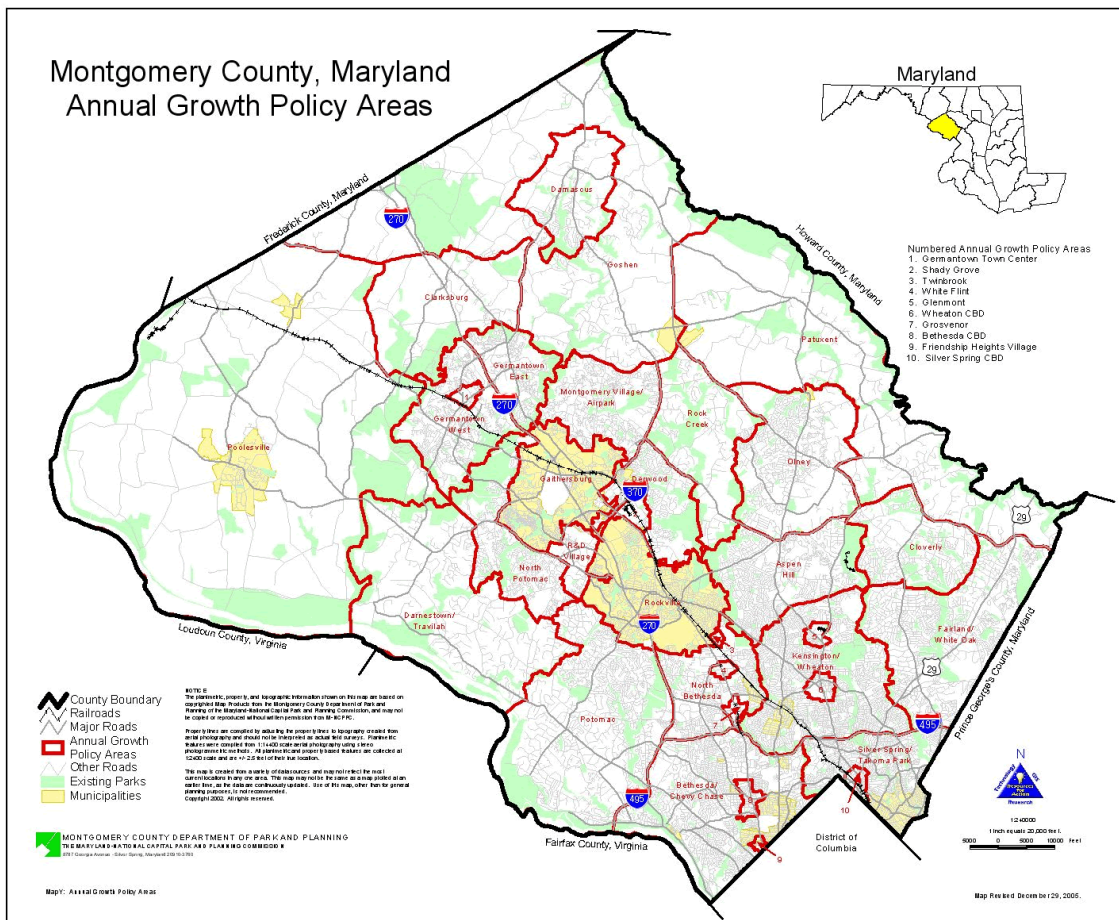
Map 1. New Jersey Pinelands Management Areas Map. (http://www.pinelandsalliance.org/images/artmax/artmax_49.jpg).

Case Study: Montgomery County, Maryland

Montgomery County, Maryland is situated close to Washington, D.C., with the southern extent of the county being particularly susceptible to urban sprawl from the city. The northern

part of the county, however, remains primarily agricultural open space, thanks to the ambitious Farmland Preservation Program, fueled by TDRs. The TDR program was introduced in 1980, and, thus far, has preserved 16% of the county’s total land area (Pinho 2010, 3). The rural character of the larger county remains intact even as urbanization increases.

Indeed, Montgomery County is the most successful TDR program in the country, having so far preserved over 38,000 acres of farmland using TDRs and continuing on its upward trend. In fact, The American Farmland Trust reports that over 60% of all land preserved through TDRs has taken place in this county (Department of Economic Development: Agricultural Services Division 2006, 1). Through TDRs, the county has managed to preserve its rural character in the Agricultural Reserve Lands while simultaneously building with increased density in the more urban areas of the south.



Map 2. A map of Montgomery County, MD annual growth policy areas (http://montgomeryplanning.org/gis/large_maps/agpolicy_page.gif).

Successful Hybrid TDR Programs in Maine

1. Orono, Maine

Orono City Planner Evan Richert has developed a hybrid TDR program which utilizes the transfer of development rights from a rural vernal pool area deemed significant to a development area closer to the city center. This program allows vernal pools in development areas to be

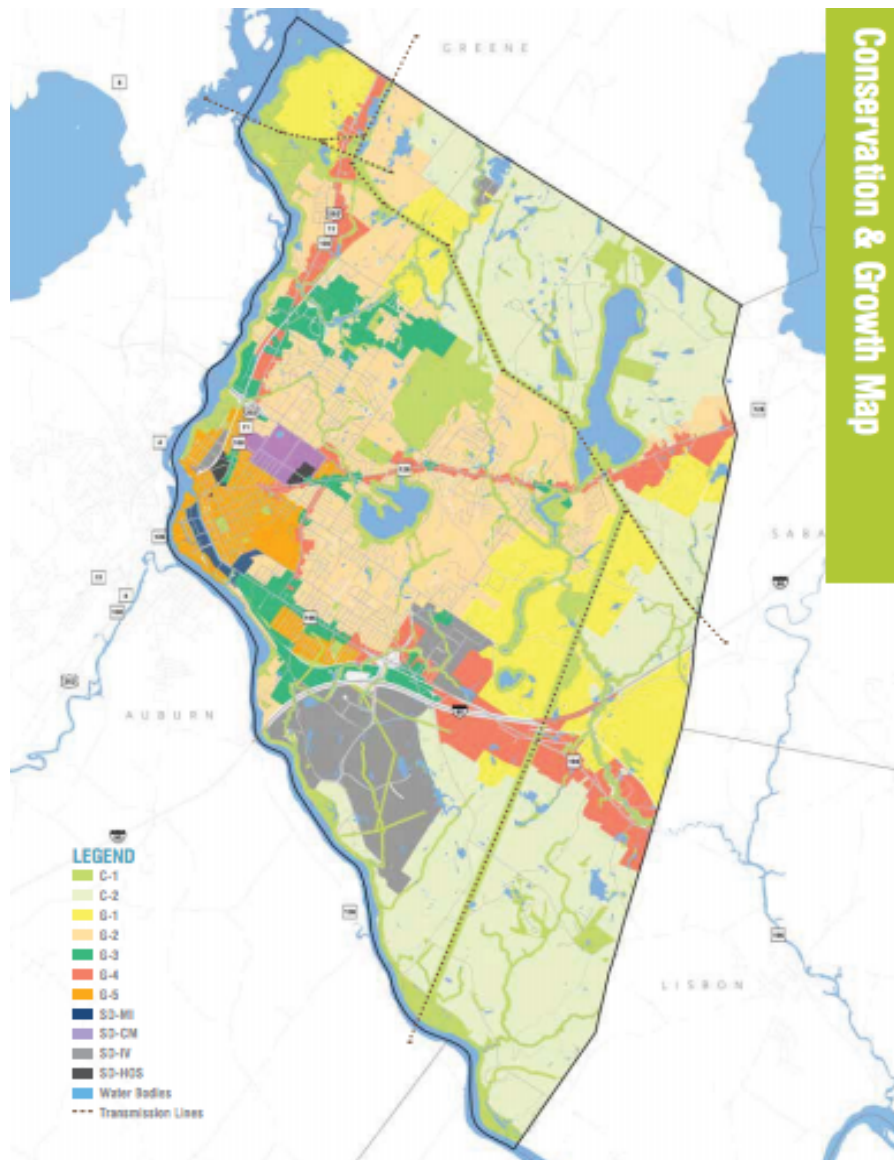
compromised or destroyed if the developer pays a fee, which will then fund the protection of vernal pools elsewhere. This way, the vernal pools that may be suffering from nearby development will be sacrificed for for the protection of larger, more dynamic vernal pools elsewhere. According to Richert, Orono residents are not concerned with preserving farmland or woodland because there is so much of it. The city instead chose a critical and vulnerable wildlife habitat that needs protection, and the funding provided by developers will assist in this endeavor.

2. Gorham, Maine

Gorham City Planner Tom Poirier has an overlay zone program where bonus density can be purchased. It costs roughly \$15,000 for an extra lot. Currently, the fund is at roughly \$100,000. However, no easements have been purchased yet using the fund. Eventually the city will have to propose a plan on what conservation projects they would like to delegate the money in the fund for. This program was very successful when the real estate market was a little down, but now the economy is turning around and as a result less bonus density has been purchased. This can be attributed to the increase in the economy shifting development out to rural areas and creating less demand for high density residential areas. Although this program has shown relative success at directing growth, the city has still not decided on their process for selecting and implementing what conservation projects to put the money towards, and therefore the overall success of this program is still unknown.

TDRs in Lewiston

As per Lewiston's newly adopted comprehensive plan, a Transfer of Development Rights program has been suggested for possible future implementation. According to the plan, "Lewiston's relatively slow population growth gives the impression that a great deal of land is permanently protected. However, most of Lewiston's woodlands are subject to low-density residential and commercial development" (Lewiston Comprehensive Plan 2014, 202). A successful TDR program in Lewiston would achieve this goal of protecting against additional sprawl while simultaneously directing development to where it can most effectively and efficiently be absorbed.



Map 3. Conservation and Growth Map as found in Lewiston’s Comprehensive Plan (Lewiston Comprehensive Plan 2014, 119).

In accordance with Lewiston’s comprehensive plan these areas are designated as growth sectors G-3, G-4, and G-5 (Lewiston Comprehensive Plan 2014, 120). The G-3 sector is an intended growth zone given its proximity to existing and planned infrastructure as well as regional thoroughfare and/or transit. It remains relatively underdeveloped now, but is envisioned as a higher density residential development that would expand Lewiston’s walkable development neighborhoods. Sector G-4 is designated as a retrofit growth area comprised of mostly developed suburban development where the future intended use is aimed at “new development, redevelopment, or reuse of existing land and buildings “to better meet the local goal of achieving more walkable and bikeable corridors and neighborhoods” (Lewiston Comprehensive Plan 2014, 121). Finally, Sector G-5 is identified as an infill growth sector, located mostly in the historic

downtown region of Lewiston where development is desired yet there remain vacant or underutilized lots. These three sectors comprise Lewiston's intended growth areas and thus potential receiving areas for TDRs.

Potential sending areas are indicated as conservation sectors C-1 and C-2. Sector C-1 is designated as a critical natural resource sector and contains all lands permanently protected from development. These include:

“Surface waterbodies, protected wetlands, protected habitat, riparian Corridors, purchased open space, conservation easements, wildlife transportation Corridors, and areas residual to Conservation Subdivisions as well as transmission line corridors and cemeteries”

(Lewiston Comprehensive Plan 2014, 120).

Given the vulnerable nature of these areas and the stated desire to protect them from future development this sector could be seen as an effective sending areas for TDRs. Sector C-2 is identified as rural lands that should be, but are not yet protected from development. According to the comprehensive plan, “these areas deserve regulatory protection from unrestricted development for purposes such as supporting agriculture, forestry, open space, wildlife habitat, fisheries habitat, scenic lands conservation cluster development” (Ibid). By means of a TDR program, proposed development in these areas could be diverted to the aforementioned growth sectors by severing development rights and selling them to developers wishing to increase density in the growth sectors. Sector C-2 should be designated as the primary sending area for a proposed TDR program because it remains unprotected from future development.

Ultimately the potential for TDRs in Lewiston will depend on the presence of certain success factors, but Lewiston's newly adopted comprehensive plan demonstrates that the city is mindful of growth and preservation concerns and has begun to take steps towards addressing these issues through thoughtful planning and market mechanisms. The factors that indicate success for a TDR program will be outlined in the following section, and the potential for TDRs in Lewiston will depend on the city's ability to achieve these factors/conditions.

Conclusions

Our results highlight the factors that contribute to a successful TDR program; while further market data will needed in order to assess the demand for high density development in Lewiston's designated growth sectors, a superficial analysis suggests that this demand might not currently be present. A strong market demand, a strong staff both in numbers and collaborative work, and greater regional participation are all clear constraints for Lewiston. In this section we will discuss these constraints and what they mean for Lewiston.

The first consideration is the lack of growth in Lewiston and market protection. A development right typically applies to a new use on an existing site. If demand for a new use does not exist there really are not any development rights to be concerned with (Nelson et al 2011, 14). There needs to be a demand for increased density and development within the area or developers have no incentive to buy into a TDR program. The appeal of a TDR program to developers is the opportunity to bypass zoning criteria and increase the density of development on a property.

Therefore, a strong market analysis is important before proceeding with a TDR program to ensure that the demand for this increased density is actually present. At a minimum, developers must want to exceed the baseline development levels permitted to them (Nelson et al 2011, 14).

Additionally, the lack of staff in this department in Lewiston is an important factor. TDR programs are more complex and expensive to implement than traditional zoning, and new staff is often needed (Nelson et al. 2011, 14). Currently, the Lewiston City Planner, David Hediger, is the only person working on city planning for Lewiston. In order to have a successful program additional support staff needs to be hired. Additional staff responsibilities will potentially include an upzone and downzone both sending and receiving areas, which requires an overhaul of Lewiston's current zoning plan. Outside agencies are often needed to approve and record deed restrictions, monitor sending sites for compliance with deed restrictions, approve and record documents extinguishing TDRs, track TDRs, maintain lists of potential DTR buyers/sellers, and promote the use of TDRs (Nelson et al. 2011, 17). Through this whole process a need for coherence between staff members is essential. Many decisions must be made at once, including designation of sending areas, allocation of TDRs, designation of TDR receiving areas, and establishment of TDR threshold (Nelson et al. 2011, 18). Since new staff will need to be hired to support David Hediger it is important that individuals with both a strong background and good collaborative skills are chosen for the staff positions.

TDR programs are still not commonly used or successfully implemented throughout the country. A little more than two hundred communities have a TDR program, out of the country's thousands of cities, towns, and counties. A TDR program will involve a lot of changes, and without proper information available to both government officials and citizens, few people are able to fully grasp the potential successes and failures of a program like this one.

The uncertainty of the program is large, which leaves much room for issues that may result in failure. As Nelson et al. points out, "Programs designed to work effectively under one set of market conditions may prove ineffective under other conditions" (Nelson et al. 2011, 13). Additionally, "TDR programs can be complicated to design and implement, may require substantial economic and market analyses that need periodic updates, and can lead to confusion about which party has which rights and whether those rights have already been used" (Nelson et al. 2011, 13). The program is largely unpredictable, and the many factors that go into making a program successful can greatly vary from place to place, as shown in this report. Alternative programs to increase market demand, downtown densities, and rural preservation should be considered for cities that are not equipped for a TDR program.

OUTCOMES AND IMPLICATIONS:

The outcomes and implications of our research concern the macro issue of urban sprawl and the role that a TDR program could play in mitigating this problem. One implication of sprawl is the peripheralizing of wealth to the outskirts of urban centers. This is especially the case in Lewiston where the downtown has become economically depressed. While overall Maine is not

currently as vulnerable to urban sprawl as other regions in the country (e.g. King County, Montgomery County, New Jersey Pinelands) due to waning population growth and a lack of major urban centers, there is still the very real threat of rural and open space slowly being developed and urban centers becoming increasingly blighted if direct measures are not taken to promote preservation and smart growth. Moreover, Maine has demonstrated through legislation that it is committed to curbing the proliferation of urban sprawl (Title 30-A 2001).

Additionally, while we have seen that TDR programs are *most* successful when implemented at the county, state, or regional level, that is not to say that Lewiston does not possess certain potential for an effective TDR program. Lewiston is Maine's second largest city, and, unlike Portland, it still retains much of its rural character in the areas surrounding the growth sectors, and these potential sending and receiving areas are distanced far enough from each other not to have spillover effects on property values. Also, given the history of cooperation with the city of Auburn, there could be potential to expand the scope of a potential TDR program to operate between both municipalities. And finally, Lewiston's Comprehensive Plan expresses a real commitment to smart growth and rural preservation.

The upfront costs of a market analysis, the question of who would administer and maintain a potential TDR program, and the seeming lack of demand for development in current growth sectors are all serious constraints to implementing a successful TDR program in Lewiston. However, that is not to say that they cannot be overcome. Potential next steps will be discussed in the following section.

NEXT STEPS:

Instituting a Transfer of Development Rights program in Lewiston, Maine will require the city to go through a series of steps in preparation for the program. One of the major necessities is the completion of a market analysis (Nelson et al 2011, 11). This analysis includes a description of the developing industry including the historic growth rate and any trends or characteristics, information about the target market and who Lewiston would like to see become a part of the city, the size of the goal development target, housing prices and real estate history, a competitive analysis which describes areas of Maine which may act as competition for development, and current regulatory restrictions that Lewiston has placed on development both urban and rural (Market 2014, 6). This market analysis will act as a baseline for Lewiston to begin thinking about how a TDR program will fit into the city's present and future infrastructure and goals. It will enhance the probability of TDR success by addressing and mitigating factors early on that could affect the program, provide documentation that the program was thoroughly investigated, and help attract potential developers (Matson 2014, 2). This study may lead to a combination of some downsizing of land in receiving areas to accommodate greater densities, because the current zoning may not support a TDR program (Nelson et al. 2011, 11).

If the market analysis and feasibility study lead Lewiston to believe a TDR program will be successful in the city, the next step is to garner support from all contributing parties. Input is

needed from more city officials, because a successful TDR program requires political will (Nelson et al. 2011, 14). Through interviews, we found that cities with TDR programs usually needed restructuring through government regulation and zoning, and, without government support, a TDR program cannot move into action. The city needs to plan for infrastructure in a receiving area without knowing whether developers will elect to build above or below the TDR threshold (Nelson et al. 2011, 19), so cohesiveness at the planning and regulation level is imperative. The city also needs to identify the entities that will hold and monitor easements over the long term, either the City of Lewiston or local land trusts (Nelson et al. 2011, 14). After the government has made these regulatory, zoning, and developmental adjustments to work through the feasibility of a TDR program, the next step before implementation is garnering support from the community members. A TDR program is unique in the way that it affects the entire city, from rural to urban. According to Evan Richert, TDR programs are most successful in areas of extreme density differences between land classified as urban and rural. To create an environment that best encompasses the variables of success, Lewiston will need to make major changes to the Lewiston zoning laws and regulations, which will only be possible with the approval of the citizens. However, a full scale TDR program is not the only option, and Lewiston could create other development incentives for citizens.

One alternative to a traditional TDR program is changing the incentives in the receiving sites. Instead of units, an incentive could involve increased lot coverage or floor area ratios for commercial or industrial development, or the TDR could waive some requirements such as parking or open space (Nelson et al. 2011, 14). This would still allow for sending and receiving areas like a traditional TDR program, but it would better fit Lewiston needs because the success does not reside within building more units, which Lewiston may not have the demand for. There are also several alternatives that may provide similar results with an added benefit of less risky implementation.

The first alternative is a Purchase of Development Rights program. This will allow the owners of sensitive land to voluntarily preserve their property and receive compensation in return while not having to coordinate directly with a developer (Nelson et al. 2011, 22). The most successful PDRs were those whose objectives were to create large contiguous areas with permanently preserved open space and farmland, as opposed to selecting individual parcels piecemeal (Daubenmire 2014, 1). If Lewiston is interested in managing development through preservation of farmland, a PDR program may find success in the city's comprehensive plan. Land trusts are another alternative to a TDR program, and these act in a similar manner to a PDR program. However, land trusts work without much local government intervention and are already present in the Lewiston/Auburn area, so relying on these to cover all of the land preservation needs may not be wise.

Managing the growth of Lewiston through structured development is another option for the city. Clustering is similar to a TDR program except the transfers occur within a single parcel, which allows the owner to concentrate development on the least sensitive part of the property, then permanently protect the rest (Nelson et al. 2011, 21). Cluster developments usually cite homes on

smaller lot sizes with little to no emphasis on minimum lot size, yet the total density on the total acreage does not increase because there is the same number of homes clustered on a smaller portion of available land (Cluster 2014, 2). Local ordinances may need to be updated to facilitate building conservation development subdivisions, and developers often cite local regulations as the primary reason more innovative designs are not used (Cluster 2014, 1). This program is easier to adopt because it does not involve as many moving parts as a TDR program requires. With this in mind, Lewiston has the potential to be the forerunners of conservation development if residential land use is its development goal.

The implementation of development fees is another alternative to a TDR program. This would require building projects to pay a development fee, making all development responsible for preservation rather than just developments in a TDR program (Nelson et al. 2011, 23). Impact fees offer a more efficient way to offset some of the environmental repercussions in development, and with a high enough fee this could be paired with other programs to fund conservation efforts. Similar to the fee system, Density Transfer Charges could be used to recapture part of the extra value generated by the increased development potential, which would then be used to compensate for the reduction of development potential somewhere else (Nelson et al. 2011, 49). This option reduces the TDR technique to its essential purpose, and developers can achieve additional receiving site development by making a cash payment, which the community then uses to preserve sending areas (Nelson et al. 2011, 24). Nelson also found that DTC programs require more administrative effort than zoning and clustering and about the same amount of effort as development fees, but less paperwork and less administration than a TDR. With all of these options in mind, the next steps we suggest to for Lewiston City Planning is to further explore the alternatives to a TDR program, and create a hybrid program that will work best for Lewiston's demographics, goals, and abilities.

Next Steps for Bates

If Bates wishes to truly comprehend whether TDRs can be successfully implemented in Lewiston, there are several steps which we recommend for widening the scope of TDR understanding.

Resident Input

As with many relatively unknown developmental policies, residents near proposed receiving areas may assume that the developments using TDRs will be incompatible with the existing neighborhood (Nelson et al. 2011, 14), and could believe TDRs to be an incursion on their space. If Bates were to intervene, we recommend that they supply residents with information about TDR programs through informative handouts, community bulletin boards, and door-to-door interaction. In the effort of being more inclusive, we recommend that Bates interview both rural (low density) residents and city (high density) residents for their opinions and willingness to potentially comply with TDR demands, especially alerting rural residents to the permanency of their non-developmental status.

Further Engagement with Lewiston City Economic Officials

Critical to translating TDRs on the Lewiston stage is understanding the workings of Lewiston's economy. Indeed, TDRs are market-based mechanisms that depend on a clear understanding and interaction with the city's economic planning, so talking to Lewiston figures in economics would be critical to actually implementing TDRs. In particular, mapping areas with greater building incentive and lesser building incentive in the downtown would prove effective in designating the most effective receiving areas for Lewiston.

Further Engagement with Lewiston City Council Members

Bates should continue to engage the Lewiston City Council in a dialogue of implementing TDRs on the local stage. In particular, the Comprehensive Plan should be updated with more in-depth information on the possibilities of TDRs in Lewiston, and the designated sending and receiving areas should be increased. Furthermore, the City Council members should fully gauge the interest of developers interested in building in Lewiston and consider their roles in city planning, as well.

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APPENDIX

Appendix A: Further Methodology

I. IRB Form and Interview Questions:

Group Members:

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X_____

Title: The Feasibility of Transfer of Development Rights in Lewiston, Maine

Overview:

New England industrial cities were once thriving hubs of economic activity and growth. The shift to postindustrial service economies has, however, greatly altered the landscape and demographics of these cities (Joder et al 1995: vii). Urban sprawl, and the movement of wealth from the inner city to the suburban fringes has resulted in two major problems: the proliferation of urban poverty (Peiser 2001:289) and the loss of valuable green spaces both inside and outside the city (291). Our project aims to address some of these present issues in the city of Lewiston by evaluating the feasibility of a Transfer of Development Rights Program. TDR programs can preserve open space, protect environmental assets, and preserve historic landmarks or communal spaces in urban areas (Higgins 2004:1), while simultaneously redirecting investment back into urban areas (Aken et al: 2003: 3). As a group, we would like to interview several people and officials who have implemented TDR programs in their city or town, or who have extensive knowledge of TDR programs and their feasibility, especially in the state of Maine.

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Procedure:

We have identified eleven key informants to speak with us about the viability of TDR programs in Maine. Lucy will interview Mark Eyerman and Sarah Curran from Planning Decisions. Lucy will also interview Kara Wilbur, a consultant at TPUDC. Caroline will interview Evan Richert, a planner from Orono and Maureen O'Meara, a planner from Cape Elizabeth. Liz will interview Kevin Bunker from the Developers Collaborative and his partner Jim Hatch. Liz will also

interview Nathan Szanton a developer in the Lewiston area for the Szanton Company. Mark will interview Liz Hertz and Phil Carey from the Maine State Planning Office. Mark will also interview David Gailbraith, a planner from Gorham. Our interviews will be semi-structured, allowing for interviewees to express themselves outside the bounds of the questions asked. We will conduct these interviews over the phone or email. We will take notes or use the email correspondence for our data. We will obtain consent to the interview via an email agreement.

Consent Form:

The purpose of this interview is to better understand how transfer of development rights works within the community and developers to create effective preservation of land and development where necessary.

Your participation in this interview is completely voluntary and you can end the interview at any time. If over the phone we be taking notes, and if over email we will just use what you have sent us. No known negative effects will result from your participation in this interview.

The interview responses may be incorporated into an Environmental Studies capstone final project report at Bates College in Lewiston, Maine. The final report will be uploaded to a Bates server and may be made available to the Bates community and the broader public as well. Additionally, results from our final project will be presented to Lewiston City Council and Bates professors.

By agreeing to this interview we will respect your confidentially and not attach your name or organization to your comments without your permission to do.

If you have any questions, please direct them to Lucy Triedman (ltriedma@bates.edu), Caroline Caldwell (ccaldwel@bates.edu), Elizabeth Sangree (esangree@bates.edu) or Mark McCauley (mmccaule@bates.edu). You may also contact directly one of our instructors, Professor Pieck, at spieck@bates.edu

I have read the above information and have been informed of the use of this interview and by signing the line below, I agree to participate in the interview.

X_____

I agree to having my name and institutional affiliation used in connection with my comments.

X_____

Interview Questions:

Evan Richert- Orono Planner

1. In the available 1998 Orono Comprehensive Plan, the policies and strategies for land use seemed to want to maintain the status quo. Since developing your new comprehensive plan, have you noticed a change in your approach to urban planning and land conservation?
2. Have you considered implementing a TDR program? Why or why not?
3. Much of the land surrounding the Orono city center appears hydric (according to the Hydric and Prime Farmland Soils map), making it unsuitable for development. Do you incorporate the physical land topography into decisions about land allocation or development?
4. Do you think the lack of suitable ground for buildings immediately surrounding the city has contained most inhabitants to the land within the two mile radius from town mentioned in the 1998 comprehensive plan? Do you think this is an advantage or disadvantage in urban planning if your population continues to grow?

Maureen O-Meara- Cape Elizabeth planner

1. You have chosen to include a provision in the 2007 comprehensive plan that allows for the transfer of development rights. What are some reasons you decided to incorporate this approach into your zoning ordinances?
2. Has there been success in the TDR program since 2007? Was it easier or harder to get the farmers or developers involved?
3. Has the TDR program affected the Cape Elizabeth Land Trust in any way? Do you think that is a correlation between a successful land trust and a successful TDR program?
4. What do you think would occur if the number of sending and receiving sites are not able to keep up with each other? Or are there too many sending and receiving sites that this could not become an issue?
5. For the next comprehensive plan revision, do you think that a TDR program will continue to exist? Or is it specific to the development level and rural character of the city right now?

Liz Hertz and Phil Carey- Maine State Planning Office

1. How does the state planning office address the issue of urban renewal in Maine's former industrial metropolises?

2. What role does the state planning office play in encouraging or assisting in the implementation of TDR programs at the municipal level?
3. Are there certain types of TDR programs in Maine that have proved more successful than others?
4. By increasing incentives can a municipality create market demand where it didn't previously exist?

David Gailbraith- Gorham planner

1. How did Gorham first decide to implement a TDR program? What were the pressures to do so?
2. What successes or failures, or challenges, has Gorham's TDR program experienced since it was first implemented?
3. What role has community outreach played, if any, in Gorham's TDR program?
4. In terms of transfer of development fees, how does the town of Gorham go about using the money in this fund? What does this process look like?

Mark Eyerman- Planning Decisions

1. In your experience, how useful are Transfer of Development (TDR) programs in general? Given that it is Maine, where there is a large amount of open rural land, what are your thoughts on the necessity of a TDR program in Lewiston?
2. What do you think are key factors within a city that helps to make a successful TDR program?
3. What type of community input do you take while drafting comprehensive plans for cities? How much of a role do you feel the community should have in the planning process?

Sarah Curran- Planning Decisions

1. In your experience, how useful are Transfer of Development (TDR) programs in general? Given that it is Maine, where there is a large amount of open rural land, what are your thoughts on the necessity of a TDR program in Lewiston?
2. What do you think are key factors within a city that helps to make a successful TDR program?
3. What type of community input do you take while drafting comprehensive plans for cities? How much of a role do you feel the community should have in the planning process?

Kara Wilbur- consultant Town Planning and Urban Design Collaborative

1. Through your work on the Lewiston Comprehensive Plan what are the major issues you feel need to be addressed as the city rebuilds itself?
2. What do you see as the key pros and cons to implementing a Transfer of Development Rights (TDR) Program for the City of Lewiston?
3. What are your thoughts on having a TDR plan that allows for either the preservation of rural farmland or maintaining green space in downtown Lewiston? Do you have any other suggestions for what would make our plan most successful?
4. In your work on the Lewiston Comprehensive Plan and at TPU DC how do you balance your expertise and understanding of planning with the desires of the community? How much and what type of a role do you think community members should play in the development and implementation of a TDR program?

Kevin Bunker- Developers Collaborative

1. Tell me a little bit about the Developers Collaborative work in Lewiston, specifically Healy Terrace and Birch Hill Apartments. Were these projects successful, and, if so, do you believe TDRs could achieve the same success in building smart housing?
2. Do you believe that TDRs are an effective tool for creating smart growth in downtown Lewiston, not just for residential, but for creating green space, commercial space, etc?
3. How has your work with GrowSmart Maine influenced your opinion on TDRs and their applicability to modernizing Maine?
4. Do you believe TDRs are practical, or are they too immersed in paperwork and under-incentivized?

Jim Hatch- Developers Collaborative

1. Tell me a little bit about the Developers Collaborative work in Lewiston, specifically Healy Terrace and Birch Hill Apartments. Were these projects successful, and, if so, do you believe TDRs could achieve the same success in building smart housing?
2. Do you believe that TDRs are an effective tool for creating smart growth in downtown Lewiston, not just for residential, but for creating green space, commercial space, etc?
3. Much of your work with the Developers Collaborative has been in helping projects get passed through the financial, land use, and development aspects of the real estate process. Do you believe that navigating this process would be helped or impeded by TDR implementation?

4. A major criticism of TDRs are in how they can often silence the voices of under-represented downtown people in the developing process, as the loudest voices are often those on the outside trying to preserve green space. How could a TDR program in Lewiston successfully reach all sectors of the community, particularly those in the downtown regions?

Nathan Szanton- Szanton Company

1. Describe the process of creating the Lofts at Bates Mill in downtown Lewiston. Would TDRs have helped speed up or improve the process?
2. Do you believe that TDRs are an effective tool for creating smart growth in downtown Lewiston, not just for residential, but for creating green space, commercial space, etc?
3. Do you have any other projects planned for downtown Lewiston, and what do you believe is the feasibility of them?
4. A major criticism of TDRs are in how they can often silence the voices of under-represented downtown people in the developing process, as the loudest voices are often those on the outside trying to preserve green space. How could a TDR program in Lewiston successfully reach all sectors of the community, particularly those in the downtown regions?

II. Contact List

Name	Job Title	Organization/Affiliation	Phone Number	Email Address	Interviewed?	Date	Type
Evan Richert	Orono City Planner	City of Orono	207-570-1971	evanr@orono.org	Yes	11/18/2014	Phone
Maureen O'Meara	Cape Elizabeth Town Planner	Town of Cape Elizabeth	207-799-0115	maureen.omeara@capeelizabeth.org	Yes	11/20/2014	Phone
Mark Eyerman	President	Planning Decisions, Inc.	(207) 799-2226	meyerman@planningdecisions.com	Yes	11/21/2014	Email
Kara Wilbur	Director	Town Planning & Urban Design Collaborative	207-512-6047	kara@tpudc.com; karawilbur@yahoo.com	No	NA	NA
Nathan Szanton and Secretary	Developer, mills of Lewiston	Szanton Company	(207) 871-1661	nzanton@szantoncompany.org	Yes	11/23/2014	Phone
Kevin Bunker	Developer and Founder	Developers Collaborative	207.772.7673	bunker.kevin@gmail.com	Yes	12/3/2014	Phone
Jonathan LaBonte	Mayor of the City of Auburn	City of Auburn	207.333.6601 ext. 1216	jlabonte@auburnmaine.gov	No	NA	NA
Ed Barrett	City Administrator of Lewiston	City of Lewiston	Ph: (207) 513-3000 ext. 3200		Yes	12/3/2014	Phone
Phil Carey	Senior Planner	Department of Agriculture, Conservation and Forestry	(207) 287-3860	phil.carey@maine.gov	Yes	11/17/2014	Phone
Tom Poirier	Gorham City Planner	Town of Gorham	(207) 222-1620	tpoirier@gorham.me.us	Yes	12/3/2014	Phone
Jim Hatch	Developer	Developers Collaborative	207.772.7673	jinhatch212@gmail.com	No	NA	NA

Appendix B: Themes and Quotes from Interviews

FEASIBILITY OF PROGRAMS

A. MUNICIPAL VERSUS REGIONAL PROGRAMS

Mark Eyerman: I am not a big fan of local TDR programs - a municipal program that involves the open market buying and selling of development rights. My understanding is that many of the successful programs such as the Pinelands in NJ are regional programs and have some sort of development rights bank where property owners can sell their development rights and developers can buy rights. Some of the stuff I've read suggests that this type of intermediate trading mechanism is important and my sense is that a municipality is not likely to be able to create, finance, and operate such a trading system.

Evan Richert: In Maine it is hard for a TDR program to work because everything is organized at the town level, that's too small of space. Successful TDR programs happen at a county-level, with a lot more space, more developers, more people, more choices, etc. Or else it becomes an oligopoly!

Phil Carey: The idea of TDRs is a great one (conservation + smart development), but implementation and coordination of TDR programs at the municipal level is incredibly challenging and not as efficient as they could be

- i.e. home rule limits potential of TDRs
- County system used in other states is more efficient; creates regional networks rather than local ones
- Maine is historically a low density development state, meaning demand for higher density development has been low on average

B. MARKET/LOCAL DEMAND & WHAT DEVELOPERS ARE LOOKING FOR

Mark Eyerman: Again, my understanding is that a true TDR program really needs a pretty active real estate market to be successful - there have to be property owners looking to sell their rights and developers looking to buy them - it has to be a somewhat "liquid" market to be used. A developer is not going to spend a year or two trying to find a property owner willing to sell their rights or waiting for someone to sell rights to a development rights "bank".

The key in any development transfer program is having areas where higher density can be accommodated with the transfer or purchase of development rights. In Gorham, most of the overlay district has or can be served by public sewerage. Allowing higher density in conjunction with connecting to the sewer system makes sense.

In a pure TDR program, the concept is that a developer will buy the development rights directly from a property owner through a negotiated, open market price. So far that system to work, there needs to be property owners who are willing to sell their development rights when there is a developer who wants to buy them and there needs to be developers who want to buy rights when a property owner wants to sell them. In a sense there needs to be a fluid market with active buyers and sellers of rights. And some people have suggested that for a market pricing system to work, there probably needs to be multiple buyers and multiple sellers at any point in time to set a market price on the development rights. Having and maintaining that sort of liquidity in a development rights market in a single Maine community or even a regional program is extremely unlikely given the scale and amount of development that is occurring.

To work around this problem, some of the successful programs have created a middleman - a development rights bank or exchange that buys rights from willing sellers when they want to sell them and holds them until there are buyers who want to buy development rights. In this set-up there can be the need for an alternative mechanism to establish the value of development right.

In terms of Lewiston, I doubt that there is enough residential development activity to create an active market but I haven't looked at the rate of development there in recent years.

My sense is that the achilles heel of the development transfer concept is where higher density will be permitted via development rights transfer and to what extent. The cost of the transfer needs to make sense in terms of the developers pro forma. If they have to pay X to acquire the rights to build Y additional units, that cost needs to make sense in terms of the overall project. If you are in a transfer fee program, the amount of the fee has to work on both sides of the equation - it needs to work for the

developer and it needs to be enough to acquire rights from developable land. One of the things we struggle with is that conservation organizations often want to use the money to buy wetlands or buffers around wetlands or other protected land but that doesn't result in any transfer of development since that land cannot be developed. So the question in Lewiston is - are their developers that are willing to pay either a transfer fee or a fee for development rights to allow them to build at a higher density than the City's zoning would otherwise allow. If you can now build a maximum of say 20 units on the parcel, are you willing to pay a fee to be able to build say 24 or 30 or 40 units on the parcel. This only makes sense for the developer if the current zoning is capping the amount of development they can do and the transfer mechanism provides relief. But if development isn't utilizing all of the allowed density, there is no reason to buy rights. So understanding how the current zoning requirements relate to the density of development proposals is important - if the transfer doesn't give the developer something they can't get otherwise there is no incentive to pay.

Evan Richert: No one in Orono feels urgency to conserve farmland, because farming is dying out faster than developers buy the land due to economic downturn and lack of farming viability. No one feels urgency to protect forests because there's so much of it.

Developers want predictability, so TDR programs must be super specific

- o Fee systems work best
- o In general, there needs to be a SUBSTANTIAL density difference between rural and urban, from 20x to 100x more potential to build in urban areas and almost no potential to develop in rural areas, making residents in both areas super angry.

Phil Carey: Density may already not be maximized, so a TDR program would have little effect on that demand and would be ineffective

Ed Barrett: TDRs in Lewiston? Housing market not very strong, values relatively low. Difficult to envision buyers actually investing.

C. ADDITIONAL CONSIDERATIONS

Mark Eyerman: The areas where density may be increased need to be carefully chosen so that if projects are built at a higher density using development transfer, they have to be good projects - appropriate to the surroundings, appropriate access, suitable infrastructure, etc. A question that often comes up is if the higher density is appropriate with development transfer, why shouldn't it simply be allowed by right. That is a fair question. It needs to be paired with accomplishing another public purpose of protecting important resources. So the other side of the equation is being very clear what land will be protected - if it is a TDR program, which owners can sell their rights and if it is some type of fee program, what type of land and where will be purchased. Tying the protected land to other broader purposes may be helpful - for example if say there are water quality concerns with No Name Pond that argue for limiting development in that watershed, having a program that allows property owners to be compensated for not developing their land may be seen as important.

Ed Barrett: Clustered developments allowed in agriculture as part of TDR program, if applicable.

- Need high land values, stronger incentives, need stricter division to incentivize TDR loopholes

- Bangor→ cluster development. Cut road length in half, 600 feet as opposed to 1200 feet, if development is clustered to one shorter zone. leave open space beyond as an amenity to the denser neighborhood. problem: developers unwilling to break from this traditional pattern.

ALTERNATIVE PROGRAMS, ETC.

Mark Eyerman: We have used an alternative approach with a few Maine communities, which is a development transfer fee approach. In this model, the developer pays a fee to the municipality to buy additional density in designated areas. The community then puts the money into a fund that is used to buy open space in designated areas. The Town of Gorham has a Development Transfer Overlay District that covers the two villages and the corridor between them. A developer within the overlay district can pay the Town a per unit fee that allows them to build additional units beyond what they would be allowed to construct under the base zoning. If you haven't seen it, you can go online and find the Gorham ordinance that lays out how the system works. At least one subdivision has used the program and a couple of others have looked at it. Talk to Tom Poirier in Gorham. I think a development transfer fee model could be appropriate for Lewiston if they have areas where they are willing to see higher density development.

Phil Carey:

Growth Management Act → creates incentives for towns to reduce sprawl

Transfer of Development Fee charges people for increased density and then this money is used for conservation

Kevin Bunker: Downtown developers don't typically have other parcels under their control they can transfer things from. Now, a development fee transfer ordinance can mitigate that to some extent (Scarborough has one), but generally I think other tools are better suited for downtowns to achieve smart growth. Additional density bonuses for affordable housing and senior housing (like Topsham for example) are very useful, as well as calculations that permit a developer to count a one bedroom unit as half a unit, for example (Scarborough does this). Contract zone authorization is also a help when a project doesn't quite fit the ordinance (see Waterville, Portland, Biddeford, and many others). Finally, tools development tool a municipality has at its disposal.

Tom Poirier: Gorham has an overlay zone where bonus density can be purchased for roughly \$15,000 for an extra lot. Right now there are roughly \$100,000 in the fund. However, no easements have been purchased yet, so they will eventually have to propose a plan to the city on how money will be spent. It is also important to note that this program was very successful when real estate market was a little down, and now with things turning around there has been less bonus density purchased as development is shifting back to rural areas.

Evan Richert: Orono is implementing a version of a TDR program that will preserve vernal pools. Developers pay a fee because they have to destroy a vernal pool where they want to develop, and this fee goes towards saving another vernal pool. If they left the vernal pool where the development was going, the developer would have less space to build and the vernal pools ecosystem would die anyway because it needs to be connected to a wider

ecosystem. They turned this into citizen science projects and partnered with Umaine to find vernal pools

Ed Barrett: Allow densest possible development that's acceptable. allow undesired development zones ie environmentally nice areas to be left as open space/limited cluster development. best strategy for maine. Maine = stuck in the developmental pattern of the 1960s through 1980s. TDRs work on the West coast because forward thinking, open space, better infrastructure for it. Maine needs to adapt.

COMMUNITY INVOLVEMENT

Mark Eyerman: I think there are three answers to the public involvement question:

1. It is critical to involve rural landowners in areas where the program may want to preserve land to "educate" them and see if they are interested in selling their rights. My sense is that the sale of development rights is more likely when there may be a pending ownership transition such as aging property owners or when people think this is a good time to "cash in" on the development potential of their land. Conversely, if property owners are there for the long-term, they may not be interested in selling rights today if they think the value of their land and/or development rights will increase. In some ways, my experience is that many rural property owners view their land as an investment and if the return on holding their land is more than the return they can get by converting it to cash, they will hold onto it.
2. Similarly, the development community needs to think there is value in the program - that it may allow them to do something that they cannot otherwise do. So they need to be involved. This also includes the professionals who work for the landowners and developers.
3. The City Council needs to buy into the concept to pass the necessary ordinances. I don't know enough about Lewiston to comment on what you would need to do to get there but the areas where density will be increased need to be on board at least at a conceptual level.

Maureen O'Meara: Citizens are very active in land conservation, but this makes things hard too. They don't want land developed at all, negating a TDR program. They created a committee and have made it harder for policy makers because they work with the land trust to block a lot of development. They wanted to outline all sending areas, which is private land that would have to be discussed in a public town meetings, which made people really uncomfortable and back off of TDRs even more. Cape Elizabethans also dislike clustering, which is how TDRs would be implemented.